Property Rights Protection and Firm Horizontal Scope[*]

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Abstract

Horizontally diversified firms in related or unrelated industries are prevalent in many emerging economies. While it has been argued that diversified firms may thrive in situations of poor market institutions, much research is needed to substantiate this idea. In this paper, using a survey data set of private enterprises in China, we examine how firm scope varies with respect to property rights protection, and how firm performance changes in the degree of property rights protection. We find that the horizontal scope of firms increases in the severity of property rights expropriation, and that firm performance decreases in property rights expropriation but this negative impact decreases with the horizontal scope of the firm. Our findings are robust to the use of alternative measures of firm scope, different indices of property rights protection, and two alternative instrumental variables for the property rights protection indices to control for the potential endogeneity problems.

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1 Introduction

Horizontally diversified firms in related or unrelated industries are prevalent in many emerging economies (Khanna and Palepu, 1997; Ghemawat and Khanna, 1998). Studies have shown that they achieve better performance in emerging economies (*e.g.*, Khanna and Palepu, 2000; Khanna and Yafeh, 2005). This is in contrast to the trend in developed economies where firms adopt focused strategies for their businesses. Indeed a voluminous literature has documented the existence of diversification discount in corporate valuation in developed countries, especially, the detriment of the unrelated corporate diversification strategy to shareholder value.[1]

Why are diversified strategies prevalent in emerging economies but not in developed economies? A fundamental difference between these two types of economies is the existence of sound economic institutions, including property rights protection, contract enforcement, and sophisticated markets for various inputs in those economies. Indeed, it has been suggested that diversified firms may overcome the obstacles caused by the lack of economic institutions in emerging economies (Khanna and Palepu, 1997; Ghemawat and Khanna, 1998). However, there is limited empirical support for this argument.[2] To fill in the gap, this paper empirically investigates the effects of property rights protection on the horizontal scope of firms.

Protection of private properties is arguably the most central aspect of economic institutions in the emerging economies. Numerous studies have shown that property rights protection provides incentives for investment (*e.g.*, Besley, 1995), and plays a key role in promoting economic development (*e.g.*, Acemoglu, Johnson, and Robinson, 2001, 2002). In studying the impacts of property rights protection on the horizontal scope of firms, this paper focuses on the case of private enterprises for two reasons. First, unlike state-owned or collectively-owned enterprises that conduct business under the auspices of national and regional governments, private enterprises are particularly disadvantaged by poor institutional environments and they have to fight for their survival and growth. Second, the overwhelming majority of private firms in China are individually-owned ventures or partnerships or

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[1]See, for example, among others, Lang and Stulz, 1994; Berger and Ofek, 1995; Comment and Jarrell, 1995; Servaes, 1996; Lins and Servaes, 1999; Laeven and Levine, 2007. Recent studies controlling for firm and industry heterogeneity often fail to find significant discount effects (Campa and Kedia, 2002; Graham, Lemmon, and Wolf, 2002; Maksimovic and Phillips, 2002).

[2]One exception is that of Fan, Huang, Oberholzer-Gee, and Zhao (2007), which uses data on China's publicly traded firms to examine how political connections may influence the horizontal scope of firms.

individual- or family-controlled limited liability companies (Asian Development Bank, 2003). Compared with these private firms, much of the corporate diversification of publicly listed firms in both emerging and developed economies is driven by agents whose interests could be divergent from those of shareholders.[3] Our focus on private firms allows us to isolate the effects of property rights protection on firm horizontal scope.[4]

When private properties are not securely protected, private firms may be subject to expropriation by government agencies and related parties. It is often the case that bureaucrats expropriate a set of industries through regulations in the name of enhancing public interests. Bureaucrats often justify their discriminatory regulations of different industries, i.e., impose informal levies on certain industries and grant favors to others, on the grounds of enhancing economic efficiency and ensuring public interest such as upgrading industrial structure, promoting industrial policy to support certain promising strategic industries, stabilizing product prices, protecting environment, etc. However, these regulations often lead to government expropriation of private property, bureaucratic corruption and private entrepreneurs' rent-seeking activities (see, for example, Shleifer and Vishny, 1994; Ades and Di Tella, 1997; Rodrik, 2004). To the extent that the risk of expropriation is independent across industries, private firms may therefore reduce the risk of expropriation by diversifying in related or unrelated businesses.

Using data of China's private enterprises, we investigate empirically the impacts of property rights protection on the horizontal scope of firms. China is a large country with substantial variations in institutional strength across regions. Although China is a unitary state with uniform legal codes, the *de facto* institutional quality varies tremendously from region to region. Thus China offers us a good setting to study the impact of property rights protection on organizational forms.

Following the literature on economic institutions (Johnson, McMillan, and Woodruff, 2002; Cull and Xu, 2005), we measure the property rights protection as the risk of expropriations by government agencies and related parties. Specifically, it is constructed based on the opinions of private entrepreneurs regarding the severity of informal levies and extra-legal payments in

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[3]For example, corporate managers may seek to diversify in order to build empires for their personal compensation (Jensen and Murphy, 1990), enhance their power and prestige (Jensen, 1986), and make their positions more secure (Shleifer and Vishny, 1989). Corporate diversification may in turn lead to agency problems among division managers (*e.g.*, Rajan, Servaes and Zingales, 2000; Scharfstein and Stein, 2000).

[4]Aside from suffering agency costs, listed companies in China face less imminent risk of government expropriation because they were mostly converted from state-owned enterprises by the governments.

the regions where their businesses are operated. We find that firms reporting a higher degree of expropriation are more diversified. This result, however, should be interpreted with caution for there may exist some endogeneity problems, *i.e.*, reversed causality and omitted variables. To alleviate this concern, we aggregate the firm-level index for expropriation to the regional level, and find that our results still hold. To further address the potential endogeneity problems, we use the instrumental variables (IV) method. Following the recent literature on economic institutions (see Levine, 2005 for a review), we choose the number of merchants in China's various regions in 1912 and the number of banks in China's regions in 1937 as the instrumental variables for property rights protection. The IV estimation results reinforce our findings that firms are more diversified in regions with poorer property rights protection.

Moreover, we look at the performance implications of the firm horizontal scope in environments of poor property rights protection. We find that firm performance is negatively correlated with the severity of expropriation. It is further found that, given the severity of expropriation, firms that choose more diversified scope enjoy higher performance.

This paper is related to the large and growing literature on economic institutions. Numerous cross-country and within-country studies have shown that a high quality of economic institutions contributes to a good economic performance, e.g., Besley (1995), Knack and Keefer (1995, 1997), Mauro (1995), Hall and Jones (1999), La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1999), and Acemoglu, Johnson, and Robinson (2001, 2002). The focus of this paper is to understand how economic institutions affect the corporate decision making such as the horizontal scope of firms. A recent study in the same direction is that of Laeven and Woodruff (2007), which is about the impacts of legal systems on the firm size measured by employment.

The rest of the paper proceeds as follows. Data and variables are presented in Section 2. Estimation strategies including the description of instrumental variables are in Section 3. The main empirical findings are discussed in Section 4. The paper concludes with Section 5.

2   Data and Variables

The dataset we use in this paper is from the *Survey of China's Private Enterprises* conducted in 2000. The Survey is conducted jointly 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. To

achieve a balanced representation across all regions and industries in China, the Survey used multi-stage stratified random sampling method. The total number of private enterprises to be surveyed was determined. After that, six cities/counties were selected from each of the 31 regions (i.e., 22 provinces, 4 province-level municipalities and 5 minority autonomous regions), which included the capital city of the region, one district-level city, one county-level city, and three counties. Next, the number of private enterprises to be surveyed in each region was determined by the product of the percentage of the region's share of private enterprises in the national total and the total number of private enterprises in the survey. The same method was used to determine the number of sample firms in every city/county and industry. Finally, private enterprises were randomly chosen for each sub-sample. The dataset contains 3,073 initial observations, about 0.2 percent of the total number of private enterprises in China by the end of 1999. After deleting those observations with no industry code, we obtain the final sample with 2,798 observations.

