

# Crony Capitalism with Chinese Characteristics\*

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EXTREMELY PRELIMINARY AND INCOMPLETE

## Abstract

We propose three key features of Chinese capitalism as the institutional foundation of the fast-growing economy of China over the last two decades. First, local governments, instead of the central government, utilize political and economic powers to support the businesses connected to them (i.e., cronies) regardless of ownership. Second, there are implicit arrangements that political leaders will benefit personally from the success of their cronies. Third, thousands of local governments are doing the same practice and competing with each other. These characteristics explain the presence of local “crony capitalists” in each locality, the bias in the provision of public goods towards those benefiting local businesses instead of households, high profit rates and high growth rates among the favored firms, and a biased concentration towards exports.

## JEL Classification:

**Keywords:** China, Crony Capitalism, Institutions, Growth

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*“You let me take care of the politics, money and land; you just focus on getting some cars built here.”* (from a conversation between a vice party secretary of the city of Wuhu and the CEO of Chery, a local automobile manufacturer)

## 1 Introduction

The fast-growing economy of China over the last three decades is one of the most remarkable events in world economic history. A conventional narrative is that the success reflects gradual improvement of economic institutions by restoring incentives to farmers, opening up to the world and introducing pro-market policies. While such progress is important for growth in the 1980s and early 1990s, it is not the complete story in the recent two decades. Economic institutions remain largely underdeveloped by the persistent appearance of barriers to entry and mobility, weak private property rights protection and lack of policy commitment. According to the World Bank’s “Doing Business” Indicators, a widely used measure of the friendliness of the institutional environment towards private business, China is below the median level in the overall “ease of business”. When it comes to “starting a business”, China ranks near bottom, barely above countries like Ethiopia and Iraq. Acemoglu and Robinson (2012) describe the Chinese experience as growth under “extractive institutions”, where the authorities do not even respect basic property rights. As a narrative evidence, they discuss the case of Dai Guofang, an ambitious private entrepreneur whose business was utterly destroyed by the central government for the potential competition brought to state-owned enterprises (SOEs henceforth).<sup>1</sup> It seems evident that China’s institutions are anything but favoring capitalism.

Yet, capitalism does thrive in China. The phenomenal growth has largely been driven by the growth of private businesses (e.g., Song et al., 2011). Hundreds of thousands of private firms have appeared since the mid 1990s, in spite of all kinds of entry barriers. Property rights do not look like a major concern either. As will be shown below, many private firms become industrial giants and often engage in fierce competition with SOEs. The spotlight on Dai’s tragedy China simply reflects the rarity of such event. Perhaps more surprisingly, the communist party is quickly adapting to capitalism. SOEs have been transformed into effective profit maximizers through corporatization and privatization (Hsieh and Song, 2014). Even party cadres are incentivized to promote business regardless of ownership. The contrast raises the obvious question. If economic institutions are indeed hostile for capitalism, what would explain the thriving capitalism that we have seen in China in the last twenty years?

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<sup>1</sup>Dai was building a large privately-owned steel company. According to Acemoglu and Robinson’s account, the state-owned steel companies used their political clout to shut down the private company before it even began to operate. And for good measure, the entrepreneur behind the private steel company was thrown in jail for five years, presumably for the temerity of challenging the profits of the state vested interests.

Our answer is that the institutional foundation of China's growth is what we will call "Crony Capitalism with Chinese Characteristics." First, we argue that a *sine qua non* of successful capitalists in China is that they need to be cronies of political leader. As suggested by Acemoglu and Robinson, the World Bank and many others, formal institutions are bad in China. In this environment, the only way for entrepreneurs to succeed is to form special relationship with political leader, which allows them to either break the formal rules or to obtain exclusive access to resources. Such practice is common in countries with weak formal institutions. China is no different in that regard: Capitalism in China is Crony Capitalism.

So why is China different? We argue that there are three features about the practice of crony capitalism in China that explains China's economic success (and not in other countries that also practice crony capitalism). First, Chinese government has enormous power, based on the possession of vast economic resources as well as the high-level administrative capacity. While this power is often used by the central government to develop its own SOEs, the actions taken by local government (at the level of counties and prefectures) over the last two decades have a focus on supporting businesses that are cronies of local leaders. The support ranges from exercising political power to lobby the central government for the right to break the rules, to utilizing economic resources to strike special deals by providing cheap credit, improving infrastructure, and offering land below market price. There is plenty of evidence that local government is the centerpiece of China's economic revolution. We will discuss two cases to illustrate how local government helps business penetrate heavily regulated industries. The economic power of China's local government is even more evident. Anecdotally, a city can build an extra runway at its airport to accommodate large cargo jets for one single company.<sup>2</sup> We will also present a set of stylized facts on capital and land misallocation that are suggestive of the magnitude of the support for cronies.

Second, the communist party of China exhibits an astonishing tolerance at the private benefits that party cadres can obtain from their interactions with the business sector. The benefits are broadly defined and take a variety of forms. Economic benefits range from legal income as bonus to illegal income as bribes, from private consumption (including tuition payment at overseas schools for their children) funded by firms to explicit equity stakes in private business held by their family members. Political benefits are also important. The party cadres who manage to show competence in boosting economic development would be rewarded by promotion in the hierarchical political system. Political leaders are, thus, fully incentivized to support their cronies because of these private benefits associated with the success of their cronies.

While China has a powerful state since the communist party took office, the undisguised desire for

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<sup>2</sup>See "Hauling New Treasure Along the Silk Road" by Keith Bradsher, The New York Time, July 20, 2013.

seeking private benefits did not exist in Mao's regime, where it was condemned as a sin and "capitalist roaders" were relentlessly punished. We postulate that the rise of private business in rural China in the 1980s and the first wave of privatizing SOEs in the mid 1990s, from which many party cadres benefit personally, sowed the seeds of the tolerance that prevails in the recent two decades. A consequence of the change is that the set of cronies has expanded dramatically. Tens of thousands of firms, supported by empowered leaders, enter, survive and many of them even excel without major institutional improvement. We document some facts from firm data that are consistent with the story. In particular, we present evidence that local leaders are more incentivized by economic benefits than their counterparts in the central government. This explains why local governments, rather than the central government, play a central role in China's growth. As another unintended consequence, acknowledging the rights of getting private benefits strengthens private property rights protection. Leaders would refrain from expropriating their cronies even if they have the absolute power of doing so. The effect is particularly obvious for the firms in which leaders hold *de facto* shares. This also explains why expropriation prevailed in Mao's regime, diminished in the 1980s and has rarely occurred over the last two decades.

Crony capitalism, enhanced by the above two features, has brought huge benefits to entrepreneurs in China who would hardly exist without being cronies. Yet, there is no guarantee that crony capitalism would always do good to an economy associated with weak institutions. When empowered local leaders are incentivized to support their cronies, they would also attempt to block entry by new firms that may threaten the profits of cronies and, thus, private benefits for themselves, as long as establishing relationship with new firms is not cost-free. New entry barriers would arise endogenously from crony capitalism, even if all the existing barriers are removed. While one can observe this in China, the third feature of Chinese Crony Capitalism prevents vested interests from playing an essential role – i.e., there are a large number of local governments doing the same practice and competing with each other. China has a political system in which powers are decentralized to thousands of prefecture and county level governments. Although each of them is incentivized to protect its cronies by mobilizing local resources, it cannot stop other local governments from supporting their own firms that may come up with better products. Put differently, the process of creative destruction in China is the destruction by firms supported by other local governments. The large number of local governments, therefore, tends to ameliorate the negative dynamic consequence of crony capitalism. This can best be illustrated by the evolution of China's automobile industry, where the monopoly power of a handful SOEs has gradually been eroded by the entry of new automobile manufacturers backed by local governments.

Another dark side of crony capitalism is the bias in the provision of public goods towards those benefiting local businesses instead of households. Such bias is evident in China, from rampant evasion of social security tax payment, to highly distorted prices between industrial and residential land, to large

business-oriented infrastructure investment. Although it might boost output, the welfare implication is unambiguously negative. Moreover, the negative effect is exacerbated by political decentralization, which allows local leaders to support local businesses by local public goods. This leads to local protectionism that has been well documented in the literature. Using firm data from the automobile industry, we find protectionism to be important for explaining SOEs' unusually high local market shares. Local protectionism also explains the sharp contrast between the concentration of domestic sales and exports. On the one hand, consistent with the evidence from the automobile industry, we find large and persistent dispersion of domestic sales for SOEs. On the other hand, exports are concentrated towards large private firms and, therefore, improve resource allocative efficiency. This suggests a novel channel through which exports contribute to growth in an economy where local protectionism distorts resource allocation.

The paper proceeds as follows. We first tell the story of two industries, the aluminum and the automobile industry, to illustrate the institutional forces we have in mind. We then proceed to a formal model of Chinese crony capitalism, as well as presenting stylized facts that support this way of thinking of the institutional foundation of China's growth.

## **2 Narrative Evidence from China's Aluminum and Automobile Industry**

In this section, we provide narrative evidence of the growth of new firms in China's aluminum and automobile industries. We pick these two industries because they were the sectors dominated by state-owned giants in the late 1990s. Furthermore, as two of the "strategic sectors", entry by local SOEs was scrutinized, if not deterred, by the central government. For private firms, entry was explicitly forbidden. Yet, by the late 2000s, hundreds of new firms had entered into the two industries. Many of them, including private firms, experienced substantial growth, and the market share of the incumbent SOEs had declined substantially.

We begin by describing the experience of the aluminum market in China. In the early 2000s, this market was dominated by the China Aluminum Corporation (Chinalco). Chinalco is one of the 120 state-owned conglomerates controlled by the central government and had a 98 percent share of the aluminum market in China in the early 2000s. Chinalco had two main assets. First, the central government gave the company exclusive rights over all the bauxite deposits in China when the company became publicly listed in 2001. Second, no other company was legally allowed to produce bauxite. Yet, by 2008, the market share of Chinalco dropped to less than 50 percent, due to the entry of large private firms in the aluminum market. One of these companies is the East Hope Group owned by Liu Yongxing, currently one of the six wealthiest people in China. The East Hope Group was created in 1982 in rural

Sichuan Province as a distributor of quail eggs. It later expanded its products to other agricultural products (such as pig feed). By the early 2000s when the East Hope Group decided to expand into aluminum, it was one of the largest distributors of agricultural products in China and a multi-billion company.

