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Business Regulations and Growth

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Abstract

Over the past decade, there has been increased interest in improving business regulations, in part because of the increased availability of data that can inform and monitor those improvements. This paper analyzes whether these regulatory changes are linked to economic outcomes. With panel data for 10 years across more than 180 countries, the paper establishes the link between business regulations, firm creation, and growth. It is found that an improvement of 10 points in the overall measure of business regulations is linked to an increase of around 0.5 new businesses per 1,000 adults. Moreover, the results show that although small changes in the overall level of business regulations may have a negligible link to growth, moving from the lowest quartile of improvement in business regulations to the highest quartile is associated with a significant increase in annual per capita growth of around 0.8 percentage points. In addition, the results highlight the importance of sound entry and exit regulations and sound credit market regulations and court enforcement for growth.

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Business Regulations and Growth

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1. Introduction

Economic growth is an essential part of economic development and poverty reduction. Dollar et al (2013) find that incomes of the bottom 2 quintiles of the income distribution increase on average at the same rate as the average for the overall income distribution. This indicates that growth accounts for a large part of poverty reduction in past decades and increases the need to understand better what drives growth.

Explaining the determinants of economic growth has been at the core of the economic science since its inception. Why do some countries grow at a faster pace than others? Why are there high-income countries and low-income countries? Many factors can contribute and have significant impact on growth. This paper contributes to this bigger discussion by trying to answer the question: are business regulations a determinant of economic growth?

We establish this link in a two-stage manner. First we establish the link between business regulations with new firm creation and then we establish the direct link to GDP per capita growth. The link to new firm creation serves as one of the mechanism through which business regulations can affect growth.

The link between business regulations and firm creation is not new in the literature. For instance, Klapper and Love (2011) link business start-up regulations to firm creation using panel data across countries. Branstetter et al (2013) provide evidence that reducing the time and cost of firm registration increased the number of business start-ups and jobs created, using data on a quasi-natural experiment from Portugal. Bruhn (2011) analyzes a quasi-natural experiment in Mexico and shows that simplified registration processes increased both firm creation and job creation. Kaplan, Piedra and Seira (2011) study the same quasi-natural experiment to find that simplified entry regulations led to the shifting of informal firms to the formal economy. We complement these studies by analyzing business regulations beyond entry regulations and by testing the results over a large set of countries. We find that an improvement of 10 points in the overall measure of business regulations is linked to an increase of around 0.5 new businesses per 1,000 adults.

There are fewer studies linking business regulations to growth. Djankov, McLiesh, and Ramalho (2006), using cross country data find that simpler business regulations are associated with higher long term growth. Eifert (2007) links business regulations to investment and growth using panel data. The author uses indicator level data and finds that in general better performance in business regulations indicators is linked to higher investment and growth. We add to the existing literature on growth and business regulations by analyzing a long series of panel data and testing different aggregations of the business regulation indicators. Our results show that although small changes

in the overall level of business regulations may have a negligible link to growth, moving from the lowest quartile of improvement in business regulations to the highest quartile is associated with a significant increase in annual per capita growth of around 0.8 percentage points.

The next section describes the datasets used and presents the summary statistics. Section 3 presents the econometric models. Section 4 discusses the results and section 5 concludes.

2. Data description

To test the link between business regulations, firm creation and growth we use primarily the World Bank Doing Business indicators. Published annually, they measure the efficiency and strength of laws, regulations and institutions relevant to domestic small and medium-size companies throughout their life cycle.[2] We use nine of the different areas included in the Doing Business indicators as follows:

- The starting a business indicator evaluates business entry regulations. The indicator is based on the methodology developed by Djankov *et al.* (2002). It measures all procedures required to start up and formally operate an industrial or commercial business, as well as the time and cost to complete them and the paid-in minimum capital requirement.
- The dealing with construction permits indicator records the procedures required for a business in the construction industry to build a warehouse. These procedures include the submission of project-specific documents – such as building plans and site maps – to the authorities and obtaining all necessary clearances, licenses, permits and certificates. Other procedures relate to completing all required notifications and receiving all necessary inspections.
- The registering property indicator captures the process necessary for a business to purchase a property from another business. The procedures necessary to transfer the property title to the buyer's name so that the buyer can use the property for expanding its business, use the property as collateral in taking new loans or, if necessary, sell the property to another business are also measured.
- The getting credit indicator covers two areas relevant for access to credit for businesses and is based on the methodology developed by Djankov *et al.* (2002). The first area covered consists in the legal rights of borrowers and lenders with respect to secured transactions. In particular the indicator measures whether certain features that facilitate lending exist within the applicable collateral and bankruptcy laws. The second area measures the extent to which credit information is shared by looking at the coverage, scope and accessibility of credit information available through public credit registries and private credit bureaus.
- The protecting investors indicator assesses the strength of minority shareholders protection against directors' misuse of corporate assets for personal gain and is based on

[2] The Doing Business database is available at www.doingbusiness.org.

the methodology developed by Djankov *et al.* (2008a). The indicator covers 3 dimensions of investor protections: transparency of related-party transactions, liability for self-dealing and shareholders' ability to sue officers and directors for misconduct.

- The paying taxes indicator measures the amount of taxes and mandatory contributions that a medium-size company must pay in a given year and assesses the administrative burden associated to making tax payments and contributions. The indicator is based on Djankov *et al.* (2010a). The total tax rate measures the amount of taxes and mandatory contributions borne by the business in the second year of operation, expressed as a share of commercial profit. This is the sum of all the different taxes and contributions payable after accounting for allowable deductions and exemptions.
- The trading across borders indicator measures the time and cost and the number of required documents associated with exporting and importing a standardized cargo of goods by sea transport. The indicator is based on Djankov *et al.* (2010b). All documentation required for clearance by relevant agencies – including government ministries, customs, port authorities and other control agencies – is covered. The time for exporting and importing is recorded in calendar days and goes from the moment each procedure is initiated until its completion. Sea transportation time is not included. Cost measures the fees levied on a 20-foot container in U.S. dollars.
- The enforcing contracts indicator measures the efficiency of the judicial system in resolving a commercial dispute. The indicator is based on Djankov *et al.* (2003) and follows the step-by-step evolution of a commercial sale dispute before local courts and factors the total time, cost and number of procedures needed in each country to obtain and enforce the court's judgment. Cost is recorded as a percentage of the claim, assumed to be equivalent to 200% of income per capita.
- The resolving insolvency indicator measures the time, cost and outcome of insolvency proceedings involving domestic companies. The methodology of the indicator relies on the work by Djankov *et al.* (2008b). The time that takes for creditors to recover their credit is recorded in calendar years and ranges from companies' default until the payment of the money owed to the bank. The cost of the proceedings is recorded as a percentage of the value of the debtor's estate. The recovery rate is recorded as cents on the dollar recouped by creditors through reorganization, liquidation or debt enforcement (foreclosure) proceedings.

Different types of indicators: complexity versus institutions

Doing Business indicators can be divided into two sub-groups based on the nature of what they measure. The first group of indicators relate to the strength of legal institutions relevant to the regulation of business. They focus on the legal and regulatory framework for getting credit, protecting investors, enforcing contracts and resolving insolvency. For example, they look at company laws and record disclosure requirements for related-party transactions. Or they look at civil laws and record the number of procedures necessary to resolve a commercial sale dispute

before local courts. The second group of indicators relate to the complexity and cost of regulatory processes. These indicators measure the efficiency in achieving a regulatory goal, such as the number of procedures to obtain a building permit or the time taken to grant legal identity to a business. In particular, they focus on business start-up, construction permitting, property transfer, taxes and international trade logistics. Based on time-and-motion case studies from the perspective of the business, these indicators measure the procedures, time and cost required to complete a transaction in accordance with relevant regulations.

