

Business Environment and Dual-Track Private Sector Development

China's Experience in Two Crucial Decades

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Abstract

A void in the literature on the business environment is how it evolves over time. Focusing on China during its crucial two decades of transition (from the early 1990s to the early 2010s), this paper documents how the country's business environment and the characteristics of entrepreneurs evolved, along with the role played by local governments. Relying on multiple comprehensive data sets, the paper shows that many aspects of local business environments improved: infrastructure, development of the court system, and access to external finance. Meanwhile, the share of politically connected private firms remained large, and their

advantage in accessing key resources increased. Under this dual-track private sector development, private firms became larger and more innovative and adopted more formal corporate governance mechanisms. Entrepreneurs became much better educated, with more diverse sectoral experience. Market competition increased over time, especially after China's World Trade Organization entry. The paper offers suggestive evidence that this dual track development had negative consequences, such as a lower tendency to innovate by politically connected firms.

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**Business Environment and Dual-Track Private Sector Development:
China's Experience in Two Crucial Decades¹**

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1. Introduction

The business environment (BE) and entrepreneurship of developing and transition economies have received considerable attention from both researchers and policy makers over the decades (Berkowitz and DeJong, 2005; Dethier et al., 2010; Djankov et al., 2005; 2006; McMillan and Woodruff, 2002; World Bank, 2005; Xu, 2011). Indeed, creating a sound business climate is regarded as a key strategy for development, as it offers opportunities and incentives to entrepreneurs and firms to invest, create jobs, and expand business, consequently contributing to growth and poverty reduction (Stern, 2002).² To help improve BEs in the developing world, the World Bank has conducted firm surveys (i.e., the World Bank Enterprise Surveys, or WBES) to consult managers/owners about the obstacles of doing business in more than 135 economies since 2002.³ The availability of cross-country firm-level data allows researchers to study the impact of BEs at the firm level. Numerous studies have been devoted to discussing how entrepreneur behaviors and firm performance are affected by a broad range of BE factors such as legal environments, property rights protection, infrastructure, access to finance, regulation, corruption, and crime rates.⁴

Perhaps because most existing data such as the WBES surveys evaluate the BE at a specific year, few studies explore how a broad range of BE aspects and entrepreneurship have changed over time. As a result, little is known about how the BE has evolved, its likely impact over the decades, and how entrepreneurship and firm characteristics respond to such changes in the BE. Such a gap renders our understanding about the BE incomplete. For instance, do various BE elements differ in their speed of adjustment? If so, what is the economic and political logic behind such disparities? Once some BE elements evolve, do entrepreneurs and firms take advantage of such changes?

We fill some of these gaps in the literature by examining how a broad range of BE measures and entrepreneur characteristics evolved in China over 1993-2012. Although chosen

² According to Stern (2002), business climate refers to “policy, institutional, and behavioral environment, both present and expected, that influences the returns, and risks, associated with investment” in a region.

³ An alternative and complementary effort of the World Bank to facilitate reforms in the business environment is the Doing Business project, which captures the country-level business environment (see Djankov et al. 2002, 2003, 2007, 2008, 2010).

⁴ See Xu (2011) and Ayyagari, Demirguc-Kunt and Maksimovic (2012) for a comprehensive review on the effects of business environments on development.

partly due to data availability, this timeframe has two interesting features that make it crucial for China's rise. First, it began shortly after the Southern Tour of Mr. Deng Xiaoping, which signaled China's determination to turn to a market economy after the end of the Cold War. Second, the period covers the large wave of privatization and decentralization during the second half of the 1990s, the country's preparation and subsequent entry to the World Trade Organization in 2001, as well as the passage of the Property Rights Law in 2007 (Jefferson and Su 2006, Xu et al. 2005, and Huang et al. 2017). All are landmark events of China's economic reform toward a market economy.

As the largest emerging economy in the world, China offers us a unique opportunity to explore the joint dynamics between the BE and entrepreneurship. In 2012, China accounted for 43% of the total GDP of other developing countries included in the WBES, and 32% of the total population in other WBES developing countries.⁵ On one hand, like many transition countries, China began its economic reforms in the absence of well-functioning market-supporting institutions such as courts and financial institutions. Central and local governments played active roles in allocating economic resources and facilitating regional development (Xu, 2011a; Cull et al. 2017). To conduct business in such an environment, Chinese entrepreneurs relied heavily on informal institutions such as family networks and political connections (Allen et al., 2005; Li et al, 2006; Cai et al. 2011). On the other hand, China has also witnessed drastic transformations in its domestic BE, partly due to substantial efforts made by the central and local governments. At the macro level, China has experienced rapid economic growth over the past decades, with its GDP per capita increasing by around six-fold over our sample period (China Statistical Yearbook, 2014). At the micro level, both private firms and private entrepreneurs have emerged in multitudes during the reform era. The growth rate of the private sector has far outpaced that of the public sector, making it a defining feature of China's growth patterns (Song et al., 2011).

In our study, we shed light on the dynamics of the BE and entrepreneurship in China's private sector by providing the most ambitious and comprehensive descriptive analysis over

⁵ Data sources: Penn World Table version 9.0. The share of GDP is based on output-side real GDP at chained PPPs (in mil. 2011US\$).

time and across regions. Combining multiple data sources—including nation-wide private enterprise surveys, industrial firm surveys, the listed firm database, the Chinese patent database, and other related databases—we first study the evolution of the BE: how the provision of infrastructure has changed, and how firms' dependence on formal market-supporting institutions (i.e., courts, contract, and external finance) has evolved over time. We also examine the set of institutions and government activities that are regarded as disruptive. These include inefficient regulations, barriers to entry, and expropriation in the form of taxation and extralegal fees. Second, we establish stylized facts about Chinese firms and entrepreneurs, which have likely changed alongside the business climate. We examine what changes have occurred over time and space for *firm attributes* such as firm size, capital intensity, export, innovation, and diversification, as well as *entrepreneur attributes* including their education level, family background, working experience, and participation in political and social organizations (or political connection). Finally, we discuss the business strategies adopted by Chinese entrepreneurs in an environment of imperfect property rights protections.

In our analysis, we highlight how non-elite firms (small and medium firms, non-state firms, non-politically-connected firms) fare relative to elite firms (large firms, state-owned enterprises, and private firms with political connections) in order to understand the nature of the Chinese economy, including its inclusiveness. Moreover, we examine how economically lagging regions compare with more advanced areas in China in terms of their BEs as well as their entrepreneur and firm characteristics. Regional disparity has been a key challenge for China. Indeed, while the ratio between GDP per capita of the richest region to that in the poorest region is 18 (Galor 2005), the corresponding ratio between the richest and the poorest prefecture in China is 27.⁶ Such regional disparities within China have lasted for centuries (Pomeranz 2000). This study attempts to shed light on whether these disparities can be partly explained by the quality differential in BEs.

We obtain many findings. First, contracting institutions between private parties have become more formal, as demonstrated by more formal mechanisms for corporate governance and stronger reliance on formal external finance. Thus, Chinese private firms adapted quickly

⁶ A typical prefecture has four million residents, comparable to Croatia and Singapore.

to take advantage of contracting institutions for their business and organizational practices. The commercial legal system has also made progress, as shown by a higher reliance on the court system for conflict resolution, and gradual improvement in the protection of intellectual property rights. Second, the government continues to play a strong and heavy-handed role. It has vastly improved infrastructure quality. It continues to provide favorable financial access to connected firms (i.e., SOEs and connected private firms). Progress in containing corruption and government expropriation has largely stagnated during our sample period of 1993 to 2012. Third, private entrepreneurs and firms have responded promptly to changes in the BE and grown tremendously over time. Private entrepreneurs have become much more educated. In 1992, the percentage of private entrepreneurs with college education was around 5%; this number rose a dozen-fold to 57% in 2012. They are much more likely to have non-state work experience now, though a large share still has a government-cadre background. Women have gained more prominence in the business world. The product market has become much more competitive over time, especially after China's WTO entry. The average number of employees of private firms rose from 61 in 1993 to 163 in 2012. Fourth, politically connected firms and non-connected firms face quite different BEs. Contrary to what one might expect of entrepreneurs in an increasingly prosperous country, the social and political statuses of non-connected entrepreneurs have in fact declined over time, underscoring their fragile footing in the Chinese economy. The BE also differs significantly between inland and coastal regions.

In other words, our findings imply progress in "contracting institutions" and a lack of progress in "property rights institutions" (Acemoglu and Johnson 2005; Cull and Xu 2005). During the two decades between 1993 and 2012, there has been rapid growth in "contracting institutions" (including improvement in the legal system and corporate governance), which facilitates human capital accumulation, firm entry, and competition. Substantial improvement in "property rights institutions" (for example, government expropriation), in contrast, has remained elusive, largely because the firms cannot sidestep the government in obtaining the services that are provided only by the government. A large subset of private firms thus cultivate political connections to facilitate access to scarce goods provided by the government such as credit, land, and licenses.

Our study is related to several strands of literature on the evolution and economic effects of the BE. First, to the best of our knowledge, this study is the first to investigate how the institutional environment, as well as firm and entrepreneur attributes, have evolved over decades in a large, emerging, and/or developing economy. The results add to the growing literature on BEs and entrepreneurship in developing economies (Ayyagari et al., 2008; Berkowitz and DeJong, 2005; Djankov et al., 2005, 2006; McMillan and Woodruff, 2002; Xu, 2011).

Second, by providing evidence on how a broad range of indicators have evolved in China, this paper complements the studies on specific BE aspects such as property rights (Che and Qian, 1998; Cull and Xu, 2005; Johnson et al., 2002; Roland, 2000), access to finance (Beck et al. 2005; 2006; 2008), courts (McMillan and Woodruff, 1999; 2002; Lu and Tao 2009; Long 2010), corruption (Clarke and Xu, 2004; Fisman and Svensson, 2007; Aidis and Mickiewicz 2006; Cai et al. 2011), and regulation (Klapper et al., 2006; Djankov et al., 2002).

Third, compared to the most-used marketization indices by Fan et al. (2011), our measures are largely based on responses by firms, especially private firms. Indeed, some components of the marketization indices may be indicators for economic outcomes instead of institutional quality (for example, the percentage of state owned shares in the region). The advantage of our measures is to provide a comprehensive set of information on how the most important economic agents themselves, i.e., firms (in particular, private firms), perceive the business environment in which they operate, and how that environment has evolved over time.⁷

Finally, our evidence sheds light on the interaction between the BE and entrepreneurship, and the role of government in development (Frye and Shleifer, 1997; Ayyagari et al., 2008; Brown et al., 2009; Xu, 2013). By detecting and comparing the disparity in the BEs faced by firms from different groups, we illustrate how, relative to elite firms, non-elite firms are affected by their BE (Beck et al. 2005; Bai, Heish and Song, 2014; Knack and Xu, 2015). Our results underscore the importance of political connections for understanding the workings of the Chinese economy (Li et al. 2006, 2008; Bai, Hsieh and Song 2014; Cull et al. 2015).

