Does the Rights Hypothesis Apply to China?

Cheryl Xiaoning Long *Colgate University*

Abstract

Using firm-level data from a World Bank survey, this paper examines how legal development in China relates to various firm decisions. I find that a more active court system is associated with more investment, more adoption of technology, more innovation, and more complex transactions. Specifically, when a higher percentage of business disputes are resolved through the court system, firms tend to have higher investment rates, higher propensities to adopt new automated technology, and higher probabilities of developing new products. In addition, they tend to have more nonlocal sales. These findings are consistent with a sophisticated version of the rights hypothesis, in which the rule of law eventually replaces relation-based governance as a superior governance mechanism. I find two limitations of China's legal system. The court system does a better job facilitating the growth of state-owned enterprises than of private firms, and it protects local firms better than nonlocal firms.

1. Introduction

Economists have long argued that a well-functioning legal system offering stable and predictable rights of property and contract is a precondition for significant growth (Hall and Jones 1999; Johnson, McMillan, and Woodruff 2000; Acemoglu, Johnson, and Robinson 2001; Rodrik, Subramanian, and Trebbi 2002; Easterly and Levine 2003). In particular, an effective judicial system with the court at its center is considered one of the foundations of successful modern economies (North 1990). Following Max Weber, I refer to this argument as the rights hypothesis.

The case of China in the last 3 decades, however, seems to challenge these views, as the country has experienced a record-breaking growth rate with very weak legal institutions (Clarke, Murrell, and Whiting 2005, 2006). This expe-

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rience may lend support to an alternative theory linking economic growth and legal development. The fact that China's formal legal system has seen continuous improvement during the country's rapid economic transformation might be interpreted as evidence that development induces law. A third theory allows more complex relationships between law and growth (Li and Li 2000; Li, Park, and Li 2003; Li 2004). In the early stage of economic development, a personal and relation-based system may be superior because of its low setup cost. But as the economy becomes larger and more sophisticated, impersonal and rule-based governance will eventually prove more effective because the marginal cost of regulating additional business is much lower in such a system. In other words, the most appropriate form of institutions for a country may depend on its economic development stage.

Which of these theories most closely describes China's experience regarding the relationship between legal institutions and economic development? This paper offers empirical evidence at the firm level to help shed light on this issue. Specifically, I study Chinese firms' reliance on the formal court system to resolve business disputes and examine how such reliance relates to their decisions regarding investment, the adoption of technology, product innovation, and other complex transactions. I find that a higher proportion of business disputes settled through the court system (in either the local court or a nonlocal court) is generally associated with a higher investment rate, a higher probability of adopting automated technology, a higher likelihood of developing new products, and more long-distance sales.

To the extent that such decisions enhance the potential for business growth, these results are consistent with the argument that a formal legal system contributes to business growth and economic development, and thus can be viewed as evidence supporting the rights hypothesis. Such findings, however, do not necessarily contradict the argument that development induces law, because China's current legal system is most likely an outcome of the continuous economic growth of the past years. The ongoing economic development has led to improvement in the court system, which in turn has further enhanced firm growth. Nonetheless, the positive correlation between reliance on the formal legal system and firm growth provides evidence that China may have reached the turning point where a formal legal system can provide more effective protection for businesses than alternative arrangements based on personal relations.

I also show that the positive association between the courts' role and business development is not uniform in China. While a more active court system is associated with decisions on new-product development by state-owned enterprises (SOEs), it has no significant correlation with similar decisions by private firms. In addition, sometimes the significant role of the court system is observed only for local courts. For example, when nonlocal sales are studied, more active nonlocal courts are not associated with firms' decisions. These results suggest two problems that may limit the current role of Chinese courts in promoting development: first, the court system seems to do a better job facilitating the

growth of SOEs than private firms, and second, courts do a better job protecting local firms than nonlocal firms. In other words, local protectionism may be present in the court system in China.

The structure of the paper is as follows. Section 2 briefly reviews some background information on China's legal development during the reform era. Section 3 describes the data with a focus on how Chinese firms prevent and resolve business disputes. The empirical results are presented in Section 4, and Section 5 concludes. A list of the variables used and their definitions are given in the Appendix.

