Institutional Quality and New Firm Survival

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Abstract

The existing literature on firm survival focuses almost exclusively on firm- and industry-level determinants. What is generally overlooked, albeit extremely important for firm survival in developing countries, is the impact of institutional quality. Using data from manufacturing firms in China for the 1998-2005 period, we find that institutional quality has a significant and positive impact on the survival of private enterprises. Specifically, a one-standard-deviation increase in the security of property rights protection leads to an 8.8 percent decrease in the hazard rate of private enterprises. Our results are robust to the inclusion of control variables and to various checks.

Keywords: New firm survival; Institutional quality; Private enterprises; China

JEL Codes: L1, L2, P1

1 Introduction

"State firms (in transition economies), fearing competition, harass the new firms, and corrupt bureaucrats extort bribes" (McMillan and Woodruff, 2002: 154).

The survival of newly established firms brings competitive pressure to bear on incumbent firms, thereby ensuring the quality of economic growth. At the same time, such survival also affects the level of future entrepreneurial activities and, hence, further economic growth. Reflecting the importance of new firm survival, there is a large body of literature examining its various determinants. Most of the existing studies in this area focus on firm- and industry-level factors using data from developed countries.[1] However, as suggested by the foregoing quote, the survival of newly established firms in developing countries where economic institutions are imperfect clearly depends on the quality of economic institutions.[2] Surprisingly, to the best of our knowledge, there is no formal study investigating the impact of economic institutions on firm survival, presumably because most of the existing studies use data from developed countries, where the quality of economic institutions is sound and has little variation across countries and regions. In this paper, we fill this void in the literature by examining the impact of institutional quality on firm survival using data from China.

Over the past 35 years, China has experienced spectacular economic growth, in which the emergence and survival of newly established firms has played a crucial role (McMillan and Woodruff, 2002; Li, Feng and Jiang, 2006). However, it has been widely documented that the quality of economic institutions varies significantly across China's regions despite the country being a unitary state with uniform de jure laws (Du, Lu and Tao, 2008; Lu and Tao, 2009; Du, Lu, and Tao, 2012; Lu, Png and Tao, 2013). Thus, China offers an ideal setting in which to examine the impact of institutional quality on firm survival. Our within-country, cross-regional study also has some advantage over cross-country studies because there is no

[1] See, for example, Audretsch (1991), Klepper and Simons (2000), and Buenstorf and Klepper (2009) for the United States; Mata and Portugal (1994) for Portugal; and Huynh, Petrunia and Voia (2010) for Canada.

[2] For a survey on the importance of institutions to economic performance, see Acemolgu, Johnson and Robinson (2005).

need to control for the impacts of the political system, culture and language, and corporate tax policies, all of which may vary dramatically across countries.

Moreover, in the case of China, the impact of institutional quality on firm survival is expected to be more pronounced for private enterprises (or non-SOEs, used interchangeably) than for state-owned enterprises (SOEs). Despite 35 years of economic reform, China still retains a significant share of state ownership as the cornerstone of its socialist market economy (Wu Bangguo, Chairman of the National People's Congress of China, speaking at the fourth Plenary Session of the Eleventh National People's Congress on March 10, 2011). More importantly, throughout the course of China's economic reform, there has been an ideological bias against private sector development. Indeed, private enterprises were not even formally permitted to exist until 1988, 10 years after the country initiated its economic reform. As a result, private enterprises have been subject to the expropriation of their private properties, whereas SOEs have continued to enjoy their favored son status and the ability to circumvent imperfect economic institutions. We thus expect institutional quality to exert a more significant impact on the survival of new private enterprises relative to their state-owned counterparts.

Our data come from the *Annual Survey of Manufacturing Firms*, conducted by the National Bureau of Statistics of China, for the 1998-2005 period. There were altogether $4,781$ firms newly established in 1998, for which we trace their survival throughout the remainder of the sample period. Following the literature, we use a semi-parametric model, the Cox proportional hazard model, to estimate the impact of institutional quality on firm survival, while controlling for the firm- and industry-level factors reported in the literature. Our key independent variable relates to the quality of economic institutions. In the baseline analysis we focus on the protection of private property, which is arguably the most important aspect of institutions (North, 1990; Acemoglu, Johnson, and Robinson, 2001; Besley and Ghatak, 2009). Specifically, following the literature (e.g., Johnson, McMillan, and Woodruff, 2002; Cull and Xu, 2005), we measure property rights protection as protection against the expropriation by government agencies and related parties, and specifically construct it as one minus the percentage of extralegal payments to the government (*Tan Pai* in Chinese) in a firm's total revenue, aggregated to the regional level, using data from the *Survey of*

China's Private Enterprises.

We find that institutional quality has a negative and statistically significant impact on the death rate of non-SOEs but no impact on that of SOEs, i.e., "poor" institutions decrease the probability of survival for non-SOEs but not for their state-owned counterparts. In terms of economic magnitude, a one-standard-deviation decrease in the quality of property rights protection increases the hazard rate of non-SOEs by 8.8 percentage points.

To rule out various econometric concerns, we then conduct a series of robustness checks:

- Using the severity of government corruption as an alternative measure of economic institutions;
- Measuring institutional quality at the city level instead of the province level;
- Using three parametric models, i.e., the exponential model, the Weibull model, and the Gompertz model, instead of the semi-parametric Cox proportional hazard model;
- Employing two accelerated failure time models, lognormal model and loglogistic model, to relax the multiplicative assumption imposed by the Cox model;
- Including controls of regional characteristics, i.e., GDP per capita, highway density and education level to alleviate the omitted variables bias;
- Employing the control function approach to further address the omitted variables bias; and
- Conducting several subsample analyses.

This paper is related to both the literature on firm survival and that on economic institutions. Its contribution to the firm survival literature lies in its identification of the importance of economic institutions to firm survival, which is particularly relevant for the developing countries. The study also contributes to the economic institutions literature by highlighting a specific channel, i.e., the survival of newly established firms, through which institutional quality affects economic growth (see a review by Besley and Ghatak, 2009).

In particular, a lower survival rate for newly established firms due to poorer economic institutions results in less competitive pressure on incumbent firms and fewer entrepreneurial activities, both of which adversely affect economic growth.

The remainder of the paper is organized as follows. Section 2 discusses our estimation strategy, while Section 3 describes the data and variables. Empirical results are reported in Section 4. The paper concludes with Section 5.

2 Estimation Strategy

In this section, we first introduce our estimation strategy for identifying the impact of institutional quality on firm survival, and then discuss several estimation issues.

2.1 Estimation Model

Let N denote the number of firms newly established in year t_0, which is year 1998 in our setting. We trace the survival of each of these new firms until the final year of our sample period t^*, which is year 2005 in our setting. For each firm, there are two possible outcomes: either it died (referred to as the event of death) at some point in time between t_0 and t^*, or it survived to the final year of the sample period t^*. Let T_i be a non-negative random variable for firm i, representing the time from t_0 to the event of death.[3] Assume that T_i follows a cumulative distribution of $F_i(t)$ and a probability density function of $f_i(t)$.