⁷ The data set will be available online upon publication of this paper.

2. Background and hypothesis development

Here we offer a conceptual framework to think about the logic behind the evolution of the BE and characteristics of entrepreneurs and firms.

2.1 Evolution of the business climate

A good BE plays an important role in promoting development by facilitating firm creation and growth. Governments in the developing world can play a critical role in facilitating good BEs by improving market-supporting institutions and infrastructure (World Bank, 2005; Besley and Persson 2009). To capture market supporting institutions, we focus on (i) the quality and quantity of infrastructure, (ii) the access to financial resources, (iii) the efficiency of local legal systems in solving business disputes and providing protection for contracting rights, as well as (iv) rights protection from government expropriation.

Infrastructure—including the provision of transportation, energy, water and sanitation, and telecommunications—plays an important role in allowing firms to specialize and expand. Low-quality infrastructure increases logistical and transaction costs, limits the extent to which firms can specialize, reduces the extent of the market, and increases the total costs of a product. Previous studies suggest that the quality of infrastructure has a significant impact on firm productivity, especially in developing countries (Fernald 1999; Dollar et al. 2009, Harrison et al. 2009; Clarke et al. 2015).

The infrastructure environment should improve over our sample period. Due to the strong incentives to develop the economy, and the strong state capacity in implementation, the Chinese central government has coordinated a large-scale program in infrastructure expansion, especially in building highways (Banerjee et al. 2012; Baum-Snow et al. 2018). Relative to institutional changes on property rights, for instance, it is easier for the party-state to adopt infrastructure expansion because it is consistent with its ideology, and the legitimacy of continued rule depends on improvement in economic performance, which could be vastly facilitated by better infrastructure. The fiscal reform in the mid-1990s also made the central government stronger fiscally, making a large-scale expansion in infrastructure feasible. *We thus expect firms to gain better access to infrastructure during our sample period.*

To start and run their firms, entrepreneurs need financing either from their own savings,

informal networks, or from financial markets. None are widely available to Chinese private firms, particularly at the onset of transition. Like those of many other developing countries, financial markets in China are underdeveloped, with the market structure highly concentrated around state-owned banks that are unwilling to finance the private sector or entrepreneurial activities. State-owned banks continue to favor state-owned firms and discriminate against private firms (Cull and Xu 2003; Brandt and Li, 2003; Cull et al., 2015). As a result, the government still exerts substantial control over the allocation of financial resources, with the consequence of private firms often being denied access to bank loans and other credit (Cull et al. 2009). However, there are also positive developments in access to finance: increasing commercial orientation to stay afloat (Cull and Xu 2000), the entry of foreign banks and the ownership reform of state-owned banks in China (Berger et al., 2009), all of which should facilitate access to finance by private firms. In light of the mixed nature of the finance landscape, we thus cautiously expect that *more private firms will get access to formal finance, which will potentially contribute to firm productivity improvement.*

Property rights protection has been emphasized from the birth of economics. The argument is also referred to as the rights hypothesis, i.e., a well-functioning legal system, which offers effective protection of private property and contracts, is a precondition for significant growth (Johnson, McMillan, and Woodruff 2000; Acemoglu, Johnson, and Robinson 2001). Adam Smith (1776) argued that “a fundamental proposition in economics holds that the security of property and the enforcement of contracts are essential for investment, trade, and ultimately economic growth to come about”. Property right institutions are emphasized to be fundamental for many kinds of economic activities, including entrepreneurship (North, 1990). More recent studies have provided evidence that property rights have pronounced effects on investment, financial development, long-run economic growth, and entrepreneurship (Johnson et al. 2002; Djankov et al., 2004; Acemoglu and Johnson 2005; Cull and Xu 2005), while the impairment of property rights would cause decreased investment (Besley 1995; Jacoby et al. 2002).

A key advancement in understanding the role of property-rights-related institutions is to distinguish contracting institutions and property rights institutions (Acemoglu and Johnson

2005). Contracting institutions refer to those that “enable private contracts between citizens”, while property rights institutions refer to those that “protect citizens against expropriation by the government and powerful elites.” They argue that government officials, and to a lesser extent, economic elites, can use force or other means to back up their demands and therefore pose real dangers. In contrast, when contracting institutions increase the costs of doing business in some way, contracting parties may use other ways of transacting. For example, instead of using bank finance, firms may rely on reputation-based financing methods such as trade credits (Coase 1960; Allen et al. 2005; Cull et al. 2009; Long and Zhang 2011). Cross-country empirical analysis tends to find much more pronounced effects of property rights institutions relative to contracting institutions (Acemoglu and Johnson 2005; Knack and Xu 2017), while China-specific firm study finds both to be relatively important (Cull and Xu 2005).

China has made significant progress in the legal system, though it likely remains weak in comparison to developed countries. A decade ago, the prevailing view was that China had a rather weak legal system (Clarke, Murrell and Whiting 2005), and the Chinese legal system likely has changed little since. Key issues with the legal system include government intervention, the lack of judicial independence, and the low density of lawyers in the population. For instance, there was one lawyer per 9,000 people in China in 2005 (right in the middle of our sample period), and the density was one lawyer per 300 people in the United States (Long 2010). Furthermore, firm-level Chinese data in the early 2000s suggest that firm-perceived quality of contract enforcement does not affect FDI inflow to Chinese districts (or counties), but local leadership characteristics matter, indicating relative importance of “rule of man” rather than the “rule of law” (Wang et al. 2012).

However, despite this prevailing view and related evidence, there are also indications that China has made progress in the legal system (Long 2010). Between 1983 and 2001, economic disputes accepted by courts of First Instance increased annually by 19.9 percent, much higher than those of civil disputes (8.8 percent). Between 1983 and 2005, the number of lawyers grew from 8,600 to 154,000, annually by 13.4 percent. Thus, both the usage and the human resources of the legal system have grown dramatically. There is also evidence of its positive effects. Cull and Xu (2005) find that contract institutions (e.g., the usage of courts, signing formal contracts,

and likelihood of upholding contracts) are positively associated with private firms' reinvestment. Long (2010) finds that the development of local legal systems (as proxied by the share of disputes resolved via the court system) is positively associated with firms' investment and innovation. Berkowitz, Lin and Ma (2015) show that the enactment of the Property Rights Law in 2006, an important milestone in China that signals *de jure* protection of private property rights, is associated with significantly higher firm values in the Chinese stock markets. It should be understood that the new Property Rights Law offers both better contracting institutions (i.e., protection for creditors) and better property rights institutions (i.e., protection from expropriation by local governments) (Berkowitz, Lin and Ma 2015). Overall, we thus expect that *in China, better contracting institutions will enhance firm performance, especially long-term investment.*

The property rights institutions, or institutions related to the “grabbing hand” (Shleifer and Vishny 1998), should play a more dominant role in determining firm performance (Acemoglu and Johnson 2005, Knack and Xu 2017). Worse property rights institutions, or predatory government policies, should raise the risks of investment and entry, and thus hurt firm performance and entry, as demonstrated by an emerging empirical literature. We discuss below key aspects of the property rights institutions in turn.

First, government *regulations on firm entry*, an important element of property rights institutions, assign market power to incumbent firms and determine barriers to competition. Stringent regulations on firm entry likely dull the incentives for protected firms to innovate and increase productivity, and further discourage the creation of firms, thus lowering the potential number of entrants into the market and reducing market competition. Studies have demonstrated that countries where it takes less time to register new businesses have benefited from more entry in expansionary industries (Ciccone and Papaioannou 2007), whereas countries with heavier regulations on entry have higher corruption and larger unofficial economies, but not better quality of public or private goods (Djankov et al. 2002). Costly regulations are also found to hamper the creation of new firms, especially in industries that should naturally have high entry (Klapper et al. 2006).

Second, taxation, corruption and other government expropriations discourage

entrepreneurial activities by increasing both the ongoing costs of doing business and the uncertainty in the future (Djankov et al., 2004).⁸ Based on firm-level studies, the effective corporate tax rate has a large adverse impact on entrepreneurial activities (Djankov et al. 2010), the perception of high taxes has a negative effect on the growth expectations of small firms in Lithuania (Aidis and Mickiewicz 2006)), and corruption has a significantly negative impact on firm productivity for Chinese firms (Cai et al. 2011).

Third, since the political connections of firms are a natural consequence of strong government power, to capture government power (and likely government expropriation), we also measure political connections and consider their determinants and likely effects. To overcome the obstacles introduced by institutional imperfections, entrepreneurs in developing countries actively cultivate political connections with the government and local officials, which helps them secure favorable regulatory conditions (Faccio 2005) and gain access to resources such as bank loans (Khwaja and Mian 2005; Li et al., 2008; Cull et al. 2014). However, if using political connections to do business is routinized by local entrepreneurs, it will create additional barriers for local institutions to evolve from relation-based governance to rule-based governance, as those connected entrepreneurs benefitting from the status quo would become vested interest groups of the current governance system and have the incentive to maintain or even further strengthen their positions (Acemoglu, Johnson, Robinson, 2005). Furthermore, with sufficient support from connected entrepreneurs, and with abundant rents to share under this system, the central government would have few incentives to reform the *de jure* property rights protection system.

As a result, we expect the progress in property rights institutions and in restraining government expropriation to be slow, and that the prevalence of political connections may worsen the adverse effects of government expropriation and regulation discussed above. Thus, we have the following hypotheses:

Hypothesis 1. The overall BE for Chinese firms has improved over time. Firms gradually

⁸ It should be mentioned that taxation, when being perfectly enforced (without arbitrary government discretion) could be viewed not as government expropriation. Now many scholars argue the key, and potentially positive, roles that can be played by government taxation in boosting state capacity and resulting in long-term development. For this literature, see Besley and Persson (2009, 2010).

enjoy better contracting institutions, better infrastructure, and easier access to external financing.

Hypothesis 2. The progress on property rights institutions and restraining government expropriation would be slow over time.

2.2 Evolution of entrepreneur and firm characteristics

Entrepreneurs play a central role in transitional and developing economies: more willing to take risks and better able to take advantage of disequilibria and opportunities, they establish new firms, mobilize savings, create job opportunities, and provide new and better consumer goods (McMillan and Woodruff, 2002). Despite the essential role played by entrepreneurs in promoting economic transition and growth, there are few studies on who they are and how their characteristics evolve (Djankov et al., 2006).

