Trust, Regulation and Market Failures*

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Abstract

Government regulation of firms is associated with more negative externalities and unofficial activity across countries. In this paper I argue that this correlation mainly reflects causality going from concerns about market failures to demand for government intervention. Using trust in others as a proxy for such concerns, I first show that differences in trust explain a great deal of variation in entry regulations. Then, controlling for average trust in the regression of market failures on regulation, the latter is no longer associated with worse economic outcomes. The same result is confirmed when I exploit an alternative source of variation in regulation that is independent of trust, namely country population.

Keywords: trust, regulation, market failures

JEL codes: L51, Z10, D02.

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1 Introduction

Government regulation is often blamed for driving firms out of official markets while being at the same time ineffective in preventing market failures. In an extremely influential paper, Djankov et al. (2002) measure entry regulations by the number of procedures required to open a new business and show that, indeed, heavier regulation is associated with a larger unofficial sector and more negative externalities across countries. In principle, these findings are consistent with public choice theories that consider regulation a rent-seeking device benefiting a restricted group of insiders (bureaucrats, politicians and market incumbents) at the expense of other agents in the economy (Tullock, 1967; Stigler, 1971; Peltzman, 1976).

However, government policies and institutions are themselves endogenous outcomes that depend on several factors in addition to the predatory motives of the insiders. In particular, according to the public interest theory initiated by Pigou (1938), government intervention may provide a (second best) solution to market failures occurring in the first place. If this is the case, regulation would still be correlated with worse economic outcomes, but causality would go in the opposite direction, from concerns about market failures to demand for government intervention. In a recent paper, Aghion et al. (2010) use distrust in others as a proxy for such concerns, arguing that less trustful individuals expect entrepreneurs to be uncivic and exert more negative externalities in the absence of government intervention; then, using data from the World Values Survey (WVS), they show that trust is negatively related to preferences for state control of economic activity.[1] Also, Hochberg et al. (2009), Zingales (2009) and Corsetti et al. (2010) suggest that recent corporate scandals and the subsequent financial crisis, partly attributable to the illicit behavior of some agents in the market, resulted in a dramatic drop in trust, which in turn raised pressures to tighten regulation.

If the level of regulation observed in each country is indeed driven by concerns for market failures, previous estimates of the effects of regulation may be biased. In this paper I first show that variation in entry regulations around the world mostly reflects demand pressures from people at large, as captured by differences in trust. Then, I examine the implications of this finding for interpreting the empirical correlation between regulation and market failures.

[1] The WVS is an international survey of individual preferences, values and beliefs, covering more than 260,000 people in 87 countries. It has been extensively used in economics at least since the work of La Porta et al. (1997) and Knack and Keefer (1997).

In particular, using the same data of Djankov et al. (2002) I show that, keeping constant the trust-driven component of demand for government intervention across countries, regulation is no longer associated with worse economic outcomes.

The next section introduces the data on trust and regulation that will be used throughout the paper and presents some evidence about the empirical relationship between the two variables. At the individual-level, trust lowers preferences for government intervention by individuals who are not insiders of regulation, while the effect is not significantly different from zero for the insiders. Such findings are in line with the channel proposed by Aghion et al. (2010), according to whom trust affects the equilibrium level of regulation by dampening pressures for government intervention from people at large. This negative relationship carries over at the aggregate level and ultimately results in heavier entry regulations imposed on start-up firms in low-trust countries. As for its importance for the actual setting of entry barriers, the effect of trust largely outweighs that of other important country characteristics (such as GDP per capita) in terms of explanatory power.

If differences in regulation reflect concerns for market failures (as proxied by average trust), previous estimates of the effects of regulation may be biased. In Section 3, I address this issue in two different ways. First, I control explicitly for differences in demand for government intervention by including trust on the right-hand side of the regression of market failures on regulation. Second, given that trust might itself be endogenous, I exclude it from the regression and instrument regulation by country population in a two-stage least-squares framework. According to Demsetz (1967) and Mulligan and Shleifer (2005), in fact, the creation of new institutions (including government regulations) entails significant fixed costs and is therefore limited by the size of the economy. Indeed, population turns out to be strongly correlated with the intensity of regulation across the countries in my sample. Most importantly, it is uncorrelated with average preferences for regulation and trust, so that differences in population allow to estimate the effect of regulation independently of trust-driven differences in demand for government intervention. The results obtained using these two methods are qualitatively similar and suggest that reverse causality from market failures to regulation (through trust) may bias previous estimates of the effects of regulation across countries.

