

BOFIT Discussion Papers  
17 • 2009

Julan Du, Yi Lu and Zhigang Tao

China as a regulatory state



EUROJÄRJESTELMÄ  
EUROSYSTEMET

Bank of Finland, BOFIT  
Institute for Economies in Transition

BOFIT Discussion Papers  
Editor-in-Chief Iikka Korhonen

BOFIT Discussion Papers 17/2009  
9.10.2009

Julan Du, Yi Lu and Zhigang Tao: China as a regulatory state

ISBN 978-952- 462- 989- 8  
ISSN 1456-5889  
(online)

This paper can be downloaded without charge from  
<http://www.bof.fi/bofit>  
or from the Social Science Research Network electronic library at  
[http://ssrn.com/abstract\\_id=1489412](http://ssrn.com/abstract_id=1489412).

Suomen Pankki  
Helsinki 2009

# Contents

Tiivistelmä.....	i
Abstract.....	ii
1 Introduction .....	2
2 From state ownership to regulatory state.....	5
3 Data and variables .....	7
4 Empirical analysis .....	10
4.1. Main results .....	10
4.2. Instrumental variable estimation .....	11
4.3. Robustness checks .....	12
4.4. Does rent seeking drive our results?.....	14
4.5. A comparative statics analysis .....	16
5 Conclusions .....	17
References .....	18

Figures

Tables

All opinions expressed are those of the authors and do not necessarily reflect the views of the Bank of Finland.

Julan Du, Yi Lu and Zhigang Tao

## China as a regulatory state

### Tiivistelmä

Markkinatalouden eri mallit eroavat toisistaan siinä, kuinka paljon valtiolla on valtaa markkinoihin. Glaeser ja Shleifer (2002, 2003) sekä Djankov et al. (2003) luokittelevat nämä mallit siten, että toisessa ääripäässä ovat taloudet, joissa valtion sekaantuminen talouden toimintaan on vähäistä (yritykset sopivat asioista keskenään ja kiistelevät asioista oikeusjärjestelmän kautta), ja toisessa ääripäässä taloudet, joissa valtio on aktiivinen toimija markkinoilla (sääntelytalous). Tässä tutkimuksessa luodaan 3073 kiinalaiseen yksityisyrittäjään kohdistuvan kyselytutkimuksen perusteella indeksi, joka mittaa valtion valtaa markkinoihin. Alueellisten viranomaisten valta vaihtelee Kiinassa suuresti. Alueilla, joilla viranomaisilla on enemmän valtaa, yritykset toimivat paremmin. Tämä antaa aiheen olettaa, että tietynlainen sääntelytalouden malli on oikea Kiinalle.

Asiasanat: sääntelytalous, epäjärjestyksen kustannukset, diktatuurin kustannukset, markkinatalouden mallit, Kiinan talousuudistus

# China as a Regulatory State

Julan Du<sup>a</sup>, Yi Lu<sup>b</sup>, and Zhigang Tao<sup>b</sup>

<sup>a</sup>Chinese University of Hong Kong

<sup>b</sup>University of Hong Kong

January 2009

## Abstract

Market economy models differ in the degree of the power of the government vis-à-vis the market in the economy. Under the classifications set forth by Glaeser and Shleifer (2002, 2003), and Djankov et al. (2003), these market models range from those emphasizing low government intervention in the market (private orderings and private litigation through courts) to those where the state is an active participant (regulatory state). This paper, using data from a survey of 3,073 private enterprises in China, constructs an index to quantify the power of the government vis-à-vis the market. Regional government power is found to vary considerably across China's regions. Notably, enterprises located in regions where government exerts more power in the market perform better, suggesting that the regulatory state model of the market economy is appropriate for China.

**Keywords:** Regulatory State, Disorder Costs, Dictatorship Costs, Market Economy Models, China's Economic Reform

**JEL Codes:** P30, D02, L25

# 1 Introduction

Dissatisfied with failed experiments in state ownership during the 20th century, developing economies embraced ideals of private ownership and market competition as part of their efforts to promote market economies. The means and goals of transition from state ownership to a market economy, however, have varied widely. At one end of the spectrum was the Washington Consensus, which sought to diminish state intervention in the economy. Its purpose was to “stabilize, privatize, and liberalize,” i.e. maintain macroeconomic stability, push for domestic liberalization, privatization and openness in international trade, and drastically reduce the role of the state in the economic sphere.<sup>1</sup> At the other end of the spectrum were countries like China, where the role of government in the economy has remained constant and significant throughout three decades of economic reform (Walder, 1995; Rodrik, 2006).

These diverse approaches to establishing a market economy appear to reflect fundamental differences over what a market economy should look like. Glaeser and Shleifer (2002, 2003), and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003) lay out a general framework of market economy models, which they arrange from the low state intervention (*private orderings* and *private litigation through courts*) to high intervention (*regulatory state*). They complement Hobbes’ assertion that the proper function of a market economy requires governments to protect investors against expropriation by thieves, competitors, or tortfeasors that leads to “disorder costs,” (Hobbes, 1651) with an additional caveat that governments themselves need to refrain from expropriation where it leads to “dictatorship costs.” These authors characterize the challenge to establishing a market economy as a balancing act, wherein the government must follow a path between disorder costs arising from inadequate control over the market and dictatorship cost that arise for government excess. (Figure 1 is taken directly from Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer, 2003).

The Washington Consensus clearly leans toward the less invasive *private orderings* and *private litigation through courts* models of a market economy. Both target models, however, require a host of preconditions are met before they can be implemented. Specifically, *private orderings* can be an efficient choice of market model only after systems to protect private property rights of market participants are in place. Correspondingly, the *private litigation* model assumes the existence of a judiciary composed of competent, indepen-

---

<sup>1</sup>This has been the guiding principle for economic reforms in most of the former socialist economies in Europe, Latin America, Africa, and South and East Asia (Williamson, 1989; Blanchard, Dornbusch, Krugman, Layard, and Summers, 1992; Blanchard, Boycko, Dabrowski, Dornbusch, Layard, and Shleifer, 1993; Rodrik, 2006).

dent judges, immune to influence from the rich and politically connected. In the former socialist economies, of course, these preconditions were not met at the outset of transition. Property right protections for private enterprises had yet to be formally established, and the independence of members of the newly created judiciaries was dubious at best (Clarke, Murrell, and Whiting, 2008). Nor was this an isolated phenomenon. Most developing economies suffered the same failure to meet preconditions of the market economy models embraced by the Washington Consensus (i.e. *private orderings* and *private litigation through courts*). In light of this observation, it is hardly surprising that the performance of developing economies following the Washington Consensus have posted less-than-stellar performances (Rodrik, 2006).

Similarly, the successes of economic reforms in China, India and Vietnam are usually credited to incremental implementation of policies and a cautious reform approach. Could it also be, however, that this success stems in part from targeting an appropriate market economy model? The empirical backing for this view is scarce (see Frye and Shleifer, 1997; Hoff and Stiglitz, 2004) as evidence-gathering is thwarted by difficulties in quantifying the power of government with respect to the market in the economy. This paper, therefore, attempts to fill this void by quantifying the power of government vis-à-vis the market in the case of China, and thereby establish the appropriateness of the market economy model pursued by China.

The data used in this study is taken from a survey conducted in 1999. The sample covers 3,073 privately-owned enterprises in China, and includes a question on how the entrepreneur would resolve business disputes with others. The available responses are: (i) do nothing, (ii) negotiate between themselves, (iii) seek help from private networks, (iv) seek a court ruling, or (v) seek government help. We group these responses into three categories corresponding to the three market economy models proposed by Glaeser and Shleifer (2002, 2003), and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003). We apply *private orderings* to responses (i), (ii), or (iii); *private litigation through courts* to response (iv); and *regulatory state* to response (v).<sup>2</sup>

We first assign an ordinal value to each enterprise corresponding to the specific category of the response made by the entrepreneur, giving a value of 1 for *private orderings*, 2 for *private litigation through courts*, and 3 for *regulatory state*. Next, we take the average of such values of enterprises located in a region (weighted by the number of employees) to quantify the power of government with respect to the market in that region,<sup>3</sup> with a higher

<sup>2</sup>In Section 2, we discuss China’s political structure and regulatory system, an elaborate our reasoning for treating response (v) as an indicator of *regulatory state*.

<sup>3</sup>“Region” here covers China’s 22 provinces, 4 province-level municipalities, and 5 mi-



value indicating greater government influence in the market.

We find private enterprises perform better when they are located in regions with greater government intervention in the market. These findings remain robust when the regression models are modified to address typical technical concerns in empirical studies such as omitted variables and reverse causality issues, alternative measures of the power of government with respect to the market, and various sub-samples.<sup>4</sup> Our results consistently suggest the regulatory state model of a market economy is most appropriate for China.

