What Influences Firms' Perceptions?

This draft: August 21, 2009

David S. Kaplan

Enterprise Analysis Unit

The World Bank

dkaplan@worldbank.org

Vikram Pathania

Cornerstone Research

vpathania@cornerstone.com

Abstract

Perceptions-based indicators are sometimes used to measure the quality of the business environment. For instance, firms are asked about the major constraints on business operations and expansion. Little is known, however, about what shapes their responses. In this paper, using perceptions-based indicators from 38 countries and 84 years from the World Bank Enterprise Surveys, we argue that firm responses are critically influenced by macroeconomic conditions. Paradoxically, we find that perceptions worsen during periods of high GDP growth. We also examine other indicators from the Enterprise Surveys which are objective measures of constraints and find that the objectives measures remain unchanged during high-growth years. We conclude that changes in firms' perceptions over time may not reflect changes in the business environment.

Introduction

Institutions have increasingly become the focus of research in economic growth and development. Although there is no universally accepted definition of institutions, a number of groups have developed indicators that purport to measure institutional quality. Some examples include the World Bank Doing Business indicators, the World Bank Environment Survey, the World Economic Forum's Global Competitiveness Index, the Heritage Foundation's Index of Economic Freedom, the Fraser Institute's Economic Freedom of the World Report, the IMD's World Competitiveness Yearbook, and Transparency International's Corruption Perceptions Index. The indicators seek to measure various aspects of both the *de jure* and the *de facto* institutional environment such as regulation as encoded in laws and policy frameworks, judicial competence and independence, corruption, quality of enabling infrastructure, and labor force quality and availability. The indicators are often used to rank countries and to monitor changes within countries over time. They can serve to spur debate and policy reform.

The indicators rely on a mix of 'hard' and 'soft' data. Examples of hard data include the corporate tax rate, tariff burden, the number of licenses required to start a business, etc. Soft data are perceptions-based and typically drawn from surveys of managers and business leaders. For instance, the IMD's World Competitiveness Yearbook reports that it uses 131 criteria based on hard data and 77 criteria based on an annual executive opinion survey to rank countries on the basis of their competitiveness. The survey respondents are sampled from the top and middle management ranks of enterprises within a country. An example of a survey question is: 'Do you agree that skilled labor is readily available?' Responses are coded as varying degrees of agreement on a scale of 0 to 6.

Similarly, the World Bank Enterprise Surveys ask managers about their perceptions of the severity of potential obstacles to the current operations of the firm. Obstacles listed include telecom infrastructure, tax rates, tax regulations, customs and trade regulations, requirements for licensing and operating permits, skills and education of the labor force, etc. The Global Competitiveness Report also conducts an annual Executive Opinion survey. Respondents are asked to evaluate, on a scale of 1 to 7, the current conditions of their particular operating environment. An example of a typical survey question: "Intellectual property protection in your

country is weak and not enforced," with 1 denoting strong agreement and 7 denoting strong disagreement.

Economists have traditionally preferred to work with 'hard' data. For instance, in welfare analyses, they prefer to use revealed choice measures of well being. However, Kahneman and Krueger (2006) survey recent developments in use of subjective measures of well being and find a rapid growth in economics research in this field. They tabulate papers in Econlit and find that from 2001 to 2005, there were over 100 papers using subjective measures of well being compared to only 5 from 1991 to 2005. Perception based indicators are useful in capturing aspects of the institutional environment for which there are few objective measures. They are particularly useful in measuring the de facto environment i.e. rules and regulations as experienced by firms and not just what is on the books. For instance, a country may have strong patent protection on paper and yet weak or ineffective enforcement on the ground. Perception based indicators can also serve as an external check against macro-economic indicators. For instance, Nordhaus (1998), and Kruger and Siskind (1998) investigate the bias in inflation indices such as the Consumer Price Index (CPI). They compare the self reported change in financial condition in the survey of consumer behavior done by the Survey Research Center at the University of Michigan to growth in median household income deflated by the CPI.

