Property Rights, Finance and Economic Performance: Evidence from China

(very preliminary)

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Abstract

By using the dataset of Chinese Private Enterprise Survey, we investigate the importance of property rights protection and external finance accessibility in determining the economic performance of private enterprises in China. We find that both factors produce positive and significant effects on firm performance separately. When using OLS estimation method, we detect a more important impact of external finance availability on firm performance. However, after the more rigorous instrumental variable estimation is employed to correct for endogeneity concerns, our findings are reversed so that property rights protection becomes more important. Our analysis adds to the literature on the relationship between property rights, finance and economic performance.

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1. Introduction

What drives economic growth? The prevailing growth theory and the growth accounting lays emphasis on the accumulation of production factors such as physical capital and human capital and the enhancement of productive efficiency through technology innovation. Recently, two strands of literature emerged that examined the relationship between economic performance and property rights and that between economic performance and financial development. On the one hand, Besley [1995], Knack and Keefer [1995, 1997], Hall and Jones [1999], Acemoglu, Johnson, and Robinson [2001, 2002], among others, show that the quality of institutions, i.e. property rights protection and contract enforcement, has a positive impact on the long-run economic growth (See Acemoglu, Johnson, and Robinson [2005] for a review of this literature). On the other hand, Levine [1997], Demirgüç-Kunt and Maksimovic [1998], Rajan and Zingales [1998], Beck, Levine and Loayza [2000], Levine, Loayza and Beck [2000], among others, document a positive relationship between financial development and economic growth (See Levine [2005] for a review on this literature).

A related but interesting question is: What is more fundamental to economic growth, property rights or finance? Johnson, McMillan and Woodruff [2002] take the initiative to explore this question. As they have emphasized, a cross-country analysis based on country aggregate data cannot successfully separate the impacts of institutions versus finance on economic performance. Using a survey of small manufacturing firms in five post-communist Eastern European countries, they show that property rights are more important determinant than external finance availability of corporate reinvestment, and, thus, property rights but not finance are necessary and sufficient for economic growth. Later, Cull and Xu [2005], using a private enterprise survey from 18 cities in China, show that both property rights and finance are important for economic performance in a transition economy like China. Moreover, they attributed the difference between their results and those of Johnson, McMillan and Woodruff [2002] to the difference in the development stages reached by China and the five post-communist eastern European countries (See McMillan and Woodruff [2002] for the conjectures on the institutions and transition progress).

In our opinion, there are two weak points in these two pieces of research work. First,

they both treat property rights and finance as exogenous variables in regressions. This may not be totally suitable as there might be endogeneity problem. As Johnson, McMillan and Woodruff [2002] have recognized in their paper, "higher investment rates may lead to more secure property rights, as in the model of Besley [1995]" and "the higher reinvestment rates and more secure property rights may both reflect the optimism of the responding managers". Second, to measure economic growth, both papers use the reinvestment rate. This may create a bias in explaining the results since the reinvestment of retained earnings (i.e., internal finance) and the access to loans (i.e., external finance) could well be substitutes. As an illustration, consider the case where the interest rate of the reinvestment profits (r^I) is lower than that of the borrowed moneys (r^L), which was also argued by Johnson, McMillan and Woodruff [2002]. *Ceteris paribus,* firms will first use up their own capital and then go to the external funds. This may cause a positive relationship between reinvestment ratio and external finance, even though the latter has no causal effect on the former.

In recognition of these deficiencies, we re-examine the relations between property rights, finance and economic performance by addressing directly the above two issues. On the one hand, to correct for the endogeneity problem of the indicators of property rights and finance, we first stepwisely add a host of control variables that may potentially affect economic performance such as provincial characteristics, firm's characteristics, entrepreneur's characteristics and industry dummies. Next, we adopt the instrumental variable (IV) method. Starting from the seminal works of Acemoglu, Johnson, and Robinson [2001, 2002], political and financial economists have started to explore the effects of historical heritage on the development of institutions and finance [2] and used these historical data as the IV for the current explanatory variables so as to maintain the rule of exogeneity on IVs. Following their steps, we collect data on the distribution of merchants in 1912 and the distribution of banks in 1937 across provinces in China, and use them as IVs for the variables of property rights and finance. Interestingly, similar to the case in Acemoglu and Johnson (2005), the two instrumental variables are both significant and separable, that is, the merchant IV is only significant for the index of access to external finance and the bank IV is only significant for the measure of property rights.