The survival function $S_i(t)$ is defined as the probability that firm i survives to time t, i.e.,

$$S_i(t) = \Pr(T_i \geq t) = 1 - F_i(t). \tag{1}$$

And the hazard rate function $h_i(t)$ for firm i is defined as

$$h_i(t) = \lim_{\Delta t \to 0} \frac{\Pr(t \leq T_i \leq t + \Delta t | T_i \geq t)}{\Delta t} = \frac{f_i(t)}{S_i(t)}, \tag{2}$$

which literally means the death rate for firm i at time t conditional on its survival to time t.

[3] For firms appearing throughout the entire sample period, we follow the literature by assigning them a value of 7, thus implying that our dependent variable is right-censored (Cleves, Gould, Gutierrez and Marchenko, 2008).

In the baseline analysis, we employ a semi-parametric model of the hazard rate function (2), i.e., the Cox model. Specifically, it is assumed that

$$h_i(t) = h_0(t) \exp\left(\alpha R^r_{i,t_0} + \mathbf{X}'_{i,t_0}\boldsymbol{\beta}\right), \tag{3}$$

where $h_0(t)$ is the hazard rate common to all firms; R^r_{i,t_0} is our regressor of interest, measuring institutional quality for region r where firm i is located; and $\mathbf{X}_{i,t_0}$ is a vector of other firm-, industry-, and region-level characteristics that shifts the hazard rate. All independent variables (R^r_{i,t_0} and $\mathbf{X}_{i,t_0}$) are measured at the initial time t_0. As suggested by Cox (1972), equation (3) is estimated using the partial likelihood method.

2.2 Estimation Issues

We discuss a few practical estimation issues before proceeding to describe our data in the section that follows.

First, our data contain two distinct types of firms in China, SOEs and non-SOEs. For SOEs, our data contain all firms in the population during the sample period; whereas for non-SOEs, the data only cover those firms with annual sales at or above RMB 5 million. Hence, the definitions of death for SOEs and non-SOEs are different. For SOEs, the death is defined as exit from the market; whereas for non-SOEs, it is defined as having annual sales below RMB 5 million. However, different definitions of death do not affect our results as long as we estimate the model separately for the subsample of SOEs and the subsample of non-SOEs. This is because the common hazard rate function ($h_0(t)$) captures the absolute level of death for any given type of firms (either SOEs or non-SOEs), and our interest lies in the relative death rate among the same type of firms across different Chinese regions due to different levels of institutional quality.

Second, the Cox semi-parametric model offers us some flexibility in estimation as we do not need to assume any particular form of the common hazard rate function $h_0(t)$. However, if the characterization of the function form is correct, estimators from parametric models are generally more precise than those from the semi-parametric model. As robustness checks, we experiment with three alternative parametric models: (1) the exponential model, in which the hazard rate function is assumed as $h_i(t) = \lambda_i \equiv \exp\left(\beta_0 + \alpha R^r_{i,t_0} + \mathbf{X}'_{i,t_0}\boldsymbol{\beta}\right)$; (2) the Weibull model, in which the hazard rate function is assumed as $h_i(t) = p(t)^{p-1}\lambda_i$, where p is a parameter to be estimated from the model; and (3) the Gompertz model, in which the hazard rate function is assumed as $h_i(t) = \exp(\gamma t)\lambda_i$, where γ is a parameter to be estimated from the model.

Third, the Cox model is essentially a type of the proportional hazard model, in which the firm-specific hazard rate is modelled as a multiplicative function of a common hazard rate. However, the assumption of multiplicity may be quite restrictive. As a robustness check, we experiment with an alternative type of model, namely, the accelerated failure time model. Specifically, the accelerated failure time model assumes a log-linear function between the random variable of failure (T_i) and firm characteristics (R^r_{i,t_0} and $\mathbf{X}_{i,t_0}$), i.e.,

$$\ln T_i = \alpha R^r_{i,t_0} + \mathbf{X}'_{i,t_0}\boldsymbol{\beta} + \sigma \upsilon_i, \tag{4}$$

where σ is a scale factor to be estimated; and υ_i is the error term with probability density function $f(\upsilon)$. For the specific models of the accelerated failure time model, we consider two: the lognormal model (in which $f(\upsilon)$ is assumed to be a normal distribution) and the loglogistic model (in which $f(\upsilon)$ is assumed to be a logistic distribution).

Fourth, in the baseline analysis, the geographic unit is defined at the province level (that is, 22 provinces, 4 province-level municipalities, and 5 minority autonomous regions) in China, mainly because in the initial year $t_0 = 1998$ our key regressor R^r_{i,t_0} is only available at that level. To check whether our results are sensitive to such a broad geographic unit, we change our initial year t_0 to year 2002, when we can collect our key regressor R^r_{i,t_0} at the city level. Specifically, we collect from *Blue Book of City Competitiveness* (Ni, 2003) the data about the degree of city-level property rights protection, which is available for 47 cities in year 2002.

Fifth, the identification of our key coefficient α hinges upon that conditional on $\mathbf{X}_{i,t_0}$, there is no correlation between the error term and our regressor of interest R^r_{i,t_0}.[4] For the

[4]Note that we do not require $\mathbf{X}_{i,t_0}$ to be uncorrelated with the error term. As long as our regressor of interest R^r_{i,t_0} is conditionally exogenous, the estimated coefficient (α) has a causal interpretation. However, the coefficients ($\boldsymbol{\beta}$) may not have such a casual interpretation (see Stock and Watson, 2010).

control ($\mathbf{X}_{i,t_0}$), we include all possible variables found to be important to firm survival in the literature (i.e., firm-level and industry-level characteristics, see Table 1 for details). Meanwhile, we include several important region-level characteristics, such as GDP per capita, highway density, and education. As a further robustness check, we use the control function approach to deal with any potential endogeneity issue. Specifically, the regressor of interest R^r_{i,t_0} is first regressed on an excluded variable (z^r) along with $\mathbf{X}_{i,t_0}$, i.e.,

$$R^r_{i,t_0} = \delta z^r + \mathbf{X}'_{i,t_0}\boldsymbol{\beta} + \mu_i. \tag{5}$$

Then the generated residual $\hat{\mu}_i$ is included as an additional variable in the Cox model to control for the possible correlation between R^r_{i,t_0} and the error term, i.e.,

$$h_i(t) = h_0(t)\exp\left(\alpha R^r_{i,t_0} + \mathbf{X}'_{i,t_0}\boldsymbol{\beta} + g(\hat{\mu}_i)\right), \tag{6}$$

where $g(\hat{\mu}_i)$ is approximated by a second-order polynomial function. The joint test of statistical significance on the estimated coefficients of $\hat{\mu}_i$ can shed light on whether our baseline model suffers from any endogeneity concern. For the selection of the excluded variable z^r, we are motivated by Acemoglu, Johnson and Robinson (2002) in using the logarithm of population density in 1918-19 (see Lu, Png and Tao, 2012, for a detailed description and several tests on the validity of this excluded variable).