However there are conceptual and measurement problems with perception based indicators. The conceptual problem is the frequent lack of clarity on what is really being measured. The measurement problems are errors that may go beyond white noise; these indicators may be biased in systematic ways. Bertrand and Mullainathan (2001) summarize some of the large experimental literature that shows that subjective survey data can have systematic measurement errors. These errors can arise due to cognitive factors linked to the framing and wording of questions, and the order in which questions and alternative responses are presented. These errors can also arise from the social nature of the survey procedure with respondents shading their answers to what they think the surveyor wants to hear.

Another potential concern with perceptions based indicators relates to the composition of the respondents. For instance, perceptions of a representative sample of firms on the restrictiveness of labor laws may not be indicative about the true social cost of such laws. Many firms may not be included in the survey because they choose to remain unregistered or small. Other potential entrepreneurs may not operate a firm at all because of these laws.

Donchev et al (2008) argue in favor of objective measures of corruption experience. They find that some of the widely used perception indices to measure corruption differ significantly from actual corruption experience. Donchev et al find that perceptions-based corruption indices are affected by numerous factors that are unrelated to actual corruption. Olken (2007) also finds systematic discrepancies between an objective measure of corruption in road building projects in Indonesia and perceived corruption as reported by villagers.

In this paper, we investigate if macro-economic shocks can influence perception based indicators. Specifically, we study the association between perception based indicators in the World Bank Enterprise Surveys and GDP growth rates. The Enterprise Surveys have a section where managers are asked to judge the severity of potential obstacles to the operations of their firms. The listed obstacles cover areas such as infrastructure, laws, taxes, labor force, trade, corruption, crime, and macroeconomic policies etc. Managers rate the severity on a 0 to 4 scale where 0 represents "No Obstacle" and 4 denotes "Severe Obstacle."

There are at least two plausible hypotheses on how overall macro-economic conditions can influence managers' responses. During periods of high economic growth, firms tend to do well and managers are 'happy' and tend to complain less about the business climate. If so, we expect to see a negative correlation between GDP growth and the judged severity of obstacles. Another reason for a negative correlation between GDP growth and the judged severity of obstacles is that firms could 'bump up' against some of these obstacles in bad times. Labor laws governing dismissals, for example, may become particularly binding in bad times when firms are downsizing.

On the other hand, it may be the case that firms 'bump up' against constraints in good times rather than in bad times. If so, managers may complain more about the business climate during good times and we would expect a positive correlation between GDP growth and perceived severity. For example, the manager of a fast growing firm may wish to expand production by adding a new assembly line for which he may have to apply for a permit and a new electric connection, and procure more land. All these activities may prove costly and complex depending on the prevailing regulations and existing infrastructure.

We find that perceptions of the business climate generally worsen during periods of high GDP growth rate. Could worsening perceptions reflect worsening institutional or infrastructural quality? If constraints do indeed become more binding during high-growth years, we would

expect deterioration in objective measures of the business environment. We examine other indicators from the Enterprise Surveys which in principle should be more objective measures of the business environment. We find that while constraints such as the power shortage, regulatory burden, corruption etc are perceived to be more severe during high-growth years, objective measures of those constraints remain unchanged. While we are unable to offer a definitive explanation to reconcile shifting perceptions with stable objective measures, we believe that is plausible that firms perceive delays to be more costly and therefore more irksome during high-growth years.

This paper contributes to the growing literature on potential problems with subjective survey data. In particular, to the best of the authors' knowledge, it is the first to investigate how the macro-economic changes can influence managers' perceptions of institutions.

Data and Methodology

We started with 151 Enterprise Surveys that were conducted by the World Bank between 2002 and 2006. We retained those countries which were surveyed at least twice. This restriction yielded 38 countries; 30 countries were surveyed twice and 8 were surveyed three times. Table 1 lists the survey countries and year. There are 39,182 firms in the final sample.

An example of a perception-based question in the Enterprise Survey is: "Do you think that **customs and trade regulations** are an obstacle to the current operations of this establishment?" Respondents could choose from one of the following: no obstacle, minor, moderate, major or very severe obstacle coded as 0-4. Table 2 displays the list of potential constraints in the questionnaire and a summary of firm-level responses. Note that these questions had a fairly high response rate with the exception of the question on legal systems and conflict resolution.