One potential explanation of our finding that the superior performance of enterprises in regions with greater government participation in the market is that such firms are more likely to indulge in rent-seeking activity. Thus, we examine six channels (input procurement, availability of production locations, supply of electricity and water, recruitment of skilled labor, sales of products, sales of services, and access to bank loans) through which enterprises might obtain favors through rent seeking. Our analysis identifies no evidence that enterprises located in regions with greater government participation in the market obtain favors via these channels, so we rule out the rent-seeking explanation.

Another sub-issue raised by the analysis is how much incentive regional government officials have to enforce private contracts or resolve business disputes. Certainly, the central government's fiscal decentralization policy is well-documented in the literature on China's economic reforms. That policy called for delegating substantial discretion over regional economies to regional governments, while treating them as political surrogates. Thus, the central government appoints and promotes compliant regional government officials, motivating them to cultivate healthy business environments and promote economic development in ways that enhance their personal status and chances of promotion (e.g. Blanchard and Shleifer, 2001; Roland, Qian, and Xu, 2006; Clarke, Murrell, and Whiting, 2008).

Finally, we use our dataset to test the general predictions of the theoretical framework proposed by Glaeser and Shleifer (2002, 2003) and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003). Increased disorder costs (expropriation by thieves, competitors, or tortfeasors) calls for a

---

nority autonomous regions. "Government" refers to regional governments rather than the central government.

<sup>4</sup>To deal with omitted variable concern, we control for a host of variables related to entrepreneurial characteristics, enterprise characteristics, regional characteristics, and industry dummies. To address potential endogeneity problems, we use the distance between the capital city of each region and the national capital Beijing as an instrumental variable for the power of government compared the the market in the economy and carry out a two-stage least-squares estimation.

greater government intervention in the market, while increased dictatorship costs (expropriation by government) are countered by reducing the government's presence in the market. Our findings follow intuition: enterprises facing powerful competitors (and impliedly higher disorder costs) seek greater government intervention in the market, while enterprises facing expropriation by the government (higher dictatorship costs) demand reduced government powers.

The rest of the paper is organized as follows. Section 2 offers a description of the features of China's political structure and regulation system. Section 3 discusses the data and variables. Empirical results and their interpretations are presented in Section 4. The paper concludes with Section 5.

## 2 From state ownership to regulatory state

At the end of 1978, China initiated its first wave of economic reforms and began the transformation from a state-ownership-dominated central planning system to a market economy. For Chinese reformers, the target model of private litigation through courts was simply not feasible. Formal judicial institutions had been largely unnecessary under the centrally planned system, and the new judiciary was far from independent (Clarke, Murrell, and Whiting, 2008; Cohen, 2008).

Even more important, however, was the fact that laws and national ordinances enacted by the central government tended to be sketchy and incomplete. Because China is a large country with substantial variations in culture, natural resource endowments and socioeconomic development across regions, it is difficult for the central government to enact unified laws and national ordinances applicable to all regions. On top of this, the central government's legislative and ordinance-drafting has taken place in a highly dynamic, fast-changing socioeconomic environment. The challenge of making economic legislation of any impact is well exemplified in the twelve-year effort of the National People's Congress to pass a new Law on Township and Village Enterprises (TVEs). (Clarke, Murrell, and Whiting, 2008). Notable gaps in China's laws and national ordinances persist (Eggleston, Posner, and Zeckhauser, 2000).

Overbreadth and vagueness are important considerations in drafting legislation or regulations in any country, but the extraordinary patchiness of the Chinese legal framework has meant that implementation of laws and national ordinances almost invariably call for supplemental interpretation. Pistor and Xu (2002) point out that the power to interpret existing laws and national ordinances, adapt them to changing circumstances, and extend their applica-

tion to new cases confers de facto lawmaking power (and thereby the power of contract enforcement) to the person interpreting the law.

Moreover, China's courts have trouble keeping up with current circumstances. In contract enforcement, for example, the court necessarily takes a reactive stance, waiting for a plaintiff to bring a case. In contrast, government officials can avoid court altogether by exercising de facto lawmaking power on the spot. They can adapt rules to specific situations and initiate enforcement procedures. Thus, officials can provide many of the remedies courts supply elsewhere; they can proactively enforce contracts, monitor behavior, launch investigations, and enjoin or sanction actions at their own initiative (Du and Xu, 2009).

China's geographic size and population also require the central government to rely on decentralized regulation to deal with the formidable task of economic administration. For millennia, China has relied on an arrangement where the central government motivates regional officers with merit-based promotion schemes. Modernly, regional officials are called on to assist in regulation through the use of regional competition (Du and Xu, 2008). Regional officials today even have discretionary power to adopt local decrees and rules at their own initiative as long as they promote local market economy development (Wu, 2007).

In recent decades, regional government officials have responded by advocating entrepreneurship and enhanced social awareness of a market economy through media and education, leading the way in promoting non-state ownership and reasonable protection for private property rights, setting the pace [of] reform to assure orderly marketization and economic liberalization, implementing industry entry regulations, and gearing industrial policies to allow for structural adjustment (Wu, 2007; Fu and Peerenboom, 2008).

Thanks to this initiative, involvement of regional government officials in the economy is almost universally accepted by the Chinese public today. This is particularly significant where a business dispute involves politically sensitive issues or tests the boundaries of established legal concepts (Wu, 2007).<sup>5</sup> It is also critical for regions lagging behind in marketization as local courts in such regions have less experience in handling private business disputes. Hence, in deciding cases, regional courts may refer certain issues in a case to regional government officials and defer to their interpretations. Basically, regional government regulations, directives and guidelines have become China's "living constitution" (Fu and Peerenboom, 2008), and over the years the Chinese public has come to rely on regional governments rather

---

<sup>5</sup>The court system in China competently handles a large volume of routine business dispute cases where judicial independence is not involved (Pei, 2001; Fu, 2003).

than regional courts for dispute settlement.

### 3 Data and variables

The dataset used in this study is taken from the *Private Enterprise Survey* in China jointly conducted in 1999 by the United Front Work Department of the Central Committee of the Communist Party of China, the All China Industry and Commerce Federation, and the China Society of Private Economy at the Chinese Academy of Social Sciences.<sup>6</sup>

The survey uses a multi-stage stratified random sampling method to achieve a balanced representation across all regions and industries in China. After determining the total number of private enterprises to be surveyed, six cities/counties were selected from each of the 31 province-level regions (22 provinces, 4 province-level municipalities and 5 minority autonomous regions), including the capital city of each region, a district-level city, a county-level city, and three counties. The number of private enterprises to be surveyed in each region was then calculated as the product of the region's share of private enterprises in the national total with the total number of private enterprises in the survey. The same method was used to determine the number of sample enterprises in every city/county or industry. Finally, private enterprises were randomly chosen from each sub-sample.

The initial sample size is 3,073 enterprises. After deleting observations with no industry code, no output and no employment figure, we obtain our sample of 2,616 private enterprises. Table 1 shows the distribution of the initial sample and final sample across regions in China, as well as the percentage of enterprises with complete information. Jiangsu, Shandong, and Guangdong have the most observations, while Tibet, Qinghai, and Ningxia have the least. The average percentage of enterprises with complete information across regions is 83.72% with a standard deviation of 0.086 (i.e. the final sample is representative).

The dependent variable for our study is *Enterprise Performance*, measured by the logarithm of output per worker.<sup>7</sup> This is consistent with the

---

<sup>6</sup>This dataset has been used by other scholars, e.g. Bai, Lu, and Tao (2006) in studying the access to bank loans by private enterprises, Li, Meng, and Zhang (2006) in studying entrepreneurs and their political participation, and Du, Lu, and Tao (2008) in examining the impacts of property rights protection on enterprise diversification.

<sup>7</sup>While we could also consider returns on capital or total factor productivity to measure enterprise performance, given the lack of information on capital, we must rely largely on labor productivity for measuring enterprise performance here. We thus include a robustness check that includes the logarithm of capital-labor ratio as a control for enterprise performance in a reduced sample. This robustness check is equivalent to the use of total

convention in the literature investigating the impacts of the quality of institutions on economic performance and growth.<sup>8</sup>

Since the key explanatory variable in our study is the power of government vis-à-vis the market in each region, we focus on the survey question that asks how private entrepreneurs would deal with business disputes. The available responses are: (i) do nothing; (ii) negotiate between themselves; (iii) seek help from private networks; (iv) seek a court ruling; or (v) seek government help. We group them into three categories corresponding closely to the three alternative models of a market economy, as proposed by Glaeser and Shleifer (2002, 2003) and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003): *private orderings* for responses (i), (ii), and (iii); *private litigation through courts* for response (iv), and *regulatory state* for response (v).

