Business Regulation and Poverty

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Abstract Using panel data for 189 economies from 2004 to 2016, we show that business-friendly regulations are correlated with the poverty headcount at the country level. This association is significant using the overall World Bank's *Doing Business* index, as well as specific indicators on the difficulty of starting a business, acquiring licenses, getting credit and contract enforcement. Other significant correlates of the poverty headcount include government expenditure, adult female mortality, a country's income per capita, and the regional dummies for East Asia and Eastern Europe.

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Introduction

A large literature on the determinants of poverty finds a strong association with regional and country-specific factors like the vulnerability to flooding or tropical diseases, remoteness, quality of governance, and property rights and their enforcement (Dollar, Kleineberg and Kraay. 2016). A second strand of the literature finds within-country factors such as the availability of infrastructure (roads, water, electricity) and services (health, education), proximity to markets, and social relationships to matter as much (for example, Kraay and McKenzie, 2014). A third set of studies investigate household or individual characteristics such as household size, age structure, dependency ratio, gender of head, employment status, hours worked, property owned, nutritional status and educational attainment and correlate those to the poverty headcount (Banerjee and Duflo, 2011).

In this paper we disentangle the link between business regulations and their enforcement and the poverty headcount, expanding the evidence on country-level determinants of poverty. In particular, we use business regulations on starting a business, acquiring licenses, getting credit and contract enforcement, as well as an overall regulatory ranking as indicators of property rights. The data are constructed from the World Bank's *Doing Business* project and cover 189 economies from 2004 to 2016.

We find that business-friendly regulations are correlated with lower poverty headcount, as is higher government expenditure, a country's income per capita, and the regional dummies for East Asia and Eastern Europe. A measure of healthcare deficiencies and the adult female mortality rate are both associated with a higher poverty headcount.

The rest of the paper is organized as follows. Section 2 describes the data sources. Section 3 details the empirical strategy and presents the main results. Section 4 concludes.

2. The Data

This section details the sources of the dependent variables, and the sources and construction of independent variables.

The main dependent variable used in previous studies is the poverty headcount ratio at $1.90 a day (at 2011 purchasing power parity) as a percent of the population. As an alternative variable, the poverty headcount ratio at $3.10 a day is sometimes used too. We use both indicators, the latter for robustness purposes. The Democratic Republic of Congo is the country with largest share of population living below $1.90 a day: 85.56 percent, followed by Madagascar and Burundi with 77.88 and 77.65 percent, respectively. Looking at the alternative definition of the poverty headcount ratio of $3.10 a day, these percentages increase significantly. The Democratic Republic of Congo has nearly its entire population (95.13 percent) living on less than $3.10 a day, Burundi – 92.32 percent and Madagascar – 91.72 percent. The correlation between the two variables is high, at 84.73 percent.

During the global financial crisis we observe an increase in the poverty headcount in a number of low and lower-middle income economies. For example, the average poverty headcount ratio at $1.90 in low income countries increases 13 percentage points - from 47 percent in 2009 to 60

percent in 2013. Some middle-income countries, including Estonia, Georgia and Romania in Eastern Europe and Honduras and Panama in Central America, also experienced an increase in the poverty headcount.

As proxy for the regulatory attitude of governments we use the World Bank's Doing Business data, first published in 2003. The methodology for data collection is described in Djankov, La Porta, Lopes-de-Silanes, and Shleifer (2002) and updated in Djankov (2016). We use the Doing Business data in two ways. First, we employ the overall score, which combines 10 distinct groups of measures that constitute the *Doing Business* index. These relate to the legal protections and regulatory processes that an average private business needs to go through in order to operate (Table 1).

[Table 1 here]

Second, we use measures in four areas – starting a business, acquiring licenses, getting credit and enforcing contracts – as specific measures of business regulation. All measures are positively correlated, with the correlation ranging between 0.1729 to 0.7495, with low correlation between contract enforcement and acquiring licenses and high correlation between starting a business and the total aggregate *Doing Business* measure. Property registration has the highest correlation with contract enforcement (0.4939) and lowest with acquiring licenses (0.2316). All measures are negatively correlated with the poverty headcount. GDP per capita is also negatively correlated with the poverty headcount, as expected.

Government expenditure is the general government expenditure as a share of GDP, constructed by the International Monetary Fund. Among the countries with highest expenditure levels are the Pacific Islands states of Tuvalu and Kiribati, as they receive financial support from international institutions and donors. Belgium, Denmark, Finland, and France are among the biggest spenders globally, with an average expenditure of more than 50% of GDP in the period 2004-2015. They are also among the countries with highest health and education expenditure. Conversely, Bangladesh, the Central African Republic and Nigeria are the countries with least government expenditure. We further use government expenditure on education and government expenditure on health as more precise measures related to the poverty headcount.