A key factor in shaping the development of entrepreneurship in transitional economies is institutional changes (Smallbone and Welter, 2001). In the early stage of economic transition, the disruption of previous resource allocation mechanisms, such as the changing roles of the price mechanism, creates opportunities for mainly Kirznerian type of entrepreneurs who discover and pursue opportunities within the adjustment process of price systems during the transition (Kirzner, 1997). In the later stage, the development of market supporting institutions, such as the development of the legal system and the buildup of infrastructure, provides better mechanisms for resource allocation, information gathering, contract enforcement, and property protection. At this stage, Schumpeterian entrepreneurs who make innovations, introduce new products or new methods of production, and create new organizations of an industry, become more viable (Estrin et al., 2005). Now entrepreneurs have to improve their education, management skills, and professional knowledge to capture new business opportunities. The period we cover, 1993 to 2012, spans a period of deepening economic transition. It started with Deng Xiaoping's Southern Tour to promote market institutions (in 1992), saw China join the WTO (in 2001) to engage more fully with international competition and supply chains (Brandt et al. 2017), and covered the decentralization and privatization of state-owned enterprises in the late 1990s to early 2000s (Xu et al. 2005; Hsieh and Song 2015; Huang et al. 2017). All these fundamental changes point to the latter stage of transition favorable to Schumpeterian

entrepreneurs. Accordingly, we expect Chinese private firms to become larger, more productive, more competitive, and more innovative.

Hypothesis 3. As China has become more developed in the past two decades, entrepreneurs have become more professional and better-educated, and firms have become larger, more innovative, and more export-oriented.

2.3 Evolution of firm governance mechanisms

Rapid development in China should facilitate the transition of business governance mechanisms from relation-based governance to rule-based governance (Li et al. 2003). In the early stages of economic development, when formal institutions are weak, most business transactions and management activities are based on personal and implicit mechanisms such as reputation and personal relationships, instead of formal contracts that are enforceable by the courts. But as business expands, the average cost of relation-based business models will rise when searching and monitoring costs increase. In contrast, with the market expansion, the average cost of rule-based governance business models will decrease because the larger fixed costs will be shared by more firms and more intensive usage by firms is expected. Thus, firms will increasingly rely on formal mechanisms such as courts and contracts in business transactions.

Under relation-based governance, the infrastructure for rule-based governance is weak, and private entrepreneurs tend to hire their family members as managers of the firm rather than professional managers. When relation-based governance changes to rule-based governance, managerial labor markets (including the market for corporate board members) become better developed and cooperate governance should become more formal.

Economic development also changes the way that firms finance themselves (McMillan and Woodruff, 2002). In the early stages of economic transition, firms can overcome the obstacle of under-developed financial markets by reinvesting retained earnings and draw funds from informal sources such as family and friends. When they use external finance, they largely rely on relationships such as social networks and political connections in the state-owned banking system (Cull et al. 2019). As transition proceeds, profit rates decline due to entry, and investment projects become larger and require more time, leading firms to increasingly rely on

external rather than internal financing. Thus, we expect that as the transition moves along-- China's GDP per capita in PPP rose from around US\$2,900 (in 2011 US\$) in 1993 to about US\$11,000 in 2012⁹-- Chinese firms will rely less on political connections and more on formal institutions such as courts and banks.

Hypothesis 4. As the Chinese economy grows, firms rely more on courts, contracts, and external financing and less on families, retained earnings, and political connections. Moreover, firms improve their corporate governance and adopt more formal governance mechanisms (i.e., the board of directors and board of shareholders).

3. Data description

Our key firm-level data consist of 10 waves of a nationwide survey of privately-owned firms (NSPF) in China, conducted in 1991, 1993, 1995, 1997, 2000, 2002, 2004, 2006, 2008, and 2012 jointly by the All China Industry and Commerce Federation, the Center for Private Economy Studies at the Chinese Academy of Social Sciences, and the CCP United Front Work Department. Our study ends in year 2012, which is the last year the NSPF data are publicly available. The sampling method used in NSPF was multistage-stratified random sampling to achieve a balanced representation of private firms across regions and industries. First, the total number of private firms to be surveyed was determined. Second, six cities or counties were selected from each province, including the capital city, one prefecture-level city, one county-level city, and three counties. Next, the number of private firms to be surveyed in each province was determined as the product of the share of local private firms in the national total and the total sample size. The numbers of firms in each city, county, and sector were likewise determined. The survey thus covers firms in 19 sectors ranging from agriculture to service industries in 31 provinces, municipalities, autonomous regions in China. And consequently, NSPF is the most comprehensive survey on private firms and their BEs in China.

The survey was then conducted through interviews with firm owners. The survey covers owner attributes (i.e., family background, human capital, political connections, and occupational experiences) and firm attributes (i.e., size, age, and basic financial background). More importantly, the survey has information on firms' external environments such as court

⁹ Data sources: Penn World Table version 9.0.

usage, property right protection, access to finance, and government expropriation. Thus, NSPF allows us to study how China's private firms and their BEs vary over the two decades and across all the provinces. Table A1 in the appendix displays the distribution of observations across years and provinces, and Table A2, the sectoral distribution. As Table A1 shows, most private firms in this data set are from prosperous coastal provinces such as Beijing, Shanghai, Zhejiang, Jiangsu, Guangdong, and Shandong.

The second firm-level data set is an unbalanced panel of the Annual Survey of Industrial Firms (ASIF) from 1998 to 2008, compiled by China's National Bureau of Statistics (NBS). ASIF contains an annual survey of two types of manufacturing firms: all state-owned enterprises (SOEs) and non-SOEs with annual sales over a certain threshold level (RMB 5 million before 2002 and RMB 2,000 million afterwards). On average, the sample accounts for over 95% of China's total annual output in industrial sectors covering mining, manufacturing, and public utilities. The data set has 100+ variables from the firms' main financial statements, including balance sheets, income statements, and cash flow statements. ASIF will thus help us study the disparities in firm characteristics and their external environments, among firms with different ownership types. Table A3 presents the distribution of observations from ASIF.

The third firm-level data set consists of listed firms in China: the China Stock Market and Accounting Research (CSMAR) database constructed by GTA Information Technology. It covers all companies listed on the two major stock exchanges (Shanghai and Shenzhen Stock Exchanges) since 1990, covering both financial statements and corporate governance information. We rely on these three large-scale firm level data sets (i.e., NSPF, ASIF, and CSMAR) to make comprehensive comparisons among firms across sectors, sizes, and ownership types.

The fourth data set is the firm-level survey conducted by the World Bank in 2005, which includes 12,400 firms located in 120 cities covering all Chinese provinces except Tibet. The provincial capital of each province, usually the most populous city, is automatically covered, as well as additional cities according to the province's economic size. One hundred firms from each city are included, except for the four provincial level cities of Beijing, Shanghai, Tianjin, and Chongqing, where 200 firms each are selected. The responses given during the survey

provide a wide range of information on firms' production capacity and their BE. While the firms were requested to provide information as of 2004, for many accounting measures, information from up to three years prior was also collected.

The fifth data source concerns intellectual property (IP) cases in China. The data set comes from a collection of nation-wide online IP cases from 2005 to 2013. We use it to construct several measures on IP protection in China at different levels. In particular, we construct a measure on the enforcement quality of IP rights by using the proportion of IP infringement cases won by the plaintiff in the local courts (Ang et al., 2014).¹⁰

To construct provincial level indicators on entrepreneurship and BE, we match most of the data at the provincial level and then average firm-level indicators in the same region.¹¹

4. Main results

Evolution of the role of the state and the BE

Throughout the last two decades, the government has remained crucially important for both setting up the rules and keeping control over resource allocations despite the rapid expansion of market institutions in China, implying a dual-track feature that characterizes China's economic reforms. As shown in Figure 1a, both the shares of state ownership in industrial output and industrial assets have declined substantially since the mid-1990s, thanks to ownership reforms in the state sector (Xu et al. 2005). Nevertheless, state ownership still maintains a considerable share in industrial sector until 2012, accounting for about 30% of industrial output and 40% of industrial assets. Moreover, both the share of foreign ownership in industrial output and industrial assets rose, especially after China's entry into the WTO, and dropped slightly after the global financial crisis in 2008 (Figure 1b). The dual-track development pattern also emerges in the regional distribution of different types of ownership. Compared with more marketized coastal regions, state ownership plays a greater role in inland regions due to the stronger government control of economic resources (Figures 1c and 1d).

We now turn to the evolution of the BE. The quality of property rights protection is

¹⁰ The assumption is made here that cases are randomly distributed across regions in terms of legal strength, which then implies the positive relationship between plaintiff win rate and the IP protection level in the region.

¹¹ Ideally, we would like to make inference based on sampling weights. Unfortunately, these sampling weights are not publicly available. As a result, we rely on simple averages for constructing most of our institutional indexes.

captured by two indicators. The first concerns intellectual property (IP) rights protection, which is proxied by the proportion of IP infringement cases won by the plaintiff in the local courts. Given the substantial monetary costs to initiate lawsuits in China, the probability of winning an IP infringement case by the IP owner is a reasonable proxy for the enforcement quality of IP rights (Ang et al., 2014). The second measure is on how well a firm's property rights and legal contracts can be protected by the local legal system, based on firms' responses to the following question from the World Bank Enterprise Survey (WBES): "Regarding commercial or other legal disputes, in what percent of cases were your company's legal contracts or properties protected when a verdict was given and enforced?"

The court supports the plaintiffs in most of the IP infringement cases, with over 80% of plaintiffs winning in the local court (see Panel A in Table 1). This percentage has risen from 81% in 2006 to 92% by 2013, signaling steady improvement in IP protection. Regional variations are only feasible from the WBES, which indicates that firms in coastal provinces report better protection for property rights and legal contracts than those in inland provinces (see Panel B).

Infrastructure quality is measured as follows. The first focuses on roads. By utilizing data from statistical yearbooks of China, we construct measures such as the lengths of highways and expressways for each province. Second, by using the WBES data, we construct measures of energy provision capacities (i.e., frequency of power outages) and the efficiency of telecommunication services (i.e., days needed to install a new telephone and days needed to gain access to internet services). Finally, we collect data on internet access, since internet access is found to significantly affect firms' sales growth and productivity level around the world and is a general-purpose technology (Clarke et al. 2015).

Panel C in Table 1 indicates quantum leaps in infrastructure provision in China during the economic reforms, with the quantity of roads, railways, and expressways skyrocketing. For instance, the average length of highways at the provincial level rose from 3.6 (in 10,000 km) in 1993 to 14.8 in 2015. Within 10 years, the percentage of the population covered by internet service increased from 4.6 to over 50 percent. Infrastructure access exhibits some, but only *limited*, regional variations. Compared with coastal provinces, firms in inland regions face

slightly more frequent power outages, more interruptions in phone and internet services, and higher costs for getting access to phone and internet services (see Panel D in Table 1).

With respect to *government regulation and expropriation*, we focus on regulations on firm entry as well as expropriation activities of the government. Since comprehensive measures of entry reforms are infeasible, and the enforcement of entry regulations varies across regions, we focus on the measurable effects of entry regulation, the *degree of competition*, which is captured by the Herfindahl–Hirschman Index in a specific sector (referred as HH-index hereafter). Relying on the annual surveys of industrial firms—the most comprehensive panel data of Chinese firms—we explore how competition has evolved and differed across regions. The degree of competition has risen substantially over time (Figure 2a), especially after the 2001 entry to the WTO. The increase in competition persisted for three years afterwards, stabilizing during 2004 to 2007. Firms in inland regions face much less competition than those in coastal regions (see Figure 2b), which feature more developed markets and denser concentration of firms.