McGregor (2011) tells the story of how the East Hope Group understood the Achilles heel of Chinalco – i.e., its exclusive right to purchase Chinese bauxite was with the Chinese central government, and not with the local governments that had physical control over the minerals. The East Hope Group went to the local government of Sanmenxia, a mid-size city in Henan Province with large deposits of bauxite, and was able to cut a deal with the local party secretary, the top leader of the city, to purchase the bauxite. Chinalco fought the East Hope Group every step of the way, but the local leader was able to make the deal stick. We do not know why Chinalco did not have enough political clout with the central government to block the East Hope Group, but perhaps an important fact is that the party secretary of Henan Province at the time when the East Hope Group was negotiating with the city of Sanmenxia was Li Keqiang, who is now the Chinese Premier. Regardless, with the support of the local government of Sanmenxia, the East Hope Group started to produce aluminum in 2005. Many other private companies followed similar paths, and by 2008, private firms had taken away half of the market share of Chinalco. When asked later what was the key to his success in the aluminum industry, Liu Yongxing said: “Forgive me for being frank, but local officials, even corrupt ones, need to have political achievements.”

Turning to the automobile industry, this was also an industry dominated by SOEs in the early 2000s. The largest car producer in China is Shanghai-GM, a joint venture between GM and the Shanghai Automotive Industrial Company (SAIC). SAIC is a publicly traded firm, but the controlling shareholder of the company is the SAIC Group, which is owned by the local government of Shanghai. SAIC also operates a joint-venture with Volkswagen (Shanghai-Volkswagen) as well as a stand-alone car company. Dunne (2011) provides a fascinating account of the story of Shanghai-GM. His narrative makes clear that the overarching strategy of GM in Shanghai was to exploit the political power of its partner SAIC (and the local government of Shanghai) by charging monopoly prices. The first car that GM introduced in China in 1999 was the Buick New Century, which was the best-selling car in China at the time and retailed for more than 40 thousand US dollars. The second car GM produced in China was a replica of the Opel Corsa (made by GM’s German subsidiary Opel), and again sold in China at prices that were much higher than its price in Europe.

However, GM’s strategy of exploiting its monopoly power began to fall apart. The third car it wanted to sell in China was a replica of the Daewoo Matiz, a small car made by GM’s Korean subsidiary Daewoo. However, six months before GM was ready to sell the rebranded version of the Daewoo Matiz in China,

another Chinese company Chery started to sell exactly the same car. Chery, based in the city of Wuhu in Anhui Province, had managed to get hold of the blueprints of the Daewoo Matiz and managed to beat Shanghai-GM to the market. As a local SOE, Chery was started in 1997 by the city government of Wuhu. The initiative was largely taken by a vice party secretary of Wuhu, the founder of the company. The vice party secretary hired an engineer from the First Auto Work, a large automobile manufacturer controlled by the central government, as the CEO of Chery. McGregor (2011) illustrated the proposed division of labor between the engineer and the vice party secretary. According to McGregor's account, the vice party secretary told the engineer: *"You let me take care of the politics, money and land; you just focus on getting some cars built here."*

With the political support of the vice party secretary, Chery obtained the land, capital, and infrastructure it needed. But getting access to the license from the central government to make cars took longer and was less straightforward. Initially Chery only had the license to make engines. The vice party secretary used this license to buy a closed Ford engine factory in the UK and reassembled the engine assembly line in Wuhu. Later, he was able to lobby the central government for a license to make cars, but only if the cars were sold in Wuhu. But given the small size of the local market in Wuhu, it is clear that a car company would simply not be viable if it could only sell in the local market. The vice party secretary then tells the story of how he enlisted the support of his political patron in the central government and then decided to lobby SAIC (GM's partner in Shanghai) to take a 20 percent equity stake in Chery. SAIC resisted the move, but succumbed to the political pressure from Chery's political patron in the central government. Now, with SAIC's 20 percent equity share in hand, Chery then went back to the central government and lobbied again for the license to make and sell cars throughout China. Essentially Chery's argument was along the lines of "SAIC has the license to make cars. Since we are owned by SAIC, we should have the same license that SAIC has." This time they were successful, and one of the initial licensed products of Chery was the knockoff of the GM car (even before GM began to sell the car in China!).

What is interesting about the comparison of Shanghai-GM and Chery is that Shanghai-GM is formally registered as a foreign firm in China and Chery as a SOE, with the majority stake held by the local government of Wuhu. Yet, the narrative suggests that Shanghai-GM has been successful financially because it was able to exploit the monopoly rents it had due to the political power of the local government of Shanghai, while Chery's local market (the city of Wuhu) was simply too small for a similar strategy to be viable. Thus, Chery had to sell outside its local market. Not surprisingly, Chery becomes one of the largest exporters of cars in China, while Shanghai-GM, despite being the largest car producer in China, only serves the domestic market.

We take away the following points from the narratives. First, formal institutions are bad in China.

Clearly, there was an effort to protect the monopoly power of incumbent firms in the aluminum and automobile industries. Furthermore, access to resources such as capital and land is controlled by local governments. These imply entry barriers and exclusive rights of accessing resources. Second, support of local governments is crucial to the success of the East Hope Group and Chery. In particular, support of the local party secretaries was critical for both companies to circumvent the rules imposed by the central government to protect its own firms. Moreover, Liu Yongxing’s allusion to corrupt local officials hints that corruption, on top of political achievement, is a key of incentivizing local officials to support local firms. In words, Chinese leaders have the power and the incentive to reduce frictions for their cronies. Third, the story of how Chery challenged the monopoly power of Shanghai-GM suggests that competition between local governments may have played a central role in allowing new firms to emerge and challenge incumbent firms. This is important for technical progress and long-run growth. In the next section, we will turn to a formal model to highlight these mechanisms.

### 3 The Benchmark Model

Consider an economy inhabited by a continuum of agents indexed by  $i$ . Each agent is associated with productivity  $A(i)$ . There exists two production technologies: home and modern. Home production uses backyard traditional technology and delivers output of  $A(i)$ . The production technology is  $\gamma A(i)$  in the modern sector, with  $\gamma > 1$ . The idea is that modern production has an advantage over home production by adopting non-traditional technology and benefiting from factors that do not exist in the backyard such as economy of scale and external financing.

We then introduce business frictions. Denote  $\phi$  the fraction of output destroyed in modern production. Here,  $\phi$  captures the magnitude of business costs, like iceberg trade cost. As will be elaborated below, business costs are caused by institutional imperfections such as entry barriers, distorted financial intermediary and deadweight losses of red tape. The backyard technology used by home production is immune from the frictions. We distinguish two types of institutions, conditional upon whether  $(1 - \phi)\gamma > 1$ . Weak institutions or high- $\phi$  economies are referred to as those with  $(1 - \phi)\gamma < 1$ , where all agents would use home technology. In this case,  $\phi$  can be interpreted as entry barriers that prevent agents from adopting modern technology. Solid institutions are referred to as those with  $(1 - \phi)\gamma > 1$ . There, everyone would adopt modern technology. Notice that solid institutions deliver higher output than weak institutions even if they are equal in all the other dimensions. We will look into weak institutions throughout the paper. The analysis can easily be applied to solid institutions.

### 3.1 Crony Capitalism

Consider an economy in which there exists a ruler with the power of reducing  $\phi$ . The power of the ruler is parameterized by  $\theta > 0$ : the frictions can be reduced to  $\phi - \theta$ . “Cronies” are the agents for whom the ruler reduces their business frictions. To be a crony, an agent has to pay a fraction of surplus to the ruler as “bribes”:

$$B(i) = \underbrace{\beta((1 - \phi + \theta)\gamma - 1) A(i)}_{\text{surplus of being a crony}}, \quad (1)$$

where  $((1 - \phi + \theta)\gamma - 1) A(i)$  is the surplus of being a crony and  $\beta \in [0, 1]$  is a parameter governing the tolerance of corruption or, more precisely, income paid to the ruler. Appendix 8.2 endogenizes  $B(i)$  from a negotiation between the ruler and the party, where  $\beta$  is interpreted as the bargaining power of the ruler. We assume that  $(1 - \phi + \theta)\gamma > 1$ . So, everyone wants to be crony since being crony allows them to adopt modern technology.

The ruler gains  $B(i)$  as personal income from reducing frictions for his crony. However, striking a deal is costly for the ruler. The cost, denoted by  $F$ , represents the time and the amount of political capital that the ruler needs to spend in implementing the deal. In the case of China,  $F$  also captures the risk of being punished for taking bribes if the ruler is outside the top leadership of the standing committee of the politburo.<sup>3</sup> The decision on striking a deal with agent  $i$  depends on whether the personal income exceeds the cost – i.e.,  $B(i) \geq F$ . Replacing  $B(i)$  with (1) leads to

$$A(i) \geq \frac{F}{\beta((1 - \phi + \theta)\gamma - 1)} \equiv \underline{A}. \quad (2)$$

(2) is referred to as the special deal constraint. In words, the agents with  $A(i)$  above  $\underline{A}$  will become cronies of the ruler. The intuition for the cutoff,  $\underline{A}$ , is straightforward. The cost for the ruler to strike deal is constant, while the benefit increases in  $A(i)$ . It is worth emphasizing that the existence of the cutoff,  $\underline{A}$ , does not hinge on the stylized cost-benefit structure. Appendix 8.1 shows that the result can easily be generalized in an economy with convex costs of striking deal, where business frictions for cronies become endogenous and dependent of  $A(i)$ .

$\theta$  and  $\beta$  are the two key parameters characterizing crony capitalism. A more empowered ruler (i.e., a higher  $\theta$ ) would gain more personal income from striking deal by reducing more frictions for his cronies. This implies a lower  $\underline{A}$  and, thus, more cronies because of the fixed cost  $F$ . A higher  $\beta$  also allows the ruler to gain more personal income. Its effect on  $\underline{A}$  is similar.

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<sup>3</sup>The recent custody of Zhou Yongkang, a former member of the standing committee of the politburo, suggests that top leaders also face some risks.

### 3.2 Welfare Implications

Consider an economy with a representative consumer in which welfare can simply be measured by aggregate output. In a weak insitution, only cronies would be able to adopt the modern technology. Denote  $f(A)$  the density function of  $A$ . Aggregate output, denoted by  $Y$ , follows

$$Y = \underbrace{\int_0^{\underline{A}} Af(A) dA}_{\text{home production}} + \underbrace{\int_{\underline{A}}^{\infty} (1 - \phi + \theta) \gamma Af(A) dA}_{\text{modern production}}. \quad (3)$$

The parameters of our primary interests are  $\theta$  and  $\beta$ . Differentiating (3) with respect to  $\theta$  yields

$$\frac{dY}{d\theta} = \underbrace{\int_{\underline{A}}^{\infty} \gamma Af(A) dA}_{\text{intensive margins}} + \underbrace{((1 - \phi + \theta) \gamma - 1) \underline{A} f(\underline{A})}_{\text{extensive margins}} \left( -\frac{d\underline{A}}{d\theta} \right). \quad (4)$$

At the intensive margins, higher  $\theta$  increases aggregate output by reducing frictions for cronies. At the extensive margins, higher  $\theta$  increases aggregate output by expanding the set of cronies. The effect through the extensive margins would be further enhanced by the expansion of the modern sector since only cronies adopt the modern technology.  $\beta$  can only affect aggregate output through the extensive margins.

