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Regulatory Discretion and the Unofficial Economy

By SIMON JOHNSON, DANIEL KAUFMANN, AND PABLO ZOIDO-LOBATÓN*

Politicization of economic activity means the exercise of control rights over firms by politicians and bureaucrats. In most countries politicians maintain property rights in firms, typically in the form of residual control rights as defined by Sanford Grossman and Oliver Hart (1986). These control rights may have served an ideological agenda in the past, but they are often used to further the private agenda of politicians and bureaucrats. A recent literature has established the presence of these problems in countries as diverse as Peru, France, Russia, and Ukraine (Hernando de Soto, 1989; Andrei Shleifer and Robert Vishny, 1993, 1994; Kaufmann and Paul Siegelbaum, 1997; Shleifer, 1997). But how widespread are these rights and how damaging are their effects around the world?

The usual presumption in the economics literature is that a predatory government simply leads to lower total economic activity, but for Eastern Europe and the former Soviet Union since 1989, Johnson et al. (1997) showed that businesses have responded to politicization by going “underground.” Instead of registering their activities, managers prefer not to pay taxes and not to benefit from key publicly pro-

vided services, such as legal enforcement of contracts. For these economies in transition from communism, there is evidence of a downward spiral, in which firms leaving the official sector reduce state revenue, which reduces publicly provided services and further reduces the incentive to register in the official sector.¹ Most of the former Soviet Union has thus ended up in a “bad” equilibrium with low tax revenue, high unofficial economy as a percentage of GDP, and low quality of publicly provided services.

This previous work on transition economies suggests that, while formal rules may count in some instances, what really matters is how regulations and tax rules are actually implemented. If the rules are fine on paper but officials have a great deal of discretion in their interpretation and implementation, this leads to a higher effective burden on business, more corruption, and a greater incentive to move to the unofficial economy. This general idea leads to three specific propositions. First, the share of the unofficial economy in GDP should be higher when there is more regulation and more discretion for officials regarding how the regulatory system operates. Second, the unofficial economy should be larger when there is a bigger tax burden on firms in the official sector, where “burden” on the firm is the outcome of how the tax system is administered as well as what the rates are. Third, a larger unofficial economy should be correlated with weaker publicly provided services, as measured by corruption and the “rule of law” (particularly the legal protection provided to private-sector business investments).

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¹ Norman Loayza (1996) has similar theoretical results for Latin America. In his model, unregistered firms use but do not pay for public services, thus leading to congestion costs for public goods, such as roads, and lower growth.

This paper finds support for these propositions in a broad set of countries for which there exist at least roughly comparable estimates of the unofficial economy in the 1990's. We have measures for the unofficial economy for 49 countries in three regions of the world: Latin America, the OECD, and the former Soviet bloc. A different methodology is used for each region, but the numbers appear to be comparable; see Johnson et al. (1998) for the detailed estimates. The sample for our regressions varies between 32 and 49 countries, depending on the coverage of right-hand-side variables. We have not found comparable data for the unofficial economy in East Asia or for Africa, so these countries are excluded from the regressions. We use Brazil and Russia as illustrative regional benchmarks throughout and also report on OECD-specific countries where relevant.

I. Regulation and Bureaucracy

The Heritage Foundation's measure of regulation is higher, on a scale of 1 to 5, for countries that had regulations that are worse for business in 1996 (Bryan Johnson and Thomas Sheehy, 1997). This measure includes both the formal rules and the way they are enforced. The Czech Republic actually receives the top score; it is the only country in our sample to get a perfect 1. Most OECD countries score 2. Russia scores 4, while Brazil scores 3. Table 1 shows that a one-point increase in this index is associated with a 14.7-percentage-point increase in the share of the unofficial economy. Controlling for log GDP per capita reduces the coefficient on the regulation variable to 8.1, but it remains significant.

The Global Competitiveness Survey reports results from a 1997 survey of executives on the extent of regulatory discretion and lax enforcement of rules, on a scale of 1 to 7 (World Economic Forum, 1997). Russia has the lowest score of 2.01, while Brazil rates better with 3.46. Most of the OECD countries score 4.5 or higher; Switzerland has the highest score with 5.64 in our sample. Singapore had the highest score worldwide in the survey, with 6.36. Table 1 shows that a one-point-higher score for this index is correlated with a 9.2-percentage-point fall in the share of the unof-

