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Open For Business?
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Open For Business? Institutions, Business Environment and Economic Development*

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Abstract

Recent years have seen a significant focus in the literature on growth and development on the idea that legal and political institutions are the key determinant of economic development. The main finding of this paper is that the focus on the primacy of legal and political institutions may be misplaced and that business-friendly economic policies (proxied for here by the World Bank's Doing Business indicator) are the key determinant of the level of income per capita. We find that a country's Doing Business rank dominates a range of measures of legal and political institutional quality as an explanatory variable for income per capita. We also find the Doing Business rank to be a key explanatory variable for economic growth and that previous findings assigning a significant role to educational attainment are not robust to the inclusion of this new indicator in growth regressions.

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1 Introduction

The large and persistent gaps between the world's rich and poor countries have generated a substantial literature aimed at isolating the deep determinants of these differences. Much of this research has pointed to differences in underlying legal and political institutions as the key factor, with empirical work proxying for these institutions with a range of variables including measures of the risk of expropriation, the constraints on the power of the executive and the strength of the rule of law (e.g. Hall and Jones (1999) and Acemoglu, Johnson and Robinson (2001)). Other research such as Frankel and Romer (1999) has pointed to specific economic policies such as the degree to which the economy is open to international trade as being a key determinant of per capita income. A related strand of this literature, for example Gallup, Sachs and Mellinger (1999), has pointed to geographical factors such as differences in climate and coastal access.

A key problem that arises when assessing these competing claims is that institutions and economic policy are clearly endogenous – causality is also likely to run from being a rich country towards having good institutions and good economic policies – so much of this literature has focused on the use of instrumental variables to highlight the effects of competing endogenous variables. In an important contribution, Rodrik, Subramanian and Trebbi (2004) assess the main competing explanations (institutions, economic policy and geography) using IV regressions and present evidence that institutions (as measured by a variable defining the strength of the rule of law) dominate both economic policy (measured as openness to international trade) and geography in explaining variations across country in per capita income levels.

This paper revisits the question of whether legal and political institutional factors such as the rule of law matter more for economic success than economic policies or geography. We use a broader measure of economic policies than previous research. Specifically, we use a variable created by the World Bank's Doing Business project which measures the general business environment. This measure of the ease of doing business has been constructed for almost every country in the world. It is based on concrete indicators that examine a number of aspects of the business environment, such as how easy it is to start a business, how easy it is to pay taxes and ease of conducting international trade.

Our principal findings are that the Doing Business indicator emerges as the key explanatory variable in a wide range of instrumental variables regressions for income per capita. Importantly, the inclusion of the Doing Business indicator leads to a number of legal and political institutions variables that are statistically significant when entered alone becoming insignificant. For example, we find that the replacement of trade openness with the Doing Business indicator in the specification used by Rodrik, Subramanian and Trebbi (2004), leads to quite different results. Their preferred institutional indicator, a measure of the rule of law produced by the World Bank as part of its Governance Matters project (which is

highly significant when entered on its own) becomes statistically insignificant.

These results certainly need to be interpreted carefully. The question of whether legal institutions or economic policies are the primary force behind economic success may seem to have a certain "chicken or egg" feel to it. It may be difficult to implement good economic policies in countries with dysfunctional legal and political institutions, so there is a strong degree of simultaneity between these measures. However, the data provide a number of counterexamples to this general intuition (countries with poor legal and political institutions but with good business environments and vice versa) and our regression analysis uses this identifying variation to decisively point towards a crucial role for the economic policies measured in the Doing Business indicator.

Our results have potentially interesting policy implications. Our preferred explanatory variable for income per capita is based on a number of concrete measures of specific economic policies. As such, our results suggest that a direct focus on incremental economic policy reforms may be more effective in promoting prosperity than attempting wholesale legal and political institutional reforms, which may be more difficult to implement. We believe these results fit well with what William Easterly (2008) has labelled the "bottom up" view of reform rather than a "top down" view, i.e. rather than recommending top-down political and legal reform based on preferred institutional models, it may be best to accept that current institutions exist for a reason and to apply incremental policy reforms.[1]

We also extend the work of Djankov, McLiesh and Ramalho (2006) on the relationship between the Doing Business indicator and economic growth. One motivation for these regressions is that cross-country differences in income levels often reflect long-standing disparities, so it is possible that the results obtained in our income level regressions reflect a correlation between the Doing Business variable and some long-standing (but unobserved) cultural or institutional differences. If this were the case, then the adoption of more business-friendly economic policies would not, in fact, boost income levels. Endogeneity is also likely to be less of an issue in growth regressions. OLS levels regressions could be biased due to rich countries having well-established vested interests that ensure good policies are maintained. In contrast, a fast rate of economic growth can occur in either poor or rich countries (the raw correlation between long-run growth and initial income levels is very small) so growth regressions are less likely to feature this form of endogeneity.

[1] Easterly defines the implications of two views as follows. "In the top down view, there is a heavy burden on economists to determine the optimal institutions to recommend to political leaders, using theory and empirics to design new institutions from scratch. In the bottom up view, there is a much more specialized role for economists, who at best can recommend desirable incremental changes, subject to the constraint that institutional reforms cannot attempt 'too much' without disrupting the functioning of the economy by much more than is justified by the benefits of the 'desirable change'." He notes that according to the latter view "an agenda of gradual reform that recognizes the constraints of bottom up evolution will lead to more hopeful results than a delusory top down attempt to leap to institutional perfection."

Like Djankov, McLiesh and Ramalho (2006) we find a positive relationship between economic growth and the Doing Business indicator over the recent period for which the indicator applies to. However, because data are now available from 2004 to 2010, we now know that the rankings tend to not change much from year to year, so the recent rankings are probably a good proxy for past business environments going back over perhaps a long period of time. Strikingly, we find that recent Doing Business rankings are a powerful explanatory factor for economic growth over every decade over the past forty years.