[2] See Levine [2005] for review of law, endowments and the institution, and Beck, Demirgüç-Kunt and Levine [2003] for the review of law, endowments and finance

On the other hand, as an alternative, we use the logarithm of output per worker to measure economic growth. This variable has been widely used in the literature. For example, Hall and Jones [1999] use the logarithm of output per worker to study the social infrastructures on the productivity differences across countries; Acemoglu, Johnson and Robinson [2001] use the logarithm of GDP per capita study the institution quality and economic growth. (Please refer Pande and Udry [2005] for more examples on the indicators of growth and institutions.)

The dataset we use is the *Private Enterprise Survey* 2000 in China. It covers all the thirty one provinces and municipalities in China and all industries. Our results show that when property rights and finance enter regressions separately, they both have significant impacts on economic performance. These remain consistent even when we control more variables and use the IV method. This provides a supplementary micro-findings to those with the cross-country evidence. When property rights and finance enter OLS regression analysis simultaneously, only finance casts statistically significant and positive effect. This seems to confirm Cull and Xu [2005]'s results that in the late development stages, only the market-supporting institutions matter such as the financial institutions. However, when we adopt the IV approach, the results are reversed in that property rights become statistically significant but finance loses significance. The results remain when we control many other variables. Our IV regression results confirm the findings of Johnson, McMillan and Woodruff [2002] that property rights is most essential to economic performance in transition economies.

The rest of the paper is organized as follows. We provide the literature on property rights and finance, our empirical strategy and the discussion of the instrumental variables in section 2. Section 3 contains a summary of the data and variables used in our study. We discuss the findings in section 4. Section 5 concludes the paper.

2. Background

2.1. Property Rights and Finance

In the past decade, two strands of literature on growth and development have emerged. The first literature focuses on the quality of institutions such as property rights protection

as an important factor for economic growth. A series of cross-country comparison and a few within-country case studies show that the more secure property rights are associated with higher incentives to invest and faster growth rates (e.g., among others, Besley [1995], Knack and Keefer [1995, 1997], Hall and Jones [1999], Acemoglu, Johnson, and Robinson [2001, 2002]) Acemoglu, Johnson, and Robinson [2005] give a good review of this area. The second strand studies financial development as an important impetus for economic growth and development. Levine [1997], Demirgüç-Kunt and Maksimovic [1998], Rajan and Zingales [1998], Beck, Levine and Loayza [2000], Levine, Loayza and Beck [2000], among others, have determined the causal effects of financial development on economic growth (See Levine [2005] for a review of this literature).

A natural question regarding these two lines of literature is which one, property rights or financial development, is more fundamental or necessary to economic growth and development. Such an issue has important policy implications for governments in transition economies because they face the problem of the optimal allocation of limited resources to building public institutions or financial markets. Johnson, McMillan and Woodruff [2002] first propose and address this problem. They use the data from a survey of private manufacturing firms in five post-communist countries, namely, Poland, Slovakia, Romania, Russia and Ukraine, to study whether secure property rights are (a) necessary, (b) sufficient, or (c) necessary and sufficient for investments by entrepreneurs. They found that secure property rights are both necessary and sufficient for entrepreneurs to grab the opportunities to invest, whereas after controlling the property rights index, the finance variable has no effect on the incentives of entrepreneurs to invest.

Cull and Xu [2005] re-study this issue, using the world bank survey of Chinese private firms in 2000-2002. They confirm the first part of the results contained in Johnson, McMillan and Woodruff [2002] that secure property rights have significant predictive power for development. However, their results depart from those of Johnson, McMillan and Woodruff [2002] in the second part in that the access to external finance, *i.e.* bank loans, now shows a positive and significant relationship with the firm's reinvestments. Cull and Xu [2005] attributed the differences of these findings to the progress of economic transition. In an important survey on entrepreneurs and transitions, McMillan and Woodruff [2002] conjectured that the importance of the property rights might reduce along with the development of economy. In the meantime, the market-supporting

institutions, such as financial markets, would become more and more important.

2.2. Estimation Strategy

The equation for estimation we use in this paper is given by

$$\log y_i = \mu + \alpha PROPERTY\ RIGHTS_i + \beta FINANCE_i + X_i^{'}\gamma + \varepsilon_i \qquad (1)$$

where y_i is the measurement of economic performance, $PROPERTY\ RIGHTS_i$ is the measurement of property rights, $FINANCE_i$ is the measurement of financial institutions, $X_i^{'}$ is a vector of controlled variables and ε_i is a random error term.

