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Business environment constraints in the third decade of transition: calibrating the shadow costs of obstacles to business

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Summary

In this paper we use a new question in the BEEPS V round of business environment surveys conducted in 2012-14 to address the magnitude of the burden on firms arising from the environment in which they operate. For the first time, the survey of mainly small and medium-sized firms included a question asking managers to specify the predicted cost reduction that would accompany the elimination of a range of public good obstacles to their operation. We use these responses to calibrate the answers to questions asking for a qualitative assessment of obstacles on a scale from minor to very severe, which have been used in business environment surveys for over a decade.

Keywords: business environment, public goods, surveys, calibration, constraints on firm growth

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1. Introduction

Since the late 1990s, the EBRD and the World Bank have systematically surveyed large numbers of firms in many different countries, asking managers about the quality of the business environment in which they operate. The standard question asked of managers is "How much of an obstacle is X to the current operation of your business?", and the respondent rates the severity on a five-point scale of 0 (no obstacle) to 4 (very severe obstacle). The dimensions of the external environment questioned include the following: telecommunications, electricity, transport, skills availability, political instability, tax administration, customs administration, labour regulation, legal system, corruption and crime. The two most recent such surveys conducted by the EBRD were BEEPS IV, covering approximately 11,000 firms in 29 transition countries in 2008,[1] and BEEPS V, covering approximately 14,500 firms in the same 29 countries in 2012-14. The surveys cover primarily small and medium-sized firms, drawn from the manufacturing, construction and services sectors. Only registered firms with at least five employees were interviewed. Sample sizes for most countries are in the range of 270 to 360 firms, with a few larger countries, notably Russia, having larger samples.[2]

The survey results have been used by policy-makers to chart both progress and deterioration in the quality of the business environment. For example, the EBRD regularly reports the survey results in their *Transition Report*s. An overview of the EBRD's interpretation of the results of the BEEPS V survey for the transition region as a whole and for individual countries is published in *The Business Environment in the Transition Region*. Rankings of the answers about the severity of obstacles are used to draw conclusions for the region as a whole and for individual countries. An example of the former is the following: "Across the board, managers reported that they were most constrained by (i) unfair competition from the informal sector, (ii) limited access to credit and (iii) expensive or unreliable electricity supply." The responses of managers are taken as valid indicators of the severity of business environment problems and as guides for prioritising policy effort and for recognising improvements.

In the research literature, two lines of argument caution against a direct translation of the survey results into policy advice. Some authors are sceptical about using the severity scores from the surveys for policy advice because of the weak relationship between scores and firm performance in an estimated production function framework. Our previous work shows that the production function framework is not well-suited for the analysis of the survey data and that the weak results obtained from it should not be interpreted to suggest that the business environment is unimportant for firm performance. We suggest a more direct interpretation of these scores as valuations by firms of the business environment obstacles that they face. Our work nevertheless does not endorse a direct "reading off" of policy-relevant conclusions from the business environment obstacle scores.

In the first section of the paper, we briefly explain the competing arguments about the interpretation of the survey data. In the second section, we compare the results from BEEPS V with earlier surveys of firms from transition economies. We confirm that the new data are consistent with the stylised features of the earlier surveys, and with the altered

[1] The BEEPS surveys include Turkey, which we omit from the analysis here.

[2] Romania, Poland and Kazakhstan have approximately 500 firms each in both surveys, Ukraine 900 to 1,000, and Russia has 1,200 to 1,300 firms in BEEPS IV and over 4,000 firms in BEEPS V. See http://ebrd-beeps.com/methodology/sector-and-size-coverage/ for more details about the BEEPS sector and size coverage.

macroeconomic situation faced by firms when BEEPS V was in the field as compared with BEEPS IV. In the third section, we make use of the new survey questions that ask firms to quantify their anticipated cost reduction in the event that elements of the business environment that they viewed as problematic ceased to be obstacles. These questions allow us to calibrate the qualitative judgements of firms about the severity of the different business environment obstacles to their expansion. Lastly, we illustrate the calibration with an example from Russia by calculating the implied cost reduction likely to be achieved by firms if particular aspects of the business environment were to be improved.

2. Interpreting the business constraints survey data

A large empirical literature following Acemoglu et al. (2001) provides evidence that institutional quality matters for economic development, but these cross country studies are normally not very informative about which specific institutions are more important than others. The attraction of firm level data on the business environment is that they appear to greatly increase the sample size and therefore to make it possible to identify separately the effect of different institutions on growth when these variables are used to augment the explanatory variables in a production function. Commander and Svejnar (2011) and Commander and Nikoloski (2011) analyse transition economies and are the most relevant studies of this kind. The assumption in this work is that the business environment varies at the level of the firm and that this enables the researcher to get a handle on the effect of different aspects of the business environment on productivity by estimating a firm-level production function augmented by these indicators. However, as many of the papers using this approach make clear, effects on performance can only be estimated if there is a way of isolating the quality of such a firm-level micro business environment from the firm's characteristics.

A simple example illustrates the problems. It is plausible that a higher productivity firm will attract more attention from rent-seeking bureaucrats: a naïve regression of firm performance on the firm's report of the burden of business regulation would produce a positive estimate of the effect of bureaucratic attention on performance. The main research strategy adopted to get around this problem and uncover the effect of business regulation on firm performance separate from the effect of firm performance in attracting inspections has been to use the so-called "cell averages" approach. Instead of using the firm's own report of the burden of business regulation, the average reports of firms with similar characteristics (such as firm size, industry and location) is used.

However, the cell averages approach does not necessarily solve the problem of the endogeneity of the measure of the firm's micro business environment. The reason is that unobservable characteristics that raise the productivity of the firm in question will also tend to raise the productivity levels of the other firms in the cell (for example, a local demand or industry-specific shock will boost capacity utilisation and performance). This will tend to raise the prevalence of inspections, expenditure on abatement such as bribes and the seriousness of this element of the business environment reported by the firm. This is an example of Manski's (1993) "reflection problem" where a researcher tries to infer the impact of average behaviour in the group on the individuals comprising a group. As noted in Carlin et al. (2010), the econometric challenge in trying to tease apart differences in the institutional environment faced by firms in a single country while avoiding the problem of endogeneity is too much for the data to bear. And this may explain why the careful studies by Commander et al. that tried to do this found largely null results.

The essential problem is that the appearance of a large sample size is misleading: because all the firms in a country (or region) face the same set of institutions, the effective sample size is driven primarily by the number of countries rather than the number of firms.

In our previous work, we established a framework for interpreting the survey results that aimed to make use of the firm-level variation while recognising the essentially country-level nature of the elements of the business environment. Our interpretation rests on the claim that the business environment is external to the firm and hence common across firms. Think of the electricity grid or legal system (public "goods") or the prevalence of crime or corruption (a

public "bad"). Answers to the questions can then be read as providing an evaluation of the cost imposed on the firm by the available quantity and quality of the respective public good and we would expect it to vary according to characteristics of the firm.

The approach outlined here is set out in more detail in Carlin et al. (2006, 2010) and Carlin and Schaffer (2009, 2012), and has been applied to analysing the business environment in transition and developing economies by ourselves, the World Bank and the EBRD (Carlin et al. 2012; Mitra et al. 2010; EBRD 2010, World Bank 2012).

By contrast with the production function methodology, we take as our starting point that the business environment is external to the firm and that to an important extent, firms in a country share the same environment. We draw inferences about the role of the business environment by using the indicators as dependent rather than independent variables.

Specifically, we formulate predictions as to how a firm's response to its business environment in terms of its evaluation of the costs imposed on it by deficiencies in infrastructure and institutions vary with its characteristics, including its performance. When taken to the data, these predictions indicate, for example, whether it is the case that improvement in a particular element of the business environment is likely to benefit well- or poorly performing firms; and whether there are important differences between the constraints faced by internationally engaged firms as compared with those that are purely domestic in their inputs, markets and ownership.

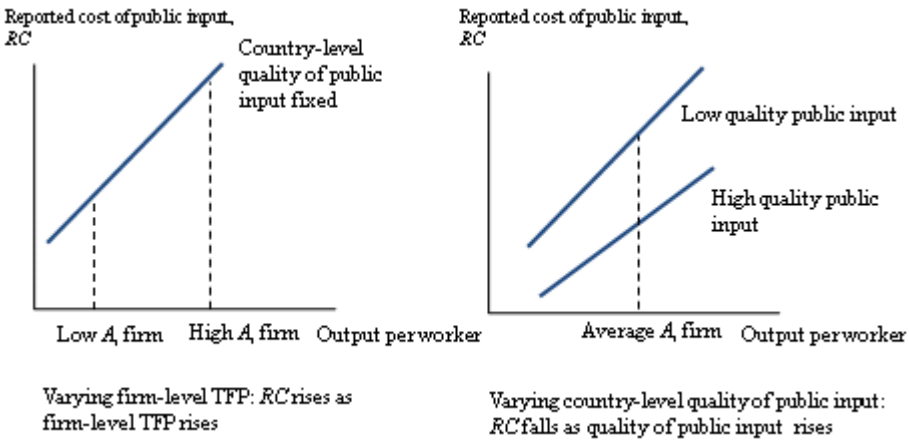
The key point here is that contrary to the way the survey responses are typically used in a policy context, the answers to the questions about the seriousness of obstacles imposed by the business environment are not estimates of the quality or quantity of a country-wide public input or even of the public input supplied to the firm in question; they are *valuations* of the public input. A simple and intuitive interpretation is that the "reported cost" RC_i to firm i of a public input is the gap between the firm's profit in the hypothetical situation where the public input provided is of such high quality that it poses a negligible obstacle to the firm's operations, and the firm's profit in reality, given the actual quality of public input provided.

These reported costs can be interpreted as the *shadow prices* of public inputs. Formally, we can think of the profit function π_{ij}^{*} as resulting from a constrained maximisation by the firm, where the public input $\bar{B}_j$ is supplied to the firm at a level or quality that means the firm would prefer a higher quality or more of it. (The full model can be found in the appendix.) By the envelope theorem for constrained maximisation, the derivative of the profit function π_{ij}^{*} with respect to a constrained or fixed input is simply the shadow price of the input.[3]

Chart 1 summarises the predicted relationship between A_i, firm-level total factor productivity (TFP, or another indicator of firm quality or productivity) and the reported cost of a public input constraint, RC_i. In the left hand panel, as TFP rises, the reported cost goes up. More productive firms incur higher costs from inadequate quality or quantity of their business environment. In the right hand panel, we see that holding the firm's TFP constant, an improvement in the quality of public inputs supplied at a country (or regional) level is associated with lower reported costs.

[3] More precisely, the reported costs in these surveys correspond to evaluations of discrete changes in the quality of public inputs faced by firms. The marginal analogue to these discrete changes is the shadow price of the public input. See Carlin et al. (2012).

Chart 1: Reported costs of public input constraints: variation with firm-level TFP (left panel) and country-level quality of the public input (right panel)



To bring this framework to the data, we relate the reported cost of public inputs by firms to firm characteristics. The choice of firm-level characteristics to define the benchmark firm and to vary for the within-country analysis is fairly straightforward. Size is a standard control, motivated, for instance, by the standard finding that firm size and firm productivity are positively correlated. We also include a measure of firm performance, namely whether or not the firm has expanded or reduced permanent employment in the previous three years (TFP or some other direct measure of A_{ij} for firm *i* in country *j* is not available). This allows us to test the basic prediction of the model that higher productivity firms report higher costs of public input constraints. International engagement is expected to be correlated with productivity and hence with higher constraints, with some possible exceptions where, for example, ownership by a foreign firm may enable firms to avoid reliance on or reduce the costs of a low-quality public input. By looking at how shadow prices of public inputs vary with firm characteristics, we can see whether there are any systematic differences between firms inside and outside transition.

Since we interpret answers to the business constraint questions as reported valuations or shadow costs of public good inputs, we need to restrict attention to public goods. In the BEEPS V survey, questions were asked about obstacles to the firm's operation and growth along the following dimensions: electricity, transport, telecommunications, customs, courts, tax administration, tax rates, business licensing, corruption, labour regulations, access to land, political instability, inadequately educated workforce, practices of competitors in the informal sector and access to finance. In our analysis, we exclude the questions about tax rates, informal sector competition and access to finance since these are not public goods and cannot be interpreted within the framework we establish.

3. BEEPS V – how do the results compare with the earlier surveys?

As reported in Carlin and Schaffer (2009), the business environment survey conducted on the eve of the financial crisis in 2008 (BEEPS IV) revealed the impact of a period of rapid growth in the 2000s – the legacy of communism of high endowments of physical infrastructure and skilled labour inputs that characterised the first decade and a half of transition – had disappeared by 2008. Strong economic growth appeared to have increased the cost to firms of weak market economy institutions, especially corruption.

We would expect that in the more challenging macroeconomic conditions following the financial crisis, where firms faced slower market growth, the bottlenecks from the supply side would be less salient. This shows up in lower reported costs of business environment constraints across the board. This pattern highlights the care needed in interpreting the data: lower reported constraints in 2012-14 do not imply that the business environment improved between the latest two rounds of the survey.

Table 1 shows the results for BEEPS IV and V. The scores reported in the table can be interpreted as the estimated reported cost for public input *k* in country *j* for a "benchmark firm" – a firm with a defined set of characteristics that is the same for every country. The benchmark firm here has 30 employees, is in manufacturing, has less than 10 per cent foreign ownership, is exporting less than 10 per cent of its sales, is not a direct importer of inputs, is privately owned (and not previously state-owned), is located in neither a big city nor a small town, and has no reported change in permanent employment in the previous three years.

Table 1: Average scores for business environment variables in BEEPS IV and BEEPS V

Obstacle	BEEPS IV	BEEPS V
Telecommunications	1.96	0.91
Electricity	2.02	1.16
Transport	1.33	1.06
Land	1.69	0.81
Political instability	1.93	1.22
Labour skills	2.09	1.23
Tax admin.	1.73	1.00
Labour regulation	1.06	0.60
Customs	1.13	0.66
Licensing	1.41	0.69
Courts	1.47	0.50
Corruption	2.01	1.35
Crime	1.57	0.62

Note: Scale is from 0 – "no obstacle" to 4 – "very severe obstacle" (for a benchmark firm).

When we look at how the reported costs vary with the control variables along with measures of firm employment growth, the patterns are similar to those seen in previous surveys (see Table 2). These patterns are informative because they suggest that if policies are successful in reducing the obstacles faced by firms then it is firms with particular characteristics that are likely to benefit more.

As our framework predicts:

- larger firms, which tend to have higher productivity, report more serious obstacles to their operations (true for electricity, transport, skills, labour regulation, customs, courts and crime in BEEPS V).
- as compared with firms that have not engaged in major adjustment in their scale of employment in the previous three years, expanding firms report more severe obstacles in transport, access to land, skills, tax administration and customs and trade regulations; and contracting firms, more severe obstacles in skills, tax administration, labour regulation, political instability, courts and corruption. These particular aspects of the business environment appear to be impeding the structural change characteristic of a well-functioning economy.
- exporting firms report more problems with customs.
- although the supply of business environment services would be expected to be lower in rural areas, it is firms based in big cities that report higher obstacles. In BEEPS V, this is the case for skills, customs and corruption.

