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# The Effects of Business Environments on Development: Surveying New Firm-level Evidence

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*In the past decade, the World Bank has promoted improving business environments as a key strategy for development, which has led to a significant effort in collecting surveys of the investment climate at the firm level across countries. The author examines the lessons that have emerged from the papers using these new data. The key finding is that the effects of business environments are heterogeneous and depend crucially on industry, initial conditions, and complementary institutions. Some elements of the business environment, such as labor flexibility, low entry and exit barriers, and a reasonable protection from the “grabbing hands” of the government, seem to matter a great deal for most economies. Other elements, such as infrastructure and contracting institutions (that is, courts and access to finance), hinge on their initial status and the size of the market. JEL codes: K2, L5, L1, O1*

Recently policymakers and multinational organizations have increasingly focused on a sound investment environment as a strategy for economic development (Stern 2002; World Bank 2005). It is difficult to define the “investment climate” or the “business environment” precisely,<sup>1</sup> but Stern (2002) notes that it is the “policy, institutional, and behavioral environment, both present and expected, that influences the returns, and risks, associated with investment” in a specific location. In other words, the business environment covers whatever external environment that affects the returns and risks faced by investors. This general definition includes three broad categories.<sup>2</sup> The first category covers macroeconomic aspects such as fiscal, monetary, and exchange rate policies, which clearly affect investors’ returns. High tax rates, for example, would lower return, while

inflation would increase the variability of returns. The second category includes governance, institutions, and political stability. Rule of law, for instance, affects investors' decisions about how much to invest and what organizational form it should take. Institutions also include informal ones, such as the general level of trust, social capital, and social network (North 1990; Knack and Keefer 1997; Zak and Knack 2001; Shirley 2008), which would facilitate new transaction relationships and, therefore, firm expansion. The final category includes infrastructure necessary for productive investment, such as transportation, electricity, and communications. I discuss the effects of the second and third categories of the business environment, which include government policies and behavior related to the provision of infrastructure, tax burdens, protection of property rights, labor, and entry regulations (World Bank 2005).

Identifying the effects of the business environment is difficult. The first difficulty concerns measurement problems (for example, eliciting truthful responses about corruption). For a long time the available data have been only at the country level. But multicollinearity about various aspects of the business environment is particularly severe at this level. For instance, among the commonly used cross-country International Country Risk Guide (ICRG) governance indicators, the correlation coefficient between the rule of law and the control of corruption is 0.62 between 1996 and 2007. Identifying the business environment effects at the cross-country level thus becomes particularly difficult. This shortcoming can be partially overcome with firm-level data, which often allow us to go further than cross-country and cross-industry data.<sup>3</sup> Of great help are the vast variations within a country. The average tax burden in inland Chinese provinces, for instance, is twice that of coastal areas (Cai, Fang, and Xu forthcoming). To understand the effects of tax burden on firm performance using firm-level data, one can take advantage of within-country variations, while holding the legal system (and therefore *de jure* institutions) constant.<sup>4</sup> Moreover, some key measures of a country can be obtained only with firm-level data (Bigsten and Soderbom 2006). For example researchers have often used dispersion of productivity within an industry of a country to capture industry-level competition, which can be constructed only by exploiting firm-level data. And to understand what types of firms are credit constrained or particularly vulnerable to government expropriation, only firm-level data can be relied on. Unfortunately very little comparable firm-level data was available in developing countries—until now.

The past 10 years have witnessed an explosion of firm-level evidence on the effects of business environments, an explosion due partly to the data efforts of the World Bank, mainly the World Bank Enterprise Surveys (also known as the Investment Climate Surveys).<sup>5</sup> These data efforts lead to consistent measures of business environments, which, in turn, usher in a substantial new literature on

how business environments affect development at the firm level. To push the research forward, it is helpful to review what lessons have been learned.

I will survey the evidence on how business environments affect economic development. Given the vastness of this task, one has to be selective. Thus I will focus on firm-level research related to the World Bank Investment Climate Surveys—with occasional discussions of outside firm-level research that are particularly relevant to our topic. This would automatically leave out studies based on the complementary Doing-Business Survey of the World Bank. A benefit of this omission is that we can focus exclusively on *de facto* institutions or regulations (in the case of Investment Climate Surveys) while ignoring new issues related to *de jure* institutions or regulations (in the case of Doing-Business Surveys) (Hallward-Dreimier, Khun-Jush, and Pritchett 2010). Several topics are too broad to cover, but there are excellent surveys already done and not much is lost in skipping them. The skipped topics include the effects of large-scale privatization and the effects of reforms in access to finance and corporate governance.<sup>6</sup> Almost all investment climate surveys are cross-sectional in nature, with the notable exception of the Business Environment and Enterprise Performance Survey (BEEPS) in Eastern Europe and investment climate surveys in a few countries such as India. However, since institutions and investment climates change slowly, the attempt to identify the effects of the investment climate relying on within-country across-time variations in a short timespan is unlikely to go far (Griliches and Hausman 1986). Not surprisingly, I am unaware of any solid firm-level empirical studies using panel investment climate surveys that have been conducted so far.

The most common mode of identification with cross-sectional firm-level data is to construct proxies of the local or national business environment by using city- or country-level measures of access to finance, tax burden, corruption, labor flexibility, and so on, and then relate them to firm performance. In the case of country-level measures of business environments, multiple-country data have to be used. A variety of robustness checks are often used to ensure the robustness of the key findings. Often, omitted city-level or country-level proxies (such as the level of development and other aggregate-level variables) are added to ensure the robustness of the results (Cai, Fang, and Xu forthcoming). Alternatively instruments for key business environment measures are used. An example is to use the distance from surrounding enforcement offices to instrument the enforcement of regulations (Almeida and Carneiro 2009). Another common method of identification in this literature is the difference-in-difference approach using cross-country cross-industry data, in which the more disaggregated outcomes are regressed toward country dummies, industry dummies, and an interaction term of country-level treatment with an industry-level sensitivity variable.<sup>7</sup> The idea is that “more sensitive” industries should be more affected by the treatment. By controlling for country and industry dummies, all country- and industry-specific

factors are controlled for, which makes this method more convincing and less subject to the omitted variable bias than most other cross-sectional estimations. If the interaction term proves to be significant, more sensitive industries are indeed responding as predicted to the treatment, supporting the notion of causality from the treatment to the outcome, especially for the sensitive type. Often sensitivity checks are applied—in which more interaction terms of the treatment with other industry-level variables are used—to make sure that it is indeed “the sensitivity variables” rather than the robust-check variables that cause the original interaction term to be statistically significant.

Given the cross-sectional nature of the investigations, and questionable validity of many exclusion restrictions needed to construct instrumental variables, most research using the investment climate data cannot establish causality convincingly. Invariably the estimations suffer from reverse causality, omitted variable bias, and other issues. The results should therefore be interpreted as a collection of correlations. To the extent that the results are robust across similar contexts, or consistent with plausible theories, the conclusions are more credible.

Since the conclusions related to the effects of the business environment for each individual study have to be tentative, it is even more imperative to summarize existing evidence and seek a coherent storyline to tie them together. As the reader will see, the body of correlations gathered from the studies does point to a plausible story: the effects of the business environment vary across industry, complementary institutions, and initial conditions. Some elements of the business environment turn out to loom large in most economies, such as a basic protection of property rights against government expropriation, labor flexibility, and low entry and exit barriers, which are found invariably to be important in explaining economic performance in various economic contexts. Other elements, such as infrastructure and contracting institutions, hinge critically on initial conditions. Infrastructure, for instance, is found to matter much more in countries with a low initial stock of infrastructure, while the quality of courts and access to finance are more important in richer countries.