The easiest way to estimate equation (1) is to use the OLS estimation. However, there are many distinct problems in finding the causality effect with this strategy. First, it is always possible that we might have omitted some variables that could affect both the dependent variable and our focal explanatory variables, which cause an illusion that there are causal effects. Second, there may probably exist large errors in measuring the variables, which may bring estimation biases. Moreover, when there is correlation between the property rights index and finance index, the measurement error on one of them will load onto the other. Finally, even we are sure in getting unbiased estimations, we may only capture the reverse causality, *i.e.* a higher performance may lead to an easier access to bank loans.

There are many methods to address the above concerns with OLS regressions (*e.g.* Acemoglu [2005] has an excellent review of the methods used in this literature). In this paper, we use the two-stage least squares (2SLS) with distinct and plausible instrumental variables for property rights and finance. The efficient instrumental variables should be correlated with the endogenous explanatory variables and exogenous or orthogonal to the dependent variables. Using successful instrumental variables, we can address not only the reverse causality and omitted variable biases but also the measurement errors problems as long as the measurement errors have the classical forms (see, *e.g.*, Woodridge [2002]).

The two instrumental variables we use here are the logarithm of the number of banks in each province of China in 1937, $BANK$, and the logarithm of the number of merchants

in 1912 in China, $MERCHANT$. Thus the two first stages of the 2SLS estimation are

$$\begin{aligned} PROPERTY\ RIGHTS_i &= \kappa + \delta_1 \cdot BANK_i + \eta_1 \cdot MERCHANT_i + X_i\lambda + \upsilon_{i1} \\ FINANCE_i &= \kappa + \delta_2 \cdot BANK_i + \eta_2 \cdot MERCHANT_i + X_i\lambda + \upsilon_{i2} \quad (2) \end{aligned}$$

where $BANK_i$ is the instrument for the property rights index and $MERCHANT_i$ conceptually corresponds to the instrument for the finance index, which we will discuss in detail in the next two subsections.

2.3. Cross-region Distribution of Banks in 1937

To find orthogonal instrumental variables, we follow Acemoglu, Johnson and Robinson [2001, 2002], among others, by looking back upon the historical events. We choose the distribution of domestic banks across regions in 1937 in China as the instrumental variable for the property rights index. We compile this data from the *Chinese Bank Yearbook 1936-1937*. It lists the numbers of domestic banks existing in provinces and cities. Relative to the situations in the 1930s, a few changes have taken place in the classification of administrative districts. For example, Shanghai is now a province-level municipality but was included in the Jiangsu province in 1937. We adjust the distribution of banks in 1937 according to the current setup of the administrative regions. Appendix A.3. provides the details on the construction of this instrumental variable.

Why is the number of banks in 1937 relevant to the state of property rights protection at present in each region? We look at this issue by two steps. First, we demonstrate that the number of banks existing in each region was a good indicator of property rights protection in each region in the mid-1930s. Second, we argue that institutions tend to persist, and the historical situations may be carried forward to the present.

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. First, 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. Second, the central and re-

gional 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. This spurred the development of banks including domestic banks.

In our opinion, 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. Let's first look at 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 coersive 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. Though various restructuring and rescue activities were conducted, the number of banks that survived was extremely small. For instance, only one provincial bank (Jiangsu Bank) remained alive in 1937. Commercial banks also had a miserable experience. In the areas of Beijing and Tianjin, the central government and the regional governments utilized tariff revenues as collateral to make large amounts of high-interest borrowings from banks to finance their military expenses. This once spurred the establishment of commercial banks: around 30-40 banks mushroomed that targeted the seemingly high-profit business of lending to governments. However, the changes in political and military landscape, especially the victory of the revolutionary South in the Northern Expedition (1926-27), caused most of these private commercial banks to be unable to recover loans and go bankrupt (Chinese Banking 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. This is an important indicator of the banking system development in China in the early twentieth century. However, the function of domestic banks to finance governments largely remained intact. The bureaucratic capitalists penetrated deeply 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 governments 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 Banking Yearbook, 1937).