This paper is related to recent empirical work on the mutual relationships between culture,

institutions and economic outcomes. Apart from Aghion et al. (2010), who specifically address the relationship between trust and entry regulations, Algan and Cahuc (2009) and Aghion et al. (2009) focus on a different sphere of public intervention in the economy, namely labor market arrangements. All these papers conclude that widespread tendencies toward opportunistic behavior result in a lack of trust, which in turn fosters demand for government intervention. My contribution is to address the implications of these findings for the cross country pattern of trust, regulation and market failures, showing that omitted variation in trust may confound inference about the effects of entry regulations.[2]

2 The demand for regulation

In a recent paper, Aghion et al. (2010) investigate the relationship between trust in others and the scope of government activity. They present a theoretical model in which agents choose between entrepreneurship and routine production, as well as whether to become civic or not. Uncivic entrepreneurs exert negative externalities on the rest of the economy and regulation might attenuate negative externalities at the cost of lowering aggregate economic activity. Trust is the (subjective) belief about average civicness in the society, so less trustful individuals demand more regulation against negative externalities.[3] In the empirical part of the paper, Aghion et al. (2010) document the existence of a strong, negative relationship between trust and support for government control of economic activity, as measured by WVS questions about government ownership, economic planning, price and wage controls.

An alternative question of the WVS asks specifically about the regulation of firms, namely whether "The state should give more freedom to firms" or instead "The state should control firms more effectively"; the answer ranges between 1 and 10, with higher values corresponding to preferences for more government intervention. The question was included in the survey sent to 32 European countries participating into the fourth wave of the survey (1999-2004), listed in Table 1; the sample consists of approximately 37 thousand individuals. Since Djankov et al. (2002), as well as most other cross country studies, are primarily concerned with the

[2]Besides Djankov et al. (2002), Johnson et al. (1998) and Friedman et al. (2000) also conclude, on the basis of cross-country regressions of unofficial activity on regulation (controlling for GDP per capita), that regulation increases the size of the shadow economy.

[3]The working paper version of this paper provides a similar theoretical framework (Pinotti, 2009).

effects of private business regulation, I will use this variable to measure demand for government intervention.

2.1 Individual-level evidence

As a preliminary step, I examine distribution of the dependent variable for different groups of individuals in the sample. Public choice theories, stressing the role of rent-seeking motives, would predict that the group of insiders is the most attached to regulations. However, such prediction is not borne out by the data, according to which preferences for regulation are lower among bureaucrats, politicians and market incumbents, relative to other people; see Figure 1.[4] While this might not come as surprise for the entrepreneurs (most of whom suffer the burden of bureaucracy themselves), the results for bureaucrats and politicians are clearly at odds with purely rent-seeking models of regulation.

On the other hand, concerns for market failures by people at large explain a great deal of variation in preferences for regulation. In particular, the WVS contains a question about trust, "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"; I define a binary variable *trust* equal to 1 if the answer was "Most people can be trusted" and 0 if the answer was "Can't be too careful in dealing with people". This is by far the most widely used measure of trust in the literature; examples include Knack and Keefer (1997), Guiso et al. (2006) and Tabellini (2010). Most importantly for the purpose of the present paper, Aghion et al. (2010) argue that the trust variable captures individual concerns about the opportunistic behavior of entrepreneurs. In line with their findings, Figure 1 shows that preferences for government intervention are then higher among non-trustful individuals.

Next, I investigate the determinants of preferences for regulation in a multivariate framework. Since the dependent variable is ordered and discrete, I adopt an ordered logit specification for the estimating equation.[5] The right-hand side of the equation controls extensively for in-

[4]The WVS routinely provides the occupation of each individual in the sample according to several classifications. I include among bureaucrats and politicians individuals reported as "legislators and senior officials" according to the 2-digit ISCO88 classification. Incumbents are instead "corporate managers" and "general managers" (following the same classification) plus entrepreneurs and self-employed (excluding the self-employed does not affect the results).

[5]The main advantage of the logit model (relative, for instance, to the ordered probit) is that it provides an easy interpretation of the coefficients. In particular, the exponentiated coefficient equals the ratio of the odds of preferring a higher level of regulation, $Prob(regulation > k)/Prob(regulation \leq k)$, over the same odds when

dividual socio-demographic characteristics included in the WVS. Most importantly, exploiting variation across individuals in several countries allows to absorb country-specific factors, such as the severity of market failures and the quality of regulation, by simply including country fixed effects, which greatly reduce the scope for omitted variable bias and reverse causality.[6] Table 1 reports country averages for the main variables along with the sample size and total population of each country, which makes the unbalanced coverage of WVS across countries apparent (coverage is relatively lower for larger countries). Observations are thus weighted by the product of national sampling weights, provided by the WVS, and country populations.[7]

Table 2 presents the results of individual-level estimates. Both simple and exponentiated coefficients (i.e. the odds ratios) are reported. The first column presents the results of the univariate regression pooling all individuals. The coefficient of *trust* is negative and very high in absolute value. Removing country-specific effects and individual characteristics (age, gender, income and schooling) halves the value of the coefficient, which however remains strongly statistically significant (columns 2 and 3). According to these estimates, the odds of preferring more regulation are about 15 percentage points lower for trustful relative to non-trustful individuals. This negative coefficient is in line with the hypothesis that demand for regulation is driven, among other things, by concerns about market failures.