We include initial levels of education in our growth regressions regressions following Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2004) who argued that education levels were the key factor determining growth rates. When we run similar growth regressions to those of Glaeser et al. we also obtain results suggesting a key role to education levels. However, we find that the inclusion of the Doing Business rank leads to initial education levels losing their significance in these regressions. These findings strongly reinforce our results regarding the role of business-friendly policies in determining income per capita levels.

2 The Existing Research and Our Contribution

2.1 The Hypothesised Determinants of Development

The idea that good institutions are good for economic development can be traced back at least as far as Adam Smith. More recently, Douglass North played a key role in bringing the role of institutions to the fore in discussions of economic development.[2] Good institutions protect property rights and enforce contracts. They protect the rights of both domestic and foreign entities operating within the confines of the state. They can also help to ensure that all groups "have a say" in a way that helps to allocate resources in an efficient manner. One can also easily appreciate the benefits that come with political stability and an absence of violence.

Hall and Jones (1999) were the first in the current strand of empirical work that seeks to examine the impact of institutions on economic development. Specifically, they examined the impact of what they call *social infrastructure* – an equally weighted combination of an index of government anti-diversion policies and openness to international trade. Thus, Hall and Jones did not make the distinction between policy and institutions that exists in later work. Instrumenting using distance from the equator, they find a significant and positive effect of social infrastructure on levels of output per worker.

Frankel and Romer (1999) focused on whether trade is good for GDP per capita. Because successful high income countries may trade more than poorer countries, there is a potential

[2] e.g. North (1989), North (1994).

endogeneity problem in assessing this relation. For this reason, Frankel and Romer used geographical characteristics to construct an instrument for openness that others have since made extensive use of and which we will also use in our analysis. Using this instrument, they found a significant effect of trade on income per person.

Gallup, Sachs and Mellinger (1999) show that several geographic characteristics impact on both the level of GDP and its rate of growth. They also show that openness and institutions are associated with economic development (they do not address endogeneity). They note that "Geography can have [a] potent effect by affecting the choice of economic policies" (page 16). This claim motivates the use of geographical variables as instruments for economic policy in subsequent work including the analysis in our paper.[3] Jared Diamond's celebrated *Guns, Germs and Steel* [1999] also presents compelling arguments that geography determines the path of ecological and technological diffusion and thus economic development.

The paper that has received perhaps the most attention in this literature is Acemoglu, Johnson and Robinson (2001). Using an inventive instrument, the mortality rates for early colonists, they found that institutions can explain a large proportion of the variation in GDP per capita. They also show that geographical variables, such as distance from the equator, become insignificant once institutions are controlled for.

Rodrik, Subramanian and Trebbi (2004) is perhaps the key paper from which the analysis in our paper takes its lead. Their work brought together all the strands of the literature by including institutions, geography and economic policy (in terms of openness to international trade) together in IV regressions. They find that "Institutions Rule" in the sense that neither geography nor openness were statistically significant determinants of income per capita in their instrumental variables regressions. They found this result to be robust to changes in geography measures, instruments and openness measures. We argue in this paper, however, that this finding is not robust to the inclusion of an alternative indicator of good economic policy.

This paper follows Rodrik, Subramanian and Trebbi in using the Rule of Law (RL) variable from the World Bank's *Governance Matters* dataset as its the main measure of institutional quality. This variable is defined by its creators 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." Kaufmann, Kraay and Mastruzzi [2010] describe how this index was put together from a wide range of sources including "surveys of firms and households, as well as the subjective assessments of a variety of commercial business information providers, non-governmental organizations, and a number of multilateral organizations and other public-

[3]Many of the geographical variables used in this paper were sourced from the dataset used by Gallup, Sachs and Mellinger (1999).

sector bodies."

As checks on the main results, three other variables from the same dataset are used that also capture aspects of the institutional framework. These are their indices for Voice and Accountability (VAC), Control of Corruption (CC) and Peace, Stability and Lack of Violence (PSLV).[4]

2.2 A Better Measure of Economic Policy

While there are a number of reasons to think that trade openness may be an important determinant of economic prosperity, we think that, on its own, it is a somewhat restrictive variable for assessing the effects of economic policy on per capita income levels. Ideally, we would like to have a measure of good economic policies that includes, but goes beyond, openness to trade by capturing as many aspects as possible of how economic policies affect economic production.