Government expropriation of firms is captured by three variables. The first is the tax burden, perhaps the most common source of complaints from entrepreneurs worldwide. In developing economies, the informality of tax collection process, coupled with poor administration and corruption, places a disproportionate burden on those who comply, and thus distorts competition. The second variable measures extralegal fees and special assessment fees collected by local governments, which are more arbitrary and likely more harmful than taxes (Fisman and Svensson, 2007). The third variable is firms' expenses on entertaining local cadres and cultivating public relationship (referred to as ETC),¹² which are shown to be mostly related to bribery and corruption and a good proxy of corruption (Cai et al., 2011).

The extent of government expropriation faced by private firms has experienced little improvement despite the rapid growth of the private sector in China (see Panel A in Table 2). The burden from conventional taxes as well as extralegal fees has not shown a clear trend over the last two decades. On average, private firms spend 2% of their revenue on entertainment (and travels), but larger firms and firms in coastal regions face less severe expropriation (see

¹² ETC also contains legitimate expenses for firm business operations.

Panel B and Panel C). This lack of improvement is not surprising: we have repeatedly shown that the government continues to play a very important role in interacting with firms.

Larger firms face lighter government expropriation on average, and so do politically connected firms (i.e., Party membership for firm owners)—the sign tends to be consistent, though the coefficient is often insignificant (see Table 3). Interestingly, female-headed firms experience higher fee/sales, and the coefficients on other expropriation outcomes are also positive though insignificant. This is consistent with an emerging literature from firm-level and cross-country evidence that women are less involved in and more ill-adapted to corruption (Dollar et al. 2001; Swamy et al. 2001; Hanousek et al. 2017).

Evolution of entrepreneurs and firm characteristics

Here we rely on the nation-wide private enterprise survey data on small- and medium-sized firms, and the CSMAR data on listed (and thus large) firms.

Evolution of entrepreneur characteristics. On average, Chinese private entrepreneurs are 43 year old. The age profile remains stable over time. The percentage of female entrepreneurs has risen steadily from 11% in 1991 to 17% in 2012, indicating declining disadvantage for women to run businesses. Most significantly, the education of private entrepreneurs has improved significantly, from fewer than 9 years in 1991 to around 15 years in 2012. According to panel A of Table 4, only 5.2% of private entrepreneurs finished college in 1991, whereas 65% of them did so in 2012. The education levels of private entrepreneurs in larger firms are higher and have improved faster than those in smaller firms (see panel B of table 4). On average, the number of years of schooling is higher by 1.5 years among the top-quartile-asset firms than among those in the bottom-quartile-asset firms. The fast improvement in the education level of entrepreneurs indicates that Chinese talent allocation is increasingly shifted to the productive private sector, mostly from the government and the state sector. Since talent allocation between the government and the private sectors is crucial for long-term development (Baumol 1990, Murphy, Shleifer and Vishny 1991), this trend bodes well for China's future.

The social background of private entrepreneurs in China has changed substantially over the decades (Table 6). In the early 1990s, the largest proportion of private entrepreneurs came from the state sector (i.e., the government, state-owned enterprises, or the army). By 2012,

however, most private entrepreneurs came from the non-state sector such as farming, household enterprises, and other fields. Furthermore, the share of entrepreneurs with experience being village cadres has risen from 8 percent in 1997 to 28 percent in 2012. The evolution of entrepreneur experiences indicates *the dual-track nature of entrepreneur origins*: the rising importance of non-state experience among private entrepreneurs, accompanied by rising importance of grass-root cadre experiences (i.e., village cadres).

To overcome institutional obstacles, entrepreneurs in developing countries cultivate political connections with officials, which help them secure favorable regulatory conditions and gain access to scarce resources such as bank loans (Faccio 2005, Khwaja and Mian 2005; Li et al., 2008; Cull et al. 2015). To capture entrepreneurs' political connections, we rely on three measures: whether an entrepreneur is a member of the Chinese Communist Party (the Party for short), their memberships in the People's Congress (Congress for short), or in Chinese People's Political Consultative Conference (Consultative Conference for short) at various levels. The literature presumes that political connections should become less important when the economy moves from the relation-based to the rule-of-law-based governance (McMillan and Woodruff 2002; Li et al., 2004). Thus, we use the extent to which firms rely on political connections to indicate whether the market supporting institutions have improved.

Private firms in China have been developing closer relationships with the government over the years. The percentage of private entrepreneurs with Party membership has increased from 12% in 1993 to 34% in 2012; that with Congress membership, from 10% in 1997 to 16% in 2012. The percentage of private entrepreneurs holding Consultative Conference memberships has hovered around 25% (Panel D, Table 4).

It is unclear if the stronger involvement of private firms with the government is good or bad for China's development. To the extent that the government is forging a stronger connection with the private sector to involve the business sector in the policy-making process, it could facilitate development. But if such relationships encourage collusion between connected firms and the government for the benefits of connected firms at the expense of non-connected firms, it bodes poorly for both growth and distribution in the long run.

Since the statuses of entrepreneurs reflect the changing BE in China, we analyze several indicators on entrepreneur status. The past four decades must surely have seen the birth of the most new riches in China's long history—after all, the real income (measured in 1990 international dollars) had fluctuated from \$840 (in 1990 value) in 1020 to \$600 in 1850 (Broadberry, Guan and Li 2018), but was \$14,400 in 2016. While new business elites have emerged, government power remains important, perhaps more so with the fast expansion of the size of the economy. Since status indicators tend to be summary statistics of what are valued in the society and reflect the evolution of the BE, we follow sociologists to examine three types of status: economic status (i.e., wealth), political status (i.e., power), and social status (i.e., prestige) (Weber 1946). In the data set, private entrepreneurs were asked to rank their relative social, political, and economic statuses, and responses to each status rank from 1 (the lowest) to 10 (the highest).

Perhaps surprisingly, private entrepreneurs' social, political, and economic statuses have all *declined* over time (see Figure 3a), especially for those without political connections (Figure 3b). These findings suggest that the property rights protection for un-connected private entrepreneurs in China has remained fragile and may have worsened. The finding is also consistent with Miao et al. (2019), which find that the urban land titling program in Shenzhen (of China) led to a higher investment rate only for listed firms with political connections. The rising disparity in status between connected and non-connected entrepreneurs suggests that access to power and to power-induced resources (such as bank loans, land, and licenses) has remained important for determining the overall status of entrepreneurs.

According to the regression results on the determinants of the self-perceived statuses in Table 5, these status indicators are higher in provinces with a greater presence of FDI (i.e., FDI over total investment), and for larger firms. The self-perceived status also rises with the entrepreneur's own schooling, and his/her political connections (measured by their Party membership or position in Congress or in Consultative Conference). The boost in perceived status rises the most with Congress or Consultative Conference membership, followed by Party membership, consistent with the notion that access to greater power in the party/government hierarchy confers greater status. The small magnitude for own schooling (i.e., one additional

year raises the social status by only 0.02) pales relative to that for indicators to access to power (i.e., 0.82 for Congress or Consultative Conference memberships), indicating a higher return (in terms of raising political and social statuses) to political capital (and potentially rent seeking) than that to human capital investment, and that there is likely persistent discrimination against non-elite firms. Interestingly, the current implicit encouragement to attain political office for elites reflects the millennium-long tradition of the paramount importance of power in traditional Chinese societies.

Evolution of firm characteristics. Based on the private enterprise surveys, the annual surveys of industrial firms, and the CSMAR database on listed firms, we obtain three findings. First, as shown in panels A (for private firms) and B (for listed firms) of Table 6, Chinese private firms have expanded rapidly in size whether as measured by firm assets or by the number of employees. The average number of employees from the private enterprise surveys rises from 61 in 1993 to 163 in 2012, an increase of 167 percentage points. Moreover, the capital intensity of private firms has quadrupled on average, indicating rapid technological upgrading.

Second, whether measured by input (R&D input) or output (number of patents, and sales of new products), Chinese private firms have become increasingly innovative.¹³ They invest more in R&D and training, and have more patents and self-designed products over time (panel B in Table 6). Moreover, the intensity of firm innovation displays substantial variations across regions and firm size, with larger firms and coastal firms being significantly more innovative (panel B in Table 6 and Figure 4). Furthermore, private firms invest much larger proportions of their revenue in R&D than state-owned enterprises: the relative R&D intensity (i.e., R&D expenditure over sales) of private firms is seven-fold that of SOEs (panel B in Table 6).

Table 7 presents the regression results on the determinants of innovation intensity in private firms. The innovation intensity is higher in private firms that are larger and located in regions with more FDI and is lower for firms with strong political connections (i.e., with the firm head being Congress member or Consultative Conference member). This finding is consistent with findings elsewhere in the world. For instance, Akcigit et al. (2017) find that

¹³ See Wei et al. (2017) for further summary of evidence on innovation in China.

politically connected Italian firms have lower innovation, suggesting that connected firms focusing on rent seeking are less innovative (Murphy, Shleifer and Vishny 1991). Interestingly, female-headed private firms innovate more.

Third, several measures of firm performance (i.e. export, reinvestment, and profitability) paint a mixed picture of how private firms have fared over time. As shown in table 8, the profitability of private firms, measured by return on equity, has a U-shaped trajectory over time: relatively high in 1995-2000, bottomed between 2002-2008, and rose again in 2010-2012. This is consistent with intensified competition associated with China's WTO entry resulting in lower profitability for private firms, which then adapted to fiercer competition and improved over time. On average, private firms retain a large proportion of their profit to re-invest in their firms, which accounts for 40% of their total profit. However, the decline since 2010 in reinvestment rate, from 47 percent to 10-22 percent in 2010-2012, is worrisome, and is consistent with the common perception that the incentives to invest have been lacking for Chinese private firms during the last half decade.¹⁴ Relatedly, we also see a significant drop in the ratio of export over sales in the 2010-2012 period, from 4.5 percent in 2008 to around 3.3 percent.

Panel B of Table 8 examines the key determinants of profitability. Profitability is lower in more FDI-oriented areas, indicating the role of foreign competition in reducing profit margins for domestic private firms. Large private firms tend to have higher profitability. Consistent with the prior finding of female-headed firms have more innovation, they also have higher profitability by 2.3 percentage points, a large performance premium. Importantly, private firms with more educated owners have higher profitability. Combined with our prior finding that the education level of owners of private firms rose rapidly, this finding suggests that private firms with strong human capital at the top level are gaining comparative advantage over their counterparts with less human capital. The improvement of human capital thus likely is a key driving force for the development of the private sector in China over the past two decades. Finally, politically connected firms have significantly higher profitability, as judged by both

¹⁴ Insufficient investment incentives are a serious issue that has caused public concern in China. See, for example, "Private firms lack investment incentives due to insecure property protection" *People's Daily*, December 12, 2016.

party affiliation and by membership in local Congress or Consultative Conference. These findings thus show that private firms have followed dual-track routes, one external and one internal, for gaining commercial advantages: political connection and human capital of owners. Whereas the external route relies more on the power of the government, most likely originating from preferential treatment, the internal route resorts to the strengthening of the firm's own competitiveness to win in the market system. The importance of both routes in determining profit rates of private firms highlights the complexity of the BE in China.