Table 2: Firm characteristics, employment growth and business constraints

BEEPS IV											
	Size	Expanding	Contracting	Services	Con-struction	Privatised	State-owned	Foreign-owned	Exporter	Location: large city	Location: town
Telecoms	0.084*	0.075	-0.006	-0.167	-0.238	-0.111	0.027	0.018	0.083	0.146	0.102
Electricity	0.029	0.084	0.076	-0.098	-0.403*	-0.083	-0.068	-0.042	0.030	-0.043	-0.053
Transport	0.036*	0.134*	0.131*	0.124*	0.089	-0.013	-0.029	0.095	0.047	0.071	-0.000
Access to land	0.011	0.141*	0.129*	0.169*	0.200*	-0.173*	-0.277*	-0.071	-0.029	-0.219	-0.241*
Political instability	0.017	0.012	0.057	0.046	0.155*	-0.099*	-0.115	-0.077	0.112	0.254*	0.087
Workforce skills	0.101*	0.153*	0.197*	-0.076	0.111	-0.141*	-0.078	-0.062	0.115*	0.087	-0.026
Tax admin.	0.022	0.075*	0.111*	0.046	-0.068	-0.089	-0.071	-0.041	0.147*	0.021	0.027
Labour reg.	0.081*	0.092*	0.149*	0.026	-0.010	-0.121*	0.012	-0.032	0.060	-0.052	-0.019
Customs	0.058*	0.130*	0.040	0.056	-0.171*	-0.099*	-0.094	0.205*	0.312*	0.120	-0.120
Licensing and permits	0.035*	0.059	0.083	0.131*	0.137*	-0.140*	0.003	0.025	0.062	0.068	0.069
Courts	0.052*	0.008	0.137*	0.064	0.126*	-0.116*	-0.094	-0.008	0.111*	0.116	0.042
Corruption	-0.002	0.120*	0.157*	0.079	0.212*	-0.154*	-0.345*	-0.056	0.104*	0.160	0.038
Crime	0.006	0.081	0.102*	0.276*	0.189*	-0.034	0.184*	-0.050	-0.130*	0.104	0.055
BEEPS V											
	Size	Expanding	Contracting	Services	Construction	Privatised	State-owned	Foreign-owned	Exporter	Location: large city	Location: town
Telecoms	0.002	0.145*	0.106	0.088*	-0.074	-0.071	-0.092	0.070	0.047	0.048	-0.015
Electricity	0.045*	0.077	0.071	-0.126*	-0.392*	-0.133*	-0.381*	-0.051	-0.055	-0.013	0.003
Transport	0.046*	0.124*	0.103	-0.050*	-0.130	-0.099*	-0.188*	0.066	0.054	0.001	0.057
Access to land	0.022	0.068*	0.067	0.031	0.114*	-0.163*	-0.450*	-0.022	-0.033	-0.009	-0.032
Political instability	0.001	0.051	0.200*	0.078*	0.086*	0.005	-0.079	-0.073	0.043	0.097	-0.010
Workforce skills	0.116*	0.127*	0.165*	-0.053	-0.010	-0.108	-0.232*	-0.041	0.093*	0.128*	0.038
Tax admin.	0.009	0.086*	0.110*	0.034	0.046	-0.119*	-0.057	-0.124*	0.090*	0.023	0.023
Labour reg.	0.063*	0.058*	0.130*	0.009	-0.004	-0.084*	-0.163*	-0.076*	0.040	0.035	-0.011
Customs	0.046*	0.111*	0.070	0.022	-0.169*	-0.106*	-0.229*	0.116	0.339*	0.096*	0.027
Licensing	0.038	0.024	0.078	0.048*	0.181*	-0.027	-0.181*	-0.000	0.041	0.041	0.058

and permits											
Courts	0.064*	0.010	0.149*	0.025	0.057	0.005	-0.054	-0.019	0.033	0.021	-0.009
Corruption	0.003	0.014	0.152*	-0.028	0.171*	-0.054	-0.262	-0.077	0.034	0.210*	0.040
Crime	0.039*	0.026	0.072	0.198*	0.148*	-0.048	-0.080	-0.034	-0.103*	0.052	0.074

Notes: Size is measured as $\ln(\frac{L_i}{30})$, log employment relative to a firm of 30 employees. Expanding and contracting refer to firm employment. Large city is defined as a capital city or population greater than 1 million; small city is defined as population below 250,000; medium-sized city is defined as population of 250,000 to 1 million. State ownership is defined as state-ownership share of at least 50%; foreign ownership is defined as a foreign-ownership share of at least 10%; exporter is defined as an export share of at least 10%. Omitted employment growth category is no change in employment; omitted sector is manufacturing; omitted ownership category is *ab initio* private; omitted location category is a medium-sized city.

4. How much would a better business environment bring in cost reductions for firms?

An important innovation in the BEEPS V survey was to ask firms to quantify the impact of the removal of business environment constraints on their operations. The question was addressed to respondents who had rated the state of the element of the business environment as at least a minor obstacle for the firm. It was worded as follows: *Would this establishment's total annual costs increase, remain the same or decrease over the next fiscal year if electricity is no longer an obstacle?* If the answer was "decrease", they were then asked: "By what percentage would this establishment's total annual costs DECREASE in the next fiscal year?"

A substantial number of firms – about one-quarter of those answering that their costs would change – responded that their costs would increase if the obstacle were removed. We suspect that many of these respondees misunderstood the question and had in mind a loosening of the burden were the obstacle to be removed. The pattern in responses in relation to the "severity of obstacle" question is similar to those who responded that their costs would decrease, that is, the more severe the obstacle the larger the number reported. The share of these paradoxical responses decreases as the survey proceeds: in the first question asked, on electricity, the ratio of cost decrease:cost increase answers is about 2:1, whereas by the last question asked, on labour regulation, the ratio is about 5:1. An alternative explanation that may apply to the responses to the question about the corruption constraint is that bribes and the like can be used by firms to purchase services that in effect enable them to decrease their costs; but this explanation does not readily apply to the other seven obstacles we consider. In the analysis below we use only the "sensible" responses in which firms state that their costs would decrease.[4]

This quantification question was asked in relation to eight dimensions of the business environment: electricity, customs, courts, crime, tax administration, licensing, corruption and labour regulation. It corresponds directly, in our modelling framework, to the "reported cost" RC_i to firm i of a public input, except in a cost-minimisation rather than a profit-maximisation framework: it is the gap between the firm's costs in the hypothetical situation where the public input provided is of such high quality that it poses a negligible obstacle to the firm's operations, and the firm's costs in reality, given the actual quality of public input provided. [5]

In this section we use a simple regression framework to characterise the potential cost reductions reported by firms. We begin with the full dataset of approximately 14,500 BEEPS V firms, nearly all of whom responded to the eight questions asking them to characterise the obstacle on the five-point scale of "no obstacle" to "very severe obstacle". This gives us roughly 112,000 separate observations on dimensions of the business environment in which firms assess the scale of an obstacle. For the majority of those observations – 64 per cent – the constraint is assessed by the firm as "no obstacle". For the remaining 40,500 observations the firms were in principle able to respond to the questions which asked them to quantify the

[4] The estimated calibrations (not reported here) are similar if we make the extreme assumption that all the apparently paradoxical answers also refer to cost decreases.

[5] Firms were also asked to assess the impact of the removal of a ninth obstacle: inadequate workforce skills. For this obstacle, however, firms were asked to quantify the impact in terms of the impact on their sales rather than costs (because a decrease in this obstacle could be associated with a higher wage bill if firms substitute into high-skilled labour). In this paper we are interested in comparisons of quantifications across obstacles and so we do not make use of the data on this ninth obstacle.

obstacle. Missing observations and inclusion of only firms that stated their costs would decrease with the removal of the obstacle reduces the total available sample to roughly 14,500 observations from roughly 6,200 firms. These observations are spread across the eight obstacles and 28 countries; the exception is Azerbaijan, where only two firms responded, and we therefore drop Azerbaijan from this part of the exercise. The dataset thus consists of observations on the response of firm *i* in country *j* to a question about how much the firm's costs would decline if the obstacle to their operation caused by business environment dimension *k* was removed.

The dependent variable is $lcost_{ijk}$, the log percentage potential cost savings if the obstacle were completely removed:

$$lcost_{ijk} \equiv -100 \ln(1 - \frac{cost_{ijk}}{100}) \quad (1)$$

where $cost_{ijk}$ is the original, untransformed response of firms. Note that in this log transformation, $cost_{ijk}$ =0 (zero cost savings) means it is also the case that $lcost_{ijk}$ =0. The transformation also means that we drop the small number of firms (39) who responded that 100 per cent or more of their costs would be saved, leaving us with a final sample size of 14,395 observations from 6,218 firms. In the most basic, pooled version the regressors are dummy variables for the firm's reported severity of the obstacle: 1 – minor, 2 – moderate, 3 – major, 4 – very severe; no constant term is included. The coefficients on the dummies are therefore estimated mean effects. The estimating equation is therefore:

$$lcost_{ijk} = \beta_1 C_{1ijk} + \beta_2 C_{2ijk} + \beta_3 C_{3ijk} + \beta_4 C_{4ijk} + \varepsilon_{ijk} \quad (2)$$

where C_{1ijk} is a dummy variable equal to 1 if firm i in country j reported that constraint k was a "minor" obstacle, and similarly for C_{2ijk}, C_{3ijk} and C_{4ijk}.

Table 3 reports, for each of the eight constraints, the mean, minimum, median, 90th percentile and maximum of $lcost_{ijk}$ in the upper panel, and to ease interpretation, the corresponding values of $cost_{ijk}$ after the transformation is reversed. The distributions are broadly similar, with mean potential cost savings in the range of 10 to 20 per cent. Very large potential cost reductions are rare – the 90th percentiles are in the 20 to 30 per cent range – but in all cases at least one firm responded that virtually all costs would be saved (99 per cent) if the constraint were removed.

The natural interpretation of the response to the quantification is "*ceteris paribus*", that is, they are the firm's assessment of the potential cost savings holding everything else constant, including other constraints. This renders problematic any calculation of a total potential cost savings by cumulating responses regarding individual constraints, either additively or multiplicatively. A further complication is that 80 per cent of firms reporting potential cost savings did so for three or fewer constraints. For these reasons we focus our attention on separate constraints and on comparability across constraints rather than their total impact.

Before turning to the results, we first discuss several practical issues: (a) weighting; b) heterogeneity; (c) "cell sizes"; (d) controls and the "benchmark firm"; (e) the choice of covariance estimator.

Table 3: Estimated cost savings variable by obstacle

	Electricity	Customs	Courts	Crime	Tax admin.	Licensing and permits	Corruption	Labour reg.
***lcost*$_{ijk}$**								
Mean	13.1	14.6	14.3	11.0	15.4	16.8	20.1	12.7
Minimum	0	0	0	0	0	0	0	0
50th percentile	5.1	10.5	7.3	5.1	10.5	10.5	10.5	10.5
90th percentile	22.3	35.7	28.8	22.3	35.7	35.7	35.7	22.3
Maximum	460.5	460.5	460.5	460.5	460.5	460.5	460.5	460.5
***cost*$_{ijk}$**								
Mean	12.2	13.5	13.3	10.4	14.2	15.5	18.2	12.0
Minimum	0	0	0	0	0	0	0	0
50th percentile	5	10	7	5	10	10	10	10
90th percentile	20	30	25	20	30	30	30	20
Maximum	99	99	99	99	99	99	99	99
No. of observations	1,785	1,552	1,138	1,780	2,589	1,347	2,568	1,638

Note: Top panel – sample statistics for *lcost*$_{ijk}$ log cost savings variable as defined in text. Bottom panel –sample statistics for *lcost*$_{ijk}$ transformed into unlogged percentage cost savings *cost*$_{ijk}$.

As noted earlier, although there is a rough correspondence between survey size and country size, it is indeed very rough. For example, the numbers of firms in BEEPS V from the Czech Republic and Estonia are similar (approximately 250 to 270) even though the population of the former is roughly 8 times that of the latter; Ukraine's population is approximately 10 per cent higher than that of Poland but there are almost twice as many Ukrainian as Polish firms in the survey (approximately 1,000 versus approximately 540); and so on. The approach we take is to weight countries (28) and business environment dimensions (8) equally. Thus when we report the estimated cost saving from reducing a minor obstacle to a zero obstacle, this will represent an average cost saving in which all countries, and all dimensions, have an equal weighting.

By heterogeneity we mean that we will investigate how the estimated cost savings for a severity level varies across the 28 countries, across the eight business environment dimensions, and across up to 28*8=224 country-dimension combinations or "cells". In the regression analysis, we report the results from four different setups depending on how we pool and where heterogeneity is allowed:

> (1) pooled, that is, effects are constrained to be equal across countries and dimensions; (2) interactions between severity and dimensions, that is, effects are constrained to be equal across countries for a given business environment dimension; (3) interactions between severity and country, that is, effects are constrained to be equal across dimensions within a country;
> (4) interactions between severity, dimension and countries, that is, effects are unconstrained and can vary across dimensions in a given country and across countries in a given dimension.

As the number of interactions rises, a "cell sizes" problem emerges. The estimated effects are just means of $lcost_{ijk}$ for a given severity level (1, …, 4). Each estimated effect or coefficient is based on a number of firms; we refer to this as the "cell size". When the number of estimated effects is large, we encounter cases where there are no firms, or very few firms, for some combinations or "cells". Thus we have substantial numbers of firms in all the 4*8=32 cells when we interact between severity and dimension only. However, when we interact between severity, country and dimension, of the 4*8*28=896 cells, nearly 100 are empty and many others have fewer than 30 firms in them. A small cell means that the estimate for that cell will be based on few observations, that is, it will be imprecise. We discuss the implications of this at various points below.

The issue of controls is whether to include them, that is, should we report conditional or unconditional means. Our approach is to define a "benchmark firm" in the same way that we did above (30 employees, is in manufacturing, and so on). We then ask whether this benchmark firm differs in any important respect from the average firm in the sample; if it does not, then we have some justification for using unconditional means, that is, for excluding controls.

The last issue is the choice of covariance estimator. Because we are estimating "stacked" regressions, observations for individual firms appear multiple times, once for each obstacle. This makes it likely that there will be correlations across multiple observations on an individual firm. We address this by using the cluster-robust covariance estimator, where we cluster on firm.

Table 4 reports the estimation results for the fully pooled specification, where we constrain the estimated potential cost saving to be the same across business environment dimensions and across countries. Because firms appear multiple times in the data (once for each dimension) we use a cluster-robust covariance estimator, clustering on firm.

As expected, the scale of the obstacle shows a monotonic relationship with the size of the potential cost saving were it to be removed. Full removal of "minor", "moderate", "major", and "very severe" obstacles would, in the view of the respondents, lead to cost reductions of about 7 per cent, 10 per cent, 17 per cent and 23 per cent, respectively. Standard errors and confidence intervals are clustered by firm. Because the benchmark that is used in the question is complete removal of the obstacle – in our model, from $\bar{B}$ to $\bar{\bar{B}}$, these correspond to estimates of the average "reported cost" *R*.

Table 4: Pooled estimation, estimated cost savings from removal of obstacle

	Coefficient	Standard error	P-value	95 per cent confidence interval
Minor	7.01	0.37	0.00	[6.30, 7.23]
Moderate	10.25	0.30	0.00	[9.66, 10.85]
Major	16.74	0.71	0.00	[15.35, 18.13]
Very severe	23.31	1.40	0.00	[20.56, 26.05]

Note: Number of observations = 14,395. Number of clusters (firms) = 6,218. SEs and tests are cluster-robust.

Table 5 reports the results allowing for heterogeneity either across business environment dimensions or across countries. Each row reports 95 per cent cluster-robust confidence intervals for the estimated cost savings for a given severity level. Looking at the first panel "By business environment dimension", a striking feature of the results is their consistency. The relationship between the severity of the reported constraint and the cost reduction anticipated is generally monotonic. For example, for corruption, firms that rated the situation as a minor obstacle forecast an annual cost reduction of between 5.6 and 7.65 per cent; a moderate obstacle, 10.9 and 16.0 per cent, a major obstacle, 16.7 and 21.6 per cent, and between 20.4 and 26.0 per cent for a very severe obstacle. The heterogeneity in estimated cost reductions across constraints is modest, suggesting that firms are using a consistent scaling when asked the same question for different constraints.

In the second panel "By country", the problem of small cell size is evident for some countries. Once again, the relationship between estimated cost saving and severity of constraint is monotonically increasing in almost all cases. Because the sample sizes by country are smaller than by constraint, however, the by-country estimates are less precise than the by-constraint estimates, with wider and often overlapping confidence intervals.

We do not report regression results for the fully interacted version where we allow estimated effects to vary because of the large number of results and because of the "small cells" problem. We do, however, use this specification for two purposes: examining controls and the "benchmark firm", and testing heterogeneity.

Table 6 reports the results of the fully interacted model where we also include interactions between our control variables and the reported constraint severity. We do not impose the minimum cell size requirement because we are not directly interested in the estimated coefficients. Of the 4*7=28 interaction effects, firm size interacted with constraint severity and state ownership interacted with minor constraint severity, are statistically significantly different from zero at the 5 per cent significance level. The estimated size-severity effects are economically not very important. Except for the imprecisely estimated interaction with "very severe", the estimated coefficient is about -1, which means that compared with a benchmark

firm of 30 employees (the size variable is defined as $\ln(\frac{L_i}{30})$), a firm with 40 employees would report a cost of a minor or moderate obstacle to be only about 0.3 percentage points lower than an average firm. We conclude that we are unlikely to lose much by excluding controls in the analysis.