We apply a broad definition of *regulatory state* that includes enactment of laws and national ordinances, as well as interpretation and enforcement of laws and national ordinances (e.g. Glaeser, Johnson, and Shleifer, 2001), which we consider to be particularly relevant to the case of China. Under China's centralized political system, the central government appoints regional government officials and enacts laws and national ordinances for them to guide their administrations. Due to the substantial variations in endowments, socioeconomic development and culture across regions as well as fast-changing socioeconomic environments, however, it is difficult for the central government to enact unified and comprehensive laws and national ordinances applicable to all regions and all circumstances. Thus, interpretation and enforcement is left to regional governments, which adapt rules to local circumstances. Seeking government help in resolving business disputes involves the interpretation and enforcement of laws and national ordinances by the regional governments. Hence, we treat seeking government help in business disputes as an indicator of *regulatory state*.

We next assign an ordinal value to each enterprise corresponding to the specific category of the response made by the entrepreneur; 1 for *private orderings*, 2 for *private litigation through courts*, and 3 for *regulatory state*.

---

factor productivity as the measure of enterprise performance.

<sup>8</sup>Hall and Jones (1999) use the logarithm of output per worker to study the effects of social infrastructures, i.e. institutions and government policies, on cross-country differences in economic performance. Later studies such as Bockstette, Chanda, and Putterman (2002) and Masters and McMillan (2002) follow suit. Acemoglu, Johnson, and Robinson (2001, 2002) use the logarithm of GDP per capita, an approach is similar to the variable used here but at a more aggregate level, to study the effects of institutional quality on economic growth. The studies of Alcalá and Ciccone (2004), Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2004), Acemoglu and Johnson (2005) adopt the same country-level performance variable. Panda and Udry (2005) provide a good summary of the uses of variables in this area of the literature.

A variable, *Power of Government vis-à-vis Market*, is constructed for each region based on the average value of the power of government in the market as perceived by enterprises in the region (weighted by the number of employees),<sup>9</sup> with a higher value indicating a greater power of government in the market.<sup>10</sup> The variation in the power of government vis-à-vis market across China’s regions has a mean of 1.31 and a standard deviation of 0.27.

To alleviate the concern of omitted variables, we include a host of variables that could potentially affect enterprise performance. For example, the background and skill-sets of entrepreneurs may be important determinants of private enterprise performance. Therefore, we include some conventional managerial human capital variables considered good indicators of enterprise performance, as well as industry dummies. Our selected variables are *Age* (age of the entrepreneur at the end of 1999), *Education* (years of formal schooling), and *Managerial Experiences* (the number of years the entrepreneur held a managerial position in another enterprise before he or she started a business), as well as political participation variables such as *CPC Membership* (a dummy variable with the value one if the entrepreneur is a member of the Chinese People’s Congress, and zero otherwise) and *CPPCC Membership* (a dummy variable with the value one if the entrepreneur is a member of the Chinese People’s Political Consultative Conference, and zero otherwise), *Government Cadre* (a dummy variable with the value one if the entrepreneur was once a government official, and zero otherwise), and *SOE Cadre* (a dummy variable with the value one if the entrepreneur was once a manager in a state-owned enterprise). We also control for enterprise characteristics such as *Enterprise Size* (the logarithm of the number of employees in each enterprise) and *Enterprise Age* (the logarithm of the number of years an enterprise had been operating as of end-1999).

Finally, regional characteristics such as *Logarithm of GDP per capita* and *Logarithm of Population* are included.

We adopt an instrumental variable approach to address the potential endogeneity issue. Specifically, we use the distance between the capital city

---

<sup>9</sup>Weighted averages of either the number of employees or output are used to take into account the possibility that a larger enterprise might be more likely to “seek government help” or “seek a court ruling” for resolving business disputes as their larger business proceeds could more likely cover the institutional fixed costs in dealing with courts and government entities. Nonetheless, the qualitative nature of our main results remains when no weights are used.

<sup>10</sup>Note that enterprise-level perception about the power of government vis-à-vis markets could be influenced by some features of enterprises and entrepreneurs, and thus regressions using such a variable may suffer from some endogeneity issues. Nonetheless, as a robustness check we will carry out instrumental variable estimation when enterprise-level perception about the power of government vis-à-vis market is used as an explanatory variable.

of each region and the national capital Beijing as an instrumental variable for the power of government vis-à-vis the market (see details in Section 3.2).

Summary statistics of all key variables are provided in Table 2.

## 4 Empirical analysis

### 4.1 Main results

To investigate the impacts of the power of government vis-à-vis the market on enterprise performance, we estimate the following equation:

$$y_{eir} = \alpha + \beta G_r + X'_{eir}\gamma + \varepsilon_{eir}, \quad (1)$$

where  $y_{eir}$  is the performance of enterprise  $e$  in region  $r$  and industry  $i$ ,  $G_r$  represents the power of government vis-à-vis market in region  $r$ ,  $X'_{eir}$  is a vector of control variables (i.e. entrepreneurial and enterprise characteristics, regional characteristics, and industry dummies), and  $\varepsilon_{eir}$  is a random error term.

As a rule of thumb, standard errors for micro-level data should be adjusted for possible clustering to deal with heteroskedasticity (e.g. Liang and Zeger, 1986). Practice, however, shows that if the number of clusters is less than 42, clustered standard errors may be misleading (e.g. Wooldridge, 2003, 2006; Angrist and Pischke, 2008). As there are only 31 clusters in our study, we follow Angrist and Lang (2004) and apply White-robust standard errors, i.e.  $HC_1$  (White, 1980; MacKinnon and White, 1985).

Table 3 shows the ordinary-least-squares estimation results for equation (1) regarding the impacts of the power of government vis-à-vis market on enterprise performance. Column 1 reports our main regression result that *Power of Government vis-à-vis Market* produces a positive and statistically significant effect on enterprise performance.

These results are robust when control variables related to industry dummies, regional characteristics, entrepreneurial characteristics and enterprise characteristics are included stepwise (Columns 2-5 of Table 3), and the coefficients of control variables make sense. We further find that an entrepreneur with a higher level of education and more years of managerial experience in state-owned enterprises enjoys better enterprise performance, and that smaller enterprises exhibit higher impetus to growth.

The basic message conveyed by Table 3 is clear: greater power of government vis-à-vis market enhances enterprise performance. This suggests that China's targeting of the *regulatory state* model of a market economy has been appropriate. Whether such targeting of this model was deliberate is a

separate issue, China lacked the basis for pursuing the *private orderings* and *private litigation through courts* models as adequate protections for private property and an independent judiciary did not exist at the start of transition.

## 4.2 Instrumental variable estimation

There is a possibility that the estimation results in Table 3 suffer from endogeneity bias. For example, we may not exhaust all possible variables that correlate with both the power of government vis-à-vis market and enterprise performance. Similarly, enterprises with superior performance may receive more attention and protection from local governments, making it easier for them to turn to the government for dispute resolution.

To address these potential endogeneity issues, we adopt the instrumental variable estimation strategy. Specifically, the instrumental variable used is the distance between the capital city of each region and the national capital Beijing.

For much of the past four millennia, the Chinese political system has been characterized by the centralization of political power. The central government retains the power to appoint regional government officials and issues laws and national ordinances to guide regional administrations. As discussed above, the burden of interpreting and enforcing laws and national ordinances fall to regional government officials, who are expected to adapt them to local circumstances. Moreover, as it is more costly for the central government to frequently inspect local situations and monitor local bureaucrats in regions far from Beijing, the increased information asymmetry makes the central government more reliant on local officials in regional governance. The fact that regional government officials in regions farther from Beijing have greater *de facto* powers in running their regional economies is even enshrined in an ancient Chinese: “*The mountains are high and the Emperor is far away.*” If regional bureaucrats in regions far from Beijing really are less subject to central control and have a greater degree of freedom in interpreting and enforcing laws and national ordinances, we would also expect that the power of regional government vis-à-vis market in the economy is greater for regions farther from Beijing.

Figure 2 shows the positive correlation between the power of regional government vis-à-vis market in the economy and the distance between regional capital city and Beijing. Table 4 presents the two-stage-least-squares estimation results. The first-stage regression results reported in Column 1 show that the distance between the regional capital and Beijing has a positive and statistically significant coefficient, which confirms our argument that in regions farther away from Beijing the power of government vis-à-vis market is



greater. The relevance condition for our instrumental variable is further confirmed by the Anderson canonical LR statistic. The Cragg-Donald F-statistic rules out weak instruments.<sup>11</sup>

Column 2 of Table 4 presents the second-stage regression results. These results reinforce our earlier findings and show that the power of government vis-à-vis market has a positive and statistically significant causal effect on enterprise performance. Our main finding that the statistically significant positive impacts of the power of government vis-à-vis market on enterprise performance remain robust when industry dummies, regional characteristics, entrepreneurial characteristics and enterprise characteristics are included as controls (Columns 3-4 of Table 4).