Evolution of firm governance mechanisms. To measure Chinese firms' reliance on formal legal institutions, we use two indicators on the efficiency of local courts in solving business disputes. The first is the proportion of local firms resorting to the legal system in the event of a business dispute; the second is the percentage of firms being satisfied with the legal system's resolution. Both measures are based on the private firm surveys. These measures are chosen because firms will resort to courts to resolve business problems or commercial disputes only when they have sufficient confidence in the quality of the court system (Long 2010; Li et al. 2008).

Chinese private firms have increasingly relied on formal mechanisms such as courts to resolve business disputes instead of resorting to private negotiations or suffering in silence, and they are more satisfied with court resolutions over time, implying more confidence in the legal system (see panels A and B in table 9). Strikingly, the share of firms using the court system to resolve disputes more than tripled, rising from 9 percent in 1995 to 32 percent in 2006. Equally surprisingly, the share of disputes resolved via the route of "appealing to the local government" rose from 2 percent to 21 percent, an increase by 10 times. Interestingly, the ratio of being satisfied with dispute resolutions by courts has increased from 54 percent in 1995 to 83 percent in 2006; and the corresponding satisfaction rate via appeals to local governments has also risen from 63 percent in 1995 to 91 percent in 2006. Thus, we witness a dual-track system of conflict resolutions: the increasing reliance on formal market-supporting institutions and also an ever-stronger clinging to the government, with satisfactory resolution outcomes in both cases.

Politically-connected firms use the formal court system to a greater extent (see Panel C of Table 9 and Figure 5). Firms with state origin (i.e., privatized firms) or government connections

(i.e., membership in the local Congress) are more likely to choose the court system. This likely reflects the bias of the court system in favoring private firms with government connections. Interestingly, private entrepreneurs with higher education levels also use courts more frequently. Again, better-educated private owners are increasingly relying on formal market institutions.

To establish and operate their firms, entrepreneurs need financial resources either from their own savings or from financial markets, formal or informal (Beck et al. 2005). To explore firms' financial access in China, we use three variables. The first is the amount of bank loans from state-owned banks, city commercial banks, and shareholding banks, which captures firms' access to formal financial resources. The second is the amount of loans from informal lending institutions and individuals, which represents informal financial access. The third variable is trade credit from business partners. With these three measures of financial access, we investigate whether the financial access by private firms has improved over time and whether loan access, formal and informal, varies with firm attributes and entrepreneur characteristics.

Private firms have increasingly relied on formal financing from state banks and other state-owned institutions and have reduced reliance on informal financing from non-government institutions and individuals (panel A in table 10), which suggests improvement in the banking system in providing credit to private firms. Nevertheless, the pattern of firm financing differs significantly across regions. Compared to coastal provinces, informal financing plays a more important role in inland provinces where the formal financial market is less developed (panel B in Table 10). In line with previous studies, we also find that firms with political connections have better access to formal financing (panel C in Table 10).

We construct four measures of corporate governance and control. The first is the percentage of firm shares directly held by the private entrepreneur, which measures family ownership. The second is the percentage of private entrepreneurs who make major decisions on business activities of their firms, which captures private entrepreneurs' direct influence on their firms. The third is the percentage of firms with a board of shareholders or a board of directors, which provides monitoring over top managers. The final measure is the percentage of firms that hire professional managers in daily management, which could shed light on whether firm management has become more formal.

Private firms have substantially diversified their control structure, with the share held by private entrepreneurs continuously declining over time (panel D of table 10). The company share owned by the owner has dropped from 91 percent in 1995 to 75 percent in 2012. At the same time, corporate management is becoming more professional. The percentage of firms directly managed by private entrepreneurs has dropped over time, and an increasing number of private firms employ professional managers for their daily management (from 3 percent in 2000 to a quarter in 2012). To improve the formality of corporate governance, more and more private firms have established a board of shareholders, board of directors, or board of supervisors in their management structure. Panel D of table 10 further shows that corporate governance is more formal in larger firms. Overall, the evidence suggests that corporate management and corporate control have improved significantly for private firms in China over the two decades, but private Chinese firms are still mainly family firms.

5. Conclusion

Few studies in the literature of the business environment have explored how the business environment and entrepreneurship characteristics evolve over time across sub-national regions. In addition, we know little about how entrepreneurship responds to changes in the business environment. Such a gap in knowledge renders our understanding about the business environment incomplete. In this study, we attempt to fill some of the gaps in the literature by examining how a broad range of business environment aspects and entrepreneur characteristics have evolved in China—against the background of two decades’ rapid economic growth.

Overall, we find that the Chinese business environment can be best characterized as having experienced a dual-track evolution: both the market-supporting elements and the government-dependent elements have strengthened over time, perhaps for different subsets of firms.¹⁵ We find that private entrepreneurs in China have been responsive to changes in their business environment by improving their education and corporate governance mechanisms. We also provide evidence that different elements of the business environment are not equal in their

¹⁵ This is similar to the finding in Huang et al. (2017) that Chinese state-owned enterprises can be characterized as governed either by market forces or by “commanding heights” considerations, with the latter type being made up by a minority of SOEs.

speed of adjustment: entrepreneurs' human capital, market competition and infrastructure quality have improved rapidly, while progress in restraining government expropriation and limiting political connections has largely stagnated. Perhaps underscoring the rising importance of government control in private sector development, we find that politically-unconnected entrepreneurs have experienced declining status in the society.

An implication of our research is on the efficiency of the dual-track approach to reforms (i.e., the co-existence of the plan track and the market track for governing resource allocations of firms). Having the plan and/or government track has the benefit of compensating political losers in the initial stage of transition, and likely has facilitated the whole reform process (Lau, Qian and Roland 2000). But once such arrangement is institutionalized, government officials and connected entrepreneurs--which may also endogenously expand in strength and in number--could form entrenched interest groups, and block further reforms that would establish de jure institutions that protect property rights of non-connected private entrepreneurs (Acemoglu, Johnson and Robinson, 2005). Our research thus suggests that leveling the playing field for connected and non-connected firms remains a daunting task for China's further development.

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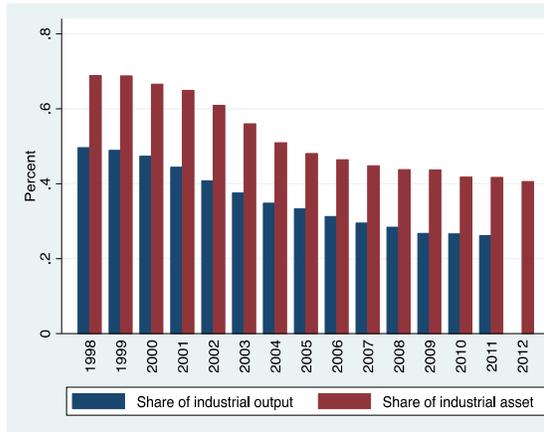
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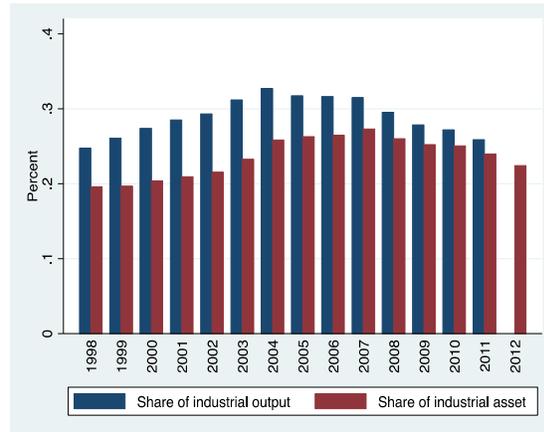
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Figure 1a. Share of SOEs in industrial sector



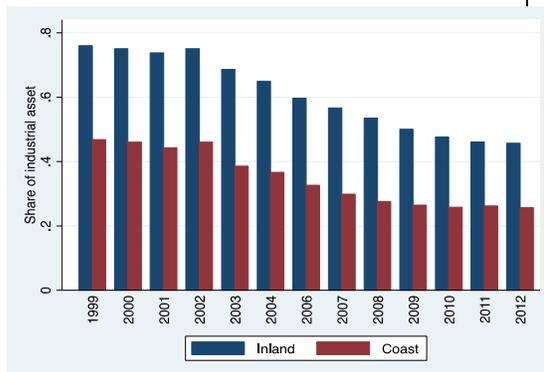
Data sources: Statistical Yearbook of China

Figure 1b. Share of foreign firms in industrial sector



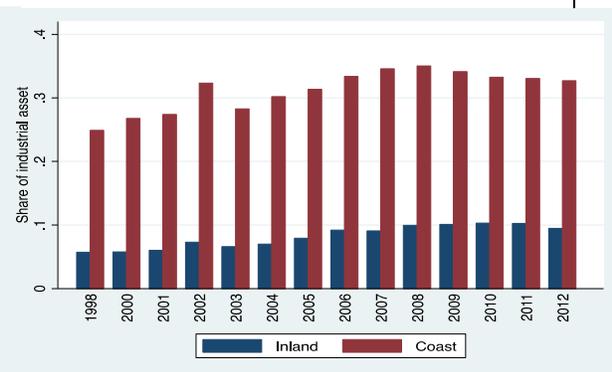
Data sources: Statistical Yearbook of China

Figure 1c. Share of SOEs in industrial sector:
Inland regions v. coastal regions



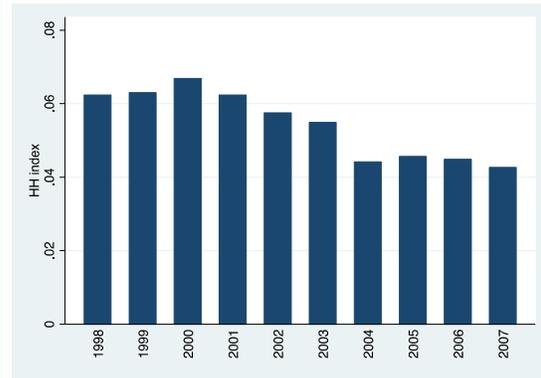
Data sources: Statistical Yearbook of China

Figure 1d. Share of foreign firms in industrial sector:
Inland regions v. coastal regions