I will first offer a simple framework of the effects of business environment reforms. I then summarize the evidence from specific areas of reforms: physical infrastructure, property rights, labor regulation, then entry regulation. In the final section I conclude and offer policy implications.

## A Simple Framework of Heterogeneous Effects of Business Environment Reforms

The effects of the business environment often differ by specific contexts and there are often country-specific bottlenecks (Kremer 1993; Shleifer 2005). For my purpose,

it is useful to consider three types of fundamentally different government–business relationships and associated business environments to attain desirable social outcomes: market discipline, private litigation, and public enforcement through regulation (Shleifer 2005).<sup>8</sup> This order represents an increase in public control over economic activity and increasingly state-dominated business environments, highlighting a delicate tradeoff between disorder and dictatorship. The further down the list, the lower is the chance of disorder and the stronger the danger of dictatorship. The optimal strategy will depend on specific economic and institutional circumstances and may differ even across industries within the same country.

### *Market Discipline*

Market discipline—relying mainly on market competition between firms without depending on either litigation or government regulation—is the best strategy when it proves to be sufficient to control disorder and to avoid Hobbesian anarchy, such as through the reputation mechanism and the natural death of inefficient firms. The lack of need for regulating entry for most industries is a case in point. Most entering firms are small, and they cannot survive when they prove to be inefficient in satisfying customer needs with low costs. So we can rely on market competition (without explicit government regulations) in shaping entrepreneurial qualities.

### *Private Litigation*

Another option for enforcing good conduct is through the legal system, such as using litigation and courts. Courts have the advantage of potentially apolitical or experienced judges in dealing with specialized economic cases. But courts entail disadvantages as well. The judges can be subverted through bribes, can be influenced by politics when they are appointed by the government, and the strong and not the just may win the cases because of unequal distributions of resources. Moreover, in many developing countries, formal and lengthy procedures hamper the effectiveness of dispute resolutions. This legal solution would likely fail when there is a severe unequal distribution of resources and when historical heritages and the level of development do not allow a well-functioning legal system.

### *Public Enforcement*

Public regulation could partially solve this problem. The advantages are that regulators, being experts, can impose better rules and that the government can provide incentives to ensure socially desirable outcomes. The disadvantages are two. Industries featuring concentrated interests (relative to consumers) can

capture regulators to preserve monopoly power and prevent entry (Stigler 1971; Peltzman 1976). Regulators can also abuse power to pursue self-interests. Since the check on government and regulators are particularly weaker in developing countries, regulations there are less attractive in general.

Although Shleifer's framework offers useful guidelines for the optimal choice of business environments, there is no one-size-fits-all recipe for the choice (Kremer 1993; Rodrik 2007; Lin 2009). Countries often differ in areas with the largest reform payoffs, and there are often development "bottlenecks," which conjures up the image of the famous failure of the space shuttle *Challenger*: with thousands of components, it "exploded because it was launched at a temperature that caused one of those components, the O-rings, to malfunction" (Kremer 1993). When production technologies feature strong complementarities for production factors or elements of business environments, a bottleneck such as poor infrastructure would reduce the return to all other production factors. This, in turn, would lead to lower incentives for workers to improve skills and to invest in human capital, which further reduce the output of the local economy and make infrastructure investment increasingly nonlucrative. Thus a bottleneck may trap a local economy in a poor equilibrium.<sup>9</sup>

A manifestation of the bottleneck hypothesis is the existence of policy complementarity (Kremer 1993). Do we have any supporting evidence in the development context? A piece of such evidence is the complementarity between entry regulation and labor flexibility in India. The effects of India dismantling the License Raj (that is, a system of central controls regulating entry and production activity in manufacturing) in the 1980s and 1990s were found to depend on a state's labor regulations. After painstakingly careful empirical work relying on distinct timings of the national reform in different states, Aghion and others (2008) concluded that License Raj had no effects on average. However, after delicensing, industries located in states with pro-employer labor market institutions grew significantly faster than those in pro-worker environments. There was, therefore, complementarity between product market deregulation and labor market flexibility.

## Infrastructure

Policymakers and development economists often view infrastructure (for example road, power, communication, and customs) as necessary for economic development. Good infrastructure allows firms to have lower transport and communication costs and therefore lower total costs to compete with their rivals and to export. A larger extent of the market due to a better infrastructure also facilitates a greater scope for specialization, which further reduces unit production costs. Increasing complexity of transactions enabled by better infrastructure facilitates

the need for new institutions (for example the courts), which then reduce future agency costs for trade (Demsetz 1967). Yet how infrastructure affects firm performance remains understudied, though several recent studies do shed light on this key issue.

Infrastructure is found to be the most important factor in explaining firm performance in Bangladesh, China, Ethiopia, and Pakistan (Dollar, Hallward-Driemeier, and Mengistae 2005). Using the World Bank Enterprise Survey data for these countries, these authors study how the business environment affects firm performance, including total factor productivity (TFP), wages, profits, growth rates of output, employment, and fixed assets. The measures of business environments include several proxies for infrastructure (for example custom efficiency, power loss, and the number of days to install phones), the share of firms with overdraft access, and the number of times per year that they are visited by government inspectors. The business environment affects TFP because better local governance allows the same bundle of inputs to produce more outputs due to lower transportation and transaction costs and a better protection of property rights.

Why does a better business environment lead to higher wages and profits? For countries in the same specialization cone, factor endowment decides trade structure (Schott 2003). To compete with more efficient producers (with better business environments), countries with worse business environments can only afford lower factor prices to stay competitive—resulting in lower wages (for labor) and profits (for capital owners).

Why do better business environments lead to higher growth rates? A better business environment causes higher returns to capital, which, in turn, engenders a higher investment and growth rate initially before eventually reaching a steady state.<sup>10</sup> Since firm-level measures of the investment climate may be endogenous—for example more profitable firms may have a better connection with government officials and may therefore face systematically more or less government harassment—Dollar, Hallward-Driemeier, and Mengistae use the location-sector average of the investment climate proxies to measure the local business environment. They also control for country dummies. This approach mitigates two issues: (i) firm measures of business environment may be closely related to omitted variables at the firm level; (ii) firm answers on the investment climate may be responses to rather than causes of firm outcomes. However, the issue of omitted location-sector-level variables remains—the local investment climate proxies may merely represent other local omitted factors. With this caution in mind, the authors find broad patterns that business environments improve productivity and give workers and investors higher returns and higher growth rates. But among the business environment indicators, the three indicators of infrastructure (power loss, phone days, and custom delays) are the most important. Similarly infrastructure (as captured by power) enhances firm performance in Bangladesh (Fernandes 2008).

Good infrastructure is also found to facilitate international integration. Using a sample of firms in Bangladesh, Brazil, China, Honduras, India, Nicaragua, Pakistan, and Peru, [Dollar, Hallward-Driemeier, and Mengistae \(2006\)](#) examine how the business environment affects international integration. Relying on within-country variations by controlling for country effects—and using the city-level average of the investment climate measures as proxies of the local business environment—the authors find that good infrastructure explains foreign ownership and exporting.