In addition to satisfying the relevance condition, our instrumental variable needs to meet the orthogonality condition, whereby enterprise performance is not affected through any other channels besides the power of government vis-à-vis market. This does not appear to be a concern in our case; there is no obvious correlation between the distance away from Beijing and regional characteristics that affect enterprise performance. Beijing is located in the northern-central area of the country with many regions lying to the north, south, west or east of the capital. For example, Shanghai is as far from Beijing as Wuhan (the capital city of Hubei province) and Harbin (the capital city of Heilongjiang province). Xining (the capital city of Qinghai province) and Changsha (the capital city of Hunan province) also have similar distances from Beijing (see Figure 2 for more information and comparison about the distance of regional capital from Beijing for each region). However, these regions have striking differences in regional characteristics such as GDP per capita, population, education, resource endowments, climate conditions, and openness to international trade and investment. Therefore, distance from Beijing does not suggest a particular pattern of regional characteristics, so our instrumental variable meets the orthogonality condition.

### 4.3 Robustness checks

First, we investigate whether our main results are robust to alternative ordinal values assigned to the three categories of a market economy, *i.e.* *private orderings*, *private litigation through courts*, and *regulatory state* in constructing the index of the power of government vis-à-vis market. In Section 2, we assigned values 1-3 to these three categories of a market economy with the purpose of showing an increasing power of government vis-à-vis market. To

---

<sup>11</sup>The Cragg-Donald F-statistic values for our regressions are significantly above the value of 10, which is considered as the critical value by Staiger and Stock (1997).

make sure that the relative ranking, rather than the absolute value assigned to each category, is important, we experiment with different values attached to each category. In the first experiment, we give a value of 1 to *private orderings*, 2 to *private litigation through courts* and 10 to *regulatory state*. In the second experiment, we let *private orderings* be 1, *private litigation* be 9 and *regulatory state* be 10. In the third experiment, we assign values of 1, 5 and 10 to *private orderings*, *private litigation* and *regulatory state*, respectively.

Columns 2-4 of Table 5 summarize the estimation results when the above three alternative constructions for the power of government vis-à-vis market are used, while Column 1 simply replicates Column 4 of Table 4 as the benchmark for comparison. All the control variables are included in the regressions but not reported to save space. It is clear that our main results reported in Tables 3-4 remain robust when we vary the values assigned to different categories of a market economy, which confirms that the exact value assigned to each category does not matter, but the relative ranking of the three categories is important.

Second, we use two alternative measures of the power of government vis-à-vis market: one is the index constructed by Fan, Wang, and Zhu (2003) on the power of government in the economy, with a higher value indicating a *lower* power of government in the economy, and the other is the ratio of government consumption over regional GDP, with a higher value indicating a greater power of government in the economy. Column 1 of Table 6 shows that the Fan-Wang-Zhu index negatively correlates with the distance between regional capitals and Beijing (Panel B of Column 1), and it has a negative and statistically significant causal effect on enterprise performance (Panel A of Column 1). Column 2 of Table 6 shows that the ratio of government consumption over regional GDP correlates positively with the distance between regional capital and Beijing (Panel B of Column 2), and it has a positive and statistically significant causal effect on enterprise performance (Panel A of Column 2). These results are consistent with our earlier findings.

Third, we test the robustness of our results using two sub-samples of our dataset. We note that the survey question fails to specify the other party (e.g. customer, supplier, government agency) in a hypothetical business dispute. As disputes with government agencies are likely to be qualitatively different from those with commercial partners, we restrict our sample to observations of commercial disputes. Column 3 of Table 6 shows that our central results remain robust to the use of this sub-sample. Moreover, as Qinghai and Ningxia have very few observations yet very high indices of the power of government vis-à-vis market (see Table 1 and Figure 2 for details), we exclude these two regions from our sample, and test if our results are possibly affected

by these outliers. As shown in Column 4 of Table 6, our main results are robust for this sub-sample.

Fourth, it has been argued that enterprise performance could be affected by the capital-labor ratio. Unfortunately, information on the amount of capital employed by enterprises is lacking from our dataset. Nonetheless, we conduct a robustness test based on a reduced sample by including the logarithm of the capital-labor ratio as a control variable for enterprise performance. As shown in Column 5 of Table 6, our main results hold even in this sub-sample.<sup>12</sup>

Lastly, we use enterprise-level perception of the power of government vis-à-vis market as the key explanatory variable. Instrumental variable estimations shown in Column 6 of Table 6 reveal that our main results remain, i.e. the power of government vis-à-vis market continues to produce positive and statistically significant impacts on enterprise performance.

Overall, our robustness analysis as summarized in Tables 5-6 confirms our earlier finding that the power of government vis-a-vis market has a positive and significant causal effect on enterprise performance in China.

#### 4.4 Does rent seeking drive our results?

A possible interpretation of our results is that enterprises located in regions with greater government intervention in the market are more prone to engage in rent-seeking activity and that their good performance in part can be attributed to securing favors and protection from bureaucrats. On the other hand, what is critical for our purpose here is not whether asking for government help in resolving a business dispute reflects rent-seeking activity, but whether rent seeking is the *dominant* force driving the positive relationship between the power of government vis-à-vis market and enterprise performance.

Presumably, if rent seeking is the driving force, an enterprise located in a region with a greater power of government vis-à-vis market would be more likely obtain favors from the government in the form of lower production costs or find it easier to sell its products and services. The Private Enterprise Survey asks whether the enterprise has difficulties in any of six areas of the enterprise operation: input procurement, availability of production locations, supply of electricity and water, recruitment of skilled labor, product sales, and service sales. The possible response for each area of operation is a value of 1, 2, or 3, with 3 indicating the least difficulty. In addition, we

---

<sup>12</sup>The decrease in the magnitude and significance of the estimated coefficient could be due to the radical decrease in sample size.

use the percentage of outstanding bank loans in an enterprise's total assets to measure access to external finance. We conduct two-stage-least-squares regressions of these seven aspects of the enterprise operation on *Power of Government vis-à-vis Market* with the instrumental variable being the distance between the regional capital and Beijing. As shown in Columns 1-7 of Table 7, all seven estimated coefficients are negative. These results suggest that enterprises located in regions with greater powers of government vis-à-vis market do not obtain favors in the forms of lower production costs or find it easier to sell their products and services.<sup>13</sup> In our opinion, these seven aspects we consider encompass the important concerns of private enterprises in China. The Asian Development Bank (2003), for example, reports that the most serious constraints reported by private enterprises are difficulty in getting access to external finance such as bank loans and difficulty in recruiting skilled managers and technical staff. If rent seeking were the dominant force, at least some of the aspects we have examined should have produced positive and significant estimated coefficients. Hence, we rule out rent seeking as the main driver of our results.<sup>14</sup>

How do we know China's regional government officials have incentives to enforce private contracts and resolve business disputes for the sake of, as a net effect, improving business environment rather than rent seeking? Here we draw insights from the recent studies on market-preserving federalism and regional decentralization in China's economic reforms (Blanchard and Shleifer, 2001; Roland, Qian, and Xu, 2006; Clarke, Murrell, and Whiting, 2008). Again, although the Chinese government system is characterized by substantial devolution of administrative power from the central government to regional administrations that prominently features fiscal federalism or fiscal decentralization, the central government retains the political power to appoint, promote or sack regional government officials. Officials in regions with better economic performance are more likely to be promoted. This regional decentralization under the control of the central government is most likely to generate regional competition for economic growth in a variety of ways, including the interpretation and enforcement of laws and national or-

---

<sup>13</sup>Alternatively, we carry out another empirical test in which these seven channel variables are included as additional control variables in the regression of *Enterprise Performance* on *Power of Government vis-à-vis Market*. Our regression results, available on request, show no changes in the magnitude and significance of our key explanatory variable, *Power of Government vis-à-vis Market*, thereby ruling out the concern that rent seeking is the primary driving force for our main findings.

<sup>14</sup>Presumably, a regional government more involved in resolving business disputes is more likely to cultivate an institutional environment with better contract enforcement that subsequently leads to higher productivity for enterprises located in that region.

dinances by regional bureaucrats. This may explain to a large extent why rent seeking is not the dominant force in shaping the nature of *regulatory state* in China.