The benchmark model assumes  $\theta$  to be nonrivalrous. The nonrivalry of  $\theta$  shuts down the channels through which  $\theta$  affects noncronies. Section 6 will discuss the rivalry of  $\theta$  and its welfare implications. In particular, we will consider the case in which an increase in  $\theta$  for cronies would result in a higher  $\phi$  for everyone and, thus, make noncronies strictly worse.

### 3.3 Chinese Characteristics

Crony capitalism prevails in many developing economies for years. Yet, it is relatively new in China. The communist party abstained from crony capitalism in the first three decades after it took power in 1949. The nationwide campaigns against capitalism and corruption launched in the early 1950s exhibited the party's zero tolerance for rent-seeking. The anti-business sentiment continued to grow during the culture revolution from 1966 to 1976, when the the ruthless crackdown on so-called "capitalist roader" swept the country and business activities came to a complete stop. Through the lens of the model, this is a period characterized by  $\beta = 0$  or  $F \rightarrow \infty$ . That is to say, crony capitalism is suppressed by either zero tolerance on taking personal income or infinitely large cost of striking deal. By (2), the two characterizations are observationally equivalent in the model.

The focus of the party has shifted away from political agenda since the late 1970s. The change was primarily driven by the growing desire of grass-roots party cadres to make their people (including themselves) rich. The top leadership's acknowledgement of the prority of economic development provides, in turn, a justification for party cadres to participate in economic activities, from which they may

benefit personally. For instance, many party cadres gained economic benefits from the rise of private business in rural China in the 1980s and the first wave of privatizing SOEs in the mid 1990s, sowing the seeds of the business approach that prevails in the recent two decades. The gain from promoting economy in their jurisdiction is broad, ranging from reaping direct economic returns from legal or grey channels to materializing political ambitions through performance tournament (e.g., Li and Zhou, 2005; Jia, Kudamatsu and Seim, 2014).  $B(i)$  has multiple interpretations accordingly. Suppose that rulers gain political returns by generating economic surplus from reallocating an agent from the home to the modern sector.  $\beta$  would be a parameter translating the surplus into political gains. In summary,  $\beta$  turns positive in Post-Mao China.

China's high-rank officers, including local government leaders, have the ability of striking big deals. They can easily affect capital allocation through the heavily regulated financial markets. They also play a dominant role in land allocation as, according to China's constitution, all urban land is owned by the state. Moreover, China is a country with high-level administrative capacity. Chinese government has the reputation of "getting things done". Orders can be executed in an effective and timely manner. The vast resources controlled by the efficient organization underpins  $\theta$ , the extent to which ruler can do for his cronies. We show in the introduction that Chery gets all the land and capital it needs from the local government of Wuhu. The same story applies to almost all industrial giants in China. A well-known example is Huawei, which is set to surpass Ericsson to become the largest telecommunication equipment manufacturer in the world. The city government of Shenzhen, where the company is located, has been providing Huawei cheap capital and land, as well as generous tax breaks, since the late 1990s. Foxconn, the world's largest electronics contractor manufacturer, is no different. It has acquired large areas of industrial land at extraordinarily low price in many provinces and enjoyed tax breaks equally generous as Shenzhen government offers to Huawei.

The benchmark model assumes a constant  $\theta$  for simplicity. A simple extension is to make  $\theta$  size-dependent (see Appendix 8.1): Rulers would like to offer larger  $\theta$  for those with higher  $A(i)$ . Alternatively, one may extend the model by introducing heterogeneity in rulers. Less empowered low-rank officers, for instance, provide a different set of "goods" for their cronies. Their support is crucial for small business to overcome seemingly formidable red tape and bureaucracy as suggested by the World Bank's Doing Business indicators.  $\theta$  may also be industry specific. We will consider an extension in which the value of discriminatory credit policy favoring cronies increases in capital intensity.

Crony capitalism is also pervasive in the state sector, where political gains tend to predominate. The fast-growing Chery certainly adds credit to the vice party secretary of Wuhu, who was later promoted to provincial leadership in Anhui province. The state sector has been integrated into China's political hierarchical system. For instance, all chairmen of state-owned conglomerates hold vice ministerial-level

ranks. Striking deals with the state giants delivers foreseeable political returns since their chairmen are likely to be promoted to state and provincial leadership.<sup>4</sup> It is worth mentioning some differences between deals with private firms and SOEs. On the one hand, private firms tend to offer more economic benefits since they are more flexible in repaying their patrons. On the other hand, striking deals with private firms would be more costly. Rulers have to make extra efforts to get around policies and regulations discriminating against private firms.

It is safe to argue that today’s SOEs are all government’s cronies. However, these SOEs were not born to be cronies. Many SOEs were actually forced to shut down in the late 1990s and early 2000s. Use firm-level data from Annual Industrial Survey conducted by China’s National Bureau of Statistics (NBS data henceforth), Hsieh and Song (2014) find that the state sector has an annual exit rate of 13% in the period 1998-2007. The exit rate is particularly high for small SOEs. SOEs with initial size in the bottom decile have an exit rate of 31%, substantially above the rate of 20% for private firms in the same decile. Exit SOEs are much less productive than surviving SOEs. The median TFP of exit SOEs is merely a fifth of that of surviving SOEs. The closure of small SOEs was initiated by the policy “Grasp the Large, Let Go of the Small” introduced in the mid 1990s which aims to transform the state sector (see, e.g., Hsieh and Song, 2014). Our model suggests “Let Go of the Small” to be incentive compatible: Deals with low-productivity SOE are not worth striking.

Crony capitalism can also be seen through privatization. The privatization and closure of small SOEs are by and large analogous, both manifesting “Let Go of the Small”. In that sense, the exit and privatized small SOEs have been deliberately left behind. Yet, privatizing big SOEs appears to be a different story. Sha Steel, a steel manufacturer, was initially owned by the county government of Zhajiangkou and privatized in the early 2000s. Different from the typical loss-making small SOEs that were privatized at that time, Sha Steel was one of a handful of China’s largest steel manufacturers and creating billions of profits. For reasons that we do not know, the county government privatized Sha Steel by selling state shares to its managers and labor union. Our analytical framework suggests a simple explanation. The privatization is a special deal between the local government (ruler) and the new private owner (crony), which brings to ruler more economic benefits.

### 3.4 Evidence on $\beta$ and $\theta$

$\beta$  is hard to estimate directly. Yet, we may infer its evolution and magnitude indirectly from privatization. As described above, the idea is that rulers can gain personal income from privatization, especially from privatizing big SOEs. Therefore, one would expect to see a higher privatization rate in a regime

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<sup>4</sup>See, among a few others, Guo Shenkun, the chairman of China Aluminum in 2001-2004, became party boss of Guangxi Province and was further promoted to the State Council in 2012. Su Shulin, the chairman of Sinopec in 2007-2011, is now the governor of Fujian Province.

with more tolerance on “corruption”.

Define incumbent firms as those appear in both the 1998 and 2007 NBS data. Privatized SOEs are referred to as the firms that were initially state-owned in 1998 and later privatized during the sample period. The left panel of Figure 1 plots the number of incumbent privatized SOEs as a fraction of the number of the incumbents that were state-owned in 1998. The solid, dashed and dotted lines correspond to the firms that are controlled by the central, provincial and local (including prefecture- and county-level) governments, respectively. Overall, the 1998-2007 NBS data illustrates a big wave of privatization in the late 1990s and early 2000s. This is in line with a higher  $\beta$  over the period as discussed in the previous section.

[Insert Figure 1]

The rate of privatization turns out to be very different across various levels of government. By 2007, the prefecture- and county-level governments had privatized more than half of their SOEs, while the privatization rate is much lower at the central and provincial governments. The contrast is even more stark in the right panel, which plots the value added share of incumbent privatized SOEs. The privatization rate weighted by size remains high for firms controlled by local governments but turn negligible for firms controlled by the central and provincial governments. The differences suggest a higher  $\beta$  for officers in a lower level of government. This seems sensible as political considerations tend to be more important in higher level of government.

In a weak institution, a growing  $\beta$  would lower  $\underline{A}$  and expand the set of cronies who can enter into the modern sector. That would translate into an expansion of the set of “new” firms. Define new private firms as those built after 1998. Panel A of Figure 2 plots the number of new private firms as a share of the number of all private firms. By construction, the 1998 share is zero. Thanks to the massive entry of private firms, the share has increased to 68% in 2007 – i.e., more than two-thirds of private firms were built after 1998. Panel B plots value added of new private firms as a share of value added of all private firms. The share weighted by size grows at a slightly lower rate. Still, it reaches 55% in 2007. The blossom of these new private firms seemingly contradicts China’s poorly ranked indicator of starting a business. Crony capitalism provides a simple explanation to the puzzle. A growing  $\beta$  implies that rulers are increasingly incentivized to make cronies, for whom they would like to break the rules. According to the Doing Business indicators, starting a business in China would take a total of 13 procedures and 33 days, while the averages are 5 and 11 for OECD countries. Notice that these are the costs suggested by the rules written on paper. The cumbersome procedures would simply collapse into a formality in practice if a new business happens to be supported by powerful party cadre.

[Insert Figure 2]

We now turn to  $\theta$ . When it comes to capital market frictions,  $\phi$  and  $\theta$  would reflect the magnitude of external financing costs and capital subsidy the ruler offers to his cronies, respectively. To make sense of the magnitude of  $\theta$ , we look at the gap of marginal cost of capital between private firms and SOEs. Many financial market policies and regulations are set in favor of SOEs (e.g., Allen, Qian and Qian, 2005). Therefore, the gap reveals the extent to which ruler can lower external financing costs for his cronies. One caveat is that many big private firms are also cronies and benefit from discretionary credit policies. The gap is, thus, only suggestive and should be considered a lower bound of  $\theta$ .