The dependent variable in this study is the horizontal scope of firms or firm scope. One question in the Survey asks the entrepreneurs what are the primary industry and secondary industries they are engaged in. The classification of industries in the Survey is as follows: (1) agriculture, forestry, animal husbandry, and fishing; (2) mining; (3) manufacturing; (4) electricity and gases; (5) construction; (6) geology and irrigation works; (7) transportation; (8) commerce and restaurant services; (9) finance and insurance; (10) real estate; (11) social services; (12) public health and sports; (13) education and culture; (14) science and technology; (15) others. Clearly this classification is very broad, and it is even broader than that of two-digit SIC codes in China. This allows us to maximize the likelihood of capturing the degree of horizontal scope rather than vertical scope.[5]

Of all 2,798 observations, 1,864 firms have only one business segment, 703 firms have two business lines, 144 firms have three business segments, and the remaining 87 are engaged in four businesses. A dummy variable *FIRM SCOPE* is constructed, which takes value one if the entrepreneur is engaged in more than one industries and value zero otherwise. Alternatively, a categorical variable *FIRM SCOPE1* is constructed, which takes value zero, one, two and three if the entrepreneur has one, two, three and four business lines, respectively.

Our key explanatory variable is the index for property rights protection. Following Johnson, McMillan and Woodruff (2002) and Cull and Xu (2005),

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[5]Focusing on horizontal scope could minimize the possibility of corporate diversification as a result of the natural integration of different phases of a production process.

we measure property rights protection as the risks of expropriation in the forms of informal levies and extralegal payments by government agencies and related parties. There are two relevant questions in the Survey. First, the entrepreneur is asked whether the problem of *extralegal payment to the government* (*Tan Pai* in Chinese) in his or her region is severe according to his or her knowledge. The answer is a number that ranges from 1 to 3 with a higher value indicating a less severe problem. Second, one question asks the entrepreneur whether the problem of *informal levies* (*Za Fei* in Chinese), such as various kinds of fees charged by the government other than taxes, is severe. Again the answer ranges from 1 to 3, where a higher value indicates a less severe problem. Since the correlation of these two answers for any given firm/entrepreneur is very high, we use the principal component method to combine them and generate a single index, called *PROPERTY RIGHTS* (see also Svensson, 2003). This variable will be used at the firm level to examine the impacts of property rights protection on firm scope, and it will also be aggregated to the regional level as a way of controlling for the problem of reversed causality. As a robustness check, we also employ the subindex of property rights protection in the NERI Index of Marketization of China's Provinces compiled and published by Fan, Wang and Zhu (2003).

In this study, we also analyze the interrelationship between firm scope, property rights protection and the economic performance of firms. We use the logarithm of output per worker to measure *FIRM PERFORMANCE*. This is consistent with the convention in the literature studying the impacts of the quality of institutions on economic performance and economic growth. For example, 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 the cross-country differences in economic performances. Later studies such as Bockstette, Chanda, and Putterman (2002) and Masters and McMillan (2002) follow suit. Acemoglu, Johnson and Robinson (2001, 2002) use logarithm of GDP per capita, which is similar in nature to the variable used here but at a more aggregate level, to study the effects of institutional quality on economic growth. Subsequent studies including Alcala 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 (2004) provide a good summary of the use of variables in this area.[6]

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[6]Though many other studies also use profits per worker or return on assets (ROA) to gauge the performance of firms, we are constrained by our dataset because there are quite a lot of missing information on profit. Generally speaking, in China, profits data reported by private firms could be seriously manipulated and distorted because private firms have a strong motivation to hide profits to avoid being expropriated by predatory government

Though we are mainly concerned with the relationship between property rights protection and firm scope, we control for characteristics of entrepreneurs and firms.

AGE is the age of an entrepreneur by the end of 1999.

EDUCATION is measured by the number of years entrepreneurs had in formal education. It is zero for those respondents who are illiterate, six for those who had primary school education, nine for those with junior high school education, twelve for those with senior high school education or those respondents who had technical school education (*Zhongzhuan* in Chinese), fifteen for those with polytechnics education (*Dazhuan* in Chinese), sixteen for those respondents who had college education, and finally, nineteen for those with graduate school education. *MANAGERIAL EXPERIENCE* is measured by the number of years an entrepreneur had held a managerial position before he or she started his or her own business. Education background and experience, which constitute human capital endowment, may affect the ability of entrepreneurs to enter new industries in response to new developments of different industries.

Private entrepreneurs can improve their social status through political participation. Here political participation includes membership of the Chinese People's Congress (CPC), i.e., the legislature that is the highest organ of state power in China, or the Chinese People's Political Consultative Conference (CPPCC), the advisory organ to the Chinese People's Congress and the government. Two variables are constructed accordingly. One is *CPC MEMBER*, which takes the value of one if an entrepreneur is a member of the People's Congress and zero otherwise, and the other dummy variable is *CPPCC MEMBER*, which takes the value of one if an entrepreneur is a member of the Chinese People's Political Consultative Conference and zero otherwise.

GOVERNMENT CADRE is a dummy variable that takes value one if an entrepreneur used to be a government official, and zero otherwise. *SOE CADRE* is a dummy variable defined similarly, with the criterion being whether an entrepreneur used to be a *Communist Party* leader in a state-owned enterprise. These variables reflect the political connections and political capital that entrepreneurs possess, which might facilitate their entry into new business lines by going through smoothly business entry regulations of government agencies.

FIRM AGE is defined as the logarithm of the number of years a firm has been established as of 1999. We include this variable to incorporate the consideration that a firm would naturally diversify its business scope when

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agencies.

it grows over time.

We also consider imperfections in external finance and legal system that may cause firms to diversify as argued by Khanna and Palepu (1997). In the Survey, one question directly asks the entrepreneurs how difficult it is for them to secure bank loans. The answer ranges from 1 to 5 with a higher value representing less difficulty in obtaining loans, and the variable of *EXTERNAL FINANCE* is defined accordingly. In the Survey, there is also a question asking whether the entrepreneur resorts to courts in resolving business disputes. We define a dummy variable called *LEGAL SYSTEM* taking value one if the entrepreneur uses the court and zero otherwise. It should be that these two variables are constructed based on the opinions of entrepreneurs, which could be shaped by their personal characteristics (such as political participations and prior experiences) as outlined above, and the estimated coefficients of these two variables will be interpreted with caution.

When examining the impacts of firm scope on firm performance, we introduce a few more control variables. They are: (i) *LOCAL MARKET DEMAND* defined as the logarithm of GDP per capita in a region; (ii) *LOCAL INFRASTRUCTURE* defined as the logarithm of railway and highway density, i.e., the length of railway and highway per square kilometer in a region; and (iii) *FIRM SIZE* defined as the logarithm of the number of employees in each firm.

Descriptive statistics of all key variables are given in Table 1.

3 Estimation Strategy

In the empirical analysis of this study, we investigate two questions. First, does weaker property rights protection promote the occurrence of multi-segment diversified firms? Second, does diversification strategy achieve better economic performance in regions with weaker property rights protection?

To answer the first question, we start by regressing *FIRM SCOPE* on *PROPERTY RIGHTS*, measured at the firm level, with control for entrepreneur, firm and regional characteristics, that is,

$$FIRM\ SCOPE_{ij} = \mu + \alpha PROPERTY\ RIGHTS_{ij} + X_{ij}{\prime}\gamma + \varepsilon_{ij} \quad (1)$$

where $FIRM\ SCOPE_{ij}$ measures the scope of firm i in region j, $PROPERTY\ RIGHTS_{ij}$ is the perception regarding the degree of property rights protection by firm i in region j, $X_{ij}{\prime}$ is a vector of control variables, and ε_{ij} is a random error term.

It is possible that the perception of property rights protection by individual firms could be biased due to varying firm and entrepreneur characteristics,

and it may not reflect the regional environment of property rights protection. To alleviate this concern, we aggregate the responses from the individual entrepreneurs to the regional level, $PROPERTY\ RIGHTS_j$, and re-examine the impacts of property rights protection on firm scope, i.e.,

$$FIRM\ SCOPE_{ij} = \mu + \alpha PROPERTY\ RIGHTS_j + X_{ij}\prime\gamma + \varepsilon_{ij} \quad (2)$$

One potential concern with our regressions is the endogeneity issue due to reversed causality or omitted variables. For instance, it could be that the existence of diversified firms with good economic performance provides the regional government with a good opportunity to expropriate these private businesses, leading to a worsening of property rights protection in the region. There could also exist some uncontrolled variables that affect both property rights protection and firm scope, which causes spurious negative correlation between the two variables. To deal with these problems, we adopt an instrumental variable approach. Inspired by Acemoglu et al. (2001, 2002), we choose the historical proxies of regional institutions as instrumental variables. In particular, we use the number of merchants in China's region in 1912 and the number of banks in China's region in 1937 as two alternative instrumental variables for property rights protection. We will discuss these two variables in details in Section 3.1.