The quality of healthcare is proxied by the mortality rate of adult females (per 1,000 female adults), and alternatively by infant mortality. Lesotho, Swaziland, Zimbabwe are among the countries with the highest mortality rates of adult females, whereas South Korea, Japan, Spain are among the countries with the lowest rates.

We next construct a proxy for the change in political power (PolChange). Fifty-four percent of countries had parliamentary elections in any one year, consistent with a 4-year election cycle in the democratic world. OECD high-income countries had an average of 0.250 elections a year, highest in the world. However, Brunei, China, Eritrea, Fiji, Guinea, Qatar, West Bank and Gaza and Yemen did not have a single parliamentary election during 2003-2016. Most of these countries have presidential or hereditary royal systems.

In testing the effects of political change, we use as our main explanatory variable not just the occurrence of elections, but when these elections lead to a change of control over parliament from one party or coalition of parties to another. 223 changes of power took place in the sample period.

The data suggest that such change of power varies widely across countries by income group. More than sixty percent of political changes during the sample period took place in upper and upper-middle income countries, while only twelve percent of changes occur in lower income countries. Serbia had the highest number of political changes in the sample period (5), Bulgaria, Latvia and Slovenia had four changes of power.

Regional dummies follow the World Bank classification and include East Asia, Eastern Europe and the former Soviet Union (post-communist countries), high-income OECD countries, Latin America, the Middle East and North Africa, South Asia and sub-Saharan Africa. The OECD high-income countries comprise a third of the sample, with African countries constituting another 23% of the sample. The smallest region is South Asia, comprising less than 4% of the sample.

3. Findings

We begin by controlling for cross-country differences in income levels using GDP per capita (natural log), a proxy for political change, and year and regional fixed-effects. We find that richer countries have less incidence of poverty, and that countries that spend more on government services as a share of their GDP also display lower poverty headcount. Government expenditure on health and education is also negatively correlated with the poverty headcount (not shown). These results are consistent with the previous literature.

The effects of inadequate healthcare, proxied by adult female mortality, on the poverty headcount is positive and statistically significant. However, the effect of political change is mostly insignificant (Table 2).

[Table 2 here]

Next, we rerun the regression using the overall measure of property rights protection and the four alternative measures of property rights: the difficulty of starting a business, acquiring licenses, getting credit and contract enforcement (Table 3). The choice of indicators is dictated by the literature on property rights and their enforcement, which suggests that laws and regulations that change the underlying incentives for market participants – firms, workers and investors – are most difficult to achieve as they require legislative and sometimes judicial support.

[Table 3 here]

We find that the general measure of business-friendly regulations, as well as the measures of getting credit and enforcing contracts are associated with the poverty headcount. These associations are statistically significant. The association between regulation on starting a business and acquiring business licenses on the one hand, and the poverty headcount on the other hand, is statistically insignificant.

In terms of comparative statics, a 10 percent improvement on the overall Doing Business indicator results in a 2 percentage points' reduction in the poverty headcount, a sizable effect. Improvements in the enforcing contracts indicator are associated with even larger changes in the poverty

headcount, suggesting that the workings of the judicial system underpin economic growth and from there the reduction in poverty.

4. Conclusions

The results contribute to a burgeoning literature on the country-level determinants of poverty. We find empirical support for the association between the poverty headcount and business-friendly regulation. Using objective measures in several areas of business regulation, we are able to corroborate earlier studies that uses aggregate indicators of property rights and institutional development.

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Table 1
Variable Definitions

Variable	Description
Poverty	Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population). *Source:* WDI, World Bank.
Doing Business index	Aggregate Doing Business distance to frontier (DTF) score. An economy's distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier. *Source*: Doing Business, www.doingbusiness.org
Starting a Business	Starting a Business topic distance to frontier (DTF) score. *Source*: Doing Business, www.doingbusiness.org
Acquiring Licenses	Dealing with Construction Permits topic distance to frontier (DTF) score. *Source*: Doing Business, www.doingbusiness.org
Getting Credit	Getting Credit topic distance to frontier (DTF) score. *Source*: Doing Business, www.doingbusiness.org
Enforcing Contracts	Enforcing Contracts topic distance to frontier (DTF) score. *Source*: Doing Business, www.doingbusiness.org
Income per capita	One year lag of natural log of GDP per capita (current USD). *Source:* WDI, World Bank
PolChange	Dummy equal to 1 if an alternation of political parties or coalitions took place 12 months prior to the start of the *Doing Business* reforms period for the Lower house of the country and 0 otherwise. *Source:* Inter-Parliamentary Union (IPU) and website searches
GovExp	General government expenditure (% of GDP). *Source*: International Monetary Fund, World Economic Outlook Database, April 2017.
Mortality	Mortality rate, adult, female (per 1,000 female adults). *Source:* WDI, World Bank
Regions	
East Asia and Pacific (EAP)	Dummy indicating a country in East Asia or Pacific region. *Source:* WDI, World Bank
Europe and Central Asia (ECA)	Dummy indicating a country in Europe or Central Asia region. *Source:* WDI, World Bank
OECD high income	Dummy indicating a country in OECD high income group. *Source:* WDI, World Bank
Latin America and Caribbean (LAC)	Dummy indicating a country in Latin America or Caribbean region. *Source:* WDI, World Bank
Middle East and North Africa (MENA)	Dummy indicating a country in Middle East or North Africa region. *Source:* WDI, World Bank
South Asia (SA)	Dummy indicating a country in South Asia region. *Source:* WDI, World Bank
Sub-Saharan Africa (SSA)	Dummy indicating a country in Sub-Saharan Africa region. *Source:* WDI, World Bank