TABLE 1—REGRESSIONS OF UNOFFICIAL ECONOMY (AS PERCENTAGE OF GDP) ON MEASURES OF REGULATION

Independent variable	Regression					
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Log GDP per capita		-7.4* (1.6)		-7.4* (2.3)		-1.0 (2.9)
Measures of regulation						
Regulation ^b	14.7* (2.5)	8.1* (2.6)				
Regulatory discretion ^a			-9.2* (1.7)	-2.9 (2.5)		
Bureaucratic quality ^a					-8.5* (1.0)	-7.7* (2.3)
R ² :	0.43	0.62	0.47	0.60	0.65	0.65
Number of observations:	47	47	34	34	39	39
Independent variable	Regression					
	(vii)	(viii)	(ix)	(x)	(xi)	(xii)
Log GDP per capita		-7.4* (2.0)		-7.3* (1.5)		-7.0* (1.6)
Measures of regulation (continued)						
Economic freedom ^a	-2.5* (0.5)	-0.8 (0.6)				
Measure of taxation						
Tax burden ^a			-11.7* (2.4)	-6.5* (2.1)		
Tax rules ^a					3.5* (0.7)	1.9* (0.7)
R ² :	0.38	0.54	0.43	0.68	0.37	0.57
Number of observations:	42	42	34	34	42	42

Notes: Standard errors are in parentheses.

^a A higher value for this variable stands for a better score for private business.

^b A higher value for this variable stands for a worse score for private business.

* Statistically significant at the 5-percent level.

ficial economy. However, this measure is not significant once we control for log GDP per capita.

The 1997 *International Country Risk Guide* (Political Risk Services, 1997) measures expert opinion of "bureaucratic quality" on a scale of 1 to 6, where a higher score means that bureaucrats operated in a more efficient and predictable way between 1990 and 1997. Guatemala and Panama have the lowest score of 1.44; Russia scores 3.19; and Brazil scores 4.0. The best OECD countries, such as the United Kingdom score 6.0. Table 1 shows that

a one-point increase in this index implies an 8.5-percentage-points decrease in the share of the unofficial economy. Controlling for log GDP per capita reduces the coefficient only slightly to -7.7 , and it remains highly significant.

Freedom House's 1995–1996 measure of economic freedom is higher for countries with "better" regulation (i.e., more pro-business), on a scale of 0 to 16 (Richard E. Messick, 1996). The United Kingdom, the United States, Denmark, Sweden, and Holland tie for top position with a score of 16, while Azerbaijan has the lowest score of 1. Russia and Brazil score 7. Table 1 shows that a one-point increase in this scale is associated with a 2.5-percent fall in the share of the unofficial economy, but this coefficient loses significance when we control for GDP per capita.

In summary, we find strong evidence that less regulation (i.e., a regulatory regime that is more business-friendly and presumably represents less political control rights) is correlated with a lower share of the unofficial economy. However, countries with a higher income level also have a lower level of the unofficial economy, so when we control for income level two out of four regulation variables become insignificant at the 5-percent level. The effect of bureaucratic quality and the way regulations are administered appear to be particularly strong. This supports the idea that regulatory discretion is an important cause of unofficial activity.

II. Taxation

The 1997 Global Competitiveness Survey rates tax burden from the firm's standpoint; a higher score was given when executives considered the tax system to be better for business, on a scale of 1 to 7 (World Economic Forum, 1997). This measure captures not just tax rates, but also the way the tax system is administered (e.g., if tax officials abuse higher levels of discretion, this would likely translate into a worse score). Ukraine has the lowest score in our sample, with 1.58, and the United Kingdom has the highest score, with 4.60. Russia scores 1.80, and Brazil scores 2.22. A one-point increase in this variable reduces the share of the unofficial economy by 11.7 per-

centage points. Controlling for log GDP per capita reduces the coefficient to -6.5 but it remains significant.

The Fraser Institute measure of top marginal tax rates is higher for countries that had lower tax rates, on a scale of 1–10, in 1995 (James Gwarney and Robert Lawson, 1997). In this case the index captures formal rates, but not the way the system is administered. The "best" tax rates are in seemingly unlikely places: Bolivia and Uruguay both score a perfect 10.² The worst (i.e., highest) tax rates are in Italy, Belgium, Sweden, Denmark, and Romania, all of which score the lowest attainable value of 1. The United States scores 7, and the United Kingdom scores 5, while Russia and Brazil both score 8. Chile scores 4, which is the best in Latin America. Table 1 shows that a one-point increase in this index is actually associated with a 3.5-percentage-point increase in the share of the unofficial economy (i.e., countries with lower marginal tax rates actually have a larger share of the unofficial economy). Controlling for log GDP per capita reduces the coefficient on this index to 1.9, but it remains significant.