For robustness check, we use an alternative measure for firm scope. It is *FIRM SCOPE1*, a cardinal number depending on how many businesses a company has. Accordingly, by replacing *FIRM SCOPE* by *FIRM SCOPE1*, we re-run the regression analyses of equations (1) and (2), and the instrumental variable analysis. In addition, we use an alternative index of property rights protection (subindex of property rights protection in the NERI Index of Marketization of China's Provinces compiled and published by Fan, Wang and Zhu (2003)).

To see whether more diversified firms achieve better economic performance in regions with weaker property rights protection, we regress firm performance on firm scope, property rights protection (measured at the firm level or aggregated to the regional level), and their interaction term.

$$
\begin{aligned}
y_{ij} = {} & \mu + \alpha FIRM\ SCOPE_{ij} + \beta PROPERTY\ RIGHTS_{ij} \qquad (3) \\
& + \gamma FIRM\ SCOPE_{ij} * PROPERTY\ RIGHTS_{ij} + Z_{ij}\prime\eta + \varepsilon_{ij}
\end{aligned}
$$

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\begin{aligned}
y_{ij} = {} & \mu + \alpha FIRM\ SCOPE_{ij} + \beta PROPERTY\ RIGHTS_{j} \qquad (4) \\
& + \gamma FIRM\ SCOPE_{ij} * PROPERTY\ RIGHTS_{j} + Z_{ij}\prime\eta + \varepsilon_{ij}
\end{aligned}
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where y_{ij} is the logarithm of output per worker in firm i in region j, $FIRM$ $SCOPE_{ij}$ is the measure of firm i' scope, $PROPERTY$ $RIGHTS_{ij}$ is the degree of property rights protection in region j perceived by firm i, $PROPERTY$ $RIGHTS_j$ is the regional index of property rights protection for region j, Z'_{ij} is a vector of control variables.

3.1 Instrumental variables for property rights protection

3.1.1 Cross-region distribution of merchants in 1912

We use the distribution of merchants across China's regions in 1912 as an instrumental variable for property rights protection. The data is available from the second national statistical survey on farmers, workers, and merchants by the Republic of China (Ma, 1995, p. 107). Compared to the situations in the early 1990s, a few changes have taken place in the classification of administrative regions in China. For example, Shanghai is now a province-level municipality but was included in Jiangsu province in 1912. We adjust the distribution of merchants in 1912 according to the current classification of the administrative regions. The Appendix provides the details on the construction of this instrumental variable.

In the late Qing Dynasty (1840-1911), China was forced to open its door to foreign capital following its failures in the two opium wars and the Sino-Japanese War of 1894-95. Bureaucrats at that time realized the dominance of the West in science and technology. They attempted to introduce, to a limited degree, modern industries based on modern science and technology into China so as to strengthen the power of the Dynasty. However, the central government of the Imperial Qing Dynasty held deep suspicion and distrust of the development of private capitalists in fear of having their feudal system jeopardized. It confined the experiment with capitalism to bureaucratic capital. As a result, in the Westernization Movement, many state-owned, state-private-cooperative and state-supervised-private-run enterprises were established, covering the industries ranging from mining and textile to ship building and telecommunications.

Under these circumstances, the domestic private capital had been subject to severe expropriations by government agencies and related parties. The central government and especially regional governments often imposed taxes and various kinds of extralegal or informal fees to seek rents from the private capitalists (Zhang, 1982). Meanwhile, state-owned or semi-state-owned enterprises tried to maintain their monopoly positions by lobbying for policies that restricted and strictly controlled the development of domestic private

capital. For example, the entry of private capital into those profitable industries such as shipping and textile industries was barred with the influence of bureaucratic capital.

In that period, private entrepreneurs grew in the absence of formal property rights protection. Any growth and development of private entrepreneurs could have been due to some informal institutional arrangements that restricted the expropriation of private property rights (Wu, 1981). Thus, regions with a larger number of merchants in 1912 were typically those with relatively good property rights protection in the last decade of the ruling of the Qing Dynasty.

The state of private entrepreneurship at the end of the imperial China and the beginning of the Republic of China bears some striking resemblance to that in the 1980-1990s when private entrepreneurship re-emerged in China's economic transition from a central planning economy to a market economy. China started its economic reform because of the economic disasters caused by central planning. In reforming its economy, however, the Chinese government was wary of development of private entrepreneurship, as it is at odds with the ideology of the socialist economy. Hence, the reform was mainly focused on introducing foreign capital (foreign direct investment) and restructuring state-owned enterprises, while maintaining many strict restrictions on private capital and private entrepreneurs. Even after the political standing of private entrepreneurs was raised substantially in 1997 by allowing private entrepreneurs to join the ruling Communist Party, the business environment faced by private entrepreneurs has not changed fundamentally. According to Asian Development Bank (2003), private enterprises are often disturbed with the capricious and discretionary taxes and levies imposed by regional governments. They were often treated as the ATM machines for regional governments.

It is documented that the development of entrepreneurship is fairly strongly related to the local culture, beliefs, ideologies and informal institutions. As shown by, among others, Fu (2003) and Zhu (2001), the development of industry and commerce in China's different regions in the late Qing Dynasty was closely associated with the regional culture and informal institutions. Merchants from the same region often established mutually cooperative business associations, which bears some similarity to guilds in Europe, on the basis of emotional ties, and they shared the same regional business culture. As a result, some distinct regional merchant groups and regional business culture emerged, some prominent examples of which are Shanxi group, Anhui group, Zhejiang group and Shanghai group. It is also found that those regions having more active business activities a century ago exhibit stronger inclination and ability to transit toward a market economy in recent decades after China

started economic reforms. It is widely agreed that the historical heritage of regional business culture plays an instrumental role in this process. Due to the persistence of the local informal institutions and culture, the fundamental factors shaping the cross-region distribution of merchants in 1912 may well exert the same impacts in the 1990s and 2000s.[7] Therefore, we use the merchant distribution in 1912 as an instrumental variable for property rights protection in 1999. Figure 1 gives a scatter plot between regional distribution of merchant in 1912 and the regional index of property rights protection in 1999, where we can clearly observe a positive relation between the two variables.

3.1.2 Cross-region distribution of banks in 1937

We choose the distribution of domestic banks across China's regions in 1937 as an alternative instrumental variable for property rights protection. We compile this data from the Chinese Bank Yearbook 1936-1937. It lists the numbers of domestic banks existing in various provinces and cities. The classification of administrative districts in China in the 1930s was different from that in the contemporary China. We adjust the distribution of banks in 1937 according to the current classification of the administrative regions. See the Appendix for details on the construction of this instrumental variable.

The development of domestic banks in the period 1912-1937 in China was not a natural outcome of the development of domestic industry as was the case in many currently developed countries. According to Wu (1955), it largely resulted from the following demand-pull factors. The first factor is the international trade businesses conducted by foreign capital. Foreign capital was mainly involved in trade rather than industry in China in the early twentieth century (Wu, 1981). The trade-related financial activities gave a boost to the development of domestic banks as well as foreign banks. The second factor is the central and regional governments' fiscal needs. Banks typically became the treasuries of governments. Governments enlisted banks to issue government bonds and bank notes to finance their fiscal needs (Peng, 1987). Third, the unstable political situations in China led wealth to move from the countryside and the inland areas to the cities and the coastal regions.

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[7]There are a variety of studies showing the persistence of informal institutions. Young (1994, p. 283) wrote "although we commonly described the independent polities as "new states", in reality they were successors to the colonial regime, inheriting its structures, its quotidian routines and practices, and its more hidden normative theories of governance"; Acemoglu, Johnson and Robinson (2001) discussed three mechanisms that will lead to the institutional persistence; La Porta, Lopez-de-Silanes, and Shleifer (2007) argues that cultures, religions and ideologies are likely to persist over time in spite of regime changes.

This spurred the development of banks including domestic banks. Among these three demand-pull factors, the latter two are most closely related to the role of the variation in property rights protection in determining bank distribution across regions.

Consider first the relationship between governments and banks. Prior to the year 1928 when the Chinese central bank was established, the domestic banks were mostly provincial banks and private commercial banks. Provincial banks were set up by regional governments to take care of regional fiscal revenue and provide financial services to the region. Many private commercial banks also gained protection and support from governments in the form of "supervised by government officials and run by private businessmen". Bank capital in most of these banks was raised by taxation and mandatory fee payments through government coercive power (Xu and Wu, 2003). In the period 1912-1927, although the Beijing government was the central government, it only had nominal power and the country was virtually divided by Northern warlords. Incessant civil wars took place between those Northern warlords that occupied different regions. Both provincial and private commercial banks were forced to issue bank notes and public bonds or provide loans to finance the military expenditure of warlords. This inevitably led to massive bank credit crises and bankruptcies (Chinese Bank Yearbook, 1937).

