Corruption, Institutions and Regulation

Michael Breen, Dublin City University and
Robert Gillanders, University College Dublin

Corruption, Institutions and Regulation[*]

Michael Breen[†]   Robert Gillanders[‡]

March 2011

Abstract

We analyze the effects of corruption and institutional quality on the quality of business regulation. Our key findings indicate that corruption negatively affects the quality of regulation and that general institutional quality is insignificant once corruption is controlled for. These findings hold over a number of specifications which include additional exogenous historical and geographic controls. The findings imply that policy-makers should focus on curbing corruption to improve regulation, over wider institutional reform.

Keywords: Business Regulation; Economic Policy; Institutional Quality; Corruption

[†]**Corresponding author:** Michael Breen, School of Law and Government, Dublin City University, Collins Avenue, Dublin 9, Ireland. Tel: + 353 1 7006590. Fax: + 353 1 7007374. Email: michael.breen@dcu.ie

[‡]School of Economics, University College Dublin, Belfield, Dublin 4, Ireland. Funded by the Irish Research Council for the Humanities and Social Sciences. rgillanders@gmail.com

1　Introduction

Regulations shape a wide range of economic activity. Indeed, it is hard to think of an area of economic activity in the formal sector that is not shaped by regulation to some degree. However, the extent of regulation can differ dramatically across countries. In some parts of the world, starting a business and paying taxes are costly and time-consuming exercises that make it difficult for societies to operate efficiently. In other parts, efficient business regulations contribute to economic development and prosperity.[1] Efficient regulation of the business environment should result in fewer bureaucratic procedures or less "red tape". Consequently, well regulated business environments will impose fewer transaction costs on individuals and firms, allowing them to operate more efficiently. It is not only the quantity of red tape that matters, the quality of existing regulation should help to attract investment, as investors often use information on the state of the business environment to judge the expected risk and returns from investment.[2]

There is a substantial debate in economics on the appropriate extent to which government should intervene to regulate economic activity. The consensus among most economists is that governments should regulate to address market failures. However, differences persist over the extent to which market failures are a problem, with many economists arguing that excessive regulation strangles economic development. While the debate over the appropriate extent of regulation is ongoing, several authors have theorised that the key determinants of existing poor regulation and misgovernance, include corruption and poor institutions (Banerjee (1997); Guriev (2004)).

We contribute to this literature by examining empirically the deep determinants of the quality of regulation.[3] We view a country's existing stock of regulation as a product of its (relatively) recent history of institutional quality and corruption. Our primary objective is to untangle the causal effects of each of the respective determinants of regulation. The results indicate that the level of corruption is the most important determinant of the quality of the business environment, trumping the quality of institutions and a range of other indicators.

The paper proceeds as follows. We examine the relationship between regulations, institutions, and corruption, discussing how both institutions and corruption could explain variation in regulatory outcomes. We then present our methods, data and results. The final section concludes with a discussion of our findings and their relevance.

---

[1]To take an example, in Guinea-Bissau it takes 213 days and 19 procedures to start a business. By contrast, in New Zealand it takes only one day and one procedure.

[2]For a recent survey of the literature on the effects of business environments on development see Xu (2010).

[3]This is similar in spirit to recent work on the determinants of economic growth and development, such as Hall and Jones (1999), Acemoglu, Johnson and Robinson (2001), Rodrik, Subramanian and Trebbi (2004) and Glaeser, La Porta, Lopez-de-Silanes and Shleifer (2004).

2 Motivation

Over the last few years a substantial research programme on the effects of business regulations has produced unambiguous findings by the standards of social science: the quality of regulation matters for a range of outcomes. Several authors have demonstrated the importance of good regulations for economic development and growth (Djankov, McLiesh and Ramalho (2006); Gillanders and Whelan (2010)), macroeconomic performance (Loayza, Oviedo and Serven (2005)), increased productivity and output (Barseghyan (2008); Aghion, Bundell and Griffith (2009)), entrepreneurism (Klapper, Laeven and Rajan (2006)), and trade (Freund and Bolaky (2008)). Considering the far-reaching effect of business regulations on performance, it is important to investigate why some countries possess effective regulation while others are buried under excessive red tape. Among the works that have considered this question, Banerjee (1997) argues that agency problems within government can cause poor regulation and that such problems are compounded at low levels of development and bureaucratic quality.

In this section, we discuss the potential effects of both corruption and institutional quality on regulation in order to ground our empirical strategy in the existing theoretical literature. According to North (1990), institutions are "the rules of the game in a society." Corruption, on the other hand, is defined by the World Bank as "the abuse of public power for private benefit." In other words, corruption requires a criminal intent to subvert the rules of the game. From these simple definitions, it appears that institutions and corruption are distinct issues.[4] One is agent-centred and the other is based on the most enduring aspects of society. We recognise, however, that in some societies corruption has become so deeply embedded in social life that it can be viewed as a set of social norms that co-exist alongside formal institutions. Nevertheless, by definition, corruption is never a legitimate act, no matter how widely tolerated. Consequently, it is best viewed as a strategy rather than a set of rules. And, as North (1990:5) argues, it is necessary to separate the rules of the game from players' strategies in order to conceptualize institutions.

Apart from having a lasting and devastating effect on society, corruption can undermine the purpose and integrity of regulation. Through bribery, individuals can circumvent regulation, support harmful deregulation, or preserve the status quo of ineffective regulation.[5] Corrupt politicians and bureaucrats can also encourage corruption through inefficient regulation that incentivises individuals and firms to pay bribes. We recognise, however, that the question of how corruption affects regulation is not always so clear cut. Some authors have speculated that corruption could "grease the wheels" (Huntington (1968)). Instead of harming economic

---

[4]Although this simple definition is useful, there is an extensive literature on the problem of how to define corruption. For example see Bardhan (1997).

[5]For example, Fredriksson and Svensson (2003) find that corruption reduces the stringency of environmental regulations, but that this effect is dependent on the level of political instability.

activity, individuals and businesses are able to circumvent inefficient regulations through bribes, hastening the process of starting a business or registering property. Even historically, some industries have flourished amid widespread corruption. Guriev (2004) examines this issue, building a theory of corruption and regulation which accounts for both bribes that reduce red tape and bribes that circumvent red tape. The resulting theoretical model shows that even though one form of corruption can reduce regulation, the equilibrium level of regulation remains above the social optimum.