2. China's Legal Development during the Reform Era

China provides a good case for studying the relationship between law and development. The modern history of China seems to fit well with the rights hypothesis. The Industrial Revolution in Britain and Europe ushered in the age of fast economic growth, largely thanks to earlier legal development (North and Weingast 1989; North 1981; North and Thomas 1973). In contrast, the Chinese legal system throughout its imperial history mainly implemented the penal code and neglected its people's need for civil law, and this was accompanied by economic stagnation between the eighteenth and nineteenth centuries (Huang 1997, 1981).

The legal institutions in China remain weak even today (Clarke, Murrell, and Whiting 2005). First, many important economic laws were lacking until very recently. For example, the country's first property law was passed only in March 2007. Although legal protection is granted to private property owners under the new law, the protection is not at par with that granted to state property by the Chinese constitution.[1] Second, even the existing laws are not effectively enforced because of an array of obstacles. Multiple government agencies have the right or the practical power to make rules that are binding to varying degrees, and there is no effective mechanism to clarify overlapping jurisdictions. In addition, as appointees of the executive branch of the government who are dependent on the government for budgetary funds, judges do not enjoy independence and are often relied on to implement government policies. The lack of qualified legal professionals presents another problem. In 2005, China had one lawyer for every 9,000 people. In contrast, there is one lawyer for about every 300 people in the United States. Even in Japan, a country well known for its extremely difficult

[1] Article 12 of the Chinese constitution states that "socialist public property is sacred and inviolable. The state protects socialist public property. Appropriation or damage of state or collective property by any organization or individual by whatever means is prohibited." In contrast, article 11, which governs private properties, declares that "the State protects the lawful rights and interests of the nonpublic sectors of the economy such as the individual and private sectors of the economy. The State encourages, supports and guides the development of the nonpublic sectors of the economy and, in accordance with law, exercises supervision and control over the nonpublic sectors of the economy."

bar exams and the consequently small number of lawyers, there is one lawyer for every 5,000 people.

But there has also been some encouraging news. Since the early 1980s, the number of business disputes brought to the court system has mushroomed. Between 1983 and 2001, economic disputes accepted by courts of first instance increased at an average annual rate of 19.9 percent. In comparison, civil disputes increased at less than half that rate over the same period (on average, 8.8 percent per year).[2] Thus, the courts appear to be playing an increasingly important role in the reform period in helping resolve business disputes. The growing importance of the formal legal system is also reflected in the rapidly rising number of lawyers and law graduates. Between 1983 and 2005, the number of full-time lawyers grew from 8,600 to 154,000, an average annual growth rate of 13.4 percent. And in the year 2006 alone, almost 91,600 graduates received LLB degrees, in contrast to 60,000 graduates during the 40-year period between 1949 and 1987 (China Statistical Bureau 2010).

Whether or not such legal development has been induced by economic growth, the legal system seems to have gained increased importance in economic life. What does this seemingly more important role of courts imply for firm growth in China? The following sections help shed light on this issue with an empirical investigation, beginning with a description of a World Bank survey to help answer the following questions: How do Chinese firms maintain business relationships with their clients? How often do these relationships result in disputes? And how are the disputes resolved?

3. Chinese Firms, Disputes, and Their Resolution

The World Bank's 2001 Investment Climate Survey collected detailed information on 1,500 Chinese firms and their operational environment as of the year 2000. This study uses a portion of the survey that gathers information on firms' production, sales, investment, and innovation behaviors and their ownership structure and relationships with their clients. Firms included in the survey come from five cities (four major coastal cities and a major inland economic hub, Chengdu) and 10 sectors (five each in manufacturing and services), and stratified random sampling was used to draw 300 firms from each of the five cities (see Table 1). To focus on the legal environment's impact on domestic firms and to avoid the ambiguity of mixed ownership, only SOEs and domestic private firms are studied in this paper. The list of the variables used in this study is presented in the Appendix, and summary statistics for important variables are shown in Table 2.

The survey results suggest that three mechanisms are often used by Chinese firms to help resolve business disputes: long-term relationships, written contracts,

[2] Data from after 2001 are not comparable with those before 2001 because the number of economic disputes has been included in the number of civil cases since that year.