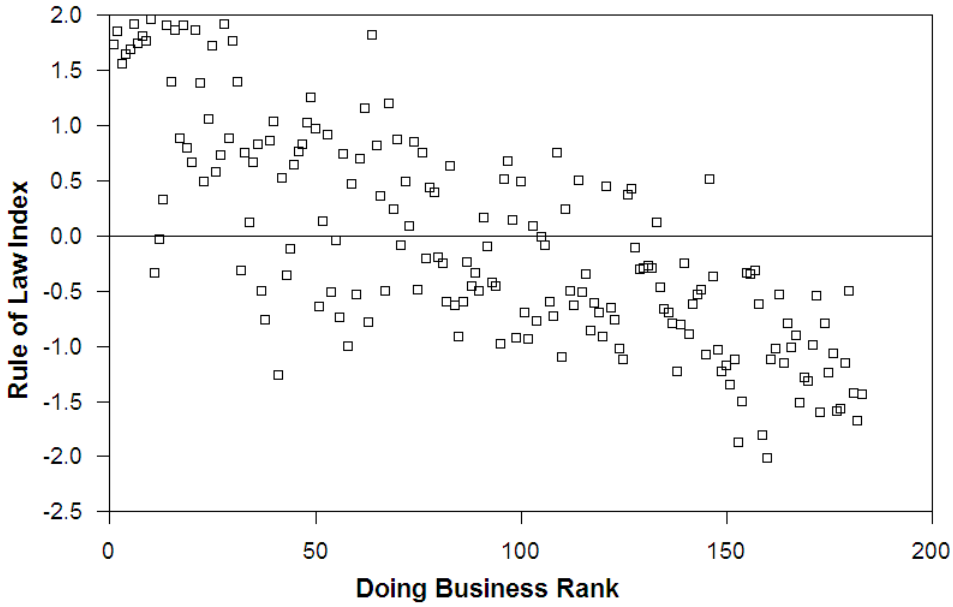
With this in mind, the measure of a country's economic policy that we use is its overall rank in the World Bank *Doing Business* surveys. These surveys collect information on ten aspects of the business environment: Starting a Business, Dealing with Construction Permits, Employing Workers, Registering Property, Getting Credit, Protecting Investors, Paying Taxes, Trading Across Borders, Enforcing Contracts and Closing a Business. For each of the ten categories, information is collected on several concrete indicators e.g. number of starting procedures, rigidity of employment, number of tax procedures, number of documents required to import and export. Each indicator is ranked, these rankings are used to create rankings for each category which in turn are averaged to create an overall ease of doing business ranking. It is this overall ranking that we use as our economic policy variable.[5] The inclusion of a variable capturing the general business environment is supported by Rodrik and Subramanian (2004) who argue that India's transition to high growth was due to the government's adoption of pro-business policies.

This variable has two properties that are desirable in a measure of economic policy. First, it reflects a government's approach to economic policy across a very wide range of areas. Second, in our opinion, the data are objective and factual. The word "survey" may suggest qualitative responses that are perhaps afflicted by various judgmental biases. However, the World Bank point out that the surveys use "factual information about what laws and regulations say and [allow] multiple interactions with local respondents to clarify potential

[4]The other two variables in *Governance Matters*, Government Effectiveness and Regulatory Quality, are not used as they are too broad and are likely better measure of outcomes than of institutions.

[5]The Doing Business Team report that using more complicated methods such as principal components and unobserved components results in extremely similar rankings.

Figure 1: Doing Business and The Rule of Law



misinterpretations of questions."[6] So, on balance, we believe there is relatively little room for judgmental biases to affect the rankings.

One obvious question that could be raised about the Doing Business rank is whether it is simply a proxy for legal and political institutional quality. Perhaps a good business environment is just something that emerges from having good legal and political institutions? Figure 1 shows, however, that while there is certainly a positive relationship between a country's Doing Business rank and our preferred institutional variable, Rule of Law, there are plenty of outliers. For example, the data show that Georgia is ranked 11^{th} for ease of doing business but has a Rule of Law score of -0.34. Spain is ranked at 62^{nd} for ease of doing business but has a fairly high Rule of Law score of 1.16. Disparities also exist when making comparisons with other institutional indicators. For example, while it does well on Rule of Law and is 1^{st} for ease of doing business, Singapore does poorly in terms of voice and accountability with a score of -0.41. History also offers examples of dictatorships that adopted business friendly-policies e.g. Pinochet's Chile.

A potential econometric concern here is whether the Doing Business rank is so highly correlated with institutional variables that regressions will be unable to distinguish their effects due to multicollinearity. In practice, as we show below, our regressions have no multicollinearity problem and are well able to distinguish the effects of these variables.

[6] See http://www.doingbusiness.org/MethodologySurveys/MethodologyNote.aspx for full details of the data collection process.

3 Institutions Rule?

3.1 OLS Regression Results

We follow the approach of Rodrik, Subramanian and Trebbi (2004) (henceforth, RST) in estimating the following type of regression:

$$\log y_i = \alpha + \beta_1 INST_i + \beta_2 EP_i + \beta_3 DE_i + \epsilon_i \tag{1}$$

where y_i is the 2007 level of GDP per capita in country i taken from the Penn World Tables, $INST_i$ is a measure of institutional quality, EP_i is a measure of economic policy (either openness or the Doing Business rank), DE_i measures the distance from the country to the equator and ϵ_i is a random error term. Information on each of the variables used in the regressions is provided in Appendix A.

Panel A of Table 1 reports the results obtained when Equation 1 is estimated by OLS. The results in Columns 1-3 are very similar to those reported by RST for comparable specifications. In particular, we replicate their finding that trade openness is not significant once the rule of law variable is included in the specification. Columns 4 and 5 of Panel A, show that our alternative measure of economic policy, the ease of doing business rank, is highly significant in specifications that also include the rule of law variable. (As this is a ranking, with 1 being the "best", if business-friendly policies are good for economic development the coefficient will be negatively signed.) Columns 6 and 7 show that, when entered alone, the Doing Business and rule of law variables explain similar amounts of the variation in per capita income across countries.

3.2 IV Results

To address the potentially serious endogeneity issues discussed above. We adopt a two-stage least squares approach, using instruments for both $INST_i$ and EP_i. Our first stage equations are of the form:

$$INST_i = \lambda_{INST} + \phi_{INST} FR_i + \gamma_{INST} GEOG_i + u_i \tag{2}$$

$$EP_i = \lambda_{EP} + \phi_{EP} FR_i + \gamma_{EP} GEOG_i + v_i \tag{3}$$

where the first instrument, FR_i, is a variable created by Frankel and Romer (1999) and $GEOG_i$ is a set of exogenous geographical variables. The Frankel-Romer instrument captures the geographical components that influence a country's trade share.[7] This was created

[7]Specifically, this instrument is a predicted trade share from adding up country-level predictions from a bilateral gravity model of trade where the explanatory variables are population and land area in each country as well as the distance between country pairs.