A common thread throughout the literature on corruption and regulation is that the quality of institutions matters. Institutions have been identified as a leading determinant of economic development (North (1990); Rodrik, Subramanian and Trebbi (2004)).[6] Good institutions enforce contracts and protect citizens against expropriation. They should also provide a more stable business environment as regulations are more frequently and effectively enforced. As well as producing and enforcing regulations, institutions perform distributive, representative, and accountability functions. When performing these functions well, good institutions should foster more accountability among the government agencies that design and enforce regulations, resulting in more socially optimal business regulations. Furthermore, in the presence of good institutions, interest groups will find it more difficult to lobby for regulations (or deregulation) that benefits a narrow segment of society at the expense of the overall business environment.[7]

The theory of regulatory capture also provides a strong argument linking both corruption and institutional quality to regulatory outcomes. The regulatory capture approach, pioneered in Stigler (1971), describes a type of government failure where special interest groups come to control the state institutions that design and enforce regulations. According to Laffont and Tirole (1991), interest groups can influence regulation through bribes or the offer future employment to the officials and agents who enforce and design regulations. Furthermore, business interests can cultivate personal relationships with government officials and can withhold public criticism of their activities in exchange for favourable treatment (Laffont and Tirole 1991:1091). Finally, interest groups can engage in the lobbying of politicians and bureaucrats, and indirect transfers such as political campaign contributions (Austen-Smith (1987)). Good institutions should be able to resist both regulatory capture and the use of regulation to create and extract rents from the private sector.

To summarise, there are theoretical models which predict that both the prevalence of corruption and the quality of institutions will be important causal factors in the determination of regulatory quality. Good institutional frameworks should lead to efficient regulation by

---

[6]There is still an ongoing debate over their significance in terms of growth and development, see Glaeser, La Porta, Lopez-de-Silanes and Shleifer (2004) and Gillanders and Whelan (2010).

[7]Djankov, La Porta, Lopez-De-Silanes and Shleifer (2002) find that countries with larger, less democratic, and more interventionist governments regulate business entry more heavily, supporting the view that the quality of institutions determine the level of regulation.

relegating special interest groups to a peripheral or secondary role. High levels of corruption would also seem to lead to poor regulation as actors seek to extract rents. Wherever regulation exists, some actors will have incentives to change the rules to their advantage, or circumvent them entirely.

3   Econometric Approach

The above arguments suggest that we wish to estimate models of the following form:

$$REG_i = \alpha + \beta_1 INST_i + \beta_2 CORR_i + \Gamma X_i + \epsilon_i \tag{1}$$

where REG_i is a measure of country i's regulatory quality, α is a constant, $INST_i$ is measure of country i's institutional quality, $CORR_i$ is a measure of country i's corruption, X_i contains exogenous controls and ϵ_i is an error term of the usual type.

There is a high likelihood of reverse causality in Equation 1. Countries with better regulation may have closed the door on a lot of corruption. More business friendly economic policies may also have a direct or indirect effect on institutional quality through the creation of an efficient class of administrators or through a larger middle class, for example. Thus we utilise the following first stage regressions:

$$INST_i = \kappa + \Psi_1 DIST_i + \Psi_2 FRAC_i + \Psi_3 NSTAT_i + \Theta X_i + \mu_i \tag{2}$$

$$CORR_i = \eta + \Omega_1 DIST_i + \Omega_2 FRAC_i + \Omega_3 NSTAT_i + \Phi X_i + \nu_i \tag{3}$$

where $DIST_i$ is country i's distance from the equator, $FRAC_i$ is the degree of ethno-linguistic fractionalisation in country i and $NSTAT_i$ is an indicator for how "new" the state is.

Each of these should serve as a good instrument for both institutional quality and corruption in Equation 1. Distance from the equator is commonly used as an instrument for institutional quality, the idea being that it is a good proxy for exposure to Western European influence.[8] Ethno-linguistic fractionalisation should influence both institutions and corruption through mechanisms such as the sense of nationhood and the prevalence of inter-group rivalry. Finally, the age of the state should influence institutional quality and corruption through many channels such as the time available to put formal rules of conduct in place and for the machinery of state to emerge. We do not believe that these instruments will have any role to play in determining business policy outside of their impact on the endogenous variables in Equation 1.[9]

---

[8]For example Hall and Jones (1999) and Rodrik, Subramanian and Trebbi (2004).

[9]There is a clear difference between a state's institutional framework (the machinery of state) and it's policy outcomes (very loosely, an output of that machinery). While a state's age may affect the former, it is unlikely to affect the latter directly.

Figure 1: Doing Business and Institutional Quality
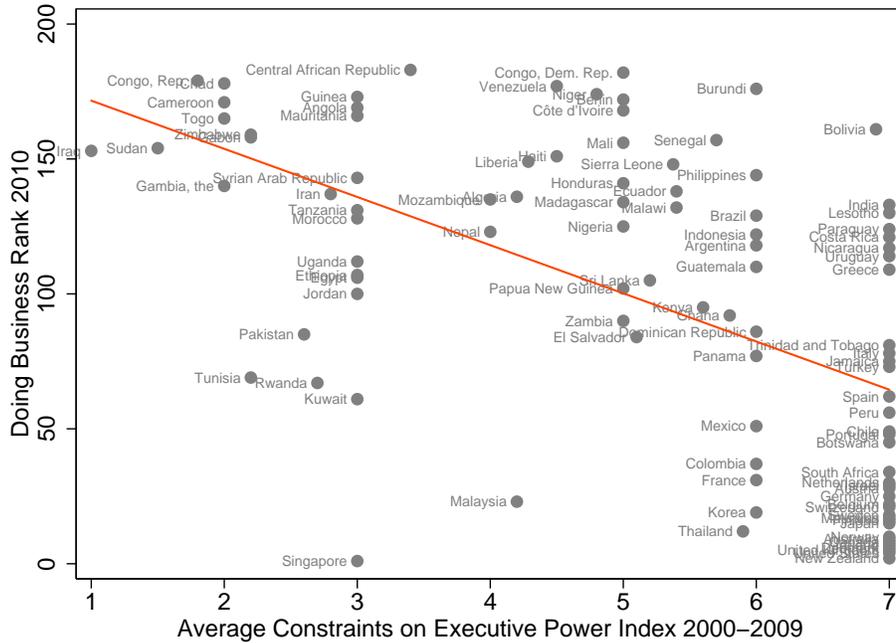
4 Data

To measure business regulations we make use of data from the World Bank's *Doing Business* project. From its database we use a variable that captures the overall ease of doing business within a country – the Ease of Doing Business Rank. This rank was compiled from indicators that come from objective surveys which capture the difficulty that a hypothetical standard-ised company would face in starting a business, dealing with construction permits, paying taxes, employing workers, trading across borders, registering property, enforcing contracts, and obtaining credit.[10] The surveys also capture other aspects of the regulatory environment, namely the degree to which investors are protected and the recovery rate from business closure.

