

CHAPTER 2

The effects of business regulation

- ◆ Since 2003, nearly 4,000 articles using *Doing Business* data have been published in peer-reviewed academic journals and more than 10,000 working papers have been posted online.
- ◆ Improvements in firm entry regulation are associated with higher productivity.
- ◆ Better land property rights improve investment decisions by individuals.
- ◆ Court efficiency plays a major role in the process of economic development.

Doing Business provides annual cross-country data on how governments regulate business, enabling research on how regulation affects development. Thousands of empirical studies have assessed how the regulatory environment for business affects productivity, growth, employment, trade, investment, access to finance, and the size of the informal economy. Since 2003, when *Doing Business* was first published, numerous articles discussing how regulation in the areas measured by the study influences economic outcomes have been published in peer-reviewed academic journals. Over 10,000 additional working papers have been posted online.¹

Doing Business 2014 reviewed research articles—including those published in top-ranking economics journals between 2008 and 2013 or disseminated as working papers in 2012/13—that used *Doing Business* data for analysis or motivation.² This chapter updates that review, adding research articles published between January 2013 and July 2019.

Firm entry

Changes to start-up regulation affect the number and size of firms in the market. New firm entry results in higher productivity through the reallocation of resources from old to new firms. Fernandes, Ferreira, and Winters (2018) find that the entry-simplifying reform introduced in Portugal in 2005 boosted sectoral competition. Using employer–employee data for all private sector firms and workers in the country, they also find that higher competition is associated with better firm performance. Furthermore, greater market competition is associated with an increase of 6–11% in executive remuneration. Alfaro and Chari (2014) examine the effects of the “License Raj” reform in India on firm size distribution and resource reallocation. The authors find that the number of small firms increased in industries with easier start-up rules. They also observe an increase in the productivity of these sectors, suggesting a reduction in resource allocation distortions over the same period.

Meeting start-up requirements involves additional costs for firms. An implicit assumption is that firms benefit from start-up registration in the form of expanded access to credit—legal protection compensates for the additional costs of becoming formal. Testing this hypothesis using data from Benin, Benhassine and others (2018) find that start-up registration did not improve the sales or profits of an average firm. Testing the benefits of eased start-up regulation in Vietnam, however, Demenet, Razafindrakoto, and Roubaud (2016) find that the value added of firms increased by 20% on average.

Property transfer

Private land rights facilitate greater access to credit. Using enterprise data, Karas, Pyle, and Schoors (2015) evaluate the effect of greater land tenure security among large urban industrial businesses in the Russian Federation

and find that private land rights facilitate access to external financing and promote investment.

When property rights are not secure, fear of expropriation may drive entrepreneurs to make suboptimal investment decisions. Goldstein and others (2018) analyze the benefits of strengthening land property rights in rural Benin by examining the link between land demarcation and investment. The authors find that the land tenure security improvements of demarcation induce a 23–43% shift toward long-term investment on demarcated land parcels. They also find that improved tenure security leads households to shift their investment decisions from subsistence to perennial cash crops and that female-headed households are more responsive than male-headed households to the demarcation reform.