Table 1: Determinants of Development

Dependent Variable: Natural Log Of Real GDP Per Capita 2007.							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Ordinary Least Squares							
Constant	7.444***	8.364***	7.498***	9.166***	9.636***	8.834***	10.426***
	(0.160)	(0.198)	(0.689)	(0.249)	(0.188)	(0.069)	(0.115)
Distance to Equator	4.870***	1.698***	1.665***	1.593***			
	(0.423)	(0.120)	(0.583)	(0.601)			
Rule of Law		0.755***	0.744***	0.385***	0.573***	0.971***	
		(0.097)	(0.095)	(0.137)	(0.106)	(0.060)	
Log of Openness			0.202				
			(0.158)				
Doing Business Rank				-0.009***	-0.008***		-0.018***
				(0.002)	(0.002)		(0.001)
Adjusted R^2	0.470	0.644	0.645	0.683	0.662	0.620	0.600
Panel B: Two Stage Least Squares							
Constant		8.977***	12.549***	11.698***	11.447***	8.855***	11.146***
		(0.483)	(2.580)	(3.297)	(0.968)	(0.071)	(0.190)
Distance to Equator		-0.414	-0.775	-0.542			
		(1.658)	(2.007)	(2.062)			
Rule of Law		1.257***	1.415***	-0.086	-0.158	1.145***	
		(0.387)	(0.501)	(0.582)	(0.476)	(0.089)	
Log of Openness			-0.799				
			(0.521)				
Doing Business Rank				-0.030***	-0.029***		-0.025***
				(0.011)	(0.010)		(0.002)
Over-ID Test P-Value		0.01	0.04	0.14	0.24	0.01	0.30
Robust First Stage F on:							
Rule of Law		55.40	50.44	50.44	50.44	50.44	
Log of Openness			9.79				
Doing Business Rank				23.42	23.42		23.42

Notes: N = 112. Robust standard errors in parentheses. Column (2) of Panel B uses distance from the equator, a landlocked dummy, the suitability of the soil for rain-fed crops and the proportion of land that is suitable for irrigated rice crops as instruments. The remaining columns use these instruments plus the predicted trade shares formed by Frankel and Romer [1999]. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

to be an instrument for openness but we also use it as an instrument for the Doing Business rank. This allows for direct comparability of results and could also be justified on the grounds that trade in goods may lead to openness to alternative economic policies.

In constructing an instrument set of geographical variables, $GEOG_i$, we follow most of the previous work in this area in using distance to equator. However, because we wish to include this variable in some of our second-stage regressions, we also employ some additional geographical variables which are could also be used as instruments for institutions and business regulation. We include a dummy for landlocked states as well as variables capturing the proportion of a country's soil suitable for certain crops (specifically irrigated rice crops and rain-fed crops). These soil suitability variables are used as these features will have shaped both the early forms of production in states and potentially the structure of the state systems. The variables chosen as instruments are all historically fixed factors that cannot be changed by economic development.

Panel B of Table 1 presents our 2SLS results.[8] Columns 2 and 3 show that we can replicate closely the RST findings using our different sample and instrument set. Like RST, we find that the Rule of Law variable dominates both geography and openness, neither of which are significant in a combined specification. The first stage regressions for institutional quality pass the usual rule of thumb for weak instrument diagnosis in having an F statistic well above ten. However, the specifications updating the RST specifications still show some potential statistical problems. In addition to a poor first-stage fit for trade openness, these specifications fail the standard test of over-identifying restrictions, a problem that was also reported in RST's paper when regressions were run on their full sample. One potential explanation for this problem, which occurs when the instruments are not orthogonal to the error term, is that this model is mis-specified and thus the actual influence of the instruments on per capita income is different from that picked up by this specification.

Columns 4 and 5 of Panel B adds the Doing Business rank to specifications featuring distance from the equator and the Rule of Law. Again, the first-stage F for this variable suggests the instruments pass the weak instrument diagnostic. Column 4 shows that using the Doing Business rank in place of trade openness leads to a very different conclusion from previous work about the role of institutional quality – business-friendly economic policies seem to be the key driver of economic development and institutional quality is statistically insignificant and "incorrectly" signed. Similar results are obtained in Column 5, which drops the distance to the equator variable. The over-identifying restriction test statistic improves from having a p-value of 0.14 in the specification featuring geography, institutional quality and the Doing Business rank to a p-value of 0.24 when geography is dropped.

Finally, Column 6 shows that a specification using only the Rule of Law variable badly

[8]The first stage results are presented in full in Appendix B and discussed briefly.

Table 2: Determinants of Development: Robustness

Dependent Variable: Natural Log Of Real GDP Per Capita 2007.							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Institution Measure	RL	VAC	VAC	CC	CC	PSLV	PSLV
Constant	11.567***	10.824***	11.532***	11.730***	11.596***	11.139***	11.694***
	(1.080)	(0.456)	(0.902)	(1.157)	(1.150)	(0.383)	(0.693)
Institutions	-0.514	0.237	-0.603	-0.304	-0.435	0.006	-0.933
	(0.669)	(0.301)	(0.891)	(0.567)	(0.627)	(0.253)	(0.785)
Doing Business Rank	-0.026**	-0.022***	-0.026***	-0.031**	-0.027**	-0.025***	-0.028***
	(0.011)	(0.005)	(0.007)	(0.012)	(0.012)	(0.005)	(0.006)
Interaction	0.007		0.009		0.005		0.010
	(0.006)		(0.010)		(0.006)		(0.007)
Over-ID Test P-Value	0.35	0.18	0.37	0.28	0.28	0.21	0.66
Robust First Stage F on:							
Institutions	50.44	28.17	28.17	40.71	40.71	23.26	23.26
Doing Business Rank	23.42	23.42	23.42	23.42	23.42	23.42	23.42
Interaction	13.76		9.06		16.24		7.99

Notes: N = 112. Robust standard errors in parentheses. All regressions use the following as instruments: distance from the equator, a landlocked dummy, the suitability of the soil for rain fed crops and the proportion of land that is suitable for irrigated rice crops. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

fails the overidentifying restrictions test while one based on only the Doing Business rank passes the test comfortably. We conclude from this that the instruments are impacting on economic development through some mechanism other than institutional quality and that that mechanism seems to be economic policies as measured by the Doing Business ranking.