3 Data and Variables

Our data come from the *Annual Survey of Manufacturing Firms*, conducted by the National Bureau of Statistics of China, for the 1998-2005 period. The survey covers all SOEs, as well as non-SOEs with annual sales of RMB 5 million (US$ 770,000 equivalent) or more. The number of observations ranges from 164,980 in 1998 to 265,718 in 2005. The data contain year of establishment, firm identification, and operation and performance information extracted from balance sheets and income statements.

We define firm entry by a firm's year of establishment, following the literature on firm survival (see Mata and Portugal, 1994; Audretsch and Mahmood, 1995). Specifically, we focus on the survival of firms established in the first year of our sample period, i.e., 1998. There are a total of 5,321 firms established in 1998. After deleting those firms that lack the information required to construct the key firm-level variables such as employment, debt, total assets, and gross value added, we are left with a final sample of 4,781 firms that were newly established in 1998. In Figure 1A, we plot the Kaplan-Meier survival estimate for the whole sample, which shows that younger enterprises are expected to survive longer. In Figure 1B, we give separate plots for SOEs (dash line) and non-SOEs (solid line), which suggests that survival rate of SOEs is slightly lower than that for non-SOEs as firms get older.

To measure institutional quality, we, in the baseline analysis, focus on the protection of private property, which is arguably the most important aspect of institutions (North, 1990; Acemoglu, Johnson, and Robinson, 2001; Besley and Ghatak, 2009). Specifically, following the recent literature on economic institutions (particularly, Johnson, McMillan and Woodruff, 2002), we measure our regressor of interest R^r_{i,t_0} as the protection against the expropriation by government agencies and related parties. Specifically, it is one minus the percentage of revenue spent on extralegal payments to the government (*Tan* Pai[5] in Chinese), the information of which is obtained from a firm-level data set (that is, the *Survey of China's Private Enterprises*[6]) and then aggregated to the region-level. A higher value of this variable, denoted by *Property Rights Protection*, indicates a better protection of the private properties and hence better quality of economic institutions[7].

However, one may be concerned about our specific way of measuring institutional quality.

[5] Even though China's central government has explicit policies forbidding Tai Pai, local governments still use various excuses to impose extralegal payments, such as fees for providing educational service to children of enterprise employees, headcount fees for granting urban residency to employees hired from rural areas, fees for providing utility services to enterprises, compulsory donations for various social activities, and fees for maintaining public security for enterprises and its employees. These fees are part of the operation costs of enterprises, and they vary substantially across regions in China.

[6] The Survey was jointly conducted by the All China Industry and Commerce Federation, the China Society of Private Economy at the Chinese Academy of Social Sciences, and the United Front Work Department of the Central Committee of the Communist Party of China. There is a survey question asking an owner of a private enterprise the amount of Tan Pai (in Chinese Yuan) his enterprise paid in the preceding year.

[7] Columns 1 and 2 of Appendix Table A provide, respectively, the regional number of private enterprises included in Survey of China's Private Enterprises and the regional distribution of Tan Pai (average extralegal payments per enterprise). Except for Qinghai, the number of observations for each region is generally large enough for us to construct the average extralegal payments per enterprise. Clearly there are significant variations in the average extralegal payment per enterprise, with that for Hainan being the lowest whereas that for Shanxi province the highest.

As a robustness check, we use an alternative measure, the severity of government corruption. Specifically, it is the proportion of private entrepreneurs in a region answering "Yes" to a question concerning whether it is necessary for the region to have stricter policies against government corruption," with a higher value of this variable (denoted by *Government Corruption*) indicating poorer quality of economic institutions.

Although the focus of this study is on the impact of economic institutions on firm survival, we also control for a host of variables found to be important to firm survival in the literature. Specifically, we control for such firm-level variables[8] as *Start-up Size*, *Debt Equity Ratio*, *Capital Labor Ratio*, and *Labor Productivity* and such industry-level variables[9] as *Entry Rate*, *Total Innovation Rate*, *Small Firm Innovation Rate*, *Industry Wage*, *Herfindahl Index*, *Industry Growth*, *Agglomeration*, *Minimum Efficient Scale*, and *Suboptimal Scale*. Meanwhile, as it is difficult to exhaust all industry-level variables, we employ industry dummies at the 4-digit level instead of the aforementioned industry-level variables to alleviate the concern of omitted variables bias at industry level. As the key variable of interest in this study is about institutional quality at the region level, it precludes the possibility of using region dummies in the regression. Nonetheless, we include several region-level variables, such as *GDP per Capita*, *Highway Density*, and *Education*, to alleviate the concern of omitted variables bias at the region level. In addition, we use historical population density at the regional level (*Log Population Density*) as an instrument for institutional quality to isolate the exogenous variations in economic institutions across regions.

Appendix Table B provides the definitions of our firm- industry-, and region-level variables. The summary statistics of all the key variables are presented in Table 1.

[8] For studies using these firm-level determinants, see, for example, Audretsch and Mahmood (1995), Mata, Portugal and Guimaraes (1995), Agarwal and Audretsch (2001), and Huynh, Petrunia and Voia (2010).

[9] For studies using these industry-level determinants, see, for example, Audretsch (1991), Mata and Portugal (1994), Audretsch and Mahmood (1995), Mata, Portugal and Guimaraes (1995), and Buenstorf and Klepper (2009).

4 Empirical Results

4.1 Baseline Results

Table 2 summarizes our regression results using the Cox model (3), with the left panel presenting those for SOEs and the right panel those for non-SOEs.[10] For the subsample of SOEs, the estimated coefficient of *Property Rights Protection* is found to be negative and statistically significant, but then become statistically insignificant albeit negative when the firm-level variables, and industry-level variables/industry dummies are included (Columns 1-4, Table 2). In contrast, for the subsample of non-SOEs, the estimated coefficient of *Property Rights Protection* is always negative and statistically significant (Columns 5-8, Table 2). These results imply that poorer property rights protection has an adverse impact on the survival of non-SOEs, but no impact at all on that of SOEs. Moreover, the magnitude of the impact of property rights protection on the survival of non-SOEs is significant, with a one-standard-deviation increase in the security of property rights protection leading to an 8.8 percent decrease in the hazard rate.

In order to give a better sense of the magnitude of the impact of property rights protection on the survival of non-SOEs, in Figure 2, we plot smoothed hazard estimate for the top 2 regions with best institutions in the sample and that for the bottom 2 regions with worst institutions in the sample. Clearly, the hazard is consistently larger for non-SOEs established in the bottom 2 regions with worst institutions.

The estimation results for the control variables are found to be consistent with those in the literature. Specifically, larger and better capital-endowed start-ups are more likely to survive for both non-SOEs and SOEs (see also Mata, Portugal, and Guimaraes, 1995; Agarwal and Audretsch, 2001). In addition, labor productivity is found to exert a positive impact on the survival of non-SOEs (Doms, Dunne and Roberts, 1995), but to exert no effect on that of SOEs. One explanation is that China's SOEs are incentivized by the government to provide employment and maintain social stability in exchange for receiving subsidies, and hence there is a muted relationship between labor productivity and firm survival for SOEs

[10] By using a Probit model specification and including all existing firms of 1998 into the sample, our results are robust to control for firm age.

(Bai, Li, Tao and Wang, 2000; Bai, Lu and Tao, 2006, 2009).