Reliability of electricity

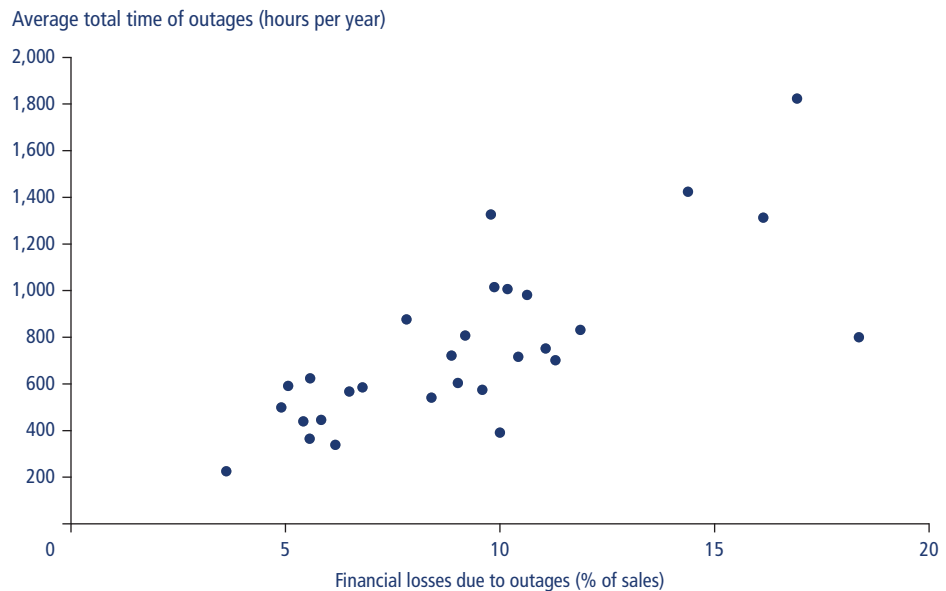
Power outages represent a significant obstacle to doing business in economies worldwide. An unreliable supply of electricity results in spoiled perishable goods, damage to sensitive equipment, and productivity losses. Firms adapt by buying generators and other expensive equipment to protect sensitive inventory and machinery. Allcott, Collard-Wexler, and O’Connell (2016) examine the effects of electricity shortages on input choices, revenue, and productivity in manufacturing plants in India between 1992 and 2010. The authors find that electrical shortages reduce the average plant’s revenue by 6–8%, and that producer surplus drops by 10%, of which roughly half is due to the cost of backup generators. Moyo (2013) investigates the relationship between power outages and manufacturing productivity in Africa in 2002–05 and finds a negative relationship between both the number of hours per day without electricity and the percentage of output lost due to outages and productivity.

Andersen and Dalgaard (2013) also focus on African businesses in estimating the impact of power outages on economic growth over the period 1995–2007. The authors find that a 1-percentage-point increase in outages decreases long-run GDP per capita by 3%. Using firm-level data for 14 Sub-Saharan African economies, Cole and others (2018) find that reducing average outage levels to those of South Africa would increase overall sales of firms by 85%, and the increase would rise to nearly 120% for firms without a generator (figure 2.1).

Labor market regulation

Changes in labor market regulation affect unemployment rates and labor force participation. Labor market regulation also determines firm productivity.

When set above the market equilibrium salary, minimum wages raise unemployment in competitive markets. Using data for 2001–09, Jales (2018) finds that the introduction of a minimum wage in Brazil is

FIGURE 2.1 Reducing power outages boosts overall firm performance

Source: Cole and others 2018.

Note: Financial losses are positively correlated with the average total time of outages.

associated with a 39% increase in informal employment. Yamada (2016) finds that the introduction of a minimum wage in Indonesia resulted in a reduction in both hours of work and employment. Although noting an increase in earnings among low- and middle-income households, the author concludes that the welfare gain resulting from raising the minimum wage is negligible.

Alvarez and Fuentes (2018) find that a minimum wage increase in Chile under rigid labor market regulation is partially responsible for a slowdown in manufacturing productivity in the late 1990s. The authors estimate that a real increase of about 22% in the minimum wage during the period 1998–2000 reduced total factor productivity by 2% in industries with fewer unskilled workers and 4% in those with more unskilled workers. Bjuggren (2018) finds that increased labor market flexibility in Sweden is associated with higher labor productivity. In particular, the author examines the effects of a 2001 reform of employment protection rules that allowed firms with fewer than 11 workers to exempt 2 workers from seniority rules (under which the last person hired is the first to be fired in the case of redundancy).

Amirapu and Gechter (2019) find that restrictive labor regulation in India is associated with a 35% increase in firms' unit labor costs. Kawaguchi and Muraio (2014), using data from high-income economies from 1960 to 2010, find that the persistence of youth unemployment is positively correlated

with labor market rigidity. A study by Acharya, Baghai, and Subramanian (2013) suggests, however, that limited labor market rigidity in some high-income economies is positively correlated with firm innovation, primarily because job stability boosts employee innovation.

Changes to labor market regulation are associated with changes in credit markets. Alimov (2015) analyzes the impact of employment protection regulation on bank lending in 25 high-income economies and finds that increases in employment protection lead to greater loan spreads. He also finds that increases in employment protection result in bank loans that are significantly smaller and have shorter maturities.