Table 1
Percentage of Business Disputes Resolved through the Court System

Industry	Beijing	Chengdu	Guangzhou	Shanghai	Tianjin	Overall
Accounting and related services	60.00	.00	.00	33.33	20.00	16.25
Advertising and marketing	25.00	.00	.00	33.33	66.67	24.00
Apparel and leather goods	17.14	9.56	14.29	22.88	28.57	16.59
Business logistics services	4.44	.00	25.00	34.00	46.00	21.32
Communication services	.00	15.00	.00	10.00	3.33	8.20
Consumer products	39.17	14.25	18.13	46.94	22.75	27.34
Electronic components	17.67	15.88	1.67	28.57	16.67	17.98
Electronic equipment	17.80	17.64	13.42	15.00	11.00	15.71
Information technology services	14.43	6.00	11.67	33.33	8.25	13.18
Vehicles and vehicle parts	33.71	10.62	22.85	45.47	18.75	25.74
Overall	20.85	11.24	15.00	31.17	22.98	19.83

and membership in business associations. Table 2 presents information on firms' average length of business relationships with their clients. Long-term relationships help reduce the likelihood of business disputes and facilitate their resolution when they do arise; about half of the Chinese firms in our sample (46 percent) have 4 or more years' relationship with their main clients, while those with clients of 3 or more years' standing account for 57 percent. Among SOEs, 59 percent have relationships with their clients of 4 years or longer, while 69 percent have relationships of 3 years or longer. Private firms on average have shorter business relationships with their clients (with 25 percent having relationships of 4 or more years and 40 percent having relationships of 3 or more years). But this is largely due to the shorter history of private firms in China.

Table 2 also shows that Chinese firms use written contracts with surprising frequency. The vast majority of firms (88 percent overall) enter into written contracts with their clients, with 89 percent of SOEs and 85 percent of private firms doing so. Chinese judges cited in Clarke, Murrell, and Whiting (2005) argue that oral contracts are more likely to end up in litigation. This suggests that instead of facilitating later litigation, Chinese firms are more likely to use written contracts for their stronger reputation effects, as breaking a promise in writing is much more damaging to one's reputation.

Furthermore, many Chinese firms join business associations. Among the firms in our sample, 56 percent overall are members of at least one business association. The difference in the percentages of firms joining business associations between SOEs (66 percent) and private firms (42 percent) is statistically significant (see Table 2). Out of the firms that are association members, 22 percent believe that their association performs important dispute-resolution functions on a daily basis (with no significant difference between SOEs and private firms). But many of these firms also believe that a more important role of the associations is to represent their views and share their concerns with the government (45 percent

Table 2
Summary Statistics for Variables

Variable	All Domestic Firms			Private Firms			State-Owned Enterprises		
	N	Mean	SD	*N*	Mean	SD	*N*	Mean	SD
Quality of Local Court	533	13.86	16.02	210	13.99	16.26	323	13.77	15.89
Quality of Nonlocal Court	533	11.48	7.21	210	11.64	7.41	323	11.38	7.09
Nonlocal Domestic Sales 1	525	34.43	35.06	209	29.72	34.17	316	37.54	35.35
Nonlocal Domestic Sales 2	512	38.13	36.44	201	34.31	36.27	311	40.59	36.40
Investment Rate	476	.15	.34	169	.22	.41	307	.11	.29
New Auto	533	.09	.29	210	.09	.29	323	.09	.29
Auto 1995	533	.10	.30	210	.05	.21	323	.13	.34
New Product 2000	533	.32	.47	210	.24	.43	323	.36	.48
New Product 1998–2000	533	.35	.48	210	.28	.45	323	.40	.49
log(Firm Age)	510	2.29	1.22	190	1.43	.91	320	2.79	1.08
log(Firm Size)	533	5.11	1.67	210	4.18	1.26	323	5.71	1.63
Average Length of Business Relationship	533	3.42	1.63	210	2.78	1.55	323	3.84	1.54
Written Contract	533	.88	.33	210	.85	.36	323	.89	.31
Business Association Membership	533	.56	.50	210	.42	.49	323	.66	.47
Sales Growth Rate	509	−.01	.65	194	.02	.61	315	−.02	.67
% Foreign Sales	525	7.28	22.58	209	9.26	26.61	316	5.98	19.40
Average Regulatory Environment	508	.02	.03	201	.02	.03	307	.02	.03
Average FDI	533	.11	.11	210	.10	.11	323	.12	.11

Note. FDI = foreign direct investment.

of all member firms, 46 percent of those that are SOEs, and 41 percent of those that are private).[3]