---

[10]Since we began this work, the ease of employing workers component has come under revision by the World Bank and is, for the moment, no longer included in their calculations for overall ease of doing business. We find no meaningful difference between our results which include this component and those which exclude it and so we opt to leave it in. The two rankings are correlated to the degree of 0.993. The main difference is that institutional quality is significant at the 10% level in our many of our specifications when the ease of employing workers is excluded from the overall ranking and in one case (where we include legal origin controls) at 5%. The World Bank's discussion of the need for revisions can be found at http://www.doingbusiness.org/methodology/employing-workers

Figure 2: Doing Business and Corruption
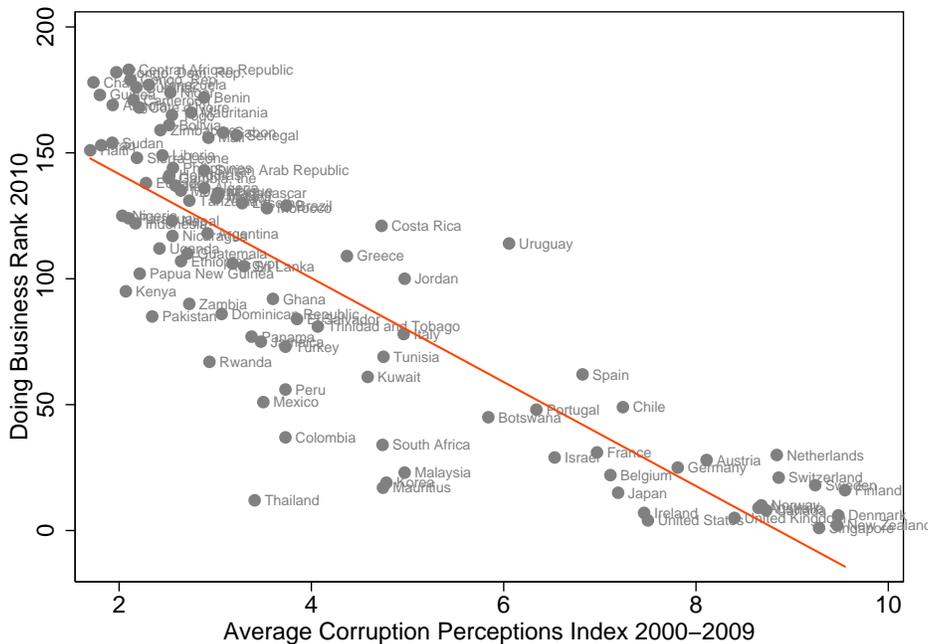
Figure 3: Corruption and Institutional Quality

7
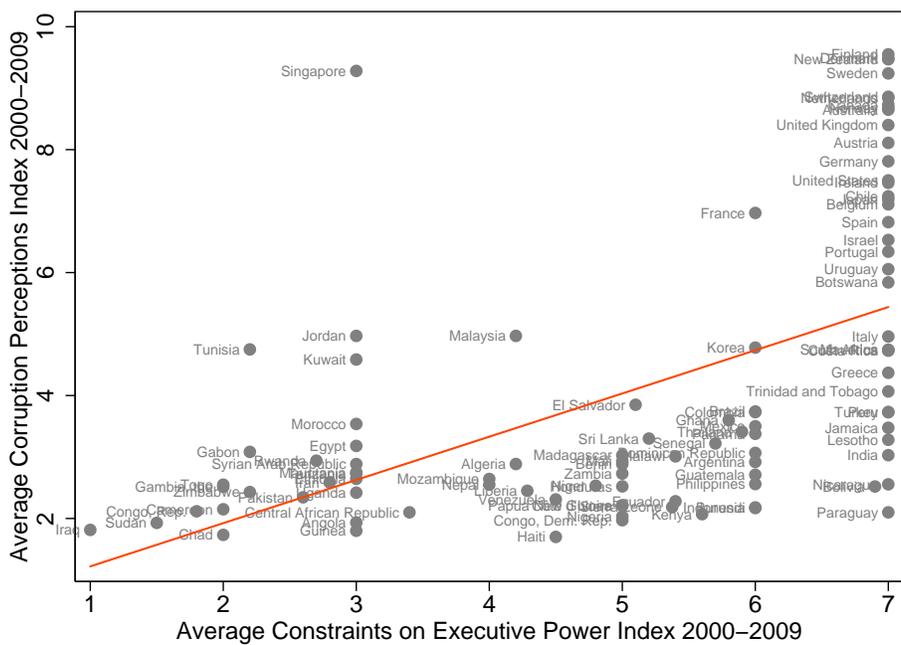
This variable covers a far greater range of economic activity than other proxies for economic policy such as openness to international trade. It also has the advantage over other policy variables in that governments have direct control over business regulation. Thus one could read our work more generally as examining the determinants of economic policy with business policies serving as a proxy for general economic policy. We use the most recent ranking which was created from data collected over the period 2008-2009.

As a proxy for the quality of a country's institutions we use a variable measuring the constraints on executive power from the POLITY IV dataset averaged over the period 2000-2009. This variable measures "the extent of institutional constraints on the decision-making powers of the chief executive, whether an individual or a collective executive" (Marshall and Jaggers (2008)). The variable captures the degree of checks and balances on a seven point scale from unlimited executive authority to executive parity of subordination. Glaeser, La Porta, Lopez-de-Silanes and Shleifer (2004) argue that this a better measure of the quality of a country's institutions than some other commonly used measures. Previous authors have employed variables that measure expropriation risk or the rule of law. According to Glaeser et. al., executive constraints is less prone to measure outcomes (such as corruption).[11] Figure 1 shows that there is a relationship between the quality of business regulation and our preferred measure of institutional quality, though it is not a very strong one. It seems it is possible to have good institutions and a difficult business environment. As a robustness check, we employ the Rule of Law variable from the World Bank's Worldwide Governance Indicators (WGI) project as an alternative measure of institutional quality. All the WGI indicators we use take values between -2.5 and +2.5.

For our measure of corruption we use Transparency International's Corruption Perceptions Index. This index measures the "perceived level of public-sector corruption in 180 countries and territories around the world".[12] We again average this over the period 2000-2009. We employ the World Bank's WGI Control of Corruption variable as an alternative measure. It has been argued that the Corruption Perceptions Index and WGI Control of Corruption variables are the best measures of corruption currently available (Razafindrakoto and Roubaud (2010)). Figure 2 plots Doing Business Rank against the Corruption Perceptions Index. We observe a more robust relationship than in Figure 1. Countries with high levels of corruption (low scores) tend to have worse business policies.

We have already argued above that corruption and institutional quality are conceptually distinct. The econometric issue is whether the correlation between the two is too high. If so, this multicollinearity will mean that our regressions cannot isolate the effects that we are interested in. In practice, the correlation between our preferred measures is 0.55 and, as illustrated in Figure 3, there are many countries with high levels of corruption and good

---

[11]Though they also show that it is not a perfect measure either.