Trade regulation and costs

The *Doing Business* indicators on trading across borders measure the time to clear official procedures, including customs controls. A growing body of literature uses these data. Martincus, Carballo, and Graziano (2015) measure the effects of customs-related delays on firms' exports by studying export transactions data from Uruguay for the period 2002–11, including the actual time it took for these transactions to clear customs. Their findings suggest that a 10% increase in customs delays results in a 4% decline in exports. This effect emanates from higher costs for exporters, which subsequently reduce their foreign sales, as well as for buyers, which appear to reduce their exposure to firms whose deliveries are subject to such delays. Similarly, Hornok and Koren (2015) analyze the impact of administrative per-shipment costs on trade volumes. Employing Spanish shipment-level export data for the period 2006–12, the authors find that a 50% reduction in per-shipment costs is equivalent to a 9-percentage-point reduction in tariffs.

Court efficiency

Judicial reforms targeting the quality, speed, and access of the judiciary favor improvements in productivity and economic development. Chemin (2018) finds that these reforms improved firm productivity by 22% in sectors requiring more relationship-specific investments.

Judicial efficiency is essential to firm productivity. Ahsan (2013) uses firm-level data from India to study the complementarities between the speed of contract enforcement and tariff liberalization. His findings suggest that the gains in productivity from a reduction in input tariffs are highest for firms in economies with the most efficient courts.

Gianfreda and Vallanti (2017) analyze the impact of court delays in settling labor disputes in Italy. The authors argue that delays in trials of labor disputes increase firing costs. They also show that the rate of job turnover is significantly lower in judicial districts with longer trials.³

Efficient courts improve financial markets. Ponticelli and Alencar (2016) find that firms operating in Brazilian municipalities with less congested civil courts experienced a larger increase in the use of secured loans. In the years following a reform that increased the protection of secured creditors, firms also experienced a significant increase in investment and output value. These results underscore the importance of the timely enforcement of creditors' rights by the courts to improve access to finance.⁴

Faster and cheaper access to justice reduces some of the obstacles faced by entrepreneurs. Lichand and Soares (2014) analyze the creation of special civil tribunals in São Paulo in the 1990s that expanded the geographic presence of the justice system, simplified judicial procedures, and increased the speed of dispute adjudication. They find that the implementation of the tribunals led to higher rates of entrepreneurship among individuals with higher levels of education.

Better access to long-term debt reduces the volatility of firm growth. Demirgüç-Kunt, Horváth, and Huizinga (2017) examine this link using firm-level data for 47 developing economies over the period 1995–2013. They find that better credit information systems and contract enforcement mechanisms supporting credit markets improve firm access to long-term finance.

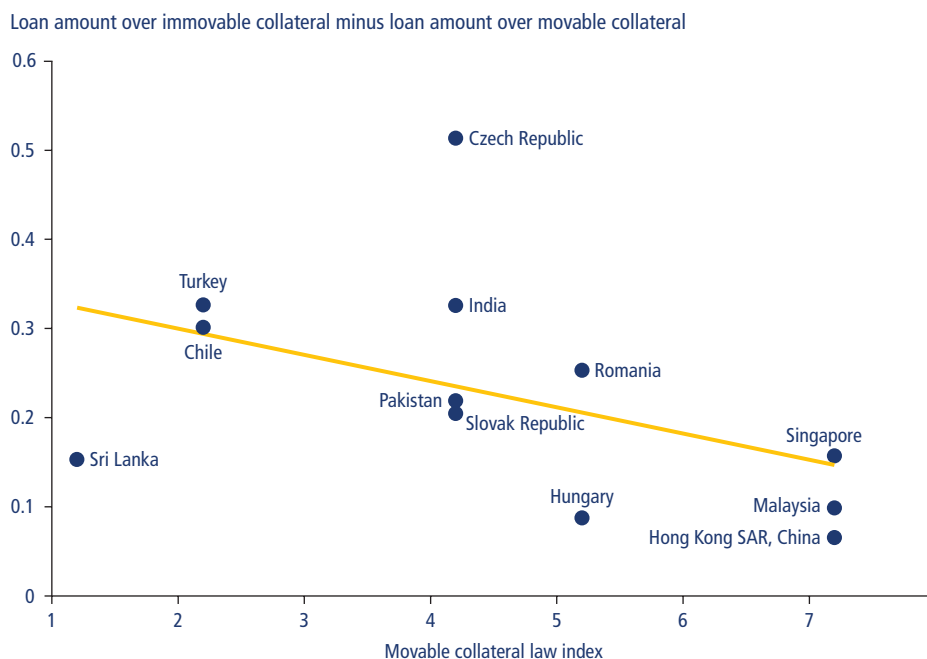
Bankruptcy costs play a major role, during both crises and recoveries. Ordoñez (2013) argues that lending rates, investment, and output (measured by real GDP per capita) fall quickly during a crisis, but slowly during a recovery. This asymmetry is stronger in economies with greater bankruptcy costs (measured by the cost of bankruptcy, bankruptcy duration, and the recovery rate).