These results have potentially serious relevance for development policy. Significant attention has been given by both scholars and donors of foreign aid to institutional reform. This raises important questions about whether "Western" institutions can be grafted effectively on to developing countries. These results suggest that economic development can be better facilitated through specific policy reforms. This is not to say that these reforms is easy, but they do represent solid and measurable objectives. Well-functioning institutions are of course desirable in their own right but, if one accepts these results, then "good" institutions on their own are not a sufficient condition for economic development.

3.3 Robustness

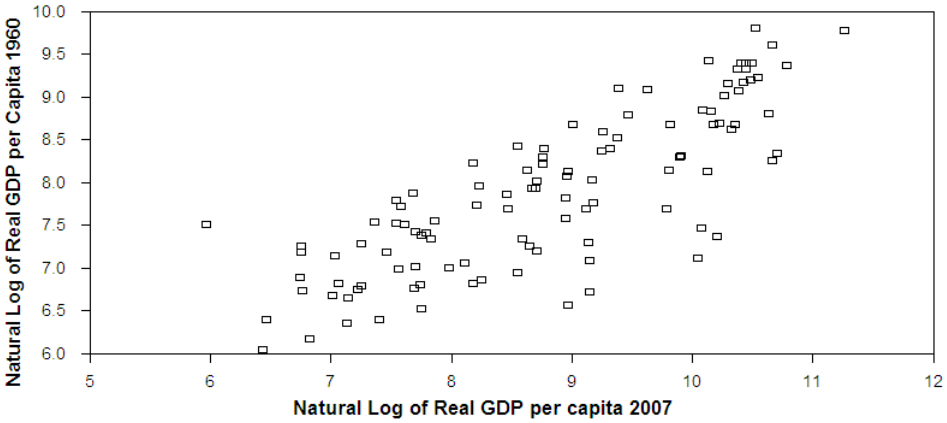
Table 2 presents some robustness checks. First, we check whether there is an interaction effect between economic policy, as measured by the Doing Business rank, and institutional quality. It may be that good institutions help to make good policy more effective. The results in Column 1 show, however, that this interaction term is insignificant. The remaining regressions in Table 2 repeat our base specification, and the variant with the interaction effect, using a series of alternative measures of institutional quality. It is clear that the results are not sensitive to the particular measure of institutional quality used. We don't report here the results when these alternative institutional variables are entered alone. However, it is worth noting that regressions using these five measures reported here on their own as explanatory variables each fail the test of over-identifying restrictions with p-values of 0.011 for the Rule of Law, 0.014 for VAC and for CC and 0.004 for PSLV.

We carried out a number of additional robustness checks on our findings. Some papers in this literature have used averages of the institutional variables over time. With this in mind, we repeated our regressions using the averages of the Governance Matters variables over all available years. The results, which are presented in Appendix B, show no appreciable differences from our main results.

Acemoglu, Johnson and Robinson (2001) use settler mortality as their instrument for institutions. We have also carried out our IV regressions using settler mortality as an additional instrument for both institutions and for the Doing Business rank. These results can be found Appendix B. The use of this instrument significantly reduces the sample size as we can now only examine countries which were colonised. This change in focus may explain why the results using settler mortality all have first stage F statistics which are less than 10. The countries that were colonised for the most part lacked the favourable geography of Europe, so our instrument list, which relies on geographical variation, cannot generate sufficient exogenous variation to avoid the weak instrument problem. While we must acknowledge the weak instrument problem, the results still point towards confirmation of our other findings, with the specifications picking the Doing Business rank rather than the Rule of Law as the key determinant of income per capita.

Finally, we also considered the possibility of a non-linear relationship. Our use of a ranking rather than an index suggests that our specification should perhaps be changed to detect nonlinear effects – a priori, it is unclear why the effect of falling from 20^{th} to 30^{th} should have the same effect as falling from 150^{th} to 160^{th}? To assess possible non-linear effects, we estimated a model with squared and cubed policy terms and a model with dummies for middle third and bottom third rankings. Perhaps surprisingly, neither of these approaches provided any evidence of a non-linear relationship (results available on request).

Figure 2: Initial and Current Levels of GDP



4 Economic Policy and Growth

We have seen that economic policies facilitating a good business environment appear to be an important determinant of the level of GDP per capita. A logical implication of this finding is that business friendly policies have been associated with higher levels of growth at least at some point in the past. Can we be sure, however, that a country that adopts policies to improve its business environment will then achieve a faster pace of economic growth?

One possibility is that the Doing Business rank is merely proxying for some other deeper determinants of income levels. The evidence suggests that the patterns underlying inequalities in income per capita levels across countries largely reflect long-standing differences. Figure 2 plots the natural log of GDP per capita in 1960 against the natural log of GDP per capita in 2007 and shows a very strong positive relationship. If the Doing Business variable is merely proxying for some long-standing but unobserved determinant, then it is still possible that introducing more business friendly policies will not lead to faster growth.