[12]http://www.transparency.org/policy_research/surveys_indices/cpi/2009

institutions, though the reverse is not as common. Countries such as India, Italy, Paraguay and Singapore seem to provide us with sufficient variation.

Our data covers 100 countries. All additional variables are defined fully in Appendix A.

5 Determinants of Business Regulation

5.1 Main Specifications

We begin with the simplest specification of our model which uses our preferred measures of institutions and corruption and no additional variables. Table 1 presents the results. The first three columns of Panel A are simple OLS estimates and are likely to be contaminated by endogeneity. Nevertheless, they do suggest that there is some relationship between our regressors and regulatory quality. All coefficients are negatively signed as one would expect if better institutional and corruption scores lead to a better ranking. It is also worth noting that adding institutional quality to a regression that includes corruption (i.e. the move from Column 2 to 3) barely increases the R^2. This indicates that corruption may be a more important factor.

Columns 4, 5 and 6 present our IV estimates. In most cases, our regressions pass the test of over-identifying restrictions – only when we exclude corruption in Column 4 do we see a significant test statistic. This indicates that some of the instruments may be operating on business policy outside of their effect on institutional quality. Given that we pass the test once we include corruption, we can take this as initial evidence that corruption plays a role in determining business policy.

We can see from Panel B that the first stage fits are good enough for us to dismiss concerns about weak instruments. These first stage regressions are interesting in their own right. As one would expect given the arguments underlying the use of distance from the equator as an instrument (and as others have found), countries with climes more suited to European colonies tend to have better institutions and lower levels of (perceived) corruption. Conversely, being a relatively new state has a deleterious impact on institutional quality and the prevalence of corruption. It is interesting that ethno-linguistic fractionalisation is insignificant in both first stage regressions – corruption does not seem to be more of a problem in more fragmented societies, nor does institutional quality seem to be lower.

Table 1: Key Determinants of Ease of Doing Business Rank

Panel A: Main Specifications						
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	IV	IV	IV
Constant	189.481***	182.878***	199.124***	259.088***	182.780***	209.593***
	(13.012)	(5.763)	(8.063)	(26.035)	(8.124)	(19.662)
Constraints on	-17.852***		-4.747**	-31.258***		-8.868
Executive Power	(2.408)		(1.873)	(4.589)		(6.276)
Corruption		-20.652***	-18.637***		-20.629***	-16.015***
Perceptions Index		(0.987)	(1.237)		(1.554)	(3.733)
R^2	0.32	0.71	0.72			
Over-ID Test P-Value				0.02	0.31	0.64

Panel B: First Stage Regressions		
Dependent Variable:	Constraints on Executive Power	Corruption Perceptions Index
Constant	5.653***	2.541***
	(0.402)	(0.529)
Distance to	0.025***	0.093***
Equator	(0.009)	(0.012)
Ethno-linguistic	-0.004	-0.002
Fractionalisation	(0.006)	(0.006)
New State	-0.779***	-0.347**
	(0.177)	(0.167)
Adjusted R^2	0.33	0.55
F Statistic	27.27	47.91

Notes: The dependent variable in Panel A is the Ease of Doing Business Rank 2010. In Panel A, Columns (1), (2) and (3) contain OLS estimates and Columns (4), (5) and (6) contain IV estimates. Robust standard errors in parentheses. $N = 100$. *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

The IV results follow a very similar pattern to that observed in the OLS results. Institutions play a significant role in determining the quality of business regulation when corruption is excluded. However, once corruption enters the specification, institutions are insignificant. This suggests that it is not the "rules of the game" that matter but the degree to which these rules are broken. The magnitude of the corruption coefficient tells us that each step on the Corruption Perceptions Index tends to be worth approximately sixteen places in the *Doing Business* rankings.[13]

This has a clear policy implication. If institutional quality in general is not a factor, then to reform business regulation it is sufficient to tackle "cheaters" and it is not necessary to attempt the difficult task of wholesale institutional reform. That is, it is possible to have a country with good economic policy and poor institutions as long as the degree to which the rules are broken is curbed.

Of course, we are not claiming that institutional quality is unimportant. Good institutions are probably desirable for their own sake. Also, institutional quality may play a role in reducing corruption levels. Indeed, as is illustrated in Figure 3, there does appear to be some association between low corruption and good institutions. Previous empirical research has shown that variation in political institutions strongly influences the prevalence of corruption.[14] We will not pursue this any further here as it is an important question in its own right. Our results merely claim that once one controls for corruption levels, institutional quality is irrelevant with regards to business regulation.[15]

5.2 Robustness

To see if this interesting result is robust to competing explanations, we must introduce some exogenous controls. Before we do so, it is prudent to examine whether our results are robust to alternative measures of institutional quality and corruption. This is particularly necessary with regards to institutions as figures 1 and 3 show that a large proportion of our sample (35%) achieve a perfect constraints on executive power score.

Table 2 uses the World Bank's Rule of Law (RL) and Control of Corruption (CC) measures as alternatives to our preferred measures. Both variables take values between -2.5 and $+2.5$ and we use the 2008 data.[16] Columns 1 and 2 of Table 2 substitute these in one at

---

[13]The size of the estimated coefficients on corruption are very similar in our OLS and 2SLS estimates which suggests that reverse causality is not a major concern in terms of corruption and regulation. This lends some support to the OLS results of Aghion, Algan, Cahuc and Shleifer (2010), though they examine the impact of *distrust* on regulatory outcomes as opposed to perceived corruption.

[14]For example Lederman, Loayza and Soares (2005) and Treisman (2000).

[15]Including a corruption*institutions interaction term yields no evidence that the impact of corruption is curbed (or indeed increased) in good institutional settings.

[16]Similar results are obtained using the average over the 2000s.

Table 2: Robustness I: Alternative Measures of Institutions and Corruption

	(1)	(2)	(3)
Constant	283.448***	138.685***	99.401***
	(107.049)	(33.800)	(4.548)
Rule of Law	50.504		46.217
	(53.919)		(47.983)
Constraints on		-8.172	
Executive Power		(6.558)	
Control of Corruption		-35.353***	-90.165*
		(8.284)	(47.046)
Corruption	-43.734*		
Perceptions Index	(24.532)		
Over-ID Test P-Value	0.41	0.69	0.55

Notes: The dependent variable is the Ease of Doing Business Rank 2010. Estimation carried out using IV. Robust standard errors in parentheses. $N = 100$. The first stage F Statistics for Constraints on Executive Power, Corruption Perceptions Index, Rule of Law and Control of Corruption are 27.27, 47.91, 53.47 and 47.91 respectively. *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

a time while Column 3 uses both simultaneously. Using RL as an alternative measure of institutional quality reduces the significance of the corruption coefficient to the 10% level. This drop in significance may be due to the fact that RL contains information on perceptions of corruption.[17] Using CC does not change our result or even the significance level. Finally, using both simultaneously reduces the significance of our main result to the 10% level. This drop in significance when using RL aside, these regressions suggest that our results are not overly dependent on the particular measure used.[18]

There is also an issue as to whether the raw Ease of Doing Business *Rank* is an acceptable left hand side econometric variable. Using a ranking means that the difference between 20th and 30th place has the same meaning as the difference between 150th and 160th. This need not be the case. Were we using a ranking as an explanatory variable, we could allow for

---

[17]Part of the definition of RL is "capturing perceptions of the extent to which agents have confidence in and abide by the rules of society." See Kaufmann, Kraay and Mastruzzi (2009) for a full definition and details.