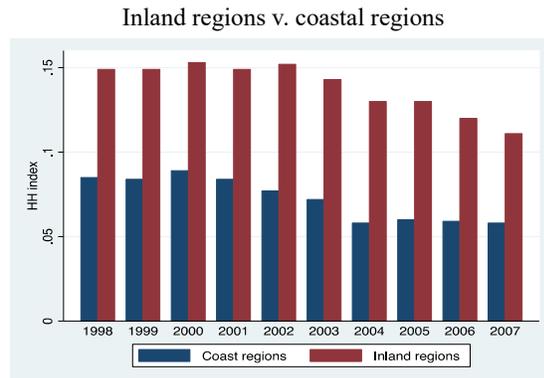
Data sources: Statistical Yearbook of China

Figure 2a. Extent of market concentration



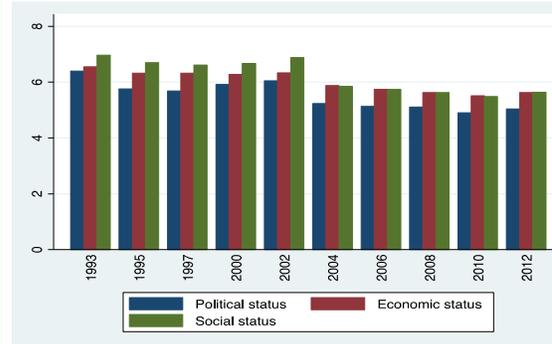
Data sources: Annual industrial firm survey

Figure 2b. Market concentration:
Inland regions v. coastal regions



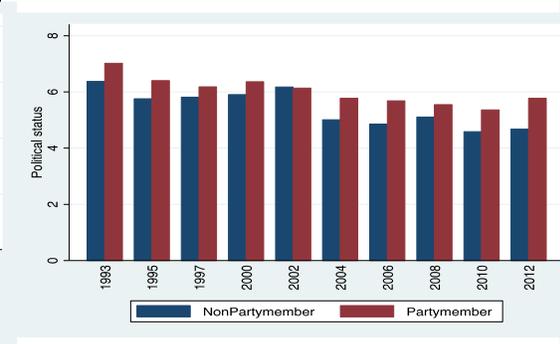
Data sources: Annual industrial firm survey

Figure 3a. Self-perceived statuses of private entrepreneurs in China



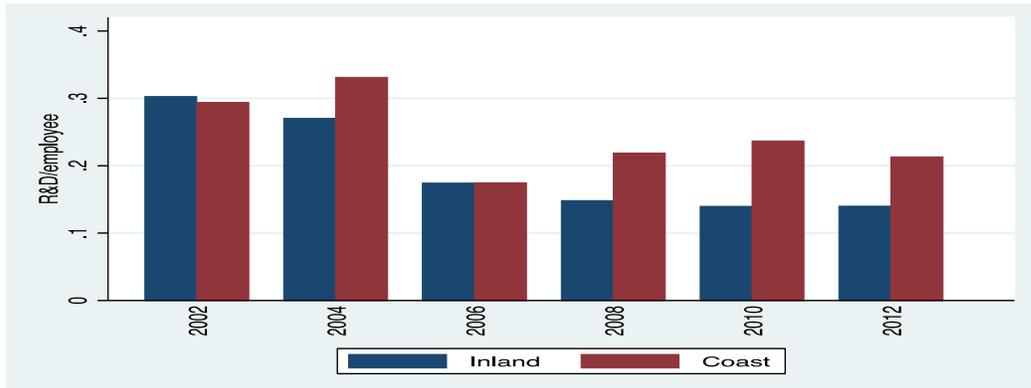
Data sources: National Surveys of Privately Owned Enterprises in China

Figure 3b. Political connection and self-perceived political status



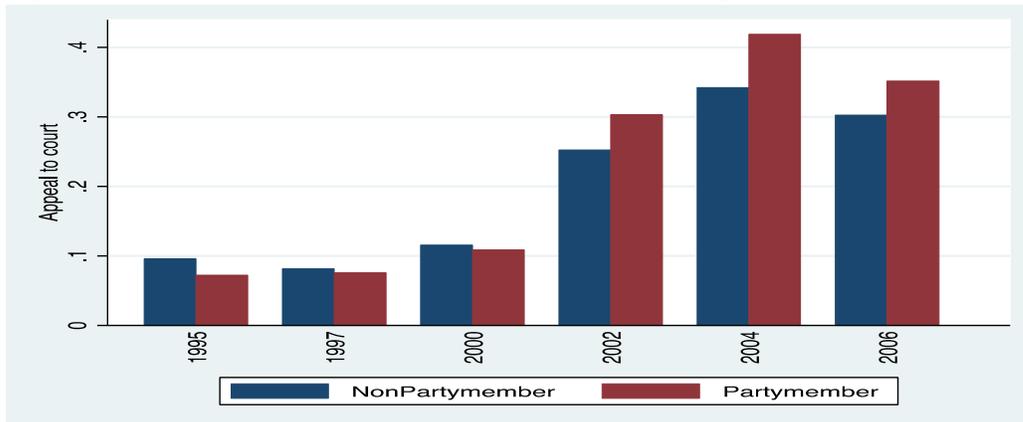
Data sources: National Surveys of Privately Owned Enterprises in China

Figure 4. Geographic distribution of R&D expenditure/sales: Inland v. coastal regions



Data sources: National Surveys of Privately Owned Enterprises in China

Figure 5. Political connection and resolution of business disputes



Data sources: *National Surveys of Privately Owned Enterprises in China*

Table 1. The quality of property right protection and infrastructure

Panel A: The proportion of IP infringement cases won by the plaintiff							
2006	2007	2008	2009	2010	2011	2012	2013
0.814	0.833	0.855	0.865	0.876	0.815	0.875	0.918
Panel B: The probability of getting legal protection for property rights and legal contracts							
Inland	0.601						
Coast	0.668						
Panel C: Road and railway access							
Year	Length of highways (10000 km)	Popularization Rate of internet (%)	Telephone (Including Mobile) (sets/100 persons)	Length of railway (10000 km)	Length of expressway (10000 km)		
1993	3.611	.	2.20	0.201	0.011		
1995	3.856	.	4.66	0.205	0.015		
1997	3.956	.	8.11	0.220	0.020		
1999	4.360	.	13.12	0.218	0.042		
2001	5.477	.	26.55	0.234	0.065		
2003	5.838	4.6	42.16	0.244	0.098		
2005	6.227	7.3	57.22	0.252	0.137		
2007	11.56	10.5	69.45	0.252	0.180		
2009	12.46	22.6	79.89	0.276	0.217		
2011	13.25	34.3	94.81	0.302	0.283		
2012	13.67	38.3	103.10	0.315	0.320		
2013	14.05	42.1	109.95	0.333	0.348		
2014	14.40	47.9	112.26	0.361	0.362		
2015	14.77	50.3	109.30	0.390	0.397		
Panel D: Quality and stability of infrastructure access							
	No. of power outages per year	Phone service interrupted (per month)	Internet service interrupted (per month)	Days to install a new telephone	Days needed to gain the access to Internet		
Inland	11.43	0.496	1.035	2.863	3.789		
Coast	11.15	0.297	0.828	2.965	3.718		

Data sources: IP infringement cases are from Peking University legal case database (BeiDaFaBao); The probability of getting legal protection for property rights and legal contracts World Bank Business Environment Survey of 2005; the data on road and railway access is from Statistical Yearbook of China; data on the stability of infrastructure access is from WBES-China 2005.

Table 2. Government expropriations of Chinese firms

	Tax/Sale	Fee/Sale	Special Assessment/Sale	ETC/Sale
Panel A: Government expropriations over time				
1993	0.056	0.015	.	.
1995	0.067	0.030	0.040	0.089
1997	0.063	0.025	0.008	0.021
2000	0.058	0.023	0.005	0.014
2002	0.056	0.021	0.007	0.017
2004	0.063	0.029	0.012	0.021
2006	0.060	0.025	0.009	0.015
2008	0.065	0.027	0.009	0.018
2010	0.074	0.022	0.008	0.020
2012	0.074	0.023	0.015	0.022
Panel B: Government expropriations over firm size (Asset quantiles)				
0-25%	0.070	0.033	0.021	0.040
26%-50%	0.062	0.022	0.012	0.025
51%-75%	0.060	0.017	0.007	0.015
76%-100%	0.060	0.016	0.004	0.008
Panel C: Government expropriation: Inland regions v. coastal regions				
Inland	0.067	0.028	0.013	0.026
Coast	0.064	0.021	0.010	0.020
Panel D: Political connection and government expropriation				
Non PC or CPPCC	0.066	0.026	0.015	0.030
PC or CPPCC	0.063	0.020	0.007	0.013

Data sources: National Surveys of Privately Owned Enterprises in China

Table 3. The determinants of government expropriation

	(1) Tax/Sale	(2) Fee/Sale	(3) Special Assessment/Sale	(4) ETC/Sale
Ln asset	-0.001** (0.001)	-0.003*** (0.001)	-0.001*** (0.000)	-0.001*** (0.000)
Firm age	-0.000 (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Ln employee	-0.002** (0.001)	-0.002*** (0.001)	-0.002*** (0.000)	-0.003*** (0.000)
Female	0.001 (0.002)	0.006** (0.003)	0.003 (0.002)	0.003 (0.002)
Year of schooling	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Former cadre	0.003 (0.003)	0.001 (0.002)	0.002 (0.001)	0.002 (0.002)
Former manager	0.001 (0.002)	0.000 (0.002)	-0.001 (0.001)	-0.002* (0.001)
In Congress or Consultative Conf.	0.004** (0.002)	0.001 (0.001)	-0.000 (0.001)	-0.001 (0.001)
Party member	0.000 (0.002)	-0.001 (0.001)	-0.002* (0.001)	-0.001 (0.001)
Prov., Sector, year	Yes	Yes	Yes	Yes
Observations	11,166	9,184	7,545	9,244
R-squared	0.034	0.050	0.031	0.048

Data sources: National Surveys of Privately Owned Enterprises in China. Notes: Standard errors are clustered at provincial level and reported in parentheses. Significance levels 0.1, 0.05 and 0.01 are noted by *, **, and ***, respectively.