Since the perception of the severity of obstacles is an ordered response, we analyze the association between lagged GDP growth and firms' perceptions using Ordered Probit regressions at the firm level for each of the potential obstacles. We posit latent perception:

$$y^*_{i,c,t} = \alpha_c + \eta_t + \beta(gdpgr)_{c,t-1} + \gamma X_{i,c,t} + \varepsilon_{i,c,t} \tag{1}$$

We allow for latent perception to vary with the country, c and the year of survey, t. At the firm level, we allow for latent perception to be influenced by the age and size of the firm, i.

The coefficient of interest is β, the coefficient on lagged GDP growth. If the firm was surveyed in 2006, the value for lagged GDP growth reflects the percent change in real GDP from 2004 to 2005. Since firms are surveyed at various times during the year, using the percent change in real GDP from 2005 to 2006 might be capturing a great deal of economic activity that occurred after the firm was surveyed. The ε are assumed to be normally distributed errors. We allow errors to be correlated across firms within a country. While we do not observe y*, the response selected by the firm is known and the probability that the firm selects a response j conditional on the country, year of survey, and firm characteristics (Z) is given by:

$$\Pr(y_{i,c,t} = 0 \mid Z) = \Phi(\alpha_1 - Z\theta)$$
$$\Pr(y_{i,c,t} = j \mid Z) = \Phi(\alpha_{j+1} - Z\theta) - \Phi(\alpha_j - Z\theta) \qquad (2)$$
$$\Pr(y_{i,c,t} = 4 \mid Z) = 1 - \Phi(\alpha_4 - Z\theta)$$

The α and θ (including β) are to be estimated; Φ is the cumulative standard normal distribution.

The Enterprise Survey also includes many questions that seek to objectively measure the quality of the business environment. Examples include questions on the number of days of power outage faced by the plant in the previous year, the delay (in days) in getting a new phone line, the proportion of new investment financed with bank credit, the amount of time senior management spends with government officials, and the amount of unofficial payment a firm has to make to get things done. We investigate whether worsening perceptions during high growth periods are matched by deterioration in objective indicators of the business environment. We select 18 'objective' indicators that can be construed as counterparts to one or more of the perception based indicators, and that have a response rate of above 50%.[1] Table 3 lists the selected 'objective' indicators which measure the quality of infrastructure, access to finance, the burden of regulation, the burden of tax administration, the incidence of corruption, and the incidence of crime. We run OLS regressions at the firm level analogous to the Ordered Probit regression specification in (1):

$$y_{i,c,t} = \alpha_c + \eta_t + \beta(gdpgr)_{c,t-1} + \gamma X_{i,c,t} + \varepsilon_{i,c,t} \qquad (3)$$

As before, we control for firm size and age, and include year and country fixed effects, and allow for arbitrary correlation of the error terms across firms within the same country.

Results

Table 4 shows the results of estimating equation (1). The perceived severity of nearly all of the constraints is positively and significantly associated with lagged GDP growth. In particular, the reported severity of 16 of the 18 constraints exhibits a positive and significant correlation with GDP growth. No constraints exhibit a negative correlation and only two exhibit insignificant correlations. These results suggest that managers perceive constraints to be more severe during periods of rapid growth.

Does firm size affect how managers perceive constraints during high growth periods? Smaller firms may have fewer connections and resources to negotiate bureaucratic hurdles to procure permits, to buy or lease more land, and to access capital. However, Table 5 shows that managers in small and big firms tend to perceive constraints similarly. In fact, the association between perceived severity and GDP growth are a bit larger and more significant for large firms. It may be that large firms are even more hamstrung by regulations than their smaller counterparts. For instance India has a stringent labor law, the Factory Act that only applies to enterprises that employ more than 10 workers. Large firms are also more visible to enforcement authorities and tend to operate in the more regulated parts of the economy.