[18]The result also holds at 1% if we use the POLITY IV measure of democracy as our measure of institutional quality and at 10% if we use Freedom House's Civil Liberties Index. Results available on request.

Table 3: Robustness II: Alternative Measure of Ease of Doing Business

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	204.417***	151.871***	172.075***	231.445***	125.790***	95.879***
	(18.757)	(5.583)	(12.678)	(70.193)	(20.809)	(3.124)
Constraints on	-21.312***		-6.681*		-6.237	
Executive Power	(3.317)		(3.807)		(4.002)	
Corruption		-13.941***	-10.465***	-32.205**		
Perceptions Index		(1.130)	(2.343)	(16.046)		
Rule of Law				39.921		36.227
				(35.260)		(30.953)
Control of Corruption					-23.086***	-65.859**
					(5.198)	(30.424)
Over-ID Test P-Value	0.03	0.17	0.73	0.43	0.79	0.60

Notes: The dependent variable is the Ease of Doing Business Score 2010. Estimation carried out using IV. Robust standard errors in parentheses. $N = 100$. The first stage F Statistics for Constraints on Executive Power, Corruption Perceptions Index, Rule of Law and Control of Corruption are 27.27, 47.91, 53.47 and 47.91 respectively. *, **and ***indicate significance at the 10%, 5% and 1% levels respectively.

non-linearities by including $rank^2$ and $rank^3$ terms. In our case we must take a different approach.

By taking the averages over the individual rankings we obtain what we call the Ease of Doing Business *Score*. The difference between this and the ranking is that we don't rank the values after averaging over the categories. Thus, the difference between 20th and 30th in the rankings in terms of the score they are allocated can be different from the difference in the scores of the 150th and 160th ranked countries. The score takes values between 5.2 and 157.7 with a mean of 93.8.

Table 3 examines whether this modification to the Doing Business variable changes our key results. Columns 1, 2 and 3 show results that are very close to those in Table 1. The only change is that institutional quality is significant at the 10% level, even when corruption is included. The remaining columns use our alternative measures of institutional quality and corruption and once again our core result emerges.[19]

[19]Though once again we see a drop in significance which is likely due to the pressence of information on corruption in the Rule of Law variable.

So far we have considered only two potential explanations of a good business environment. To have confidence in the results above we must of course allow other potential determining factors to enter the specification. Table 4 adds additional exogenous controls to our core specification. The first, and most obvious, alternative we consider is a country's level of economic development. Richer countries may be able to afford systems of regulation unavailable to poorer countries. However, it likely that contemporaneous, and even more recent, levels of wealth will be partly determined by the ease of doing business. To minimise the likelihood of endogeneity, we use 1970 levels of GDP per capita as our measure of economic development. With notable exceptions, prosperity today is highly correlated with prosperity in the not too distant past. If we accept this argument, Column 1 shows that (historically) richer countries do not have a statistically different quality of business regulation and that our key corruption result holds.

Another plausible determinant of the quality of regulation is the origin of a country's legal tradition. Previous empirical research has established a strong association between different legal traditions and a broad range of regulatory outcomes, including the protection of investors (La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997); La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998)), the burden of entry regulations (Djankov, La Porta, Lopez-De-Silanes and Shleifer (2002)), and the regulation of labour markets (Botero, Djankov, La Porta and Shleifer (2004)). Dummy variables for French and British legal origin are included in Column 2. Both of these variables are insignificant (though of expected sign) and the corruption variable maintains its significance. In Column 3, we examine whether a socialist history plays any role and find that it does not.

The remaining columns examine whether geography has any role to play. Column 4 includes the logs of both population and area. Both are highly significant though our main result continues to hold. Larger countries tend to have less business friendly policies. This suggests that it is more difficult to keep watch over a large area and perhaps some of the difficulty is passed onto firms. Larger populations seem to be good for business friendly regulation, perhaps because of economies of scale in regulatory technology. Column 5 is an attempt to allow for "neighbourhood" effects by including dummies for Western Europe and Sub-Saharan Africa. There seems to be no advantage to being surrounded by relatively affluent neighbours, but there is a penalty to being surrounded by relatively poor ones. Once again our main result holds.

Table 4: Robustness III: Additional Controls

	(1)	(2)	(3)	(4)	(5)
Constant	242.184***	225.163***	206.625***	218.623***	173.083***
	(51.159)	(22.996)	(22.124)	(29.280)	(32.474)
Constraints on	-7.310	-12.638*	-8.429	-9.179	-3.167
Executive Power	(5.647)	(6.767)	(6.597)	(5.951)	(6.697)
Corruption	-14.410***	-14.721***	-16.067***	-15.371***	-16.602***
Perceptions Index	(5.212)	(4.797)	(3.753)	(3.495)	(5.230)
Log of 1970 GDP	-5.756				
Per Capita	(7.418)				
French Legal Origin		5.736			
		(14.856)			
British Legal Origin		-14.919			
		(13.746)			
Socialist History			9.034		
			(10.972)		
Log of Area				6.683***	
				(2.066)	
Log of Population				-9.655***	
				(3.374)	
Western Europe Dummy					8.762
					(17.302)
Sub-Saharan Africa Dummy					22.084**
					(10.978)
Over-ID Test P-Value	0.65	0.24	0.63	0.80	0.86
First Stage F Statistic on:					
Constraints on Executive Power	21.37	23.36	27.50	17.66	25.97
Corruption Perceptions Index	45.69	76.86	42.77	49.38	53.07

Notes: The dependent variable is the Ease of Doing Business Rank 2010. Estimation carried out using IV. Robust standard errors in parentheses. $N = 100$. *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

Table 5: Sample Splits

	(1) High-Middle Income	(2) Middle-Low Income	(3) Democratic States	(4) Autocratic States	(5) Stable\ Peaceful	(6) Unstable\ Violent
Constant	100.207*	298.416***	188.049**	336.945***	138.485***	258.200***
	(58.451)	(64.855)	(94.385)	(100.630)	(36.072)	(32.170)
Constraints on	9.797	-17.505*	-3.996	-46.017	9.055	-17.314**
Executive Power	(14.020)	(9.535)	(20.100)	(47.0484)	(11.189)	(7.974)
Corruption	-18.166**	-34.082**	-17.390***	-27.453**	-22.522***	-18.256*
Perceptions Index	(7.468)	(15.456)	(6.008)	(12.965)	(6.843)	(9.974)
Over-ID Test P-Value	0.84	0.70	0.61	0.70	0.50	0.97
First Stage F Statistic on:						
Constraints on Executive Power	4.81	2.61	24.05	4.28	11.91	4.88
Corruption Perceptions Index	7.90	2.80	69.62	8.81	13.88	4.33
Observations	46	54	77	23	42	58

Notes: The dependent variable is the Ease of Doing Business Rank 2010. Estimation carried out using IV. Robust standard errors in parentheses. *, **and ***indicate significance at the 10%, 5% and 1% levels respectively.