Table 5: Allowing for heterogeneity across constraints and countries (estimated cost savings from removal of obstacle: 95 per cent confidence intervals)

	By business environment dimension:							
	Electricity	Customs	Courts	Crime	Tax admin.	Licensing	Corruption	Labour reg.
Minor	[3.8, 5.2]	[5.5, 10.0]	[4.2, 7.4]	[3.6, 6.8]	[7.3, 10.5]	[4.6, 10.4]	[5.6, 7.6]	[7.6, 10.5]
Moderate	[7.8, 12.1]	[8.8, 11.0]	[7.8, 10.5]	[5.9, 7.8]	[10.2, 12.2]	[9.5, 12.8]	[10.9, 16.0]	[9.0, 11.3]
Major	[10.3, 18.5]	[13.9, 22.0]	[12.8, 18.3]	[9.3, 14.9]	[15.0, 18.7]	[14.1, 26.0]	[16.7, 21.6]	[12.7, 21.7]
Very severe	[15.7, 31.2]	[17.0, 25.5]	[19.0, 40.2]	[12.9, 26.9]	[17.8, 22.9]	[15.9, 36.4]	[20.4, 26.0]	[15.9, 26.1]
	By country:							
	Albania	Belarus	Georgia	Tajikistan	Ukraine	Uzbekistan	Russia	Poland
Minor	[6.9, 19.7]	[6.7, 9.1]	[5.0, 11.6]	[3.3, 7.3]	[4.9, 8.6]	[7.0, 17.8]	[8.2, 11.7]	[-0.1, 17.3]
Moderate	[4.4, 8.4]	[9.4, 12.5]	[5.5, 9.7]	[8.9, 16.2]	[8.6, 11.8]	[5.2, 21.6]	[11.0, 14.1]	[7.4, 10.9]
Major	[11.3, 18.6]	[14.0, 19.2]	[12.0, 26.7]	[16.4, 39.9]	[9.7, 20.8]	[5.6, 48.7]	[20.4, 29.2]	[9.1, 17.3]
Very severe	[10.2, 24.3]	[9.1, 17.1]	[10.2, 49.6]	[6.7, 43.9]	[13.0, 28.3]	[0.2, 5.9]	[28.0, 39.7]	[14.8, 43.4]
	Romania	Serbia	Kazakhstan	Moldova	Bosnia and Herz.	Azerbaijan	FYR Macedonia	Armenia
Minor	[3.1, 4.6]	[4.2, 6.2]	[4.8, 10.2]	[1.8, 8.3]	[3.5, 5.1]	[., .]	[6.8, 11.3]	[0.2, 17.0]
Moderate	[7.3, 13.0]	[7.9, 11.1]	[7.3, 12.8]	[5.6, 15.3]	[7.8, 10.5]	[., .]	[11.2, 15.9]	[4.4, 9.7]
Major	[12.0, 18.6]	[12.6, 18.3]	[11.4, 16.7]	[11.8, 21.6]	[10.3, 16.4]	[., .]	[16.9, 24.0]	[5.2, 14.8]
Very severe	[15.6, 22.0]	[12.1, 21.4]	[13.0, 33.1]	[2.0, 95.5]	[13.9, 25.0]	[., .]	[20.4, 34.6]	[8.0, 17.4]
	Kyrgyz Rep.	Mongolia	Estonia	Kosovo	Czech Rep.	Hungary	Latvia	Lithuania
Minor	[6.0, 11.5]	[5.9, 12.4]	[2.6, 9.3]	[5.4, 10.8]	[3.2, 5.8]	[2.0, 8.1]	[2.1, 17.3]	[3.7, 10.8]
Moderate	[6.8, 13.8]	[9.7, 17.1]	[7.5, 14.0]	[10.6, 17.0]	[6.3, 9.4]	[6.8, 18.8]	[7.9, 14.9]	[5.4, 14.0]
Major	[11.2, 29.9]	[8.8, 17.5]	[-1.5, 31.0]	[14.3, 19.9]	[9.3, 16.0]	[8.0, 18.5]	[9.3, 18.1]	[5.7, 26.0]
Very severe	[10.2, 16.9]	[9.1, 64.1]	[-5.4, 56.9]	[18.7, 29.3]	[10.1, 17.6]	[11.8, 28.7]	[8.0, 29.1]	[16.7, 66.2]
	Slovak Rep.	Slovenia	Bulgaria	Croatia	Montenegro			
Minor	[4.1, 9.5]	[3.9, 6.3]	[4.3, 6.9]	[3.9, 5.8]	[4.1, 7.4]			
Moderate	[6.6, 10.2]	[5.1, 7.0]	[8.6, 11.8]	[9.3, 12.5]	[4.9, 11.5]			
Major	[12.5, 22.3]	[9.4, 18.5]	[12.0, 22.7]	[13.4, 19.6]	[3.1, 21.7]			
Very severe	[12.3, 46.4]	[6.1, 14.1]	[14.2, 29.5]	[17.5, 32.5]	[15.1, 40.8]			

Table 6: Controls and the "benchmark firm"

	Coeff.	SE	P-value		Coeff.	SE	P-value
Log size x severity				Large city x severity			
Minor	-0.65	0.20	0.00	Minor	-3.31	2.06	0.11
Moderate	-1.14	0.20	0.00	Moderate	-0.66	1.00	0.51
Major	-1.38	0.52	0.01	Major	-2.30	2.65	0.39
Very severe	-3.42	1.74	0.05	Very severe	-3.02	6.36	0.63
Services x severity				Town x severity			
Minor	0.04	0.67	0.95	Minor	-3.56	2.24	0.11
Moderate	-0.82	0.54	0.13	Moderate	-1.09	1.02	0.28
Major	-0.45	1.18	0.70	Major	-2.54	2.63	0.34
Very severe	0.20	2.53	0.94	Very severe	-3.42	6.51	0.60
Construction x severity				State-owned x severity			
Minor	0.72	1.01	0.71	Minor	4.68	1.69	2.77
Moderate	-0.80	0.91	-0.88	Moderate	3.18	3.76	0.85
Major	-0.00	1.64	-0.00	Major	4.55	3.34	1.36
Very severe	-1.74	2.99	-0.58	Very severe	2.82	5.15	0.55
				Privatised x severity			
				Minor	-0.88	0.76	0.25
				Moderate	-0.61	0.69	0.38
				Major	1.80	1.82	0.32
				Very severe	12.95	7.50	0.08

Note: Number of observations = 14,289. Number of clusters (firms) = 6,162. SEs and tests are cluster-robust. Regressions include country-constraint-severity interactions.

We now turn to formal testing for heterogeneity. We use LM (Lagrange multiplier) tests of a constrained model (without heterogeneity) versus the corresponding unconstrained model. We employ five different tests: (1) a full set of country and dimension interactions versus the pooled model; (2) country interactions versus pooled; (3) dimension interactions versus pooled; (4) country and dimension interactions versus country only (that is, dimensions constrained to have the same effects); (5) country and dimension interactions versus dimensions only (that is, countries constrained to have the same effects). In all cases we use the cluster-robust covariance estimator; to avoid rank and related problems arising when using the cluster-robust covariance estimator together with very small cells, we report tests where we impose a minimum country-constraint-obstacle cell size of either five or 30. The results are reported in Table 7. In all cases we decisively reject the hypothesis of no or less heterogeneity.

Table 7: Heterogeneity tests

	Minimum cell size = 4 N=13,806			Minimum cell size = 30 N=7,468		
Test of heterogeneity:	Number of constraints	χ2 test	p-value	Number of constraints	χ2 test	p-value
All vs. none	585	1,129	0.000	97	409	0.000
Country vs. none	101	313	0.000	33	217	0.000
Dimension vs. none	28	201	0.000	27	132	0.000
All vs. country	484	874	0.000	64	206	0.000
All vs. dimension	557	961	0.000	70	283	0.000

Rejecting pooling is not surprising in this context. With enough data, a null hypothesis of homogeneous effects will be rejected unless the null hypothesis – all countries and/or dimensions have the same cost reduction for a given level of severity – is exactly true, and indeed we have the benefit of working with a large dataset.

This motivates a graphical approach to examining the heterogeneity in the estimated effects. What we do now is take the estimated coefficients from these regressions and report their distributions graphically. This allows a straightforward, informal but practical, assessment of the scale of heterogeneity across countries and across business environment dimensions. We first report the estimated coefficients across the eight different dimensions and 28 different countries, when we have no "small cell size problem". These are shown below in Charts 2 and 3. We then report the estimated coefficients across 28 different countries and eight different dimensions, both for the full dataset (Chart 4a) and where we impose a minimum cell size of 30 (Chart 4b).

The graphical approach highlights that although there is less heterogeneity in relation to the minor and moderate obstacles than in relation to the severe and very severe obstacles, it is still fairly substantial. Thus for the fully interacted case with a minimum cell size of 30 (shown in Chart 4b), three-quarters of the estimated impacts of a minor obstacle are between 4 and 9 per cent, and for a moderate obstacle the range is 6 and 13 per cent. This increases to 11 to 20 per cent for severe and 13 to 28 per cent for very severe obstacles, respectively. This heterogeneity across country and constraints points to the need for considerable caution when doing calibrations.

Chart 2: Estimated cost reductions by constraint

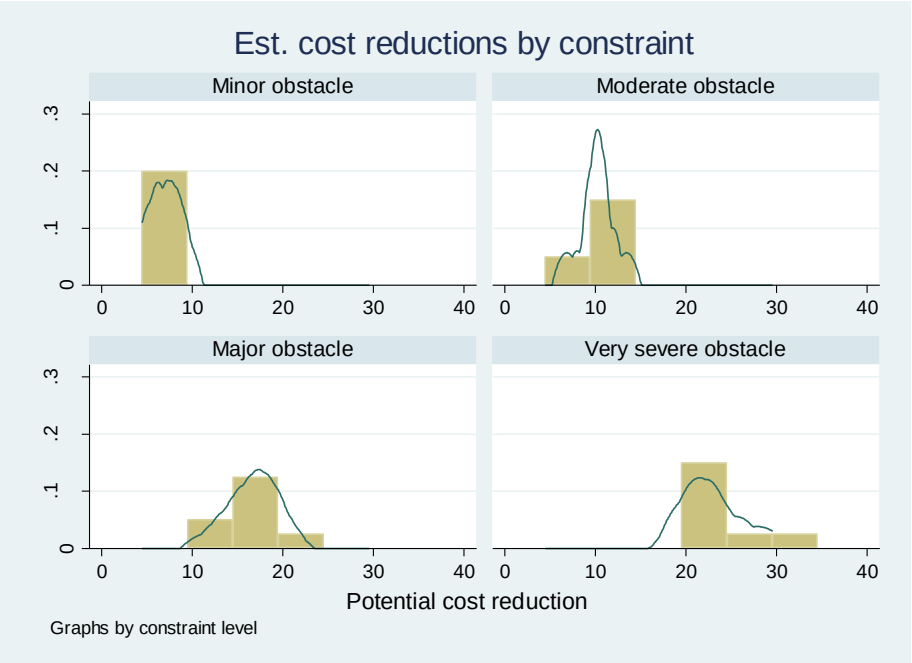


Chart 3: Estimated cost reductions by country

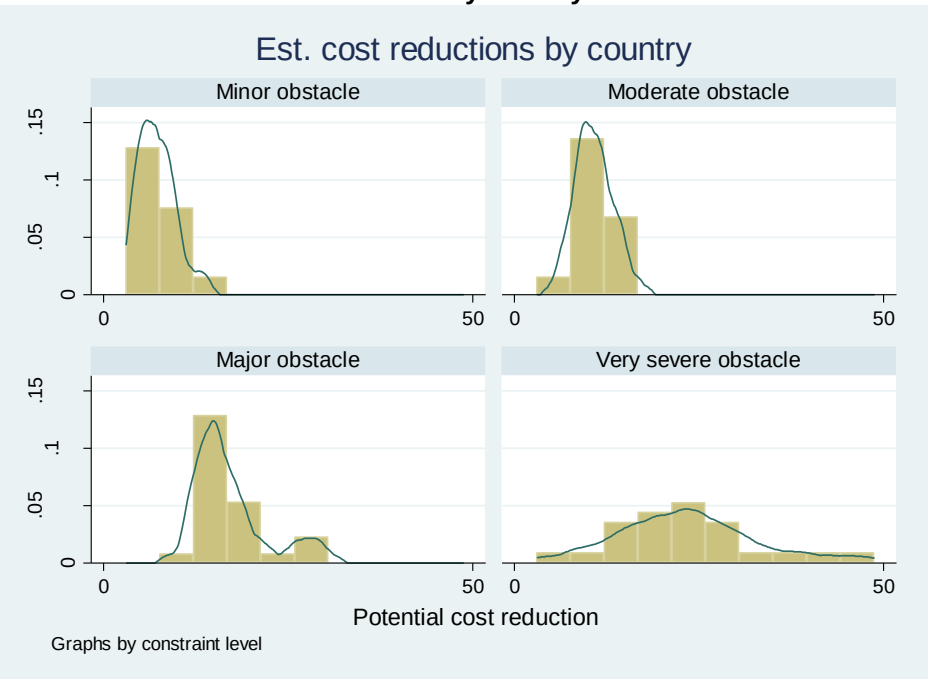
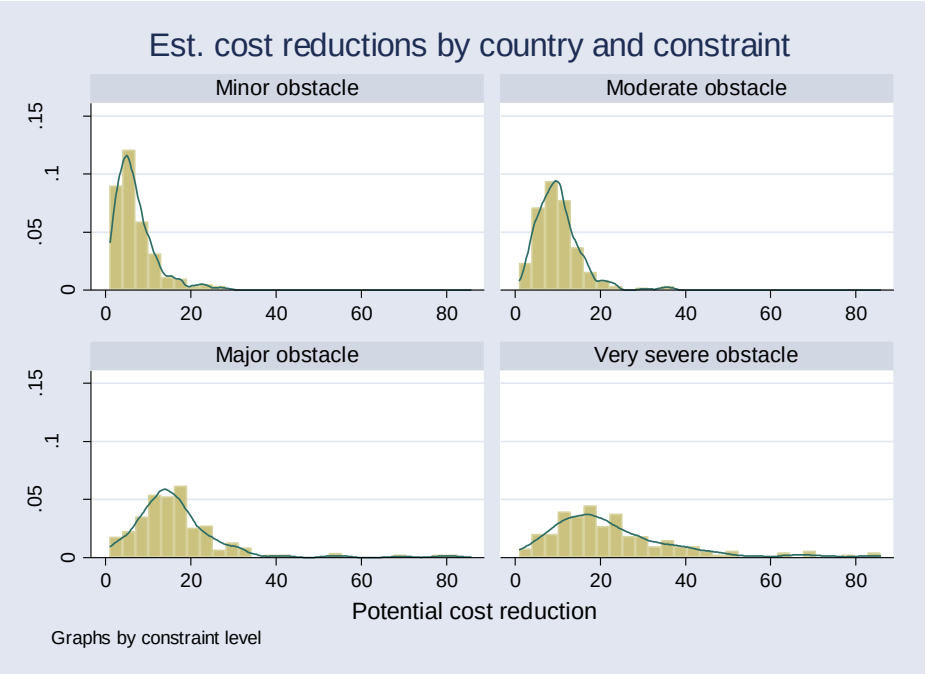
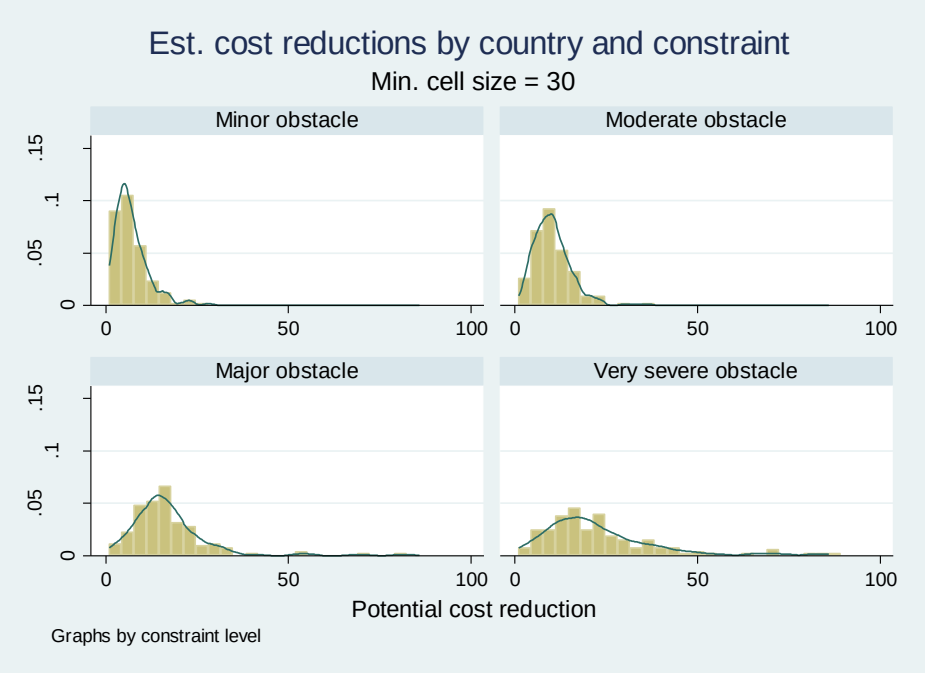


Chart 4: Estimated cost reductions by country and constraint
Panel A: No restrictions on minimum cell size



Panel B: Minimum cell size restricted to 30 observations



5. Using the calibration

In this section we use the calibration to calculate the impact of the various business environment constraints. We also estimate the total impact of each constraint by country, which enables us to rank constraints within countries and rank countries across constraints. These estimates of impacts take account of sampling variation and come with confidence intervals, and we also show how these estimates vary depending on which set of calibration coefficients is used.