Thus, we see that the domestic banking sector development across regions in the mid-1930s can largely reflect the regional property rights protection at that time. One question we may ask is: Why does the property rights protection across regions in the mid-1930s matter for regional property rights protection at present? There are a variety of studies showing the persistence of institutions. Acemoglu, Johnson and Robinson (2001) discussed three mechanisms that will lead to the institutional persistence: (1) it is costly to set up institutions that restrict the government power and enforces property rights; (2) The interest groups who control the institutions may still dominate the communties year

after year; (3) if the personal investments are based on the current institutional settings, they will continue to support them, making these institutions persist. In documenting the persistence of institutions in the colonies, 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".

Across China's regions, though political regimes changed dramatically and repeatedly over the 20th century, many of the fundamental regional institutions, culture, and customs remain largely unchanged. Therefore, we transplant the institutional persistance in former European colonies to different regions in China to see the persistence of regional institutions.

2.4. Cross-region Distribution of Merchants in 1912

We use the distribution of merchants across regions in 1912 as an instrumental variable for the access of entrepreneurs to external finance across regions. In the late Qing Dynasty (1840-1911), capitalism had developed to some extent in China. However, the dominant forces of capitalist development had been foreign capital and bureaucratic capital. Foreign capital had been extremely active in international trade and banking business, whereas bureaucratic capital launched many industrial projects. 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. However, the domestic private capital had been repressed by governments to a large degree. Bureaucrats established and ran large enterprises and large banks, but they restricted and strictly controlled the development of domestic private capital. Heavy taxes and irregular payments were imposed by the Imperial central government and provincial governments on the business entities set up by private capitalists (Zhang, 1982). According to Wu (1981), domestic private capitalists mainly came from gentry-landlords and merchants in this period. The gentry-landlord-turned capitalists were typically medium- or lower-ranking bureaucrats who were both Confucian scholars and landlords. They made use of their social connections and nexus to obtain funds from state banks and private commercial banks to

invest in trade and industries. It is noteworthy that the main sources of their capital were not land rents. Another important component of capitalists is merchants. They were business people engaged in either the traditional trade or financial sectors such as salt trade or money houses or the emerging new business lines such as hardware deal or Western medicine. These merchant-turned capitalists accumulated part of their initial capital from their wholesale and retail businesses, part from raising money from relatives and associates, and part from private commercial banks and state banks. Once these merchants secured funds, they invested in industries to become industrial capitalists or expanded their trade businesses. In this period, one major constraint on private capital development is the highly restricted and limited financial sources. Foreign banks mainly provided finance to foreign merchants. Domestic state-owned banks and private commercial banks were active in providing financial support to governments and business entities set by or associated with bureaucrats. More surprisingly, governments treated foreign capital much better than domestic private capital. They heavily taxed and expropriated private capitalists but extended many preferential treatments to foreign capital (Zhang, 1982).

The restrictions on private capital reflect the deep suscipion and distrust of the Imperial Qing Dynasty on capitalism. China was forced to open its door to foreign capital following its failures in the two opium wars and the Sino-Japananese 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 consolidate the power of the Dynasty. However, they were strongly resistant to introducing a whole set of Western civilization in fear of having their feudal system jeopardized. Under this circumstance, the bureaucrats largely confined their experiment with capitalism to foreign capital and bureaucratic capital but restricted the development of private capitalists. In that period, private entrepreneurs grew in the absence of government support. The biggest obstacle for private entrepreneurs to develop their businesses in a financial system dominated by foreign captial and state capital was to try all means to seek funds as initial capital. In this sense, the regions with more merchants were areas in which funds were relatively easy to be raised. These funds could come from formal financial institutions such as foreign, state or private banks. More importantly, they came from informal financial channels.

The state of private entrepreneurship at the end of the imperial China and the beginning of the Republic of China bears some 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. At the early stage of economic transition, the Chinese government intended to restructure the central planning system but it had no blueprint of moving toward a market economy in mind. Facing various ideological resistances to markets, the Chinese leadership gradually introduced the market sector into the economy. The reform was mainly focused on introducing foreign capital (foreign direct investment) and restructuring state-owned enterprises, while there were still many strict restrictions on private capital and private entrepreneurs. Even after the political standing of private entrepreneurs was raised substantially in 1997, the business environment faced by private entrepreneurs has not changed fundamentally. According to Asian Development Bank (2003), the biggest obstacle faced by private entrepreneurs is the difficulty in getting access to finance. It is extremely difficult for them to secure bank loans. The most frequently cited sources of financing are individual or household investments or retained earnings. This business environment to private capital and private enterprises is somewhat similar to that about one century ago.