Distance to the regulatory frontier

The distance to the regulatory frontier (DTF) score measures the average distance from the best regulatory performance. First, sub-indicator data is normalized between 0 and 100 thanks to the following formula:

$$dtf_{i,k,t} = 100 - \left(y_{i,k,t} - best_i\right)/(worst_i - best_i)$$

where $worst_i$ and $best_i$ refer to the worst and best performances respectively recorded over time for across all countries for sub-indicator i. $Y_{i,k,t}$ refers to the performance of country k on year t for sub-indicator i. In sub-indicators where outliers are found, countries performing worse than the 95th percentile are automatically assigned a 0. Finally, DTF scores at the sub-indicator level are averaged within each indicator. Indicator-level DTF scores are also averaged to obtain the overall DTF score.[3]

Outcome variables

This study used two main outcome variables: GDP per capita growth and new firm entry. We use GDP per capita annual growth rate from the World Bank's World Development Indicators (WDI). To better capture the historical trend and not bias our estimations with short-run fluctuations in growth rates we compute a 3-span moving average of the variable. We use new business entry density, defined as the number of newly registered corporations per 1,000 working-age people (those ages 15–64) collected by the World Bank with the support of the Kauffman Foundation.[4]

Table 1 describes all the variables including the ones used as controls. Table 2 provides the summary statistics for all the variables included. The data spans over 8 to 11 years depending on the variable. For most of the variables included there is a complete panel.

Using the across time variation to do a first analysis of the data, we see that there is a clear convergence for most of the business regulation variables. Figure 1 shows the distributions using

[3] For more information on the DTF measure see World Bank (2012).
[4] Data on business density is available at http://doingbusiness.org/data/exploretopics/entrepreneurship

kernel estimates for several of the distance to frontier variables for 2005 (or 2004) and 2013. In the vast majority of cases there is convergence over time, meaning that on average countries are closer to the frontier and countries that were originally further from the frontier were the ones that make the most progress in getting closer. This convergence is particularly noticeable for starting a business, dealing with construction permits, registering property and getting credit indicators. In these cases the distribution for 2013 stochastically dominates the distribution for the initial year (2005 or 2004). In the indicators on resolving insolvency and protecting investors there is some level of convergence but not as strong. In the indicator on enforcing contracts the convergence is almost inexistent. Once all the nine indicators are integrated into the aggregate distance to the frontier score, there is convergence and the distribution for 2013 stochastically dominates the distribution for 2005.

3. Econometric models

This paper examines the link between business regulations and firm creation and growth. We use two different econometric models to study this relationship.

Our first empirical test consists in investigating whether, on average, the efficiency of countries' business regulations is correlated with a higher number of newly registered businesses. With this aim we analyze within country variation using our panel data and estimating the following model:

$$Entry\ Density_{it} = \alpha_i + \beta_1 DTF_{it} + \beta_2 growth_{it-1} + \beta_3 X_{it} + \delta_t + \varepsilon_{it} \qquad (1)$$

In this specification DTF stands for the distance to the regulatory frontier. We estimate the model using the distance to the frontier in alternative regulatory sets. We include country fixed effects (α_i) in our specification in order to capture unobserved between-country differences that might affect our dependent and explanatory variables. Moreover, we control for lagged GDP per capita growth in order to capture the impact of the business cycle on the number of new businesses registered. Following Klapper and Love (2011) we include time dummies to control for any global changes in the macroeconomic environment likely to affect business entry worldwide. This is particularly important given that our panel covers the global financial crisis. Firm registration dropped significantly due to the crisis and time dummies will capture the average drop in registration due to such event so that this does not distort our estimations. We also control for a vector X, which includes a set of country-specific characteristics that can influence the business environment such as per-capita GDP, trade openness, corruption, economic and political risk as well as civil freedoms. Finally, we include time dummies to control for global macroeconomic changes affecting all countries (δ_t) and the random error term clustered on the country level to capture potential serial correlation of residuals within country (ε_{it}).

As a further test we explore if, on average, changes in the efficiency of countries' business regulations is correlated with a higher level of per-capita GDP growth. We look at changes instead of levels of DTF. We start from the assumption that GDP per capita is a function of the level of DTF and therefore GDP per capita growth is a function of the change of DTF. This brings in some additional complications to address and calls for a refinement in our empirical model. Let's consider the following equation:

$$Growth_{it} = \alpha_i + \beta \Delta DTF_{it} + \gamma X_{it} + \delta_t + \varepsilon_{it} \qquad (2)$$

In this specification DTF stands for the distance to the regulatory frontier and vector X represents the set of control variables. As most macroeconomic variables GDP growth tends to follow a cyclical dynamic that implies high levels of autocorrelation. Consequently, when regulatory changes are correlated with the business cycle coefficients estimated with (2) will be biased. For instance, if improvements are motivated by economic downturns subsequent improvements in the state of the economy will occur regardless of their actual impact because of the subsequent positive phase of the business cycle. In other words, coefficient β in (2) will be upward-biased. A better specification for the equation thus appears to be:

$$Growth_{it} = \alpha(\Delta DTF_{it}) + \beta X_{it} + \gamma_1 Growth_{it-1} + \cdots + \gamma_p Growth_{it-p} + \delta_t + \varepsilon_{it}$$
$$\Leftrightarrow$$
$$\Delta Growth_{it} = \alpha\Delta(\Delta DTF_{it}) + \beta\Delta X_{it} + \gamma_1 \Delta Growth_{it-1} + \cdots + \gamma_p \Delta Growth_{it-p} + \Delta\delta_t + \Delta\varepsilon_{it} \qquad (3)$$

Due to the presence of lagged dependent variables equation (3) cannot be solved using fixed effects. In fact the error term $\Delta\varepsilon_{it}$ is serially correlated with the lagged dependent variable $\Delta Growth_{it-1}$. Following Eiffert (2009) we solve this problem using the Arellano-Bond dynamic panel data estimator. The Arellano-Bond dynamic panel estimator uses lagged levels of $Growth_{it}$ as instruments for the lagged $\Delta Growth_{it}$ terms. Again we control for a vector X, which includes a set of country-specific that can influence our dependent variable (growth) such as per-capita GDP, trade openness, rents from natural resources, government consumption, corruption, economic and political risk as well as civil freedoms.

In order to check if the entity of the regulatory change matters for the impact on growth, we estimate an alternative specification of (3) where we substitute the ΔDTF_{it} explanatory variable with a set of dummy variables that divide economies in quartiles based on the magnitude of their yearly regulatory change (ΔDTF_{it}).

4. Results

Tables 3 to 6 present the results for the link between business regulations and firm creation. We first test whether business regulations overall have a link with business entry. Using panel data we find that in fact countries with better business regulations experience higher level of new firm density, controlling for country fixed effects. An improvement of 10 points in the overall DTF is linked to an increase of around 0.6 new businesses per 1,000 adults as shown in table 3. The average global new business density is 3.2 firms per 1,000 adults and therefore this result is not negligible. The result is robust to the inclusion of different controls. As an example, take Nigeria which scored 48.2 in the overall DTF and had a new business density of 0.91 in 2012. An improvement of 20 points in the DTF will bring the country close to the performance of Colombia (70.2 score in the DTF). Such improvement in Nigeria's business regulations is expected increase the country's new business density by more than 130% to 2.11 new businesses per 1,000 working-age adults. Alternatively, consider Algeria which scored 51.9 in the overall DTF and had a new business density of 0.53 in 2012. An improvement of 20 points in the DTF will bring the country close to the performance of Poland (72.5 score in the DTF). Such improvement in Algeria's business regulations is expected increase the country's new business density by more than 220% to 1.73 new businesses per 1,000 working-age adults.

We try different combinations of indicators to better understand the mechanisms behind this link. First, we divide the indicators by the type of regulation and then we divide them by the purpose they serve. Table 4 shows the results for the time and motion indicators. These indicators measure the complexity and cost of business regulations. The data shows that the link between business entry and business regulations is less strong and less robust for this set of indicators than for the overall measure of business regulations.