We start with an example and apply the calibrations from various estimations to the electricity constraint for Russia, where the sample size is the largest (4,400 non-zero responses on costs of constraints, and 32,000 total responses on all obstacles including those assessed to be zero obstacles). Four variations are shown in Table 8 using the calibrations based on, respectively, the estimated cost reductions from the pooled, electricity (dimension interactions), Russia (country interactions) and "electricity-Russia" (dimension-country interactions) regressions.

For each of these variants we take the estimated cost reduction for each degree of severity (from minor to very severe) and apply it to the distribution of severity reported by Russian firms for electricity. The dependent variable in the estimation equation (2) is log-transformed costs, and so we reverse the transformation and report costs savings in standard percentage terms. Fifty-four per cent of firms report that electricity poses no obstacle to their operation. The remainder of firms are spread fairly evenly across the four degrees of severity.

The dependent variable in the estimations is a log transformation (see above) so we recover the estimated cost in standard percentage terms before aggregating. The weighted mean estimated cost reduction in Russia if electricity ceased to be an obstacle would be 5.2 per cent using the calibration based on the responses from firms in Russia about electricity. A very similar estimate (5.4 per cent) arises when the calibration based on responses about electricity for the full sample of countries is used. When the calibration is based on responses from Russian firms about all constraints, the estimate is larger: 8.3 per cent, highlighting the fact that in Russia, and in other countries, the potential cost savings associated with the electricity obstacle are somewhat lower than they are for the other dimensions of the business environment (compare the "electricity" versus "pooled" and "Russia" columns in Table 8). Lastly, when the calibration is based on responses in the entire sample pooling across countries and constraints, the estimated total cost reduction would be 6.0 per cent.

It is useful to compare this estimated potential cost saving to the estimated losses firms report from power cuts. The BEEPS survey asks firms whether they have experienced power cuts in the preceding 12 months, and if so, to quantify the resulting lost sales if any. In BEEPS V, 36 per cent of all firms, and 29 per cent of Russian firms, reported experiencing a power cut. Of those experiencing a power cut, both in the full sample and in the Russia subsample, about half reported lost sales as a result. The scale of sales lost as a result of power cuts is about 3.6 per cent of sales in the full sample and 3.1 per cent of sales in Russian firms, but this figure refers only to firms experiencing power cuts (and who provided a response to the question). There is a clear correlation between electricity as a business environment obstacle and experiencing power cuts: the mean lost sales for the sample as a whole by the severity of the obstacle (0, …, 4) is 1 per cent, 2 per cent, 5 per cent, 6 per cent and 8 per cent of sales, respectively.

If we weight by the share of firms experiencing power cuts, we find that the overall lost sales from power cuts is approximately 1.3 per cent of sales for the sample as a whole, and about

0.9 per cent of sales for Russia. This is considerably lower than the 5-8 per cent estimated potential cost savings from eliminating electricity as an obstacle that we calculated above.

Table 8: Quantifying the cost reductions obtainable if business environment obstacles relating to electricity are removed

Russia, BEEPS V		POOLED		ELECTRICITY		RUSSIA		ELECTRICITY-RUSSIA	
Electricity:	Per cent	Coefficient	Cost reduction	Coefficient	Cost reduction	Coefficient	Cost reduction	Coefficient	Cost reduction
No obstacle	54.26	0	0.00	0	0.00	0	0.00	0	0.00
Minor obstacle	12.36	7.01	0.84	4.46	0.54	9.97	1.17	5.77	0.69
Moderate obstacle	9.42	10.25	0.92	9.97	0.89	12.54	1.11	8.32	0.75
Major obstacle	13.37	16.74	2.06	14.43	1.80	24.83	2.94	11.89	1.50
Very severe obstacle	10.59	23.31	2.20	23.43	2.21	33.84	3.04	24.11	2.27
Total	100		6.02		5.44		8.26		5.21

The model referred to in Section 1 framed the reported cost of the constraint in terms of the gain in profit from its removal. The survey question implicitly assumes a fixed output cost-minimising model. The implication is that the shadow cost of the public good constraint would be even larger if output can also be varied, that is, our estimated potential cost savings is a lower bound. Taking the Russia electricity case as an example, this suggests that total gains from removing electricity as an obstacle for firms would be greater than indicated by the calibration. Before the availability of the cost reduction data, it was only possible to infer that the total gain from the removal of obstacles was likely to be greater than just the lost sales from power cuts. The calibration exercise suggests that the estimate based on lost sales due to power cuts substantially understates the total cost of electricity as an obstacle to business in Russia, specifically by a factor of roughly 5 to 10 times.

The cost reduction estimates from the calibration are only estimates; we reported the confidence intervals and standard errors above. This source of sampling variation also carries over into the estimates of the total potential cost saving from removing the electricity or any other obstacle. Another source of sampling variation is in the shares of firms reporting "no obstacle" through "very severe obstacle". By accounting for both sources of sampling variation, we can construct confidence intervals for the estimated potential total cost savings by country and obstacle. We take a very simple approach to this and combine the calibration equation (2) with the estimated sample means of the shares of firms by country and obstacle reporting "minor constraint" S_{1jk} through "very severe constraint" S_{4jk} using the full sample; the covariance matrix is again cluster-robust to take account of the multiple responses by firms within individual equations and across the two equations.[6] Again we reverse the log transformation in order to be able to obtain cumulative potential cost savings, and so the delta method is used to obtain standard errors and confidence intervals.

As shown in Table 9; we report 95 per cent confidence intervals along with the point estimates. Three variants are reported, depending on the calibration: pooled, constraint-specific coefficients (pooled countries) and country-specific coefficients (pooled constraints). We do not report estimates based on the fully interacted calibration because of the small sample sizes involved for many country-constraint combinations. Table 9a reports the results organised by country; Table 9b, by constraint. The results allow for straightforward comparisons within and across countries, taking into account the degree of precision of the estimations. Table 9a shows, for example, that corruption is perceived by Russian firms to be a substantial obstacle, and clearly more so than for most other obstacles, with point estimates of the total cost impact of 7 to 10 per cent and fairly narrow confidence intervals of 1 to 3 percentage points. Electricity is also a substantial obstacle, whereas courts and labour regulations are estimated to present relatively small obstacles (total cost impacts of about 3 to 4 per cent, and confidence interval widths of about 1 percentage point). Table 9b shows that the impact of the electricity obstacle on Russian firms is roughly in the middle of the distribution across countries for both constraints; the country where the electricity constraint is reported to be particularly costly is Kosovo, with an estimated total cost impact of 10 to 12 per cent depending on the calibration used, and again fairly narrow confidence intervals of 2 to 4 percentage points.

[6] More efficient estimates could be obtained, for example, by SURE-type estimation, but we do not pursue this here.

Table 9a: 95 per cent confidence intervals for estimated total potential cost savings, by country

Constraint	Country	Pooled CI	Constraint CI	Country CI
Electricity	Albania	[6.1 6.4 6.7]	[5.0 5.7 6.5]	[2.8 6.0 9.2]
Customs	Albania	[1.7 1.8 1.9]	[1.6 1.9 2.1]	[0.6 1.9 3.2]
Courts	Albania	[1.1 1.2 1.3]	[1.0 1.1 1.2]	[0.4 1.3 2.3]
Crime	Albania	[2.0 2.2 2.3]	[1.4 1.6 1.8]	[0.9 2.2 3.6]
Tax admin.	Albania	[5.4 5.7 6.0]	[5.8 6.2 6.6]	[2.4 5.5 8.7]
Licensing	Albania	[1.6 1.7 1.8]	[1.6 1.9 2.2]	[0.6 1.8 2.9]
Corruption	Albania	[5.7 6.0 6.3]	[6.1 6.7 7.2]	[2.5 5.6 8.8]
Labour reg.	Albania	[1.3 1.4 1.5]	[1.4 1.5 1.7]	[0.4 1.5 2.6]
Electricity	Belarus	[3.6 3.8 4.1]	[2.9 3.4 3.8]	[2.9 3.5 4.1]
Customs	Belarus	[3.1 3.3 3.5]	[3.0 3.4 3.8]	[2.8 3.3 3.8]
Courts	Belarus	[1.4 1.5 1.6]	[1.2 1.4 1.5]	[1.3 1.6 1.8]
Crime	Belarus	[3.2 3.4 3.6]	[2.2 2.5 2.9]	[2.9 3.4 4.0]
Tax admin.	Belarus	[2.8 3.0 3.1]	[3.0 3.3 3.6]	[2.6 3.1 3.6]
Licensing	Belarus	[2.3 2.5 2.6]	[2.3 2.7 3.2]	[2.0 2.4 2.8]
Corruption	Belarus	[3.5 3.7 3.9]	[3.7 4.1 4.4]	[3.0 3.6 4.2]
Labour reg.	Belarus	[2.6 2.8 3.0]	[2.8 3.1 3.4]	[2.5 2.9 3.4]
Electricity	Georgia	[5.0 5.3 5.5]	[4.0 4.7 5.4]	[-1.3 5.8 12.9]
Customs	Georgia	[1.1 1.2 1.3]	[1.0 1.2 1.4]	[0.0 1.3 2.6]
Courts	Georgia	[0.6 0.7 0.8]	[0.6 0.7 0.8]	[-0.3 0.8 1.8]
Crime	Georgia	[1.3 1.5 1.6]	[0.9 1.1 1.3]	[-0.5 1.6 3.6]
Tax admin.	Georgia	[1.9 2.0 2.1]	[2.0 2.2 2.3]	[0.0 2.0 4.1]
Licensing	Georgia	[0.1 0.1 0.1]	[0.1 0.1 0.2]	[0.0 0.1 0.3]
Corruption	Georgia	[1.2 1.3 1.4]	[1.3 1.4 1.6]	[-0.2 1.4 3.0]
Labour reg.	Georgia	[0.6 0.6 0.7]	[0.6 0.7 0.8]	[0.0 0.7 1.4]
Electricity	Tajikistan	[6.9 7.3 7.7]	[5.7 6.7 7.6]	[2.5 8.9 15.4]
Customs	Tajikistan	[3.1 3.3 3.5]	[3.0 3.4 3.8]	[1.8 4.3 6.7]
Courts	Tajikistan	[1.4 1.5 1.6]	[1.2 1.4 1.5]	[0.8 1.9 3.0]
Crime	Tajikistan	[2.2 2.4 2.6]	[1.6 1.8 2.1]	[0.9 2.9 4.9]
Tax admin.	Tajikistan	[7.0 7.3 7.7]	[7.0 7.4 7.9]	[2.9 9.4 16.0]
Licensing	Tajikistan	[2.8 2.9 3.1]	[2.8 3.3 3.8]	[1.3 3.6 5.9]
Corruption	Tajikistan	[5.2 5.6 5.9]	[5.6 6.0 6.5]	[1.8 6.9 12.0]
Labour reg.	Tajikistan	[1.3 1.4 1.5]	[1.3 1.5 1.6]	[0.7 1.7 2.7]
Electricity	Ukraine	[3.1 3.2 3.4]	[2.4 2.8 3.2]	[2.0 3.1 4.1]
Customs	Ukraine	[2.8 2.9 3.0]	[2.7 3.0 3.3]	[1.9 2.8 3.6]
Courts	Ukraine	[2.5 2.6 2.8]	[2.2 2.4 2.7]	[1.8 2.5 3.3]
Crime	Ukraine	[2.8 3.0 3.1]	[1.9 2.1 2.4]	[1.9 2.8 3.8]
Tax admin.	Ukraine	[5.3 5.6 5.8]	[5.7 6.1 6.5]	[3.7 5.4 7.0]
Licensing	Ukraine	[3.2 3.4 3.5]	[3.2 3.7 4.2]	[2.3 3.2 4.2]
Corruption	Ukraine	[9.2 9.7 10.2]	[10.0 10.8 11.7]	[5.6 9.1 12.7]
Labour reg.	Ukraine	[2.3 2.4 2.5]	[2.4 2.6 2.8]	[1.6 2.3 3.0]
Electricity	Uzbekistan	[3.7 3.9 4.1]	[2.9 3.4 3.9]	[-19.9 5.0 30.0]
Customs	Uzbekistan	[0.7 0.7 0.8]	[0.7 0.8 0.9]	[-3.5 1.2 5.8]
Courts	Uzbekistan	[0.5 0.5 0.6]	[0.4 0.5 0.5]	[-3.3 0.8 4.9]
Crime	Uzbekistan	[0.3 0.3 0.4]	[0.2 0.2 0.3]	[-1.7 0.5 2.7]
Tax admin.	Uzbekistan	[0.9 1.0 1.1]	[1.0 1.1 1.2]	[-3.8 1.4 6.6]
Licensing	Uzbekistan	[0.6 0.7 0.8]	[0.6 0.8 0.9]	[-3.9 1.1 6.0]
Corruption	Uzbekistan	[0.7 0.8 0.9]	[0.8 0.9 1.0]	[-4.6 1.1 6.8]
Labour reg.	Uzbekistan	[0.3 0.3 0.4]	[0.3 0.4 0.4]	[-1.4 0.5 2.4]
Electricity	Russia	[5.6 6.0 6.4]	[4.4 5.4 6.5]	[7.0 8.3 9.6]

Constraint	Country	Pooled CI	Constraint CI	Country CI
Customs	Russia	[3.1 3.2 3.4]	[2.9 3.3 3.7]	[3.8 4.4 5.0]
Courts	Russia	[2.5 2.6 2.8]	[2.1 2.5 2.8]	[3.0 3.6 4.1]
Crime	Russia	[4.0 4.2 4.5]	[2.7 3.2 3.7]	[4.9 5.8 6.6]
Tax admin.	Russia	[4.8 5.1 5.4]	[5.1 5.5 5.9]	[5.9 6.9 7.8]
Licensing	Russia	[3.8 4.0 4.3]	[3.7 4.5 5.4]	[4.7 5.5 6.3]
Corruption	Russia	[6.7 7.2 7.6]	[7.2 7.9 8.6]	[8.3 9.8 11.2]
Labour reg.	Russia	[2.8 3.0 3.2]	[2.9 3.2 3.6]	[3.4 4.0 4.6]
Electricity	Poland	[4.0 4.3 4.5]	[3.3 3.9 4.5]	[2.3 4.4 6.6]
Customs	Poland	[4.0 4.2 4.4]	[3.8 4.3 4.8]	[1.4 4.2 7.0]
Courts	Poland	[3.7 3.9 4.1]	[3.3 3.7 4.1]	[1.5 3.9 6.4]
Crime	Poland	[3.5 3.7 3.9]	[2.3 2.7 3.1]	[0.9 3.7 6.6]
Tax admin.	Poland	[7.8 8.2 8.6]	[8.2 8.7 9.2]	[4.5 7.9 11.3]
Licensing	Poland	[4.5 4.7 4.9]	[4.5 5.2 5.9]	[2.0 4.7 7.4]
Corruption	Poland	[4.7 4.9 5.2]	[5.0 5.5 6.0]	[2.2 4.9 7.6]
Labour reg.	Poland	[5.7 5.9 6.2]	[5.7 6.3 6.8]	[2.6 5.9 9.2]
Electricity	Romania	[7.0 7.5 7.9]	[5.7 6.9 8.2]	[5.3 6.3 7.2]
Customs	Romania	[3.2 3.4 3.6]	[3.1 3.4 3.8]	[2.4 2.8 3.3]
Courts	Romania	[3.3 3.5 3.7]	[3.0 3.5 4.1]	[2.5 2.9 3.4]
Crime	Romania	[5.7 6.0 6.3]	[3.9 4.6 5.3]	[4.2 5.0 5.8]
Tax admin.	Romania	[11.2 11.8 12.5]	[10.9 11.6 12.4]	[8.8 10.4 12.0]
Licensing	Romania	[4.6 4.9 5.1]	[4.6 5.4 6.2]	[3.4 4.2 4.9]
Corruption	Romania	[10.1 10.7 11.4]	[10.8 11.7 12.5]	[7.9 9.3 10.8]
Labour reg.	Romania	[6.0 6.3 6.6]	[5.9 6.5 7.1]	[4.5 5.4 6.4]
Electricity	Serbia	[3.3 3.5 3.7]	[2.6 3.0 3.3]	[2.4 2.9 3.4]
Customs	Serbia	[3.5 3.7 3.9]	[3.3 3.8 4.2]	[2.6 3.1 3.6]
Courts	Serbia	[3.8 4.1 4.3]	[3.4 3.9 4.3]	[2.9 3.5 4.1]
Crime	Serbia	[3.4 3.6 3.8]	[2.3 2.7 3.1]	[2.5 3.0 3.6]
Tax admin.	Serbia	[7.2 7.6 7.9]	[7.7 8.2 8.8]	[5.5 6.6 7.7]
Licensing	Serbia	[2.8 2.9 3.1]	[2.7 3.2 3.7]	[2.0 2.5 2.9]
Corruption	Serbia	[5.8 6.1 6.5]	[6.2 6.7 7.3]	[4.3 5.2 6.0]
Labour reg.	Serbia	[4.1 4.3 4.6]	[4.4 4.9 5.3]	[3.0 3.7 4.4]
Electricity	Kazakhstan	[5.7 6.0 6.3]	[4.6 5.3 6.0]	[4.3 5.8 7.3]
Customs	Kazakhstan	[3.0 3.2 3.3]	[2.9 3.3 3.7]	[2.3 3.1 3.9]
Courts	Kazakhstan	[2.1 2.2 2.4]	[1.8 2.0 2.2]	[1.6 2.2 2.8]
Crime	Kazakhstan	[3.8 4.0 4.2]	[2.6 3.0 3.3]	[2.9 3.9 4.9]
Tax admin.	Kazakhstan	[3.6 3.8 3.9]	[3.9 4.2 4.5]	[2.7 3.7 4.7]
Licensing	Kazakhstan	[2.8 3.0 3.1]	[2.8 3.3 3.8]	[2.2 2.9 3.7]
Corruption	Kazakhstan	[5.8 6.1 6.4]	[6.3 6.9 7.4]	[4.5 5.8 7.1]
Labour reg.	Kazakhstan	[1.8 1.9 2.1]	[2.0 2.2 2.4]	[1.3 1.9 2.6]
Electricity	Moldova	[5.8 6.2 6.5]	[4.8 5.7 6.6]	[-1.8 8.1 18.0]
Customs	Moldova	[2.6 2.8 2.9]	[2.5 2.8 3.1]	[0.2 3.2 6.2]
Courts	Moldova	[1.8 1.9 2.0]	[1.6 1.8 2.0]	[0.4 2.1 3.7]
Crime	Moldova	[1.9 2.0 2.1]	[1.3 1.5 1.7]	[0.1 2.3 4.5]
Tax admin.	Moldova	[3.5 3.7 3.9]	[3.7 3.9 4.2]	[0.4 4.1 7.8]
Licensing	Moldova	[2.1 2.2 2.3]	[2.1 2.4 2.8]	[0.4 2.2 4.0]
Corruption	Moldova	[7.4 7.8 8.3]	[7.9 8.5 9.2]	[-2.4 10.4 23.1]
Labour reg.	Moldova	[2.4 2.6 2.7]	[2.5 2.7 3.0]	[0.2 2.8 5.5]
Electricity	BiH	[3.3 3.5 3.7]	[2.6 3.0 3.4]	[2.3 2.7 3.2]
Customs	BiH	[4.4 4.7 4.9]	[4.2 4.7 5.2]	[3.2 3.8 4.3]
Courts	BiH	[3.3 3.4 3.6]	[2.9 3.3 3.8]	[2.3 2.8 3.2]
Crime	BiH	[3.4 3.6 3.8]	[2.3 2.7 3.0]	[2.4 2.8 3.2]