The effects of physical infrastructure seem to differ by countries. China is richer than most of the countries mentioned earlier that feature positive infrastructure effects, and China has invested a large amount of money on physical infrastructure. Using within-China variations, [Hallward-Driemeier, Wallsten, and Xu \(2006\)](#) find that their proxies of physical infrastructure at the city level are not significantly associated with firm performance. Thus the positive association between infrastructure and firm performance seems to be particularly strong in countries with a worse stock of infrastructure—due perhaps to its decreasing marginal return.

## Property Rights

Cross-country evidence suggests that countries with worse property rights tend to have lower aggregate investments, worse access to finance, and slower economic growth ([North 1990](#); [Knack and Keefer 1995](#); [La Porta and others 1997, 1998, 2000](#); [Acemoglu, Johnson, and Robinson 2001](#)). However, micro support for the positive relationship between property rights and economic performance would be helpful in strengthening the case. With only macro evidence, it could be institutions causing growth or institutions following growth. Indeed, [Glaeser and others \(2004\)](#) find that human capital is a more basic source of growth than are institutions, and that poor countries get out of poverty through good policies, often initiated by dictators, and subsequently improve their political institutions.<sup>11</sup> Further complicating the matter, property rights at the country level are often subjective and not precisely defined and measured. The ICRG measure of corruption, for instance, is ordinal, going from 1 to 6, and the increases of one point at different initial points do not have the same meaning. How these numbers are constructed remains a black box. Yet micro measures of corruption—such as the ratio of bribes to sales—are directly comparable across countries. Indeed, whether tax or corruption are more damaging, an issue of great concern for the literature of corruption, is more naturally studied in a micro setup, in which corruption can be measured as bribes over sales, with the same unit as tax burdens (that is, total taxes paid over sales). Their coefficients are then directly comparable.



## *The Importance of Property Rights*

Recent firm-level studies of property rights in transition suggest that the importance of property rights likely depend on the stage of transition. In the early stages, property rights are found to be overwhelmingly important by [Johnson, McMillan, and Woodruff \(2002\)](#), who use a 1997 sample of firms from Poland, Romania, Russia, Slovakia, and Ukraine to study the relative importance of property rights and finance. The sample consists of relatively small yet profitable firms (with 7 to 270 employees). After-tax profits over sales, ranging from 5.7 percent in Slovakia to 21 percent in Russia, are high because of unfulfilled market niche, entry barriers, and immature transitions. A nice feature of this paper is their objective measures of property rights at the firm level, which rely on whether firms pay extra-legal payments for licenses, for protection, and for services, and whether courts can or cannot enforce contracts. Access to finance is measured as whether firms had collateral and had loans in the previous year. At the country level, there is a strong association between property rights and reinvestment rate (that is, the share of firms' profits that are used for investment). Russia and Ukraine fare the worst, while Poland and Romania fare the best in measures of property rights. Indeed the reinvestment rate in the latter group is on average one-third higher. Further regression analyses of firm reinvestment rates on firm-level perception of property rights robustly show that reinvestment rates are significantly related to the perception of secure property rights, but not with firm access to finance. Since the perception of property rights and the access to finance are all measured at the firm level, there might be firm-level characteristics that are omitted that cause artificial correlation of the key variables and the outcome variable. The authors deal with this by demonstrating the robustness of their key results, which survive with controls for industry characteristics, country characteristics, and manager traits. A caveat is that uncontrolled firm characteristics and reverse causality can also explain the pattern.

Are property rights always more important than finance? Not necessarily. [McMillan and Woodruff \(2002\)](#) conjecture that the relative importance of market-supporting institutions (that is, the courts and finance) should rise over the stages of economic development. As an economy gets richer, transactions become more complicated, specialization goes further, and it becomes more difficult to confine related producers in a single location and to rely only on personal relationships to sustain their business dealings. A reliable court system would thus be needed to enforce contracts based on such arms-length relationships. Moreover, since richer countries feature a larger scale of production, retained earnings would not suffice for further expansion, and external finance becomes necessary.

Examining the importance of property rights and finance at a more mature stage of transition, [Cull and Xu \(2005\)](#) confirm this conjecture with a large

sample of Chinese firms in 2000–02. The property rights measures consist of two components: the government expropriation measures (that is, the percent of sales spent on informal payment to government officials and the likelihood of government officials helping instead of hindering firms) and measures of ease of contract enforcement (that is, the percent of firms' disputes resolved through the courts, the dummy of a firm signing formal contracts with clients, and the likelihood of a court upholding a firm's legal rights in commercial disputes). The finance measures include access to bank finance, trade credit, and the collateral requirements (as a share of loan amounts). Lacking a big bang, the uncertainty on property rights was less severe in China than in eastern European countries. With the transition into a mature stage, China features strong competition and low profit margins, making external finance important. Indeed, Cull and Xu find that external finance was relatively more important in China than in the early stage of transition in Russia and the eastern European transitional countries: the external finance variables are found to be statistically significant and to have explanatory power in China, in comparison to their lack of explanatory power in the post-communist countries in eastern Europe. However, property rights remain important, especially for smaller firms. The empirical method of Cull and Xu (2005) are very similar to McMillan and Woodruff (2002), partly in order to be comparable. The caveats about omitted variables and reverse causality thus apply to this study as well.<sup>12</sup>

### *The Mechanisms of Property Rights Effects*

Several recent firm-level studies shed light on the mechanisms through which property rights affect firm performance. First, in a sample of 30 industrialized and developing countries, the protection of property rights, as measured at the country level, is associated with a better availability of external finance (Demirgüç-Kunt and Maksimovic 1998).<sup>13</sup> When property rights are well protected, information disclosure about firm performance and fund uses are more adequate, so banks are therefore more likely to make loans, shareholders more willing to invest, and abuse of company funds more likely to be detected and punished. Similarly, when courts function well, creditors are more likely to get their loans back when firms underperform and declare bankruptcies, and are therefore more willing to lend.

A better protection of property rights also leads to a better asset allocation. Claessens and Laeven (2003), using cross-country firm-level data, find that industrial sectors that use relatively more intangible assets (as proxied by the importance of intangible assets for the corresponding industry in the United States) develop faster in countries with a better protection of property rights.<sup>14</sup> They also confirm that the protection of property rights boosts the return to investments in

intangible assets. Their results are more convincing than many existing studies in that they control for both country and industry fixed effects, therefore holding constant all factors that are country- and industry-specific. Why does property rights protection lead to a better asset allocation? Without a proper protection of intellectual property rights, firms fear expropriation of investment in intellectual property and intangible assets. They then invest more in tangible assets, which are less subject to government expropriations since the resale value upon exit would be higher for tangible than for intangible assets. The extra reliance on property rights protection for intangible-asset-intensive industries explains why the ratio of intangible assets is more associated with firm growth in countries with a better protection of intellectual property rights.

A better protection of property rights is also associated with a higher share of firms registered as limited liability corporations, which is an organizational innovation to reduce the risks faced by investors and to increase the ease with which to obtain external finance. What business environments lead to a higher tendency of incorporation? Demirgüç-Kunt, Love, and Maksimovic (2006), using a sample of firms in 52 countries from the World Business Environment Survey, find that businesses are more likely to choose the corporate form in countries with more developed financial sectors, better legal systems, stronger investor rights, lower regulatory burdens and corporate taxes, and efficient bankruptcy processes. In addition, the marginal return of incorporation is higher in countries with good financial and legal institutions—corporate firms grow faster in such environments.