Table 4. Changes in education, work experience, and political affiliation over time

	1991	1993	1995	1997	2000	2002	2004	2006	2008	2010	2012	Total
Panel A. Education level (%):												
Illiterate	2.36	0.83	0.38	0.31	0.16	0	0	0	0	0	0	0.29
Primary school	16.19	9.86	8.42	6.3	2.74	2.18	1.7	1.52	0.86	1.22	1.12	3.87
Junior HS	47.9	36.18	35.56	31.46	19.57	17.56	12.88	12.58	8.05	9.11	8.23	18.78
HS/technical	28.36	35.97	37.55	41.68	39.11	41.93	33.62	36.59	29.19	28.37	25.36	33.26
College	5.19	16.6	17.36	19.58	35.03	33.47	46.06	44.85	49.01	54.21	57.15	38.51
Graduate deg.	0	0.56	0.73	0.67	3.39	4.86	5.74	4.46	12.89	7.09	8.13	5.29
Total	100	100	100	100	100	100	100	100	100	100	100	100
Panel B. Distribution of years of schooling over firm size (by asset quantiles)												
0-25%		10.26	10.33	10.88	11.98	12.24	12.99	13.06	13.86	13.62	13.97	
25%-50%		10.55	10.92	11.25	12.48	12.54	13.48	13.17	14.1	13.98	14.24	
50%-75%		11.18	11.13	11.53	12.87	13	13.7	13.71	14.7	14.27	14.56	
75%-100%		11.71	11.93	12.07	14.02	13.81	14.58	14.63	15.5	15.25	15.56	
Panel C. Work experience before starting private firms												
				1997	2000	2002	2004	2006	2008	2010	2012	Total
gov't cadre				0.272	0.274	0.313	0.251	0.179	0.18	0.14	0.163	0.167
state firms				0.56	0.642	0.651	0.804	0.993	.	0.287	0.257	0.599
village cadre				0.075	0.071	0.067	0.077	0.099	0.261	0.228	0.282	0.1
farmer				0.385	0.278	0.26	.	0.259	0.0778	0.136	0.156	0.196
household												
enterprise				0.182	0.0771	0.26	.	0.521	0.371	0.351	0.493	0.31
soldier				0.418	0.241	0.058	0.074	0.088	0.1	0.134	0.126	0.154
other				0.562	0.373	0.183	0.289	0.309	0.198	0.309	0.272	0.313
Panel D. Political connections of private entrepreneurs												
	1991	1993	1995	1997	2000	2002	2004	2006	2008	2010	2012	Total
party mem	.	0.123	0.176	0.202	0.207	0.17	0.346	0.405	0.335	0.415	0.34	0.297
congress	.	.	.	0.101	0.166	0.174	0.18	0.19	0.216	0.218	0.164	0.146
consultative												
conference	.	.	.	0.238	0.415	0.351	0.306	0.262	0.296	0.305	0.258	0.242

Data sources: National Surveys of Privately-Owned Enterprises in China

Table 5. Determinants of private entrepreneurs' social status

VARIABLES	(1) Economic status	(2) Political status	(3) Social status	(4) sum of three status	(5) Principal component
Share of state economy	-0.367* (0.218)	-0.211 (0.219)	-0.269 (0.220)	-0.308 (0.215)	-0.370* (0.218)
Ln GDP percapita	0.226 (0.233)	0.354 (0.233)	0.328 (0.233)	0.396* (0.231)	0.245 (0.235)
FDI/Total investment	1.693** (0.863)	0.456 (0.860)	1.218 (0.860)	1.336 (0.850)	1.671* (0.865)
Ln asset	0.222*** (0.010)	0.126*** (0.009)	0.176*** (0.009)	0.192*** (0.009)	0.222*** (0.010)
Firm age	0.030*** (0.004)	0.033*** (0.004)	0.032*** (0.004)	0.035*** (0.004)	0.030*** (0.004)
Female	-0.121** (0.050)	-0.074 (0.050)	-0.078 (0.050)	-0.101** (0.049)	-0.125** (0.050)
Year of schooling	0.022*** (0.006)	0.010* (0.006)	0.020*** (0.006)	0.018*** (0.006)	0.022*** (0.006)
Party member	0.097*** (0.036)	0.430*** (0.036)	0.174*** (0.036)	0.281*** (0.036)	0.099*** (0.036)
Membership in Congress or Consultative Conference	0.612*** (0.039)	1.323*** (0.040)	0.821*** (0.039)	1.051*** (0.039)	0.616*** (0.039)
Prov, Sector, year	Yes	Yes	Yes	Yes	Sector
Observations	11,142	11,081	11,125	11,076	11,076

Data sources: National Surveys of Privately Owned Enterprises in China. Notes: Standard errors are clustered at provincial level and reported in parentheses. Significance levels 0.1, 0.05 and 0.01 are noted by *, **, and ***, respectively.

Table 6. Size, capital intensity, and innovation in Chinese Firms

Panel A. Firm size and capital intensity of firms in China			
	Asset (10,000 Yuan)	No. of employees (Person)	Capital intensity (10k Yuan per worker)
Private firms			
1993	84.55	60.76	4.31
1997	126.06	78.25	1.74
2002	440.47	149.0	4.67
2006	463.65	153.2	5.00
2010	609.18	153.8	7.31
2012	798.17	163.4	8.72
Listed firms			
2000	94261.03	2737	101.17
2004	208019.64	3406	179.42
2008	1175581.40	5840	191.12
2012	1676041.67	6354	127.85
Panel B. Innovation intensity of firms in China			
Year	Total R&D expenditure/sales	No. of IPRs/ employee	No. of Self-designed products/ employee
B1. Distribution over time			
2002	0.054	0.008	0.035
2004	0.058	0.008	0.039
2006	0.019	0.010	0.031
2008	0.017	0.014	0.051
2010	0.018	.	.
2012	0.014	.	.
B2. Distribution over firm size (Asset quantiles)			
0-25%	0.136	0.008	0.041
26%-50%	0.250	0.011	0.042
51%-75%	0.346	0.011	0.038
76%-100%	0.614	0.011	0.032
B3. Distribution over firm ownerships: Total R&D expenditure/sales			
Year	Private firm	SOE	Foreign firms
2001		0.001	0.001
2002	0.067	.	.
2004	0.075	.	.
2006	0.021	0.003	0.001
2008	0.020	0.002	0.001
2010	0.018	0.002	0.001
2012	0.016	0.002	0.002

Data sources for Panel A: National Surveys of Privately-Owned Enterprises in China; CSMAR database on Chinese listed firms. The numbers is based on simple average of the sample. Firm asset and capital intensity are adjusted for inflation and expressed in 1990 RMB. Data sources for panel B: National Surveys of Privately Owned Enterprises in China (Panel B, B1 and B2); Chinese Ind. Survey data (Panel B, B3)

Table 7. The determinants of firm innovation

VARIABLES	(1) R&D/investment	(2) No. of IPRs	(3) No. of Self-designed products
Share of state economy	0.304 (0.220)	-0.062 (3.799)	-1.644 (3.072)
Marketization index	0.030 (0.065)	1.286 (2.004)	0.372 (2.103)
Ln GDP percapita	-0.240 (0.252)	1.461 (8.606)	5.774 (9.831)
FDI/Total investment	-0.012 (0.013)	1.781 (3.582)	8.440* (4.441)
Ln asset	0.044*** (0.008)	1.983*** (0.335)	1.523*** (0.359)
Firm age	0.009** (0.005)	0.457*** (0.074)	0.506*** (0.085)
Female	0.069 (0.064)	3.873*** (1.170)	2.002* (1.156)
Year of schooling	0.020** (0.008)	0.988*** (0.156)	0.971*** (0.160)
Party member	0.023 (0.048)	-0.013 (0.696)	1.214* (0.683)
Membership in Congress or Consultative Conference	-0.039 (0.050)	-2.204*** (0.765)	-3.929*** (0.664)
Prov, Sector, year	Yes	Yes	Yes
Observations	4,246	5,127	5,096
R-squared	0.027		

Data sources: National Surveys of Privately Owned Enterprises in China. Notes: The coefficients of No. of IPRs and No. of Self-designed products are estimated by Tobit model. Standard errors are clustered at provincial level and reported in parentheses. Significance levels 0.1, 0.05 and 0.01 are noted by *, **, and ***, respectively.

Table 8. firm performance: Evolution and determinants

Panel A. Evolution of firm performance			
Year	ROE	Investment/profit	Export/sales
1995	0.221	0.417	.
1997	0.335	0.587	.
2000	0.245	0.743	.
2002	0.215	0.308	.
2004	0.266	0.404	.
2006	0.305	0.465	0.053
2008	0.276	0.469	0.045
2010	0.338	0.218	0.032
2012	0.345	0.098	0.034

Panel B. Determinants of firm profitability		
VARIABLES	(1) ROE	(2) ROE
Share of state economy	-0.029 (0.123)	-0.067 (0.125)
Marketization index	0.006 (0.020)	0.012 (0.018)
Ln GDP percapita	0.027 (0.132)	0.051 (0.129)
FDI/Total investment	0.000 (0.000)	-0.000 (0.000)
Ln asset	-0.076*** (0.007)	-0.103*** (0.008)
Firm age	0.012*** (0.002)	0.009*** (0.002)
Female		-0.020 (0.018)
Year of schooling		0.023*** (0.003)
Party member		0.032* (0.017)
Membership in Congress or Consultative Conference		0.160*** (0.021)
Prov, Sector, year	Yes	Yes
Observations	12,324	10,431
R-squared	0.063	0.090

Data sources: National Surveys of Privately Owned Enterprises in China

Data sources: National Surveys of Privately Owned Enterprises in China. Notes: Standard errors are clustered at provincial level and reported in parentheses. Significance levels 0.1, 0.05 and 0.01 are noted by *, **, and ***, respectively.

Table 9. Resolution of business disputes

	Appeal to court	Suffer in silence	Private negotiation	Appeal to the local government	Negotiation through business association
Panel A: Resolution of business disputes (over time)					
1995	0.089	0.014	0.874	0.022	.
2000	0.111	0.011	0.851	0.025	.
2004	0.359	0.099	0.579	0.173	0.136
2006	0.319	0.103	0.527	0.212	0.146
Panel B: Percentage of firms that satisfied with business disputes resolution (over time)					
1995	0.538	0.414	0.756	0.63	.
2000	0.639	0.583	0.858	0.789	.
2004	0.775	0.324	0.892	0.875	0.937
2006	0.831	0.539	0.905	0.909	0.975
Panel C. The determinants of court usage					
VARIABLES	(1)	(2)	(3)	Using court to solve business disputes	
Party member		0.019 (0.014)	0.014 (0.020)		
Membership in Congress or Consultative Conference		0.030*** (0.008)	0.053*** (0.015)		
Privatized firm	0.110*** (0.021)		0.100*** (0.022)		
Ln(asset)	0.042*** (0.005)	0.024*** (0.003)	0.037*** (0.006)		
Firm age	0.004* (0.002)	0.002* (0.001)	0.003 (0.002)		
Female	0.004 (0.032)	-0.019 (0.013)	0.001 (0.032)		
Education	0.015*** (0.003)	0.007*** (0.001)	0.015*** (0.002)		
Ln(GDP PC), Province, Sector, Year	Yes	Yes	Yes		
Observations	3,649	10,335	3,415		
R-squared	0.087	0.098	0.094		

Data sources: National Surveys of Privately Owned Enterprises in China. Standard errors are clustered at provincial level and reported in parentheses. Significance levels 0.1, 0.05 and 0.01 are noted by *, **, and ***, respectively.