The period 1928-37 saw the emergence of a two-tier banking system in China, i.e., the central bank led the banking system composed of various banks and financial institutions. However, the function of domestic banks to finance governments largely remained intact. The bureaucratic capitalists penetrated deeply into the banking system by holding shares or even controlling various commercial banks. In this period, many commercial banks were forced by the central and regional governments to finance the wars against the Communist guerillas. The largest business category that domestic commercial banks were engaged in was to provide loans to governments (Xu and Wu, 2003). This suggests that banks were heavily expropriated by governments in that politically unstable period. In a large sense, the survival rate of banks in a region is a good barometer of regional property rights protection.

Next, we look at the wealth transfer between regions. This is a particularly important factor for banking development in the period 1928-37. The civil war between the Nationalist government and the Communist guerillas, the invasion of Japan into the three Northeastern provinces (starting in 1931) and the impending expansion of Japan's occupation of China posed substantial uncertainty and instability to the daily life of people. The relatively wealthy families moved from the countryside to cities and from the war-ridden regions to peaceful ones. This led to the congregation of the wealthy people and the agglomeration of social wealth in certain peaceful cities and

regions with reasonably secure property rights protection. In response to the growing demand for wealth management, more domestic banks were set up and the banking sector saw a boom in those regions. For instance, Shanghai absorbed a large amount of funds that moved from the countryside and warring areas (Chinese Bank Yearbook, 1937).

Thus, the domestic banking sector development across regions in the mid-1930s can largely reflect the regional property rights protection at that time. Across China's regions, though political regimes changed dramatically and repeatedly over the 20th century, many of the fundamental regional culture, informal institutions, and customs remain largely unchanged. Therefore, we use the bank distribution in China in 1937 as an alternative instrumental variable for property rights protection in 1999. Figure 2 presents a scatter plot illustrating the positive correlation between regional distribution of banks in 1937 and the regional index of property rights protection in 1999.

4   Regression Results

We first present the estimation results regarding the impacts of property rights protection on firm scope. Table 2 summarizes the results of probit regression (1) where the independent variable, *PROPERTY RIGHTS*, is the one perceived by individual firms. As shown in column 1 of Table 2, property rights protection has a negative and statistically significant impact on firm scope, implying that firms are more diversified when facing more severe property rights expropriation. This result is robust to the introduction of industry dummies and control variables (columns 2-4 of Table 2). The estimated coefficients of the control variables also make economic sense. For example, entrepreneurs with better education and more managerial experiences have more diversified businesses, suggesting that people with strong human capital endowment could leverage their advantage onto many businesses. Entrepreneurs with membership in Chinese People's Congress or Chinese People's Political Consultative Conference, and those with prior working experiences in government or state-owned enterprises are found to have more diversified businesses. This is because government intervention remains significant in the Chinese economy and people with political connections could leverage their strength into many businesses. Older firms are found to have more diversified businesses, though the impacts of external financing constraints and quality of legal system are limited. Table 3 summarizes the results of probit regression (2) where the independent variable, *PROPERTY RIGHTS*, is aggregated from responses of individual entrepreneurs in the same regions. Here the results are very similar to what is reported in Table 2. In particu-

lar, it is found that firms are more diversified in regions with poorer property rights protection.

Table 4 summarizes the probit IV estimation results when the logarithm of number of merchants in China's regions in 1912 is used as an instrumental variable for the firm-level property rights protection index. Panel B of Table 4 presents the results of the first-stage analysis in the probit IV estimation of model (1). Consistent with our argument in section 3.1.1, the instrumental variable has a high correlation with the firm-level property rights protection index. The second-stage regressions (shown in Panel A of Table 4) demonstrate that the instrumented firm-level property rights index casts consistently significant and negative impacts on the likelihood of diversified firms. Table 5 summarizes the probit IV estimation results when the logarithm of number of banks in China's regions in 1937 is used as an instrumental variable for the firm-level property rights protection index. Similar to what is reported in Table 4, the logarithm of number of banks in China's regions in 1937 is highly correlated with the firm-level property rights index, and the instrumented firm-level property rights index has a significant and negative impact on firm scope. Tables 6 and 7 summarize the probit IV estimation results when the property rights protection index – measured at the regional level – is instrumented by the logarithm of number of merchants in China's regions in 1912, and the logarithm of number of banks in China's regions in 1937 respectively. These results are similar to those reported in Tables 4 and 5. Overall, the results of Tables 4-7 suggest that property rights protection has a negative impact on firm scope even when the potential endogeneity problems are controlled for, and they substantiate our earlier findings of Tables 2 and 3.

For a robustness check, we use a categorical measure of firm scope, *FIRM SCOPE1*, and re-estimate the equations (1) and (2) with ordered probit regressions and two-stage-least-square (2SLS) regressions with the two instrumental variables proposed in Section 3.3. Table 8 summarizes the estimation results. The first four columns report the results when the property rights protection index is measured at the firm level and the next four columns report the results when the property rights protection is measured at the region level. The ordered probit estimation results are reported in Columns 1-2 and Columns 5-6, and the 2SLS estimation results with the logarithm of number of merchants in China's regions in 1912 as the instrumental variable are shown in Columns 3-4 and Columns 7-8. Table 9 shows the 2SLS estimation results with the logarithm of number of banks in China's regions in 1937 as the instrumental variable. The results resemble the estimation results of Tables 2-7, and further confirm our findings that the firms are more diversified when the property rights expropriation is more severe.

As another robustness test, we employ the alternative NERI property rights protection index (compiled by Fan, Wang, and Zhu (2003)) as the key independent variable in Tables 10 and 11. We use the binary variable of firm scope as the dependent variable in Table 10 to conduct probit estimation and the categorical firm scope variable as the dependent variable in Table 11 to carry out ordered probit estimation. Tables 10 and 11 also report the regression results using the two alternative instrumental variables for the NERI property rights protection index. The results are consistent with our previous findings and statistically significant, suggesting that weaker property rights protection leads to a higher level of diversification.

Finally, we examine the performance implications of firm scope and property rights protection. The analysis is conducted in three steps. In the first step, we look at the impact of the diversification strategy on economic performance. As reported in Column 1 of Table 12, we see that the firm scope, as the sole independent variable, has positive and statistically significant effects on firm performance. Column 2 of Table 12 shows that the impact of firm scope on firm performance remains though statistically insignificant, when various entrepreneurial, corporate and regional characteristics are controlled for. In the second step, we analyze how firm-level property rights protection index, firm scope and their interaction term affect firm performance. Column 3 of Table 12 shows that property rights protection has a positive and significant effect on the firm performance. More interestingly, in Column 4 of Table 12, the interaction term between the property rights protection index and firm scope exhibits significant negative effects. This suggests that firms, in face of weaker property rights protection, could benefit (i.e., achieving better performance) by being more diversified. In the third step, we substitute the firm-level property rights protection index with the regional property rights protection index, and Columns 6-8 of Table 12 show results equivalent to those in Columns 3-5. Overall, these results suggest that expropriation of property rights dampens firm performance in China, and the (negative) marginal impact of expropriation on firm performance decreases with the firm scope.

5   Conclusion

Diversified firms have been found to be very popular in developing countries. This is in contrast to the practices in developed countries, and it is also against the research findings using data of publicly listed firms that diversification has a negative impact on firm performance (diversification discount). While it has been argued that diversified firms may thrive in situations of

poor market institutions, much research is needed to substantiate this idea.

In this paper, using a survey data set of private enterprises in China, we find that weaker property rights protection causes firms to be more divisified. We also find that firm performance decreases in property rights expropriation but this negative impact decreases with the horizontal scope of the firm. Our findings are robust to the use of alternative measures of firm scope, different indices of property rights protection, and two alternative instrumental variables for the property rights protection indices.