### *Are All Property Rights Created Equal?*

Acemoglu and Johnson (2005) unbundle institutions into “property rights institutions” and “contracting institutions.” Property rights institutions capture how much private property is secure from the “grabbing hand” of the state, for example through outright expropriation or bribe extraction. Contracting institutions capture the effectiveness of institutions that are used to resolve disputes between private contracting parties, such as the courts and the judicial system. Based on cross-country evidence, they find that property rights institutions tend to be far more important than contracting institutions in facilitating economic development. Only property rights institutions are consistently statistically significant and quantitatively important, whereas contracting institutions are not. Their interpretation is that it is easier for private parties to use alternative mechanisms to get around the contracting issues, but it is harder to avoid government expropriations.

The unbundling conjecture and the relative importance of property rights over contracting institutions are confirmed by Beck, Demirgüç-Kunt, and Maksimovic (2005), a study that relies on the World Bank Environment Survey data between 1996 and 1999 from 54 countries. In their main specification, they relate firm

growth rates to standard firm- and country-level controls, along with ordinal measures of firm-perceived degree of obstacles in financing, corruption, and the legal system. To avoid collinearity, they enter each firm-perceived obstacle one at a time. Their regression results show that while proxies of property rights institutions (for example general bribes, bribes to bank officials, and managerial burdens in dealing with regulators) are negatively associated with firm growth, the speed of the court (that is, a proxy of contracting institutions) in resolving disputes is not significantly so. To allow firm-perceived obstacles to be endogenous—firm-level determinants of growth may directly determine firms' perceptions of the degree of an obstacle in a particular aspect—they instrument firm-perceived obstacle with country-level measure of institutions and find the results to be robust. This instrument variable approach hinges on the assumption that country-level measure of institution affects firm growth only through the corresponding firm-perceived obstacle.

In contrast, findings from a large firm-level dataset in China around 2003 suggest that both property rights institutions and contracting institutions are important (Cull and Xu 2005)—both sets of institutions are statistically and economically significant in predicting firm reinvestment rates.<sup>15</sup>

### *The Effects of Corruption on Firm Performance*

A visible symptom of bad property rights institutions is corruption—the abuse of public office for personal gains. How does corruption affect firm performance? On the one hand, the “grease view” implies that corruption acts like an auction that allocates licenses and government contracts to the highest bidders, which is efficient since the most efficient firms can afford the highest bribes (Myrdal 1968; Lui 1985). On the other hand, corruption is potentially much more dangerous (Shleifer and Vishny 1993). It diverts resources from public uses such as the provision of public goods. Moreover, when regulators are decentralized and uncoordinated, the cumulative bribe burden on private agents may become excessive, and efficient economic activities such as foreign direct investment entry may not occur, resulting in efficiency losses. In addition, by its nature, corruption entails secrecy. To avoid exposure, corrupt regulators may divert a country's investment away from the highest-value projects into potentially useless but secrecy-preserving projects. The demands of secrecy also induce government officials to maintain monopolies, to prevent entry, and to discourage innovation by outsiders in order to prevent the expansion of the ranks of the elite and preserve the secrecy of the existing corruption practices. Distinguishing these two views is best achieved by objective micro data. In macro data, corruption is measured as perception and is not directly comparable to tax rates. Yet with micro data, bribes and taxes can all be measured in monetary values and are directly comparable.

Corruption is found to be more damaging than taxation by recent micro studies (Fisman and Svensson 2007; Cai, Fang, and Xu forthcoming). By exploiting a Ugandan firm dataset containing information on the estimated bribe payment, Fisman and Svensson (2007) study whether taxes or corruption is more damaging for firm growth. Recognizing that the bribe rate (that is, bribes over sales) is potentially endogenous, they instrument it with its industry-location average. This approach will correctly obtain the causal effects of corruption when the industry-location average of the bribe rate does not directly affect firm growth (other than just through firm bribe rates)—likely when there are no other industry-location-specific variables that directly affect firm growth. They find that both are negatively correlated with firm growth. A 1 percentage point increase in the bribe rate is associated with a reduction in firm growth of 3 percentage points, an effect about three times greater than that of taxation in their sample.

Evidence from China—a country featuring both spectacular growth and rampant corruption—also suggests that corruption tends to be quite damaging on average. Cai, Fang, and Xu (forthcoming) use a large sample of Chinese firms to examine the effects of corruption on firm performance. Since Chinese firms tend to vastly under-report bribes in surveys, the paper adopts an idea proposed by a local official acquaintance to use the entertainment and traveling costs (ETCs) of firms as a proxy of corruption. Indeed they find that ETCs are a good proxy for corruption: they are higher where you expect them to be higher (for example when government services are poor so you have to bribe for services as “grease payment”), and they are higher where tax burdens are high (so you can reduce the tax burden and enforcements through bribes). Using city-industry median ETCs as the instrument for the firm-level ETC, they find that ETCs on average have significantly negative effects on firm productivity, yet official effective tax rates (that is, total tax payments over sales) are not, on average, significantly related to productivity. The estimated effect of ETCs is causal if the city-industry median ETC does not directly affect productivity (other than through firm-level ETCs). Interestingly the negative effects of ETCs are less pronounced and can completely disappear in locations featuring particularly high tax burdens and bad government services. So there are private returns to firms in bribing governments, especially in areas with a particularly bad quality of governance. The negative effects of corruption are also less pronounced in low-income regions.<sup>16</sup>

### *The Role of Courts*

The courts are an important institution for property rights protection. A sound legal system is a prerequisite for the Coase theorem to work its magic—for transacting parties to reach the social optimum (Coase 1960). A good court system

would sustain firms' expectation that their contractual rights would be honored in the face of contract breaches, allowing them to commit necessary investments and to expand without worrying about contract reneging.

The legal system helps firms grow by improving the trust needed for new transaction relationships (Johnson, McMillan, and Woodruff 2002). Using firm data from Poland, Romania, Russia, and Slovakia to examine how court quality affects business relationships, the authors find that beliefs in the effectiveness of courts are associated with a higher level of trust shown in new relationships between firms and their customers. Well-functioning courts also encourage entrepreneurs to try out new suppliers, which facilitates new entry and firm expansion.

The legal system also reduces the reluctance to expand and thus increases firm size where owners cannot effectively diversify their idiosyncratic risks. Using aggregated firm census data in 1998 and focusing on within-Mexico cross-state industry variations in firm sizes and the quality of local legal institutions, Laeven and Woodruff (2008) find that firm size increases with the quality of the local legal system. Furthermore the legal system affects firm size by reducing the idiosyncratic risk faced by firm owners—the legal system has a smaller impact on partnerships and corporations than on proprietorships, where risk is concentrated in a single owner. They deal with the potential endogeneity of the quality of the local legal system by instrumenting it with historical conditions (the share of the indigenous population in 1990 and the number of cultivated crops with large scale economies, that is, sugar, coffee, rice, and cotton in 1939). The results are also robust with respect to alternative size and institutional measures.

There is evidence that courts improve efficiency in the bankruptcy process (Gine and Love forthcoming). Bankruptcy laws are supposed to reorganize viable firms and liquidate nonviable ones to preserve efficiency. Indeed nearly 90 countries have reformed their bankruptcy systems since World War II. Yet, in developing countries, the reorganization processes are lengthy and costly. Does efficiency improve with lower reorganizing costs by reducing the statutory deadlines for reorganization plans? Gine and Love (forthcoming) exploit the bankruptcy reforms in Colombia in late 1999 to examine that question. By using a unique dataset with 1,924 bankruptcy cases filed between 1996 (before the reform) and 2004 (after the reform), they obtained three findings. First, the duration of reorganization proceedings dropped significantly. Second, under the new law, firms filing for reorganization are healthier and more viable than those filing for liquidation. Yet, under the old law, these two types of firms are similar. The new law thus better separates viable and nonviable firms and achieves the efficiency-enhancing goal of the bankruptcy procedure. Third, financially distressed firms recover better under the new law. One year after filing for reorganization, they are more likely to improve performance after the reform. Thus improving bankruptcy regulations allows financially distressed yet viable firms to improve.