Table 10. Access to finance, and corporate governance and control

	State banks	Shareholding banks	City comm. banks	Non-gov't institution	Individual	Foreign banks	Account payable
Panel A: Distribution of financial access over time (in 10,000 Yuan)							
2000	320.3	.	.	71.11	.	.	.
2002	251.4	.	.	27.42	.	.	46.26
2004	492.5	65.99	105.8	32.98	.	.	69.51
2006	407.4	58.41	128.0	5.865	42.28	0.293	63.26
2008	471.9	71.41	165.5	15.42	38.03	4.529	74.79
2010	1390	83.25
2012	1636	.	219.4	48.33	.	.	250.5
Total	759.2	65.41	161.2	28.74	40.08	2.490	106.7
Panel B: Bank loan and trade credit: Inland regions v. Coastal regions (normalized by asset)							
Inland	0.535	0.013	0.150	0.090	0.124		0.091
Coastal	0.550	0.023	0.184	0.069	0.099		0.139
Panel C: Political connection and financial access (normalized by asset)							
Non party mem.	0.537	0.013	0.148	0.086	0.104		0.111
Party mem.	0.620	0.026	0.192	0.079	0.121		0.134
Panel D. Corporate control and governance structure							
Year	Share held by entrepreneur	Major decisions made by entrepreneur	Board of shareholders	Board of directors	Board of supervisors	Using professional manager	
D1. Corporate control and governance structure over time							
1993	.	0.64	.	0.26	.	0	
1995	0.91	0.57	.	0.28	.	0	
1997	0.78	0.55	.	.	.	0	
2000	0.78	0.44	0.28	0.44	0.23	0.03	
2002	0.76	0.40	0.34	0.48	0.27	0.02	
2004	0.66	0.35	0.59	0.75	0.37	.	
2006	0.68	0.38	0.58	0.63	0.37	0.07	
2008	0.66	0.34	0.58	0.57	0.34	0.06	
2010	0.64	0.52	0.57	0.58	0.32	0.12	
2012	0.75	0.48	0.61	0.58	0.32	0.25	
Total	0.73	0.45	0.51	0.54	0.32	0.08	
D2. Corporate control and governance structure over firm size (Asset quantiles)							
0-25%	0.78	0.60	0.50	0.33	0.21	0.050	
26%-50%	0.75	0.51	0.49	0.45	0.27	0.060	
51%-75%	0.73	0.43	0.51	0.55	0.31	0.070	
76%-100%	0.69	0.30	0.56	0.73	0.47	0.100	

Data sources: National Surveys of Privately-Owned Enterprises in China

Appendix

Table A1. Sample distribution of private enterprise data

Province	Year										Total
	1993	1995	1997	2000	2002	2004	2006	2008	2010	2012	
Anhui	30	57	113	78	79	99	52	105	117	139	869
Beijing	21	67	55	117	174	100	227	160	189	222	1,332
Chongqing	0	0	0	0	0	0	0	161	149	167	477
Fujian	77	132	71	63	79	84	65	53	131	182	937
Gansu	24	18	45	36	29	75	109	60	76	86	558
Guangdong	233	426	89	193	248	244	389	341	371	375	2,909
Guangxi	25	36	141	47	43	65	26	69	76	92	620
Guizhou	30	42	0	66	94	65	22	88	136	124	667
Hainan	48	41	0	54	50	86	17	23	76	78	473
Hebei	57	99	186	198	128	42	163	162	174	172	1,381
Heilongjiang	20	49	0	101	60	25	139	130	136	153	813
Henan	60	77	199	143	75	70	69	157	128	139	1,117
Hubei	30	127	150	125	88	180	192	190	242	222	1,546
Hunan	45	41	0	64	40	36	124	77	111	107	645
Jiangsu	60	192	57	279	504	242	438	393	363	501	3,029
Jiangxi	25	55	105	61	41	71	157	87	60	51	713
Jilin	31	90	0	80	39	80	30	90	138	198	776
Liaoning	129	175	22	148	116	99	189	156	202	204	1,440
Neimeng	75	39	0	45	50	80	30	73	52	56	500
Ningxia	8	10	1	20	24	11	14	52	37	44	221
Qinghai	12	4	0	11	10	50	10	40	75	43	255
Shaanxi	35	58	91	114	150	118	49	92	118	120	945
Shandong	81	240	130	250	207	260	193	287	293	391	2,332
Shanghai	0	89	59	180	338	238	430	336	321	330	2,321
Shanxi	29	87	44	76	50	25	37	77	96	102	623
Sichuan	54	137	120	157	149	172	155	157	208	172	1,481
Tianjin	35	101	59	100	54	74	38	99	100	102	762
Xinjiang	19	33	0	51	51	24	47	64	27	76	392
Xizang	2	1	0	10	10	8	10	8	17	14	80
Yunnan	15	19	49	41	49	50	35	68	93	84	503
Zhejiang	129	325	160	165	229	237	379	243	302	327	2,496
Total	1,439	2,867	1,946	3,073	3,258	3,010	3,835	4,098	4,614	5,073	33,213

Data sources: National Surveys of Privately Owned Enterprises in China

Table A2. Sectoral distribution of private enterprise data

Sector	Freq.	Percent	Cum.
Agriculture, forestry, animal husbandry and fisheries	1,479	5.85	5.85
Extractive industries	428	1.69	7.55
Manufacturing	10,648	42.15	49.70
Electricity, gas and water	247	0.98	50.67
Construction industry	1,655	6.55	57.22
Transportation	687	2.72	59.94
Information Services	529	2.09	62.04
Wholesale and retail	2,514	9.95	71.99
Accommodation, food and beverage/catering industry	3,534	13.99	85.98
Finance	81	0.32	86.30
Real estate	720	2.85	89.15
Leasing	209	0.83	89.97
Science and Technology	497	1.97	91.94
Public facility	32	0.13	92.07
Residents Services	1,131	4.48	96.54
Education	188	0.74	97.29
Health	208	0.82	98.11
Culture and Sports	116	0.46	98.57
Public administration	361	1.43	100
Total	25,264	100	

Data sources: National Surveys of Privately Owned Enterprises in China

Table A3. Sample distribution of Chinese Industrial Survey data

Province	Year										Total
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Anhui	3,371	3,356	3,243	3,244	3,460	3,806	4,360	4,817	6,005	7,508	43,170
Beijing	4,391	5,109	4,053	4,261	4,456	3,934	6,710	6,142	6,231	6,221	51,508
Chongqing	1,761	1,751	1,819	1,847	1,857	2,017	2,343	2,583	2,798	3,405	22,181
Fujian	5,591	5,045	5,486	6,031	6,904	8,639	11,303	11,602	12,834	14,212	87,647
Gansu	1,307	1,775	2,347	2,549	2,593	2,357	1,567	1,349	1,359	1,414	18,617
Guangdong	16,809	17,672	18,550	19,630	21,534	23,473	33,678	34,123	36,451	41,199	263,119
Guangxi	2,670	2,500	2,519	2,538	2,399	2,400	3,203	3,152	3,504	3,855	28,740
Guizhou	1,630	1,688	1,637	1,663	1,672	1,700	1,980	1,949	1,847	1,615	17,381
Hainan	508	461	472	462	455	473	525	463	458	383	4,660
Hebei	6,709	6,536	6,389	6,800	6,813	7,132	8,258	8,736	9,321	9,587	76,281
Heilongjiang	2,951	2,448	2,188	2,053	2,114	2,155	2,857	2,408	2,448	2,669	24,291
Henan	9,057	8,678	8,685	8,533	8,459	7,974	10,124	9,374	10,273	11,860	93,017
Hubei	6,715	6,234	5,678	5,599	5,575	5,724	5,738	6,196	6,872	8,188	62,519
Hunan	3,838	4,044	4,049	4,167	4,529	5,016	6,357	6,675	7,494	8,519	54,688
Jiangsu	17,397	17,408	17,749	19,128	20,939	23,467	40,349	31,749	35,819	41,312	265,317
Jiangxi	3,187	3,026	2,896	2,637	2,494	2,579	3,644	3,711	4,503	5,198	33,875
Jilin	2,409	2,394	2,327	2,226	2,193	1,957	3,007	2,329	2,752	3,443	25,037
Liaoning	5,678	5,253	5,464	5,307	5,460	6,203	10,451	10,299	13,323	14,955	82,393
Neimeng	1,107	1,005	984	978	1,028	1,228	1,654	1,825	2,232	2,482	14,523
Ningxia	435	415	339	338	327	358	565	584	640	635	4,636
Qinghai	408	394	316	271	272	270	329	284	306	344	3,194
Shaanxi	2,240	2,160	2,128	2,030	2,030	2,038	2,561	2,307	2,532	2,621	22,647
Shandong	10,245	10,242	10,560	11,164	12,327	15,195	22,754	26,242	30,474	34,645	183,848
Shanghai	9,331	9,260	8,514	9,697	9,994	11,033	15,680	14,727	14,322	15,023	117,581
Shanxi	2,906	2,459	2,400	2,414	2,495	2,534	3,214	2,631	2,699	2,418	26,170
Sichuan	4,160	3,774	3,686	3,862	4,146	4,655	6,307	6,744	7,585	9,018	53,937
Tianjin	5,309	5,121	5,312	5,431	5,233	5,243	6,341	6,021	6,189	6,250	56,450
Xinjiang	1,410	1,241	1,091	949	921	923	1,090	1,077	1,083	1,189	10,974
Xizang	221	210	234	242	227	208	89	97	97	56	1,681
Yunnan	1,975	1,654	1,638	1,564	1,621	1,579	1,920	1,827	1,981	2,027	17,786
Zhejiang	12,958	12,782	14,073	18,111	21,332	24,914	40,435	39,476	44,850	50,795	279,726
Total	148,684	146,095	146,826	155,726	165,859	181,184	259,393	251,499	279,282	313,046	2,047,594

Data sources: Chinese Industrial Survey data

Table A4. Definitions of variables in regression analysis

Variable name	Definition
Tax	The amount of tax that the firm paid to various governments
Fee	The amount of extralegal fees that the firm paid to various governments
Special Assessment	The amount of special assessment fees that the firm paid to various governments
ETC	Firm's expenses on entertaining local cadres and cultivating public relationship
Ln asset	The logarithm of firm asset
Ln employee	The logarithm of firm emp
Firm age	The age of the firm since it registered as a private firm
Female	A dummy variable of value one if the private entrepreneur is female, and zero otherwise
Year of schooling	Entrepreneur's year of formal schooling
Age	Entrepreneur's age
Party member	A dummy variable which equals 1 if an entrepreneur is a Party member, and 0 otherwise
Congress	A dummy variable taking value one if the entrepreneur holds memberships in the People's Congress at various levels, and zero otherwise
Consultative Conference	A dummy variable taking value one if the entrepreneur holds memberships in the Chinese People's Political Consultative Conference at various levels, and zero otherwise
Former cadre	A dummy variable taking value one if the private entrepreneur formerly worked as a government cadre, and zero otherwise
Former manager	A dummy variable taking value one if the private entrepreneur formerly worked as a manager in state-owned enterprises or township and village enterprises, and zero otherwise
Marketization index	NERI Index of Marketization of China's Provinces 2014
Share of state economy	The share of industrial output from state firms in a province
FDI/Total investment	The amount of foreign investment divided by total investment in a province