Following Hsieh and Klenow (2009), we proxy marginal cost of capital by capital productivity. Hsieh and Song (2014) find a quantitatively large gap of capital productivity between SOEs and private firms. For instance, after controlling for industry effect, the median capital productivity of incumbent SOEs relative to that of incumbent private firms is 44% and 56% in 1998 and 2007, respectively. Using a balanced panel, the solid line in Figure 3 plots the average capital productivity of private firms relative to SOEs. The average capital productivity gap is pretty flat over time, with an average of 1.26 in the period 1998-2007. That is to say, the marginal cost of capital for private firms is about 120 percent higher than that for SOEs. One may want to further decompose marginal cost of capital into capital depreciation rate and real interest rate. Assume that all firms are subject to the same capital depreciate rate of 5% and SOEs can borrow from the banking sector at an official loan rate of 5%.<sup>5</sup> The observed capital productivity gap would infer an actual loan rate of 17.6% for private firms, more than three times as high as the rate for SOEs. The magnitude of the distortion is far larger than those found in developed economies (see, e.g., Gilchrist et al., 2013). Interestingly, the relative capital productivity of privatized SOEs is much closer to one, suggesting that the marginal cost of privatized SOEs is slightly higher than SOEs but substantially lower than private firms. Depriving SOEs of state ownership seems to have little effect on the extent to which they benefit from state-controlled financial markets. Put differently, it seems that these firms manage to keep their cronyship after privatization.

[Insert Figure 3]

We next look at land allocation. Urban land is classified into industrial, residential, commercial and comprehensive use. The classification, once completed by urban planning, is hard to change. The rigidity allows local government, the *de facto* land owner, to discriminate land price for different use, making Industrial land much cheaper than residential land.<sup>6</sup> The lower industrial land price is sometimes justified by the policy goal of attracting investment, which, in turn, would increase fiscal

<sup>5</sup>The one-year official lending rate and the annual inflation rate have an average of 6.0% and 1.1%, respectively, over the period 1998-2007.

<sup>6</sup>Real estate developers often engage in fierce bidding. Industrial land is allocated in a much more discretionary way. The current regulation asks industrial land transaction to go through auction, according to “Circular on the Issues Concerning Intensifying the Land Control” issued by the State Council in 2006. Nevertheless, auction is just a matter of formality for many industrial land transactions.

revenue and GDP. Yet, crony capitalism provides an alternative explanation. Such practice is simply a special deal struck by local government for its crony. The price gap of industrial and residential land would, thus, reflect the magnitude of  $\theta$ . Once again, the gap is only suggestive since cronies may also benefit, to a lesser extent, in residential land allocation.

We use data on industrial and residential land transactions in Beijing and Shanghai from 2007-2010, which is summarized in Table 1.<sup>7</sup> We regress log land price on the dummy variable of residential land transaction. Since industrial land is typically located at peripheral areas, we add the distance to city center as a control for location. Table 2 reports the regression results. The coefficient on the dummy variable is positive and highly significant for both cities. The magnitude of the price discrimination is astonishing in Beijing. The point estimate in Column (1) implies that residential land price is 20 times as high as industrial land price even after controlling for location. The result is less outrageous for Shanghai. Still, the price gap has a factor of three.

[Insert Table 1 and 2]

## 4 Extensions I: Property Rights Protection

The benchmark model does not address another type of institutional imperfections that are universal in many developing economies – i.e., lack of property rights protection. This is an issue fundamentally different from business frictions and particularly relevant for countries like China where private property rights have not yet been fully respected.

We now enrich the benchmark model by introducing lack of property rights protection. If agent  $i$  is in the modern sector, ruler would be able to steal his technology  $A(i)$  at the beginning of each period. Stealing would not be feasible if agent  $i$  adopts home production. The technology is rivalrous. Agent  $i$  could not produce anything in that period if his technology were stolen.

The ruler can produce  $\delta A(i)$  in the home sector.  $\delta < 1$ , indicating that the ruler is not the best person of operating the technology.  $\delta A(i)$  captures the gain from stealing, the term on the right-hand side of (5). Stealing is costly: It incurs a fixed cost of  $P$  for the ruler, which is the first term on the left-hand side of (5).  $P$  is a parameter for the degree of property rights protection.  $P \rightarrow \infty$  for countries with perfect property rights protection. Finally and most importantly, the ruler would lose the benefits of  $\beta((1 - \phi + \theta)\gamma - 1)A(i)$  paid by the original owner of the technology, the second term on the left-hand side of (5).

The following no expropriation constraint summarizes the costs and benefits:

$$\underbrace{P + \beta((1 - \phi + \theta)\gamma - 1)A(i)}_{\text{cost of stealing}} \geq \underbrace{\delta A(i)}_{\text{gain of stealing}} . \quad (5)$$

<sup>7</sup>The data are downloadable from the website of Ministry of Land and Resources.

Agents with  $A(i)$  satisfying (5) would not be expropriated. Define

$$\bar{A} \equiv \begin{cases} \frac{P}{\delta - \beta((1 - \phi + \theta)\gamma - 1)} & \text{if } \delta > \beta((1 - \phi + \theta)\gamma - 1) \\ \infty & \text{otherwise} \end{cases}. \quad (6)$$

(5) can be rewritten as

$$A(i) \leq \bar{A}. \quad (7)$$

Agents with  $A(i)$  above  $\bar{A}$  will stay at the home sector to avoid expropriation.

Combining the special deal constraint (2) and the no expropriation condition (7), we know that only those satisfying

$$A(i) \in [\underline{A}, \bar{A}]. \quad (8)$$

We make assumptions to guarantee nonemptiness of the set.

$\bar{A}$  increases in  $\beta$  and  $\theta$ . Stealing would reduce the ruler's personal income. The loss would be amplified by a higher  $\beta$  or  $\theta$ , which, in turn, discourages the ruler to steal. Interestingly, higher  $\beta$  and  $\theta$  would expand the set of cronies by increasing  $\bar{A}$  and lowering  $\underline{A}$  simultaneously. This generates unambiguous empirical implications that will be presented and tested below.

#### 4.1 Chinese Characteristics

China is often viewed as a country without rule of law. China's constitution did not even mention private property rights protection until the latest amendment made in 2004. Acemoglu and Robinson (2012) tells a story of Dai to illustrate the ability and willingness of the Chinese government to crush private business. While there might be some fears of expropriation for private firms, the fear does not appear to be a major concern. As a matter of fact, as will be shown below, the private sector has been expanding dramatically. Massive entry of small private business is a key driving force. The expansion is also fueled by the rise of many large-scale private business like the one run by Dai. The extended model provides a way to reconcile the puzzle. Acknowledging the rights for rulers to obtain private benefits strengthens private property rights protection. Empowered ruler would refrain from stealing when he could gain enough personal income. Embracing crony capitalism would, hence, relieve the fear of expropriation.

It is also worth noticing that expropriating SOEs is even rarer.<sup>8</sup> This can be explained by an ownership-dependent penalty for stealing, which turns out to be useful in delivering empirical implications of the no expropriation constraint. Without loss of generality, we will simply assume  $P = \infty$  and  $P < \infty$  for SOEs and private firms, respectively.

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<sup>8</sup>Privatizing and expropriating SOEs are very different practices. There are legal constraints that prevent government or political leader from owning the SOE through privatization.

## 4.2 Welfare Implications

We now discuss the welfare implications of crony capitalism in this extended model. Aggregate output would follow

$$Y = \underbrace{\int_0^{\underline{A}} Af(A) dA}_{\text{home production}} + \underbrace{\int_{\underline{A}}^{\bar{A}} (1 - \phi + \theta) \gamma Af(A) dA}_{\text{modern production}} + \underbrace{\int_{\bar{A}}^{\infty} Af(A) dA}_{\text{home production}}, \quad (9)$$

Differentiating (3) with respect to  $\theta$  yields

$$\frac{dY}{d\theta} = \underbrace{\int_{\underline{A}}^{\bar{A}} \gamma Af(A) dA}_{\text{intensive margins}} + \underbrace{((1 - \phi + \theta) \gamma - 1) \left( \bar{A} f(\bar{A}) \frac{d\bar{A}}{d\theta} - \underline{A} f(\underline{A}) \frac{d\underline{A}}{d\theta} \right)}_{\text{extensive margins}}, \quad (10)$$

The intensive margins, compared with (4), are weakened because of the upper bound of  $A(i)$  implied by the no expropriation constraint. The extensive margins, however, are strengthened since  $\bar{A}$  increases in  $\theta$ . Once again,  $\beta$  can only affect aggregate output through the extensive margins, which are also strengthened in the extended model.

## 4.3 Empirical Implications

A higher  $\beta$  would raise  $\bar{A}$  and, thus, attract more private firms to enter the modern sector. This encourages entry of private firms from both sides of  $A(i) < \underline{A}$ , through the special deal constraint, and of  $A(i) \geq \underline{A}$ , through the no expropriation constraint. Since the second channel is mute for SOEs with  $P = \infty$ , one would expect to see an increasing (decreasing) share of private firms (SOEs) in the right tail of the size distribution. Group firms into percentiles according to their current year value added. The solid (dotted) line in Panel A of Figure 4 plots the number of private firms (SOEs) as a share of the number of all firms in the top one percentile. The private share increases dramatically from 0.42 in 1998 to 0.67 in 2007, while the state share falls from 0.45 to 0.23. Moreover, most of the increase in the private share is driven by entry. The solid (dotted) line in Panel B plots the number of new (incumbent) private firms as a share of the number of all firms in the top one percentile. The share of new private firms increases from 0 (by construction) to 0.3, while the share of incumbent private firms remains roughly the same.

[Insert Figure 4]

We now allow  $\theta$  to be industry-specific. Consider two industries, one capital-intensive and the other labor-intensive.  $\theta$  tends to be higher in the capital-intensive industry. The idea is that cheap credit offered by Chinese rulers would benefit their cronies in the capital-intensive industry more than those in the labor-intensive industry. Since  $\beta$  and  $\theta$  are complementary to each other in (6), a growing  $\beta$  would lead to larger increase in  $\bar{A}$  for private firms in the capital-intensive industry. Since  $\bar{A}$  is always

equal to  $\infty$  for SOEs, this implies the following two predictions. First, private firms would outgrow SOEs. Second, the growth of private firms relative to SOEs would be faster in the capital-intensive industry. Panel A of Figure 5 plots the annualized value added growth of private firms relative to the annualized value added growth of all firms in each two-digit industry from 1998-2007. The x-axis is capital share of an industry constructed by Hsieh and Song (2014). The relative growth is positive in all industries, indicating that private firms indeed outgrow SOEs. Moreover, the relative growth turns out to be increasing in capital share, which is consistent with the second prediction. For capital-intensive industries like steel and chemistry, private firms outgrow SOEs by annual rate of above 10 percentage points. Panel B plots the annualized value added growth of private firms in the top five percentiles relative to the annualized value added growth of all firms in the top five percentiles. One can see that the positive correlation becomes even more pronounced. This is also in line with the theory, which predicts the expansion of the private sector to be more dramatic at the right tail of the size distribution.