In columns (4) and (5) I address the empirical relevance of the rent-seeking motives emphasized by the public choice literature. After controlling for individual characteristics, entrepreneurs are still against regulation (in line with the evidence in Figure 1) while bureaucrats and politicians actually support more government regulation (though the coefficient is not statistically significant). Finally, the last two columns of the table allow also the slope of the regression (in addition to the intercept) to differ between insiders and non-insiders. Interestingly, trust seems to matter more for the non-insiders (in line with the demand-channel emphasized by Aghion et al., 2010), while the preferences of the insiders could respond more

the explanatory variable is lower by one unit. This is a particularly useful property given that *trust* is a binary indicator, so its exponentiated coefficient simply equals the odds ratio of preferring more regulation for trustful relative to non-trustful individuals.

[6] One complication arises because fixed effects are unattractive in non-linear models like the ordered logit. The problem is that the estimator of each "incidental" parameter uses only information from the corresponding group so that, when group size is limited and small, the variance of the estimator (both of the intercept and the slope) does not asymptotically converge to 0 (see, for instance, Greene, 2004). This is usually the case for panels of N cross-sectional units observed over T periods. However, in this case I have thousands of (individual) observations available to estimate each (country) fixed effect, so that the relevant asymptotics allow for consistent estimation.

[7] In any case, all results presented below are unaffected by the weighting scheme.

to the rent-seeking motives emphasized by the public choice literature.[8]

2.2 Cross-country evidence

The results presented above suggest that, within each country, trust is a significant determinant of individual preferences for regulation; in the remaining part of this section I investigate to what extent this is true across countries. In doing so I follow Djankov et al. (2002) in measuring regulation by the (log of) number of entry procedures required to start a new business in year 1999 ($ENTRY$). Such procedures include "obtaining all necessary licenses and permits and completing any required notifications, verifications or inscriptions with relevant authorities", ranging from opening a bank account to scheduling sanitary inspections to the production plants; the monetary costs are also reported.[9] While any measure of regulation has its own shortcomings (see Arrunada, 2007, for a critique), these indicators have the advantage of being available and roughly comparable for almost all countries in the world. For this reason, since their introduction they have been updated each year on behalf of the World Bank's Doing Business project and used extensively to study the effects of regulation; examples include, among others, Acemoglu and Johnson (2005), Klapper et al. (2006) and Ciccone and Papaioannou (2007). Turning to the main explanatory variable, I average the WVS measure of trust across countries; given that all variables from Djankov et al. (2002) refer to the 1990s, I combined data from the second and third wave of the survey, which span the periods 1990-1993 and 1994-1999, respectively. Finally, the data for all control variables also come from Djankov et al. (2002). The summary statistics and correlation matrix are reported in Table 3.

The results of OLS estimates are presented in Table 4. The first column shows the univariate regression of the number of entry procedures on trust. A one percentage point increase in trust is associated on average to a 2 percent cut in red tape, this coefficient being very precisely estimated. Controlling for the level of economic development, as proxied by the log of GDP per capita in 1999, weakens only slightly the effect of trust (column 2).

[8] All findings presented so far are unaffected by controlling for other individual characteristics such as occupation, ideology and religion, as well as for alternative dimensions of trust (in politicians, in civil servants and in the legal system). These results are available in the working paper version of this paper, Pinotti (2009), in which I also examine the differential effect of trust across several groups of individuals and countries. In particular, the magnitude of the effect increases with the extent of market failures and the quality of government institutions.

[9] All data used in Djankov et al. (2002) have been kindly made available by Andrei Shleifer through his web page, http://www.economics.harvard.edu/faculty/shleifer/files/registration_new.dta

Another important determinant of the actual level of regulation is country size. According to Demsetz (1967), in fact, the creation of new institutions entails significant fixed costs and is therefore limited by the size of the market; Mulligan and Shleifer (2005) provide evidence consistent with this theory for the specific case of regulations using total population to measure the size of the market. The results in column (3) show that, in my sample as well, population increases the equilibrium level of regulation. However, the explanatory power of trust outweighs by far that of country size and GDP; the partial R^2 of the three variables is 29%, 8% and 2%, respectively.

Most importantly, the effect of population seems orthogonal to that of trust, whose coefficient is only slightly affected when moving from column (2) to column (3). This is in line with the fact that trust impacts on the demand for government intervention, while population should act exclusively through the supply channel proposed by Demsetz (1967) and Mulligan and Shleifer (2005). Evidence on this is provided in columns (4)-(6) of Table 4, in which I use average preferences for regulation (the dependent variable in the individual-level regressions) as a measure of the demand channel. While the coefficient of trust remains negative and strongly statistically significant, the effect of population is not significantly different from zero anymore. Therefore, population affects the number of entry procedures through a channel different from the (trust-driven) demand for government intervention. In the next section I will exploit this additional source of variation in regulation to identify its effects across countries.