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Figure 1: Property Rights Protection in 1999 and Merchants in 1912
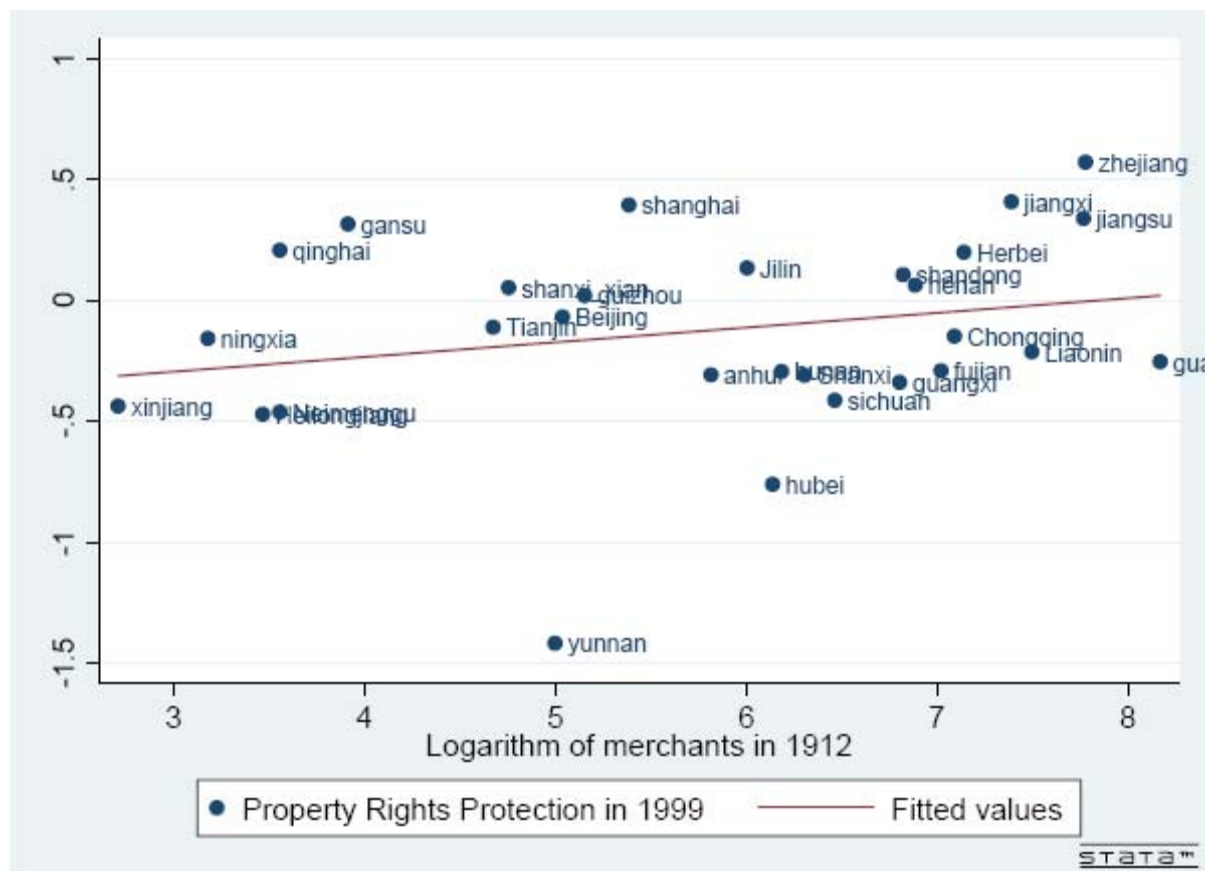
Figure 2: Property Rights Protection in 1999 and Banks in 1937
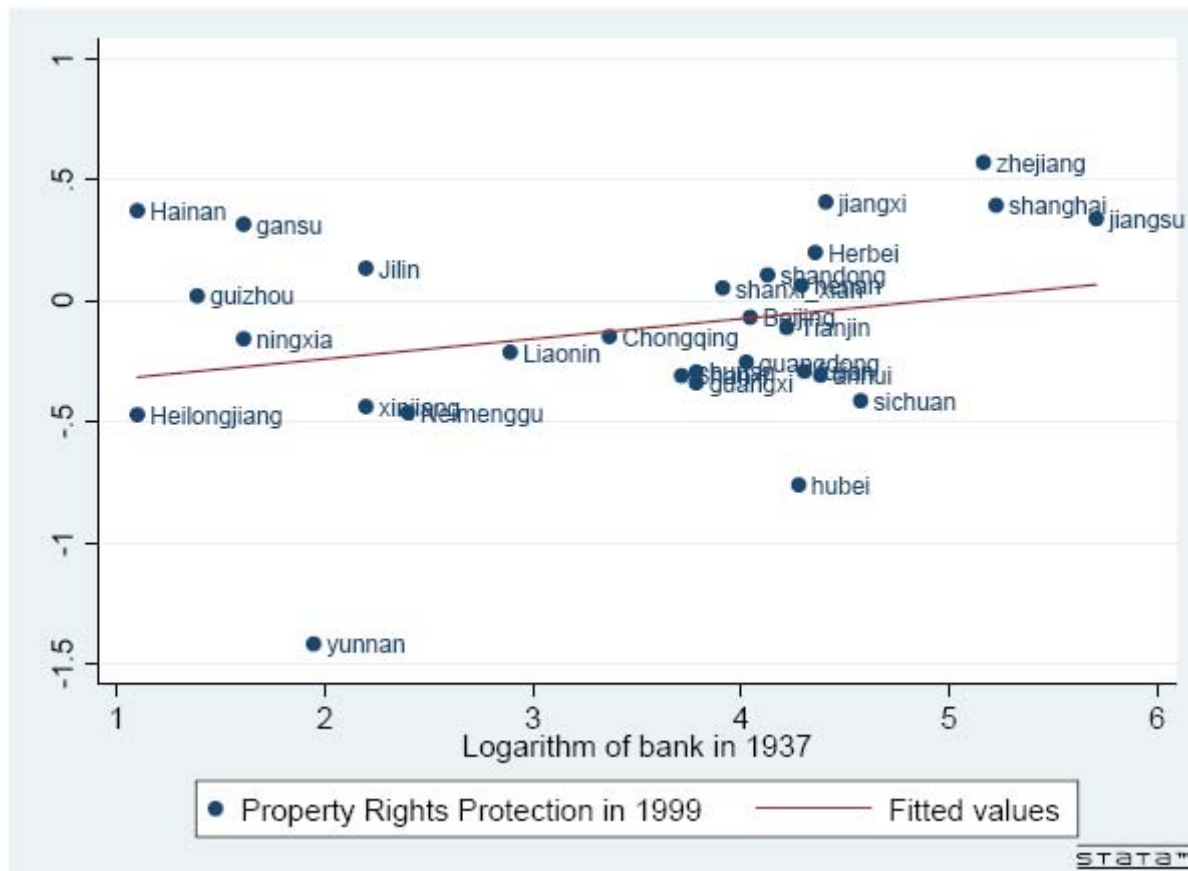
TABLE 1: Property Rights and Firm Scope
Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Firm Scope	2798	0.447	0.733	0.000	3.000
Firm Scope1	2798	0.334	0.472	0.000	1.000
Property Rights	2033	0.000	1.296	-2.608	1.509
Education	2793	12.601	2.854	0.000	19.000
Age	2777	43.429	8.347	22.000	75.000
Managerial Experience	2795	4.279	7.272	0.000	61.000
CPC Membership	2798	0.158	0.365	0.000	1.000
CPPCC Membership	2798	0.407	0.491	0.000	1.000
Government Cadre	2798	0.075	0.264	0.000	1.000
SOE Cadre	2798	0.364	0.481	0.000	1.000
Firm Age	2535	1.652	0.714	0.000	3.045
External Finance	2607	2.237	1.096	1.000	5.000
Legal System	2798	0.103	0.304	0.000	1.000
Firm Performance	2458	1.856	1.267	-4.605	6.908
Size	2653	4.073	1.344	0.000	9.903

TABLE 2: Property Rights and Firm Scope
Probit Regression Results (Firm-Level)

	Dependent Variable is Firm Scope			
	1	2	3	4
Property Rights	−0.096***	−0.096***	−0.084***	−0.082***
	(0.022)	(0.022)	(0.023)	(0.025)
Entrepreneur's Characteristics				
Education			0.050***	0.047***
			(0.012)	(0.013)
Age			−0.013***	−0.015***
			(0.004)	(0.004)
Managerial Experience			0.005	0.009*
			(0.004)	(0.005)
CPC Membership			0.082	0.087
			(0.081)	(0.087)
CPPCC Membership			0.224***	0.198***
			(0.061)	(0.067)
Government Cadre			0.243**	0.217*
			(0.112)	(0.125)
SOE Cadre			0.200***	0.226***
			(0.066)	(0.070)
Corporate Characteristics				
Firm Age				0.017**
				(0.008)
External Finance				−0.021
				(0.030)
Legal System				0.084
				(0.101)
Industry Dummies	No	Yes	Yes	Yes
Number of Observation	2033	2033	2021	1752
Wald Chi2	19.21	138.69	203.73	175.45
Pseudo R2	0.0072	0.0561	0.0863	0.0838