But a good legal system is not a precondition for a country to grow (Landa 1981; McMillan and Woodruff 2002). Indeed an influential theory about the legal system, the development theory, asserts that courts work better in countries with richer and more educated populations (Demsetz 1967). A better-educated population raises both the efficiency of courts (since education is an input) and the demand for them. Courts are only worthy when transactions and contracts become more complicated and the demand for arms-length enforcement becomes sufficiently high. For poor societies, informal dispute resolutions often prove to be sufficient (Landa 1981). Consistent with this theory, McMillan and Woodruff (1999, 2002) show how entrepreneurs in transitional countries overcome imperfection in the legal systems. In Vietnam, more than 90 percent of firm managers responded that they did not rely on courts for conflict resolution. Instead they rely on ongoing relationships and the threat of losing future businesses. They often emphasize the continuation of existing relationships and punish bad behavior less severely than expected when one party breaches a contract. Without an effective court system, China substitutes family control of businesses to avoid relying on the court system (Lu and Tao 2009). All of these alternative mechanisms reduce the reliance on courts for contract enforcement.

When stakes are high, however, firms still rely more on formal contracts or advance payments, along with community sanctions (Cooter and Landa 1984). Indeed, using the World Bank Investment Climate data of China, Long (forthcoming) finds that a better local court system, as proxied by the city-industry average share of all business disputes resolved through the court, is associated with a higher investment rate, more innovation, and more complex transactions in several relatively advanced cities in the early 2000s. The results hold even with controls for city and industry fixed effects. The effects of court quality on firm outcomes are thus inferred from relating firm outcomes to the variations in court quality across cities within the same industry. Thus law seems to play a positive role even in a quintessential “poor law yet high growth” country in its more mature stage of transition for selective advanced cities (since the sample cities in Long’s study are the most advanced ones in China).

## The Effects of Labor Regulations

Referring to the rules and regulations by which governments control how firms manage labor, labor regulations are tighter when firms have less discretion in freely choosing and adjusting the quantity, quality, and prices of labor. Particular types of labor regulation include employment protection through severance payments, advance notice of dismissal, administrative authorization, and prior negotiation with trade unions (Cahuc and Zylberberg 2004). The Organisation for

Economic Co-operation and Development (OECD) has an index of labor flexibility, according to which Canada, the United Kingdom, and the United States are more flexible than France, Germany, and southern European countries (Italy, Portugal, and Spain). The study of the effects of labor regulations at cross-country level is often inconclusive, partly because the data on labor regulation are available only for a limited number of industrialized countries. The estimated effects of labor protection on the level of unemployment range from positive (Lazear 1990), to negative (Nickell 1997), to insignificant (Bertola 1990). Thus the existing cross-country studies on labor regulations cannot offer much guidance for developing countries.

Recent firm-level studies of labor regulations in developing countries have substantially improved our understanding about how labor regulations work in these countries. They suggest that labor flexibility facilitates better firm performance, faster factor adjustments, and a more efficient distribution in firm sizes.<sup>17</sup> China has been a good example. During the past two decades, China featured remarkable labor flexibility and economic growth (Dong and Xu 2008, 2009). Thus it is not surprising that labor flexibility is found to be efficiency-enhancing in China. Hallward-Driemeier, Wallsten, and Xu (2006) use the World Bank Investment Climate Survey in five Chinese cities to examine how the investment climate affects firm performance (that is, sales growth, investment rate, TFP, and employment growth). After controlling for firm characteristics (age, size, and ownership), city characteristics (population and income) and other investment climate indicators, including city and industry fixed effects, firm performance is still significantly better in city-industry cells that feature a higher share of nonpermanent workers. This is consistent with the notion that labor flexibility allows firms to adjust more easily to changing economic circumstances and to be more productive.<sup>18</sup> A caveat is that other city-industry-specific variables may still account for the positive correlation between firm performance and our proxy of labor market flexibility. Why does labor flexibility improve firm performance in China? Facing adverse demand shocks, firms with more nonpermanent workers find it easier to adjust their labor forces and therefore to reduce costs and restore optimal factor allocations. Furthermore, firms with a flexible labor force do not have to fear labor hold-ups when considering technology and investment decisions, and the choices of technology and capital–labor ratios would thus be more efficient.

Relatedly, cumbersome labor regulations are found to be associated with smaller firm sizes and more informality in India (Amin 2009a).<sup>19</sup> Using World Bank Investment Climate data on retail sectors, Amin proxies cumbersome labor regulations as the state share of firms viewing labor regulations as minor or major obstacles. He finds that this measure is robustly correlated with smaller firm sizes and informality,<sup>20</sup> even after a series of sensitivity checks: controlling



for development level, store characteristics, city- and state-level variables, and a proxy of general regulation burdens. His results are also robust for small and large firms. A caveat for his study is that this regulation proxy may merely capture the effect of related state-level variables.

Facing bad labor regulations, firms do adjust on other margins. Relying on data of 2000 retail stores in India, [Amin \(2009b\)](#) finds that stores located in states with more cumbersome labor regulations are more likely to adopt computer technology, consistent with the notion that labor-saving technology will be adopted to cushion the blow of labor regulations. This result is robust whether they use the regulation index provided by [Besley and Burgess \(2004\)](#) or the share of firms in a state viewing labor regulations as “minor obstacles and above” in his data. Similarly, [Adhvaryu, Chari, and Sharma \(2010\)](#) use comprehensive firm-level data (aggregated to the level of district) in India to study how rainfall shocks affect labor adjustments differently in Indian states with various degree of labor regulations—again using the Besley–Burgess index of labor regulations in India. They find that, facing rain shocks, districts with more flexible labor regulations are able to adjust their labor to a greater extent. Moreover the labor adjustment effects exist only for regulated firms (that is, firms with more than 50 employees)—and do not exist for small firms that are not regulated in labor. The evidence thus points to causal effects.<sup>21</sup>

Recent evidence from Indonesia highlights the tradeoff between equity and efficiency associated with labor regulations. In the 1990s, Indonesia experienced two changes in labor regulations. First, the minimum wage more than doubled. Second, there was a strong antisweatshop campaign targeted at the textile, footwear, and apparel sectors, especially in those districts housing Nike, Addidas, and Reebok. As a result of the antisweatshop campaign, the targeted firms were induced to sign codes of conduct pledging to raise wages and improve working conditions. The campaign therefore amounts to informal labor regulations. [Harrison \(2010\)](#) use two waves of the annual manufacturing surveys of Indonesia to identify the causal effects of these two types of labor regulation through the difference-in-differences approach. By comparing the before–after difference for the treated group and the before–after difference for the comparison group (after controlling for other necessary covariates), Harrison identifies the effects of the change in minimum wage and the antisweatshop campaign on wages, employment, and other firm outcomes. She also demonstrates the robustness of key results using a variety of robustness checks such as an alternative definition of treatment and various controls of confounding factors. The results indicate that minimum wages have a significantly negative effect on employment, so there is a tradeoff between quantity and quality of jobs. In addition, the anti-sweatshop campaign is found to increase the wages of affected firms by 10–30 percent. While the campaign did not have additional adverse effects on

employment within the affected sectors, it led to falling profits, lower productivity growth, and plant closures for smaller exporters—so the seemingly pro-equity labor regulations reduce equity for workers of small exporters.