Before moving to that, I further examine whether the cross-country relationship between trust and regulation is really explained by concerns for market failures. If this is the case, trust should *not* be related to the costs of regulatory procedures or to the time needed to comply with such procedures. The effect of trust on these two variables is examined in Table 5. In columns (1)-(3) the dependent variable is the (log of) average cost of entry procedures (i.e. the total administrative cost of entering the market over the number of procedures). While the relationship with trust is positive in column (1), this is probably due to the fact that the data set of Djankov et al. (2002) reports nominal costs, which are higher in richer countries (characterized also by higher trust). In fact, after controlling for GDP per capita, the coefficient is not statistically significant anymore. The relationship between trust and the time needed to comply with entry procedures is also non-statistically significant (columns 4-6).

Overall, the results presented in this section are consistent with the existence of a negative effect of trust on regulation. In principle, however, one can not rule out reverse causality. In particular, Aghion et al. (2010) show that regulation may affect the level of civicness and trust in the society by changing the relative payoffs of civic and uncivic individuals (Alesina and Angeletos (2005), Benabou and Tirole (2006), Tabellini (2008), Carlin et al. (2009) and Aghion et al. (2009) do also examine mechanisms through which values and policies might co-evolve over time). At the same time one should notice that, while the cross-country OLS results are unfit to address causality, they are consistent with the individual-level evidence presented in the previous section, which is less prone to reverse causality and omitted variable bias originating from institutional differences (the latter being absorbed by country-specific fixed effects). Therefore, at least part of the negative correlation between trust and the actual level of red tape is likely due to the causal effect of trust on the demand for government intervention.

Most importantly, the key finding for all the results that follow is the existence of a strong, negative correlation between trust and regulation. For this reason, a conservative approach would be to interpret the estimated coefficients in Table 4 in terms of partial correlations between trust and regulation (as opposed to causal effects), keeping constant other country characteristics possibly correlated with both variables. In the next section I examine the implications of these findings for interpreting previous evidence about the relationship between regulation and market failures.

3 Regulation and market failures

As discussed in the introduction, several papers show that regulation is associated with more market failures across countries. Djankov et al. (2002) document this pattern for negative externalities (as measured by emissions of organic pollutant per day per worker in 1998) and the size of the unofficial economy (estimated in various years during the 1990s). The correlation matrix in Table 3 confirms that indeed both variables are positively correlated with the number of entry procedures, the correlation being strongly statistically significant for unofficial activity. Such findings are in principle consistent with public choice theories of regulation, which posit that government intervention responds mainly to the private interests of the insiders and is therefore ineffective in preventing or correcting market failures.

However, an alternative explanation for this empirical relationship is that people may call for more regulation because they are concerned about market failures occurring in the first place. Aghion et al. (2010) use trust as a proxy for such concerns and show that, consistently with the empirical results presented in the previous section, trust is an important source of variation in entry regulations around the world. Therefore, one way to take reverse causality into account is to explicitly control for differences in trust in the regression of market failures on regulation. Preliminary evidence in this respect is presented in Figure 3. The two graphs at the top show that regulation is positively correlated with negative externalities and the size of the shadow economy. After controlling for average country trust, however, regulation is *inversely* related to negative externalities and it is *not* related any more to unofficial activity; see the bototm two graphs.

Table 6 reports the OLS estimates of these relationships. The dependent variable in the top panel is water pollution and the first column replicates the univariate regression in Table IV of Djankov et al. (2002). While the estimated coefficient is not statistically significant at conventional levels, the t-ratio is quite high and very close to the 10% confidence threshold.[10] Column (2) then includes $TRUST$ on the right-hand side of the equation. After doing that, the coefficient of regulation becomes negative and strongly statistically significant. The comparison between columns (1) and (2) of Table 6 suggests that reverse causality (through trust) may bias the univariate regression upward. Alternatively, one may wonder whether the difference between the two regressions lies in the sample, due to the fact that data on trust are missing for almost one third of the countries. However, this is not the case; re-estimating the univariate regression in column (1) on the reduced sample available in column (2) leads a point estimate very close to zero, non-statistically significant at conventional confidence levels (column 3).

Djankov et al. (2002) also present one further specification in which they include on the right-hand side the log of GDP per capita, arguing that the level of economic development controls for the risk and severity of market failures. In column (4) I replicate this specification, thus dropping average trust. Once I do that, the estimated coefficient of regulation is again very close to zero. When I plug back average trust into the equation (column 5), its effect is not statistically significant at the conventional 10 percent confidence level. Still, keeping average

[10]In the original Djankov et al. (2002) paper, the coefficient is indicated as statistically significant at the 5% confidence level.

trust constant across countries is important for correctly evaluating the effects of regulation. In fact, the coefficient of $ENTRY$ becomes negative and very statistically significant when moving from column (4) to column (5).