Table 2
Correlates of the Level of Poverty
Dependent variable: *Poverty*

VARIABLES	(1)	(2)	(3)
Income per Capita	-7.077***	-7.366***	-7.457***
	(0.996)	(1.013)	(1.031)
GovExp	-0.149***	-0.139**	-0.138**
	(0.0573)	(0.0585)	(0.0587)
Mortality	0.0415***	0.0317***	0.0318***
	(0.0103)	(0.0103)	(0.0103)
PolChange		-0.455	-0.454
		(0.521)	(0.522)
2007.year	1.112	1.495**	1.510**
	(0.911)	(0.744)	(0.746)
2008.year	2.083**	2.585***	2.617***
	(1.037)	(0.849)	(0.851)
2009.year	2.365**	2.696***	2.744***
	(1.160)	(0.975)	(0.979)
2010.year	1.682	1.921**	1.958**
	(1.086)	(0.928)	(0.931)
2011.year	1.882	2.487**	2.538**
	(1.185)	(0.996)	(1.000)
2012.year	1.512	2.047*	2.098*
	(1.276)	(1.112)	(1.115)
2013.year	1.406	2.004*	2.070*
	(1.362)	(1.184)	(1.190)
Constant	81.67***	86.29***	86.79***
	(7.454)	(7.753)	(7.820)
Observations	486	439	439
Number of country	114	112	112

Standard errors in parentheses; regional dummies included but not reported.
*** p<0.01, ** p<0.05, * p<0.1

Table 3
Poverty and Business Regulation

Explanatory Variable	A	B	C	D	E
Income per Capita	-7.026***	-6.930***	-8.268***	-7.036***	-7.043***
	(0.991)	(1.005)	(1.075)	(1.019)	(0.962)
GovExp	-0.163***	-0.159***	-0.141**	-0.130**	-0.151***
	(0.0577)	(0.0580)	(0.0645)	(0.0583)	(0.0565)
Mortality	0.0432***	0.0428***	0.0466***	0.0333***	0.0390***
	(0.0102)	(0.0103)	(0.0111)	(0.0104)	(0.00990)
Doing Business index	-0.0957*				
	(0.0488)				
2005.year		-0.286			-0.130
		(0.795)			(0.797)
2006.year		1.461*		1.772**	1.771**
		(0.855)		(0.691)	(0.853)
2007.year		1.261	-0.109	1.639**	1.536*
		(0.918)	(0.664)	(0.743)	(0.904)
2008.year	2.745**	2.303**	1.357*	2.804***	2.583**
	(1.071)	(1.051)	(0.749)	(0.851)	(1.022)
2009.year	3.212***	2.719**	1.748**	3.036***	2.788**
	(1.209)	(1.193)	(0.859)	(0.983)	(1.136)
2010.year	2.784**	2.151*	0.927	2.431**	2.089**
	(1.191)	(1.151)	(0.828)	(0.953)	(1.066)
2011.year	3.048**	2.354*	1.560*	2.989***	2.301**
	(1.286)	(1.244)	(0.883)	(1.022)	(1.159)
2012.year	2.777**	2.001	1.507	2.581**	1.704
	(1.386)	(1.335)	(1.002)	(1.138)	(1.248)
2013.year	2.744*	1.911	1.744	2.560**	1.824
	(1.475)	(1.421)	(1.075)	(1.207)	(1.328)
Starting a Business		-0.0352			
		(0.0299)			
Acquiring Licenses			-0.0233		
			(0.0271)		
Getting Credit				-0.0399**	
				(0.0182)	
Enforcing Contracts					-0.257***
					(0.0619)
Constant	84.60***	82.13***	90.00***	84.31***	94.32***
	(7.426)	(7.447)	(8.147)	(7.780)	(7.489)
Observations	486	486	388	440	486
Number of country	114	114	112	113	114

Standard errors in parentheses; regional dummies included but not reported.
*** p<0.01, ** p<0.05, * p<0.1