Despite the prevention methods discussed above, the survey data depict a Chinese business world with frequent business disputes, with about one-third (230 out of 713 firms that responded to the question) experiencing major disputes with their clients in 2000. Table 3 gives the frequencies of major disputes and various methods of dispute resolution by ownership type. As in many transition economies, firms, especially private firms, in China do not often resort to the formal court system to resolve their business disputes (McMillan and Woodruff 1999). The World Bank survey puts the overall percentage of business disputes with clients resolved through the court system at about 20 percent, with SOEs at 23 percent and private firms at 14 percent. The majority of disputes with clients are instead resolved through negotiations among the firms (77 percent overall, 74 percent for SOEs, and 83 percent for private firms). Thus, private firms are less likely than SOEs to use the court system to resolve business disputes, and the difference is statistically significant. Both types of firms rarely resort to

[3] These alternative mechanisms are also used by firms in other transition economies, but often for different purposes. Firms in Vietnam turn to long-term relationships and written contracts for dispute prevention (McMillan and Woodruff 1999), while firms in the Russian Federation resort to business associations to resist government expropriation (Pyle 2007).

Table 3
Business Disputes and Their Resolution Methods by Ownership Type

	Overall			Private Firms			State-Owned Enterprises			
	Mean	*N*	SD	Mean	*N*	SD	Mean	*N*	SD	*t*-Statistic
Major disputes	.332	512	.471	.292	120	.456	.360	303	.481	−1.60
Court	.201	183	.342	.143	63	.286	.234	120	.365	−1.71*
Negotiation	.770	183	.354	.830	63	.305	.738	120	.375	1.69*
Arbitration	.028	183	.113	.026	63	.084	.029	120	.126	−.14

* Significant at 10%.

arbitration to settle their disputes, with only 3 percent of cases overall resolved in this fashion.

The heavy reliance on informal and personal channels to settle business disputes probably reflects the weak state of the legal system in China (Clarke, Murrell, and Whiting 2005). The Economic Contract Law, which initially applied only to SOEs, was not passed until 1981, and the General Principles of Civil Law that govern contracts between private firms were not passed until 1986. This may explain the higher percentage of disputes resolved through the court system by SOEs.

A comparison with other transition economies helps to put China's court system in perspective. Using data from an international firm-level survey, Johnson, McMillan, and Woodruff (2000) report that among firms interviewed, 48 percent in Poland, 34 percent in Slovakia, and 28 percent in Romania used the courts in resolving business disputes with their clients or suppliers, while in Russia and Ukraine, 10 percent and 16 percent did so, respectively. Thus, to the extent that firms' reliance on the court system reflects the quality of the legal system, Chinese courts seem to function better than those in Russia and Ukraine, but they lag behind their counterparts in Eastern Europe. The formal legal system in China also fares much better than that of its socialist neighbor in Asia, Vietnam, where only 9 percent of private entrepreneurs thought a court or other government agency could help in resolving business disputes (Johnson, McMillan, and Woodruff 2000).

It is also important to look at the substantial variation in the pace of legal development across regions and across industries in China. Table 1 shows that reliance on the formal court system versus informal channels for dispute resolution is very unevenly distributed. Across regions, the percentage of disputes settled through the court system ranges from a low of 11 percent in Chengdu to a high of 31 percent in Shanghai. A wide range is also seen across industries, from 8.2 percent for communication services firms to 27 percent for consumer products firms. When the firms are divided into city-industry cells, an even wider range of relative frequencies emerges (between 0 and 67 percent).

To summarize, business disputes occur with considerable frequency in China. To resolve these disputes, Chinese firms rely on both informal personal rela-

tionships and more formal mechanisms such as written contracts and business associations. The court system also plays an increasingly important but very uneven role in helping firms resolve disputes. How effective is the formal court system, relative to the alternative means of dispute resolution? Section 4 turns to an empirical study of this issue, first discussing how the mode of dispute resolution relates to the quality of the court system and outlining the estimation strategy, and then presenting empirical findings on how the court system affects Chinese firms.

4. Courts' Role in Firm Growth

4.1. Measures and Estimation Strategy

For at least two reasons, the percentage of business disputes resolved by the courts can be viewed as a measure of the maturity of the formal legal system. First of all, the percentage indicates the relative effectiveness of the court system in resolving business disputes as compared with the alternative mechanisms. The percentage reflects whether litigation can be conducted at a reasonable cost in a timely fashion, whether a fair legal judgment can be reached, and whether a judgment can be enforced. Second, how well the court system fulfills this particular role most likely correlates well with its capacity to carry out other tasks. For example, high-quality legal professionals are required to effectively resolve business disputes in court, and their presence also positively affects other aspects of the court system. Thus, the degree of the court's involvement in resolving business disputes may be interpreted as a measure of the quality of the legal environment for Chinese firms.