Table 5 shows the results for the legal indicators. These indicators measure the strength of legal institutions that support business regulations such as commercial courts and credit bureaus. The results are not as strong as for the overall DTF indicating that having a combination of good regulations across different areas is very relevant for business entry. Finally, we test whether the entry and exit regulations matter for business entry, presented in table 6. Entry and exit regulations are measured through the starting a business and resolving insolvency indicators of Doing Business. The results match what the theory predicts: better entry and exit regulations are linked with higher business entry. The coefficient of the variable of interest "DTF entry/exit" is significant in all specifications. A 10 percentage points increase in the entry and exit DTF is associated with around 0.3 more new businesses per 1,000 adults.

Tables 7 to 10 present the results on the link between business regulations and growth. We test whether changes in level of business regulations have a link with the GDP per capita growth. We use panel data where GDP per capita growth is measured through a 3-year moving average. Table 7 shows that the link between changes in business regulations and per capita growth is not very strong overall. This is not surprising since growth depends on many factors and changes in

specific business regulations are too micro to have a significant macro effect. We further test if large changes in DTF do matter for per capita growth. We divide ΔDTF_{it} into quartiles where D1 includes the countries with lowest numbers (often negative) and D4 includes the countries with the highest positive change. Under this specification we find that moving from the worst quartile (D1) to the best quartile (D4) is linked to an increase in annual GDP per capita growth of around 0.8 percentage points. This is a significant amount given that the average GDP per capita growth is 2.7 percent. This shows that large changes in business regulations do matter for growth, although small changes may have a negligible impact.

We investigate further this result by looking at different combinations of the regulatory variables. Table 8 shows the results for the legal indicators. An improvement in 1 percentage point in the DTF for the indicators measuring the strength of legal institutions is associated with an increase of 0.09 percentage points in annual growth rate. Table 9 shows a similar picture for the entry and exit indicators. In this case a 10 percentage point improvements in DTF for entry and exit is associated with a 0.5 percentage points increase in annual growth rate. Finally table 10 shows the results for the indicators that relate to credit markets (getting credit, resolving insolvency and enforcing contracts). An improvement in 1 percentage point in the DTF for the indicators relating to credit markets is associated with an increase of around 0.13 percentage points in annual growth rate. The magnitude of this coefficient highlights the importance of sound credit market regulations and enforcing legal institutions for growth. These results are robust to the inclusion of different controls.

5. Conclusion

Using 10 years of panel data we test the link between business regulations, firm creation and GDP per capita growth. We find strong evidence for the role of business regulations in enabling firm creation. Having an overall sound business regulatory system is associated with higher levels of new business entry. This result also holds when analyzing different types of regulations.

After establishing the link to new firm creation we go to the next step and test the link to GDP per capita growth. This is a harder link to establish because there are many aspects than can affect growth and the business regulations measured in Doing Business are very micro and narrow in scope by design. However, the results indicate that these variables are good proxies for business regulations overall. In fact, the results show that although small changes in the overall level of business regulations may have a negligible link to growth, actually moving from the lowest quartile of improvement in business regulations to the highest quartile is associated with significant increases in annual per capita growth. Furthermore the results highlight the importance of sound entry and exit regulations and sound credit market regulations and enforcement for growth.

Although the growth analysis, presented in this paper is an improvement to the static cross country analysis it is still not robust enough to establish causality. Further research would be needed to establish stronger causal links with regards to growth.

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Table 1. Variable description

Name	Description	Source
New business density	Number of newly registered corporations per 1,000 working-age people (those ages 15–64).	Doing Business entrepreneurship database
GDP growth	Annual percentage growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2005 U.S. dollars.	World Development Indicators
Economic risk	The overall aim of the Economic Risk Rating is to provide a means of assessing a country's current economic strengths and weaknesses. The rating is computed over the following economic variables: GDP per Head, Real GDP Growth, Annual Inflation Rate, Budget Balance as a Percentage of GDP and Current Account as a Percentage of GDP.	PRS Group International Country Risk Guide database
Financial risk	The overall aim of the Financial Risk Rating is to provide a means of assessing a country's ability to pay its way. In essence, this requires a system of measuring a country's ability to finance its official, commercial, and trade debt obligations. The dimensions on which the rating is computed are: Foreign Debt as a Percentage of GDP, Foreign Debt Service as a Percentage of Exports of Goods and Services, Current Account as a Percentage of Exports of Goods and Services, Net International Liquidity as Months of Import Cover, Exchange Rate Stability,	PRS Group International Country Risk Guide database
Political risk	The aim of the political risk rating is to provide a means of assessing the political stability of the countries covered by ICRG on a comparable basis. This is done by assigning risk points to a pre-set group of factors, termed political risk components. Such factors are: Government Stability, Socioeconomic Conditions, Investment Profile, Internal Conflict, External Conflict, Corruption, Military in Politics, Religious Tensions, Law and Order, Ethnic Tensions, Democratic Accountability and Bureaucracy Quality.	PRS Group International Country Risk Guide database
Corruption perception	Perceived levels of corruption, as determined by expert assessments and opinion surveys.	Transparency International Corruption Perception index.
Government consumption	General government final consumption expenditure, includes all government current expenditures for purchases of goods and services (including compensation of employees). Expressed as a percentage of GDP.	World Development Indicators
Export	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments. Measured as a percentage of GDP.	World Development Indicators
Import	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments. Measured as a percentage of GDP.	World Development Indicators
FDI inflow	Foreign direct investment, net inflows (% of GDP)	World Development Indicators
Credit to private sector	Domestic credit to private sector (% of GDP)	World Development Indicators
Political freedom	Index of strength of political freedom based on the following areas: electoral process, political pluralism and participation and functioning of government.	Freedom House Freedom in the World database
Civil liberties	Index of strength of civil liberties based on the following areas: freedom of expression and belief, associational and organizational rights, rule of law, personal autonomy and individual rights.	Freedom House Freedom in the World database
Rents from natural resources	Total natural resources rents: the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. Measured as a percentage of GDP.	World Development Indicators
DB Distance to Frontier	Overall distance to the regulatory frontier in Doing Business indicators.[a]	Doing Business database
DB Starting a business	Distance to the regulatory frontier in starting a business. It measures all procedures required to start up and formally operate an industrial or commercial business, as well as the time and cost to complete them and the paid-in minimum capital requirement.[a]	Doing Business database