Constraint	Country	Pooled CI	Constraint CI	Country CI
Tax admin.	BiH	[5.8 6.1 6.4]	[6.1 6.5 6.9]	[4.2 5.0 5.8]
Licensing	BiH	[3.6 3.8 4.0]	[3.7 4.2 4.8]	[2.7 3.1 3.6]
Corruption	BiH	[7.7 8.2 8.7]	[8.3 8.9 9.6]	[5.5 6.8 8.1]
Labour reg.	BiH	[3.1 3.3 3.5]	[3.2 3.5 3.8]	[2.2 2.6 3.0]
Electricity	Azerbaijan	[1.0 1.1 1.1]	[0.8 0.9 1.1]	n.a.
Customs	Azerbaijan	[0.6 0.7 0.8]	[0.6 0.7 0.8]	n.a.
Courts	Azerbaijan	[0.1 0.1 0.1]	[0.1 0.1 0.1]	n.a.
Crime	Azerbaijan	[0.2 0.2 0.3]	[0.1 0.2 0.2]	n.a.
Tax admin.	Azerbaijan	[2.2 2.3 2.5]	[2.4 2.6 2.8]	n.a.
Licensing	Azerbaijan	[1.4 1.5 1.6]	[1.5 1.7 1.9]	n.a.
Corruption	Azerbaijan	[1.4 1.5 1.6]	[1.4 1.6 1.7]	n.a.
Labour reg.	Azerbaijan	[0.1 0.1 0.1]	[0.1 0.1 0.2]	n.a.
Electricity	FYR Macedonia	[6.0 6.4 6.7]	[4.8 5.7 6.5]	[6.3 7.8 9.2]
Customs	FYR Macedonia	[2.7 2.9 3.1]	[2.6 2.9 3.2]	[2.9 3.6 4.2]
Courts	FYR Macedonia	[2.9 3.1 3.3]	[2.7 3.1 3.5]	[3.1 3.9 4.6]
Crime	FYR Macedonia	[3.4 3.6 3.8]	[2.4 2.7 3.1]	[3.7 4.5 5.4]
Tax admin.	FYR Macedonia	[4.0 4.2 4.4]	[4.2 4.5 4.8]	[4.2 5.2 6.2]
Licensing	FYR Macedonia	[2.3 2.5 2.6]	[2.4 2.8 3.2]	[2.5 3.1 3.7]
Corruption	FYR Macedonia	[4.4 4.7 5.0]	[4.8 5.2 5.6]	[4.6 5.7 6.8]
Labour reg.	FYR Macedonia	[2.2 2.3 2.4]	[2.2 2.4 2.7]	[2.3 2.9 3.4]
Electricity	Armenia	[2.4 2.6 2.8]	[2.0 2.3 2.6]	[0.6 2.0 3.3]
Customs	Armenia	[5.7 6.0 6.4]	[5.4 6.0 6.6]	[2.2 4.0 5.9]
Courts	Armenia	[0.7 0.7 0.8]	[0.6 0.7 0.8]	[0.2 0.5 0.8]
Crime	Armenia	[1.1 1.2 1.3]	[0.8 0.9 1.1]	[0.2 0.9 1.6]
Tax admin.	Armenia	[7.1 7.5 7.9]	[7.2 7.6 8.0]	[2.7 5.0 7.4]
Licensing	Armenia	[1.5 1.7 1.8]	[1.6 1.8 2.1]	[0.6 1.2 1.8]
Corruption	Armenia	[4.2 4.4 4.7]	[4.5 4.9 5.3]	[1.4 3.1 4.8]
Labour reg.	Armenia	[1.5 1.6 1.8]	[1.6 1.7 1.9]	[0.3 1.3 2.3]
Electricity	Kyrgyz Rep.	[7.4 7.8 8.3]	[6.0 7.1 8.2]	[5.5 7.5 9.4]
Customs	Kyrgyz Rep.	[3.7 4.0 4.3]	[3.6 4.0 4.4]	[2.8 3.9 4.9]
Courts	Kyrgyz Rep.	[1.6 1.8 1.9]	[1.5 1.7 2.0]	[1.2 1.8 2.4]
Crime	Kyrgyz Rep.	[5.5 5.8 6.1]	[3.8 4.4 5.0]	[4.1 5.8 7.5]
Tax admin.	Kyrgyz Rep.	[5.0 5.3 5.6]	[5.2 5.6 5.9]	[3.9 5.4 6.8]
Licensing	Kyrgyz Rep.	[2.6 2.8 3.0]	[2.6 3.1 3.5]	[2.0 2.9 3.7]
Corruption	Kyrgyz Rep.	[11.8 12.6 13.5]	[12.5 13.5 14.5]	[7.8 10.7 13.5]
Labour reg.	Kyrgyz Rep.	[1.2 1.3 1.5]	[1.3 1.4 1.6]	[1.0 1.5 1.9]
Electricity	Mongolia	[4.5 4.8 5.1]	[3.4 3.9 4.3]	[3.1 6.0 9.0]
Customs	Mongolia	[6.3 6.6 7.0]	[6.0 6.8 7.7]	[4.1 7.6 11.1]
Courts	Mongolia	[1.6 1.7 1.8]	[1.4 1.6 1.8]	[1.1 2.1 3.1]
Crime	Mongolia	[4.2 4.4 4.7]	[2.8 3.3 3.8]	[2.7 5.4 8.1]
Tax admin.	Mongolia	[4.9 5.2 5.5]	[5.3 5.8 6.3]	[3.3 6.5 9.8]
Licensing	Mongolia	[5.4 5.7 6.1]	[5.4 6.4 7.4]	[3.5 6.7 9.9]
Corruption	Mongolia	[5.1 5.4 5.7]	[5.4 5.8 6.3]	[3.2 6.7 10.1]
Labour reg.	Mongolia	[2.7 3.0 3.2]	[3.1 3.5 3.9]	[1.9 3.7 5.5]
Electricity	Estonia	[3.8 4.0 4.3]	[3.0 3.5 4.0]	[-0.9 3.9 8.6]

Constraint	Country	Pooled CI	Constraint CI	Country CI
Customs	Estonia	[1.3 1.4 1.6]	[1.3 1.5 1.8]	[0.1 1.3 2.5]
Courts	Estonia	[0.9 1.0 1.1]	[0.8 0.9 1.0]	[0.2 1.0 1.7]
Crime	Estonia	[2.9 3.1 3.3]	[1.9 2.3 2.7]	[0.2 2.9 5.6]
Tax admin.	Estonia	[2.6 2.8 3.0]	[2.9 3.2 3.5]	[0.6 2.7 4.8]
Licensing	Estonia	[1.3 1.5 1.6]	[1.3 1.6 1.9]	[0.3 1.4 2.5]
Corruption	Estonia	[1.9 2.1 2.2]	[2.0 2.4 2.7]	[0.5 2.0 3.5]
Labour reg.	Estonia	[2.5 2.7 2.9]	[2.7 3.0 3.2]	[0.6 2.6 4.6]
Electricity	Kosovo	[10.4 11.1 11.9]	[8.5 10.3 12.1]	[9.9 11.9 14.0]
Customs	Kosovo	[6.6 7.2 7.7]	[6.1 7.0 7.8]	[6.5 7.8 9.1]
Courts	Kosovo	[3.8 4.1 4.5]	[3.5 4.2 4.9]	[3.7 4.6 5.5]
Crime	Kosovo	[9.5 10.3 11.1]	[6.6 8.3 10.1]	[9.0 11.0 13.0]
Tax admin.	Kosovo	[8.4 9.0 9.5]	[8.5 9.0 9.6]	[8.4 10.1 11.9]
Licensing	Kosovo	[2.8 3.1 3.4]	[2.9 3.4 3.9]	[2.8 3.7 4.5]
Corruption	Kosovo	[11.0 11.8 12.7]	[11.7 12.7 13.8]	[10.5 12.7 15.0]
Labour reg.	Kosovo	[1.9 2.1 2.3]	[1.9 2.2 2.5]	[1.9 2.6 3.2]
Electricity	Czech Rep.	[9.2 10.1 10.9]	[7.5 9.6 11.7]	[4.9 6.7 8.5]
Customs	Czech Rep.	[3.9 4.2 4.5]	[3.8 4.4 5.0]	[2.3 3.0 3.6]
Courts	Czech Rep.	[4.0 4.2 4.5]	[3.5 4.0 4.5]	[2.4 3.0 3.6]
Crime	Czech Rep.	[5.4 5.7 6.1]	[3.6 4.2 4.8]	[3.2 4.1 4.9]
Tax admin.	Czech Rep.	[8.2 8.6 9.0]	[8.6 9.2 9.7]	[4.9 6.2 7.4]
Licensing	Czech Rep.	[3.4 3.7 3.9]	[3.1 4.0 4.9]	[1.9 2.5 3.1]
Corruption	Czech Rep.	[6.1 6.5 6.9]	[6.6 7.2 7.8]	[3.7 4.6 5.5]
Labour reg.	Czech Rep.	[6.2 6.5 6.9]	[6.5 7.1 7.7]	[3.7 4.7 5.6]
Electricity	Hungary	[3.3 3.5 3.8]	[2.7 3.1 3.6]	[-0.7 3.2 7.1]
Customs	Hungary	[2.0 2.1 2.3]	[1.9 2.2 2.5]	[-0.8 2.0 4.8]
Courts	Hungary	[1.3 1.4 1.5]	[1.1 1.3 1.5]	[-0.7 1.5 3.6]
Crime	Hungary	[2.0 2.2 2.3]	[1.4 1.6 1.9]	[-0.8 2.0 4.7]
Tax admin.	Hungary	[6.1 6.4 6.7]	[6.3 6.8 7.2]	[-1.4 6.0 13.4]
Licensing	Hungary	[2.6 2.7 2.9]	[2.6 3.0 3.4]	[-1.1 2.7 6.5]
Corruption	Hungary	[3.1 3.3 3.6]	[3.4 3.7 4.1]	[-0.7 3.1 7.0]
Labour reg.	Hungary	[4.1 4.3 4.6]	[4.3 4.7 5.1]	[-1.8 4.2 10.1]
Electricity	Latvia	[4.7 5.0 5.3]	[3.8 4.6 5.3]	[0.3 4.6 8.9]
Customs	Latvia	[1.7 1.9 2.0]	[1.7 1.9 2.1]	[0.2 1.9 3.6]
Courts	Latvia	[1.1 1.2 1.3]	[1.0 1.2 1.3]	[0.1 1.2 2.2]
Crime	Latvia	[3.0 3.1 3.3]	[2.1 2.4 2.7]	[0.0 3.3 6.6]
Tax admin.	Latvia	[2.9 3.1 3.3]	[3.1 3.3 3.5]	[0.6 3.1 5.7]
Licensing	Latvia	[1.0 1.1 1.2]	[1.1 1.3 1.5]	[0.0 1.2 2.3]
Corruption	Latvia	[3.6 3.8 4.0]	[3.9 4.3 4.7]	[0.8 3.8 6.9]
Labour reg.	Latvia	[2.0 2.1 2.3]	[2.1 2.3 2.5]	[-0.2 2.3 4.9]
Electricity	Lithuania	[6.6 7.2 7.7]	[5.4 6.7 8.0]	[1.6 9.4 17.3]
Customs	Lithuania	[1.9 2.1 2.2]	[1.9 2.1 2.4]	[0.9 2.2 3.5]
Courts	Lithuania	[1.8 2.0 2.1]	[1.6 1.9 2.2]	[0.9 2.2 3.5]
Crime	Lithuania	[5.0 5.4 5.7]	[3.5 4.1 4.8]	[2.2 6.3 10.5]
Tax admin.	Lithuania	[6.4 6.8 7.1]	[6.7 7.2 7.6]	[2.4 7.2 11.9]
Licensing	Lithuania	[2.1 2.2 2.4]	[2.0 2.5 2.9]	[0.7 2.2 3.7]
Corruption	Lithuania	[6.1 6.5 6.8]	[6.5 7.1 7.6]	[2.5 7.5 12.5]
Labour reg.	Lithuania	[4.2 4.4 4.7]	[4.3 4.8 5.3]	[1.8 4.7 7.6]
Electricity	Slovak Rep.	[6.0 6.4 6.9]	[4.9 5.9 7.0]	[2.7 7.0 11.3]
Customs	Slovak Rep.	[3.6 3.8 4.0]	[3.4 3.9 4.4]	[2.4 3.6 4.8]
Courts	Slovak Rep.	[3.8 4.0 4.3]	[3.4 3.9 4.3]	[2.5 4.0 5.6]
Crime	Slovak Rep.	[3.5 3.7 4.0]	[2.3 2.7 3.1]	[2.1 3.5 4.8]