It is documented that the development of entrepreneurship is fairly strongly related to the local culture and local institutions. Due to the persistance of the local institutions and culture, the fundamental factors shaping the cross-region distribution of merchants in 1912 may well exert the same impact in the 1990s and 2000s. Therefore, we use the merchant distribution in 1912 as an instrumental variable for the finance accessibility in the 1990s.

3. Data and Variables

3.1. Data

The dataset we use in this paper is the *Private Enterprise Survey* 2000 in China.[3] The *Survey* is conducted jointly by the United Front Work Department of the Central

[3]The data has recently been used by others, *e.g.*, Bai, Lu and Tao [2006] in studying the private firms' bank loans; Li, Meng and Zhang [2006] in studying entrepreneur and politics; Du, Lu and Tao [2006] in studying the institution design and economic performance.

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 first pre-determined. After that, six cities/counties were selected from each region (*i.e.* the 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. And then, 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 with 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.

Initially, the dataset contains 3,073 observations, about 0.2 percent of the total number of private enterprises in China by the end of 1999. After deleting the observations with no industry code, no sales and no employment reporting, we obtain the final sample with 2,632 observations, which is bigger than 815 observations in the sample of Johnson, McMillan and Woodruff [2002] and 2,072 (616 firms) observations in the sample of Cull and Xu [2005]. Moreover, compared with the dataset used by Cull and Xu [2005], the *Survey* is more representative of the Chinese economy. It covers all 31 provinces and all sectors (except for the sector of government, parties and social organizations), while the sample of Cull and Xu [2005] is restricted to 18 cities in 15 provinces, leaving out some important economic centers such as Shanghai, Beijing, Tanjing, Jiangsu, etc, and covers only 10 industries in the manufacturing and service sector. Meanwhile, the firms surveyed in our dataset are nearly all small private enterprises with a mean employment of 172 and 87% of them hiring fewer than 270, which is close to the sample criteria of Johnson, McMillan and Woodruff [2002]. Appendix A.1. has a detailed comparison of our sample with those of Johnson, McMillan and Woodruff [2002] and Cull and Xu [2005].

3.2. Variables

The dependent variable is calculated by the logarithm of output per worker, which

has been widely used in the literature to study the quality of institution on economic performance and economic growth. For example, Hall and Jones [1999] use this variable to study the effects of social infrastructures on the differences in economic performances across countries (See also Bockstette, Chanda and Putterman [2002], and Masters and McMillan [2002]); Acemoglu, Johnson and Robinson [2001, 2002] use logarithm of GDP per capita, which is similar to the variable used here but at the more aggregate level, to study the effects of the institutional quality on economic growth (See also Alcalá and Ciccone [2004], Glaeser, La Porta, Lopez-de-Silanes and Shleifer [2004], Acemoglu and Robinson [2005]). Panda and Udry [2004] give a good summary of the uses of variables in this research area.

To keep comparability with Johnson, McMillan and Woodruff [2002] and Cull and Xu [2005], we measure our focal variables, i.e., the property rights index and finance index, in terms of their concepts. Property rights security is interpreted as the risks of expropriation by governments. There are two indices we can get from the *Survey*. First, entrepreneurs were asked whether the problem of extralegal payments to governments was severe according to their knowledge. The answer ranges from 1 to 3, with a higher value indicating a less severe problem. The response rate is 76.22% (2,006 out of 2,632) and the mean value of the index is 2.3529. The second question asks entrepreneurs whether the problem of informal levies, such as different kinds of fee charged by governments other than taxes, is severe. Again the answer ranges from 1 to 3, with a higher value indicating a less severe problem. The response rate is 79.64% and the mean value of the index is 2.1918. Since the correlation of these two indices is very high, we use the principal component analysis to generate a single index, the $PROPERTY\ RIGHTS$, as Svensson [2003] did. Table 1 shows the distribution of the indices across the 31 provinces in China. Tibet, Zhejiang and Hainan have the highest values while Yunan, Hubei and Xinjiang are among the lowest.