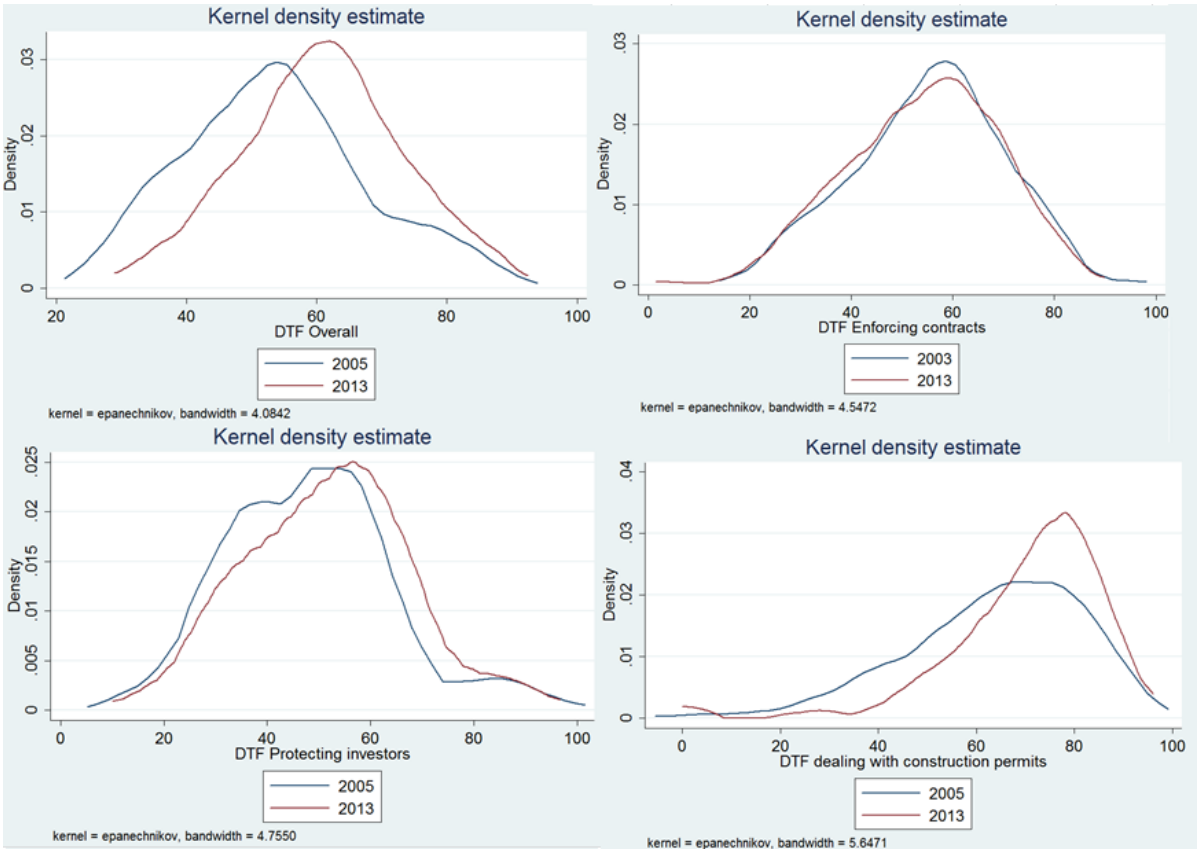
DB Registering property	Distance to the regulatory frontier in registering property.[a]	Doing Business database
DB Construction permits	Distance to the regulatory frontier in dealing with construction permits. Records all procedures, times and costs required for a business in the construction industry to build a warehouse.[a]	Doing Business database
DB Paying taxes	Distance to the regulatory frontier in paying taxes. Measures the amount of taxes and mandatory contributions that a medium-size company must pay in a given year and assesses the administrative burden associated to making tax payments and contributions.[a]	Doing Business database
DB Trading across borders	Distance to the regulatory frontier in trading across borders. Measures the time and cost and the number of required documents associated with exporting and importing a standardized cargo of goods by sea transport.[a]	Doing Business database
DB Getting credit	Distance to the regulatory frontier in getting credit. Covers two areas relevant for access to credit for businesses. The first area covered consists in the legal rights of borrowers and lenders with respect to secured transactions. Moreover, the indicator measures the extent to which credit information is shared by looking at the coverage, scope and accessibility of credit information available through public credit registries and private credit bureaus.[a]	Doing Business database
DB Enforcing contracts	Distance to the regulatory frontier in enforcing contracts. Measures the efficiency of the judicial system in resolving a commercial dispute following the step-by-step evolution of a commercial sale dispute before local courts and factors the total time, cost and number of procedures needed in each country to obtain and enforce the court's judgment.[a]	Doing Business database
DB Resolving insolvency	Distance to the regulatory frontier in resolving insolvency. Measures the time, cost and outcome of insolvency proceedings involving domestic companies.	Doing Business database
DB Protecting investors	Distance to the regulatory frontier in protecting investors. The indicator covers 3 dimensions of investor protections: transparency of related-party transactions, liability for self-dealing and shareholders' ability to sue officers and directors for misconduct.[a]	Doing Business database
DB Entry/Exit	Distance to the regulatory frontier in the areas of Starting a business and Resolving insolvency.[a]	Authors' elaboration on Doing Business database
DB Credit System	Distance to the regulatory frontier in the areas of Getting credit, Enforcing contracts and Resolving insolvency.[a]	Authors' elaboration on Doing Business database
DB Legal	Distance to the regulatory frontier in the areas of Getting credit, Enforcing contracts, Protecting investors and Resolving insolvency.[a]	Authors' elaboration on Doing Business database
DB Time and Motion	Distance to the regulatory frontier in the areas of Starting a business, Registering property, Construction permits, Paying taxes and Trading across borders.[a]	Authors' elaboration on Doing Business database

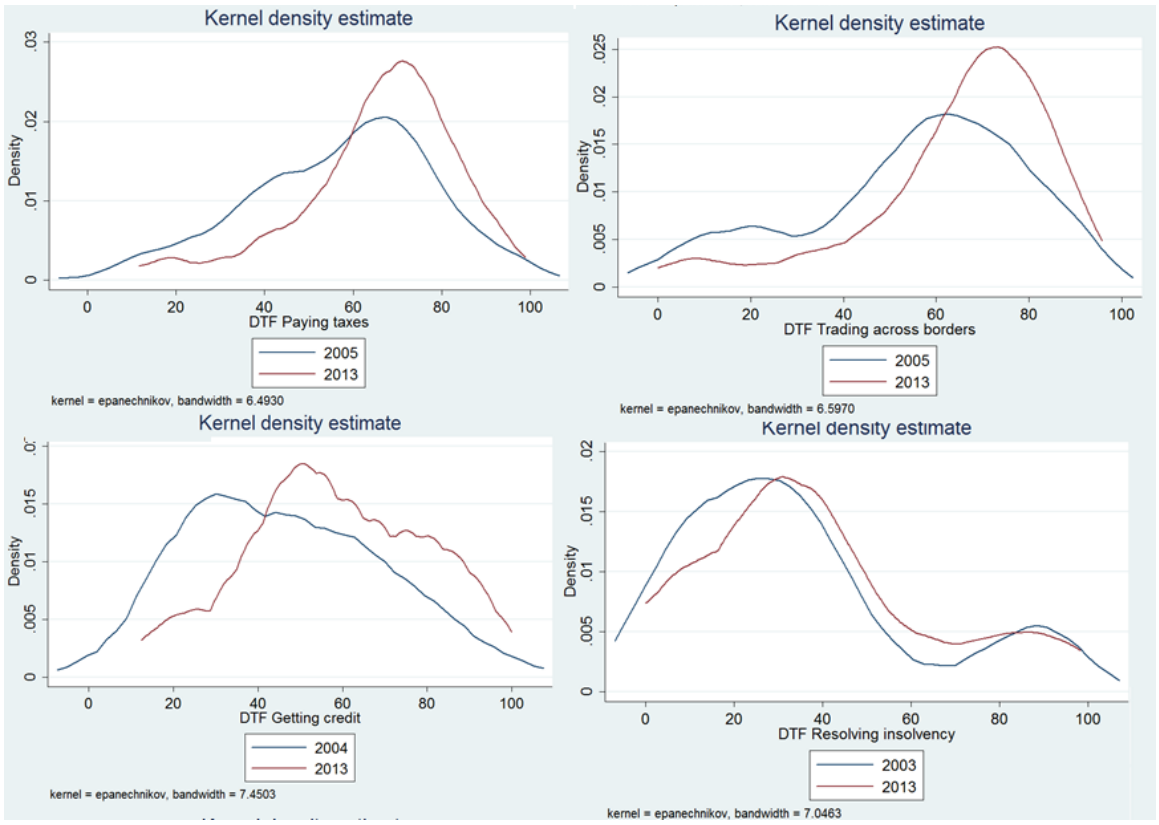
[a] The data for all sets of indicators in Doing Business for year i refer to the period between June of year i-2 and June of year i-1.