## 4.5 A comparative statics analysis

The empirical analysis above relies on the theoretical framework proposed by Glaeser and Shleifer (2002, 2003) and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003). To lend support for our empirical analysis, we test the general predictions of the theoretical framework for when there is a need for a greater power of government vis-à-vis market in choosing the appropriate model of a market economy. As argued by Glaeser and Shleifer (2002, 2003) and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003), the appropriate model of a market economy should balance disorder costs (expropriation by thieves, competitors, or tortfeasors) and dictatorship costs (expropriation by governments). Thus, greater power of government vis-à-vis market is expected when disorder costs are higher and/or dictatorship costs are lower. The Private Enterprise Survey contains information that allows us to gauge disorder costs and dictatorship costs perceived by entrepreneurs and is amenable to a comparative statics analysis.

One survey question asks entrepreneurs if influential producers in their industries enjoy favorable market positions that facilitate input procurement and output sales, and therefore make those producers the dominant players in the market. The expectation here is that private enterprises facing such dominant competitors encounter higher disorder costs,<sup>15</sup> and perceive a greater need for government regulations to alleviate market disorder (Glaeser and Shleifer, 2002, 2003; Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer, 2003). We construct a dummy variable called *Influential Competitors*, and carry out an Ordered Probit regression of *Power of Government vis-à-vis Market* on *Influential Competitors* along with a set of control variables. As shown in Column 1 of Table 8, *Influential Competitors* has a positive and statistically significant estimated coefficient, which implies that the increase of disorder costs leads to a rise in the power of government vis-à-vis market as predicted by Glaeser and Shleifer (2002, 2003) and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003).

Another survey question asks entrepreneurs about the amount of extralegal payments to the government made by the enterprises. As argued by Johnson, McMillan and Woodruff (2002) and Cull and Xu (2005), extralegal

---

<sup>15</sup>For example, private enterprises can encounter difficulties in collecting payments from large influential enterprises with whom they do business.

payments to the government measures the extent of government expropriation. Here, we expect that enterprises facing higher extralegal payments to the government encounter higher dictatorship costs and perceive a lesser need for the power of government vis-à-vis market such as less government regulation (Glaeser and Shleifer, 2002, 2003; Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer, 2003). We then construct a variable called *Ratio of Extralegal Payments* (measured as the ratio of extralegal payments to the government by the enterprise over its profit) and use it as a proxy for dictatorship costs, with a higher value indicating greater dictatorship costs. We carry out an Ordered Probit regression of *Power of Government vis-à-vis Market* on *Ratio of Extralegal Payments* along with a set of control variables. As shown in Column 2 of Table 8, *Ratio of Extralegal Payments* has a negative and statistically significant estimated coefficient, which implies that the increase of dictatorship costs leads to a fall of the power of government vis-à-vis market as predicted by Glaeser and Shleifer (2002, 2003) and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003).

## 5 Conclusions

Recent decades have seen developing economies around the world embark on the transition to a market economy. The variations in their transition paths and economic performance have led to intensive debates regarding the advantages and disadvantages of various models of the market economy. Glaeser and Shleifer (2002, 2003) and Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003) group these approaches into three models of the market economy, (*private orderings*, *private litigation through courts*, and *regulatory state*). As one moves from the less intrusive *private orderings* and *private litigation through courts* models to the *regulatory state*, which features active state intervention in the market and control over participants, the cost of disorder resulting from private expropriation decreases while that of dictatorship coming from state expropriation increases. The equilibrium choice thus lies in the trade-off between disorder costs and dictatorship costs.

Using data from a survey of 3,073 private enterprises in China conducted in 1999, we here constructed an index to quantify the power of government vis-à-vis the market, and find that the power of government vis-à-vis the market has a positive and statistically significant causal impact on enterprise performance. Our results are robust to a set of controls related to entrepreneurial, enterprise, regional and industrial characteristics, and to the use of instrumental variable estimation. These results suggest *regulatory state* is an appropriate model of a market economy for China.

We also find that the power of government vis-à-vis the market is greater when disorder costs are higher or dictatorship costs are lower, thereby suggesting that the choice among the three models of market economy depends upon the quality of institutional environment. China only added protection of private property to its constitution in 2004, and the independence of courts remains dubious. Thus, the *regulatory state* emerges almost as default, or second-best, choice for China in its transition to market economy.

Our findings suggest an alternative explanation for China's successful reforms. Most of the literature on economic transition focuses on comparison of China's incremental reform approach with big-bang approaches followed in other transition economies such as Russia (e.g. Roland, Qian, and Xu, 1999, 2006). The drawback in these discussions is that they all implicitly assume China and Russia share a common target model of the market economy (*private orderings* and *private litigation through courts*), but are following different paths in implementing that model. In our view, China's pursuit of the *regulatory state* target model is appropriate as it has acknowledged institutional constraints and allowed the state to maintain social order and systematic economic restructuring, while providing a modest level of property rights protection. Officially, China refers to this as the "socialist market economy model," wherein regional governments employ extensive regulations and industrial policies to promote economic development. This is largely consistent with the *regulatory state* model. In contrast, Russia's transition, at least initially, was widely seen as a radical transformation to laissez-faire capitalism. Indeed, this is quite apparent in early reform schemes such as the Gaidar program of the 1990s (Sean, 1994; Perotti, 2002; Aziz, 2006). Our re-interpretation may shed light on the what some have called the "China puzzle." How did China manage to achieve consistently high economic growth for so many years with such deeply flawed economic institutions including property rights protection and contract enforcement (e.g. Brandt and Rawski, 2008)? Our thesis responds to this question with a fairly straightforward answer: China has pursued a *regulatory state* target model of a market economy that requires few economic institutions to sustain the operation of markets.

## References

- Acemoglu, Daron, and Simon Johnson. 2005. "Unbundling Institutions," *Journal of Political Economy* 113, 949-995.
- Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation,"

*American Economic Review* 91, 1369-1401.

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution," *Quarterly Journal of Economics* 117, 1231-1294.

Alcalá, Francisco, and Antonio Ciccone. 2004. "Trade and Productivity," *Quarterly Journal of Economics* 119, 613-646.

Angrist, Joshua, and Kevin Lang. 2004. "Does School Integration Generate Peer Effects? Evidence from Boston's Metco Program," *American Economic Review* 94, 1613-1634.

Angrist, Joshua, and Jörn-Steffen Pischke. 2008. *Mostly Harmless Econometrics*, Princeton University Press.

Asian Development Bank. 2003. "The Development of Private Enterprises in the People's Republic of China," Asian Development Bank Publication.

Aziz, Rakhimov. 2006. "The Comparison of Russian and Chinese Economic Reforms in Transition to the Market Economy," working paper, International Christian University.

Bai, Chong-En, Jiangyong Lu, and Zhigang Tao. 2006. "Property Rights Protection and Access to Bank Loans: Evidence from Private Enterprises in China," *Economics of Transition* 14, 611-628.

Blanchard, Olivier, Maxim Boycko, Marek Dabrowski, Rudiger Dornbusch, Richard Layard, and Andrei Shleifer. 1993. *Post-Communist Reform: Pain and Progress*, Cambridge, MA: MIT Press.

Blanchard, Olivier, Rudiger Dornbusch, Paul Krugman, Richard Layard, and Lawrence Summers. 1992. *Reform in Eastern Europe*, Cambridge, MA: MIT Press.

Blanchard, Olivier and Andrei Shleifer. 2001. "Federalism With and Without Political Centralization: China Versus Russia", *IMF Staff Papers* 48, 171-179.

Bockstette, Valerie, Areendam Chanda and Louis Putterman. 2002. "States and Markets: The Advantage of an Early Start," *Journal of Economic Growth* 7, 347-369.

Brandt, Loren and Thomas G. Rawski. 2008. *China's Great Economic Transformation*, Cambridge, New York: Cambridge University Press.

Clarke, Donald, Peter Murrell, and Susan Whiting. 2008. "The Role of Law in China's Economic Development," in Thomas Rawski and Loren Brandt (eds.), *China's Great Economic Transformation*, Cambridge University Press.

Cohen, Jerome A. 2008. "China's Reform Era Legal Odyssey," *Far East Economic Review*.



Cull, Robert, and Lixin Colin Xu. 2005. "Institutions, Ownership, and Finance: the Determinant of Profit Reinvestment among Chinese Firms," *Journal of Financial Economics* 77, 117-146.

Du, Julan, Yi Lu, and Zhigang Tao. 2008. "Property Rights Protection and Firm Diversification: Evidence from China's Private Enterprises," working paper.

Du, Julan, and Chenggang Xu. 2008. "Regional Competition and Regulatory Decentralization: The Case of China," working paper.

Du, Julan, and Chenggang Xu. 2009. "Which Firms Went Public in China? A Study of Financial Market Regulation," *World Development*, forthcoming.

Djankov, Simeon, Edward Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2003. "The New Comparative Economics," *Journal of Comparative Economics* 31, 595-619.

Eggleston, Karen, Eric A. Posner, and Richard J. Zeckhauser. 2000. "Simplicity and Complexity in Contracts," working paper, John M. Olin Law and Economics.