Constraint	Country	Pooled CI	Constraint CI	Country CI
Tax admin.	Slovak Rep.	[6.1 6.5 6.8]	[6.6 7.1 7.6]	[4.0 6.2 8.3]
Licensing	Slovak Rep.	[4.2 4.5 4.8]	[4.1 4.9 5.6]	[2.6 4.2 5.8]
Corruption	Slovak Rep.	[6.1 6.4 6.8]	[6.6 7.2 7.8]	[3.8 6.4 9.1]
Labour reg.	Slovak Rep.	[5.3 5.6 5.8]	[5.4 5.9 6.4]	[3.5 5.3 7.1]
Electricity	Slovenia	[3.2 3.5 3.7]	[2.6 3.1 3.6]	[1.8 2.3 2.9]
Customs	Slovenia	[2.1 2.3 2.5]	[2.0 2.3 2.6]	[1.2 1.5 1.8]
Courts	Slovenia	[4.2 4.5 4.8]	[3.8 4.3 4.8]	[2.4 3.1 3.8]
Crime	Slovenia	[2.3 2.5 2.6]	[1.6 1.8 2.1]	[1.4 1.7 2.1]
Tax admin.	Slovenia	[6.6 7.0 7.3]	[7.0 7.4 7.9]	[3.8 4.8 5.7]
Licensing	Slovenia	[1.7 1.9 2.0]	[1.7 2.1 2.4]	[1.0 1.3 1.5]
Corruption	Slovenia	[4.4 4.6 4.9]	[4.7 5.1 5.6]	[2.5 3.2 3.9]
Labour reg.	Slovenia	[6.1 6.5 6.8]	[6.2 6.9 7.6]	[3.6 4.6 5.5]
Electricity	Bulgaria	[3.5 3.8 4.0]	[2.9 3.3 3.8]	[2.7 3.6 4.5]
Customs	Bulgaria	[1.6 1.8 1.9]	[1.6 1.8 2.0]	[1.3 1.6 2.0]
Courts	Bulgaria	[2.5 2.7 2.9]	[2.3 2.7 3.1]	[2.0 2.6 3.2]
Crime	Bulgaria	[3.6 3.9 4.1]	[2.5 2.9 3.2]	[2.8 3.7 4.5]
Tax admin.	Bulgaria	[3.8 4.0 4.2]	[4.0 4.4 4.7]	[2.9 3.8 4.7]
Licensing	Bulgaria	[2.9 3.2 3.4]	[3.0 3.5 4.1]	[2.2 3.0 3.8]
Corruption	Bulgaria	[6.2 6.6 7.0]	[6.7 7.2 7.8]	[4.6 6.4 8.1]
Labour reg.	Bulgaria	[3.9 4.2 4.4]	[3.9 4.3 4.7]	[3.0 4.0 4.9]
Electricity	Croatia	[1.9 2.1 2.2]	[1.5 1.7 1.9]	[1.6 1.9 2.2]
Customs	Croatia	[3.1 3.3 3.4]	[3.0 3.3 3.6]	[2.7 3.2 3.6]
Courts	Croatia	[4.0 4.3 4.5]	[3.6 4.1 4.6]	[3.4 4.1 4.8]
Crime	Croatia	[3.3 3.5 3.7]	[2.2 2.6 2.9]	[2.7 3.2 3.6]
Tax admin.	Croatia	[7.2 7.6 8.0]	[7.4 7.9 8.4]	[6.1 7.4 8.7]
Licensing	Croatia	[2.0 2.1 2.2]	[1.9 2.3 2.7]	[1.6 1.9 2.2]
Corruption	Croatia	[5.7 6.0 6.3]	[6.2 6.8 7.3]	[5.0 5.9 6.9]
Labour reg.	Croatia	[5.2 5.5 5.8]	[5.3 5.9 6.4]	[4.5 5.2 6.0]
Electricity	Montenegro	[4.7 5.2 5.6]	[3.6 4.2 4.8]	[1.8 4.3 6.7]
Customs	Montenegro	[3.2 3.6 4.0]	[3.1 3.8 4.4]	[1.5 3.0 4.5]
Courts	Montenegro	[1.3 1.6 1.8]	[1.1 1.4 1.7]	[0.6 1.3 2.0]
Crime	Montenegro	[2.3 2.7 3.1]	[1.6 2.0 2.5]	[1.3 2.4 3.5]
Tax admin.	Montenegro	[4.0 4.4 4.8]	[4.4 5.0 5.5]	[1.7 3.6 5.5]
Licensing	Montenegro	[1.5 1.8 2.0]	[1.4 1.9 2.4]	[0.7 1.5 2.2]
Corruption	Montenegro	[2.1 2.5 2.9]	[2.2 2.6 3.0]	[1.1 2.2 3.3]
Labour reg.	Montenegro	[1.8 2.1 2.4]	[2.1 2.5 2.9]	[1.0 1.8 2.6]

Note: CI=confidence interval.

Table 9b: 95 per cent confidence intervals for estimated total potential cost savings, by constraint

Constraint	Country	Pooled CI	Constraint CI	Country CI
Electricity	Albania	[6.1 6.4 6.7]	[5.0 5.7 6.5]	[2.8 6.0 9.2]
Electricity	Belarus	[3.6 3.8 4.1]	[2.9 3.4 3.8]	[2.9 3.5 4.1]
Electricity	Georgia	[5.0 5.3 5.5]	[4.0 4.7 5.4]	[-1.3 5.8 12.9]
Electricity	Tajikistan	[6.9 7.3 7.7]	[5.7 6.7 7.6]	[2.5 8.9 15.4]
Electricity	Ukraine	[3.1 3.2 3.4]	[2.4 2.8 3.2]	[2.0 3.1 4.1]
Electricity	Uzbekistan	[3.7 3.9 4.1]	[2.9 3.4 3.9]	[-19.9 5.0 30.0]
Electricity	Russia	[5.6 6.0 6.4]	[4.4 5.4 6.5]	[7.0 8.3 9.6]
Electricity	Poland	[4.0 4.3 4.5]	[3.3 3.9 4.5]	[2.3 4.4 6.6]
Electricity	Romania	[7.0 7.5 7.9]	[5.7 6.9 8.2]	[5.3 6.3 7.2]
Electricity	Serbia	[3.3 3.5 3.7]	[2.6 3.0 3.3]	[2.4 2.9 3.4]
Electricity	Kazakhstan	[5.7 6.0 6.3]	[4.6 5.3 6.0]	[4.3 5.8 7.3]
Electricity	Moldova	[5.8 6.2 6.5]	[4.8 5.7 6.6]	[-1.8 8.1 18.0]
Electricity	BiH	[3.3 3.5 3.7]	[2.6 3.0 3.4]	[2.3 2.7 3.2]
Electricity	Azerbaijan	[1.0 1.1 1.1]	[0.8 0.9 1.1]	n.a.
Electricity	FYR Macedonia	[6.0 6.4 6.7]	[4.8 5.7 6.5]	[6.3 7.8 9.2]
Electricity	Armenia	[2.4 2.6 2.8]	[2.0 2.3 2.6]	[0.6 2.0 3.3]
Electricity	Kyrgyz Rep.	[7.4 7.8 8.3]	[6.0 7.1 8.2]	[5.5 7.5 9.4]
Electricity	Mongolia	[4.5 4.8 5.1]	[3.4 3.9 4.3]	[3.1 6.0 9.0]
Electricity	Estonia	[3.8 4.0 4.3]	[3.0 3.5 4.0]	[-0.9 3.9 8.6]
Electricity	Kosovo	[10.4 11.1 11.9]	[8.5 10.3 12.1]	[9.9 11.9 14.0]
Electricity	Czech Rep.	[9.2 10.1 10.9]	[7.5 9.6 11.7]	[4.9 6.7 8.5]
Electricity	Hungary	[3.3 3.5 3.8]	[2.7 3.1 3.6]	[-0.7 3.2 7.1]
Electricity	Latvia	[4.7 5.0 5.3]	[3.8 4.6 5.3]	[0.3 4.6 8.9]
Electricity	Lithuania	[6.6 7.2 7.7]	[5.4 6.7 8.0]	[1.6 9.4 17.3]
Electricity	Slovak Rep.	[6.0 6.4 6.9]	[4.9 5.9 7.0]	[2.7 7.0 11.3]
Electricity	Slovenia	[3.2 3.5 3.7]	[2.6 3.1 3.6]	[1.8 2.3 2.9]
Electricity	Bulgaria	[3.5 3.8 4.0]	[2.9 3.3 3.8]	[2.7 3.6 4.5]
Electricity	Croatia	[1.9 2.1 2.2]	[1.5 1.7 1.9]	[1.6 1.9 2.2]
Electricity	Montenegro	[4.7 5.2 5.6]	[3.6 4.2 4.8]	[1.8 4.3 6.7]
Customs	Albania	[1.7 1.8 1.9]	[1.6 1.9 2.1]	[0.6 1.9 3.2]
Customs	Belarus	[3.1 3.3 3.5]	[3.0 3.4 3.8]	[2.8 3.3 3.8]
Customs	Georgia	[1.1 1.2 1.3]	[1.0 1.2 1.4]	[0.0 1.3 2.6]
Customs	Tajikistan	[3.1 3.3 3.5]	[3.0 3.4 3.8]	[1.8 4.3 6.7]
Customs	Ukraine	[2.8 2.9 3.0]	[2.7 3.0 3.3]	[1.9 2.8 3.6]
Customs	Uzbekistan	[0.7 0.7 0.8]	[0.7 0.8 0.9]	[-3.5 1.2 5.8]
Customs	Russia	[3.1 3.2 3.4]	[2.9 3.3 3.7]	[3.8 4.4 5.0]
Customs	Poland	[4.0 4.2 4.4]	[3.8 4.3 4.8]	[1.4 4.2 7.0]
Customs	Romania	[3.2 3.4 3.6]	[3.1 3.4 3.8]	[2.4 2.8 3.3]
Customs	Serbia	[3.5 3.7 3.9]	[3.3 3.8 4.2]	[2.6 3.1 3.6]
Customs	Kazakhstan	[3.0 3.2 3.3]	[2.9 3.3 3.7]	[2.3 3.1 3.9]
Customs	Moldova	[2.6 2.8 2.9]	[2.5 2.8 3.1]	[0.2 3.2 6.2]
Customs	BiH	[4.4 4.7 4.9]	[4.2 4.7 5.2]	[3.2 3.8 4.3]
Customs	Azerbaijan	[0.6 0.7 0.8]	[0.6 0.7 0.8]	n.a.
Customs	FYR Macedonia	[2.7 2.9 3.1]	[2.6 2.9 3.2]	[2.9 3.6 4.2]
Customs	Armenia	[5.7 6.0 6.4]	[5.4 6.0 6.6]	[2.2 4.0 5.9]
Customs	Kyrgyz Rep.	[3.7 4.0 4.3]	[3.6 4.0 4.4]	[2.8 3.9 4.9]
Customs	Mongolia	[6.3 6.6 7.0]	[6.0 6.8 7.7]	[4.1 7.6 11.1]
Customs	Estonia	[1.3 1.4 1.6]	[1.3 1.5 1.8]	[0.1 1.3 2.5]
Customs	Kosovo	[6.6 7.2 7.7]	[6.1 7.0 7.8]	[6.5 7.8 9.1]
Customs	Czech Rep.	[3.9 4.2 4.5]	[3.8 4.4 5.0]	[2.3 3.0 3.6]

Constraint	Country	Pooled CI	Constraint CI	Country CI
Customs	Hungary	[2.0 2.1 2.3]	[1.9 2.2 2.5]	[-0.8 2.0 4.8]
Customs	Latvia	[1.7 1.9 2.0]	[1.7 1.9 2.1]	[0.2 1.9 3.6]
Customs	Lithuania	[1.9 2.1 2.2]	[1.9 2.1 2.4]	[0.9 2.2 3.5]
Customs	Slovak Rep.	[3.6 3.8 4.0]	[3.4 3.9 4.4]	[2.4 3.6 4.8]
Customs	Slovenia	[2.1 2.3 2.5]	[2.0 2.3 2.6]	[1.2 1.5 1.8]
Customs	Bulgaria	[1.6 1.8 1.9]	[1.6 1.8 2.0]	[1.3 1.6 2.0]
Customs	Croatia	[3.1 3.3 3.4]	[3.0 3.3 3.6]	[2.7 3.2 3.6]
Customs	Montenegro	[3.2 3.6 4.0]	[3.1 3.8 4.4]	[1.5 3.0 4.5]
Courts	Albania	[1.1 1.2 1.3]	[1.0 1.1 1.2]	[0.4 1.3 2.3]
Courts	Belarus	[1.4 1.5 1.6]	[1.2 1.4 1.5]	[1.3 1.6 1.8]
Courts	Georgia	[0.6 0.7 0.8]	[0.6 0.7 0.8]	[-0.3 0.8 1.8]
Courts	Tajikistan	[1.4 1.5 1.6]	[1.2 1.4 1.5]	[0.8 1.9 3.0]
Courts	Ukraine	[2.5 2.6 2.8]	[2.2 2.4 2.7]	[1.8 2.5 3.3]
Courts	Uzbekistan	[0.5 0.5 0.6]	[0.4 0.5 0.5]	[-3.3 0.8 4.9]
Courts	Russia	[2.5 2.6 2.8]	[2.1 2.5 2.8]	[3.0 3.6 4.1]
Courts	Poland	[3.7 3.9 4.1]	[3.3 3.7 4.1]	[1.5 3.9 6.4]
Courts	Romania	[3.3 3.5 3.7]	[3.0 3.5 4.1]	[2.5 2.9 3.4]
Courts	Serbia	[3.8 4.1 4.3]	[3.4 3.9 4.3]	[2.9 3.5 4.1]
Courts	Kazakhstan	[2.1 2.2 2.4]	[1.8 2.0 2.2]	[1.6 2.2 2.8]
Courts	Moldova	[1.8 1.9 2.0]	[1.6 1.8 2.0]	[0.4 2.1 3.7]
Courts	BiH	[3.3 3.4 3.6]	[2.9 3.3 3.8]	[2.3 2.8 3.2]
Courts	Azerbaijan	[0.1 0.1 0.1]	[0.1 0.1 0.1]	n.a.
Courts	FYR Macedonia	[2.9 3.1 3.3]	[2.7 3.1 3.5]	[3.1 3.9 4.6]
Courts	Armenia	[0.7 0.7 0.8]	[0.6 0.7 0.8]	[0.2 0.5 0.8]
Courts	Kyrgyz Rep.	[1.6 1.8 1.9]	[1.5 1.7 2.0]	[1.2 1.8 2.4]
Courts	Mongolia	[1.6 1.7 1.8]	[1.4 1.6 1.8]	[1.1 2.1 3.1]
Courts	Estonia	[0.9 1.0 1.1]	[0.8 0.9 1.0]	[0.2 1.0 1.7]
Courts	Kosovo	[3.8 4.1 4.5]	[3.5 4.2 4.9]	[3.7 4.6 5.5]
Courts	Czech Rep.	[4.0 4.2 4.5]	[3.5 4.0 4.5]	[2.4 3.0 3.6]
Courts	Hungary	[1.3 1.4 1.5]	[1.1 1.3 1.5]	[-0.7 1.5 3.6]
Courts	Latvia	[1.1 1.2 1.3]	[1.0 1.2 1.3]	[0.1 1.2 2.2]
Courts	Lithuania	[1.8 2.0 2.1]	[1.6 1.9 2.2]	[0.9 2.2 3.5]
Courts	Slovak Rep.	[3.8 4.0 4.3]	[3.4 3.9 4.3]	[2.5 4.0 5.6]
Courts	Slovenia	[4.2 4.5 4.8]	[3.8 4.3 4.8]	[2.4 3.1 3.8]
Courts	Bulgaria	[2.5 2.7 2.9]	[2.3 2.7 3.1]	[2.0 2.6 3.2]
Courts	Croatia	[4.0 4.3 4.5]	[3.6 4.1 4.6]	[3.4 4.1 4.8]
Courts	Montenegro	[1.3 1.6 1.8]	[1.1 1.4 1.7]	[0.6 1.3 2.0]
Crime	Albania	[2.0 2.2 2.3]	[1.4 1.6 1.8]	[0.9 2.2 3.6]
Crime	Belarus	[3.2 3.4 3.6]	[2.2 2.5 2.9]	[2.9 3.4 4.0]
Crime	Georgia	[1.3 1.5 1.6]	[0.9 1.1 1.3]	[-0.5 1.6 3.6]
Crime	Tajikistan	[2.2 2.4 2.6]	[1.6 1.8 2.1]	[0.9 2.9 4.9]
Crime	Ukraine	[2.8 3.0 3.1]	[1.9 2.1 2.4]	[1.9 2.8 3.8]
Crime	Uzbekistan	[0.3 0.3 0.4]	[0.2 0.2 0.3]	[-1.7 0.5 2.7]
Crime	Russia	[4.0 4.2 4.5]	[2.7 3.2 3.7]	[4.9 5.8 6.6]
Crime	Poland	[3.5 3.7 3.9]	[2.3 2.7 3.1]	[0.9 3.7 6.6]
Crime	Romania	[5.7 6.0 6.3]	[3.9 4.6 5.3]	[4.2 5.0 5.8]
Crime	Serbia	[3.4 3.6 3.8]	[2.3 2.7 3.1]	[2.5 3.0 3.6]
Crime	Kazakhstan	[3.8 4.0 4.2]	[2.6 3.0 3.3]	[2.9 3.9 4.9]
Crime	Moldova	[1.9 2.0 2.1]	[1.3 1.5 1.7]	[0.1 2.3 4.5]
Crime	BiH	[3.4 3.6 3.8]	[2.3 2.7 3.0]	[2.4 2.8 3.2]
Crime	Azerbaijan	[0.2 0.2 0.3]	[0.1 0.2 0.2]	n.a.
Crime	FYR Macedonia	[3.4 3.6 3.8]	[2.4 2.7 3.1]	[3.7 4.5 5.4]