The property rights index is the one perceived by individual firms.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

TABLE 3: Property Rights and Firm Scope
Probit Regression Results (Region-Level)

	Dependent Variable is Firm Scope			
	1	2	3	4
Property Rights	−0.189***	−0.180***	−0.191***	−0.233***
	(0.066)	(0.068)	(0.070)	(0.076)
Entrepreneur's Characteristics				
Education			0.050***	0.048***
			(0.010)	(0.011)
Age			−0.011***	−0.015***
			(0.003)	(0.004)
Managerial Experience			0.008**	0.012***
			(0.004)	(0.004)
CPC Membership			0.149**	0.148**
			(0.070)	(0.075)
CPPCC Membership			0.253***	0.228***
			(0.052)	(0.058)
Government Cadre			0.243**	0.236**
			(0.098)	(0.106)
SOE Cadre			0.121**	0.152**
			(0.055)	(0.060)
Corporate Characteristics				
Firm Age				0.025***
				(0.007)
External Finance				0.003
				(0.025)
Legal System				0.130
				(0.089)
Industry Dummies	No	Yes	Yes	Yes
Number of Observation	2798	2797	2771	2341
Wald Chi2	8.35	168.97	259.23	235.14
Pseudo R2	0.0023	0.0504	0.0799	0.0848

The property rights index is aggregated from responses of individual entrepreneurs in the same region.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

TABLE 4: Property Rights and Firm Scope
IV Regression Results (Firm-level)

	1	2	3	4
	Panel A: Dependent Variable is Firm Scope			
Property Rights	−0.704***	−0.682***	−0.657***	−0.760***
	(0.046)	(0.057)	(0.070)	(0.052)
Entrepreneur's Characteristics				
Education			0.025*	0.015
			(0.013)	(0.014)
Age			−0.002	0.002
			(0.004)	(0.005)
Managerial Experience			−0.004	−0.008
			(0.004)	(0.005)
CPC Membership			−0.043	−0.150*
			(0.073)	(0.077)
CPPCC Membership			0.085	−0.040
			(0.064)	(0.069)
Government Cadre			0.095	0.033
			(0.112)	(0.112)
SOE Cadre			0.132**	0.109
			(0.063)	(0.068)
Corporate Characteristics				
Firm Age				0.002
				(0.008)
Finance				0.152***
				(0.031)
Legal System				0.099
				(0.081)
	Panel B: Dependent Variable is Property Rights			
Log_Merchant_1912	0.089***	0.093***	0.093***	0.056**
	(0.020)	(0.021)	(0.021)	(0.022)
Entrepreneur's Characteristics				
Education			−0.009	−0.006
			(0.012)	(0.012)
Age			0.011***	0.012***
			(0.004)	(0.004)
Managerial Experience			−0.011***	−0.015***
			(0.004)	(0.005)
CPC Membership			−0.177**	−0.265***
			(0.077)	(0.080)
CPPCC Membership			−0.081	−0.158**
			(0.059)	(0.062)

Government Cadre			−0.104	−0.084
			(0.116)	(0.120)
SOE Cadre			0.030	0.034
			(0.064)	(0.067)
Corporate Characteristics				
Firm Age				−0.006
				(0.008)
External Finance				0.215***
				(0.029)
Legal System				0.099
				(0.096)
Industry Dummies	No	Yes	Yes	Yes
Number of Observation	2002	2002	1990	1727
Wald Chi2	232.72	793.23	878.47	.
Sigma	1.289	1.282	1.275	1.239
Rho	0.850	0.813	0.782	0.907
Wald test of exogeneity: Chi2	24.96	20.63	16.53	12.79
Wald test of exogeneity: Prob>Chi2	0.00	0.00	0.00	0.00

Panel B reports the first stage regression where the firm-level property rights index is regressed on the IV --- logarithm of number of merchants in each region in 1912 and other exogenous variables. Panel A reports the second stage regressions.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

TABLE 5: Property Rights and Firm Scope with another IV
IV Regression Results (Firm-level)

	1	2	3	4
	Panel A: Dependent Variable is Firm Scope			
Property Rights	−0.541***	−0.515***	−0.453***	−0.486***
	(0.082)	(0.091)	(0.115)	(0.052)
Entrepreneur's Characteristics				
Education			0.040***	0.037***
			(0.013)	(0.006)
Age			−0.007	−0.008
			(0.005)	(0.006)
Managerial Experience			−0.000	0.001
			(0.005)	(0.006)
CPC Membership			0.017	−0.023
			(0.081)	(0.096)
CPPCC Membership			0.153**	0.096
			(0.067)	(0.080)
Government Cadre			0.194*	0.165
			(0.117)	(0.123)
SOE Cadre			0.180***	0.206***
			(0.065)	(0.070)
Corporate Characteristics				
Firm Age				0.011
				(0.008)
External Finance				0.068
				(0.045)
Legal System				0.112
				(0.094)
	Panel B: Dependent Variable is Property Rights			
Log_Bank_1937	0.152***	0.152***	0.146***	0.123***
	(0.023)	(0.024)	(0.024)	(0.025)
Entrepreneur's Characteristics				
Education			−0.008	−0.005
			(0.012)	(0.012)
Age			0.010***	0.011***
			(0.004)	(0.004)
Managerial Experience			−0.011***	−0.015***
			(0.004)	(0.005)
CPC Membership			−0.129*	−0.220***
			(0.077)	(0.081)

CPPCC Membership			−0.089	−0.166**
			(0.059)	(0.062)
Government Cadre			−0.049	−0.055
			(0.116)	(0.119)
SOE Cadre			0.053	0.071
			(0.063)	(0.066)
Corporate Characteristics				
Firm Age				−0.005
				(0.008)
External Finance				0.200***
				(0.029)
Legal System				0.073
				(0.092)
Industry Dummies	No	Yes	Yes	Yes
Number of Observation	2019	2019	2007	1741
Wald Chi2	43.72	282.74	336.15	2146.98
Sigma	1.282	1.276	1.271	1.235
Rho	0.610	0.569	0.493	0.524
Wald test of exogeneity: Chi2	15.16	11.89	6.92	5.42
Wald test of exogeneity: Prob>Chi2	0.00	0.00	0.01	0.02

Panel B reports the first stage regression where the firm-level property rights index is regressed on the IV --- logarithm of number of banks in each region in 1937 and other exogenous variables. Panel A reports the second stage regressions.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

TABLE 6: Property Rights and Firm Scope
IV Regression Results (Region-level)

	1	2	3	4
	Panel A: Dependent Variable is Firm Scope			
Property Rights	−1.115***	−1.104***	−1.023***	−1.146***
	(0.172)	(0.181)	(0.193)	(0.217)
Entrepreneur's Characteristics				
Education			0.047***	0.045***
			(0.010)	(0.011)
Age			−0.012***	−0.016***
			(0.003)	(0.004)
Managerial Experience			0.007**	0.011***
			(0.004)	(0.004)
CPC Membership			0.154**	0.143**
			(0.067)	(0.072)
CPPCC Membership			0.195***	0.164***
			(0.053)	(0.059)
Government Cadre			0.273***	0.269**
			(0.100)	(0.107)
SOE Cadre			0.125**	0.148**
			(0.055)	(0.060)
Corporate Characteristics				
Firm Age				0.023***
				(0.007)
External Finance				0.032
				(0.026)
Legal System				0.155*
				(0.086)
	Panel B: Dependent Variable is Property Rights			
Log_Merchant_1912	0.087***	0.085***	0.086***	0.080***
	(0.004)	(0.007)	(0.004)	(0.005)
Entrepreneur's Characteristics				
Education			0.002	0.002
			(0.003)	(0.003)
Age			−0.000	−0.001
			(0.001)	(0.001)
Managerial Experience			−0.000	0.000
			(0.001)	(0.001)
CPC Membership			0.010	−0.000
			(0.017)	(0.017)
CPPCC Membership			−0.028**	−0.024
			(0.013)	(0.015)

Government Cadre			0.034	0.040
			(0.023)	(0.026)
SOE Cadre			0.015	0.015
			(0.014)	(0.015)
Corporate Characteristics				
Firm Age				0.001
				(0.002)
External Finance				0.022***
				(0.007)
Legal System				0.034
				(0.021)
Industry Dummies	No	Yes	Yes	Yes
Number of Observation	2740	2739	2713	2292
Wald Chi2	41.89	238.34	328.64	2358.93
Sigma	0.345	0.341	0.341	0.337
Rho	0.355	0.352	0.315	0.345
Wald test of exogeneity: Chi2	25.98	23.73	17.51	16.55
Wald test of exogeneity: Prob>Chi2	0.00	0.00	0.00	0.00