5.3 Sample Splits

The previous section gives us confidence that, in general, corruption is the key determinant of good business regulation. In this section we extend the analysis by considering whether the effects are different in groups of countries defined by three fundamental characteristics: the level of economic development, the type of regime and the stability and level of violence in the state. While we could include these as additional regressors, we would require additional instruments to do so. Although splitting the sample is sub-optimal (especially in a macro exercise where samples are small to begin with), we believe that the previous section has demonstrated the robustness of our main finding. This extension is therefore justifiable, though the results should be taken as indicative rather than conclusive. This need for caution is underlined by the unsatisfactory first stage F statistics that we obtain for most of these regressions.

Columns 1 and 2 of Table 5 split the sample along the lines of economic development. The sample used in Column 1 is comprised of high income and upper-middle income countries, as defined by the World Bank, and Column 2 of the remainder. The impact of corruption on policy is roughly twice as big in poorer countries relative to richer countries. Bearing in mind the limitations of this approach, this reinforces the positive policy implication of our main findings: mitigating corruption can lead to big improvements in the quality of regulation even in the absence of institutional reform, *especially* in developing countries.

A similar result emerges in the case of democratic versus autocratic states as can be seen in columns 3 and 4. We use the Polity IV measure of regime type which takes values between -10 (fully autocratic) and +10 (fully democratic). We take a score of 0 as the minimum for entry to the democratic sample. Again we see a larger response to corruption in what to Western sensibilities would be the "bad" sample. Autocratic states tend towards less transparent government and political decision-making which leaves much more room for corruption. Furthermore, autocrats often lack the incentives to enforce anti-corruption laws, as these could undermine their ability to stay in power.

The final division is defined by the World Bank's WGI Political Stability, No Violence (PSNV) index. Like the other WGI variables we have used, this takes values from -2.5 to +2.5. We somewhat arbitrarily take a value of 0 for entry into the stable sample. The results are striking. In more stable countries it is corruption that emerges as the key determinant. However, in less stable environments it is institutional quality that wins out. This fits well with intuition: in unstable and more violent environments, improving the rules of the game becomes more important then stopping agents from breaking them. While striking, even more care must be taken in this instance than in the other splits. PSNV is arguably a measure of institutional quality itself and so the finding that better institutions matter more in a sample of countries with bad institutions is less than surprising. Nevertheless, it does suggest some role for targeted interventions if our policy prescription were to be followed by development agencies.

5.4   Disaggregated Rankings

We have already noted that the *Doing Business* data is rich in quality but so far we have neglected its impressive depth. This depth allows us to test our key result in another way and also introduce a more nuanced hypothesis. Both theory and common sense suggest that different aspects of regulation may have different determinants. Regulation in areas with greater potential for rent extraction by officials should be more driven by corruption, while those with lesser potential for rent extraction should be more driven by institutional quality.

Table 6 reports the results obtained from running a race between our key variables on each sub-rank. Corruption emerges as the significant determinant in six out of the ten cases, though only at the 10% level in the case of ease of protecting investors. If we put starting and closing a business to one side for the moment, the remaining four reflect day to day (or at least recurring) elements of doing business. This reinforces our earlier claim and modifies it somewhat: no matter the rules of the game, *repeated* interactions between officials and their clients leads to worse regulation if corruption is prevalent. It is easy to imagine corrupt officials inventing new regulations to extract more bribes from businesses.

Table 6: Sub-Rank Results

Ease of:	Starting a Business	Construction Permits	Employing Workers	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Foreign Trade	Enforcing Contracts	Closing a Business
Constant	151.62***	205.98***	117.71***	206.49***	196.91***	118.97***	141.30***	186.32***	205.97***	172.76***
	(24.50)	(28.50)	(27.85)	(28.98)	(24.37)	(30.77)	(25.86)	(22.82)	(26.45)	(22.46)
Constraints on	1.67	-17.27**	2.49	-19.86**	-18.37***	1.71	5.34	-4.86	-10.79	-2.02
Executive Power	(7.36)	(8.12)	(7.97)	(8.20)	(6.78)	(9.41)	(7.79)	(6.85)	(8.02)	(6.68)
Corruption	-15.01***	-4.30	-6.41	-2.28	-4.62	-10.00*	-16.41***	-16.59***	-12.93***	-18.29***
Perceptions Index	(4.46)	(4.86)	(4.99)	(4.92)	(4.04)	(5.66)	(4.57)	(3.80)	(4.79)	(3.90)
Over-ID Test	0.31	0.91	0.38	0.64	0.37	0.96	0.85	0.11	0.72	0.41

Notes: The dependent variable is the indicated *Doing Business* sub-rank in 2010. Estimation carried out using IV. Robust standard errors in parentheses. The first stage F statistics are 27.27 for constraints on executive power and 47.91 for the corruption perceptions index. $N = 100$. *, ** and *** indicate significance at the 10%, 5% and 1% levels respectively.

Starting and closing a business are one off events (in the life of a particular enterprise) where there is the potential to capture relatively large rents. It is easy to imagine an entrepreneur who is looking to start a business and make some money being prepared to grease the palm of a corrupt official who can stop or delay his investment. Likewise, owners and creditors of failed businesses are likely prepared to give away some of the value of the company's assets to expedite matters.