Finance is defined as the difficulty to get external loans. In the *Survey*, one question directly asks entrepreneurs how difficult it is for them to obtain bank loans. The answer ranges from 1 to 5, with a higher value representing lower difficulty. It turns out that 2, 460 out of 2,632 interviewees answered this question and the mean value is 2.2407 indicating that in China it is not easy for private enterprises to obtain bank loans. We use this as the main $FINANCE$ index. In addition, we calculate three other indices,

indirectly measuring the difficulty for firms to secure external funds. The first one is to ask whether the firm had bank loans in 1999. A dummy variable has value one if firms had and zero if otherwise. The second question asks whether a firm ever had credit rating, with value one if it had and zero if otherwise. The last one measures whether firms ever had external auditing, with value one if they had and zero if otherwise. Firms' responses to these financial questions exhibit large variations. More than 50% of firms had bank loans in 1999 and 46% of firms once had external auditing but only 25% of firms ever had credit rating. While across provinces, private firms in Tibet, Zhejiang and Qinghai face less severe difficulty in acquiring external funds while Beijing, Xinjiang, and Hainan have most difficult financial issues.

Two things are noteworthy. Firstly, our sample is quite similar to that of Cull and Xu [2005] in the measurement of property rights and finance but there are also some differences. In the sample of Cull and Xu [2005], cities like Hangzhou (in Zhejiang province), Changchun (in Jilin province), Jiangmen (in Guangdong province) meet a comparatively less severe problem in property rights security, while Xian (in Shaanxi province), Shenzhen (in Guangdong province), Harbin (in Heilongjiang province) face more severe problems. However, in our sample, Zhejiang and Jilin provinces are among the regions with the most secure property rights but not Guangdong province, while Heilongjiang is among the worst regions but not Shaanxi province. In the finance part, Cull and Xu [2005] have Hangzhou (in Zhejiang province), Guiyang (in Guizhou province) and Chongqing with less problems to access external funds while Benxi (in Liaolin province), Wuhan (in Hubei province) and Lanzhou (in Gansu province) with the worst financial situations. In our sample, Zhejiang and Guizhou still remain among the regions with the best financial institutions but Chongqing, Gansu, Liaonin and Huber are actually in the medium range. With our sample covering all the regions and 6 cities in each provinces, we believe that our sample is more representative.

Secondly, the correlations between the $PROPERTY\ RIGHTS$ index and the $FINANCE$ indices are higher than those in Johnson, McMillan and Woodruff [2002] and Cull and Xu [2005]. Table 2 displays the correlation matrix. However, the correlation coefficients are still small in magnitude so that they cannot be treated as one of them being able to proxy for the other.

Finally, we also control other explanatory variables that probably affect firms' per-

formances. These include the industry dummies, the entrepreneur's characteristics (education, managerial experiences, CPC membership, CPPCC membership, government cadre, and state-owned enterprise cadre), firm's characteristics (firm size and firm age) and provincial characteristics (population density and GDP per capita). Appendix A.2. has the details of the construction of these variables. Table 3 provides the summary statistics of the main variables.

The estimation of equation (1) is divided into two parts. We first separately study the effects of property rights and finance on economic performance. The benchmark situation is a univariate regression, with only property rights index or finance index. We then add control variables and use the IV strategy to see if the results are consistent. After that, we go to the major part of the paper, including both property rights index and finance index in the same regression to see whether property rights or finance is more important. This is further checked by adding controlled variables and more importantly, using IV method to address the endogenous issue.

4. Results

4.1. Benchmark

We begin with the simplest case, in which we regress firm performance on only the property rights index, only the finance indices, or both types of index. The results are shown in Table 4. Column 1 shows that property rights have a positive and slightly significant effect on economic performance while the easiness to obtain bank loans has a positive and significant effect on economic performance as shown in column2. In column 3, we include other measures of financial institutions. It shows that the easiness to obtain bank loans still has a positive and significant effect, and the external credit rating and external auditing have also produce positive and statistically significant effects on firm performance. It is easy to see that external credit rating and external auditing increase the transparency of private enterprises, which in turn may reduce the problem incurred by asymmetric information between banks and firms.

Interestingly, when we include both the property rights index and the finance indices in the same regression, the results in column 4 show that the property rights index

becomes insignificant while the easiness to obtain bank loans still has a positive and significant effect. It does not matter when we further include other financial measures as column 5 shows.

These give us two impressions. First, the security of property rights and the easiness to get external finance both have positive and significant effects on economic performance separately. Secondly, exteranal finance accessibility is more important than property rights protection in determining economic performance. However, before we arrive at any firm conclusions, we need to take account of two caveats. On the one hand, there may exist other omitted variables that both affect economic performance and the property rights and finance indices. On the other hand, the causality can be reversed in that a higher economic performance may push for a better protection of property rights and enhance firms' opportunities to get external loans. In the next two sub-sections, we address these two issues one by one.