In summary, we find that poor institutional quality reduces the survival rate of non-SOEs, but have no effect on SOEs.

In principle, institutional quality may affect new firm survival in two different ways. On one hand, poorer institutional quality could mean higher entry barrier for private enterprises in the form of higher licensing fees, which discourage entry, reduce market competition, and protect incumbent firms in these regions. Self-selection of more productive private enterprises into these regions with poorer institutional quality could lead to lower hazard for newly established private enterprises. On the other hand, poorer institutional quality could mean higher operation costs in the form of constant harassments of private entrepreneurs and expropriations, which reduce the profits of private enterprises and make them less likely to survive.

Our measure of Tan Pai in principle could capture both aspects of institutional quality. Our empirical evidence, however, suggest that the more dominant source of poor institutional quality comes from the increase in operation costs not that of higher entry barrier. Future studies will be directed at obtaining more micro-level data to disentangle these two different aspects of institutional quality and their impacts on new firm survival.

4.2 Robustness Checks

In this subsection, we report the results of a series of robustness checks aforementioned in Section 2.2 to address various concerns about our baseline estimation. In all these robustness checks, we control for firm-level characteristics used in Table 2 as well as 4-digit industry dummies. However, to save space, the results of these controls are not reported (but available upon request).

An alternative measure of institutional quality. First, to check whether our results are due to the specific way we measure institutional quality (i.e., the protection against the expropriation by government agencies and related parties), we employ an alternative measure, that is, the severity of government corruption. Estimation results are reported in Table 3. It is found that in regions with severer government corruption, non-SOEs are more likely to die while SOEs remain unaffected. These results are consistent with those in Table

2, implying that our findings are not driven by the specific way of measuring institutional quality.[11]

An alternative geographic unit. Thus far, we measure institutional quality at the province level. One may be concerned that with institutional quality measured at such a broad geographic unit there are less variations in the key independent variable and hence less precise estimation of its impact on the probability of firm survival. To address this concern, we conduct a robustness check by using a city-level measure of property rights protection (Ni, 2003), which is only available for 47 cities in year 2002. It turns out, however, that there were 16 newly established SOEs in these 47 cities in year 2002, and hence not enough observations for investigating the impact of institutional quality on the hazard rate of SOEs. Instead, we focus on the sample of 1,073 non-SOEs newly established in these 47 cities in year 2002. As shown in Table 4, newly-established non-SOEs in cities with better protection of private properties are more likely to survive. This result is consistent with the results obtained using measures at the province level, implying that our findings are not driven by the specific geographic unit used in measuring institutional quality.[12]

Parametric models. Table 5 reports the estimation results obtained using three alternative parametric models, that is, the exponential model, the Weibull model, and the Gompertz model. It is found that institutional quality always has negative and statistically significant estimated coefficients in the sample of non-SOEs, but insignificant estimated coefficients in the sample of SOEs. These results are consistent with those obtained using the semi-parametric model (i.e., the Cox model) reported in Tables 2-4. Moreover, the magnitude of these parametric estimators is found to be similar to that of the Cox estimators. These results suggest that our findings are not specific to the use of the semi-parametric model, i.e., the Cox model.

Accelerated failure time models. Table 6 reports the estimation results obtained using two accelerated failure time models, lognormal model and loglogistic model, which relax the multiplicative assumption imposed by the Cox model. Note that in the accelerated failure time models, the dependent variable is a measure of the years of survival. Hence,

[11] For other robustness checks of this measure, please refer to Appendix Table C.
[12] For other robustness checks of this measure, please refer to Appendix Table D.

the positive estimated coefficients found in the sample of non-SOEs indicate that better institutional quality increases the likelihood of survival for non-SOEs, consistent with the results reported in the previous tables. These results imply that our findings are not driven by the specific assumption imposed in the Cox model.

Regional controls. To alleviate the concern that our baseline estimators may be biased due to some omitted variables at the regional level, we include several important regional characteristics, that is, GDP per capita, infrastructure (proxied by highway density) and education level. Estimation results are reported in Table 7. Clearly, our findings regarding the differential impacts of institutional quality on firm survival for samples of SOEs and non-SOEs remain robust to these regional controls.

Control function approach. One potential concern to our baseline estimation is that regional economic growth induced by new firm survival could cultivate or afford "good" institutions (reverse causality), which may bias our key estimate upwards. Perhaps more important, some regional omitted factors (culture or geography) that are correlated with institutional quality are also important factors determining firms' operational strategy. For example, Confucianism is an important factor that positively affects firm survival (see, e.g., Cai, Zhou, and Wu, 2008), and it may also improve the quality of regional government through various channels. At the same time, our proxy of institutional quality is measured with error (property rights protection measure may corresponds poorly to the broad "cluster of institutions"), this measurement error problem could generate attenuation problem to our baseline estimate on the effect of institutional quality on firm survival. To purge out these three problems, we use the control function approach. Specifically, the excluded variable we use is the logarithm of population density in 1918-19. Lu, Png and Tao (2013) provide detailed discussion on the relevance of this excluded variable to our measures of economic institutions and also conduct several tests on the validity of this excluded variable.

Estimation results using the control function approach are reported in Table 8. As shown in Panel B, the excluded variable (population density) is found to be positively correlated with the measure of the quality of property rights protection, consistent with the findings in our cross-region study of China (Lu, Png and Tao, 2013) and those of the cross-country study of Acemoglu, Johnson and Robinson (2002). With respect to our central issue, property rights protection continues to cast an insignificant impact on the survival for SOEs, but a negative and significant impact on the survival of non-SOEs, consistent with our previous findings. Moreover, the insignificant joint test on the polynomial function of the predicted residual in the first-stage suggests that our estimation may not be biased due to some omitted variables at the regional level. Interestingly, we find that our key estimate using control function approach is much larger than that using Cox semi-parametric model. This suggests that attenuation bias created by measure error is much more important than reverse causality and omitted variables biases, which is similar to cross-country studies (see, e.g., Acemolgu, Johnson, and Robinson, 2001).

Subsample analysis. To ensure that our findings are not driven by some outlying observations, we carry out robustness checks using various subsamples. First, we exclude observations from the western part of China,[13] where institutional quality is known to be much poorer than that in the rest of China. As shown in Columns 1- 2 of Table 9, our main results remain robust to this subsample. Second, we exclude observations from three northeastern provinces of China (Liaoning, Heilongjiang, and Jilin), where state-owned enterprises are dominant as a legacy of the centrally planned economy. As shown Columns 3-4 of Table 9, our results are also robust to this subsample. Third, we exclude regions with sample observations less than 20 firms in the *Survey of China's Private Enterprises*, to reduce the potential measurement error of our regressor of interest. As shown in Columns 5-6 of Table 9, our main results remain robust to this subsample.