In three cases we find that institutional quality is the key determinant: ease of obtaining construction permits, ease of registering property and ease of getting credit. Interestingly, these three fit the bill of business regulation the least. Each is only tangentially related to the business environment, at least compared to the six where corruption is the key determinant. This further supports the idea that corruption requires frequent and repeated interaction with officials to become detrimental to regulatory quality. Otherwise, it is the general framework that is key.[20]

6 Conclusions

We have presented a wide range of evidence that the quality of business regulation is determined by the level of corruption. Our main finding is robust to additional exogenous historical and geographic controls and alternative measures of the main variables. We extended our analysis to consider whether the causal story differs according to key country-

---

[20]In the case of ease of employing workers, neither institutions or corruption are significant. Our prior expectation was that institutions would be the key factor as employment is a private arrangement that for the most part does not require the attention of state agents. It may be that employment regulation is driven by the character of institutions ("socialist" or "capitalist") rather than by their quality.

characteristics, namely the level of economic development, political regime, and the level of stability and violence. Again, we find that corruption determines the quality of regulation in all but the most volatile political environments. We also extended the analysis to encompass the disaggregated rankings of the Doing Business indicator. Here, our findings suggest that where there is more potential for rent extract, regulation is driven by corruption rather than institutional quality.

Taken together, our findings imply that a country can have "bad" institutions and a good business environment as long as societal actors follow the "rules of the game" no matter how bad they are in general. This has clear policy implications. To improve the business environment, targeted efforts to curb corruption can yield significant benefits. Wholesale institutional reform, while potentially yielding other benefits, is not the most effective way to improve regulation of the business environment. Corruption is not easy to eradicate or even curb, but it is certainly an easier task than wholesale institutional reform, as institutions are among the most durable and persistent aspects of any society.

Another way of interpreting our findings depends on whether effective regulation is a good proxy for the quality of a country's overall economic policy. If one were to adopt this view, a positive message emerges: in the absence of widespread corruption, even poor and ineffective institutions can produce effective economic policy decisions. States and societies are not necessarily a hostage of their history or institutional structures, though geography does seem to play some role.

References

Acemoglu, Daron, Simon Johnson, and James A. Robinson (2001) 'The Colonial Origins of Comparative Development: An Empirical Investigation.' *American Economic Review* 91(5), 1369–1401

Aghion, P, R Bundell, and R Griffith (2009) 'The Effects of Entry on Incumbent Innovation and Productivity.' *Review of Economics and Statistics* 91(1), 20–32

Aghion, P., Y. Algan, P. Cahuc, and A. Shleifer (2010) 'Regulation and Distrust.' *Quarterly Journal of Economics* 125(3), 1015–1049

at the Department of Geodesy, Miklukho-Maklai Ethnological Institute, and Cartography of the State Geological Committee of the Soviet Union (1964) *Atlas Narodov Mira*

Austen-Smith, David (1987) 'Interest Groups, Campaign Contributions and Probabilistic Voting.' *Public Choice* 54(2), 123–139

Banerjee, Abhijit V. (1997) 'A Theory of Misgovernance.' *Quarterly Journal of Economics* 112(4), 1289–1332

Bank, The World (2010) *Doing Business 2010* The International Bank for Reconstruction and Development / The World Bank

Bardhan, P. (1997) 'Corruption and Development: A Review of Issues.' *Journal of Economic Literature* 35(3), 1320–1346

Barseghyan, Levon (2008) 'Entry Costs and Cross-Country Differences in Productivity and Output.' *Journal of Economic Growth* 13, 145–167

Beck, T., A. Demirgüç-Kunt, and R. Levine (2003) 'Law and Finance: Why Does Legal Origin Matter?' *Journal of Comparative Economics* 31(4), 653–675

Botero, J.C., S. Djankov, F. La Porta, R. and Lopez-de-Silanes, and A. Shleifer (2004) 'The Regulation of Labor.' *Quarterly Journal of Economics* 119(4), 1339–1382

Djankov, Siemon, Caralee McLiesh, and Rita Ramalho (2006) 'Regulation and Growth.' *Economics Letters* 92(3), 395–401

Djankov, Simeon, Rafael La Porta, Florencio Lopez-De-Silanes, and Andrei Shleifer (2002) 'The Regulation Of Entry.' *The Quarterly Journal of Economics* 117(1), 1–37

Fredriksson, Per G., and Jakob Svensson (2003) 'Political Instability, Corruption and Policy Formation: The Case of Environmental Policy.' *Journal of Public Economics* 87(7-8), 1383–1405

Freund, Caroline, and Bineswaree Bolaky (2008) 'Trade, Regulations, and Income.' *Journal of Development Economics* 87(2), 309–321

Gallup, John Luke, Jeffrey D. Sachs, and Andrew Mellinger (1999) 'Geography and Economic Development.' CID Working Papers 1, Center for International Development at Harvard University, March

Gillanders, Robert, and Karl Whelan (2010) 'Open For Business? Institutions, Business Environment and Economic Development.' Working Papers 201040, School Of Economics, University College Dublin, December

Glaeser, Edward L., Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer (2004) 'Do Institutions Cause Growth?' *Journal of Economic Growth* 9(3), 271–303

Guriev, Sergei (2004) 'Red Tape and Corruption.' *Journal of Development Economics* 73(2), 489–504

Hall, Robert E., and Charles I. Jones (1999) 'Why Do Some Countries Produce So Much More Output Per Worker Than Others?' *The Quarterly Journal of Economics* 114(1), 83–116

Heston, Alan, Robert Summers, and Bettina Aten (2009) *Penn World Table Version 6.3* Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania

Huntington, Samuel (1968) 'Political Order in Changing Societies.' pp. 498- 499.

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi (2009) 'Governance Matters VIII : Aggregate and Individual Governance Indicators 1996-2008.' Policy Research Working Paper Series 4978, The World Bank, June

Klapper, Leora, Luc Laeven, and Raghuram Rajan (2006) 'Entry Regulation as a Barrier to Entrepreneurship.' *Journal of Financial Economics* 83(2), 591–629

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R.W. Vishny (1997) 'Legal determinants of external finance.' *Journal of finance* 52(3), 1131–1150

_ (1998) 'Law and finance.' *Journal of Political Economy* 106(6), 1113–1155

Laffont, Jean-Jacques, and Jean Tirole (1991) 'The Politics of Government Decision-Making: A Theory of Regulatory Capture.' *The Quarterly Journal of Economics* 106(4), 1089–1127

Lederman, D., N.V. Loayza, and R.R. Soares (2005) 'Accountability and Corruption: Political Institutions Matter.' *Economics & Politics* 17(1), 1–35

Loayza, N, A Oviedo, and L Serven (2005) 'Regulation and Macroeconomic Performance.' *World Bank Working Paper 3469*

Marshall, Monty G., and Keith Jaggers (2008) 'Polity IV Project: Political Regime Characteristics and Transitions, 1800-2008'

North, Douglass (1990) *Institutions, Institutional Change and Economic Performance* (New York: Cambridge University Press)

Razafindrakoto, M., and F. Roubaud (2010) 'Are International Databases on Corruption Reliable? A Comparison of Expert Opinion Surveys and Household Surveys in Sub-Saharan Africa.' *World Development* 38(8), 1057–1069

Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi (2004) 'Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development.' *Journal of Economic Growth* 9(2), 131–165

Stigler, George J. (1971) 'The Theory of Economic Regulation.' *Bell Journal of Economics and Management Science* 2, 3–21

Transparency International (various years) 'Corruption Perceptions Index'

Treisman, Daniel (2000) 'The Causes of Corruption: A Cross-National Study.' *Journal of Public Economics* 76(3), 399–457

Xu, Lixin Colin (2010) 'The Effects of Business Environments on Development: Surveying New Firm-Level Evidence.' *Policy Research Working Paper 5402*

A Data Definitions and Sources

Constraints on Executive Power is the POLITY IV measure of constraints on executive power averaged over the period 2000-2009. The variable measures "the extent of institutional constraints on the decision-making powers of the chief executive, whether an individual or a collective executive" from one (no constraints) to seven. Source: Polity IV Dataset.