A possible explanation for worsening perceptions during high growth periods is that the business climate really deteriorates during such periods. If so, we would expect to see a parallel deterioration in many objective measures of the business environment during high growth periods. For instance, capacity constraints in infrastructure and in the government machinery could lead to worsening performance in face of increased demand for services from fast growing firms. Greater demand for power could lead to more outages if power generation capacity fails to keep pace. Similarly, higher profitability could lead to more firms filing tax returns which in turn could lead to a greater work burden per tax officer. Table 6 shows the results of estimating equation (2). Somewhat surprisingly, we find no evidence that there is an actual worsening of the business environment during high growth periods. None of the 18 objective indicators of the business environment display a statistically significant change during high growth periods. The

---

[1] While the Enterprise Survey has a long list of 'objective' measures of the business environment, the response rates to many of those questions are rather low. It is plausible that some of the questions were not asked in some of the surveys or that there is high degree of selectivity among firms when responding to those questions.

point estimates indicate that the change is sometimes for the better and sometimes for the worse, but in no case is the change significant.

Why do firms perceive the business environment to be worsening in high growth periods even though objective measures suggest that there is no substantive change in the quality of the business environment? In the absence of further research, we can only speculate on the reasons. One possibility is that firms perceive the opportunity cost of delays and bottlenecks in business to be greater in high growth periods. Firms may find a month long delay in obtaining an import license during an economic boom to be more costly than an identical delay during a recession. High-growth years bring many opportunities for rapid expansion and higher profits, and delays in exploiting those opportunities can prove costly. As such, managers may regard the same delays as more irksome during high-growth years.

Conclusions

We present evidence that in low and middle income countries, managers' perceptions of the severity of infrastructural and institutional constraints shift systematically with changing GDP growth. Somewhat counter intuitively, managers perceive constraints as more severe during booms. This relationship suggests that firms may find constraints binding during high-growth years as they seek to expand operations. However, we find no evidence of systematic deterioration in objective measures of the business environment during high-growth years. Further research is merited to reconcile the systematic shifts in firms' perceptions of the business environment induced by changes in economic growth with the apparent underlying stability in objectives measures of the business environment. It is plausible that firms perceive the opportunity costs of delays to be higher during high-growth years as compared to low-growth years.

Perception based indicators are valuable since they can capture aspects of the institutional environment that are hard to measure objectively. They are also informative about how firms experience institutions. But our findings suggest that caution has to be exercised in interpreting changes in the perceptions based indicators over time.

The question then becomes how to use perceptions-based indicators. Glaeser et al (2004) caution against using indicators of institutions that, at least in part, are really measures of outcomes such as growth. Our paper offers empirical support to their claim. Perceptions-based

indicators are influenced by growth, making them invalid as independent variables in papers like Glaeser et al.

We believe that the best use of perceptions-based indicators may be as dependent variables. It would be informative, for example, to know whether real institutional reform translates into changes that are perceived by firms. It would also be useful to learn what other factors might influence the perceptions of firms. We simply wish to point out that perceptions-based indicators are not "pure" measures of institutions. They are partially determined by many of the variables we would tend to classify as "outcomes" in empirical work.

References

Bertrand, Marianne and Sendhil Mullainathan. 2001. Do People Mean What They Say? Implications for Subjective Survey Data, *American Economic Review Papers and Proceedings*, 91(2): 67-72.

Glaeser, Edward L., La Porta, Rafael, Lopez-de-Silanes, Florencio, and Shleifer, Andrei. 2004. Do Institutions Cause Growth? *Journal of Economic Growth*, 9: 271-303.

Donchev, Dilyan and Gergely Ujhelyi. 2008. What Do Corruption Indices Measure? Available at SSRN: http://ssrn.com/abstract=1124066.

Krueger, Alan B. and Daniel Kahneman. 2006. Developments in the Measurement of Subjective Well-Being. *Journal of Economic Perspectives,* 20(1): 3-24.

Krueger, Alan B. and Aaron Siskind. 1998. Using Survey Data to Assess Bias in the Consumer Price Index. *Monthly Labor Review*, 121(4): 24 –33.

Nordhaus, William D. 1998. Quality Changes in Price Indexes, *Journal of Economic Perspectives,* 12(1): 59-68.