Specifically, I use the following two percentages to measure the legal environment faced by a given firm: the percentage of all business disputes resolved through the court system by all firms in the same industry and the same city, and the percentage of all business disputes resolved through the court system by all firms in the same industry but in all other cities. The first percentage (the variable Quality of Local Court) is an indicator of the local legal environment. For instance, it measures the availability and quality of local lawyers and judges in the city where the firm is located who are familiar with its particular industry. Similarly, the second percentage (the variable Quality of Nonlocal Court) measures the legal environment faced by the firm in other localities.

The measures for the quality of the court system are thus constructed at the city-industry level and so are superior to a measure of an individual firm's experience with using courts in resolving disputes. Conceptually, the quality of the court system should be measured at a level more aggregate than that of a firm. Empirically, the various firm behaviors to be explained may determine the frequency with which a given firm uses the courts, thus leading to a potential simultaneity problem. For instance, how much the firm sells nationally may

affect how many disputes arise and how they are settled, whereas the measures at the city-industry level do not suffer from this problem.

According to the rights hypothesis, the defining feature of a well-functioning formal legal system is its ability to offer firms more secure and more predictable protection, which helps them to engage in transactions that are more complex in time and distance. As a result, my empirical study focuses on the following firm decisions, which involve complex transactions in the time or distance dimensions: investment rate, the adoption of automated technology, product development, and nonlocal sales.

Specifically, I estimate the following fixed-effects model:

$$Y_{jik} = \alpha_i + \alpha_k + \beta_1 \text{Court}_{i,k} + \beta_2 \text{Court}_{i,-k} + \boldsymbol{Z}'_{jik}\boldsymbol{\Gamma} + \varepsilon_{jik}, \quad (1)$$

where Y_{jik} is a decision (such as investment rate) made by firm j operating in industry i and city k, $\text{Court}_{i,k}$ is the local court quality measure in industry i and city k, $\text{Court}_{i,-k}$ is the nonlocal court quality in industry i for firms located in city k, $\boldsymbol{Z}_{jik}$ is a set of firm-level control variables specific to the decision variable, and ε_{jik} is a random error term. The coefficients β_1 and β_2 thus measure the effects of the firm's legal environment on its decision making. Note that both city fixed effects and industry fixed effects are controlled for in the model (with α_k and α_i).

Among the firm-level control variables, all specifications include firm size (measured by number of employees) and age, both in logarithms, and dummy variables indicating whether the firm is privately owned and whether it is a member of an industry business association. When studying investment rate, sales growth is included in some specifications to control for business opportunities. When studying nonlocal sales, additional measures are included in some specifications to control for alternative methods of contract enforcement, such as whether the firm uses written contracts with its clients and the average length of its business relationships with clients. In some specifications, interactions terms for firms of different ownership types (SOEs or private firms) and various factors are included to demonstrate the different effects of these factors. I use ordinary least squares estimation for continuous variables such as investment rate and nonlocal sales percentage and logistic estimation for automated technology adoption and new-product development.

4.2. Court Quality and Long-Term Investment

One important function of the court system is to protect private property against expropriation, which affects firms' decisions about investment and innovation by influencing expected returns in the long run. Tables 4–6 present results relating the quality of the court system in China to firm investment and innovation.

Table 4 presents results with investment rate (the ratio between investment made in the year 2000 and total fixed assets in 1999) as the dependent variable. Column 1 shows the results of the basic specification. The outcomes suggest