Stringent labor regulations have allocation consequences in high-income developing countries as well. Scoring the highest in an index of strictness of employment law (Botero and others 2004), Brazil is one of the most regulated countries regarding labor in the world. Not surprisingly, in 1999, 40 percent of the private sector was informal. Almeida (2005) investigates how regional differences in labor regulation enforcement affect informality and firms' labor productivity. Labor regulation is measured as the number of fines related to labor issued in each region. She finds that a stricter enforcement of labor regulation leads to less informality but lower productivity and investment. The results are robust when the labor regulation proxy is instrumented by measures of access of labor inspectors to firms and measures of general law enforcement in the area where the firm is located. Using the same data, Almeida and Carneiro (2009) find that a strict enforcement of labor regulations constrains firm size and leads to higher unemployment. Recognizing that the enforcement of labor regulations may be endogenous, the authors instrument it with the distance between the city where the firm is located and the surrounding enforcement offices, while controlling for a rich set of city characteristics.

A channel through which labor regulations worsen efficiency is by increasing the discrepancy between labor costs and labor productivity and by increasing the range of productivity across firms (Petrin and Sivadasan 2006). Proxying job security regulations by the costs of dismissing employees, they investigate the effects of two changes in Chile. In 1984, the government no longer exempted firms that could show "economic cause" for dismissal from severance pay. In 1991, the government increased the ceiling of severance pay from 5 to 11 months and added a 20 percent surcharge if the employer could not prove economic causes. Petrin and Sivadasan assess the welfare effects by measuring the mean and the variance of the difference between the marginal revenue product and the marginal input prices, using the Chilean manufacturing data from 1979 to 1996. They find a substantial increase in both the mean and the variance of the within-firm gaps in response to increasing firing costs. The timings in the increasing gaps and in the regulatory changes are consistent. In contrast, the gaps do not increase for inputs that are not directly affected by firing costs.

Another channel through which stringent labor regulations hurt efficiency is by slowing down the creative destruction process, that is, the dynamic process in which inefficient firms exit accompanied by new firms entering the market and finding out about their capacity. Haltiwanger, Scarpetta, and Schweiger (2008) study how labor regulations affect job turnover by using rich new firm-level data on job flows across industries and size classes for 16 industrial and emerging

economies over the past decade. They examine whether regulations at the country level affect more regulation-vulnerable industries to a greater extent. Regulation vulnerability is proxied by the natural labor turnover rate in the corresponding industry in the United States. They find that stringent hiring and firing regulations reduce job turnover, especially in industries and size categories that inherently exhibit more job turnover.

Finally, deregulations in labor are found to facilitate factor adjustments and to enhance productivity. In the 1990s, Colombia reduced dismissal costs by 60 to 80 percent, made the social security system more portable, and minimized controls over capital market (by liberalizing foreign direct investment). Using the Colombia Annual Manufacturing Survey between 1982 and 1998, [Eslava and others \(2004, 2006\)](#) find that market-oriented reforms were associated with increasing employment adjustments (especially on job creations) and investments, but less with capital deployments. Furthermore market reforms are associated with rising overall productivity that is largely driven by reallocation away from low- to high-productivity businesses.

## The Effects of Entry Regulations

Starting a business is costly in many countries. In Mozambique the owner must go through 19 procedures, take 149 days, and pay US\$256 in fees. In Canada it takes only two procedures, two days, and US\$280 ([Djankov and others 2002](#)). Combining time and out-of-pocket costs, the world average of the full cost is 66 percent of per capita GDP, varying from 1.7 percent in New Zealand to 495 percent in the Dominican Republic. Partly due to the overall change in prevailing beliefs about what is best for growth, partly due to new measurements of the costs of registering businesses across the world, entry deregulation has become a major area of reforms in the past decade.<sup>22</sup>

There is evidence that entry deregulations improve productivity and macroperformance ([Loayza, Oviedo, and Serven 2005a](#); [Crafts 2006](#); [Barseghyan 2008](#)). Moreover the positive effect of deregulation is found to differ by the initial level of regulation. [Gorgens, Paldam, and Wurtz \(2003\)](#), using the Index of Economic Freedom, find that deregulation from a high to a moderate level of regulation has a large effect on growth of about 2.5 percentage points, but further deregulation has no effects. This explains why deregulation in countries such as China and India have spectacular effects, but barely noticeable ones in OECD countries. Recent firm-level evidence of entry regulation sheds light on the specific channels through which entry regulations affect economic outcomes.

An important channel for deregulation effects is by allowing for an easier entry. Investigating the effects of entry regulations with a database of firms in

western and eastern Europe, Klapper, Laeven, and Rajan (2006) interact industry characteristics with country-level regulation indicators to examine whether regulation-vulnerable industries are more hampered by certain regulations. After controlling for country- and industry-specific factors and using the difference-in-difference approach, they find that entry regulations hamper entry, especially in industries featuring high entry (judging by what happens in the United States). Value added per worker in high-entry industries grows more slowly in countries with more onerous regulations on entry. Interestingly regulatory entry barriers do not hamper entry in corrupt countries, but do so in less corrupt ones. The results are intuitive since *de facto* enforcement of labor regulations in corrupt countries is less demanding. Not all regulations are bad. Regulations protecting intellectual property rights or enhancing the financial sector lead to a greater entry in industries that need more external finance or research and development. Similarly, using the United Nations Industrial Development Organization's industry-level data in 45 countries to examine the effects of entry regulations on entry patterns across industries, Ciccone and Papaioannou (2007) find that countries featuring less registration costs see higher entry rates in industries featuring stronger global demand and faster technology changes.<sup>23</sup>

Another avenue for entry deregulation to matter is to introduce more productive (new) firms and to change sector composition. Surveying the entry effects of foreign banks, Clarke et al. (2003) show that entering foreign banks are more efficient than local banks in developing countries. Thus allowing foreign bank entry raises the overall efficiency level of the banking sector—both due to the composition effects and the rising competitive pressure for domestic firms.

Besides efficiency, entry deregulations also enhance equity by facilitating job creation. Yakovlev and Zhuravskaya (2007) examine the policy experiment in Russia between 2001 and 2004 that dramatically simplified registration and licensing procedures and reduced inspections for existing firms. The new law required a “one-stop shop” and no more than a week for registration. Each inspection agency can inspect a business no more than once in two years. Licenses are valid for no less than five years. They want to understand whether the deregulation reforms reduced regulation burdens, and whether regulation burdens affected entry, small business density, and public goods provision. They first show that the national deregulation experiments reduced regional regulation burdens using the repeated cross-sectional firm data, controlling for regional fixed effects, firm characteristics, and regional characteristics. More interestingly, they allow the deregulation effects to depend on initial regulation burdens and local institutional details (such as fiscal incentives and local government accountability). They find that the deregulation reforms significantly reduced firm regulation burdens, and the drop in regulation burdens are greater where local governments are more accountable and have stronger fiscal incentives. They then relate the measures of

regional-level business entry, small business density, public health, and pollution to local regulation levels, controlling for regional fixed effects and time fixed effects. Since the local regulation level suffers from reverse causality—the size composition of local businesses and welfare may determine local regulation level—they instrument local regulations with the interaction of the post-deregulation dummy with the aforementioned institutional variables, holding constant regional fixed effects (since institutions as captured by the regional fixed effects directly affect the outcome variables). They find significant positive effects of deregulation for firm entry and small firm density, but not for pollution and public health.<sup>24</sup>