Fan, Gang, Xiaolu Wang, and Henpeng Zhu. 2003. *Reports on the Relative Progress of Marketization in Different Regions in China*, Economic Science Publishing House, China.

Frye, Timothy, and Andrei Shleifer. 1997. "The Invisible Hand and the Grabbing Hand," *American Economic Review* 87, 354-358.

Fu, Hualing. 2003. "Putting China's Judiciary Into Perspective: Is It Independent, Competent and Fair?" in Erik G. Jensen and Thomas C. Heller (eds.), *Beyond Common Knowledge: Empirical Approaches to the Rule of Law*, Stanford University Press.

Fu, Yulin, and Randall Peerenboom. 2008. "A New Analytic Framework for Understanding and Promoting Judicial Independence in China," working Paper, La Trobe University School of Law.

Glaeser, Edward, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer. 2004. "Do Institutions Cause Growth," *Journal of Economic Growth* 9, 271-303.

Glaeser, Edward, Simon Johnson, and Andrei Shleifer. 2001. "Coase versus the Coasians," *Quarterly Journal of Economics* 116, 853-899.

Glaeser, Edward, and Andrei Shleifer. 2002. "Legal Origins," *Quarterly Journal of Economics* 117, 1193-1229.

Glaeser, Edward, and Andrei Shleifer. 2003. "The Rise of the Regulatory State," *Journal of Economic Literature* 41, 401-425.

Hall, Robert E., and Charles I. Jones. 1999. "Why Do Some Countries Produce So Much More Output per Worker than Others?," *Quarterly Journal of Economics* 114, 83-116.

- Hobbes, Thomas. 1651. *Leviathan*, reprinted in R. Tuck (ed.) *Leviathan*, Cambridge University Press: New York, NY.
- Hoff, Karla, and Joseph E. Stiglitz. 2004. "After the Big Bang? Obstacles to the Emergence of the Rule of Law in Post-Communist Societies," *American Economic Review* 94, 753-763.
- Johnson, Simon, John McMillan, and Christopher Woodruff. 2002. "Property Rights and Finance," *American Economic Review* 22, 1335-1356.
- Li, Hongbin, Lingsheng Meng, and Junsen Zhang. 2006. "Why Do Entrepreneurs Enter Politics," *Economic Inquiry* 44, 559-578.
- Liang, Kung-Yee, and Scott L. Zeger. 1986. "Longitudinal Data Analysis Using Generalized Linear Models," *Biometrika* 73, 13-22.
- Mackinnon, James, G., and Halbert White. 1985. "Some Heteroskedasticity Consistent Covariance Matrix Estimators with Improved Finite Sample Properties," *Journal of Econometrics* 29, 305-325.
- Masters, William A., and Margaret S. McMillan. 2001. "Climate and Scale in Economic Growth," *Journal of Economic Growth* 6, 167-186.
- Pande, Rohini, and Christopher Udry. 2005. "Institutions and Development: A View from Below," in R. Blundell, W. Newey, and T. Persson (eds.), *Proceedings of the 9th World Congress of the Econometric Society*, Cambridge University Press.
- Pei, Minxin. 2001. "Does Legal Reform Protect Economic Transactions? Commercial Disputes in China" in Peter Murrell (ed.), *Assessing the Value of Law in Transition Economies*, University of Michigan Press.
- Perotti, Enrico. 2002. "Lessons from the Russian Meltdown," CEPR Policy Paper No. 9.
- Pistor, Katharina and Chenggang Xu. 2002. "Incomplete Law – A Conceptual and Analytical Framework and its Application to the Evolution of Financial Market Regulation," working Paper No. 204, The Center for Law and Economic Studies, Columbia Law School.
- Randolph, Sean. 1994. "Economic Reform and Private Sector Development in Russia and Mexico," *Cato Journal* 14, 109-124.
- Rodrik, Dani. 2006. "Goodbye Washington Consensus, Hello Washington Confusion?," working paper, Harvard University.
- Roland, Geràld, Yingyi Qian, and Chenggang Xu. 1999. "Why Is China Different from Eastern Europe? Perspectives from Organization Theory," *European Economic Review* 43, 1085-1094.
- Roland, Geràld, Yingyi Qian, and Chenggang Xu. 2006. "Coordination and Experimentation in M-form and U-form Organizations," *Journal of Political Economy* 114, 366-402.
- Staiger, Douglas, and James Stock. 1997. "Instrumental Variables Regression with Weak Instruments," *Econometrica* 65, 557-586.

Walder, Andrew G. 1995. "China's Transitional Economy: Interpreting its Significance," *China Quarterly* 144, 963-979.

White, Halbert. 1980. "A Heteroskedasticity-Consistent Covariance Matrix Estimate and a Direct Test for Heteroskedasticity," *Econometrica* 48, 817-838.

Williamson, John. 1989. "What Washington Means by Policy Reform," in John Williamson ed. *Latin American Readjustment: How Much has Happened*, Washington: Institute for International Economics.

Wooldridge, Jeffrey M. 2003. "Cluster-Sample Methods in Applied Econometrics," *American Economic Review* 93, 133-138.

Wooldridge, Jeffrey M. 2006. "Cluster Sample Methods in Applied Econometrics: An Extended Analysis," working paper.

Wu, Qianlan. 2007. "The Making of a Market Economy in China: Transformation of Government Regulation of Market Economy," *European Law Journal* 13, 750-771.

**Figure 1: Institutional possibility frontier**

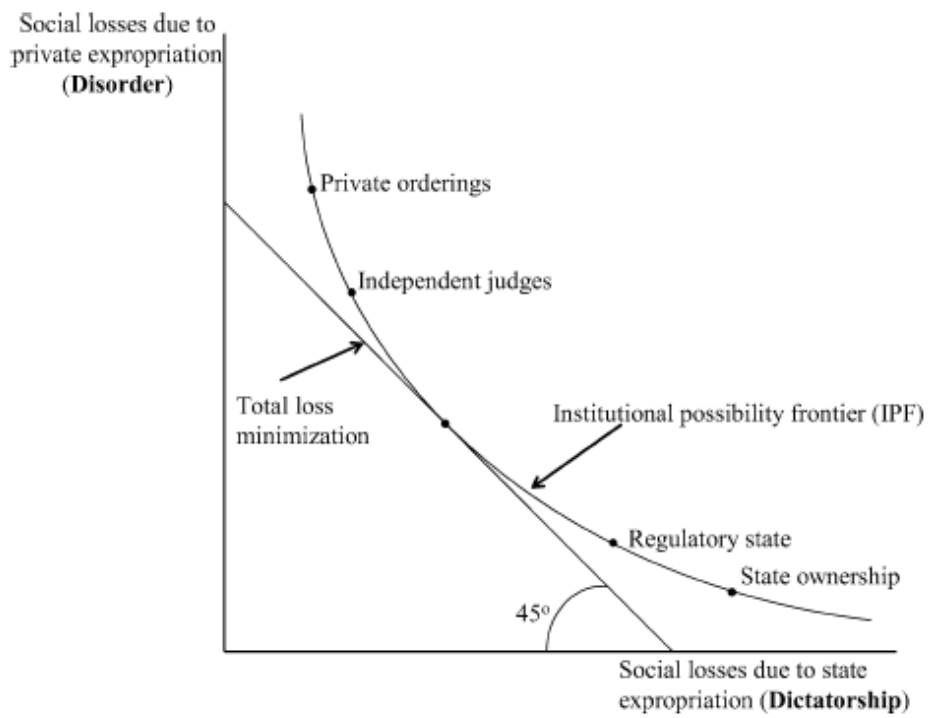
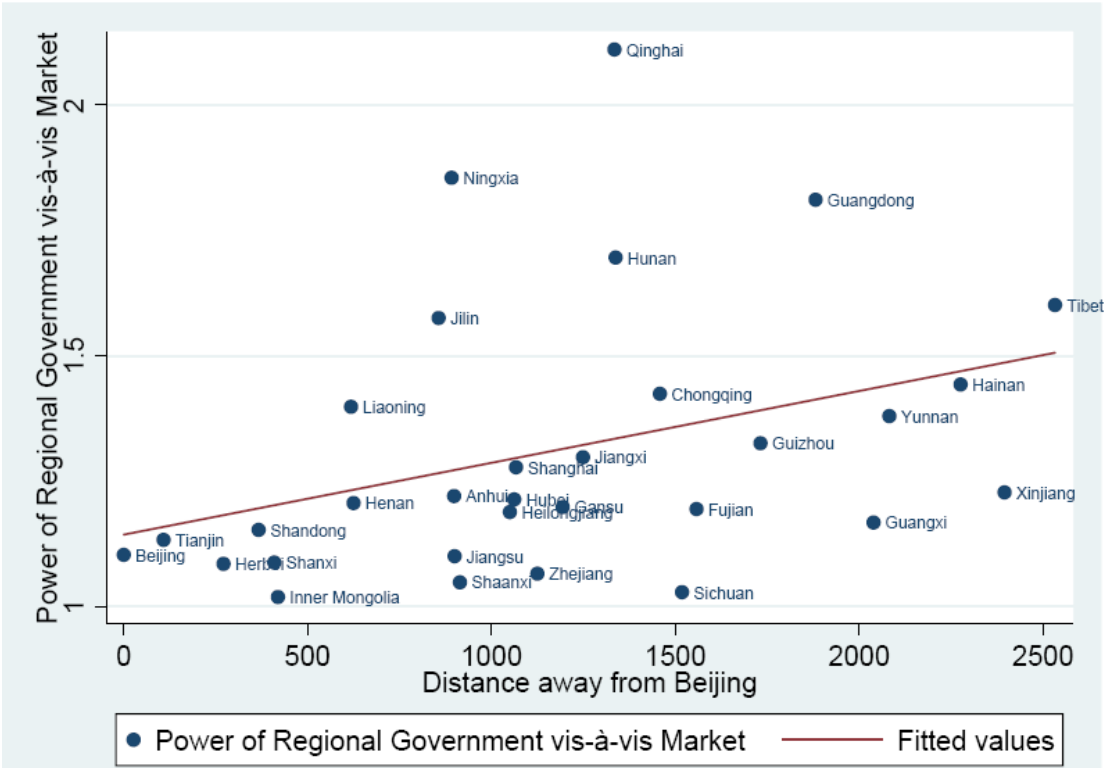