Olken, Benjamin A. 2007. Monitoring Corruption: Evidence from a Field Experiment in Indonesia, *Journal of Political Economy*, 115(2): 200-249

Table 1 List of Survey Countries and Years

Country	Year
Albania	2002, 2005
Armenia	2002, 2005
Azerbaijan	2002, 2005
Belarus	2002, 2005
Bosnia and Herzegovina	2002, 2005
Bulgaria	2002, 2004, 2005
Chile	2004, 2006
China	2002, 2003
Croatia	2002, 2005
Czech Republic	2002, 2005
Ecuador	2003, 2006
El Salvador	2003, 2006
Estonia	2002, 2005
Georgia	2002, 2005
Guatemala	2003, 2006
Honduras	2003, 2006
Hungary	2002, 2005
India	2002, 2006
Kazakhstan	2002, 2005
Kyrgyz Republic	2002, 2003, 2005
Latvia	2002. 2005
Lithuania	2002, 2004, 2005
Macedonia, FYR	2002, 2005
Moldova	2002, 2003, 2005
Nicaragua	2003, 2006
Peru	2002, 2006
Poland	2002, 2003, 2005
Romania	2002, 2005
Russian Federation	2002, 2005
Serbia	2002, 2003, 2005
Slovak Republic	2002. 2005
Slovenia	2002, 2005
Tajikistan	2002, 2003, 2005
Tanzania	2003, 2006
Turkey	2002, 2005
Uganda	2003, 2006
Ukraine	2002, 2005
Uzbekistan	2002, 2003, 2005

Table 2 Responses on Severity of Potential 'obstacles' to Business Operations[2]

	Mean	Std Dev.	Median	% Response
Telecommunications	0.54	0.95	0	81%
Electricity	0.89	1.23	0	93%
Transport	0.59	0.98	0	92%
Land access	0.60	1.04	0	89%
Tax rates	1.55	1.34	2	91%
Tax administration	1.28	1.28	1	90%
Customs & trade regulations	0.85	1.16	0	81%
Labor regulations	0.85	1.11	0	87%
Skills & education of available workers	0.94	1.15	0	87%
Licensing & operating permits	0.86	1.12	0	90%
Access to finance e.g. collateral	1.18	1.29	1	90%
Cost of finance e.g. interest rates	1.58	1.30	2	73%
Economic & regulatory policy uncertainty	1.41	1.31	1	91%
Macroeconomic instability e.g. inflation, exchange rate	1.64	1.29	2	76%
Corruption	1.26	1.37	1	89%
Crime, theft, disorder	0.97	1.23	0	91%
Anti-competitive/informal practices	1.19	1.29	1	91%
Legal system & conflict resolution	0.91	1.19	0	73%

---

[2] The response scale was: 0 – No obstacle, 1- Minor, 2- Moderate, 3-Major, 4-Very Severe. The response rate is calculated for the 39182 firms the final sample.

Table 3 Responses to Select 'Objective' Indicators of Business Environment

Indicator	Mean	Std Dev.	% Response
Infrastructure			
Days of power Outages/Surges	23.69	102.64	65.55%
Days of unavailable mainline phone services	3.93	25.67	56.56%
% of average cargo value lost in transit	1.17	5.09	51.53%
Access to Finance			
% working capital from internal/retained earnings	61.75	40.27	87.34%
% new investment from internal/retained earnings	60.72	43.15	57.02%
% working capital from local banks	12.53	25.58	87.35%
% new investment from local banks	15.27	30.73	57.02%
% working capital from foreign banks	1.01	7.73	67.70%
% working capital from leasing arrangements	1.09	6.69	62.55%
% working capital from credit cards	0.58	4.77	62.55%
% working capital from sale of stock	3.81	16.44	67.70%
% new investment from sale of stock	3.05	15.53	56.18%
Regulatory Burden			
% of senior management time dealing with government regulations	9.80	15.10	90.42%
Tax Administration			
Days spent with tax officials	5.80	15.44	60.13%
Corruption			
Unofficial payments to get things done (% sales)	1.62	4.57	64.78%
Gift/informal payments requested by tax officials	0.36	0.48	65.39%
Crime, Theft, Disorder			
Cost of providing security (% sales)	1.82	12.17	58.96%
Losses due to theft/vandalism/arson (% sales)	0.85	4.09	73.28%