Table 4
Effects of Court Quality on Investment Rate

	(1)	(2)	(3)	(4)
Private Firm	−.907	−.914	−.620	−.570
	(1.04)	(1.06)	(.76)	(.74)
Quality of Local Court	.030*	.033+	.036+	.039+
	(2.03)	(1.98)	(1.79)	(1.69)
Quality of Nonlocal Court	.093+	.099+	.103	.112
	(1.86)	(1.84)	(1.65)	(1.61)
Private Firm × Quality of Local Court			−.018	−.020
			(1.19)	(1.08)
Private Firm × Quality of Nonlocal Court			−.017	−.019
			(.35)	(.36)
Business Association Membership	−.041	−.075	−.153	−.173
	(.11)	(.21)	(.26)	(.30)
Private Firm × Business Association Membership			.307	.294
			(.40)	(.37)
Sales Growth Rate		−.113		−.104
		(.49)		(.38)
Private Firm × Sales Growth Rate				−.106
				(.32)
log(Firm Age)	−.462	−.497	−.463	−.498
	(1.38)	(1.37)	(1.41)	(1.40)
log(Firm Size)	−.222	−.221	−.223	−.227
	(1.46)	(1.49)	(1.51)	(1.59)
Observations	476	470	476	470
F-statistic:				
Quality of Local Court + Private Firm × Quality of Local Court = 0			3.19+	3.00+
Quality of Nonlocal Court + Private Firm × Quality of Nonlocal Court = 0			3.34+	3.06+

Note. Robust standard errors are clustered at the city-industry level, and *t*-statistics are in parentheses. City and sector fixed effects are included in all models. $R^2 = .05$ for all models.
+ Significant at 10%.
* Significant at 5%.

positive and significant effects of both local and nonlocal court quality on investment rate, and the magnitudes of these effects are quite substantial.[4] To control for investment opportunities, column 2 adds sales growth in 2000 as an explanatory variable, obtaining similar results. Columns 3 and 4 allow for different effects corresponding to different ownership types, showing essentially the

[4] When the quality of the local court system increases from the lowest level (zero for accounting and related services firms in Chengdu) to the highest (.667 for advertising and marketing firms in Tianjin), the investment rate increases by 2.03 percentage points, which amounts to 55 percent of its standard deviation. Similarly, when nonlocal court quality increases from the lowest level (.007 for communication services firms in Shanghai) to the highest (.34 for consumer products firms in Beijing), the investment rate increases by 3.09 percentage points, or 84 percent of its standard deviation.

same effects on SOEs and private firms.[5] These results suggest that a better court system has beneficial effects on firms of all ownership types as far as investment is concerned.

Because the automated technologies referred to in the World Bank survey require substantial investment in computing power, they provide another measure for long-term investment.[6] Table 5 shows that court quality also has beneficial effects on a firm's probability of adopting automated technologies, whether we use a binomial or multinomial measure of technology adoption (see the Appendix for variable definitions). Both local and nonlocal courts are helpful in increasing the likelihood of adopting automated technologies, and the effects are economically large.[7] The positive effects of court quality on the adoption of technology can be interpreted as evidence of the courts' role in protecting property rights and long-run returns. But they may also provide supporting evidence for the argument made in Acemoglu, Antràs, and Helpman (2007) that greater contractual incompleteness leads to the adoption of lower levels of technology. In other words, these results may also be evidence for the court's role in ensuring contracting rights.

New-product development is another firm behavior whose returns involve a long time horizon. Table 6 shows that the quality of the court system (local or nonlocal) once again has positive and large effects, whether we focus on year 2000 or the period of 1998–2000 (see the Appendix for variable definitions).[8] The one different result, however, is that private firms' product development does not benefit from higher court quality, local or nonlocal.[9] The different effects on SOEs and private firms probably reflect the different legal environments faced by firms of different ownership types. Furthermore, although firms that

[5] Specifically, the interaction terms between court quality and private firm indicators are all insignificant. Furthermore, the effects of both local and nonlocal court quality are significant (or very close to significant) for state-owned enterprises (SOEs), and *F*-statistics from joint hypothesis testing further show that the effects of court quality on investment rate are all significant for private firms (see Table 4). The specific null hypotheses tested are $\beta_1 \text{Court}_{i,k} + \delta_{p,1} \text{Court}_{i,k} \times \text{Private}_{jik} = 0$ and $\beta_2 \text{Court}_{i,-k} + \delta_{p,2} \text{Court}_{i,-k} \times \text{Private}_{jik} = 0$, where $\delta_{p,1}$ and $\delta_{p,2}$ are estimated coefficients of the interaction terms between the private-firm indicator and court quality measures.

[6] As specified in the survey, "automated" technology does not simply mean "mechanized" but also implies technology involving substantial computer control or requiring minimal intervention or supervision by workers.

[7] When the quality of the local court system improves from the lowest level to the highest, the probability of having adopted automated technology between 1995 and 2000 increases by 5.3 percentage points, which amounts to 16 percent of the standard deviation. The corresponding increase due to similar improvement in the quality of nonlocal courts is 8.7 percentage points, equal to 26 percent of the standard deviation. Larger and younger firms were also more likely to adopt automated technology between 1995 and 2000.