[Insert Figure 5]

## 5 Extension II: Entry Barriers

A well-known feature of crony capitalism is the presence of entry barriers favoring cronies. To formalize the dark side of crony capitalism, we extend the benchmark model into a two-period economy with entry and exit. The key assumption is to take  $F$  as one-off costs for ruler to strike a deal. A renewal of the deal in the second period does not incur additional costs.<sup>9</sup>

Interpret  $i$  as an industry and consider Bertrand competition among firms in same industry.  $A(i)$  represents the productivity of the most productive firm in the first period. There is a potential entrant in each industry, which has the probability of  $\lambda$  to obtain the productivity of  $(1 + \chi)A(i)$  in the second period.  $\chi > 0$  captures the productivity advantage by entry.

The first-period results are analogous to those in the benchmark model.<sup>10</sup> Bertrand competition implies that the highest-productivity firm would survive. For simplicity, we assume  $A(i) > \underline{A}$  such that the firm adopts modern technology and is a crony. We further assume  $(1 - \phi + \theta)\gamma > 1 + \chi$ . To break into an industry, the entrant has to be a crony as well.

Nothing would change if the entrant fails to materialize its potential in the second period. Yet, the ruler would consider the following trade-off when the entrant obtains the higher productivity. Striking a new deal with the entrant would imply creative destruction, through which the ruler gains personal income of  $\chi B(i)$ . But the ruler also has to pay  $F$ . The trade-off leads to the second-period special deal

<sup>9</sup>The main results would carry over to an environment with sufficiently small renewal costs.

<sup>10</sup>There is no value for the ruler to wait (i.e., refrain from striking deals in the first period).

constraint:

$$A(i) \geq \frac{F}{\chi\beta((1-\phi+\theta)\gamma-1)} \equiv \frac{\underline{A}}{\chi}.$$

In words, the ruler would block entry in the industries with  $A(i) < \underline{A}/\chi$ .

## 5.1 Chinese Characteristics

China has a highly decentralized political structure. The ratio of central government expenditure to total government expenditure, a commonly adopted measure for decentralization, is below 20% in China, while it has an average of 75% in democracies (Landry, 2008). On top of fiscal resources, local government of China also controls land and can easily influence capital allocation through local commercial banks.

A decentralized political system can mitigate entry barriers. The key insight is that there are many rulers who have the capacity of striking deals. Extend the above model by introducing  $J$  homogeneous political jurisdictions. Each region has an identical ruler. Each industry in a region has a potential entrant in an industry, with the probability of  $\lambda/J$  to obtain the highest productivity of  $(1+\chi)A(i)$  in the second period. Notice that the arrival rate of the higher productivity remains unchanged at the aggregate level.

The first-period outcomes are essentially the same. In the second period, local rulers continue to protect their cronies in industries with  $A(i) < \underline{A}/\chi$ . Yet, they would have no incentive to block entry if the incumbent is not their crony. Therefore, even in a locally protected industry with  $A(i) < \underline{A}/\chi$ , the potential entrants from outside would have the probability of  $(J-1)\lambda/J$  to break into the industry. The entry rate converges to  $\lambda$  as  $J \rightarrow \infty$  – i.e., decentralization would remove entry barriers altogether if the number of political jurisdictions goes to infinity.

## 5.2 Empirical Implications

China’s automobile industry provides an excellent example to illustrate how decentralization mitigates entry barriers. In the early 1980s, SAIC was the only manufacturer with the capacity of producing passenger cars in scale. SAIC established the first joint venture in the industry, Shanghai Volkswagen, in 1984. The main product of the joint venture was Santana, based on the second-generation Passat. Similar business models were later adopted by First Auto Work (FAW henceforth) and Dongfeng Automobile. Both are state-owned conglomerates controlled by the central government. Their joint ventures with VW and Citroen started producing Jetta and Fukang, a rebadged Citroen ZX, in the early 1990s. Santana, Jetta and Fukang accounted for most of the passenger car sales in the mid 1990s, creating huge profits for the three joint ventures.<sup>11</sup>

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<sup>11</sup>These cars were expensive according to international standards. The retail price of Santana was about USD 25,000 at the entry level in the early 1990s.

Heavy regulation stifles competition. The central government only issued production licenses to a few enterprises. The official reason is to strengthen the industry by concentrating and consolidating resources, based on experiences from Japan, Korea and U.S. The regulation can also be explained by the crony capitalism story that the central government aims to protect the incumbents, especially those centrally controlled enterprises. The story of Chery in Section 2 has demonstrated how the seemingly impenetrable entry barrier was broken by local government. Chery is not an exception. From the late 1990s to the early 2000s, more than a dozen of entrants managed to break into the industry. Most of them are joint ventures between a foreign company and a SOE controlled by local government. The city government of Shanghai, for instance, played a key role in the birth of Shanghai GM. While the early success of Shanghai GM was by and large built upon the power of its local partner to charge monopoly prices, the introduction of Buick New Century did change the landscape of the industry by adding competition to the market seized by Santana, Jetta and Fukang. As a consequence, market shares of the three old car models and their prices declined substantially. Other similar examples include Beijing Hyundai, Dongfeng Nissan (in Hubei), FAW Toyota (in Tianjin), Chang-An Ford (in Chongqing) and Guangzhou Honda. Even the smallest one, Guangzhou Honda, produced more than 350,000 cars in 2010. In this case, crony capitalism provides an effective way of penetrating entry barriers in an economy with decentralized powers.

## 6 Extension III: Misallocation and Protectionism

So far we assume  $\theta$  to be non-rivalrous. The assumption does not seem innocuous when  $\theta$  involves exclusive resources such as land and capital. This section extends the model by introducing a resource constraint for special deals and local public goods provision. To simplify the analysis, consider an economy with  $J$  identical regions. Each region, indexed by  $j \in \{1, 2, \dots, J\}$ , has one agent endowed with the productivity of  $A(j)$ . These agents are not allowed to move across regions. The magnitude of a deal is endogenous and set equal to  $\theta + D(j)$ , where  $D(j) \geq 0$  is a choice variable. We assume  $A(j) \in [\underline{A}, \bar{A}]$ . As will be confirmed below, this guarantees that every agent is a crony.

Once again, consider, first, a centralized regime with one ruler only. Denote  $K$  the government capital. The ruler can allocate  $D(j)$  to subsidize cronies and  $G(j)$  to the production of local public goods subject to the resource constraint

$$\sum_j D(j) + \sum_j G(j) = K. \quad (11)$$

Assume that the ruler has a quasi-linear preference over public goods and his personal income (e.g., Persson and Tabellini, 2000):

$$U = \sum_j G(j)^\alpha + B, \quad (12)$$

where  $\alpha \in (0, 1)$  and

$$B = \sum_j \beta ((1 - \phi + \theta + D(j)) \gamma - 1) A(j). \quad (13)$$

The ruler maximizes (12) subject to (11) and (13). Rewrite the problem as

$$\max_{\{G(j), D(j)\}} \sum_j G(j)^\alpha + \beta \gamma \sum_j A(j) D(j)$$

subject to (11), where the irrelevant term has been dropped. The FOC solves

$$G(j) = \left( \frac{\alpha}{\beta \gamma A^*} \right)^{\frac{1}{1-\alpha}}, \quad (14)$$

and

$$D(j) = \begin{cases} K - J \left( \frac{\alpha}{\beta \gamma A^*} \right)^{\frac{1}{1-\alpha}} & \text{if } j = j^* \arg \max_i A(i) \\ 0 & \text{otherwise} \end{cases}, \quad (15)$$

where  $A^* \equiv \max_i A(i)$  represents the highest productivity and  $j^* \equiv \arg \max_i A(i)$  is the region with  $A^*$ . The intuition is straightforward. The linear production technology implies that the ruler allocate all subsidies to the crony with the highest productivity,  $A^*$ . Moreover,  $A^*$  pins down the marginal benefits and, therefore, the size of local public goods provision.

It is instructive to solve the first-best allocation of  $D(j)$ . Consider a benevolent social planner who maximizes the utility of a representative consumer:

$$U = \sum_j G(j)^\alpha + \frac{Y}{N}, \quad (16)$$

where  $N$  denotes the population of consumers and

$$Y = \sum_j (1 - \phi + \theta + D(j)) \gamma A(j). \quad (17)$$

Using (17) and (11), we have

$$\max_{\{G(j), D(j)\}} \sum_j G(j)^\alpha + \frac{\gamma}{N} \sum_j A(j) D(j).$$

The optimal solution is

$$G(j) = \left( \frac{\alpha N}{\gamma A^*} \right)^{\frac{1}{1-\alpha}}, \quad (18)$$

and

$$D(j) = \begin{cases} K - J \left( \frac{\alpha N}{\gamma A^*} \right)^{\frac{1}{1-\alpha}} & \text{if } j = j^* \\ 0 & \text{otherwise} \end{cases}. \quad (19)$$

(15) and (19) show that ruler would allocate too much of public resources to his cronies if  $\beta > 1/N$ , the assumption we will maintain throughout. The misallocation arises as the ruler benefits more from  $D(j)$  than the representative consumer does.

## 6.1 Chinese Characteristics

This section incorporates fiscal decentralization by introducing balanced budget for each region. Each region has a ruler, also indexed by  $j \in \{1, 2, \dots, J\}$ . Ruler  $j$  can only strike deals with his crony – i.e., the agent in region  $j$ . Local government is endowed with  $K(j)$ ,  $\sum_j K(j) = K$ . The local fiscal budget has to balance:

$$D(j) + G(j) = K(j). \quad (20)$$

Each ruler cares about his local public goods and personal income. Therefore, (12) should be rewritten as

$$U(j) = G(j)^\alpha + B(j), \quad (21)$$

where

$$B(j) = \beta((1 - \phi + \theta + D(j))^\gamma - 1)A(j). \quad (22)$$

Ruler  $j$  maximizes (21) subject to (20) and (22). Rewrite the problem as

$$\max_{D(j)} (K(j) - D(j))^\alpha + \beta\gamma A(j) D(j).$$

The FOC solves

$$G(j) = \left( \frac{\alpha}{\beta\gamma A(j)} \right)^{\frac{1}{1-\alpha}}, \quad (23)$$

$$D(j) = K(j) - \left( \frac{\alpha}{\beta\gamma A(j)} \right)^{\frac{1}{1-\alpha}}. \quad (24)$$

$G(j)$  in (23) is between (14) and (18), indicating that fiscal decentralization helps to increase local public goods provision towards the first-best. This is welfare-improving. In other words, the decentralized political system is an important characteristics which offers China a way of mitigating the misallocation of public resources between subsidizing cronies and providing local public goods.