For these reasons, it is worth checking whether there is any evidence that a good Doing Business rank is associated with a high rate of growth. Endogeneity is less likely to be a problem with the growth regressions. While regressions to explain per capita income levels may be biased because more developed countries can afford better systems of regulation and will have entrenched and powerful special interest groups, the same type of bias need not apply to growth regressions. Both rich and poor countries can experience a high rate of GDP growth (the correlation between GDP per capita in 1960 and growth over the period 1960-2007 is only 0.15) and thus there is less likely to be a causal link running from high growth to economic policies, especially over short time horizons.

Here we focus on estimating equations of the form:

$$\text{Growth}_i = \alpha + \beta_1 \log \text{StartGDP}_i + \beta_2 SCH_i + \beta_3 EP_i + \epsilon_i \quad (4)$$

using OLS, where Growth_i is GDP per capita growth in country i over the period, StartGDP_i is GDP per capita at the start of the period, SCH_i is a measure of average years of schooling in country i from the Barro-Lee data set and EP_i is country i's Doing Business rank. Initial income per capita is included in line with the conditional convergence predictions generated by many growth models. The inclusion of SCH_i is motivated by the finding of Barro (1991) that conditional convergence holds once average schooling levels are controlled for and also because Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2004) show that human capital is a more fundamental determinant of growth than institutional quality.

Djankov, McLiesh and Ramalho (2006) have already shown that the Doing Business indicator is a predictor of recent economic growth, showing that a good score had a positive effect on growth over 1993-2002. We confirm this result using another recent sample. The Doing Business data was collected in 2008/2009 so it is sensible to begin with the most recently available growth data. Table 3 presents estimates of Equation 4 over the period 2000-2007. The growth variable for this short period is likely to contain a lot of random nois but it serves as a useful starting point. For this sample, initial education levels are insignificant even when the Doing Business rank is excluded and is close to zero when the rank is included. In contrast, the Doing Business variable is significant and correctly signed.

Table 4 repeats these regression specifications for three different decades, 1970-1980, 1980-1990 and 1990-2000. Ideally, of course, we would like to have observations on the Doing Business variable for these decades. However, the survey only began in 2004 so this is not possible. That said, we now have access to access to a number of years of data from the Doing Business Survey and these data show that countries tend to see relatively small changes in their overall rank from year to year.[9] This suggests we may still be able to use the variable to understand the influence that the business environment has had in the past.

The results in the first, fourth and seventh columns of Table 4 confirm findings reported by Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2004) that initial years of schooling is a highly significant explanatory variable in these decade-by-decade growth regressions. The other columns suggest, however, that these results may be due to higher education levels proxying for more business-friendly policies. When the Doing Business rank is substituted into the growth specifications instead of initial education levels (the second, fifth and eighth columns) the fit of each the regressions jumps noticeably. And when we run specifications including both initial education levels and the Doing Business rank (the third, sixth and

[9] As an example of this stability, note that the correlation between the most recent two sets of rankings is 0.9963.

ninth columns) the results point decisively towards the Doing Business rank rather than education levels as the key explanatory variable.

Tables 5 and 6 present estimates of Equation 4 for samples of longer run growth, starting from the beginning of each decade since the 1960s. These results show that, while gathered in recent years, the Doing Business indicator also has significant explanatory power for longer-run growth. The results mirror those from the decade-by-decade regressions. For each of our longer samples, there is evidence of a highly significant effect of initial education levels on growth. However, again, the specifications featuring the Doing Business indicator instead of education levels have much higher fits and the education coefficients become insignificant when both variables are included together.

These results point towards the conclusion that both long and short-run growth are positively impacted on by policies that encourage a good business environment. They suggest that even countries with low levels of human capital can achieve growth over ten year periods by adopting better policies toward business. This lends further weight to the argument that linking aid to policies aimed at improving the business environment may be a promising tool for promoting economic development. It also suggests that an approach of this type could yield relatively quick results.

Table 3: Short-Run Growth I

Dependent Variable: Growth of Real GDP Per Capita 2000-2007			
	(1)	(2)	(3)
Constant	4.412	9.259**	9.490**
	(3.592)	(4.389)	(4.763)
Initial GDP	-0.325	-0.613	-0.668
per capita	(0.487)	(0.429)	(0.544)
Initial	0.145		0.034
Schooling	(0.157)		(0.147)
Doing Business		-0.017**	-0.016**
Rank		(0.007)	(0.007)
Adjusted R^2	-0.013	0.034	0.024
Observations	99	99	99

Notes: Estimation carried out using OLS. Robust standard errors in parenthesis. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

Table 4: Short-Run Growth II

Dependent Variable: Growth of Real GDP Per Capita Over the Indicated Period									
	1990-2000	1990-2000	1990-2000	1980-90	1980-90	1980-90	1970-80	1970-80	1970-80
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	-1.720	3.926	5.405	3.848	12.625***	13.500***	10.212**	13.586***	15.089***
	(3.537)	(3.463)	(3.921)	(3.734)	(3.498)	(3.945)	(4.269)	(4.885)	(4.846)
Initial GDP	0.147	-0.040	-0.360	-0.606	-1.024***	-1.213**	-1.195**	-1.077**	-1.458**
per capita	(0.486)	(0.344)	(0.487)	(0.513)	(0.356)	(0.494)	(0.593)	(0.520)	(0.603)
Initial	0.358**		0.197	0.446***		0.124	0.560***		0.313
Schooling	(0.172)		(0.162)	(0.171)		(0.160)	(0.202)		(0.196)
Doing Business		-0.025***	-0.022***		-0.037***	-0.035***		-0.027***	-0.021***
Rank		(0.007)	(0.007)		(0.006)	(0.007)		(0.008)	(0.007)
Adjusted R^2	0.151	0.209	0.211	0.065	0.246	0.243	0.104	0.151	0.172
Observations	102	102	102	100	100	100	96	96	96