The contrast between the results of these two tax variables points to the importance of how the tax and regulatory system operates, rather than the nature of the formal rules. Countries with high marginal tax rates but a low tax burden (as evaluated by executives) actually have a low share of the unofficial economy as a percentage of GDP (e.g., Scandinavia; see Fig. 1). Russia has relatively low marginal tax rates but was rated with a high tax burden because of the way the tax system operates, and thus it is associated with a relatively high share of the unofficial economy in GDP.

III. Rule of Law and Corruption

Political Risk Services' 1997 *International Country Risk Guide* contains a "rule-of-law index" which is higher where the law-and-order tradition was stronger during 1990–1997, on a scale of 0–6. The United States

² Bolivia's recent tax reform is presumably reflected in this rating.

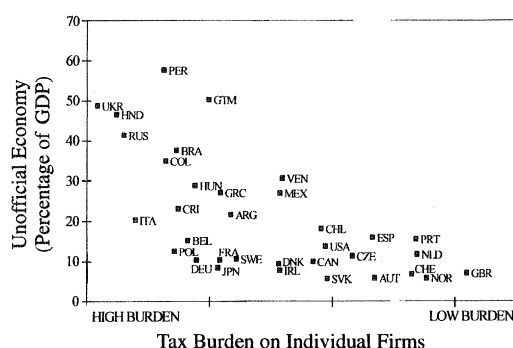


FIGURE 1. UNOFFICIAL ECONOMY AND TAX BURDEN ON INDIVIDUAL FIRMS

Notes: Unofficial-economy estimates are from Johnson et al. (1998); the tax burdens on individual firms are from World Economic Forum (1997).

and several other OECD countries achieve the highest level of 6. In our sample, Colombia has the lowest score of 1.4. Russia scores 3.5, and Brazil scores 3.4. Table 2 shows that a one-point increase in the value of this index is associated with a 10.6-percentage-point fall in the share of the unofficial economy. In this case log GDP per capita is not significant, and including this control variable reduces the estimated coefficient on the index only to -9.3.

The Heritage Foundation's index of property rights is lower where property rights were more secure, on a scale of 1-5, in 1996 (Johnson and Sheehy, 1997). The only non-OECD country to score a perfect 1 is Chile. Four previously communist countries have the worst score of 4: Romania, Ukraine, Georgia, and Azerbaijan. Russia and Brazil score 3. Table 2 shows that a one-point increase in this index is associated with a 13.4-percent increase in the share of the unofficial economy. Controlling for log GDP per capita reduces the coefficient to 8.0, but it remains significant.

In the Fraser Institute measure of "Equality of Citizens Under the Law and Access of Citizens to a Non-discriminatory Judiciary," a higher score means a "better" legal system in 1995, on a scale of 0-10 (Gwarney and Lawson, 1997). Only Belgium, Holland, Sweden, Norway, Denmark, and Switzerland get the top score of 10. Italy, the United Kingdom, and the United States score 7.5. Russia scores

TABLE 2—REGRESSION OF UNOFFICIAL ECONOMY (AS PERCENTAGE OF GDP) ON LEGAL ENVIRONMENT AND CORRUPTION

Independent variable	Regression					
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Log GDP per capita		-1.9 (1.7)		-4.8 [†] (2.6)		-5.2* (1.9)
Legal environment						
ICRG rule-of-law index, 1990-1997 ^a		-10.6* (1.0)	-9.3* (1.5)			
Property rights ^b				13.4* (1.8)	8.0* (3.4)	
Equality of citizens before the law ^c						-3.8* (0.6)
						-2.3* (0.8)
R ² :	0.77	0.78	0.55	0.58	0.53	0.60
Number of observations:	39	39	47	47	43	43
Independent variable	Regression					
	(vii)	(viii)	(ix)	(x)	(xi)	(xii)
Log GDP per capita		-4.0* (2.3)		-5.8* (2.5)		-6.5* (1.9)
Corruption						
Transparency International (extended) ^a		-5.1* (0.7)	-3.5* (1.1)			
World Economic Forum ^a				-8.0* (1.3)	-3.9* (2.1)	
Impulse's exporter bribery index ^b						1.7* (0.4)
						0.8 [†] (0.4)
R ² :	0.57	0.60	0.55	0.62	0.36	0.50
Number of observations:	43	43	34	34	44	44

Notes: Standard errors are in parentheses.