The bottom panel reports similar results for another outcome of regulation, namely the size of the shadow economy. Djankov et al. (2002) estimate a positive (and strongly statistically significant) relationship between entry regulations and unofficial activity. But neither is this result robust to controlling for omitted variation in trust. The coefficient of regulation becomes non statistically significant (and very close to zero) after partialling out the effect of trust.

While indicative of a role for omitted factors in explaining the correlation between regulation and market outcomes, this evidence is also prone to the likely endogeneity of all the right hand-side variables (including trust). For this reason, in Table 7 I address the bias in a different way, namely excluding trust from the right-hand side of the equation and using country population as an instrument for regulation. According to the results in Table 4, in fact, population affects regulation through a channel independent from the trust-driven demand for government intervention; moreover, the correlation between trust and population in Table 3 is not different from zero. Therefore, the population-predicted component of regulation should not be correlated with omitted variation in trust either.

The first two columns of the table present the results for water pollution. While the coefficient of population is positive and statistically significant in the first stage (in line with the results in Table 4), the F statistics for the excluded instrument falls below the threshold of 10 predicated by the literature on weak instruments. For this reason, the standard errors in the second stage are higher than those of the OLS.

At the same time, the coefficient of $ENTRY$ is substantially lower than the univariate OLS regression. In this sense, OLS and 2SLS estimates are consistent with each other in pointing at the existence of a significant upward bias in previous estimates of the effects of regulation. In particular, the point estimate drops from 0.013 to about -0.019 (statistically significant) when including trust in the OLS specification, to an even lower -0.037 (non-significant at conventional levels) when employing the instrumental variable correction; controlling for the log of GDP per capita (column 2) further lowers the point estimate to -0.073. Similar results are obtained when estimating the effect of regulation on the level of unofficial activity (columns 3 and 4).

At minimum, these findings suggest that previous estimates of the effects of regulation (based on univariate OLS regressions) may be severely upward biased, while evidence about the effectiveness of regulation in correcting market failures is more mixed. Even though correcting for endogeneity turns the coefficient of regulation negative both in OLS and 2SLS estimates, the latter are not statistically significant at conventional levels of confidence.

4 Conclusion

Regulation is often blamed for being both ineffective and inefficient; however, people seem reluctant to abandon it. This paper offers a view that may potentially reconcile these two facts. The main insight is that, far from being exogenously determined, the actual level of regulation is an equilibrium outcome. In particular, stringent regulations may be enacted (at least in part) in response to market failures caused by the opportunistic behavior of agents in the economy, which in turn drive part of the correlation existing between the level of regulation and several economic outcomes.

I addressed these issues by correcting for the endogeneity of the actual level of regulation observed across countries. In particular, I showed that keeping constant the demand for government intervention by people at large leads to reconsider the effect of regulation on negative externalities and unofficial activity. Of course, these results do not exclude the possibility that regulation may be very inefficient. They suggest, however, that in order to make liberalization and deregulation politically appealing it might be necessary to foster and improve alternative institutions aimed at preventing and correcting market failures.

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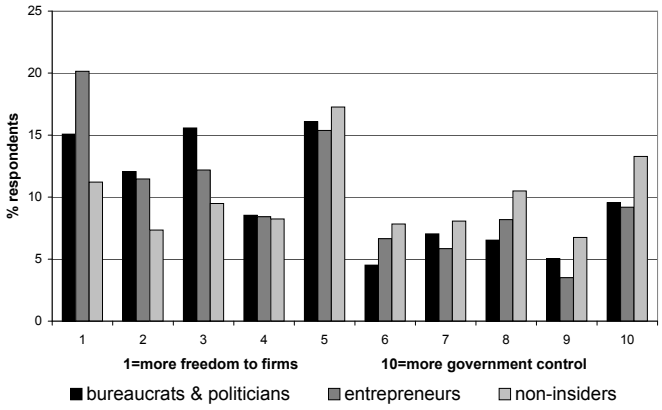
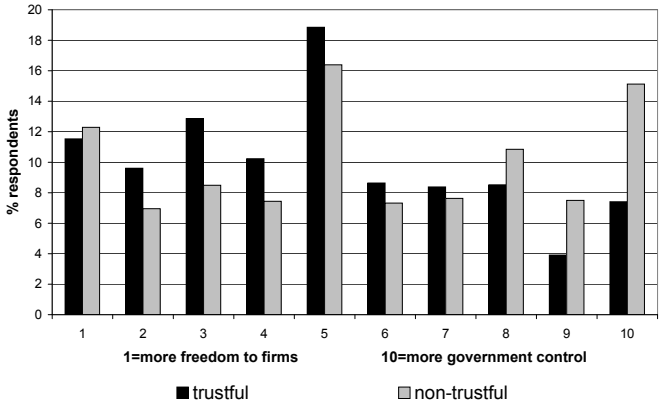
Figure 1: opinions about regulation (insiders vs. non-insiders)