Measurement error. Our data come from the annual surveys by the National Bureau of Statistics in China, which cover all state-owned enterprises (SOEs) and non-state-owned enterprises (non-SOEs) with annual sales above RMB 5 million. Hence, it is possible that non-SOEs may underreport their sales for tax avoidance, resulting in their disappearance in the data. And if this tax avoidance behavior varied across regions with different institutional quality, the misreporting would have biased our estimates. According to the Chinese tax collection regulations, before 2002, corporate taxes were collected by local tax bureaus and submitted to the central government; but after 2002, they have been collected by local

[13] Here we refer to observations in the following regions: Neimenggu, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Xizang, Shaanxi, Gansu, Qinghai, Ningxia, and Xinjiang.

branches of the central tax bureau. Hence, it is generally agreed that after 2002, there would be fewer variations in the enforcement of tax collection and less tax avoidance behavior across regions, compared with those before 2002, which suggests that the misreporting problem is less severe after 2002. Using this institutional change, we conduct a robustness check on the measurement error problem by focusing on new firms established in 2002 and their survival till 2005. Regression results reported in Table 10 show that our findings on the effects of institutional quality on new firm survival for SOEs and non-SOEs remain robust to the sub-period of 2002-2005, implying that the measurement error problem may not significantly bias our estimates.

Where does the variation in the quality of economic institutions come from? Our investigation on property rights protection largely explores the cross-sectional variations across regions in 1998. Although there is now a broad consensus that institutions are highly persistent over time (see, e.g., Acemolgu, Johnson, and Robinson, 2001), to check whether our proxy also captures time series variation, we check the correlation of regional institutional quality in 1998 and that in 2005, and find that it is around 0.4. Furthermore, we replace our institutional quality measure in 1998 with the principal component of these measures in 1998, 2001, 2003, and 2005, and obtain similar results (see Table 11).

5 Conclusion

The survival of newly established firms is of significant importance to economic growth, as such firms exert competitive pressure on existing producers and their survival unleashes even more entrepreneurial activities in the future. Indeed, there is a large body of literature examining the firm- and industry-level determinants of firm survival, most of which employ data from developed countries. However, there is an even more pressing need to better understand the determinants of firm survival in developing countries, as these countries seek to grow their economies and catch up with their developed counterparts. Arguably, what distinguishes developed countries from developing countries is the quality of their economic institutions. It is thus expected that institutional quality is an important determinant of firm survival in developing countries, if not more important than the firm- and industry-level determinants of firm survival.

This paper contributes to the literature by being the first to examine the impact of institutional quality on firm survival using data from manufacturing firms in China for the 1998-2005 period. Utilizing the significant cross-regional variations in the quality of economic institutions, we find that institutional quality does indeed have a significant and positive impact on the survival of private enterprises, but no impact on that of state-owned enterprises. The differential impacts of institutional quality on firm survival between private enterprises and state-owned enterprises is due to China's gradual reform from a socialist economy to a market economy and the lingering ideological bias against the development of private enterprises, under which state-owned enterprises still retain their favored son status and have the ability to circumvent imperfect economic institutions.

There are various potential channels through which institutional quality may impact on new firm survival. For example, the security of property rights protection affects the incentive for firms to conduct R&D activity, an important way for new firms to differentiate itself from others so as to survive and thrive, see, Lin, Lin, and Song (2010). The quality of economic institutions is found to impact on both the vertical and horizontal scopes of firms, hence profitability and survivability (Du, Lu, and Tao, 2012 and 2015). Most relatedly to this study on new firm survival, firms in regions with better institutional quality have been found to enjoy higher productivity and growth rate (Lu, Png, and Tao, 2013). Together with the above studies, this paper highlights the importance of institutional quality for firm survival, growth and development, especially for disadvantageous private enterprises, and points to the need to improve economic institutions in China and in other developing countries.

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Table 1: Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min	Max
Institutional Quality Measures					
Property Rights Protection	4781	99.49	0.35	98.21	99.87
Government Corruption	4781	0.53	0.10	0.37	0.88
City-level Property Rights Protection	1097	0.70	0.16	0.42	1
Firm-level Controls					
Start-up Size	4781	4.73	1.12	0	9.61
Debt equity Ratio	4781	0.35	0.14	-0.73	0.80
Capital Labor Ratio	4773	-3.66	1.56	-12.73	1.85
Labor Productivity	4773	-3.82	1.26	-10.40	1.46
Industry-level Controls					
Entry Rate	4781	0.04	0.02	0.00	0.19
Industry Wage	4781	7.08	1.84	3.60	27.21
Herfindahl Index	4781	0.02	0.04	0.00	0.50
Industry Growth	4781	-0.05	0.11	-0.45	0.80
Total Innovation Rate	4781	7.90	24.11	0	336.97
Small Firm Innovation Rate	4781	3.39	8.79	0	158.14
Agglomeration	4781	0.02	0.11	0	5.22
Minimum Efficient Scale	4781	12.11	1.08	9.66	16.98
Suboptimal Scale	4781	0.86	0.07	0.39	1
Regional Controls					
GDP Per Capita	4781	0.92	0.51	0.23	2.52
Highway Density	4781	0.33	0.14	0.02	0.73
Education	4781	4.34	3.28	0.14	18
Excluded Variable					
Log Population Density	4776	4.88	1.01	0.05	6.68

Table 2: Baseline Results

	SOEs				non-SOEs			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable of Interest								
Property Rights Protection	-0.212*	-0.174	-0.159	-0.004	-0.214***	-0.248***	-0.238***	-0.263***
	(0.117)	(0.121)	(0.105)	(0.136)	(0.050)	(0.055)	(0.058)	(0.064)
Firm-Level Controls								
Start-up Size		-0.178***	-0.184***	-0.305***		-0.233***	-0.233***	-0.257***
		(0.036)	(0.041)	(0.055)		(0.021)	(0.023)	(0.023)
Debt Equity Ratio		0.324	0.235	0.263		-0.182	-0.162	-0.152*
		(0.341)	(0.364)	(0.390)		(0.127)	(0.121)	(0.091)
Capital Labor Ratio		-0.048**	-0.051**	-0.083***		-0.074***	-0.074***	-0.074***
		(0.021)	(0.021)	(0.026)		(0.018)	(0.018)	(0.018)
Labor Productivity		-0.029	-0.041	-0.048		-0.074***	-0.070***	-0.078***
		(0.035)	(0.034)	(0.051)		(0.018)	(0.019)	(0.019)
Industry-Level Controls								
Entry Rate			9.528***				1.851*	
			(3.032)				(1.061)	
Industry Wage			-0.018				-0.029***	
			(0.019)				(0.010)	
Herfindahl Index			-2.023				-0.334	
			(2.048)				(0.842)	
Industry Growth			-0.014				0.039	
			(0.230)				(0.148)	
Total Innovation Rate			0.001				0.001	
			(0.004)				(0.001)	
Small Firm Innovation Rate			0.001				-0.002	
			(0.008)				(0.003)	
Agglomeration			-0.141				0.164*	

			(0.268)				(0.095)	
Minimum Efficient Scale			-0.007				0.019	
			(0.052)				(0.020)	
Suboptimal Scale			-0.646				0.541**	
			(0.452)				(0.218)	
4-digit Industry Dummy	No	No	No	Yes	No	No	No	Yes
Observations	648	643	642	643	4133	4130	4119	4130
Log Pseudo Likelihood	-3318	-3275	-3263	-3145	-24556	-24438	-24376	-24199

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. *, **, and *** represent statistical significance at the 10%, 5%, and 1% level, respectively.