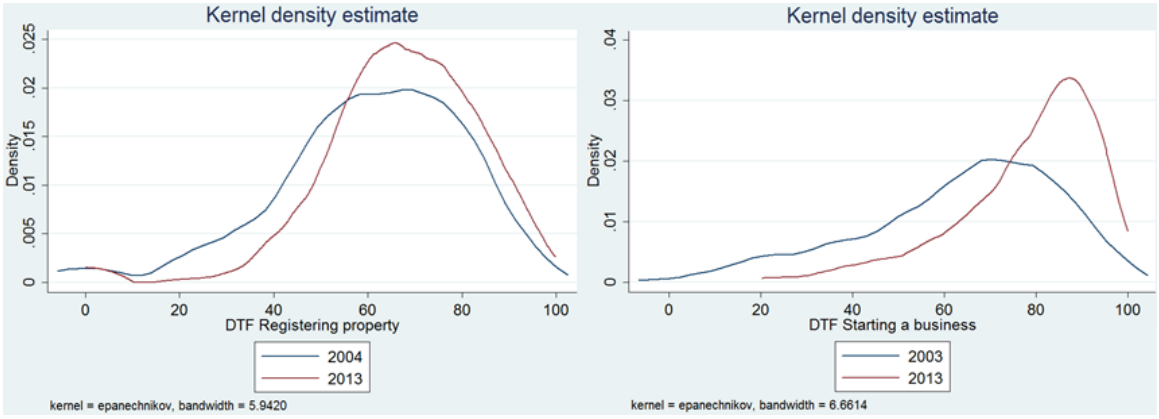
Table 2. Summary statistics

Variable (2003-13)	obs	years	countries	sd	min	max	mean
Growth	1,848	10	186	3.642544	-26.25	27.26	2.690445
New business density	971	9	116	4.611239	0.0056931	39.001	3.224813
DTF overall	1644	9	189	13.37496	25.408	92.39117	57.68104
DTF overall (delta) (2006-12)	1455	8	189	1.491091	-7.39703	14.54698	0.9287267
ICRG risk	1,483	11	136	6.886537	22.52778	61.58	46.17373
Corruption	1,748	11	175	2.1114	0.8	9.7	4.19119
Government consumption	1,654	10	175	7.900064	2.05	104.9	16.03125
Trade (X and M)	1,978	11	184	53.64577	0.2298688	562.06	94.2949
FDI	2,017	11	181	12.04655	-57.4297	430.6407	5.555616
Credit to private sector	1,536	9	175	50.15038	0.82	319.46	53.2221
Freedom	1,840	10	186	1.902335	1	7	3.264402
Natural resources	1,664	10	187	17.21501	0	107.37	10.16427
DTF Starting	1,944	11	189	19.23442	0	99.95911	70.41812
DTF Permits	1,644	9	189	16.69257	0	96.06773	67.19501
DTF Registering	1,799	10	189	18.03507	0	99.81476	63.96584
DTF Credit	1,799	10	189	22.70594	0	100	52.25125
DTF Investors	1,644	9	189	15.78367	10	96.66666	50.00811
DTF Taxes	1,644	9	189	19.44415	0	100	61.99775
DTF Trading	1,644	9	189	22.50623	0	95.90813	61.04385
DTF Contracts	1,944	11	189	15.05907	0	93.57998	54.3307
DTF Closing	1,944	11	189	26.07222	0	100	35.32722
DTF time and motion	1,644	9	189	13.22158	25.28923	92.18549	64.95727
DTF legal	1,644	9	189	15.73735	10.73318	92.89957	48.15714
DTF entry/exit	1,944	11	189	19.85899	0	97.78631	52.87267
DTF credit system	1,799	10	189	17.66391	4.166667	92.75497	47.30929
DTF operations	1,644	9	189	17.82951	8.730268	95.49191	61.5208

Figure 1. Distance to frontier scores distributions over time







Notes: These figures show kernel density estimates for the overall and individual DTF variables. The blue line refers to the distribution of economies in 2004 while the red line refers to the distribution in 2013.

Table 3. Business entry and the overall level of regulation

VARIABLES	(1) newbiz	(2) newbiz	(3) newbiz	(4) newbiz	(5) newbiz	(6) newbiz	(7) newbiz	(8) newbiz
GDP per capita (log)	1.848**	1.859**	1.740**	1.836**	1.807**	1.465*	1.559*	0.775
	(2.251)	(2.258)	(2.289)	(2.352)	(2.182)	(1.693)	(1.676)	(0.863)
FDI		-0.00261	-0.00365	-0.00372	-0.00410	-0.00409	-0.00329	0.00270
		(-0.779)	(-1.181)	(-1.191)	(-1.300)	(-1.298)	(-1.016)	(1.041)
Political freedom and civil rights (FH)			0.200	0.217	0.274	0.287	0.363	0.391*
			(1.098)	(1.178)	(1.331)	(1.391)	(1.510)	(1.920)
Trade (X and M)				0.00589	0.00580	0.00549	0.00746	0.00109
				(1.138)	(1.037)	(0.981)	(1.173)	(0.181)
Corruption (CPI)					0.0608	0.0559	-0.0607	-0.0283
					(0.425)	(0.391)	(-0.339)	(-0.171)
Lagged GDP growth						0.0364	0.0410	0.0503*
						(1.358)	(1.268)	(1.747)
Country risk (ICRG)							0.0132	0.0166
							(0.334)	(0.465)
Credit to private sector								0.0184***
								(5.327)
DTF	0.0449**	0.0447**	0.0454**	0.0448**	0.0441*	0.0465**	0.0534*	0.0624**
	(1.988)	(1.976)	(2.153)	(2.072)	(1.930)	(2.029)	(1.765)	(2.247)
Constant	-16.08**	-16.16**	-15.77**	-17.16**	-17.29**	-14.50*	-16.40**	-10.94
	(-2.269)	(-2.273)	(-2.406)	(-2.522)	(-2.406)	(-1.942)	(-1.991)	(-1.387)
Observations	832	829	821	808	782	781	646	548
R-squared	0.039	0.040	0.049	0.051	0.053	0.056	0.063	0.153
Number of cod2	123	123	122	121	120	119	94	93

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: ***(**)(*) denotes significance at the 1(5)(10) percent level. Standard errors reported in parentheses. This table reports results from OLS panel regressions of new business creation on the distance to the overall regulatory frontier. Business creation is defined as number of new businesses per 1,000 people in working-age. Country fixed effects are included in order to capture unobserved between-country differences. The estimations reported include controls for lagged GDP per capita growth, per-capita GDP, trade openness, corruption, credit to the private sector, FDI inflow, economic and political risk as well as civil freedoms. All specifications include time dummies to control for any global changes in the macroeconomic environment.

Table 4. Business entry and the complexity and cost of business regulations

VARIABLES	(1) newbiz	(2) newbiz	(3) newbiz	(4) newbiz	(5) newbiz	(6) newbiz	(7) newbiz	(8) newbiz
GDP per capita (log)	1.966**	1.977**	1.933***	2.039***	1.974**	1.640*	1.754*	0.993
	(2.443)	(2.448)	(2.588)	(2.663)	(2.411)	(1.917)	(1.899)	(1.114)
FDI		-0.00256	-0.00361	-0.00367	-0.00409	-0.00408	-0.00325	0.00272
		(-0.763)	(-1.167)	(-1.176)	(-1.295)	(-1.291)	(-1.003)	(1.044)
Political freedom and civil rights (FH)			0.213	0.232	0.294	0.307	0.375	0.401*
			(1.172)	(1.257)	(1.430)	(1.491)	(1.560)	(1.965)
Trade (X and M)				0.00605	0.00606	0.00574	0.00829	0.00189
				(1.166)	(1.081)	(1.023)	(1.304)	(0.315)
Corruption (CPI)					0.0888	0.0843	-0.0338	-0.00285
					(0.628)	(0.596)	(-0.189)	(-0.0173)
Lagged GDP growth						0.0359	0.0395	0.0499*
						(1.338)	(1.218)	(1.727)
Country risk (ICRG)							0.0128	0.0154
							(0.322)	(0.428)
Credit to private sector								0.0187***
								(5.401)
DTF (time and motion)	0.0376**	0.0373**	0.0285*	0.0275	0.0256	0.0277	0.0218	0.0312
	(2.158)	(2.138)	(1.751)	(1.643)	(1.467)	(1.579)	(1.000)	(1.526)
Constant	-16.94**	-17.01**	-16.73**	-18.19***	-18.07**	-15.35**	-16.62**	-11.41
	(-2.400)	(-2.401)	(-2.559)	(-2.684)	(-2.519)	(-2.059)	(-2.014)	(-1.444)
Observations	832	829	821	808	782	781	646	548
R-squared	0.040	0.041	0.046	0.049	0.051	0.053	0.059	0.147
Number of cod2	123	123	122	121	120	119	94	93