[8] For a typical state-owned enterprise (SOE), when the local courts' quality improves from the worst level to the best, the result is a 26.7-percentage-point increase in the probability of new-product development in 2000 (57 percent of the standard deviation). A similar improvement in the quality of nonlocal courts leads to a 36.4-percentage-point increase in the SOE's probability of new-product development (77.6 percent of the standard deviation).

[9] As shown by the χ^2 statistics in Table 6, I fail to reject the null hypothesis that the effect of court quality on private firms is not significantly different from zero.

Table 5
Effects of Court Quality on the Adoption of Automated Technology

	New Auto		Auto = 1	Auto = 2	Auto = 1	Auto = 2
	(1)	(2)	(3)	(4)	(5)	(6)
Private Firm	−.220	1.093	−.199	−.106	1.035	1.128
	(.31)	(.59)	(.29)	(.22)	(.56)	(.99)
Quality of Local Court	.094**	.114*	.089**	.015	.099*	.055
	(2.82)	(2.16)	(2.65)	(.69)	(2.16)	(1.52)
Quality of Nonlocal Court	.309**	.347**	.290**	−.051	.313**	−.019
	(4.13)	(3.61)	(3.88)	(1.08)	(3.79)	(.25)
Private Firm × Quality of Local Court		−.038			−.029	−.118**
		(.82)			(.68)	(2.60)
Private Firm × Quality of Nonlocal Court		−.067			−.062	.042
		(.69)			(.64)	(.91)
Business Association Membership	−.036	−.306	−.029	.839	−.200	1.243*
	(.07)	(.49)	(.06)	(1.37)	(.35)	(2.02)
Private Firm × Business Association Membership		.518			.310	−.795
		(.60)			(.38)	(.96)

log(Firm Age)	−.473**	−.423*	−.485**	.443*	−.456**	.490**
	(2.74)	(2.43)	(2.98)	(2.52)	(2.86)	(2.86)
log(Firm Size)	.555**	.541**	.559**	.098	.555**	.019
	(3.13)	(3.05)	(3.77)	(.55)	(3.54)	(.10)
Observations	279	279	510	510	510	510
χ^2-Statistic:						
Quality of Local Court + Private Firm × Quality of Local Court = 0		4.73*				
Quality of Local Nonlocal Court + Private Firm × Quality of Nonlocal Court = 0		3.39+				

Note. Robust standard errors are clustered at the city-industry level, and *t*-statistics are in parentheses. City and sector fixed effects are included in all models.
+ Significant at 10%.
* Significant at 5%.
** Significant at 1%.

Table 6
Effects of Court Quality on New-Product Development

	New Product 2000		New Product 1998–2000	
	(1)	(2)	(3)	(4)
Private Firm	.267	1.715**	.181	1.561**
	(.97)	(3.38)	(.69)	(3.09)
Quality of Local Court	.010	.021*	.014*	.020*
	(1.59)	(2.40)	(2.21)	(2.17)
Quality of Nonlocal Court	.026	.057*	.027	.061*
	(1.18)	(2.08)	(1.18)	(2.11)
Private Firm × Quality of Local Court		−.025+		−.010
		(1.95)		(.71)
Private Firm × Quality of Nonlocal Court		−.028		−.048
		(.97)		(1.57)
Business Association Membership	.154	.802*	.060	.621+
	(.60)	(2.04)	(.26)	(1.85)
Private Firm × Business Association Membership		−1.521**		−1.310*
		(2.66)		(2.46)
log(Firm Age)	.292*	.265*	.273*	.243*
	(2.54)	(2.38)	(2.46)	(2.26)
log(Firm Size)	.269*	.236*	.257*	.227*
	(2.30)	(2.01)	(2.30)	(2.11)
χ^2-Statistic:				
Quality of Local Court + Private Firm × Quality of Local Court = 0		.09		.68
Quality of Nonlocal Court + Private Firm × Quality of Nonlocal Court = 0		.99		.25

Note. Robust standard errors are clustered at the city-industry level, and *t*-statistics are in parentheses. All models include city and sector fixed effects. $N = 510$.
+ Significant at 10%.
* Significant at 5%.
** Significant at 1%.

are members of business associations are more likely to develop new products overall, private firms that are members of business associations are not significantly more likely to develop new products. This suggests that SOEs may also benefit more from the nongovernment sector. The asymmetry in the benefits received from the court system and business associations may lead private firms to have less faith in these systems, which may explain their lower participation rates (see Table 3 for use of the court system and Table 2 for business association membership).