Chakraborty (2016) argues that higher-quality institutions help firms to invest in institutional-dependent inputs, which might affect a firm's performance. The author finds that, in India, judicial quality is a significant determinant of higher firm performance, for both exports and domestic sales. A conservative estimate suggests that a 10% increase in judicial quality increases firm sales by 1–2%.

Creditors' rights

Calomiris and others (2017) study the link between creditors' rights and credit from banks using microlevel data for 12 emerging market economies (figure 2.2). The authors posit that legal systems for movable collateral are usually weak—they limit the scope of the movable assets that can be used as collateral, lack centralized registries, and require court orders to enforce defaults. When the protection of creditors' rights for movable collateral improves, however, banks lend one-third more using the same level of collateral. The authors test which of the components (creation, monitoring, or enforcement) matter more and find that the monitoring and enforcement components are the most relevant, implying that the results are driven by the existence of collateral registries and the possibility of out-of-court enforcement, and not by the mere existence of laws.

FIGURE 2.2 Better protection of creditors' rights over movable assets is associated with a greater supply of movable-collateralized loans, relative to immovable assets



Source: Calomiris and others 2017.

Note: The movable collateral law index is based on seven of the eight components of the *Doing Business* strength of legal rights index published until 2013. The vertical axis measures the difference between the average loan-to-value of GlobalBank's loans backed by immovable assets and movable assets (machinery, inventory, and accounts receivable). Average for the period 2002–04.

Better protection of creditors' rights benefits firms, as long as the protections improve the efficiency of credit markets and access to funding. Berkowitz, Lin, and Ma (2015) study the complementarity between creditors' rights and firms' protections against the potential expropriation of their assets. Using data from China, the authors find that a reform reducing expropriation risks and improving creditors' rights led to an increase in firm value. By analyzing a securitization reform in India, however, Vig (2013) finds that the strengthening of creditors' rights introduces distortions that require firms to alter their debt structures by increasing liquidity.

Credit information

Credit information systems are intended to reduce the challenges of asymmetric information between borrowers and lenders. With the right infrastructure and regulation, credit bureaus allow lenders to identify the risks associated with borrowers. Doblas-Madrid and Minetti (2013) find that information sharing reduces contract delinquencies and defaults.

Specifically, lenders joining the bureau experience a drop of 23–30 days in the maximum number of days a borrower’s payment is late (and a reduction of 6 days in the average number of days a payment is late). Furthermore, lenders joining the bureau were between 7% and 9% less likely on average to experience a serious delinquency (90 days or more past due); an even larger decline was observed in the probability of a major default event (such as debt collection or legal action). Dierkes and others (2013) find that business credit information sharing improves the quality of default predictions for German firms, especially for older firms and those with limited liability.

Firms identified as low risk by credit information systems enjoy better access to credit. For example, using firm-level data and credit scores for Belgian manufacturing firms between 1999 and 2007, Muûls (2015) finds that firms export and import more when they have better credit ratings and face lower credit constraints. The author argues that a firm’s negative financial situation might make its overseas suppliers reluctant to trade with the firm, thereby affecting its imports. Being credit-constrained also prevents firms from overcoming the fixed costs associated with exporting and importing.

Other economic agents benefit indirectly from credit bureau signals. Beck, Lin, and Ma (2014) study the link between tax evasion and financial sector outreach using data for more than 64,000 firms across 102 economies for the period 2002–10. The authors show that firms evade taxes to a lesser degree in economies with better credit information sharing systems. This effect is stronger for smaller firms, firms in smaller cities and towns, as well as those operating in industries that rely on external financing, and in industries and economies with greater growth potential.