4.2. Results with more control variables

In Table 5 we add more control variables into the basic regression estimation to deal with the concerns of missing variables. Columns 1-3 add the characteristics of both provinces and firms. They show that the property rights index has a positive effect on economic performance but with reduced significance while the financial indices all exhibit positive and significant effects. For the control variables, provincial GDP per capita exhibits a positive and significant effect while firm size has a negative and significant effect. These are easy to understand, and the latter also conforms to the findings of Johnson, McMillan and Woodruff [2002] in their Eastern European and Russia sample that small firms have more impetuses. We further add industry dummies to account for the differences across industries and add entrepreneurs' characteristics such as education, managerial experience, political connections, etc. The results are given in column 6-8. There are no big differences except that now the property rights index has a positive and significant effect.

The following step is to include the property rights index and the finance indices in the same regressions with more explanatory variables controlled. Columns 4-5 show the results with only provincial and corporate variables included and columns 9-10 further

add the industry dummies and entrepreneur's characteristics. The picture is consistent in that the property rights index becomes insignificant while the financial indices still produce positive and significant effects on economic performance.

As Johnson, McMillan and Woodruff [2002] and Cull and Xu [2005] run the similar regressions as we do in this sub-section, the results up to now give support to the view of Cull and Xu [2005] that in the late stage of development, the market-supporting institutions, *i.e.* finance, are more important than economic performance. However, before we can settle this debate, there are serious concerns as we mentioned before, that is, the endogeneity issue is yet to be addressed.

4.3. Results with IV method

Though we control as many other variables as possible, there can still exist other unobservable factors that may affect economic performance and the focal indices in the same direction. Moreover, we cannot eliminate the possibility of a reverse causality. In this sub-section, we use the IV method to address these endogeneity concerns so as to get more rigorous conclusions. As argued earlier, we employ the logarithm of the number of merchants across provinces in 1912 and the logarithm of the number of banks across provinces in 1937 as intrumental variables for the finance index and the property rights index, respectively.

We first re-estimate the regressions without any controlled variables. The results are shown in Table 6. Panel A displays the results of the second stage regressions, while Panel B and Panel C report the first stage regression results of the 2SLS regressions. To facilitate comparison, we list the OLS regression results again in Panel D. We first examine the effects of the property rights index and the finance index on firm performance separately. Panel B and Panel C in column 1 and column 2 show that the IVs are efficient in that the IVs have positive and significant effects and the p-value for F-tests is 0.0000. And Panel A in column 1 and column 2 show that even after using the IV method, the property rights index and the finance index, if separately entering the regressions, produce positive and significant effects on economic performance.

Then we go to column 3 to see whether the property rights index or the finance index is more important for firm performance under the IV estimation method. Like what

Acemoglu and Johnson [2005] find, Panel B and Panel C in column 3 show that the IVs are efficient and separable: the distribution of merchants in 1912 is only significantly correlated with the finance index and the distribution of banks in 1937 is only significantly associated with the property rights index. Moreover, Panel A in column 3 shows that after controlling the endogeneity issue, the results are reversed, compared with the results in column 4 in Table 4. Now the property rights index becomes positive and statistically significant while the finance index is no longer significant.

To further check the validity of these new findings, we add control variables into the above regressions, and the results are presented in Table 7. Firstly, Columns 1-3 only add the provincial and corporate variables while columns 4-6 contain all of the control variables. Again results in columns 1-2 and columns 4-5 show that the property rights index and the finance index separately have positive and significant effects on economic performance. Secondly, Panel B and Panel C in column 3 and column 6 also exhibit the same pattern as that in column 3 in Table 6 that the IVs are efficient and separable. Finally, Panel A in column 3 and column 6 show that even with more controlled variables, the property rights index still exerts a positive and significant impact on firm performance, while the finance index no longer affects firm performance after the IV estimation method is used.

These results shed light on the relationship between property rights, financial development, and economic performance. On the one hand, both property rights and financial development have separate positive and significant effects on economic performance. These add to the micro-level findings in the literature, which often use cross-country data. On the other hand, which is more important, our results provide support to the findings of Johnson, McMillan and Woodruff [2002] that property rights play a more fundamental role than financial development does in determining economic performance.

5. Conclusion

To be added.....

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