Table 4 Association of Perceived Obstacles with Lagged GDP Growth

	telecom	electricity	transport	land access	tax rates	tax administration
Lagged GDP growth	-0.003	0.021*	0.024***	0.016*	0.069***	0.049***
	[-0.21]	[1.86]	[3.07]	[1.74]	[5.81]	[4.11]
Small	0.038**	-0.013	-0.068***	0.054	-0.013	-0.065**
	[2.16]	[-0.59]	[-3.70]	[0.93]	[-0.35]	[-2.07]
New	0.018	-0.006	0.049	0.112***	-0.009	-0.005
	[0.48]	[-0.18]	[1.28]	[2.98]	[-0.19]	[-0.082]
Observations	31711	36437	35982	35040	35535	35264

	customs & trade regulations	labor regulations	skills & education of workers	licensing & operating permits	access to finance	cost of finance
Lagged GDP growth	0.041***	0.033***	0.032***	0.042***	0.038***	0.022**
	[4.97]	[3.15]	[3.18]	[5.12]	[3.51]	[2.31]
Small	-0.282***	-0.237***	-0.208***	-0.059*	0.118***	0.022
	[-7.94]	[-7.86]	[-7.25]	[-1.87]	[3.52]	[0.71]
New	0.025	-0.065*	-0.004	0.089*	0.084*	-0.007
	[0.62]	[-1.81]	[-0.11]	[1.87]	[1.75]	[-0.17]
Observations	31844	34210	34260	35069	35334	28409

	economic & regulatory policy uncertainty	macroeconomic instability	corruption	crime, theft, disorder	anti-competitive practices	legal system & conflict resolution
Lagged GDP growth	0.007	0.026*	0.040***	0.038***	0.022*	0.031***
	[0.61]	[1.95]	[3.40]	[2.74]	[1.67]	[2.68]
Small	-0.042**	-0.065**	-0.01	0.05	0.009	-0.174***
	[-2.01]	[-2.02]	[-0.37]	[1.51]	[0.32]	[-5.97]
New	0.036	-0.002	0.011	0.047	0.075*	-0.001
	[1.06]	[-0.068]	[0.24]	[1.16]	[1.93]	[-0.023]
Observations	35757	29592	34739	35670	35705	28658

Notes: These are results from Ordered Probit regressions with fixed effects for country and year of survey and controls for firm size and age. Small denotes firms with less than 20 employees, while new denotes firms registered no more than 3 years ago. The z-statistics are reported in the parentheses and are computed from robust standard errors clustered on country. The coefficients cannot be directly interpreted as marginal effects.

Table 5 Association of Perceived Obstacles and Lagged GDP growth for Small, Medium and Large Firms

Firm size	telecom	electricity	transport	land access	tax rates	tax administration
Small	0.004	0.024**	0.026***	0.021**	0.060***	0.042***
	[0.33]	[2.19]	[3.20]	[1.99]	[4.43]	[3.13]
Medium	-0.012	0.022	0.026**	0.012	0.071***	0.051***
	[-0.85]	[1.60]	[2.23]	[1.43]	[5.89]	[4.03]
Large	-0.006	0.024*	0.025***	0.023***	0.081***	0.060***
	[-0.65]	[1.89]	[3.43]	[3.69]	[8.45]	[6.35]

Firm size	customs & trade regulations	labor regulations	skills & education of workers	licensing & operating permits	access to finance	cost of finance
Small	0.026***	0.021*	0.025**	0.035***	0.042***	0.018*
	[3.26]	[1.65]	[2.53]	[3.89]	[3.66]	[1.71]
Medium	0.039***	0.035***	0.040***	0.043***	0.043***	0.024***
	[3.92]	[3.59]	[3.35]	[5.89]	[4.39]	[2.64]
Large	0.057***	0.051***	0.048***	0.050***	0.040***	0.025**
	[5.39]	[5.17]	[3.85]	[5.43]	[6.05]	[2.23]