Decentralization also comes at a cost. The downside is a worse allocation of subsidies across agents. The benevolent planner or the central ruler would subsidize the most productive agent only. Yet, everyone would be subsidized in fiscal decentralization. The output is thus more dispersed. Consider an economy with two regions, where agents are endowed with productivity of  $\underline{A}$  or  $\bar{A}$ . Denote  $Y^C(A)$ ,  $Y^{FB}(A)$  and  $Y^D(A)$  the output of the agent with  $A$  in the centralized regime, the first-best allocation and the decentralized regime, respectively. Appendix 8.3 shows that fiscal decentralization generates a smaller output ratio between the  $\bar{A}$  and  $\underline{A}$  agents.

$$\frac{Y^D(\bar{A})}{Y^D(\underline{A})} < \min \left\{ \frac{Y^C(\bar{A})}{Y^C(\underline{A})}, \frac{Y^{FB}(\bar{A})}{Y^{FB}(\underline{A})} \right\} \quad (25)$$

## 6.2 Empirical Implications

The misallocation of subsidies across cronies implies local protectionism, which reduces production concentration. Since export markets tend to be less influenced by domestic discriminative policies in favor of cronies, one would expect to see a higher concentration rate in exporting. The dotted line in Figure 6 plots domestic sales of the top one percentile firms as a share of domestic sales of all firms in the NBS data. The domestic sales share appears to be rather stable, with an average of 36%. By contrast, the export share of the same set of firms, plotted by the solid line, has been increasing dramatically, from 24% in 1998 to 44% in 2007. The low export concentration rate in the late 1990s is essentially driven by a composition effect – i.e., SOEs account for a large share in the top one percentile and they export much less than private firms (see Panel A of Figure 7). This suggests an asymmetry in protecting SOEs and private firms, which we will elaborate below. Panel B of Figure 7 shows that for private firms in the top percentile accounts for a larger share of exports than their share in domestic sales. Moreover, the export share has been rising faster than the domestic sales share. Both the level and growth differences are suggestive of the protectionism the private firms face in a decentralized economy.

[Insert Figure 6 and 7]

The low export intensity of SOEs is consistent with the hypothesis that SOEs are better protected in the domestic market. A possible explanation is that rulers would gain more political benefits from supporting SOEs. Such asymmetry implies stronger local protectionism for SOEs in a decentralized economy, which can be directly tested by regional sales data. To this end, we look into the automobile industry for the following two reasons. The first is data availability. China’s National Passenger Car Information Exchange Association provides market shares of each automobile manufacturers in every province or provincial-level city. Secondly, China’s automobile industry is a perfect manifestation of crony capitalism, for reasons described above. There are more than fifty active manufacturers and about twenty-five of them produce more than 100,000 cars in 2010. These car manufacturers are scattered across the country, from the northeast (FAW Volkswagen in JiLin) to the southwest (Chang’an Auto in ChongQing), from the east (Shanghai GM) to the middle (Dongfeng Nissan in Hubei). All of them are supported by local government to various extents.

Local protectionism is a dark side of crony capitalism. The asymmetric protectionism discriminating against private firms leads to even worse outcome. To facilitate intuition, Panel A of Figure 8 plots Chery’s market share in each province, with the x-axis representing the distance between Chery’s home province (i.e., Anhui) and its market province. Chery’s home market share is obviously an outlier. Chery accounts for 13% of passenger car sales in its home province, while its market share is barely 5% in the whole country. The difference can be driven by local protectionism or home bias. Panel B

plots market shares of BYD, a private automobile manufacture with size comparable to Chery.<sup>12</sup> BYD has a normal market share in its home province (Guangdong). If home bias affects Chery and BYD equally, the difference in the “excessive” home market share would be able to identify the magnitude of the asymmetry in protecting SOEs and private firms.

[Insert Figure 8]

We regress market shares of each automobile manufacturer in each province on home dummy after controlling for a polynomial of distance to home and firm fixed effects. As discussed above, the coefficient of home dummy reflects a combination of protectionism and home bias. Column (1) of Table 3 reports the results. The key coefficient is positive, significant and quantitatively sizable. The home market share is about 5 percentage points higher than the average of market shares in other provinces. We then separate the sample into two groups, SOEs and private firms. Column (2) and (3) show that the coefficient of interest remains highly significant for SOEs but becomes much smaller and statistically insignificant for private firms. The five percentage points difference of the two coefficients reflects the magnitude of the extra supports local governments offer to state-owned automobile manufacturers.

[Insert Table 3]

## 7 Conclusion

[to be written]

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<sup>12</sup>Chery and BYD were the sixth and seventh largest auto manufacturers in China in 2010.

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## 8 Appendix

### 8.1 Appendix: Endogenous $\theta$

Assume that the ruler can reduce the frictions to  $\phi - \theta(i)$  by paying the fixed cost of  $F$  and a quadratic cost of  $\theta(i)^2 / (2\eta)$ . The choice on  $\theta(i)$  is based on

$$\max_{\theta(i) \leq \phi} \beta T(i) - \theta(i)^\eta = \beta ((1 - \phi + \theta(i))\gamma - 1) A(i) - \frac{\eta \theta(i)^2}{2}$$

The FOC is

$$\theta(i) = \min \{ \phi, (\eta\beta\gamma A(i)) \}.$$

The special deal constraint (2) should thus be rewritten as

$$A(i) \geq \frac{-\beta(1 - \phi)\gamma + \sqrt{(\beta(1 - \phi)\gamma)^2 + 4F\eta(\beta\gamma)^2}}{2\eta(\beta\gamma)^2}.$$

### 8.2 Nash Bargaining

We model  $B(i)$  as an equilibrium outcome of a negotiation process between the party and ruler. The role of the party will be specified below. At the beginning of each period, agent  $i$  pays bribes of  $\hat{B}(i)$  to the ruler. If the ruler finds the deal profitable, he would pay  $F$  to make the deal ready for being implemented. The negotiation happens after the ruler has paid  $F$ , a key timing assumption.

Assume that the party also maximums revenue, which comes from the following two sources. First, the party collects tax revenue,  $T(i)$ , from agent  $i$ . The participation constraint of the agent implies that

$$T(i) = ((1 - \phi + \theta)\gamma - 1) A(i) - \hat{B}(i),$$

If the tax is above  $T(i)$ , the agent would choose to produce in the home sector. Second, the party has the ability to confiscate  $\hat{B}(i) - B(i)$  from the bribes paid to the ruler. Here,  $B(i)$  represents the personal income of the ruler net of confiscation.

Consider  $\beta$  the bargaining power of the ruler and  $1 - \beta$  the bargaining power of the party. Bargaining is over  $B(i)$ . If they reach an agreement, the party and ruler would get  $T(i) + \hat{B}(i) - B(i)$  and  $B(i)$ , respectively. If there is no agreement, the ruler would hold business frictions unchanged such that all agents would have to go back to the home sector and both the party and ruler would end up with zero income. The timing of the events is summarized as follows.

$$\begin{aligned} \text{Agent } i \text{ pays } \hat{B}(i) \text{ to the ruler} &\Rightarrow \text{The ruler pays } F \text{ and is ready for cutting } \phi \text{ by } \theta &\Rightarrow \text{The negotiation over } B(i) \text{ takes place between the party and ruler} \\ &\Rightarrow \text{The ruler implements the deal with Agent } i &\Rightarrow \text{Agent } i \text{ chooses where to produce} \end{aligned}$$

The bargaining problem solves

$$\max_{B(i)} (((1 - \phi + \theta) \gamma - 1) A(i) - B(i))^{1-\beta} B(i)^\beta.$$

The first-order condition leads to (1).

### 8.3 Proof of (25)

We have  $Y^C(\bar{A}) = \left(1 - \phi + \theta + K - 2(\alpha/(\beta\gamma\bar{A}))^{\frac{1}{1-\alpha}}\right)\bar{A}$ ,  $Y^{FB}(\bar{A}) = \left(1 - \phi + \theta + K - 2(\alpha N/(\gamma\bar{A}))^{\frac{1}{1-\alpha}}\right)\bar{A}$  and  $Y^D(\bar{A}) = \left(1 - \phi + \theta + K/2 - (\alpha/(\beta\gamma\bar{A}))^{\frac{1}{1-\alpha}}\right)\bar{A}$ . Moreover,  $Y^C(\underline{A}) = Y^{FB}(\underline{A}) = (1 - \phi + \theta)\underline{A}$  and  $Y^D(\underline{A}) = \left(1 - \phi + \theta + K/2 - (\alpha/(\beta\gamma\underline{A}))^{\frac{1}{1-\alpha}}\right)\underline{A}$ . It immediately follows (25).

Table 1 Summary of Land Transaction Data

	Beijing				Shanghai			
	# Transaction		Average Price		# Transaction		Average Price	
	RL	IL	RL	IL	RL	IL	RL	IL
2007	55	84	64.1	0.9	27	89	22.7	5.4
2008	74	40	48.5	1.2	8	44	12.1	4.1
2009	53	91	96.1	1.2	26	57	41.6	4.1
2010	52	35	127.0	3.1	28	58	86.6	4.1

RL and IL stand for residential and industrial land, respectively. Price unit is million Yuan per square hectare.