The effects of entry regulations hinge critically on the implicit incentives and the specific context. For instance the effects of foreign entry depend on how close the incumbent firm is to the technological frontier, which affects the incentive to innovate (Aghion and others 2009). Aghion and others use an unbalanced panel of manufacturing firms in the United Kingdom between 1987 and 1993 to examine how foreign entry affects productivity growth and incumbent innovations. Recognizing that entry is potentially endogenous, they instrument it with policy interventions that affect the ease and cost underlying entry threat and actual entry—such as large-scale privatization, time-varying indicators of the implementation of the EU Single Market Program (SMP) in industries with medium or high entry barriers that were likely to be reduced by SMP, and competition investigations by the U.K. authority that culminated in entry-inducing remedies. They find nonuniform effects of entry on incumbent innovation—stronger for firms closer to the technological frontier. They suggest that this is due to the “escape-entry” effect: for firms sufficiently technologically advanced, incumbents work harder to innovate to win the technological race and to prevent entry or to mitigate the effects of entry. For technological laggards, the entry effect is to discourage the incumbents to innovate—they are so behind that they cannot possibly win the technological race and therefore they give up on innovations.

The importance of incentives for deregulation to work is also manifested in the telecom deregulation movement in the 1980s and 1990s, during which period national carriers were privatized, new competitors licensed, and new services allowed (Li and Xu 2002). More than 150 countries introduced new legislation or modified existing regulation. Using a comprehensive country-level panel dataset between 1990 and 2001 augmented by operator-level data on privatization and competition—and relying on the difference-in-difference approach to identify the reform effects—Li and Xu (2004) study how telecom liberalization and deregulation affect performance. They find that new entry into the sector improves both factor allocation and productivity. Most importantly, new entry and privatization are complementary in deepening network penetration and restraining the rise in service pricing.

Interestingly competition (and privatization) also reduces corruption. A study, using the World Business Environment Survey data of 21 transitional countries in East Europe and Central Asia, finds that utility employees are less likely to take bribes in countries with more competition in the utility sector and where utilities are private or privatized (Clarke and Xu 2004).

## Conclusions and Policy Implications

I reach two main conclusions from the firm-level research based on the World Bank and other data related to business environments. *First, some basic elements of the business environment are strongly associated with better economic performance.* A basic protection of property rights from the grabbing hands of the government proves to matter a great deal for most developing countries. It has significant explanation power for firm sale growth in 54 countries. The effects of corruption are worse than those of taxes in both China and Uganda. Corruption also slows down firm entry. Thus most developing countries must contain corruption and government expropriation. Research also suggests that economists need to find out the institutional causes of corruption and to deal with it from its institutional root.

Another key ingredient of a good business environment is labor flexibility. Brazil, a middle-income country with severe labor regulations, has a larger (less productive) informal sector than its income level predicts. Lowering labor adjustment costs increased the efficiency of labor allocation in poor Colombia and rich Chile. Cross-country firm data further show that labor regulations reduce job turnover, especially in industries that are more dynamic and technologically advanced. Thus governments of developing countries, especially those with onerous labor regulations, should examine how their labor regulations compare with other countries and whether they can be relaxed to facilitate growth.

For most industries and countries, entry deregulation appears to be a good idea. In Russia and Mexico, entry deregulations create jobs and reduce prices and incumbent profits by stronger competition. Telecom deregulations around the world improve both factor allocation and productivity. Foreign entry in the United Kingdom facilitated technological innovation for firms close to international production frontiers. Competition reduces corruption. The policy implication is that without special concerns, the entry to an industry should not be heavily regulated. For industries with strong entry regulation, one should examine whether such regulations are hindering the growth and innovation of their firms. Foreign entry into sectors that are close to the international production frontier are especially encouraged.

There is some evidence that efficient legal systems for facilitating exits have high payoffs for developing countries. Reducing reorganization processes by

reducing statutory deadlines appears to have large payoffs—reducing time costs, attracting more viable firms to go through the process, and recovering better. Since legal procedures for bankruptcies are very costly in developing countries, especially for those featuring strong legal formalism, such countries should aim to reduce legal formalism for bankruptcies. For instance they could adopt foreclosures with no or limited court oversight and floating charges (that is, transfer control of the firm to the secured creditor).

*Second, the effects of many elements of the business environment depend on industry, complementary institutions, and the initial business environment.* For instance the effects of contracting institutions (such as access to finance and courts) appear to become stronger as an economy becomes more mature. In the early stage of development and transition, substitution institutions, such as clustering, reputation mechanisms, relationship contracts, and informal trade credit, could be sufficient to induce economic growth. This is found in China, Vietnam, and the early transitional eastern European countries. However, as transition and development move along, the extent of the market becomes larger, transactions become more complicated, and contracting relationships based on personal ties become insufficient. Now formal market-supporting institutions are needed to encourage arms-length contracting. While property rights institutions are found to be much more important than access to finance for European and Central Asian countries in early periods of transition, access to finance becomes visibly more important for China at a later stage of development, although property rights institutions remain important. In addition there is also evidence that courts have become important for eastern European transitional countries and even in advanced parts of China. Furthermore courts are found to be especially important when human capital looms large, likely in industrialized countries such as in western Europe. The policy implication is that, as they develop further, governments should build and improve contracting institutions, such as formal finance and courts, as they can better support the transactional needs of larger and more sophisticated firms. Governments that lag behind in facilitating such institutional changes would slow down development.

Infrastructure appears to be particularly important for poor developing countries. In a sample of poor countries (Bangladesh, China, Ethiopia, and Pakistan), infrastructure has positive effects for productivity, factor returns, and international integration. Yet there are no significant effects across regions within China around 2002. Thus infrastructure investment seems to have higher returns in countries with poorer infrastructure.

The effects of entry deregulation differ by industries. Entry deregulations have particularly pronounced effects in industries with natural high-entry rates. For industries heavily dependent on fresh ideas, such as IT and R&D intensive industries, entry deregulations are therefore particularly important. Even though

allowing for easier entry appears to be a good idea for most industries, some regulations remain useful. Regulations that protect intellectual property rights or enhance the financial sector facilitate more entry into R&D intensive and finance-dependent industries, which tend to be high value-added industries enabling sustainable growth for middle- and high-income countries.

Entry effects also differ by initial conditions. The benefits of opening up entry for foreign firms seem stronger when domestic firms are competitive and face strong incentives. The effects of foreign entry are stronger for firms closer to technological frontiers due to the escape-entry effects—competitive domestic firms can potentially win technology races and therefore have stronger incentives to compete. For domestic firms that are completely behind in the technology race, the innovation effects are low since they give up without hope of ever winning. Furthermore there is also evidence that entry deregulations are more effective when coupled with privatization if the incumbents are state owned. The policy implications are that countries can target entry such that frontier industries reduce entry barriers for foreign firms. They should adopt complementary policies to facilitate resources shifting to more advanced industries where incumbents react more positively to entry threat and should discourage regulations hindering such reallocations (such as through subsidies for nonviable industries). In countries with state-owned firms, privatizing them before opening up to foreign competition may be useful.

The conclusions reached in this survey are tentative. While there are many studies based on the difference-in-difference and the instrumental-variable approach that are more plausible in establishing causality, the rest of the studies are based on cross-sectional correlations, making causality inference very difficult. There are also clearly alternative explanations for this body of new findings. Since it is possible that some omitted variables account for the correlations of our proxies of business environment with economic outcomes, the conclusions I present here should be viewed with caution.