^a A higher value for this variable stands for a better score for private business.

^b A higher value for this variable stands for a worse score for private business.

[†] Statistically significant at the 10-percent level.

* Statistically significant at the 5-percent level.

2.5, and Brazil scores 0.³ Table 2 shows that a one-point increase in this index implies a 3.8-percentage-point fall in the unofficial economy's share of total GDP. Controlling for

³ In most Asian countries, this index is highly correlated with measures of corruption. Thus, Hong Kong and Korea score 7.5 on this Fraser Institute measure, while Thailand, Malaysia, and Indonesia score 2.5. Singapore is again an anomaly because it scores 0 on this measure, despite having very little corruption.

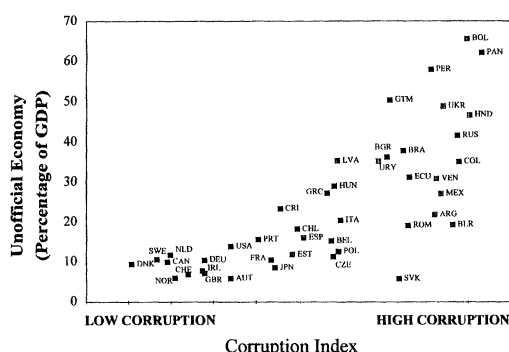


FIGURE 2. UNOFFICIAL ECONOMY AND CORRUPTION

Notes: Unofficial-economy estimates are from Johnson et al. (1998); the corruption index is from Lambsdorff (1998).

log GDP per capita reduces the coefficient to -2.3 , but it remains significant.

The extended Transparency International measure of corruption, prepared by Johan G. Lambsdorff (1998), scaled 0–10, covers 43 of the countries in our sample for 1997.⁴ It is higher for countries with less corruption. In our sample, Denmark has the highest score with 9.94 and Bolivia has the lowest in our sample with 2.05. Russia scores 2.27 while Brazil scores 3.56. The best Latin American country is Chile with 6.05. In Table 2 a one-point increase in this index implies a 5.1 percentage point fall in the unofficial economy, and a 3.5-percentage-point fall when the log GDP per capita control is included.

In the Global Competitiveness Survey measure of bribery, scaled 1–7, a higher score means less corruption in 1997 (World Economic Forum, 1997). Among countries for which we also have data on the unofficial economy, the highest score is Sweden with 6.61. The lowest scores (under 3) are for several Central American countries, as well as Russia, which scores 2.72. Brazil scores 3.75. Table 2 shows that a one-point increase in this index implies a reduction in the share of the

unofficial economy by 8.0 percentage points (without the control variable) and by 3.9 percentage points (if we control for log GDP per capita).

In the Impulse index of corruption, a higher score means more corruption (Peter Neumann, 1994).⁵ Russia and Brazil are both awarded 4 out of 5. The best score of 0 is awarded to the usual OECD countries plus Lithuania. As usual, Chile is the best-ranked Latin American country, awarded a score of 1. As Table 2 shows, a one-point increase in this index is associated with a 1.7-percentage-point increase in the share of the unofficial economy. However, controlling for GDP per capita reduces the coefficient by more than half and makes it significant only at the 10-percent level.

In summary, the relationship between share of the unofficial economy and rule of law (including corruption) is strong and consistent across seven different measures. Countries with more corruption have higher shares of the unofficial economy (see Fig. 2). This is true even when we control for income level.

IV. Conclusion

The model of Johnson et al. (1997) has three predictions that find support in the available cross-country data. First, countries with more regulation tend to have a higher share of the unofficial economy in total GDP. Second, a higher tax burden, as perceived by business, leads to more unofficial activity. Third, countries with more corruption tend to have a larger unofficial economy.

This evidence suggests, although it does not prove, that the extent of regulatory and bureaucratic discretion is a key determinant of underground activity. Lax regulations in settings with undisciplined bureaucracies and weak rule of law allow officials to decide individual cases without effective supervision. This creates conditions ripe for corruption (see Kaufmann and Jeffrey Sachs, 1998). Under

⁴ This index requires that countries have had only two (rather than four) surveys. Even in the extended sample, apart from Hong Kong and Singapore, all the other countries that score above 6.5 are long-standing democracies.

⁵ Among the 103 countries surveyed, the worst score is awarded to Bangladesh, Myanmar (Burma), Indonesia, Iran, Nigeria, Pakistan, the Philippines, and Thailand.

such circumstances, many firms choose to operate underground.

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