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: ***(**)(*) denotes significance at the 1(5)(10) percent level. Standard errors reported in parentheses. This table reports results from OLS panel regressions of new business creation on the distance to the time and motion regulatory frontier. Business creation is defined as number of new businesses per 1,000 people in working-age. Country fixed effects are included in order to capture unobserved between-country differences. The estimations reported include controls for lagged GDP per capita growth, per-capita GDP, trade openness, corruption, credit to the private sector, FDI inflow, economic and political risk as well as civil freedoms. All specifications include time dummies to control for any global changes in the macroeconomic environment.

Table 5. Business entry and the strength of legal institutions supporting business regulations

VARIABLES	(1) newbiz	(2) newbiz	(3) newbiz	(4) newbiz	(5) newbiz	(6) newbiz	(7) newbiz	(8) newbiz
GDP per capita (log)	2.047**	2.057**	1.737**	1.844**	1.806**	1.501*	1.575*	0.865
	(2.467)	(2.472)	(2.264)	(2.347)	(2.175)	(1.736)	(1.706)	(0.969)
FDI		-0.00268	-0.00375	-0.00380	-0.00420	-0.00420	-0.00341	0.00259
		(-0.797)	(-1.211)	(-1.219)	(-1.331)	(-1.330)	(-1.056)	(0.997)
Political freedom and civil rights (FH)			0.216	0.234	0.286	0.299	0.369	0.399*
			(1.189)	(1.271)	(1.389)	(1.454)	(1.541)	(1.964)
Trade (X and M)				0.00670	0.00649	0.00626	0.00778	0.00127
				(1.300)	(1.165)	(1.124)	(1.231)	(0.212)
Corruption (CPI)					0.0750	0.0731	-0.0673	-0.0454
					(0.529)	(0.516)	(-0.376)	(-0.274)
Lagged GDP growth						0.0336	0.0375	0.0460
						(1.256)	(1.163)	(1.602)
Country risk (ICRG)							0.0169	0.0219
							(0.428)	(0.612)
Credit to private sector								0.0183***
								(5.284)
DTF (legal)	0.0202	0.0205	0.0387*	0.0388*	0.0394*	0.0401*	0.0564**	0.0507**
	(0.935)	(0.942)	(1.918)	(1.892)	(1.827)	(1.861)	(2.040)	(2.111)
Constant	-16.29**	-16.37**	-15.11**	-16.72**	-16.90**	-14.35*	-16.55**	-10.93
	(-2.277)	(-2.280)	(-2.287)	(-2.440)	(-2.342)	(-1.916)	(-2.011)	(-1.384)
Observations	832	829	821	808	782	781	646	548
R-squared	0.035	0.036	0.047	0.050	0.053	0.055	0.064	0.152
Number of cod2	123	123	122	121	120	119	94	93

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: ***(**)(*) denotes significance at the 1(5)(10) percent level. Standard errors reported in parentheses. This table reports results from OLS panel regressions of new business creation on the distance to the legal regulatory frontier. Business creation is defined as number of new businesses per 1,000 people in working-age. Country fixed effects are included in order to capture unobserved between-country differences. The estimations reported include controls for lagged GDP per capita growth, per-capita GDP, trade openness, corruption, credit to the private sector, FDI inflow, economic and political risk as well as civil freedoms. All specifications include time dummies to control for any global changes in the macroeconomic environment.

Table 6. Business entry and regulations affecting entry and exit

VARIABLES	(1) newbiz	(2) newbiz	(3) newbiz	(4) newbiz	(5) newbiz	(6) newbiz	(7) newbiz	(8) newbiz
GDP per capita (log)	1.999***	2.000***	1.754***	1.955***	1.975***	1.778**	1.916**	1.470**
	(2.921)	(2.913)	(2.814)	(3.073)	(2.903)	(2.523)	(2.573)	(2.037)
FDI		-0.00206	-0.00344	-0.00353	-0.00397	-0.00398	-0.00320	0.00271
		(-0.624)	(-1.147)	(-1.171)	(-1.299)	(-1.301)	(-1.025)	(1.058)
Political freedom and civil rights (FH)			0.149	0.168	0.217	0.230	0.251	0.281
			(0.948)	(1.058)	(1.236)	(1.306)	(1.254)	(1.647)
Trade (X and M)				0.0110**	0.0101**	0.0101**	0.0121**	0.00665
				(2.407)	(1.993)	(1.982)	(2.128)	(1.225)
Corruption (CPI)					0.0939	0.0965	-0.0533	-0.0208
					(0.765)	(0.786)	(-0.344)	(-0.147)
Lagged GDP growth						0.0257	0.0289	0.0353
						(1.071)	(1.030)	(1.418)
Country risk (ICRG)							0.00835	0.0246
							(0.241)	(0.786)
Credit to private sector								0.0165***
								(5.212)
DTF (entry/exit)	0.0274**	0.0274**	0.0354***	0.0371***	0.0400***	0.0398***	0.0355**	0.0341**
	(1.980)	(1.969)	(2.780)	(2.875)	(2.946)	(2.933)	(2.308)	(2.431)
Constant	-16.50***	-16.50***	-15.23***	-18.13***	-18.98***	-17.36***	-18.50***	-16.00**
	(-2.772)	(-2.763)	(-2.818)	(-3.229)	(-3.190)	(-2.829)	(-2.756)	(-2.484)
Observations	917	914	905	891	856	855	717	619
R-squared	0.055	0.056	0.065	0.073	0.075	0.077	0.080	0.159
Number of cod2	123	123	122	121	120	119	94	93

t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: ***(**)(*) denotes significance at the 1(5)(10) percent level. Standard errors reported in parentheses. This table reports results from OLS panel regressions of new business creation on the distance to the entry/exit regulatory frontier. Business creation is defined as number of new businesses per 1,000 people in working-age. Country fixed effects are included in order to capture unobserved between-country differences. The estimations reported include controls for lagged GDP per capita growth, per-capita GDP, trade openness, corruption, credit to the private sector, FDI inflow, economic and political risk as well as civil freedoms. All specifications include time dummies to control for any global changes in the macroeconomic environment.