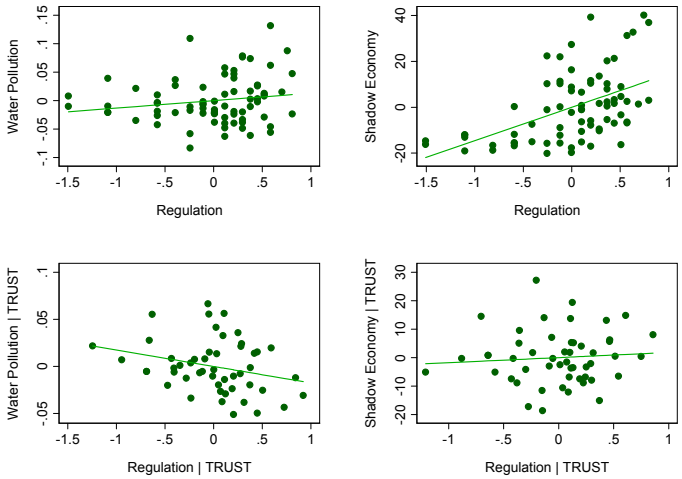
The histogram shows the distribution of answers to the WVS question about the regulation of firms, distinguishing between three categories of individuals: bureaucrats and politicians, entrepreneurs and other individuals. Answers take on discrete values between 1 and 10, where 1 means "State should give more freedom to firms" and 10 means "State should control firms more effectively".

Figure 2: opinions about regulation (trustful vs. non-trustful)



The histogram shows the distribution of answers to the WVS question about the regulation of firms, distinguishing between two categories of individuals: trustful and non-trustful. Answers take on discrete values between 1 and 10, where 1 means "State should give more freedom to firms" and 10 means "State should control firms more effectively".

Figure 3: Regulations and market failures



These graphs show the cross-country correlation between entry regulations and market failures. The measure of entry regulations is the (log) number of procedures required to open a business; Water Pollution is emissions of organic water pollutant (kilograms per day per worker); Shadow Economy is the (estimated) size of the informal sector. All three measures come from Djankov et al. (2002). The two graphs on the bottom show the relationship after regressing each variable on country trust. Average country trust is the fraction of people interviewed by the World Values Survey that declared that "most people can be trusted".

Table 1: Individual-level data, sample and country averages

country	*code*	*sample*	*obs.*	*population*	*regulation*	*trust*
Austria	AUT	1523	1366	8,011,560	4.093	0.340
Belgium	BEL	1914	1769	10,252,000	5.605	0.291
Bulgaria	BGR	1002	875	8,060,000	5.342	0.270
Belarus	BLR	1002	832	10,005,000	4.869	0.415
Czech Republic	CZE	1911	1823	10,273,300	6.023	0.245
Germany	DEU	2045	1838	82,210,000	4.931	0.380
Denmark	DNK	1025	905	5,337,344	4.412	0.678
Spain	ESP	2417	1002	40,263,199	5.424	0.381
Estonia	EST	1007	893	1,369,512	6.065	0.235
Finland	FIN	1040	942	5,176,196	4.624	0.570
France	FRA	1617	1519	58,895,516	4.899	0.211
Great Britain	GBR	2005	1717	59,742,980	4.686	0.345
Greece	GRC	1142	948	10,917,500	5.717	0.238
Croatia	HRV	1004	940	4,502,500	5.047	0.203
Hungary	HUN	1003	910	10,210,971	6.633	0.229
Ireland	IRL	1014	923	3,805,399	4.983	0.368
Iceland	ISL	970	900	281,000	3.362	0.413
Italy	ITA	2002	1845	56,948,602	4.915	0.335
Lithuania	LTU	1020	884	3,499,527	4.498	0.260
Luxemburg	LUX	1211	1038	438,000	6.446	0.250
Latvia	LVA	1015	942	2,372,000	7.365	0.170
Malta	MLT	1004	980	390,000	4.995	0.208
Netherlands	NLD	1005	978	15,925,431	5.438	0.600
Polonia	POL	1098	1007	38,453,801	6.731	0.186
Portugal	PRT	1001	883	10,225,803	5.492	0.133
Romania	ROM	1148	1032	22,443,000	6.217	0.102
Russia	RUS	2504	2265	146,303,000	6.164	0.243
Slovak Republic	SVK	1334	1218	5,388,740	7.138	0.158
Slovenia	SVN	1008	926	1,989,000	5.545	0.215
Sweden	SWE	1018	948	8,869,000	3.901	0.668
Turkey	TUR	4609	1107	67,420,000	6.911	0.067
Ukraine	UKR	1196	1067	49,175,848	5.457	0.269

Notes: This table lists all countries for which individual-level data were available. It reports the size of the sample of individuals interviewed in each country during the fourth wave of WVS, the number of individuals that answered both the questions about trust and regulation, the country average of the two variables as well as total country population.