Constraint	Country	Pooled CI	Constraint CI	Country CI
Crime	Armenia	[1.1 1.2 1.3]	[0.8 0.9 1.1]	[0.2 0.9 1.6]
Crime	Kyrgyz Rep.	[5.5 5.8 6.1]	[3.8 4.4 5.0]	[4.1 5.8 7.5]
Crime	Mongolia	[4.2 4.4 4.7]	[2.8 3.3 3.8]	[2.7 5.4 8.1]
Crime	Estonia	[2.9 3.1 3.3]	[1.9 2.3 2.7]	[0.2 2.9 5.6]
Crime	Kosovo	[9.5 10.3 11.1]	[6.6 8.3 10.1]	[9.0 11.0 13.0]
Crime	Czech Rep.	[5.4 5.7 6.1]	[3.6 4.2 4.8]	[3.2 4.1 4.9]
Crime	Hungary	[2.0 2.2 2.3]	[1.4 1.6 1.9]	[-0.8 2.0 4.7]
Crime	Latvia	[3.0 3.1 3.3]	[2.1 2.4 2.7]	[0.0 3.3 6.6]
Crime	Lithuania	[5.0 5.4 5.7]	[3.5 4.1 4.8]	[2.2 6.3 10.5]
Crime	Slovak Rep.	[3.5 3.7 4.0]	[2.3 2.7 3.1]	[2.1 3.5 4.8]
Crime	Slovenia	[2.3 2.5 2.6]	[1.6 1.8 2.1]	[1.4 1.7 2.1]
Crime	Bulgaria	[3.6 3.9 4.1]	[2.5 2.9 3.2]	[2.8 3.7 4.5]
Crime	Croatia	[3.3 3.5 3.7]	[2.2 2.6 2.9]	[2.7 3.2 3.6]
Crime	Montenegro	[2.3 2.7 3.1]	[1.6 2.0 2.5]	[1.3 2.4 3.5]
Tax admin.	Albania	[5.4 5.7 6.0]	[5.8 6.2 6.6]	[2.4 5.5 8.7]
Tax admin.	Belarus	[2.8 3.0 3.1]	[3.0 3.3 3.6]	[2.6 3.1 3.6]
Tax admin.	Georgia	[1.9 2.0 2.1]	[2.0 2.2 2.3]	[0.0 2.0 4.1]
Tax admin.	Tajikistan	[7.0 7.3 7.7]	[7.0 7.4 7.9]	[2.9 9.4 16.0]
Tax admin.	Ukraine	[5.3 5.6 5.8]	[5.7 6.1 6.5]	[3.7 5.4 7.0]
Tax admin.	Uzbekistan	[0.9 1.0 1.1]	[1.0 1.1 1.2]	[-3.8 1.4 6.6]
Tax admin.	Russia	[4.8 5.1 5.4]	[5.1 5.5 5.9]	[5.9 6.9 7.8]
Tax admin.	Poland	[7.8 8.2 8.6]	[8.2 8.7 9.2]	[4.5 7.9 11.3]
Tax admin.	Romania	[11.2 11.8 12.5]	[10.9 11.6 12.4]	[8.8 10.4 12.0]
Tax admin.	Serbia	[7.2 7.6 7.9]	[7.7 8.2 8.8]	[5.5 6.6 7.7]
Tax admin.	Kazakhstan	[3.6 3.8 3.9]	[3.9 4.2 4.5]	[2.7 3.7 4.7]
Tax admin.	Moldova	[3.5 3.7 3.9]	[3.7 3.9 4.2]	[0.4 4.1 7.8]
Tax admin.	BiH	[5.8 6.1 6.4]	[6.1 6.5 6.9]	[4.2 5.0 5.8]
Tax admin.	Azerbaijan	[2.2 2.3 2.5]	[2.4 2.6 2.8]	n.a.
Tax admin.	FYR Macedonia	[4.0 4.2 4.4]	[4.2 4.5 4.8]	[4.2 5.2 6.2]
Tax admin.	Armenia	[7.1 7.5 7.9]	[7.2 7.6 8.0]	[2.7 5.0 7.4]
Tax admin.	Kyrgyz Rep.	[5.0 5.3 5.6]	[5.2 5.6 5.9]	[3.9 5.4 6.8]
Tax admin.	Mongolia	[4.9 5.2 5.5]	[5.3 5.8 6.3]	[3.3 6.5 9.8]
Tax admin.	Estonia	[2.6 2.8 3.0]	[2.9 3.2 3.5]	[0.6 2.7 4.8]
Tax admin.	Kosovo	[8.4 9.0 9.5]	[8.5 9.0 9.6]	[8.4 10.1 11.9]
Tax admin.	Czech Rep.	[8.2 8.6 9.0]	[8.6 9.2 9.7]	[4.9 6.2 7.4]
Tax admin.	Hungary	[6.1 6.4 6.7]	[6.3 6.8 7.2]	[-1.4 6.0 13.4]
Tax admin.	Latvia	[2.9 3.1 3.3]	[3.1 3.3 3.5]	[0.6 3.1 5.7]
Tax admin.	Lithuania	[6.4 6.8 7.1]	[6.7 7.2 7.6]	[2.4 7.2 11.9]
Tax admin.	Slovak Rep.	[6.1 6.5 6.8]	[6.6 7.1 7.6]	[4.0 6.2 8.3]
Tax admin.	Slovenia	[6.6 7.0 7.3]	[7.0 7.4 7.9]	[3.8 4.8 5.7]
Tax admin.	Bulgaria	[3.8 4.0 4.2]	[4.0 4.4 4.7]	[2.9 3.8 4.7]
Tax admin.	Croatia	[7.2 7.6 8.0]	[7.4 7.9 8.4]	[6.1 7.4 8.7]
Tax admin.	Montenegro	[4.0 4.4 4.8]	[4.4 5.0 5.5]	[1.7 3.6 5.5]
Licensing	Albania	[1.6 1.7 1.8]	[1.6 1.9 2.2]	[0.6 1.8 2.9]
Licensing	Belarus	[2.3 2.5 2.6]	[2.3 2.7 3.2]	[2.0 2.4 2.8]
Licensing	Georgia	[0.1 0.1 0.1]	[0.1 0.1 0.2]	[0.0 0.1 0.3]
Licensing	Tajikistan	[2.8 2.9 3.1]	[2.8 3.3 3.8]	[1.3 3.6 5.9]
Licensing	Ukraine	[3.2 3.4 3.5]	[3.2 3.7 4.2]	[2.3 3.2 4.2]
Licensing	Uzbekistan	[0.6 0.7 0.8]	[0.6 0.8 0.9]	[-3.9 1.1 6.0]
Licensing	Russia	[3.8 4.0 4.3]	[3.7 4.5 5.4]	[4.7 5.5 6.3]
Licensing	Poland	[4.5 4.7 4.9]	[4.5 5.2 5.9]	[2.0 4.7 7.4]
Licensing	Romania	[4.6 4.9 5.1]	[4.6 5.4 6.2]	[3.4 4.2 4.9]

Constraint	Country	Pooled CI	Constraint CI	Country CI
Licensing	Serbia	[2.8 2.9 3.1]	[2.7 3.2 3.7]	[2.0 2.5 2.9]
Licensing	Kazakhstan	[2.8 3.0 3.1]	[2.8 3.3 3.8]	[2.2 2.9 3.7]
Licensing	Moldova	[2.1 2.2 2.3]	[2.1 2.4 2.8]	[0.4 2.2 4.0]
Licensing	BiH	[3.6 3.8 4.0]	[3.7 4.2 4.8]	[2.7 3.1 3.6]
Licensing	Azerbaijan	[1.4 1.5 1.6]	[1.5 1.7 1.9]	n.a.
Licensing	FYR Macedonia	[2.3 2.5 2.6]	[2.4 2.8 3.2]	[2.5 3.1 3.7]
Licensing	Armenia	[1.5 1.7 1.8]	[1.6 1.8 2.1]	[0.6 1.2 1.8]
Licensing	Kyrgyz Rep.	[2.6 2.8 3.0]	[2.6 3.1 3.5]	[2.0 2.9 3.7]
Licensing	Mongolia	[5.4 5.7 6.1]	[5.4 6.4 7.4]	[3.5 6.7 9.9]
Licensing	Estonia	[1.3 1.5 1.6]	[1.3 1.6 1.9]	[0.3 1.4 2.5]
Licensing	Kosovo	[2.8 3.1 3.4]	[2.9 3.4 3.9]	[2.8 3.7 4.5]
Licensing	Czech Rep.	[3.4 3.7 3.9]	[3.1 4.0 4.9]	[1.9 2.5 3.1]
Licensing	Hungary	[2.6 2.7 2.9]	[2.6 3.0 3.4]	[-1.1 2.7 6.5]
Licensing	Latvia	[1.0 1.1 1.2]	[1.1 1.3 1.5]	[0.0 1.2 2.3]
Licensing	Lithuania	[2.1 2.2 2.4]	[2.0 2.5 2.9]	[0.7 2.2 3.7]
Licensing	Slovak Rep.	[4.2 4.5 4.8]	[4.1 4.9 5.6]	[2.6 4.2 5.8]
Licensing	Slovenia	[1.7 1.9 2.0]	[1.7 2.1 2.4]	[1.0 1.3 1.5]
Licensing	Bulgaria	[2.9 3.2 3.4]	[3.0 3.5 4.1]	[2.2 3.0 3.8]
Licensing	Croatia	[2.0 2.1 2.2]	[1.9 2.3 2.7]	[1.6 1.9 2.2]
Licensing	Montenegro	[1.5 1.8 2.0]	[1.4 1.9 2.4]	[0.7 1.5 2.2]
Corruption	Albania	[5.7 6.0 6.3]	[6.1 6.7 7.2]	[2.5 5.6 8.8]
Corruption	Belarus	[3.5 3.7 3.9]	[3.7 4.1 4.4]	[3.0 3.6 4.2]
Corruption	Georgia	[1.2 1.3 1.4]	[1.3 1.4 1.6]	[-0.2 1.4 3.0]
Corruption	Tajikistan	[5.2 5.6 5.9]	[5.6 6.0 6.5]	[1.8 6.9 12.0]
Corruption	Ukraine	[9.2 9.7 10.2]	[10.0 10.8 11.7]	[5.6 9.1 12.7]
Corruption	Uzbekistan	[0.7 0.8 0.9]	[0.8 0.9 1.0]	[-4.6 1.1 6.8]
Corruption	Russia	[6.7 7.2 7.6]	[7.2 7.9 8.6]	[8.3 9.8 11.2]
Corruption	Poland	[4.7 4.9 5.2]	[5.0 5.5 6.0]	[2.2 4.9 7.6]
Corruption	Romania	[10.1 10.7 11.4]	[10.8 11.7 12.5]	[7.9 9.3 10.8]
Corruption	Serbia	[5.8 6.1 6.5]	[6.2 6.7 7.3]	[4.3 5.2 6.0]
Corruption	Kazakhstan	[5.8 6.1 6.4]	[6.3 6.9 7.4]	[4.5 5.8 7.1]
Corruption	Moldova	[7.4 7.8 8.3]	[7.9 8.5 9.2]	[-2.4 10.4 23.1]
Corruption	BiH	[7.7 8.2 8.7]	[8.3 8.9 9.6]	[5.5 6.8 8.1]
Corruption	Azerbaijan	[1.4 1.5 1.6]	[1.4 1.6 1.7]	n.a.
Corruption	FYR Macedonia	[4.4 4.7 5.0]	[4.8 5.2 5.6]	[4.6 5.7 6.8]
Corruption	Armenia	[4.2 4.4 4.7]	[4.5 4.9 5.3]	[1.4 3.1 4.8]
Corruption	Kyrgyz Rep.	[11.8 12.6 13.5]	[12.5 13.5 14.5]	[7.8 10.7 13.5]
Corruption	Mongolia	[5.1 5.4 5.7]	[5.4 5.8 6.3]	[3.2 6.7 10.1]
Corruption	Estonia	[1.9 2.1 2.2]	[2.0 2.4 2.7]	[0.5 2.0 3.5]
Corruption	Kosovo	[11.0 11.8 12.7]	[11.7 12.7 13.8]	[10.5 12.7 15.0]
Corruption	Czech Rep.	[6.1 6.5 6.9]	[6.6 7.2 7.8]	[3.7 4.6 5.5]
Corruption	Hungary	[3.1 3.3 3.6]	[3.4 3.7 4.1]	[-0.7 3.1 7.0]
Corruption	Latvia	[3.6 3.8 4.0]	[3.9 4.3 4.7]	[0.8 3.8 6.9]
Corruption	Lithuania	[6.1 6.5 6.8]	[6.5 7.1 7.6]	[2.5 7.5 12.5]
Corruption	Slovak Rep.	[6.1 6.4 6.8]	[6.6 7.2 7.8]	[3.8 6.4 9.1]
Corruption	Slovenia	[4.4 4.6 4.9]	[4.7 5.1 5.6]	[2.5 3.2 3.9]
Corruption	Bulgaria	[6.2 6.6 7.0]	[6.7 7.2 7.8]	[4.6 6.4 8.1]
Corruption	Croatia	[5.7 6.0 6.3]	[6.2 6.8 7.3]	[5.0 5.9 6.9]
Corruption	Montenegro	[2.1 2.5 2.9]	[2.2 2.6 3.0]	[1.1 2.2 3.3]
Labour reg.	Albania	[1.3 1.4 1.5]	[1.4 1.5 1.7]	[0.4 1.5 2.6]
Labour reg.	Belarus	[2.6 2.8 3.0]	[2.8 3.1 3.4]	[2.5 2.9 3.4]
Labour reg.	Georgia	[0.6 0.6 0.7]	[0.6 0.7 0.8]	[0.0 0.7 1.4]

Constraint	Country	Pooled CI	Constraint CI	Country CI
Labour reg.	Tajikistan	[1.3 1.4 1.5]	[1.3 1.5 1.6]	[0.7 1.7 2.7]
Labour reg.	Ukraine	[2.3 2.4 2.5]	[2.4 2.6 2.8]	[1.6 2.3 3.0]
Labour reg.	Uzbekistan	[0.3 0.3 0.4]	[0.3 0.4 0.4]	[-1.4 0.5 2.4]
Labour reg.	Russia	[2.8 3.0 3.2]	[2.9 3.2 3.6]	[3.4 4.0 4.6]
Labour reg.	Poland	[5.7 5.9 6.2]	[5.7 6.3 6.8]	[2.6 5.9 9.2]
Labour reg.	Romania	[6.0 6.3 6.6]	[5.9 6.5 7.1]	[4.5 5.4 6.4]
Labour reg.	Serbia	[4.1 4.3 4.6]	[4.4 4.9 5.3]	[3.0 3.7 4.4]
Labour reg.	Kazakhstan	[1.8 1.9 2.1]	[2.0 2.2 2.4]	[1.3 1.9 2.6]
Labour reg.	Moldova	[2.4 2.6 2.7]	[2.5 2.7 3.0]	[0.2 2.8 5.5]
Labour reg.	BiH	[3.1 3.3 3.5]	[3.2 3.5 3.8]	[2.2 2.6 3.0]
Labour reg.	Azerbaijan	[0.1 0.1 0.1]	[0.1 0.1 0.2]	n.a.
Labour reg.	FYR Macedonia	[2.2 2.3 2.4]	[2.2 2.4 2.7]	[2.3 2.9 3.4]
Labour reg.	Armenia	[1.5 1.6 1.8]	[1.6 1.7 1.9]	[0.3 1.3 2.3]
Labour reg.	Kyrgyz Rep.	[1.2 1.3 1.5]	[1.3 1.4 1.6]	[1.0 1.5 1.9]
Labour reg.	Mongolia	[2.7 3.0 3.2]	[3.1 3.5 3.9]	[1.9 3.7 5.5]
Labour reg.	Estonia	[2.5 2.7 2.9]	[2.7 3.0 3.2]	[0.6 2.6 4.6]
Labour reg.	Kosovo	[1.9 2.1 2.3]	[1.9 2.2 2.5]	[1.9 2.6 3.2]
Labour reg.	Czech Rep.	[6.2 6.5 6.9]	[6.5 7.1 7.7]	[3.7 4.7 5.6]
Labour reg.	Hungary	[4.1 4.3 4.6]	[4.3 4.7 5.1]	[-1.8 4.2 10.1]
Labour reg.	Latvia	[2.0 2.1 2.3]	[2.1 2.3 2.5]	[-0.2 2.3 4.9]
Labour reg.	Lithuania	[4.2 4.4 4.7]	[4.3 4.8 5.3]	[1.8 4.7 7.6]
Labour reg.	Slovak Rep.	[5.3 5.6 5.8]	[5.4 5.9 6.4]	[3.5 5.3 7.1]
Labour reg.	Slovenia	[6.1 6.5 6.8]	[6.2 6.9 7.6]	[3.6 4.6 5.5]
Labour reg.	Bulgaria	[3.9 4.2 4.4]	[3.9 4.3 4.7]	[3.0 4.0 4.9]
Labour reg.	Croatia	[5.2 5.5 5.8]	[5.3 5.9 6.4]	[4.5 5.2 6.0]
Labour reg.	Montenegro	[1.8 2.1 2.4]	[2.1 2.5 2.9]	[1.0 1.8 2.6]

Note: CI=confidence interval.