## Notes

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1. The terms “investment climate” and “business environment” are used interchangeably in this paper.

2. Other features, such as geography and weather, also belong here, but since little can be done to alter them their effects are not discussed in this paper.



3. The touting of micro data here should not be interpreted as discriminating against studies based on sector- or country-level data, which are complementary to those on firm-level data. Some key explanatory variables differ only at the macrolevel, in which case it is only natural to rely on such data for identification. Often studies based on macrodata are useful first steps in our quest for understanding a specific topic. A good example is that Knack and Keefer (1995, 1997) rely on macro indicators to show the potential importance of institutions and social capital, which then usher in numerous microstudies to examine the issues more closely.

4. Note that while the *de jure* institutions are held constant within a country, the *de facto* enforcements of institutions across regions are not (Hallward-Dreimer, Khun-Jush, and Pritchett 2010). Only to the extent that *de jure* institutions capture a significant source of variations for *de facto* institutions, relying on within-country variations mitigate the omitted variable bias due to the lack of control for institutions.

5. The World Bank Enterprise Surveys, including questionnaires, are available at <http://www.enterprisesurveys.org/>.

6. See Levine (1997), La Porta and others (2000), Megginson and Netter (2001), World Bank (2001, 2008), and Djankov and Murrell (2002). We also do not discuss the lessons obtained from survey methodology. If interested, see Recanatini, Wallsten, and Xu (2002) and Iarossi (2006).

7. For the use of the difference-in-difference approach in the business environment literature, see Klapper, Laeven, and Rajan (2006), Ciccone and Papaioannou (2007), and Aghion and others (2008).

8. Shleifer also considers state ownership, which is beyond the scope of this paper and is therefore ignored.

9. Facing specific bottlenecks, countries have found unique ways to make things work. China, for instance, was jump-started by leasing land to farmers and by letting them decide what to do with their lands (Lin 1992; Lin, Cai, and Li 2003), by encouraging entry through the emergence of township-and-village enterprises (for example semigovernment, semiprivate firms with hard budget constraints) and by giving state-owned enterprises autonomy and incentives to their operations (Li 1997; Xu 2000; Lin, Cai, and Li 2003). In Vietnam, court enforcements for new entrants were facilitated by reputation-based informal contracts without the standard court system (McMillan and Woodruff 2002).

10. The positive relationship between investment and business environment in general and infrastructure in particular does not have to hold everywhere—there could be a negative relationship in some small neighborhood (or on a more grand scale in some former socialist countries such as the Soviet Bloc). An example is that infrastructure is much worse in India than in China. To adapt to the bad electricity system, firms tend to purchase their own power generators, which increases investment. So this example may run counter to the positive relationship between investment and infrastructure. Even though Indian firms may have more power generators, they still have lower capital–labor ratios relative to China, which possesses a better infrastructure (based on the author’s check on investment climate data for both countries).

11. In a similar vein, Dollar and Kraay (2003) find that once one allows the same set of factors determining both trade and institutions and properly deals with the endogeneity of both factors, institutions no longer play a major role in explaining growth, though trade does.

12. Similarly, using the World Bank investment climate survey, Lu, Png, and Tao (2008) find that better institutions (that is, those with property rights protection and contract enforcement) facilitate firm growth in China. This is true even after they instrument institutions with city population density in 1918–19 and whether the city was administered by the British in the late Qing Dynasty. While this study strengthens the finding about the importance of institutions for firm growth, its instruments are not fully convincing—one can imagine that the historical variables might affect firm growth via routes other than institutions, for instance, through better infrastructure.

13. A caveat to this study is that other country-level variables related to property rights can account for the correlation between the measures of property rights and the access to external finance.

14. The property rights measures are broad cross-country indicators (such as those from ICRG, the Heritage Foundation, the U.S. Trade Representative, and so on).

15. See the earlier discussions on the details of measurements.

16. Relatedly, firm performances in China are significantly lower in locations and industries with a higher share of informal payment to sales for firms (Hallward-Driemeier, Wallsten, and Xu 2006). The effects of corruption in China are likely underestimated due to the attenuation bias of measurement errors—the incidence of corruption in the data is far too low to be plausible.

17. Labor regulations have other important objectives, such as health, job safety, job security, and reducing income inequality. Since the new empirical literature on labor regulations is mainly concerned with the income and growth effects, I do not have much to say about these additional objectives.

18. Indeed around the turn of the century, China underwent the most dramatic labor-restructuring program in the world (Dong and Xu 2008, 2009). Between 1995 and 2001, more than 35 million state workers had been laid off. In examining the enterprise restructuring in the early 2000s, the authors found that firms were more likely to undergo downsizing when they were state-owned enterprises (SOEs); when these SOEs were older, larger, and had more excess capacity; and when product prices dropped, indicating that the labor restructurings tend to be efficiency enhancing. Moreover the patterns of labor adjustments for private enterprises and SOEs were similar (such as reducing labor demand when output prices drop and when wages increase), indicating an increasingly integrated Chinese labor market.

19. Fernandes and Pakes (2008) also find evidence of labor misallocation in India by using the World Bank Investment Climate Survey data. They find that the growth rate of the Indian manufacturing sector is significantly lower than its growth rate in the services sector or in China. They compute the ratio of labor under-utilization and find that this is widespread in Indian states, especially in those states with lower income levels and for productive firms.

20. Policies that increase the informal sector likely reduce the average productivity and income of the economy. Recent evidence suggests that the informal sector tends to attract low-productivity workers who have a low likelihood of ever being promoted to the formal sector (Maloney 2004; de Mel, McKenzie, and Woodruff 2008; La Porta and Shleifer 2008; Bruhn forthcoming). The most important determinants of the size of the informal sector across countries include the stringency of labor regulations and their enforcement (Johnson, Kaufman, and Zoido-Lobaton 1998; Loayza, Oviedo, and Serven 2005b).

21. Surprisingly they find that firms in districts with more cumbersome labor regulations are able to adjust their other production factors (materials, fuel, and capital) to a greater extent—such that, when examining the effects of labor regulations on total value added and profits, there are no differences between states with heavy and those with light labor regulations.

22. Djankov (2009) surveys how entry deregulation has affected economic performance over the past decade.

23. The entry effects of deregulation can sometimes be achieved without explicit entry deregulation. Long and Zhang (2009) find that clustering (that is allowing firms producing different parts of the same product to be located together) reduces financing needs, increases entry and competition, and therefore improves export and productivity.

24. Similar benefits are found in the deregulation experiment in Mexico by Bruhn (forthcoming), which uses cross-municipality and time variations in implementation to study the effects of reducing registering costs on the number of firms, employment, prices, and income. Mexican registration reforms reduced registration procedures from eight to three on average. Relying primarily on the difference-in-difference approach to infer the reform effects, the author finds that the reform increases the number of registered businesses by 5 percent in eligible industries. It creates more jobs: employment in eligible industries increase by 2.8 percent after the reform, benefiting primarily those previously unemployed and out of the labor force. It also benefits consumers at the expenses of the incumbent business owners: prices drop by 0.6 percent after the reform, while the increased competition associated with more entry reduces the average income of incumbent owners

by 3.2 percent. The same policy experiment is also studied by Kaplan, Piedra, and Seira (2007), who find that new start-ups increased by around 4 percent for affected industries.

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