Shareholders’ rights

Strong shareholders’ rights are critical for the efficient operation of stock markets. Claessens, Ueda, and Yafeh (2014) study the relationship of those rights with the cost of capital using data from 40 economies for the period 1990–2007. The authors find that well-defined and well-enforced shareholders’ rights reduce the overall cost of capital, especially for expanding or distressed firms. They also find that the extent of creditors’ rights does not have significant effects on the cost of capital. Houston, Lin, and Xie (2018) study the link between the corporate cost of capital and shareholder protection laws in the United States. On the basis of a sample of about 5,000 public firms between 1985 and 2013, they find that weakened litigation rights for shareholders increase firms’ implied cost of capital by approximately 5% above the sample median.

Shareholders’ rights are positively associated with economic growth. Brown, Martinsson, and Petersen (2013) find that firms with strong shareholder’s rights and better access to financing from their shareholders are more likely to invest in research and development. The analysis is based on a sample of 32 high- and middle-income economies.

When lending is limited during banking crises, stock markets provide an alternative source of funds for firms. Levine, Lin, and Xie (2016) study this relationship using data for 36 economies from 1990 to 2011 and find that stock markets better mitigate the challenges of a crisis when stronger shareholder protection laws are in place. Economic crises tend to reduce firm value. Jenwittayaroje and Jiraporn (2019) find that having independent directors significantly improved firm value (by roughly 4%) during the recession of 2008. Cremers and Ferrel (2014) find a robustly negative association between restrictions on shareholder rights and firm value using data from the United States.

Tax regulation

Using data from Pakistan for the 2006–11 period, Waseem (2018) finds that following a tax increase firms react by underreporting profits, moving to the informal economy, or changing their legal form. Also, even though tax revenue was higher immediately after the tax increase, three years later it was below initial levels.

Belitski, Chowdhury, and Desai (2016) investigate the interaction between corruption and corporate income tax rates across a panel of 72 economies in the period 2005–11 and find that higher tax rates consistently discourage entry. They also find that corruption offsets the negative influence of high taxes on entry. Rocha, Ulyssea, and Rachter (2018) find that reducing taxes once registration costs have been eliminated reduced firm informality in Brazil; however, this effect comes mainly from the registration of existing firms and not from the creation of new formal businesses.

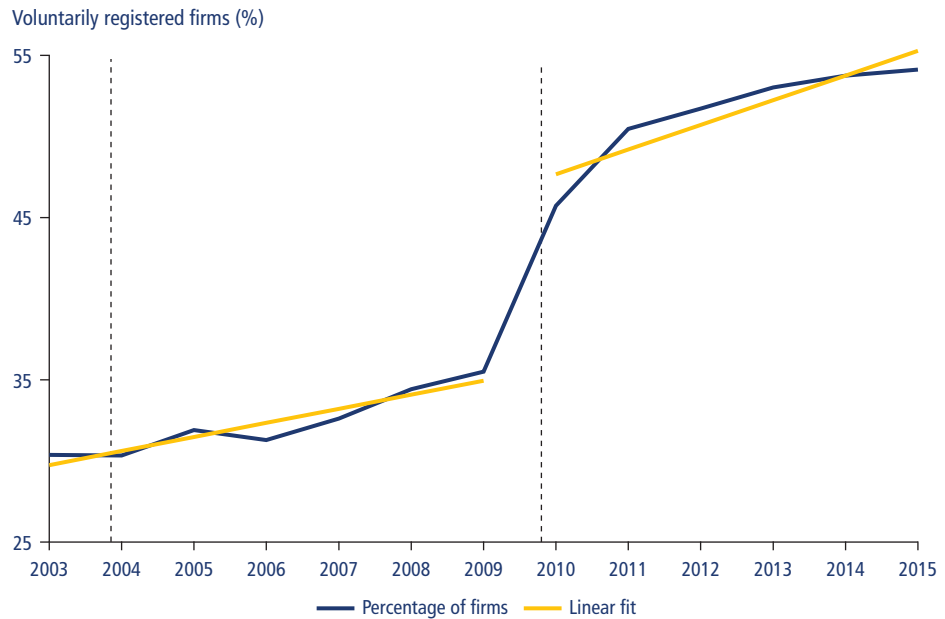
Harju, Matikka, and Rauhanen (2019) show that high compliance costs produce reactions from entrepreneurs similar to those associated with changes in tax rates (figure 2.3). Using evidence from value added tax filings in Finland, the authors find that an increase in sales is the result of a reduction in compliance costs rather than the level of the value added tax rate.