Control of Corruption is defined as "capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests" and is measured on the scale -2.5 to +2.5. We use the 2008 data. Source: Kaufmann et al. (2009).

Corruption Perceptions Index is defined by its creators as follows: "The Corruption Perceptions Index. measures the perceived level of public-sector corruption in 180 countries and territories around the world. The index is a 'survey of surveys', based on 13 different expert and business surveys." It takes values from 1 to 10. We use the average over 2000-2009 Source: Transparency International.

Democracy\Autocracy is measured using the Polity IV measure of regime type. Countries are rated from -10 (autocracy) to +10 (democracy). We use the 2008 data. Source: Polity IV Dataset.

Distance to Equator is measured as abs(Latitude)/90. Source: Hall and Jones (1999).

Doing Business Rank is the rank a country has received for overall ease of doing business. This overall ranking is itself an average of 9 sub rankings. We use the data which was collected over the period June 2008 through May 2009. Source: World Bank *Doing Business* Dataset.

Ethno-linguistic Fractionalisation measures the probability that two random people from a given country will not belong to the same ethno-linguistic group. The data were created in the early 1960s. Source: Miklukho-Maklai Ethnological Institute at the Department of Geodesy and Cartography of the State Geological Committee of the Soviet Union. .

Legal Origin X are dummies that take a value of 1 if the legal origin of the country is X. Source: Beck et al. (2003).

Log of Area is the natural logarithm of area in square kilometers. Source: Gallup, Sachs and Mellinger (1999).

Log of Population is the natural logarithm of population (in thousands) in 2007. Source: Heston et al. (2009).

Log of Real GDP per capita 1970 Source: Heston et al. (2009).

New State is an indicator reflecting when the country in question became an independent entity. It takes a value of 0 if independent before 1914, 1 if between 1914 and 1945 and 2 if between 1946 and 1989. Source: Gallup, Sachs and Mellinger (1999).

Political Stability and Absence of Violence is defined as "capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism" and is measured on the scale -2.5 to +2.5. We use the 2008 data. Source: Kaufmann et al. (2009).

Rule of Law is defined as "capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence" and is measured on the scale -2.5 to +2.5. We use the 2008 data. Source: Kaufmann et al. (2009).

Socialist History is a dummy variable that takes a value of 1 if the country was under socialist rule for a considerable period of time from 1950-1995. Source: Gallup, Sachs and Mellinger (1999).

WP10/21 Cormac Ó Gráda: "'Sufficiency and Sufficiency and Sufficiency':
Revisiting the Bengal Famine of 1943-44" June 2010
WP10/22 Cormac Ó Gráda: "School Attendance and Literacy before the Famine:
A Simple Baronial Analysis" July 2010
WP10/23 Colm McCarthy: "Economic Aspects of Personal Injury Compensation in
Ireland" July 2010
WP10/24 Matthew T Cole and Ronald B Davies: "Royale with Cheese: The Effect
of Globalization on the Variety of Goods" July 2010
WP10/25 Martin Ryan, Liam Delaney and Colm Harmon: "Micro-Level
Determinants of Lecture Attendance and Additional Study-Hours" August 2010
WP10/26 Morgan Kelly and Cormac Ó Gráda: "Living Standards and Mortality
since the Middle Ages" September 2010
WP10/27 Karl Whelan: "The Future for Eurozone Financial Stability Policy"
September 2010
WP10/28 Eric Strobl and Frank Walsh: "The Minimum Wage and Hours per
Worker" October 2010
WP10/29 David Madden: "The Socioeconomic Gradient of Obesity in Ireland"
October 2010
WP10/30 Olivier Bargain, Herwig Immervoll, Andreas Peichl and Sebastian
Siegloch: "Distributional Consequences of Labor Demand Adjustments to a
Downturn: A Model-based Approach with Application to Germany 2008-09"
October 2010
WP10/31 Olivier Bargain, Libertad González, Claire Keane and Berkay Özcan:
"Female Labor Supply and Divorce: New Evidence from Ireland" October 2010
WP10/32 Olivier Bargain: "Back to the Future - Decomposition Analysis of
Distributive Policies using Behavioural Simulations" October 2010
WP10/33 Olivier Bargain and Claire Keane: "Tax-Benefit Revealed Redistributive
Preferences Over Time: Ireland 1987-2005" October 2010
WP10/34 Ivan Pastine and Tuvana Pastine: "Political Campaign Spending Limits"
October 2010
WP10/35 Brendan Walsh and Dermot Walsh: "Suicide in Ireland: The Influence of
Alcohol and Unemployment" October 2010
WP10/36 Kevin Denny: "Height and well-being amongst older Europeans"
October 2010
WP10/37 Alan Fernihough: "Malthusian Dynamics in a Diverging Europe:
Northern Italy 1650-1881" November 2010
WP10/38 Cormac Ó Gráda: "The Last Major Irish Bank Failure: Lessons for
Today?" November 2010
WP10/39 Kevin Denny and Veruska Oppedisano: "Class Size Effects: Evidence
Using a New Estimation Technique" December 2010
WP10/40 Robert Gillanders and Karl Whelan: "Open For Business? Institutions,
Business Environment and Economic Development" December 2010
WP10/41 Karl Whelan: "EU Economic Governance: Less Might Work Better Than
More" December 2010
WP11/01 Svetlana Batrakova: 'Flip Side of the Pollution Haven: Do Export
Destinations Matter?' January 2011
WP11/02 Olivier Bargain, Mathias Dolls, Dirk Neumann, Andreas Peichl and
Sebastian Siegloch: 'Tax-Benefit Systems in Europe and the US: Between Equity
and Efficiency' January 2011
WP11/03 Cormac Ó Gráda: 'Great Leap into Famine' January 2011
WP11/04 Alpaslan Akay, Olivier Bargain, and Klaus F Zimmermann: 'Relative
Concerns of Rural-to-Urban Migrants in China' January 2011
WP11/05 Matthew T Cole: 'Distorted Trade Barriers' February 2011