Panel B reports the first stage regression where the region-level property rights index is regressed on the IV --- logarithm of number of merchants in each region in 1912 and other exogenous variables. Panel A reports the second stage regressions.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

TABLE 7: Property Rights and Firm Scope with another IV
IV Regression Results (Region-level)

	1	2	3	4
	Panel A: Dependent Variable is Firm Scope			
Property Rights	−0.752***	−0.743***	−0.631***	−0.622***
	(0.139)	(0.146)	(0.151)	(0.174)
Entrepreneur's Characteristics				
Education			0.050***	0.048***
			(0.010)	(0.011)
Age			−0.011***	−0.015***
			(0.003)	(0.004)
Managerial Experience			0.007**	0.011***
			(0.004)	(0.004)
CPC Membership			0.162**	0.162**
			(0.069)	(0.074)
CPPCC Membership			0.232***	0.213***
			(0.052)	(0.058)
Government Cadre			0.258***	0.249**
			(0.098)	(0.106)
SOE Cadre			0.116**	0.146**
			(0.056)	(0.060)
Corporate Characteristics				
Firm Age				0.024***
				(0.007)
External Finance				0.012
				(0.026)
Legal System				0.144
				(0.088)
	Panel B: Dependent Variable is Property Rights			
Log_Bank_1937	0.137***	0.135***	0.146***	0.129***
	(0.007)	(0.007)	(0.024)	(0.007)
Entrepreneur's Characteristics				
Education			0.003	0.003
			(0.003)	(0.003)
Age			−0.000	−0.001
			(0.001)	(0.001)
Managerial Experience			0.000	0.001
			(0.001)	(0.001)
CPC Membership			0.046***	0.037**
			(0.016)	(0.017)
CPPCC Membership			−0.013	−0.018
			(0.013)	(0.014)

Government Cadre			0.039*	0.037
			(0.023)	(0.025)
SOE Cadre			0.015	0.019
			(0.013)	(0.014)
Corporate Characteristics				
Firm Age				0.003*
				(0.002)
External Finance				0.019***
				(0.006)
Legal System				0.036*
				(0.019)
Industry Dummies	No	Yes	Yes	Yes
Number of Observation	2780	2779	2753	2328
Wald Chi2	29.11	199.55	282.62	2872.42
Sigma	0.329	0.324	0.323	0.321
Rho	0.223	0.221	0.170	0.147
Wald test of exogeneity: Chi2	17.71	16.05	9.16	5.42
Wald test of exogeneity: Prob>Chi2	0.00	0.00	0.01	0.02

Panel B reports the first stage regression where the region-level property rights index is regressed on the IV --- logarithm of number of banks in each region in 1937 and other exogenous variables. Panel A reports the second stage regressions.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

TABLE 8: Property Rights and Firm Scope
Robustness Check (Alternative Measure of Firm Scope)

	1	2	3	4	5	6	7	8
	Firm-Level				Region-Level			
	Ordered Probit		2SLS		Ordered Probit		2SLS	
Property Rights	−0.106***	−0.093***	−0.106***	−0.093***	−0.154**	−0.183***	−0.425***	−0.286***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.061)	(0.070)	(0.088)	(0.100)
Entrepreneur's Characteristics								
Education		0.059***		0.034***		0.057***		0.036***
		(0.012)		(0.007)		(0.011)		(0.006)
Age		−0.017***		−0.007**		−0.016***		−0.009***
		(0.004)		(0.003)		(0.004)		(0.002)
Managerial Experience		0.009**		0.001		0.011***		0.006***
		(0.004)		(0.003)		(0.004)		(0.002)
CPC Membership		0.127		0.028		0.196***		0.137***
		(0.082)		(0.063)		(0.071)		(0.045)
CPPCC Membership		0.178***		0.048		0.217***		0.110***
		(0.062)		(0.044)		(0.054)		(0.031)
Government Cadre		0.173		0.087		0.239**		0.164**
		(0.113)		(0.078)		(0.097)		(0.068)
SOE Cadre		0.206***		0.110***		0.158***		0.082**
		(0.065)		(0.040)		(0.056)		(0.033)
Corporate Characteristics								
Firm Age		0.020***		0.008*		0.027***		0.015***
		(0.008)		(0.005)		(0.007)		(0.004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Finance		−0.015		0.042		0.005		0.009
		(0.027)		(0.033)		(0.023)		(0.014)
Legal System		0.087		0.078		0.099		0.064
		(0.096)		(0.059)		(0.081)		(0.048)
Industry Dummies	No	Yes	No	Yes	No	Yes	No	Yes
Number of Observation	2033	1754	2019	1741	2798	2345	2780	2329
Wald Chi2	25.51	258.36	−		6.43	2652.96	−	−
F-Test	−	−	41.86	8.92	−	−	23.11	14.91

The dependent variable is FIRM SCOPE1 that takes values 0, 1, 2, and 3 when a firm has 1, 2, 3, and 4 businesses. Columns 1-4 employ firm-level property rights index, while columns 5-8 the region-level one. Columns 1-2 and 5-6 conduct ordered probit estimation, while Columns 3-4 and 7-8 conduct IV estimation with the logarithm of number of merchants in China's regions in 1912 as the IV.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

TABLE 9: Property Rights and Firm Scope with another IV
Robustness Check (Alternative Measure of Firm Scope)

	1	2	3	4
	Firm-Level		Region-Level	
	2SLS		2SLS	
Property Rights	-0.760***	-0.941**	-0.678***	-0.619***
	(0.215)	(0.429)	(0.130)	(0.151)
Entrepreneur's Characteristics				
Education		0.031**		0.038***
		(0.013)		(0.006)
Age		0.001		-0.010***
		(0.007)		(0.002)
Managerial Experience		-0.009		0.007***
		(0.008)		(0.002)
CPC Membership		-0.151		0.133***
		(0.141)		(0.046)
CPPCC Membership		-0.066		0.089***
		(0.099)		(0.033)
Government Cadre		0.020		0.176**
		(0.137)		(0.072)
SOE Cadre		0.119*		0.087**
		(0.070)		(0.034)
Corporate Characteristics				
Firm Age		0.005		0.015***
		(0.009)		(0.004)
Finance		0.194*		0.021
		(0.102)		(0.015)
Legal System		0.139		0.075
		(0.105)		(0.049)
Industry Dummies	No	Yes	No	Yes
Number of Observation	2002	1727	2740	2293
F-Test	12.56	3.63	27.14	14.75

The dependent variable is FIRM SCOPE1 that takes values 0, 1, 2, and 3 when a firm has 1, 2, 3, and 4 businesses. Columns 1-2 employ firm-level property rights index, while columns 3-4 the region-level one. The property rights index is instrumented by the logarithm of number of banks in China's regions in 1937.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

TABLE 10: Property Rights and Firm Scope
Robustness Check (Alternative Measure of Property Rights Protection)

	1	2	3	4	5	6
	Probit		Probit+IV[a]		Probit+IV[b]	
Property Rights (Fan-Wang-Zhu)	−0.031*	−0.038**	−0.573***	−0.501***	−0.350***	−0.265***
	(0.017)	(0.019)	(0.046)	(0.065)	(0.053)	(0.068)
Entrepreneur's Characteristics						
Education		0.051***		0.047***		0.053***
		(0.011)		(0.010)		(0.011)
Age		−0.015***		−0.009**		−0.012***
		(0.004)		(0.003)		(0.003)
Managerial Experience		0.011***		0.008**		0.010**
		(0.004)		(0.004)		(0.004)
CPC Membership		0.146*		−0.018		0.082
		(0.075)		(0.075)		(0.077)
CPPCC Membership		0.222***		−0.001		0.135**
		(0.058)		(0.067)		(0.063)
Government Cadre		0.241**		0.253***		0.257**
		(0.106)		(0.096)		(0.101)
SOE Cadre		0.170***		0.271***		0.227***
		(0.060)		(0.054)		(0.060)
Corporate Characteristics						
Firm Age		0.024***		0.015**		0.022***
		(0.007)		(0.007)		(0.007)
Finance		−0.005		0.012		−0.001
		(0.025)		(0.023)		(0.025)
Legal System		0.122		0.158*		0.155*

		(0.089)		(0.083)		(0.088)
Industry Dummies	No	Yes	No	Yes	No	Yes
Number of Observation	2791	2335	2740	2289	2780	2325
Wald Chi2	3.37	226.04	151.96	544.15	43.16	276.37
Pseudo R2	0.0010	0.0824	–	–	–	–
Wald Test of Exogeneity: Chi2	–	–	32.73	22.21	27.26	10.01
Wald Test of Exogeneity: Prob>Chi2	–	–	0.0000	0.0000	0.0000	0.0016

The property rights index is the subindex from the NERI China's Marketization Process Indices constructed by Fan, Wang and Zhu (2003).