Table 3: Robustness Check I: An Alternative Measure of Institutional Quality

	SOEs (1)	non-SOEs (2)
Variable of Interest		
Government Corruption	0.097	0.771**
	(0.495)	(0.362)
Firm-Level Controls	Yes	Yes
4-digit Industry Dummy	Yes	Yes
Observations	643	4130
Log Pseudo Likelihood	-3145	-24202

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. **represents statistical significance at the 5% level.

Table 4: Robustness Check II: An Alternative Geographic Unit for Measuring Institutional Quality

	non-SOEs (1)
Variable of Interest	
City-level Property Rights Protection	-0.778*
	(0.426)
Firm-Level Controls	Yes
4-digit Industry Dummy	Yes
Observations	1073
Log Pseudo Likelihood	-2410

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. *represents statistical significance at the 10% level.

Table 5: Robustness Check III: Parametric Models

	Exponential		Weibull		Gompertz	
	SOEs	non-SOEs	SOEs	non-SOEs	SOEs	non-SOEs
	(1)	(2)	(3)	(4)	(5)	(6)
Variable of Interest						
Property Rights Protection	-0.017	-0.276***	0.028	-0.329***	0.015	-0.312***
	(0.099)	(0.066)	(0.187)	(0.086)	(0.188)	(0.080)
Firm-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
4-digit Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	643	4130	643	4130	643	4130
Log Pseudo Likelihood	-713	-5154	-539	-4884	-581	-5033

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. ***represents statistical significance at the 1% level.

Table 6: Robustness Check IV: Accelerated Failure Time Model

	Lognormal		Loglogistic	
	SOEs	non-SOEs	SOEs	non-SOEs
	(1)	(2)	(3)	(4)
Variable of Interest				
Property Rights Protection	0.053	0.238***	0.048	0.240***
	(0.047)	(0.049)	(0.070)	(0.057)
Firm-Level Controls	Yes	Yes	Yes	Yes
4-digit Industry Dummy	Yes	Yes	Yes	Yes
Observations	643	4130	643	4130
Log Pseudo Likelihood	-551	-4747	-548	-4811

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. ***represents statistical significance at the 1% level.

Table 7: Robustness Check V: Controls of Regional Characteristics

	SOEs (1)	non-SOEs (2)
Variable of Interest		
Property Rights Protection	0.135	-0.209***
	(0.176)	(0.072)
Regional Variables		
GDP Per Capita	-0.190	-0.246**
	(0.163)	(0.097)
Highway Density	-0.930***	0.179
	(0.331)	(0.373)
Education	0.052***	0.028**
	(0.015)	(0.012)
Firm-Level Controls	Yes	Yes
4-digit Industry Dummy	Yes	Yes
Observations	643	4130
Log Pseudo Likelihood	-3141	-24193

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. ** and ***represent statistical significance at the 5% and 1% level, respectively.

Table 8: Robustness Check VI: Control Function Approach

	SOEs (1)	non-SOEs (2)
Panel A, Second Stage		
Property Rights Protection	-0.516	-1.68**
	(0.613)	(0.794)
P-value of the joint test on predicted residues	0.53	0.14
Log Pseudo Likelihood	-3138	-24175
Panel B, First Stage	Dependent Variable is *Property Rights Protection*	
Log of Population Density in 1918-19	0.074***	0.041***
	(0.018)	(0.005)
R-squared	0.35	0.16
Firm-Level Controls	Yes	Yes
4-digit Industry Dummy	Yes	Yes
Observations	642	4126

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. ** and ***represent statistical significance at the 5% and 1% level, respectively.

Table 9: Robustness Check VII: Subsample Analysis

	Excluding Western Part of China		Excluding Northeastern Provinces		Excluding Regions with Few Responses	
	SOEs	non-SOEs	SOEs	non-SOEs	SOEs	non-SOEs
	(1)	(2)	(3)	(4)	(5)	(6)
Variable of Interest						
Property Rights Protection	-0.032	-0.323***	-0.008	-0.263***	-0.019	-0.242***
	(0.206)	(0.060)	(0.175)	(0.068)	(0.165)	(0.071)
Firm-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
4-digit Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	500	3690	563	3855	563	3845
Log Pseudo Likelihood	-2348	-21276	-2671	-22375	-2682	-22484

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis.***represents statistical significance at the 1% level.

Table 10: Robustness Check VIII: Alternative Sample Period, 2002-2005

	SOEs (1)	non-SOE (2)
Variable of Interest		
Property Rights Protection	1.440	-0.287***
	(3.431)	(0.103)
Firm-Level Controls	Yes	Yes
4-digit Industry Dummy	Yes	Yes
Observations	73	2910
Log Pseudo Likelihood	-131	-9564

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. *** represent statistical significance at the 1% level.

Table 11: Robustness Check IX: Alternative Measure of PRP, Principal Component Analysis 1998-2005

	SOEs (1)	non-SOEs (2)
Property Rights Protection	0.008 (0.050)	-0.092*** (0.028)
Firm-Level Controls	Yes	Yes
4-digit Industry Dummy	Yes	Yes
Observations	643	4130
Log Pseudo Likelihood	-3145	-24200

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. *** represent statistical significance at the 1% level.