Notes: Estimation carried out using OLS. Robust standard errors in parenthesis. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

Table 5: Long Run Growth I

Dependent Variable: Growth of Real GDP Per Capita 1960-2007			
	(1)	(2)	(3)
Constant	6.929***	9.847***	10.321***
	(1.869)	(1.579)	(1.751)
Initial GDP	-0.795***	-0.711***	-0.805***
per capita	(0.260)	(0.170)	(0.220)
Initial	0.447***		0.058
Schooling	(0.102)		(0.082)
Doing Business		-0.025***	-0.024***
Rank		(0.003)	(0.003)
Adjusted R^2	0.166	0.520	0.542
Observations	82	82	82

Notes: Estimation carried out using OLS. Robust standard errors in parenthesis. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

Table 6: Long Run Growth II

Dependent Variable: Growth of Real GDP Per Capita Over the Indicated Period									
	1970-07	1970-07	1970-07	1980-07	1980-07	1980-07	1990-07	1990-07	1990-07
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	5.871***	10.264***	10.996***	2.964	9.164***	9.715***	0.621	6.250**	6.976**
	(1.508)	(2.010)	(1.887)	(2.471)	(2.296)	(2.489)	(2.539)	(2.615)	(2.904)
Initial GDP	-0.712***	-0.755***	-0.932***	-0.357	-0.623***	-0.739**	-0.016	-0.292	-0.449
per capita	(0.200)	(0.209)	(0.215)	(0.334)	(0.229)	(0.292)	(0.352)	(0.259)	(0.351)
Initial	0.458***		0.137	0.340***		0.073	0.256**		0.096
Schooling	(0.082)		(0.083)	(0.113)		(0.087)	(0.123)		(0.114)
Doing Business		-0.028***	-0.025***		-0.028***	-0.026***		-0.022***	-0.020***
Rank		(0.004)	(0.004)		(0.004)	(0.004)		(0.005)	(0.005)
Adjusted R^2	0.182	0.421	0.427	0.117	0.361	0.358	0.110	0.219	0.216
Observations	95	95	95	99	99	99	101	101	101

Notes: Estimation carried out using OLS. Robust standard errors in parenthesis. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

5 Conclusions

The past decade has seen a significant focus within the literature on growth and development on the idea that legal and political institutions are the key determinant of economic development. Acemoglu, Johnson and Robinson (2001) has been perhaps the most influential work in this area and their finding that institutional considerations are key was further endorsed by Rodrik, Subramanian and Trebbi (2004) who found that institutional factors beat out geographical variables or openness to trade when all of these elements were included in instrumental variable regression specifications.

The main finding of this paper is that the focus on the primacy of legal and political institutions may be misplaced and that business-friendly economic policies (as measured by the World Bank's Doing Business indicator) are the key determinant of the level of income per capita. Of course, there are overlaps between these two aspects of any economy. Good political institutions will usually help to deliver business-friendly economic policies. However, our proxies for institutions and business-friendly policies are by no means collinear and the regression results point decisively towards economic policies rather than institutional measures as the key explanatory variable for income per capita. Indeed, this result is robust to the use of a wide range of different measures of institutional quality and specification.

These results have potentially important policy implications. While overhauling the legal and political institutions of poor states may well have a beneficiary effect on their economy, this kind of significant institutional change can be difficult to achieve and may not be open to influence by international development agencies. As Easterly (2008) stresses, prevailing legal and political institutions may exist for good reasons and may be difficult to change. Indeed, overly rapid institutional change, such as occured during post-Soviet era in Russia, may be harmful.

In contrast, our results suggest that smaller-scale packages of targeted economic policy reforms can still have an important impact. The Doing Business indicators provide a wide range of concrete measurements of how government economic policies affect business and it is likely to be far easier to link aid conditionality to improvements in these measurements. In other words, it may be far easier to set goals for how many days it takes to start a business, how many documents need to be signed to export a container and the time it takes small businesses to fill out income taxes, than to demand the introduction of democracy or improvements in the functioning of the courts system.

Growth regressions support these conclusion. Building on Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2004) and Djankov, McLiesh and Ramalho (2006), we find that the Doing Business indicator emerges as a significant determinant of economic growth over both short and longer-term periods, while measures of educational attainment do not. These

results suggests that the benefits of economic policy reform accrue quickly and are long lasting.

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A Data Definitions and Sources

CC is the Control of Corruption index created by Kaufmann et al. (2009). They define the index 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." We use 2008 data. Source: Kaufmann et al. (2009)

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 10 sub rankings. We use the data which was collected over the period June 2008 through May 2009. Source: World Bank *Doing Business* Dataset.