The dependent variable is the dummy variable FIRM SCOPE. Columns 1-2 carry out probit estimation, column 3-4 probit estimation with logarithm of merchants in 1912 as IV, and columns 5-6 probit estimation with logarithm of banks in 1937 as IV.

Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.

[a]: IV used is the logarithm of Merchants in 1912.

[b]: IV used is the logarithm of Banks in 1937

TABLE 11: Property Rights and Firm Scope
Robustness Check (Alternative Measure of Property Rights Protection and Alternative Measure of Firm Scope)

	1	2	3	4	5	6
	Ordered Probit		2SLS[a]		2SLS[b]	
Property Rights (Fan-Wang-Zhu)	−0.035**	−0.041**	−0.542***	−0.348***	−0.220***	−0.131***
	(0.016)	(0.018)	(0.128)	(0.093)	(0.046)	(0.045)
Entrepreneur's Characteristics						
Education		0.060***		0.045***		0.039***
		(0.011)		(0.007)		(0.006)
Age		−0.016***		−0.007***		−0.008***
		(0.004)		(0.002)		(0.002)
Managerial Experience		0.011***		0.007***		0.006***
		(0.004)		(0.003)		(0.002)
CPC Membership		0.197***		0.047		0.103**
		(0.072)		(0.058)		(0.048)
CPPCC Membership		0.209***		0.001		0.077**
		(0.054)		(0.050)		(0.035)
Government Cadre		0.245**		0.205***		0.173**
		(0.097)		(0.078)		(0.068)
SOE Cadre		0.173***		0.195***		0.126***
		(0.056)		(0.046)		(0.035)
Corporate Characteristics						
Firm Age		0.026***		0.013***		0.014***
		(0.007)		(0.005)		(0.004)
Finance		−0.003		0.012		0.003
		(0.023)		(0.016)		(0.014)

Legal System		0.097		0.099*		0.072
		(0.081)		(0.059)		(0.049)
Industry Dummies	No	Yes	No	Yes	No	Yes
Number of Observation	2791	2339	2740	2293	2780	2329
Wald Chi2	4.72	3638.38	–	–	–	–
Pseudo R2	0.0010	0.0732	–	–	–	–
F-Test	–	–	17.86	11.36	23.16	14.88

The property rights index is the subindex from the NERI China's Marketization Process Indices constructed by Fan, Wang and Zhu (2004).
The dependent variable is FIRM SCOPE1 that takes values 0, 1, 2, and 3 when a firm has 1, 2, 3, and 4 businesses. Columns 1-2 carry out ordered probit estimation, column 3-4 ordered probit estimation with logarithm of merchants in 1912 as IV, and columns 5-6 ordered probit estimation with logarithm of banks in 1937 as IV.
Robust standard errors are reported in the parenthesis. *, **, *** represent significance at 10%, 5%, and 1% level, respectively.
[a]: IV used is the logarithm of Merchants in 1912.
[b]: IV used is the logarithm of Banks in 1937

TABLE 12: Property Rights, Firm Scope and Performance

	Dependent Variable is Log_Output_per_Worker							
			Firm-Level			Region-Level		
	1	2	3	4	5	6	7	8
Firm Scope	0.110**	0.066	0.170***	0.157***	0.058	0.127**	0.112**	0.052
	(0.054)	(0.057)	(0.060)	(0.060)	(0.064)	(0.054)	(0.053)	(0.057)
Property Rights			0.047**	0.106***	0.060**	0.344***	0.507***	0.406***
			(0.023)	(0.028)	(0.030)	(0.069)	(0.084)	(0.095)
Firm Scope * Property Rights				-0.177***	-0.142***		-0.522***	-0.621***
				(0.046)	(0.047)		(0.147)	(0.149)
Entrepreneur's Characteristics								
Education		0.074***			0.088***			0.074***
		(0.011)			(0.012)			(0.011)
Age		-0.007**			-0.007*			-0.007**
		(0.003)			(0.004)			(0.003)
Managerial Experience		0.003			0.003			0.003
		(0.004)			(0.005)			(0.004)
CPC Membership		0.158**			0.147*			0.132*
		(0.071)			(0.077)			(0.071)
CPPCC Membership		0.154***			0.140**			0.154***
		(0.056)			(0.064)			(0.056)
Government Cadre		0.134			0.091			0.131
		(0.108)			(0.124)			(0.107)
SOE Cadre		0.175***			0.154**			0.183***

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(0.059)			(0.066)			(0.059)
Corporate Characteristics								
Firm Size		-0.111***			-0.117***			-0.111***
		(0.025)			(0.028)			(0.025)
Firm Age		-0.001			0.004			-0.001
		(0.007)			(0.008)			(0.007)
Finance		0.173***			0.179***			0.165***
		(0.025)			(0.028)			(0.025)
Legal System		0.218**			0.182*			0.214**
		(0.091)			(0.099)			(0.092)
Regional Characteristics								
Market Potential		0.365***			0.352***			0.315***
		(0.057)			(0.065)			(0.060)
Transportation Costs		-0.062			-0.091*			-0.059
		(0.045)			(0.052)			(0.045)
Number of Observation	2458	2099	1870	1870	1630	2458	2458	2099
R-squared	0.0017	0.0915	0.0059	0.0134	0.1063	0.0112	0.0159	0.1011

The dependent variable is logarithm of output per worker. Columns 3-5 employ the firm-level property rights index, and Columns 6-8 use the region-level property rights index. Models are estimated by OLS.

Robust standard errors are reported in the parenthesis. *, **,*** represent significance at 10%, 5%, and 1% level, respectively.

APPENDIX

The number of merchants in China's regions in 1912 comes from the second national statistical survey on farmers, workers, and merchants conducted by the Republic of China (Ma, 1995, p. 107).

However, compared to the situations in the early 1990s, a few changes have taken place in the classification of administrative districts in China. Specifically, in 1912, Shanghai was included in the Jiangsu Province, Tianjin was included in the Hebei Province, Chongqing was included in the Sichuan Province, Gansu and Qinghai were included in the Ningxia Province, while data from Inner Mongolia was missing. We adjust the distribution of merchants in 1912 according to the current classification of the administrative regions. To do this, we first compiled the data from these regions (*i.e.*, Shanghai, Tianjin, Chongqing, Gansu, Qinghai, Ningxia, and Inner Mongolia) from other resources:

Shanghai: Zhang, Yapei, *Records of Business Administration Association in Shanghai*, Shanghai, China: Shanghai Academy of Social Science Press, 2001, p. 227

Tianjin: *Tianjin Chorography: Business Administration Volume*, ed. by Tianjin chorography committee and Tianjin Business Administrative Bureau, Tianjin, China: Tianjin Academy of Social Science Press, 2001, p. 45.

Chongqing: Chen Yintao, *Modern Urban History of Chongqing*, Chengdu, China: Sichuan University Press, 1991, p. 415.

Gansu: *Gansu Chorography*: *Business Administration Volume*, ed. by Gansu chorography committee and Gansu Business Administrative Bureau, Gansu, China: Tianjin People's Press, 1991, p. 23.

Qinghai: Cui, Yonghong, Dezhu Zhang, and Changshun Du, *Qinghai Chorography*, Qinghai, China: Qinghai People's Press, 1999, p. 678

Ningxia: Hu, Shuping, *Ningxia in Republic of China 1929-1949*, Taiwan: Taiwan Student Press, 1987, p. 256

Inner Mongolia: *Inner Mongolia Chorography: Business Volume*, ed. by Inner Mongolia Chorography Committee, Inner Mongolia, China: Inner Mongolia People's Press, 1998, p. 421

We then excluded the number of merchants in these regions from the number in their upper administrative districts to get the final number of these upper administrative districts.

The number of banks in China's regions in 1937 comes from China Bank Yearbook 1936-1937. Still the classification of administrative districts in China at that time was different from that in contemporary China. However, the China Bank Yearbook 1936-1937 has details of the distribution of banks in cities within each region at that time. This enables us to easily construct the distribution of banks in 1937 based on the current classification of administrative districts.