Figure 1A: Whole Sample

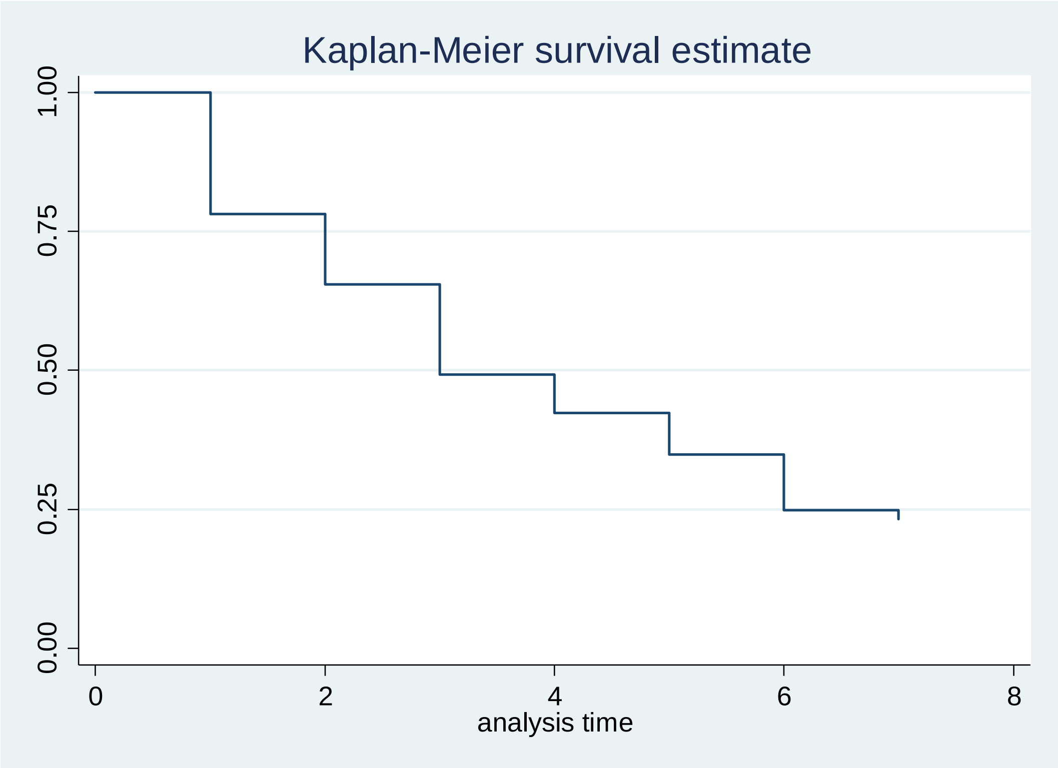


Figure 1B: SOEs versus Non-SOEs

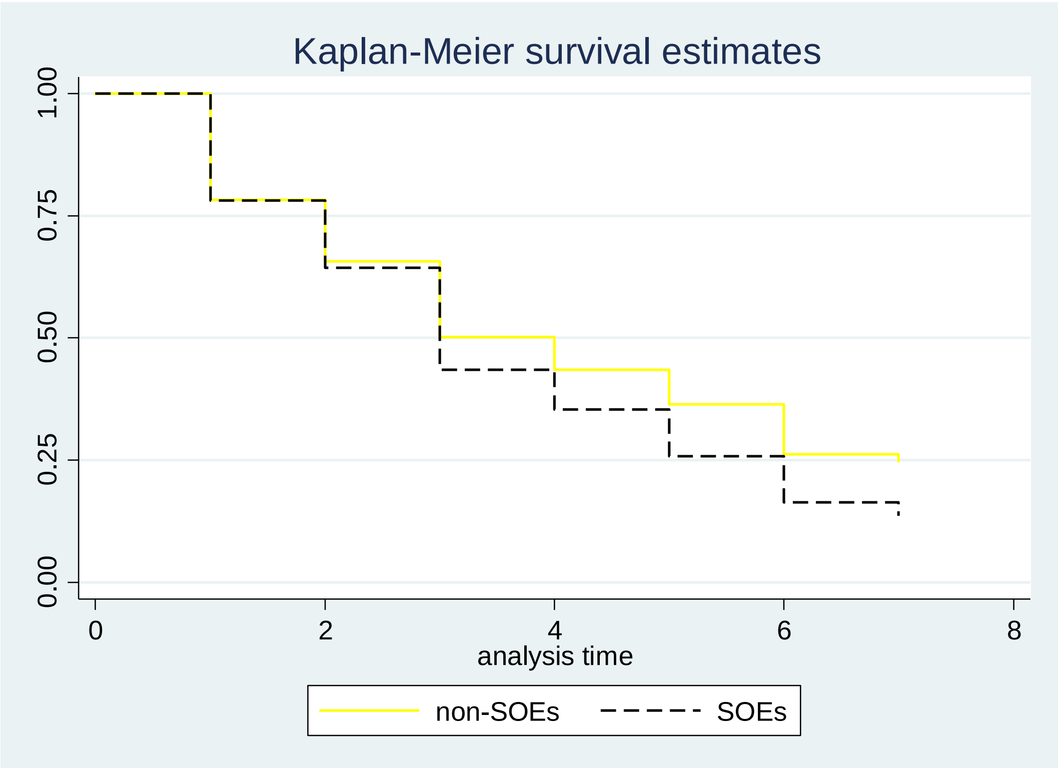
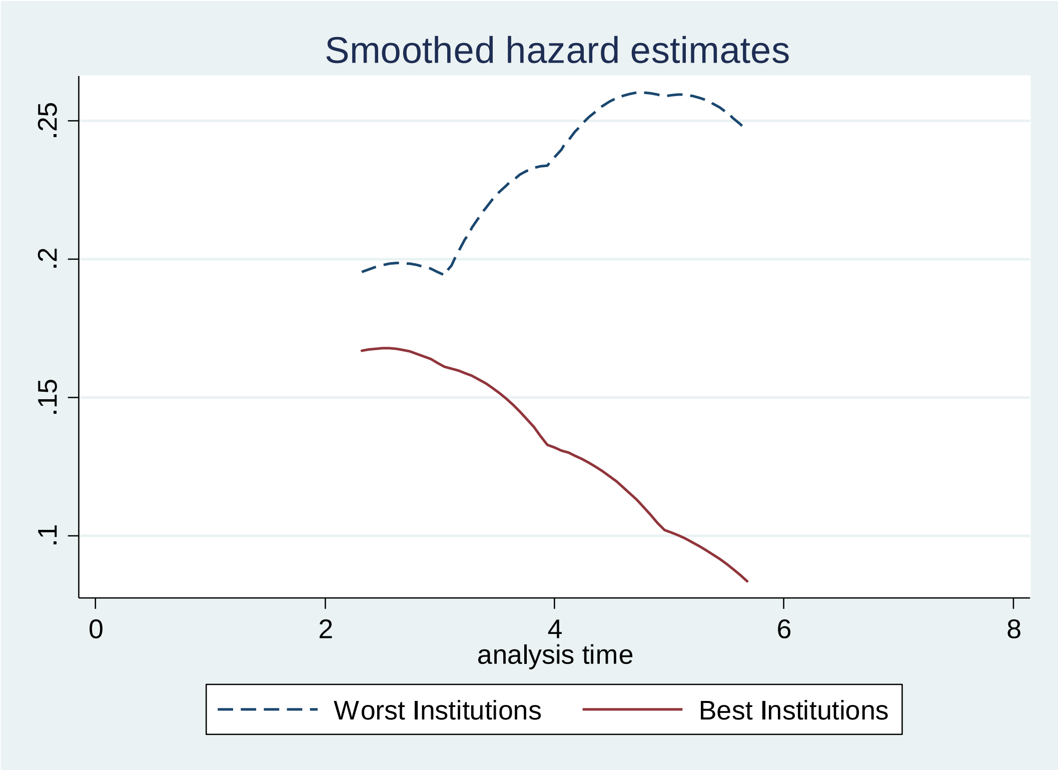


Figure 2: Hazard Estimates for Regions with Best and Worst Institutions



Appendix Table A: Regional Variation of Extralegal Payment

Region	Number of Observations	Tan Pai (RMB, 10 Thousand)
Hainan	54	0.62
Shaanxi	114	0.92
Yunnan	41	1.05
Hebei	198	1.23
Hubei	125	1.25
Neimenggu	45	1.42
Jiangxi	61	1.53
Liaoning	148	1.60
Beijing	117	1.63
Hunan	64	1.69
Guangxi	47	1.86
Gansu	36	1.95
Zhejiang	165	1.97
Jiangsu	279	2.03
Fujian	63	2.06
Xizang	10	2.67
Ningxia	20	2.79
Shanghai	180	2.98
Qinghai	11	3.30
Jilin	80	3.45
Tianjin	100	3.68
Anhui	78	4.24
Xinjiang	51	4.58
Heilongjiang	101	4.87
Guizhou	66	5.26
Sichuan	60	5.47
Henan	143	6.10
Shandong	250	7.28
Chongqing	97	7.44
Guangdong	193	9.95
Shanxi	76	11.57