Firm size	economic & regulatory policy uncertainty	macroeconomic instability	corruption	crime, theft, disorder	anti-competitive practices	legal system & conflict resolution
Small	0.008	0.004	0.032***	0.033***	0.01	0.017
	[0.79]	[0.36]	[3.07]	[2.93]	[1.07]	[1.45]
Medium	0.016	0.037***	0.047***	0.043***	0.031***	0.029**
	[1.24]	[2.61]	[4.50]	[4.69]	[3.94]	[2.44]
Large	0.019	0.043***	0.070***	0.065***	0.055***	0.062***
	[1.59]	[3.06]	[9.32]	[6.22]	[4.12]	[4.71]

Notes: Coefficients are from Ordered Probit regressions for each subsample of firms. Country and year fixed effects are included as well as a control for new firms i.e. less than or equal to 3 years since registration. The z-statistics are reported in parentheses, computed from robust standard errors clustered on country. Firm size categories are defined by number of permanent workers: small (<20), medium (between 20 and 99), and large (>99).

Table 6 Association of "Objective' Indicators of Business Environment with Lagged GDP Growth

	Infrastructure			Corruption		Tax administration
	Days of Power Outages/ Surges	Days of unavailable mainline phone services	% of average cargo value lost in transit	Unofficial payments to get things done (% annual sale)	Gift/informal payments requested by tax officials	Days spent with tax officials
Lag GDP gr.	-1.463	0.255	-0.286	-0.016	0.01	-0.003
	[-0.690]	[0.683]	[-1.090]	[-0.271]	[0.797]	[-0.006]
Small	-5.226	-0.336	0.024	0.473***	-0.040***	-1.911***
	[-1.136]	[-0.706]	[0.277]	[7.853]	[-4.321]	[-6.598]
New	-1.894	-0.282	0.18	0.086	0.015	-0.915
	[-0.617]	[-0.223]	[0.914]	[0.492]	[0.676]	[-1.422]
Observations	24439	21088	19211	24151	24377	22416
R-squared	0.104	0.037	0.013	0.06	0.184	0.111

	Access to Finance					
	% working capital from retained earnings	% new investment from retained earnings	% working capital from local banks	% new investment from local banks	% working capital from foreign banks	% working capital from leasing
Lag GDP gr.	1.194	0.993	0.363	0.598	-0.04	-0.033
	[1.473]	[0.936]	[1.158]	[1.206]	[-0.833]	[-0.860]
Small	7.968***	5.909***	-7.691***	-6.191***	-1.091***	-0.346**
	[4.976]	[6.258]	[-3.625]	[-6.791]	[-5.638]	[-2.311]
New	0.453	-1.181	-2.880**	-3.622**	0.339	0.168
	[0.180]	[-0.616]	[-2.115]	[-2.669]	[1.049]	[0.616]
Observations	32563	21258	32565	21258	25239	23320
R-squared	0.199	0.158	0.116	0.103	0.018	0.02

	Access to Finance			Regulatory Burden	Crime, Theft, Disorder	
	% working capital from credit cards	% working capital from sale of stock	% new investment from sale of stock	% of senior management time dealing with govt. regulations	Cost of providing security (% sales)	Losses to theft/vandalism/ arson (% sales)
Lag GDP gr.	0.001	0.146	-0.198	0.043	-0.177	-0.07
	[0.035]	[0.401]	[-0.320]	[0.110]	[-0.363]	[-0.658]
Small	0.159*	0.426	0.04	-1.638**	0.242	0.277***
	[1.775]	[1.032]	[0.103]	[-2.134]	[0.860]	[2.831]
New	0.305	-0.133	1.148*	-1.314**	0.392	-0.042
	[1.677]	[-0.446]	[1.838]	[-2.350]	[1.248]	[-0.283]
Observations	23320	25239	20945	33712	21981	27322
R-squared	0.024	0.115	0.076	0.122	0.021	0.024

Notes: These are results from OLS regressions with fixed effects for country and year of survey and controls for firm size and age. Small denotes firms with less than 20 employees, while new denotes firms registered no more than 3 years ago. The t-statistics are reported in the parentheses and are computed from robust standard errors clustered on country.