Table 7. Business regulations and growth

	panel A									panel B								
VARIABLES	(1) growth	(2) growth	(3) growth	(4) growth	(5) growth	(6) growth	(7) growth	(8) growth	(9) growth	(10) growth	(11) growth	(12) growth	(13) growth	(14) growth	(15) growth	(16) growth	(17) growth	(18) growth
GDP per capita (log)	-5.017***	-5.024***	-3.870**	-5.160**	-5.087**	-5.157**	-6.566***	-6.416***	-8.565***	-4.922***	-4.924***	-3.794**	-5.093***	-5.033**	-5.117***	-6.496***	-6.338***	-8.366***
	(-3.206)	(-3.212)	(-2.042)	(-2.562)	(-2.504)	(-2.534)	(-3.055)	(-2.813)	(-3.047)	(-3.194)	(-3.196)	(-2.049)	(-2.598)	(-2.553)	(-2.594)	(-3.114)	(-2.875)	(-3.128)
FDI		0.000808	0.00110	0.000344	0.000494	0.000365	0.000214	0.000318	0.00243		0.000425	0.000537	-0.000356	-0.000149	-0.000327	-0.000445	-0.000219	0.00148
		(0.628)	(1.111)	(0.370)	(0.517)	(0.400)	(0.204)	(0.309)	(1.188)		(0.338)	(0.541)	(-0.358)	(-0.146)	(-0.330)	(-0.379)	(-0.187)	(0.727)
Country risk (ICRG)			0.124*	0.0900	0.0845	0.0868	0.0776	0.0797	0.136			0.118*	0.0848	0.0774	0.0782	0.0703	0.0719	0.120
			(1.886)	(1.324)	(1.292)	(1.367)	(1.190)	(1.219)	(1.628)			(1.910)	(1.323)	(1.244)	(1.294)	(1.119)	(1.138)	(1.482)
Government consumption				-0.258***	-0.227***	-0.222***	-0.161**	-0.173**	-0.163*				-0.255***	-0.223***	-0.218***	-0.160**	-0.172**	-0.163*
				(-3.052)	(-2.696)	(-2.662)	(-2.082)	(-2.173)	(-1.892)				(-3.080)	(-2.707)	(-2.663)	(-2.057)	(-2.157)	(-1.909)
Rents from natural resources					0.0341	0.0342	-0.00625	0.00516	-0.0283					0.0364	0.0369	-0.00270	0.00825	-0.0286
					(1.189)	(1.182)	(-0.206)	(0.167)	(-0.863)					(1.286)	(1.298)	(-0.0898)	(0.267)	(-0.874)
Political freedom and civil rights (FH)						0.313	0.357	0.370	-0.00820						0.290	0.331	0.350	-0.0640
						(0.715)	(0.858)	(0.870)	(-0.0200)						(0.638)	(0.766)	(0.790)	(-0.145)
Trade (X and M)							0.0617***	0.0591***	0.0547***							0.0590***	0.0564***	0.0515***
							(3.526)	(3.435)	(3.124)							(3.419)	(3.317)	(2.950)
Corruption (CPI)								-0.117	-0.375								-0.141	-0.413
								(-0.355)	(-0.854)								(-0.437)	(-0.951)
Credit to private sector									-0.0278									-0.0287
									(-1.170)									(-1.181)
Lagged GDP growth	0.448***	0.448***	0.426***	0.365***	0.356***	0.359***	0.330***	0.327***	0.274***	0.445***	0.445***	0.427***	0.371***	0.363***	0.365***	0.337***	0.335***	0.291***
	(10.84)	(10.84)	(6.830)	(4.857)	(5.060)	(5.047)	(4.800)	(4.780)	(3.140)	(11.09)	(11.10)	(7.124)	(5.145)	(5.427)	(5.436)	(5.109)	(5.129)	(3.498)
Delta DTF	-0.0282	-0.0291	0.0492	0.0756	0.0805	0.0817	0.0750	0.0802	0.0813									
	(-0.872)	(-0.900)	(0.964)	(1.335)	(1.438)	(1.435)	(1.365)	(1.415)	(1.306)									
Delta DTF (D2)										0.250*	0.252*	0.372**	0.390*	0.353*	0.374*	0.353*	0.286	0.363
										(1.672)	(1.678)	(2.002)	(1.932)	(1.710)	(1.802)	(1.723)	(1.400)	(1.388)
Delta DTF (D3)										0.272	0.266	0.397*	0.335	0.303	0.339	0.274	0.239	0.0477
										(1.461)	(1.422)	(1.735)	(1.440)	(1.313)	(1.453)	(1.234)	(1.035)	(0.168)
Delta DTF (D4)										0.297	0.293	0.773**	0.915***	0.929***	0.977***	0.808**	0.799**	0.830**
										(1.335)	(1.316)	(2.316)	(2.599)	(2.620)	(2.696)	(2.373)	(2.326)	(2.058)
Constant	45.62***	45.68***	30.23*	48.02***	46.77***	46.22**	53.39***	52.70***	73.99***	44.51***	44.54***	29.49*	47.33***	46.27***	45.96**	53.13***	52.54***	73.45***
	(3.289)	(3.295)	(1.853)	(2.663)	(2.599)	(2.517)	(2.801)	(2.703)	(3.044)	(3.256)	(3.258)	(1.840)	(2.690)	(2.642)	(2.566)	(2.856)	(2.768)	(3.143)
Observations	855	852	633	567	561	557	552	545	428	855	852	633	567	561	557	552	545	428
Number of cod2	175	174	130	122	122	121	120	118	115	175	174	130	122	122	121	120	118	115
chi2	138.6	138.4	167.3	135.0	163.9	160.4	106.7	113.8	92.57	134.6	134.7	158.5	123.3	154.8	152.4	108.4	112.7	89.27

Robust z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: ***(**)(*) denotes significance at the 1(5)(10) percent level. Standard errors reported in parentheses. This table reports results from Arellano-Bond dynamic panel estimator regressions of growth on the change in the distance to the overall regulatory frontier. The estimations reported include controls for lagged GDP per capita growth, per-capita GDP, trade openness, corruption, credit to the private sector, FDI inflow, economic and political risk as well as civil freedoms. All specifications include time dummies to control for any global changes in the macroeconomic environment. In order to check if the entity of the regulatory change matters for the impact on growth, Panel B reports an alternative set of specifications where the change in the overall distance to the regulatory frontier is replaced by set of dummy variables that divide economies in quartiles based on the magnitude of their yearly regulatory change.

Table 8. Growth and the strength of legal institutions supporting business regulations

VARIABLES	(1) growth	(2) growth	(3) growth	(4) growth	(5) growth	(6) growth	(7) growth	(8) growth	(9) growth
GDP per capita (log)	-4.998***	-4.999***	-4.025**	-5.400***	-5.353***	-5.416***	-6.799***	-6.678***	-8.940***
	(-3.222)	(-3.224)	(-2.170)	(-2.723)	(-2.668)	(-2.692)	(-3.202)	(-2.961)	(-3.214)
FDI		0.000725	0.000865	7.41e-05	0.000217	8.97e-05	-4.47e-05	3.98e-05	0.00215
		(0.575)	(0.921)	(0.0811)	(0.237)	(0.100)	(-0.0419)	(0.0379)	(1.127)
Country risk (ICRG)			0.114*	0.0805	0.0752	0.0773	0.0694	0.0715	0.131
			(1.727)	(1.177)	(1.148)	(1.213)	(1.066)	(1.096)	(1.560)
Government consumption				-0.253***	-0.223***	-0.218***	-0.159**	-0.170**	-0.163*
				(-3.020)	(-2.657)	(-2.625)	(-2.025)	(-2.117)	(-1.868)
Rents from natural resources					0.0344	0.0344	-0.00560	0.00593	-0.0292
					(1.194)	(1.186)	(-0.183)	(0.190)	(-0.889)
Political freedom and civil rights (FH)						0.290	0.335	0.347	-0.0393
						(0.646)	(0.787)	(0.797)	(-0.0922)
Trade (X and M)							0.0611***	0.0586***	0.0538***
							(3.475)	(3.385)	(3.050)
Corruption (CPI)								-0.0925	-0.325
								(-0.281)	(-0.749)
Credit to private sector									-0.0280
									(-1.173)
Lagged GDP growth	0.443***	0.443***	0.425***	0.366***	0.358***	0.360***	0.330***	0.328***	0.273***
	(10.73)	(10.74)	(6.861)	(4.921)	(5.117)	(5.103)	(4.857)	(4.806)	(3.121)
Delta DTF (legal)	0.0374	0.0368	0.0901**	0.0966**	0.0958**	0.0956**	0.0859**	0.0873**	0.0871**
	(1.464)	(1.438)	(2.218)	(2.318)	(2.340)	(2.308)	(2.188)	(2.197)	(1.982)
Constant	45.35***	45.36***	32.05**	50.62***	49.60***	49.06***	56.01***	55.48***	77.64***
	(3.300)	(3.302)	(2.019)	(2.853)	(2.793)	(2.700)	(2.976)	(2.884)	(3.233)
Observations	855	852	633	567	561	557	552	545	428
Number of cod2	175	174	130	122	122	121	120	118	115
chi2	153.7	154.5	175.1	136.1	165.7	161.5	113.9	119.2	99.85