Appendix Table B: Variable Definitions

Variable Name	Definition
Institutional Quality Measures	
Property Rights Protection	One minus the percentage of revenue spent on extralegal payments to the government and then aggregated to the regional level.
Government Corruption	Percentage of affirmative answer of firm manager to whether corruption control is necessary in the region.
City-level Property Rights Protection	Score of property rights protection at city level.
Firm-level Controls	
Start-up Size	Logarithm of employment in the year of 1998
DebtEquity Ratio	Ratio of debt to equity
Capital Labor Ratio	Ratio of fixed asset to employment
Labor Productivity	Ratio of value added output to employment
Industry-level Controls	
Entry Rate	Ratio of number of new firms to the total number of firms in the industry
Industry Wage	Average wage in the industry
Herfindahl Index	Sum of square of firm output share in the industry
Industry Growth	Employment growth of the industry from 1998 to 1999
Total Innovation Rate	Ratio of output contributed by new products to total industry employment
Small Firm Innovation Rate	Ratio of output contributed by new products in firms with 500 employees or less to total employment of those firms
Agglomeration	The percentage of a county's employment contributed by an industry divided the percentage of China's total manufacturing employment contributed by the industry
Minimum Efficient Scale	The mean employment of the set of larger firms which jointly account for one-half of the industry output
Suboptimal Scale	Percentage of industry employment contributed by those firms smaller than minimum efficient scale.
Region-level Controls	
GDP Per Capita	Per capita gross domestic product in the region.
Highway Density	The logarithm of the highway density.
Education	The logarithm of the ratio of employment with college degree or above.
Excluded Variable	
Log Population Density	Logarithm of population density in 1920.

Appendix Table C_1: Government Corruption, Parametric Model

	(1)	(2)	(3)	(4)	(5)	(6)
	Exponential		Weibull		Gompertz	
	SOEs	non-SOEs	SOEs	non-SOEs	SOEs	non-SOEs
Government Corruption	-0.078	0.762**	0.385	0.920*	0.225	0.868*
	(0.367)	(0.375)	(0.646)	(0.495)	(0.615)	(0.448)
Firm-level Controls	Yes	Yes	Yes	Yes	Yes	Yes
4-digit Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	643	4130	643	4130	643	4130

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. * and ** represent statistical significance at the 10% and 5% level, respectively.

Appendix Table C_2: Government Corruption, Accelerated Failure Time Model

	(1)	(2)	(3)	(4)
	Log Normal		Loglogistic	
	SOEs	non-SOEs	SOEs	non-SOEs
Government Corruption	0.117	-0.736***	0.013	-0.811***
	(0.334)	(0.280)	(0.396)	(0.303)
Firm-level Controls	Yes	Yes	Yes	Yes
4-digit Industry Dummies	Yes	Yes	Yes	Yes
Observations	643	4130	643	4130

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. *** represent statistical significance at the 1% level.

Appendix Table C_3: Government Corruption, Controls of Regional Characteristics

	(1)	(2)
	SOEs	non-SOEs
Government Corruption	-0.244	0.793**
	(0.495)	(0.384)
GDP Per Capita	-0.256	-0.261
	(0.355)	(0.340)
Highway Density	-1.301***	-0.376
	(0.463)	(0.440)
Education	0.398**	0.122
	(0.183)	(0.097)
Other Controls	Yes	Yes
Observations	643	4130

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. ** and *** represent statistical significance at the 5% and 1% level, respectively.

Appendix Table C_4: Government Corruption, Control Function Approach

	SOEs (1)	non-SOEs (2)
Panel A, Second Stage		
Government Corruption	1.355	1.063**
	(1.290)	(0.532)
P-value of the joint test on predicted residues	0.59	0.62
Log Pseudo Likelihood	-3138	-24182
Panel B, First Stage	Dependent Variable is Corruption	
Log of Population Density in 1918-19	-0.032***	-0.066***
	(0.005)	(0.003)
R-squared	0.49	0.51
Firm-Level Controls	Yes	Yes
4-digit Industry Dummy	Yes	Yes
Observations	642	4126

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. ** and *** represent statistical significance at the 5% and 1% level, respectively.

Appendix Table C_5: Government Corruption, Subsample Analysis

	(1) Excluding Western Part of China	(2)	(3) Excluding Northeastern Provinces	(4)	(5) Excluding Regions with Few Responses	(6)
	SOEs	non-SOEs	SOEs	non-SOEs	SOEs	non-SOEs
Government Corruption	0.827	0.867*	-0.211	0.744**	0.466	0.730**
	(0.907)	(0.507)	(0.490)	(0.372)	(0.589)	(0.366)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes
4-digit industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	500	3690	563	3855	563	3845

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. * and ** represent statistical significance at the 10% and 5% level, respectively.

Appendix Table D_1: City-level Property Rights Protection, Parametric Model

	(1) non-SOEs Exponential	(2) non-SOEs Weibull	(3) non-SOEs Gompertz
City-level Property Rights Protection	-0.793* (0.409)	-0.657* (0.376)	-0.906 (0.621)
Firm-level Controls	Yes	Yes	Yes
4-digit Industry Dummies	Yes	Yes	Yes
Observations	1073	1073	1073

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. * represent statistical significance at the 10% level.

Appendix Table D_2: City-level Property Rights Protection, Accelerated Failure Time Model

	(1) non-SOEs Log Normal	(2) non-SOEs Loglogistic
City-level Property Rights Protection	0.395** (0.167)	0.397** (0.184)
Firm-level Controls	Yes	Yes
4-digit Industry Dummies	Yes	Yes
Observations	1073	1073

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. ** represent statistical significance at the 5% level.

Appendix Table D_3: City-level Property Rights Protection, Controls of Regional Characteristics

	(1) non-SOEs
City-level Property Rights Protection	-0.695 (0.595)
GDP Per Capita	-0.416 (1.059)
Highway Density	-2.573*** (0.819)
Education	0.616* (0.359)
Firm-level Controls	Yes
4-digit Industry Dummies	Yes
Observations	1073

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. * and *** represent statistical significance at the 10% and 1% level.

Appendix Table D_4: City-level Property Rights Protection, Controls of Regional Characteristics

	non-SOEs
City-level Property Rights Protection	-0.842
	(0.682)
P value of residuals	0.985
First stage	
Ldensity2	0.184***
	(0.008)
Controls	Yes
Observations	1073

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. *** represent statistical significance at the 1% level.

Appendix Table D_5: City-level Property Rights Protection, Controls of Regional Characteristics

	(1) non-SOEs Excluding western	(2) non-SOEs Excluding Northeastern
City-level Property Rights Protection	-0.741*	-0.777*
	(0.436)	(0.443)
Firm-level Controls	Yes	Yes
4-digit Industry Dummies	Yes	Yes
Observations	1043	1031

Notes: Robust standard errors, clustered at the region-level, are reported in the parenthesis. * represent statistical significance at the 10% level.