Fig. 1. Institutional possibilities.

The above figure is copied from Figure 1 of Djankov, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2003).

**Figure 2: Correlation between the power of regional government vis-à-vis market and the distance between regional capital city and Beijing**



**Table 1: Distribution of sample across China's regions**

Region	Final Sample	Initial Sample	Percentage
Beijing	89	117	76.07%
Tianjin	86	100	86.00%
Herbei	135	198	68.18%
Shanxi	38	76	50.00%
Inner Mongolia	29	45	64.44%
Liaoning	124	148	83.78%
Jilin	70	80	87.50%
Heilongjiang	87	101	86.14%
Shanghai	121	180	67.22%
Jiangsu	242	279	86.74%
Zhejiang	114	165	69.09%
Anhui	54	78	69.23%
Fujian	33	63	52.38%
Jiangxi	42	61	68.85%
Shandong	185	250	74.00%
Henan	101	143	70.63%
Hubei	84	125	67.20%
Hunan	43	64	67.19%
Guangdong	137	193	70.98%
Guangxi	37	47	78.72%
Hainan	29	54	53.70%
Chongqing	89	97	91.75%
Sichuan	40	60	66.67%
Guizhou	62	66	93.94%
Yunnan	32	41	78.05%
Tibet	5	10	50.00%
Shaanxi	105	114	92.11%
Gansu	30	36	83.33%
Qinghai	8	11	72.73%
Ningxia	14	20	70.00%
Xinjiang	44	51	86.27%

**Table 2: Summary statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
Enterprise Performance	2309	1.85	1.27	-4.61	6.59
Power of Government vis-à-vis Market	31	1.31	0.27	1.02	2.11
Fan-Zhu-Wang Index	30	6.06	2.93	0.00	10.00
Ratio of Government Consumption	30	0.14	0.03	0.09	0.19
Education	2307	12.64	2.84	0.00	19.00
Age	2300	43.50	8.26	22.00	75.00
Managerial Experience	2306	4.28	7.23	0.00	61.00
CPC Membership	2309	0.16	0.36	0.00	1.00
CPPCC Membership	2309	0.41	0.49	0.00	1.00
Government Cadre	2309	0.07	0.26	0.00	1.00
SOE Cadre	2309	0.37	0.48	0.00	1.00
Enterprise Size	2309	4.08	1.33	0.00	9.90
Enterprise Age	2287	2.23	0.67	0.00	3.83
Logarithm of Capital-Labor Ratio	1478	1.79	1.15	-2.96	7.25
Logarithm of GDP per capita	31	-0.43	0.53	-1.40	1.01
Logarithm of Population	31	7.99	0.92	5.55	9.15
Influential Competitors	2256	0.39	0.49	0.00	1.00
Ratio of Extralegal Payments	1136	0.06	0.10	0.00	1.00

**Table 3: OLS estimates**

Dependent Variable	1	2	3	4	5
	Enterprise Performance				
Power of Government vis-à-vis Market	0.41*** (0.12)	0.32*** (0.12)	0.34*** (0.12)	0.26** (0.12)	0.29** (0.11)
<b>Regional Characteristics</b>					
Logarithm of GDP per capita			0.35*** (0.05)	0.35*** (0.05)	0.35*** (0.05)
Logarithm of Population			0.02 (0.04)	0.05 (0.04)	0.05 (0.04)
<b>Entrepreneurial Characteristics</b>					
Education				0.06*** (0.01)	0.07*** (0.01)
Age				-0.004 (0.003)	-0.004 (0.003)
Managerial Experience				0.005 (0.004)	0.006 (0.004)
CPC Membership				0.11 (0.07)	0.16** (0.07)
CPPCC Membership				0.05 (0.05)	0.07 (0.05)
Government Cadre				-0.11 (0.11)	-0.09 (0.11)
SOE Cadre				0.15*** (0.07)	0.15*** (0.06)
<b>Enterprise Characteristics</b>					
Enterprise Size					-0.07*** (0.02)
Enterprise Age					0.03 (0.04)
Industry Dummy	No	Yes	Yes	Yes	Yes
Number of Observation	2,309	2,309	2,309	2,295	2,274
R-squared	0.0047	0.0604	0.0809	0.1105	0.1138
<i>p</i> -value for F-Test	0.0007	0.0000	0.0000	0.0000	0.0000

Robust standard error is reported in the parenthesis. \*, \*\*, \*\*\* represent significance at 10%, 5%, and 1% level, respectively.



**Table 4 : 2SLS estimates**

Dependent Variable	1	2	3	4
	First Stage Power of Government vis-à-vis Market	Second Stage Enterprise Performance	First Stage Power of Government vis-à-vis Market	Second Stage Enterprise Performance
Power of Government vis-à-vis Market		1.21*** (0.26)		1.65*** (0.25)
Distance	0.18*** (0.01)		0.19*** (0.01)	
<b>Regional Characteristics</b>				
Logarithm of GDP per capita			0.05*** (0.01)	0.37*** (0.05)
Logarithm of Population			-0.01 (0.01)	0.08** (0.04)
<b>Entrepreneurial Characteristics</b>				
Education			0.00 (0.00)	0.07*** (0.01)
Age			-0.00 (0.00)	-0.003 (0.003)
Managerial Experience			0.00 (0.00)	0.007* (0.004)
CPC Membership			0.03** (0.01)	0.14* (0.07)
CPPCC Membership			0.01 (0.01)	0.05 (0.06)
Government Cadre			-0.01 (0.02)	-0.09 (0.11)
SOE Cadre			0.01* (0.01)	0.11* (0.06)
<b>Enterprise Characteristics</b>				
Enterprise Size			0.01* (0.003)	-0.09*** (0.03)
Enterprise Age			0.00 (0.01)	0.04 (0.05)
Shea Partial R2	0.2447	-	0.2472	-
Anderson Canonical LR Statistic	[648.05]***	-	[645.74]***	-
Cragg-Donald F-statistic	747.49	-	737.89	-
Industry Dummy	No	No	Yes	Yes
Number of Observation	2,309	2,309	2,274	2,274

Robust standard error is reported in the parenthesis. \*, \*\*, \*\*\* represent significance at 10%, 5%, and 1% level, respectively.

**Table 5: Experiments for the index of Power of Government vis-à-vis Market**

Dependent Variable	1	2	3	4
Power of Government vis-à-vis Market	1.65*** (0.25)	0.40*** (0.06)	0.34*** (0.05)	0.37*** (0.06)
Shea Partial R2	0.2472	0.2487	0.2055	0.2511
Anderson Canonical LR Statistic	[645.74]***	[650.13]***	[523.25]***	[657.38]***
Cragg-Donald F-statistic	737.89	743.65	581.35	753.20
Regional characteristics	Yes	Yes	Yes	Yes
Entrepreneurial characteristics	Yes	Yes	Yes	Yes
Enterprise characteristics	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes
Number of Observation	2,274	2,274	2,274	2,274

The estimation strategy used is 2SLS estimation. The First-stage results (including the same control variables as those in the second stage) and the estimated coefficients of the control variable are not reported to save space (available upon request). Robust standard error is reported in the parenthesis. \*, \*\*, \*\*\* represent significance at 10%, 5%, and 1% level, respectively.