Robust z-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: ***(**)(*) denotes significance at the 1(5)(10) percent level. Standard errors reported in parentheses. This table reports results from Arellano-Bond dynamic panel estimator regressions of growth on the change in the distance to the legal regulatory frontier. The estimations reported include controls for lagged GDP per capita growth, per-capita GDP, trade openness, corruption, credit to the private sector, FDI inflow, economic and political risk as well as civil freedoms. All specifications include time dummies to control for any global changes in the macroeconomic environment.

Table 9. Growth and entry and exit regulations

VARIABLES	(1) growth	(2) growth	(3) growth	(4) growth	(5) growth	(6) growth	(7) growth	(8) growth	(9) growth
GDP per capita (log)	-7.224***	-7.226***	-7.233***	-8.083***	-8.017***	-8.020***	-8.584***	-8.579***	-9.312***
	(-6.463)	(-6.479)	(-4.986)	(-5.595)	(-6.036)	(-5.960)	(-6.669)	(-6.594)	(-6.477)
FDI		0.00107	0.000882	0.000380	0.000470	0.000353	-0.000291	-0.000353	0.00168
		(0.742)	(0.971)	(0.367)	(0.455)	(0.350)	(-0.266)	(-0.332)	(1.051)
Country risk (ICRG)			0.193**	0.101	0.0915	0.0927	0.0875	0.0897	0.147*
			(2.456)	(1.605)	(1.460)	(1.510)	(1.369)	(1.407)	(1.904)
Government consumption				-0.216***	-0.187**	-0.186**	-0.147*	-0.156**	-0.140*
				(-2.862)	(-2.383)	(-2.386)	(-1.948)	(-2.020)	(-1.744)
Rents from natural resources					0.0543*	0.0542*	0.00948	0.0230	-0.00680
					(1.717)	(1.708)	(0.299)	(0.731)	(-0.201)
Political freedom and civil rights (FH)						0.150	0.173	0.203	0.0465
						(0.520)	(0.633)	(0.729)	(0.180)
Trade (X and M)							0.0540***	0.0526***	0.0479***
							(3.634)	(3.557)	(3.226)
Corruption (CPI)								0.0342	-0.206
								(0.136)	(-0.656)
Credit to private sector									-0.0143
									(-1.056)
Lagged GDP growth	0.462***	0.462***	0.401***	0.380***	0.366***	0.367***	0.355***	0.347***	0.312***
	(11.80)	(11.81)	(6.640)	(5.784)	(6.178)	(6.147)	(5.803)	(5.698)	(4.201)
Delta DTF (entry/exit)	0.0188	0.0187	0.0364**	0.0544***	0.0527***	0.0527***	0.0472***	0.0472***	0.0536***
	(1.337)	(1.323)	(2.389)	(3.267)	(3.013)	(3.035)	(2.907)	(2.850)	(2.802)
Constant	65.00***	65.02***	57.51***	73.38***	72.21***	71.61***	72.04***	71.88***	78.39***
	(6.564)	(6.580)	(4.078)	(5.357)	(5.793)	(5.709)	(6.235)	(6.308)	(6.336)
Observations	1,145	1,142	865	795	789	783	778	766	646
Number of cod2	176	176	132	126	126	125	125	124	122
chi2	142.9	143.1	223.4	201.0	211.6	212.4	138.3	141.7	122.8

Robust z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: ***(**)(*) denotes significance at the 1(5)(10) percent level. Standard errors reported in parentheses. This table reports results from Arellano-Bond dynamic panel estimator regressions of growth on the change in the distance to the entry/exit regulatory frontier. The estimations reported include controls for lagged GDP per capita growth, per-capita GDP, trade openness, corruption, credit to the private sector, FDI inflow, economic and political risk as well as civil freedoms. All specifications include time dummies to control for any global changes in the macroeconomic environment.

Table 10. Growth and credit regulations

VARIABLES	(1) growth	(2) growth	(3) growth	(4) growth	(5) growth	(6) growth	(7) growth	(8) growth	(9) growth
GDP per capita (log)	-7.337***	-7.339***	-6.732***	-8.078***	-8.048***	-8.084***	-9.175***	-9.279***	-11.10***
	(-5.221)	(-5.226)	(-3.727)	(-4.491)	(-4.689)	(-4.680)	(-5.116)	(-4.998)	(-5.332)
FDI		0.000659	0.000453	-7.04e-05	2.29e-05	-8.50e-05	-0.000461	-0.000591	0.00138
		(0.517)	(0.515)	(-0.0712)	(0.0242)	(-0.0884)	(-0.387)	(-0.498)	(0.885)
Country risk (ICRG)			0.190**	0.102	0.0923	0.0939	0.0882	0.0904	0.164**
			(2.355)	(1.560)	(1.446)	(1.500)	(1.357)	(1.400)	(2.020)
Government consumption				-0.202**	-0.169**	-0.167**	-0.116	-0.123	-0.113
				(-2.575)	(-2.063)	(-2.048)	(-1.420)	(-1.488)	(-1.316)
Rents from natural resources					0.0559*	0.0559*	0.00739	0.0202	-0.0180
					(1.716)	(1.704)	(0.221)	(0.606)	(-0.514)
Political freedom and civil rights (FH)						0.234	0.236	0.280	-0.0209
						(0.613)	(0.662)	(0.753)	(-0.0576)
Trade (X and M)							0.0634***	0.0622***	0.0577***
							(3.581)	(3.533)	(3.178)
Corruption (CPI)								0.159	0.0633
								(0.550)	(0.177)
Credit to private sector									-0.0158
									(-1.031)
Lagged GDP growth	0.429***	0.429***	0.382***	0.363***	0.348***	0.350***	0.323***	0.313***	0.256***
	(9.171)	(9.177)	(5.335)	(4.763)	(5.094)	(5.061)	(4.903)	(4.734)	(3.108)
Delta DTF (credit system)	0.0678***	0.0674***	0.136***	0.140***	0.140***	0.140***	0.123***	0.123***	0.126***
	(2.734)	(2.715)	(3.586)	(3.452)	(3.440)	(3.424)	(3.270)	(3.247)	(2.989)
Constant	66.03***	66.06***	53.10***	73.14***	72.24***	71.64***	75.99***	76.17***	91.90***
	(5.307)	(5.313)	(3.095)	(4.339)	(4.546)	(4.462)	(4.703)	(4.692)	(5.019)
Observations	1,004	1,001	751	682	676	671	666	656	537
Number of cod2	175	175	131	124	124	123	123	121	118
chi2	93.94	93.97	139.9	129.1	139.8	136.6	100.8	99.40	91.30

Robust z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: ***(**)(*) denotes significance at the 1(5)(10) percent level. Standard errors reported in parentheses. This table reports results from Arellano-Bond dynamic panel estimator regressions of growth on the change in the distance to the credit system regulatory frontier. The estimations reported include controls for lagged GDP per capita growth, per-capita GDP, trade openness, corruption, credit to the private sector, FDI inflow, economic and political risk as well as civil freedoms. All specifications include time dummies to control for any global changes in the macroeconomic environment.