Frankrom is the predicted trade shares formed by Frankel and Romer (1999). Source: Frankel and Romer (1999)

Growth is the growth of real GDP per capita over the period. It was derived using data from the Penn World Tables. Source: Heston et al. (2009)

Initial Schooling is the average years of schooling in total population. Source: Barro and Lee (2000)

Irrigation Suitability is the sum of the proportion of land that is either very suitable or moderately suitable for irrigated rice crops. Source: The Center for International Development's Research Datasets

Landlock is a dummy variable which indicates whether the country has a coastal border. Source: Gallup et al. (1999)

Natural Log of Real GDP Per Capita 2007. Source: Heston et al. (2009)

Log of Openness is the natural logarithm of total trade (i.e. exports plus imports) divided by GDP in 2007. Source: Heston et al. (2009)

PSLV is the Political Stability and Lack of Violence index created by Kaufmann et al. (2009). They define the index 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." We use 2008 data. Source: Kaufmann et al. (2009)

RL is the Rule of Law index created by Kaufmann et al. (2009). They define the index 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." We use 2008 data. Source: Kaufmann et al. (2009)

Soil Suitability is the sum of the proportion of land that is either very suitable or moderately suitable for rain-fed crops. Source: The Center for International Development's Research Datasets

VAC is the Voice and Accountability index created by Kaufmann et al. (2009). They define the index as "capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media." We use 2008 data. Source: Kaufmann et al. (2009)

B Additional Tables

Table 7 presents the results of our main first stage regressions. As mentioned in the main text, in the case of openness to international trade we marginally fail to meet the rule of thumb requirement of a F statistic of 10. The Frankel-Romer instrument is strongly significant but the other instruments seem to have no explanatory power.

Our instrument set performs well in the cases of the ease of doing business rank. Column 2 tells us that countries far away from the equator and with direct access to the sea have more business friendly economic policies. Being farther from the equator is also positive for institutional quality across our institutional measures though being landlocked seems to have no impact in this regard. The suitability of the soil for rain fed crops is associated with more difficult regulation, perhaps suggesting a historical focus on agriculture rather than other forms of economic activity. This variable also predicts lower institutional quality, again perhaps reflecting the different rules of the game required for agricultural societies and the difficulty of adapting such rules for a more diverse economy.

Table 8 presents results using sample averages for the institution variables. Table 9 presents results for the smaller sample using settler mortality as an instrument.

Table 7: First Stage Fits

Dependent Variable:	(1) Log of Openness	(2) Doing Business Rank	(3) RL	(4) VAC	(5) CC	(6) PSLV
Constant	4.081***	113.917***	-0.730***	-1.085***	-0.657**	-0.996***
	(0.163)	(17.205)	(0.239)	(0.271)	(0.275)	(0.280)
Frankrom	0.016***	0.216	0.008	-0.002	0.005	0.017***
	(0.003)	(0.306)	(0.005)	(0.005)	(0.005)	(0.007)
Distance to Equator	0.239	-188.546***	4.006***	3.325***	4.000***	2.889***
	(0.207)	(20.671)	(0.338)	(0.301)	(0.356)	(0.332)
Landlock	-0.030	17.640**	-0.207	-0.140	-0.158	-0.045
	(0.102)	(9.921)	(0.167)	(0.166)	(0.173)	(0.179)
Soil Suitability	-0.005	0.883**	-0.021***	-0.008	-0.022***	-0.019**
	(0.004)	(0.449)	(0.007)	(0.008)	(0.008)	(0.008)
Irrigation Suitability	0.003	-0.388	0.010	0.035***	0.016	0.020
	(0.006)	(0.667)	(0.010)	(0.013)	(0.013)	(0.015)
F Statistic	9.79	23.42	50.44	28.17	40.71	23.26
Adjusted R^2	0.21	0.41	0.56	0.37	0.54	0.34

Notes: N = 112. Robust standard errors in parenthesis. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

Table 8: General Business Policies Versus Average Institutions

Dependent Variable: Natural Log Of Real GDP Per Capita 2007.								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Institution Measure:	RL	RL	VAC	VAC	CC	CC	PSLV	PSLV
Constant	8.833***	11.482***	8.814***	10.782***	8.768***	11.584***	9.074***	11.232***
	(0.066)	(1.020)	(0.093)	(0.528)	(0.070)	(1.152)	(0.095)	(0.481)
Doing Business Rank		-0.029***		-0.021***		-0.030**		-0.026***
		(0.011)		(0.006)		(0.012)		(0.006)
Institutions	1.147***	-0.174	1.392***	0.246	1.125***	-0.216	1.371***	-0.067
	(0.079)	(0.504)	(0.115)	(0.331)	(0.089)	(0.534)	(0.129)	(0.322)
Over-ID Test P-Value	0.003	0.259	0.013	0.163	0.005	0.270	0.003	0.222

Notes: N = 112. Estimation carried out using 2SLS. Robust standard errors in parenthesis. All first stage F statistics are in excess of 10. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

Table 9: Determinants of Development: Settler Mortality as an Additional Instrument.

Dependent Variable: Natural Log Of Real GDP Per Capita 2007.							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	7.664***	9.582***	12.146***	10.727***	10.722***	9.005***	10.947***
	(0.221)	(0.741)	(3.771)	(0.673)	(0.667)	(0.129)	(0.306)
Distance to Equator	4.326***	-2.102	-2.553	2.321			
	(0.877)	(2.603)	(2.755)	(2.690)			
Rule of Law		1.712***	1.733***	-0.688	0.182	1.267***	
		(0.643)	(0.633)	(1.054)	(0.453)	(0.213)	
Log of Openness			-0.586				
			(0.793)				
Doing Business Rank				-0.027**	-0.020***		-0.022***
				(0.011)	(0.007)		(0.003)
Over-ID Test P-Value		0.21	0.32	0.37	0.44	0.30	0.61
Robust First Stage F on:							
Rule of Law		5.58	5.00	5.00	5.00	5.00	
Log of Openness			2.95				
Doing Business Rank				7.04	7.04		7.04

Notes: N=57. Robust standard errors in parentheses. Columns (1) is estimated using OLS. The remaining columns are estimated using 2SLS. In column (2), a landlocked dummy, the suitability of the soil for rain fed crops, the proportion of land that is suitable for irrigated rice crops and the log of settler mortality are used as instruments. The remaining columns use these instruments plus the predicted trade shares formed by Frankel and Romer [1999]. *, **, ***indicates significance at the 10%, 5% and 1% levels respectively.

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