Table 2: Regressions on Land Price

VARIABLES	(1)	(2)
	Log Price Beijing	Log Price Shanghai
Dummy_RL	3.013*** (0.112)	1.175*** (0.146)
Log_Distance	-0.242*** (0.0521)	-0.768*** (0.119)
Year dummy	Yes	Yes
Observations	484	336
R-squared	0.692	0.413

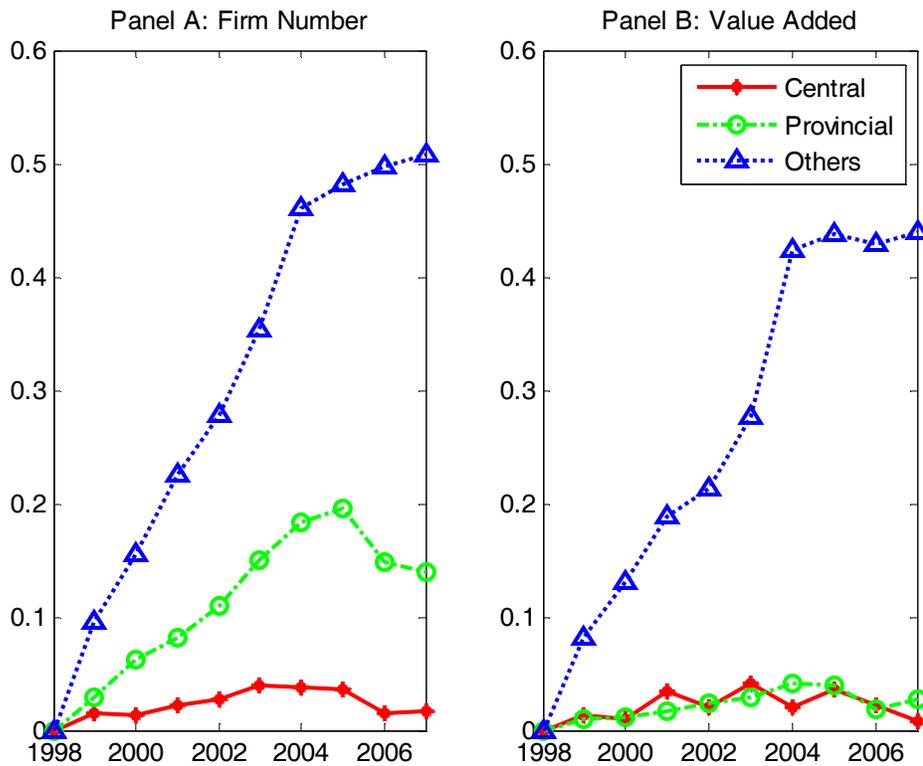
Dummy\_RL and Log\_Distance denote dummy on residential land and log distance to city center, respectively. Standard errors are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 3: Regressions on Auto Market Shares

	(1)	(2)	(3)
VARIABLES	Market share	Market share	Market share
Home	4.681** (1.821)	5.248*** (1.816)	0.449 (0.645)
Distance	-0.144*** (0.0478)	-0.173*** (0.0510)	0.0532 (0.0598)
Distance <sup>2</sup>	0.00255 (0.00161)	0.00301* (0.00169)	-0.000481 (0.00161)
Firm dummy	Yes	Yes	Yes
Observations	1,922	1,550	372
R-squared	0.724	0.741	0.623

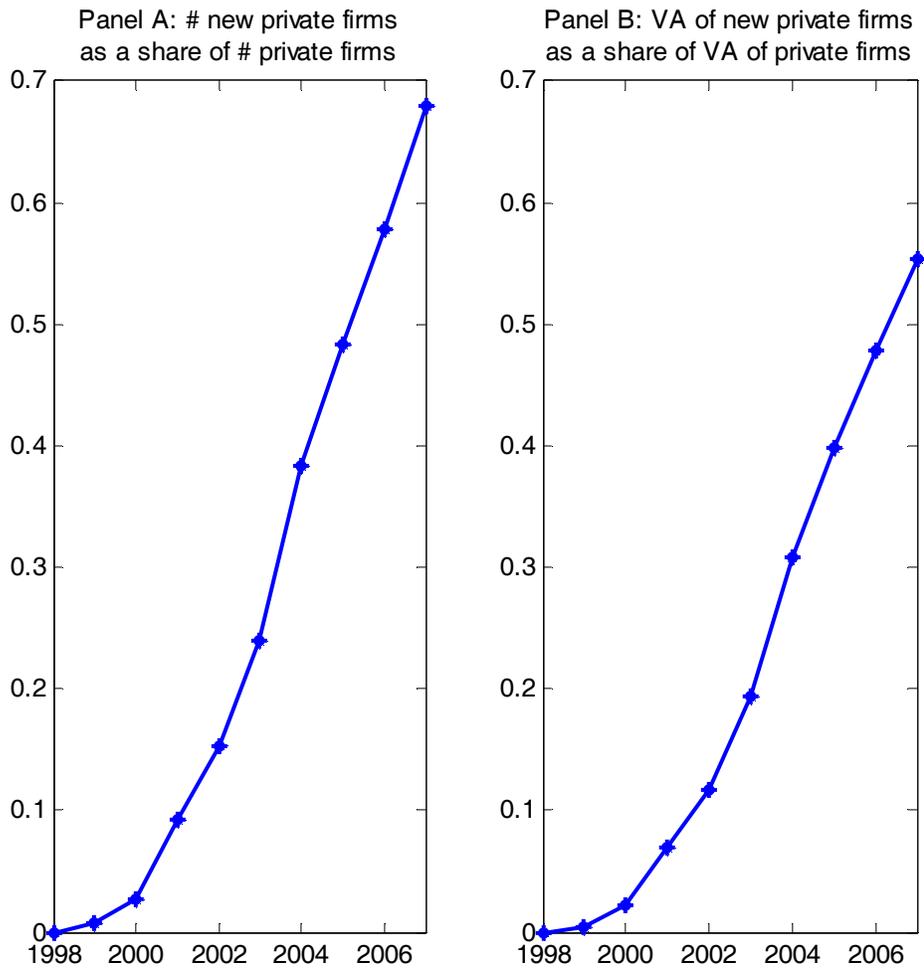
This table uses weighted least square, with firm total car sales units as the weights. Standard errors (in parentheses) are clustered at the provincial level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Home is the dummy for home market. Distance is the linear distance between provincial capital cities (100 km). Column (1) is the full sample regression. Column (2) and (3) are for state-owned and private automakers, respectively.

Figure 1



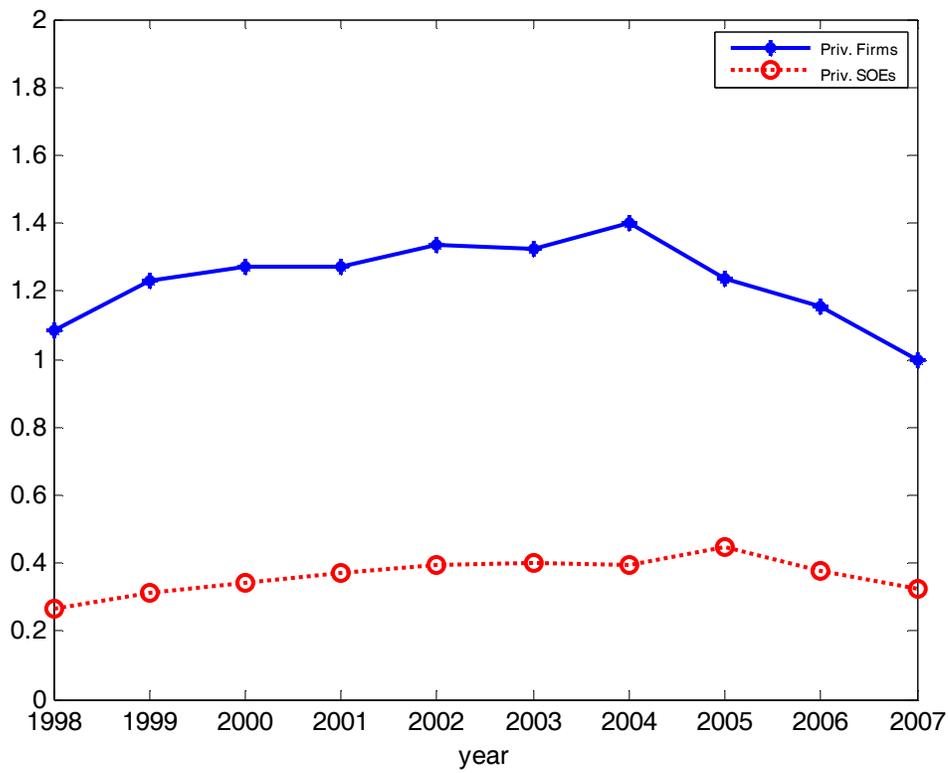
The left panel plots the number of incumbent privatized SOEs as a fraction of the number of incumbent corporatized and privatized SOEs (i.e., the incumbents that were state-owned in 1998). The right panel plots the value added of incumbent privatized SOEs as a fraction of that of incumbent corporatized and privatized SOEs.

Figure 2



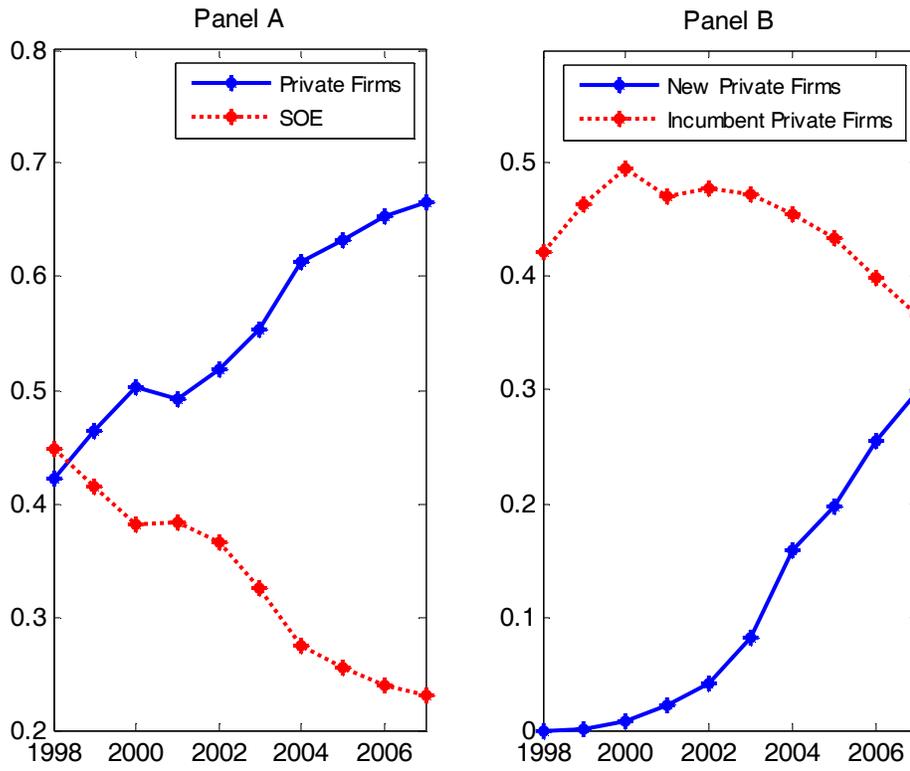
Panel A plots the number of new private firms as a share of the number of all private firms. By construction, the 1998 share is zero. Panel B plots value added of new private firms as a share of value added of all private firms.