**Table 6: Robustness checks**

	1	2	3	4	5	6
Panel A: Second Stage of 2SLS						
Dependent Variable	Enterprise Performance					
Fan-Zhu-Wang Index	-0.53*** (0.11)					
Ratio of Government Consumption		149.54** (65.64)				
Power of Government vis-à-vis Market			1.61*** (0.25)	1.69*** (0.28)	0.51** (0.23)	5.35*** (1.88)
<b>Regional Characteristics</b>						
Logarithm of GDP per capita	1.31*** (0.19)	1.31*** (0.19)	0.34*** (0.05)	0.41*** (0.06)	0.31*** (0.05)	0.59*** (0.14)
Logarithm of Population	1.53*** (0.32)	1.53*** (0.32)	0.03 (0.04)	0.08* (0.04)	0.09** (0.04)	0.25** (0.11)
<b>Entrepreneurial Characteristics</b>						
Education	0.06*** (0.01)	0.02 (0.03)	0.07*** (0.01)	0.07*** (0.01)	0.02* (0.01)	0.11*** (0.03)
Age	-0.003 (0.004)	-0.001 (0.009)	-0.003 (0.003)	-0.002 (0.004)	-0.005 (0.003)	-0.04*** (0.01)
Managerial Experience	0.003 (0.005)	-0.01 (0.01)	0.007* (0.004)	0.006 (0.004)	0.001 (0.004)	0.01 (0.01)
CPC Membership	0.17* (0.09)	0.18 (0.18)	0.14* (0.07)	0.12 (0.08)	0.06 (0.07)	0.32* (0.17)
CPPCC Membership	0.03 (0.07)	-0.11 (0.16)	0.05 (0.06)	0.06 (0.06)	-0.08 (0.06)	0.19 (0.14)
Government Cadre	-0.15 (0.14)	0.43 (0.37)	-0.09 (0.11)	-0.06 (0.12)	-0.22* (0.12)	-0.07 (0.25)
SOE Cadre	-0.04 (0.08)	0.12 (0.15)	0.10* (0.06)	0.09 (0.07)	0.01 (0.06)	0.20 (0.14)
<b>Enterprise Characteristics</b>						
Enterprise Size	-0.11*** (0.03)	-0.20** (0.09)	-0.09*** (0.03)	-0.09*** (0.03)	-0.04 (0.03)	-0.22*** (0.08)
Enterprise Age	0.07 (0.05)	0.08 (0.11)	0.04 (0.05)	0.01 (0.05)	-0.08* (0.05)	0.08 (0.10)
Logarithm of Capital-Labor Ratio					0.63*** (0.03)	

	1	2	3	4	5	6
Panel B: First Stage of 2SLS						
Dependent Variable	Fan-Zhu-Wang Index	Ratio of Government Consumption	Power of Government vis-à-vis Market			
Distance	-0.60*** (0.08)	0.002** (0.001)	0.20*** (0.01)	0.19*** (0.01)	0.21*** (0.03)	0.06*** (0.02)
Shea Partial R2	0.0448	0.0036	0.2895	0.2583	0.2653	0.0044
Anderson Canonical LR Statistic	[104.09]***	[8.27]***	[770.18]***	[562.90]***	[449.87]***	[10.10]***
Cragg-Donald F-statistic	105.25	8.18	907.19	646.63	517.19	10.01
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observation	2,270	2,270	2,253	1,884	1,459	2,274

The first stage of 2SLS includes the same control variables as those in the second stage but does not report these results to save the space (available upon request). Robust standard error is reported in the parenthesis. \*, \*\*, \*\*\* represent significance at 10%, 5%, and 1% level, respectively.

**Table 7: Investigation of rent seeking explanation**

Dependent Variable	Input Procurement	Availability of Production Locations	Supply of Electricity and Water	Recruitment of Skilled Labor	Sales of Output	Sales of Service	Access to External Finance
Power of Government vis-à-vis Market	-0.09 (0.11)	-0.25* (0.13)	-0.12 (0.11)	-0.36** (0.14)	-0.28** (0.14)	-0.26* (0.13)	-0.11*** (0.04)
Shea Partial R2	0.2553	0.2572	0.2545	0.2479	0.2455	0.2530	0.2939
Anderson Canonical LR Statistic	[550.37]***	[549.68]***	[566.94]***	[519.13]***	[528.52]***	[497.95]***	[385.58]***
Cragg-Donald F-statistic	630.83	630.77	649.79	591.73	601.70	569.38	450.36
Regional characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entrepreneurial characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enterprise characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observation	1,867	1,849	1,930	1,822	1, 876	1,707	1,108

The estimation strategy used is 2SLS estimation. The First-stage results (including the same control variables as those in the second stage) and the estimated coefficients of the control variable are not reported to save space (available upon request). Robust standard are reported in the parenthesis. \*, \*\*, \*\*\* represent significance at 10%, 5%, and 1% level, respectively.

**Table 8: Comparative statistics analysis**

Dependent Variable	1	2
	Power of Government vis-à-vis Market	
Influential Competitors	0.15** (0.07)	
Ratio of Extralegal Payments		-1.00* (0.58)
<b>Regional Characteristics</b>		
Logarithm of GDP per capita	-0.08 (0.06)	-0.10 (0.09)
Logarithm of Population	-0.13*** (0.05)	-0.13** (0.06)
<b>Entrepreneurial Characteristics</b>		
Education	-0.03** (0.01)	-0.03* (0.02)
Age	0.02*** (0.004)	0.02*** (0.01)
Managerial Experience	-0.004 (0.004)	-0.01 (0.01)
CPC Membership	-0.06 (0.09)	-0.13 (0.13)
CPPCC Membership	-0.06 (0.07)	-0.05 (0.10)
Government Cadre	-0.07 (0.13)	-0.20 (0.20)
SOE Cadre	-0.01 (0.07)	0.04 (0.10)
<b>Corporate Characteristics</b>		
Enterprise Size	0.10*** (0.03)	0.13*** (0.04)
Enterprise Age	-0.01 (0.05)	-0.09 (0.09)
Industry Dummy	Yes	Yes
Number of Observation	2,221	1,125
Pseudo R2	0.0332	0.0429
<i>p</i> -value for chi2	0.0000	0.0000

The estimation strategy used is the ordered probit estimation. Robust standard error is reported in the parenthesis. \*, \*\*, \*\*\* represent significance at 10%, 5%, and 1% level, respectively.

- 2009
- No 1 Jenni Pääkkönen: Economic freedom as a driver for growth in transition
  - No 2 Jin Feng, Lixin He and Hiroshi Sato: Public pension and household saving: Evidence from China
  - No 3 Laurent Weill: Does corruption hamper bank lending? Macro and micro evidence
  - No 4 Balázs Égert: Dutch disease in former Soviet Union: Witch-hunting?
  - No 5 Rajeev K. Goel and Iikka Korhonen: Composition of exports and cross-country corruption
  - No 6 Iikka Korhonen and Aaron Mehrotra: Real exchange rate, output and oil: Case of four large energy producers
  - No 7 Zuzana Fungáčová, Christophe J. Godlewski and Laurent Weill: Asymmetric information and loan spreads in Russia: Evidence from syndicated loans
  - No 8 Tuuli Juurikkala, Alexei Karas, Laura Solanko: The role of banks in monetary policy transmission: Empirical evidence from Russia
  - No 9 Ying Fang and Yang Zhao: Do institutions matter? Estimating the effect of institutions on economic performance in China
  - No 10 Michael Funke and Hao Yu: Economic growth across Chinese provinces: in search of innovation-driven gains
  - No 11 Jarko Fidrmuc and Iikka Korhonen: The impact of the global financial crisis on business cycles in Asian emerging economies
  - No 12 Zuzana Fungáčová and Laurent Weill: How market power influences bank failures: Evidence from Russia
  - No 13 Iikka Korhonen and Maria Ritola: Renminbi misaligned - Results from meta-regressions
  - No 14 Michael Funke, Michael Paetz and Ernest Pytlarczyk: Stock market wealth effects in an estimated DSGE model for Hong Kong
  - No 15 Jenni Pääkkönen: Are there industrial and agricultural convergence clubs in China?
  - No 16 Simo Leppänen, Mikael Linden and Laura Solanko: Firm behavior under production uncertainty: Evidence from Russia
  - No 17 Julian Du, Yi Lu and Zhigang Tao: China as a regulatory state

Bank of Finland  
BOFIT – Institute for Economies in Transition  
PO Box 160  
FIN-00101 Helsinki

 + 358 10 831 2268

[bofit@bof.fi](mailto:bofit@bof.fi)

<http://www.bof.fi/bofit>