Table 2: demand for regulation, individual-level estimates

	baseline estimates			*rent-seeking*		*outsiders*	*insiders*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
trust	-.349***	-.165***	-.130***	-.125***	-.139***	-.132***	-.063
	[.705]	[.848]	[.878]	[.883]	[.870]	[.877]	[.939]
	(.028)	(.046)	(.045)	(.044)	(.046)	(.043)	(.100)
insider				-.348***			
				[.706]			
				(.106)			
buraucr. & polit.					.267		
					[1.306]		
					(.276)		
incumbent					-.421***		
					[.656]		
					(.127)		
obs.	37222	37222	31489	31383	22901	28370	3013
countries	32	32	32	32	30	32	32
country FE	NO	YES	YES	YES	YES	YES	YES
individual controls	NO	NO	YES	YES	YES	YES	YES
pseudo R^2	.002	.018	.024	.025	.024	.024	.034

Notes: This table presents estimates of the effect of trust on preferences for regulation at the individual level. The dependent variable is the answer to the WVS question about the regulation of firms, it takes on discrete values from 1 to 10, where 1 means "State should give more freedom to firms" and 10 means "State should control firms more effectively". The explanatory variable *trust* is the answer to the WVS question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?"; it takes value 1 if the answer was "Most people can be trusted" and 0 if the answer was "Can't be too careful in dealing with people". The last two columns refer to different subsamples, indicated on top of each column. The category *insiders* includes bureaucrats, politicians and market incumbents. Bureaucrats and politicians are individuals reported as "legislators and senior officials" according to the 2-digit ISCO88 classification; incumbents are instead "corporate managers" and "general managers" (following the same classification) plus entrepreneurs and self-employed (excluding the self-employed does not affect the results). The category *outsiders* includes all other people in the sample. Individual controls included columns (3)-(7) are age, age squared, gender and categorical indicators for income and schooling. The estimation method is the Maximum Likelihood ordered logit model. The pseudo R^2 equals 1 minus the ratio between the log-likelihood at the last and first iteration. Odds ratios are presented in square brackets. Robust standard errors clustered by country are presented in parenthesis. Observations are weighted by the product of national sampling weights and country populations. *, ** and *** denote coefficients significantly different from zero at the 90% confidence, 95% confidence and 99% confidence, respectively.

Table 3: Correlation matrix and summary statistics

	ENTRY	*COSTS*	*TRUST*	ln *GDP*	ln *POP*	*Water. Poll.*	*Unoff. Act.*
Correlation matrix							
COSTS	-0.291***						
TRUST	-0.623***	0.326**					
ln *GDP*	-0.474***	0.753***	0.517***				
ln *POP*	0.253**	-0.204*	-0.037	-0.115			
Water. Poll.	0.1571	-0.256**	-0.1375	-0.479***	-0.132		
Unoff. Act.	0.498***	-0.383***	-0.614***	-0.731***	0.0797	0.538***	
Summary statistics							
obs.	85	84	51	85	197	76	73
mean	2.243	4.157	0.304	7.949	15.337	0.184	28.891
std. dev.	0.505	1.415	0.153	1.638	2.093	0.041	15.307
min	0.693	0.841	0.046	5.247	10.651	0.100	8.600
max	3.045	6.973	0.652	10.554	20.949	0.315	68.800

Notes: This table presents the correlation matrix (top panel) and summary statistics (bottom panel) of cross country variables. *, ** and *** denote correlation coefficients significantly different from zero at 90% confidence, 95% confidence and 99% confidence, respectively.

Table 4: regulation of entry, cross-country estimates

	number of procedures			*demand for regulation*		
	(1)	(2)	(3)	(4)	(5)	(6)
TRUST	-2.210***	-1.826***	-1.937***	-4.454***	-2.982***	-2.990***
	(.424)	(.449)	(.394)	(.826)	(1.020)	(1.118)
ln *GDP*		-.083*	-.054		-.284*	-.284*
		(.049)	(.047)		(.159)	(.160)
ln *POP*			.081**			-.005
			(.035)			(.127)
obs.	51	51	50	25	25	25
R^2	.39	.42	.47	.40	.48	.48
F	27.16	16.62	13.58	29.07	15.06	12.38

Notes: This table presents OLS estimates of the effect of trust on entry regulation across countries. The dependent variable in columns (1)-(3) is the (log of) number of procedures required to start a new business; in columns (4)-(6) it is the country average of preferences for regulation measured by the WVS. The explanatory variable *TRUST* is the country average of the WVS variables in waves II and III. ln *GDP* and ln *POP* are the (log of) country GDP per capita and population in 1999, respectively. All data except the WVS variables come from Djankov et al. (2002). Robust standard errors are presented (in parenthesis). *, ** and *** denote coefficients significantly different from zero at 90% confidence, 95% confidence and 99% confidence, respectively.