Esteller-Moré, Rizzo, and Secomandi (forthcoming) study the extent to which taxes matter in directing foreign direct investment (FDI) inflows and find that there is heterogeneity between Organisation for Economic Co-operation and Development (OECD) and non-OECD economies. Using the dataset produced by Djankov and others (2010), the authors show that taxes in non-OECD countries affect FDI flows, whereas they have no significant impact in OECD countries.

Foreign direct investment

Doing Business measures regulation from the point of view of domestic entrepreneurs. The efficiency of regulation affecting domestic firms, however, is correlated with regulation affecting FDI. Corcoran and Gillanders

FIGURE 2.3 The percentage of voluntarily registered firms in Finland increased after the reduction in compliance costs



Source: Harju, Matikka, and Rauhanen 2019.

Note: Value added tax registration is defined separately for each entrepreneur in each year. The vertical line before 2004 shows the tax rate reform introducing a VAT relief scheme. The line before 2010 shows the year where the reduction in compliance costs occurs.

(2015) study this connection and find a strong correlation between foreign investment and the ease of doing business ranking for the period 2004–09. They also find that this result is primarily driven by the *Doing Business* ease of trading across borders component.

Munemo (2014) also studies this connection using data for 138 economies over the period 2000–10. The study finds evidence that foreign investment crowds out domestic investment in economies with entry regulation costs above a certain level. This evidence suggests that reforming business start-up regulation plays a role in enhancing the complementarity between foreign and domestic business activity.

The complexity of tax systems is a major determinant of FDI. Lawless (2013) studies this relationship using data from 16 high-income source economies and 57 host economies. The author finds that the number of payments and time to comply with tax obligations have significant negative effects on whether foreign investment flows are present. Specifically, a 10% reduction in tax complexity is comparable to a 1% reduction in the effective corporate tax rate.

Overall business regulatory environment

The *Doing Business* indicators correlate with different outcomes of interest to policy makers. Kraay and Tawara (2013) evaluate this relationship with data for all *Doing Business* topics and all economies and find that quantifying the partial effects of indicators on relevant outcomes is challenging. Using data for 189 economies for the period 2005–13, however, Djankov, Georgieva, and Ramalho (2018) find that business-friendly regulation is correlated with a lower poverty head count at the economy level. This association is significant using *Doing Business* data on getting credit and enforcing contracts. Additional analysis suggests that the conduit for poverty reduction is business creation, both as a source of new jobs and as a manifestation of thriving entrepreneurship.

Summary

Changes that improve regulatory efficiency have positive effects on entrepreneurship, firm formalization, access to credit, and FDI.

Still, questions remain. First, what is the complementarity of different regulatory reforms? *Doing Business* data tell us which reforms politicians make together. Research needs to tell us whether this is the right combination of reforms for improved economic and social outcomes. Second, how do some economies reform regulation consistently over an extended period? In other words, does democracy—and frequent changes in government—incentivize more or less reform? Finally, what is the profile of the reformers: young or more experienced politicians, officials facing economic crises or an extended period of stability? The answers to such questions may teach us about the logic of regulatory reform.

Notes

1. Based on searches for citations in the nine background papers that form the basis of the *Doing Business* indicators in the Social Science Citation Index and Google Scholar (<http://scholar.google.com>).
2. The exception to this rule is Djankov, McLiesh, and Ramalho (2006) because they examine the impact of overall business regulation on economic growth.
3. For example, a difference in trial length between the 5th and 95th percentile is associated with a difference of almost 60% in job turnover.
4. Favara and others (2017), however, find that, for distressed firms in particular, imperfect enforcement of debt contracts in default reduces shareholder-debtor conflicts and induces leveraged firms to invest more and take on less risk as they approach financial distress.