Figure 3



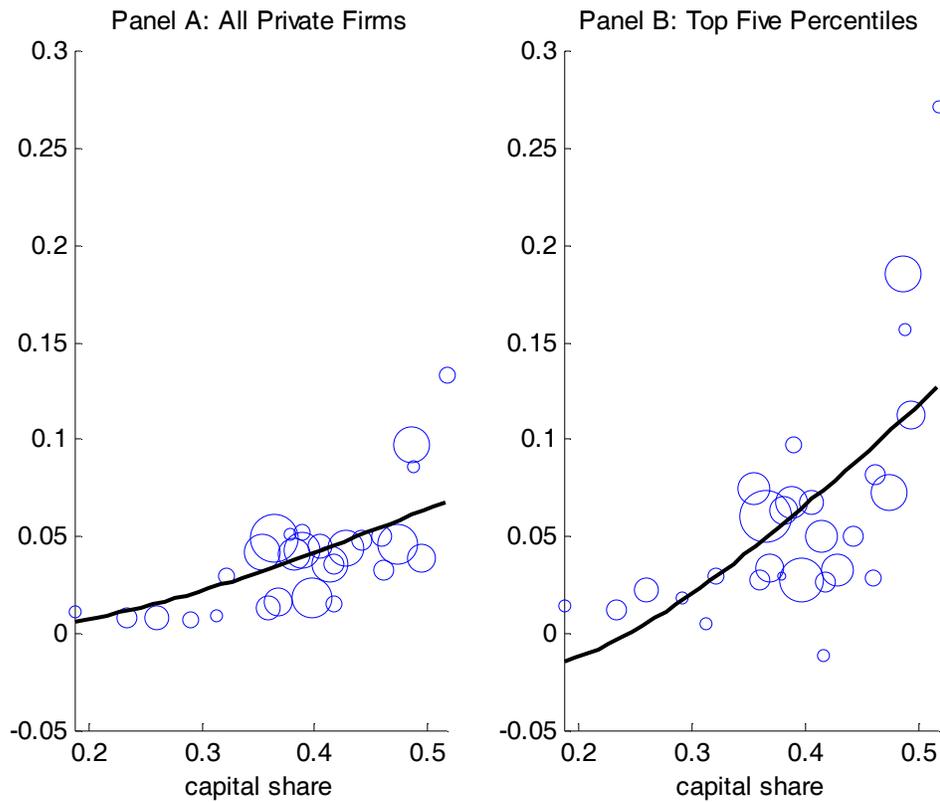
The solid and dotted lines represent the average capital productivity of private firms and privatized SOEs relative to SOEs in the 1998-2007 balanced panel, respectively.

Figure 4



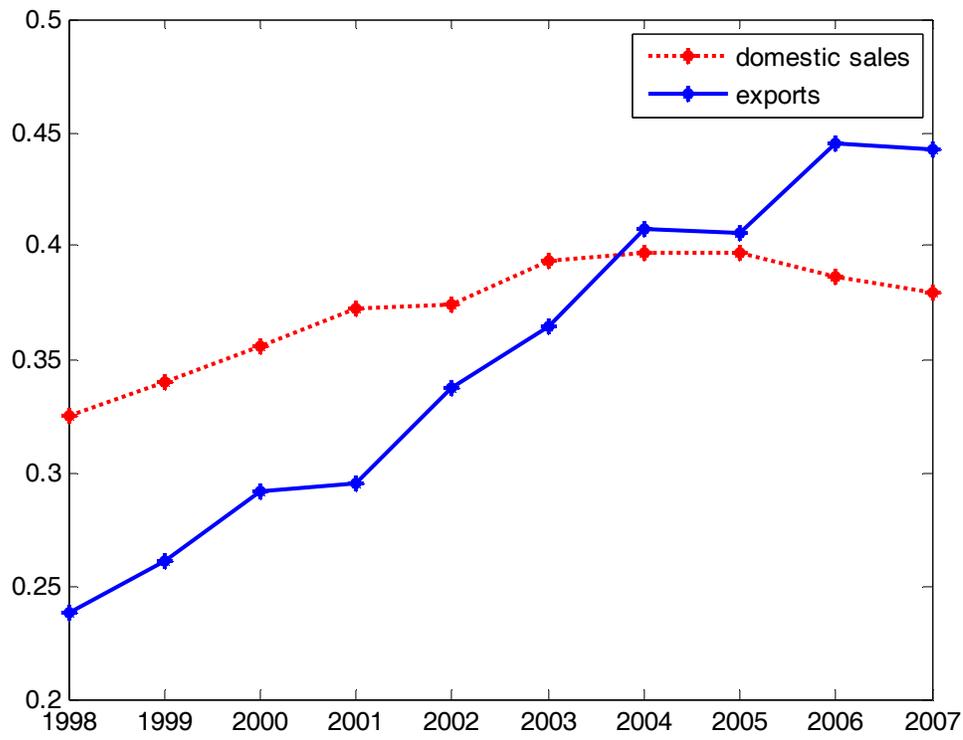
The solid (dotted) line in Panel A plots the number of private firms (SOEs) as a share of the number of all firms in the top one percentile. Firms are grouped into percentiles according to their current year value added. The solid (dotted) line in Panel B plots the number of new (incumbent) private firms as a share of the number of all firms in the top one percentile.

Figure 5



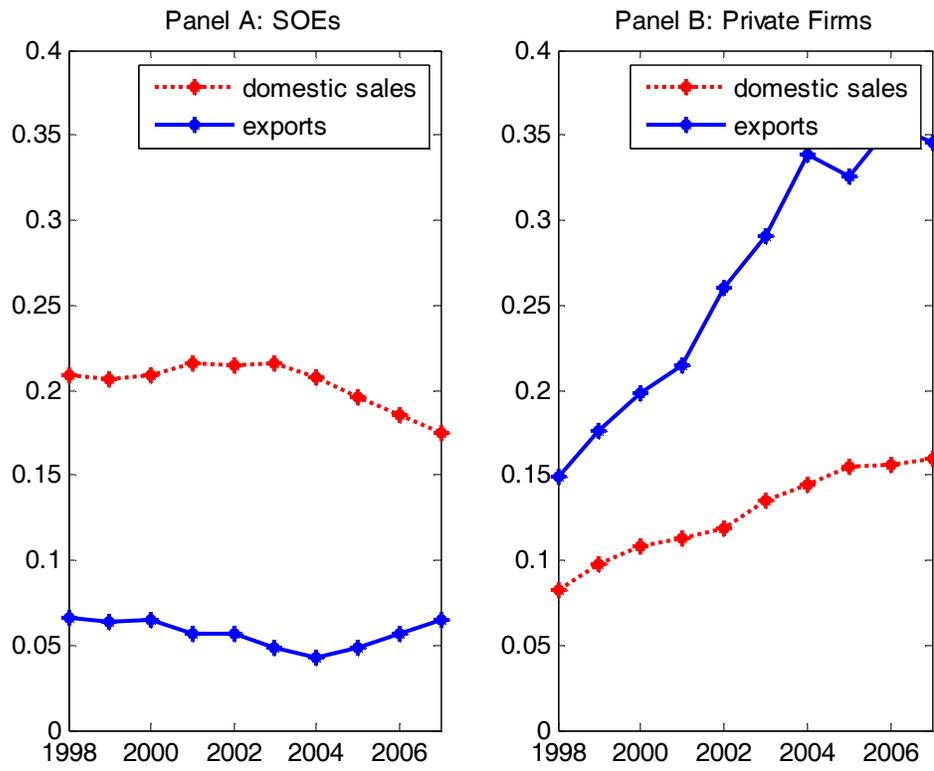
The x-axis of the left panel is capital share in each of the two-digit industries. The y-axis is the value added growth of all private firms in each industry relative to the value added growth of all firms in that industry. The right panel has the same x-axis. Its y-axis is the value added growth of the top five percent private firms in each industry relative to the value added growth of all firms in the industry.

Figure 6



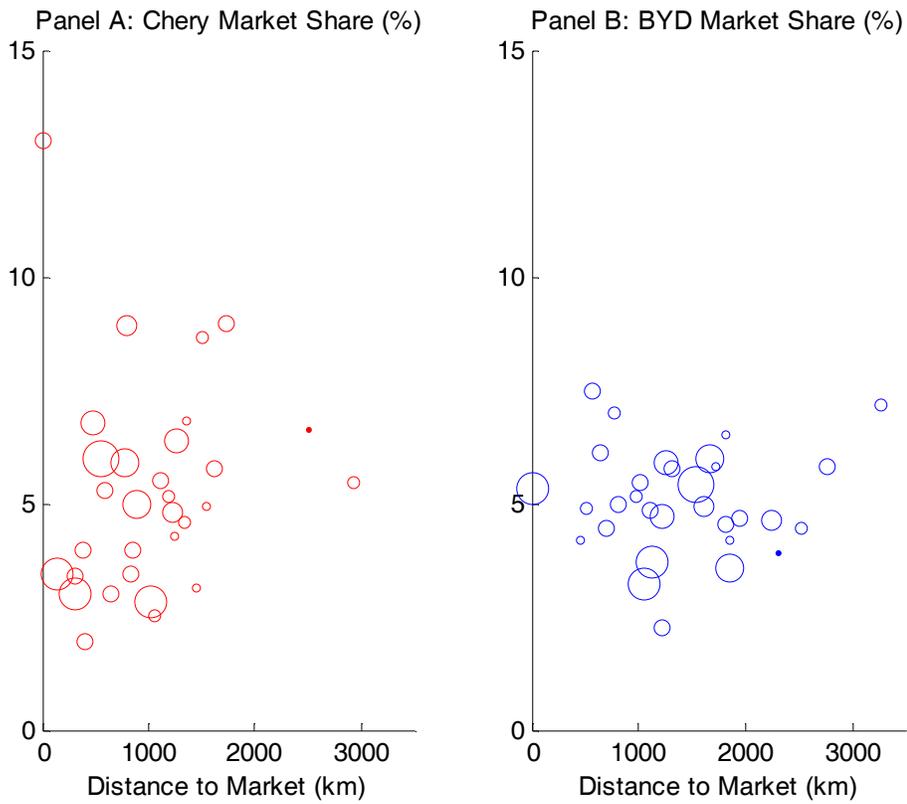
The figure plots domestic sales (dotted line) and exports (solid line) of firms in the top one percentile as a fraction of domestic sales and exports of all firms, respectively.

Figure 7



The figure plots domestic sales (dotted line) and exports (solid line) of corporatized SOEs (Panel A) and private firms (Panel B) in the top one percentile as a fraction of domestic sales and exports of all firms, respectively.

Figure 8



The x-axis is the distance between home province and other provinces. The y-axis is the market share (%) of Chery (Panel A) and BYD (Panel B) in each province.