Table 5: costs and delay of procedures

	costs of procedures			*time to complete*		
	(1)	(2)	(3)	(4)	(5)	(6)
$TRUST$	2.822**	-.628	-.496	-1.491**	-.882	-.862
	(1.160)	(.813)	(.831)	(.601)	(.648)	(.672)
$\ln GDP$		.745***	.714***		-.131**	-.145**
		(.113)	(.124)		(.063)	(.066)
$\ln POP$			-.091			-.027
			(.097)			(.054)
obs.	51	51	50	51	51	50
R^2	.106	.541	.552	.141	.206	.218
F	5.916	22.399	14.049	6.143	5.656	4.127

Notes: This table presents OLS estimates of the effect of trust on the costs and time of entry procedures across countries. The dependent variable in columns (1)-(3) is the (log of) the cost of opening a new business divided by the number of procedures; in columns (4)-(6) it is the log of days required to open a new business divided by the number of procedures. The explanatory variable $TRUST$ is the country average of the WVS variables in waves II and III. $\ln GDP$ and $\ln POP$ are the (log of) country GDP per capita and population in 1999, respectively. All data except the WVS variables come from Djankov et al. (2002). Robust standard errors are presented (in parenthesis). *, ** and *** denote coefficients significantly different from zero at 90% confidence, 95% confidence and 99% confidence, respectively.

Table 6: Regulation and market failures, OLS estimates

	(1)	(2)	(3)	(4)	(5)
			water pollution		
$ENTRY$	.013	-.019***	-.007	-.004	-.023***
	(.008)	(.007)	(.006)	(.008)	(.007)
$TRUST$		-.067**			-.048
		(.026)			(.031)
$\ln GDP$				-.013***	-.006**
				(.003)	(.003)
obs.	76	49	49	76	49
R^2	.025	.101	.02	.231	.162
F	2.297	4.779	1.416	12.253	4.82
			shadow economy		
$ENTRY$	14.755***	1.952	9.988***	5.560**	.061
	(2.570)	(2.682)	(1.680)	(2.453)	(2.262)
$TRUST$		-44.118***			-17.067
		(12.609)			(12.202)
$\ln GDP$				-6.343***	-5.861***
				(.996)	(1.148)
obs.	73	50	50	73	50
R^2	.248	.381	.209	.561	.661
F	32.967	21.844	35.345	44.629	31.395

Notes: This table presents OLS estimates of the effect of entry regulations on different types of market failures across countries: the top panel shows the results for negative externalities, as measured by emissions of organic water pollutant (kilograms per day per worker) in 1998; the bottom panel shows the results for the size of the unofficial economy (in percentage of GDP) in various years during the 1990s. The explanatory variable $ENTRY$ is the (log of) number of procedures required to start a new business and $\ln GDP$ is the (log of) country GDP per capita in 1999. All these variables are from Djankov et al. (2002). $TRUST$ is the country average of the measure of trust in the WVS. *, ** and *** denote coefficients significantly different from zero at 90% confidence, 95% confidence and 99% confidence, respectively.

Table 7: Regulation and market failures, 2SLS estimates

	water pollution		*shadow economy*	
	(1)	(2)	(3)	(4)
$ENTRY$	-.037	-.073	8.581	-.974
	(.032)	(.047)	(10.076)	(13.011)
$\ln GDP$		-.022***		-7.382***
		(.008)		(2.378)
obs.	76	76	72	72
F	1.341	5.777	.705	31.002
		FIRST STAGE		
$\ln POP$	.104**	.084**	.105**	.084**
	(.040)	(.038)	(.044)	(.039)
$\ln GDP$		-.121***		-.154***
		(.034)		(.035)
F	6.68	10.21	5.68	13.59
F (excl. instr.)	6.68	4.91	5.68	4.56

Notes: This table presents 2SLS estimates of the effect of entry regulations on different types market failures across countries: columns (1) and (2) show the results for negative externalities, as measured by emissions of organic water pollutant (kilograms per day per worker) in 1998; columns (3) and (4) show the results for the size of the unofficial economy (in percentage of GDP) in various years during the 1990s. The top and bottom panel report second and first stage estimates, respectively. The explanatory variable $ENTRY$ is the (log of) number of procedures required to start a new business and $\ln GDP$ is the (log of) country GDP per capita in 1999; all these variables are from Djankov et al. (2002). $TRUST$ is the country average of the measure of trust in the WVS. The first stage instrument, $\ln POP$, is the log of country population, also from Djankov et al. (2002). *, ** and *** denote coefficients significantly different from zero at 90% confidence, 95% confidence and 99% confidence, respectively.