6. Conclusion

This paper uses newly available data on how managers of the predominantly small and medium-sized firms in the BEEPS V sample expect their costs to be reduced if business environment obstacles to their operation were removed. The analysis provides reassurance that the assessment of the severity of obstacles in the BEEPS and similar World Bank surveys contain useful information for policy-makers. We show that reported cost reductions rise with the severity of constraints. This result is very consistent across constraints and countries. It supports a shadow cost interpretation of the answers to the obstacles questions. The cost saving data allows the severity of obstacles to be calibrated in a number of ways. These calibrations will help to give policy-makers some sense of the magnitude of cost reductions across a wide variety of different aspects of the business environment. The results also indicate that the use of the severity scores as direct indicators of the quality of the public good elements of the business environment is to be avoided.

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Appendix

Modelling framework
(previously published with slight modifications in Carlin and Schaffer (2012))

G_{ij} is a private input chosen by the firm. $\overline{B}_j$ and G_{ij} are substitutes in the production of intermediate input E_{ij}, created via an intermediate input production function $E(\overline{B}_j, G_{ij})$. G_{ij} is a mitigation cost or input that substitutes for deficiencies in the public input $\overline{B}_j$. Intermediate input E_{ij} is combined with labour input L_{ij} via a final output production function F and firms-specific technology level A_{ij}, to generate output $Y_{ij} = A_{ij}F(L_{ij}, E_{ij}))$:

$$E_{ij} = E(\overline{B}_j, G_{ij}) \tag{1}$$

$$Y_{ij} = A_{ij}F(L_{ij}, E(\overline{B}_j, G_{ij})) \tag{2}$$

The firm's problem is choose L_{ij} and G_{ij} to maximise profits for given technology A_{ij}, public input $\overline{B}_j$, and relative prices of labour and mitigation, denoted as w_j and p_j, respectively (we normalise the output price to 1; all firms in country j face the same prices), and the intermediate input and final output production technology. [7]

It is useful to write these as maximum-value or indirect objective functions. Denoting profit-maximising quantities with a superscript *, we have the input demand functions for labour and mitigation, the supply function for output, and the profit function for the firm's maximised profit, all written as functions of the exogenous variables A_{ij}, $\overline{B}_j$, w_j and p_j.

$$L^*_{ij} = L^*(A_{ij}, \overline{B}_j, w_j, p_j) \tag{3}$$

$$G^*_{ij} = G^*(A_{ij}, \overline{B}_j, w_j, p_j) \tag{4}$$

$$E^*_{ij} = E(\overline{B}_j, G^*_{ij}) = E^*(A_{ij}, \overline{B}_j, w_j, p_j) \tag{5}$$

$$Y^*_{ij} = Y^*(A_{ij}, \overline{B}_j, w_j, p_j) = A_{ij}F(L^*_{ij}, E(\overline{B}_j, G^*_{ij})) \tag{6}$$

$$\pi^*_{ij} = \pi^*(A_{ij}, \overline{B}_j, w_j, p_j) = Y^*(A_{ij}, \overline{B}_j, w_j, p_j) - w_j L^*_{ij} - p_j G^*_{ij} \tag{7}$$

So far we have assumed that the public input $\overline{B}_j$ is supplied identically to all firms in a country. An example of a public input of this kind is macroeconomic stability. A more realistic assumption would allow for B_{ij} to vary across firms. This could result from regional variation in the quality of the public input within a country, or simply because of random variation in the reliability of the public input, for example, some firms were luckier than others with respect to the number power outages they faced.

An important issue relates to possible differences in infrastructure quality across locations. We find in the paper that firms in large cities report higher constraints across most

[7] In addition to the assumption of weak separability that we have already made, *F(L,B,G)=F(L,E(B,G)*, and the usual assumptions about the production functions *E* and *F*, we also assume that *E* is strictly quasi-concave and homothetic.

dimensions of the business environment than do firms in more rural locations. However, this is not because the supply of public inputs, B_{ij} is lower in cities; in fact, our prior is that if infrastructure quality varies between rural areas and cities, it is higher in the latter. Thus, when we find that firms in large cities are more constrained, this is in spite of having, if anything, better public inputs.

In some cases, however, the public input supplied to the firm will vary with the firm's profitability or productivity. (Since maximised profit is a function of productivity A_{ij} – see above – we simplify and consider productivity A_{ij} as a proxy for profitability.) In this case, we have

$$B_{ij} = B(\overline{B}_j, A_{ij}) \qquad \frac{\partial B_{ij}}{\partial \overline{B}_j} > 0 \qquad \frac{\partial B_{ij}}{\partial A_{ij}} < 0 \tag{8}$$

$$E_{ij} = E(B_{ij}, G_{ij}) = E(B(\overline{B}_j, A_{ij}), G_{ij}) \tag{9}$$

An example: $\overline{B}_j$ is the honesty of the bureaucracy in country j, B_{ij} is the inverse of the number of inspections that a firm with productivity A_{ij} attracts (more inspections means a lower quality public input B_{ij} supplied to the firm), and G_{ij} is bribes.

We now consider how the firm's optimal choices of inputs and output, and the firm's valuations of the public input, vary with the quality of the public input $\overline{B}_j$, and with the productivity of the firm A_{ij}.

In the model above, supply and profits are, not surprisingly, increasing in the quality of the public input $\overline{B}_j$:

$$\frac{\partial Y_{ij}^*}{\partial \overline{B}_j} > 0, \qquad \frac{\partial \pi_{ij}^*}{\partial \overline{B}_j} > 0 \tag{10}$$

Many such country-level measures are available and have been used in country-level studies. Firm-level surveys do collect some information about the quality of the business environment $\overline{B}_j$. However, these measures are best interpreted as estimates by an individual firm of the quality of the shared environment, in the same way that a firm's answers on a price survey provide information about the market price for a specific product. An example of such a measure from the Enterprise Surveys would be a firm's report of the number of electricity supply interruptions it faced.

Information on mitigation costs G_{ij}^* is also collected from firms. Mitigation expenditures are endogenously chosen by the firm. These expenditures will be decreasing in the quality of the public input $\overline{B}_j$ and increasing in the productivity of the firm, A_{ij}:

$$\frac{\partial G_{ij}^*}{\partial \overline{B}_j} \leq 0, \qquad \frac{\partial G_{ij}^*}{\partial A_{ij}} \geq 0 \tag{11}$$

The second expression is of interest to us in the empirical analysis and has a two-fold intuitive justification. In the benchmark case where the public input supplied to all firms is

identical and independent of firm productivity, that is $B_{ij} = \overline{B}_j$, higher productivity firms spend more on mitigation because the payoff is bigger than it is to low productivity firms. In the case where the quality of the public input varies inversely with firm productivity, as in the example of higher productivity firms attracting more attention from rent-seeking officials, that is $B_{ij} = B(\overline{B}_j, A_{ij})$, the effect is reinforced. More profitable firms have an even lower quality public input, and hence the payoff to spending on mitigation is even bigger.

The above implies that firm productivity, and proxies for productivity and growth, should be associated with higher mitigation outlays. Moreover, the partial derivative $\frac{\partial G_{ij}^*}{\partial A_{ij}}$ can vary systematically across countries, and in particular it will be decreasing in the quality of the public input $\overline{B}_j$:

$$\frac{\partial^2 G_{ij}^*}{\partial A_{ij} \partial \overline{B}_j} \leq 0 \qquad (12)$$

that is, countries with a lower quality public input, $\overline{B}_j$ should see stronger correlations between mitigation outlays and firm-level productivity.

If the quality or quantity of the public input $\overline{B}_j$ is sufficiently high, the marginal cost of additional expenditure on mitigation will be greater than the marginal benefit to the firm, in which case optimal mitigation G_{ij}^* is zero. Examples would be expenditure on a new generator when the quality of electricity supply is so high that the cost of the generator cannot be justified or expenditure on bribes when public officials are already so honest that there is no point bribing them. In these circumstances, there would be no correlation between mitigation costs and firm-level productivity.

Firms also provide information about the flow of services E_{ij}^* obtained from the combination of the public input and mitigation expenditures. An example is the speed with which goods clear customs, which is an endogenous result of the quality of the customs bureaucracy ($\overline{B}_j$) and of the optimal mitigation costs such as management time and bribes aimed at getting the firm's goods through customs (G_{ij}^*). In the benchmark case where the public input supplied to all firms is identical and independent of firm productivity, the flow of intermediate inputs, E_{ij}^*, is increasing in the productivity of the firm; this follows from the property that mitigation outlays are also increasing in the productivity of the firm:

$$\frac{\partial E_{ij}^*}{\partial A_{ij}} = \frac{\partial E(\overline{B}_j, G_{ij}^*(A_{ij}))}{\partial A_{ij}} = \frac{\partial E_{ij}}{\partial G_{ij}} \frac{\partial G_{ij}^*}{\partial A_{ij}} \geq 0 \qquad (13)$$

A simple and intuitive interpretation of the "Subjective Severity" indicators collected in the Enterprise Surveys is that they represent the "reported cost" R_{ij} of a public input is the gap between the firm's profit in the hypothetical situation where the public input provided is of such high quality that it poses a negligible obstacle to the firm's operations, and the firm's profit in reality, given the actual quality of public input provided. If we denote the level of public input provided in an ideal, high-quality business environment as $\overline{\overline{B}}_j$, we have

$$R_{ij} = \pi^*(A_{ij}, \overline{\overline{B}}_j, w_j) - \pi^*(A_{ij}, \overline{B}_j, w_j) \tag{14}$$

The marginal analogue of the reported cost R_{ij} for small changes in the public input, or "marginal reported cost", is therefore simply the derivative of the profit function:

$$R_{ij} \approx \frac{\partial \pi_{ij}^*}{\partial \overline{B}_j} \equiv \lambda_{ij} \tag{15}$$

We can think of the profit function π_{ij}^* as resulting from a constrained maximisation by the firm, where the public input $\overline{B}_j$ is supplied to the firm at a level or quality that means the firm would prefer a higher quality or more of it. By the envelope theorem for constrained maximisation, the derivative of the profit function π_{ij}^* with respect to a constrained or fixed input is simply the shadow price of the input. Thus we follow Carlin et al. (2006) and interpret the responses to "Subjective Severity" questions as the *shadow price* λ_{ij} of shortcomings in the public input $\overline{B}_j$.[8]

The shadow price of $\overline{B}_j$ is decreasing in $\overline{B}_j$:

$$\frac{\partial \lambda_{ij}}{\partial \overline{B}_j} \equiv \frac{\partial^2 \pi_{ij}^*}{\partial \overline{B}_j^2} < 0 \tag{16}$$

The shadow price of a constraint is also increasing in the productivity of the firm:

$$\frac{\partial \lambda_{ij}}{\partial A_{ij}} \equiv \frac{\partial^2 \pi_{ij}^*}{\partial \overline{B}_j \partial A_{ij}} > 0 \tag{17}$$

that is, a higher productivity firm will report higher costs of a poor public input than a lower productivity firm – even though they share the same business environment.

Lastly, we are interested in firm growth as well firm productivity. The simplest extension to the model that accommodates this is to extend the model to include a quasi-fixed input such as capital or workers with permanent contracts. Now, in addition to the optimising choice of variable inputs L_{ij}^* and G_{ij}^*, the firm also chooses an optimal level of investment I_{ij}^* in the quasi-fixed input. I_{ij}^* will be increasing in the firm-specific parameters that capture future profitability such as A_{ij}. Hence, we expect direct measures of I_{ij}^*, or proxy measures for the parameters that drive the cross-firm variation in I_{ij}^*, to be correlated with G_{ij}^*, E_{ij}^* and MRC^* in the same way as A_{ij} is above.

[8] Carlin et al. (2010) interpret the responses as "reported costs" (RC) in a slightly different framework to the one adopted here, namely an O-ring production function in which the quality of the public input is measured by the probability that it fails and output is zero. This allows a response of 0 to be interpreted naturally as a zero probability of failure, which in turn implies the firm's evaluation of the quality of the public input is that it is so high that additional improvements would not benefit the firm. The difference in formal frameworks is immaterial to the analysis here.

Appendix tables

Table A.1: Summary statistics: mean

Country	Electricity	Customs	Courts	Crime	Tax admin.	Licensing and permits	Corruption	Labour reg.
Albania	1.22	0.34	0.22	0.41	1.08	0.32	1.13	0.26
Belarus	0.71	0.62	0.27	0.62	0.53	0.45	0.68	0.50
Georgia	1.00	0.22	0.13	0.28	0.38	0.02	0.24	0.11
Tajikistan	1.39	0.63	0.29	0.45	1.42	0.56	1.06	0.26
Ukraine	0.60	0.55	0.49	0.54	1.05	0.64	1.85	0.44
Uzbekistan	0.73	0.13	0.10	0.06	0.18	0.13	0.15	0.06
Russia	1.14	0.62	0.49	0.78	0.96	0.77	1.37	0.56
Poland	0.81	0.78	0.72	0.66	1.57	0.87	0.92	1.11
Romania	1.41	0.63	0.66	1.12	2.29	0.92	2.07	1.20
Serbia	0.64	0.67	0.77	0.64	1.43	0.54	1.14	0.78
Kazakhstan	1.12	0.58	0.41	0.74	0.70	0.55	1.16	0.34
Moldova	1.18	0.52	0.36	0.38	0.71	0.41	1.50	0.47
Bosnia and Herzegovina	0.63	0.88	0.64	0.65	1.16	0.73	1.57	0.61
Azerbaijan	0.20	0.13	0.02	0.04	0.43	0.29	0.26	0.02
FYR Macedonia	1.20	0.54	0.60	0.67	0.80	0.47	0.89	0.43
Armenia	0.49	1.17	0.14	0.22	1.45	0.32	0.84	0.31
Kyrgyz Rep.	1.48	0.77	0.33	1.10	1.01	0.52	2.44	0.25
Mongolia	0.84	1.21	0.30	0.79	0.93	1.05	0.99	0.49
Estonia	0.74	0.25	0.18	0.53	0.52	0.27	0.38	0.49
Kosovo	2.12	1.39	0.79	1.99	1.75	0.58	2.29	0.40
Czech Rep.	1.92	0.75	0.78	1.04	1.62	0.62	1.21	1.19
Hungary	0.65	0.38	0.26	0.39	1.20	0.51	0.62	0.79
Latvia	0.95	0.35	0.22	0.59	0.59	0.21	0.73	0.40
Lithuania	1.37	0.38	0.37	0.99	1.29	0.40	1.21	0.81
Slovak Rep.	1.21	0.70	0.76	0.68	1.20	0.82	1.22	1.04
Slovenia	0.66	0.42	0.84	0.44	1.33	0.34	0.87	1.21
Bulgaria	0.70	0.32	0.52	0.73	0.75	0.59	1.25	0.78
Croatia	0.37	0.62	0.80	0.63	1.43	0.38	1.15	1.03
Montenegro	0.93	0.62	0.28	0.48	0.79	0.30	0.43	0.36
Total	0.99	0.59	0.45	0.66	1.03	0.59	1.20	0.57

Table A.2: Summary statistics: mean
Remaining constraints

Country	Telecommunications	Transport	Access to land	Political instability	Workforce skills
Albania	0.29	0.41	0.79	0.89	0.58
Belarus	0.62	0.64	0.79	0.76	1.27
Georgia	0.63	0.41	0.19	1.70	0.47
Tajikistan	1.03	0.85	0.59	1.49	0.78
Ukraine	0.42	0.75	0.71	1.75	0.61
Uzbekistan	0.24	0.18	0.17	0.18	0.26
Russia	1.12	1.09	0.86	1.30	1.33
Poland	0.60	0.78	0.52	1.10	0.85
Romania	1.02	1.04	0.75	2.17	1.77
Serbia	0.34	0.47	0.36	1.76	0.74
Kazakhstan	0.90	0.91	0.69	0.46	1.08
Moldova	0.70	0.88	0.34	1.49	1.51
Bosnia and Herzegovina	0.44	0.62	0.28	1.97	0.66
Azerbaijan	0.05	0.22	0.43	0.06	0.06
FYR Macedonia	0.59	0.52	0.60	1.31	0.63
Armenia	0.42	0.82	0.79	1.24	0.51
Kyrgyz Rep.	0.77	0.95	0.77	3.13	1.58
Mongolia	0.58	0.95	1.22	1.19	1.25
Estonia	0.66	0.56	0.17	0.61	0.56
Kosovo	0.71	1.19	1.00	1.88	1.15
Czech Rep.	1.61	1.36	0.54	1.57	1.37
Hungary	0.72	0.51	0.30	0.98	0.63
Latvia	0.85	0.74	0.41	1.13	1.32
Lithuania	1.05	0.88	0.35	1.46	1.82
Slovak Rep.	0.84	1.03	0.37	1.16	1.17
Slovenia	0.60	0.51	0.46	1.75	0.52
Bulgaria	0.34	0.39	0.32	1.52	0.74
Croatia	0.44	0.44	0.31	1.12	0.56
Montenegro	0.29	0.44	0.28	0.38	0.35
Total	0.76	0.81	0.62	1.31	1.01