4.3. Court Quality and Long-Distance Contracting

Another major role of a successful formal legal system is to efficiently enforce contracts, especially complex ones. To examine this role of the court system in China, this section focuses on nonlocal sales that involve long-distance contracts, with results presented in Table 7.

The results suggest that the quality of the local court system promotes long-distance and thus more complex transactions (column 1), and the magnitude of this significant effect is economically important.[10] In contrast, the quality of nonlocal courts has no significant effect on firms' nonlocal sales. The estimated effects of the other explanatory variables are as expected.[11] Controlling for the use of alternative contracting measures such as written contracts and long-term business relationships does not change the results (column 2). Consistent with expectations, the use of these alternative methods tends to increase nonlocal sales, and the effects are also economically important.[12]

Column 3 allows different effects for SOEs and private firms, again showing the asymmetry between local and nonlocal courts (see the *F*-statistics). A more active local court system is correlated with more nonlocal sales for both SOEs and private firms, while greater involvement of nonlocal courts does not significantly affect firms' nonlocal sales. In addition, affiliation with business associations tends to increase nonlocal sales, but the positive effect is not significant for private firms. This result is similar to that obtained for product development and thus provides further evidence that business associations mainly give assistance to SOEs.[13] Finally, these results are largely replicated when using an alternative measure of nonlocal sales (see columns 4–6).

4.4. Robustness Tests

The results presented above outline two main themes found in the data. Courts of higher quality promote business development, but the benefits from a better court system are often unevenly distributed. To check the robustness of these results, I conducted additional regressions, with results presented in Table 8.

Because the measure of nonlocal court quality is constructed with information from only four other cities, it may suffer from more severe measurement error, which may explain the insignificant effects of nonlocal courts on certain firm choices. To investigate whether including this measure biases the estimation of local court effects, I reran all of the regressions, excluding Quality of Nonlocal Court. The results obtained are similar to those in Tables 4–7.

[10] On the basis of the results in column 1 (Table 7), an improvement in local court quality from the lowest level to the highest level leads to an increase in the nonlocal sales share of 16.3 percentage points, which is 46.5 percent of the standard deviation.

[11] The percentage of foreign sales by definition is negatively correlated with nonlocal domestic sales share, while firm size and affiliation with business associations are correlated with increased nonlocal sales. The positive effect of business association affiliation suggests that such affiliation facilitates nonlocal sales, while the positive effect of firm size may have multiple interpretations. Larger firms enjoy economies of scale in transportation and logistics and thus find it more cost-effective to sell in national markets. They may also have better established reputations and thus find it easier to resolve issues related to long-distance contracting.

[12] The use of written contracts leads to an increase of 7.68 percentage points in nonlocal sales share, while a 1-standard-deviation increase in average relationship length (or 1.59 years) results in a 2.88-percentage-point rise in nonlocal sales share.

[13] Another interesting result is that the use of alternative methods of contracting increases nonlocal sales for SOEs but does not have significant effects for private domestic firms.

Table 7
Effects of Court Quality on Nonlocal Sales

	Nonlocal Domestic Sales 1 ($N = 502$)			Nonlocal Domestic Sales 2 ($N = 489$) (Excluding Foreign Sales)		
	(1)	(2)	(3)	(4)	(5)	(6)
Private Firm	.798	.911	17.367^{+}	2.396	2.551	19.184^{+}
	(.26)	(.30)	(1.98)	(.75)	(.80)	(1.98)
Quality of Local Court	.245^{+}	.244^{+}	.254^{+}	.248^{+}	.250^{+}	.239
	(1.94)	(1.98)	(1.75)	(1.91)	(1.97)	(1.57)
Quality of Nonlocal Court	.115	.069	.188	.115	.076	.096
	(.15)	(.09)	(.25)	(.15)	(.10)	(.13)
Private Firm × Quality of Local Court			.001			.040
			(.16)			(.24)
Private Firm × Quality of Nonlocal Court			−.232			−.103
			(.59)			(.24)
Business Association Membership	6.453*	6.426*	8.743*	6.092^{+}	6.201^{+}	7.236^{+}
	(2.04)	(2.03)	(2.27)	(1.86)	(1.88)	(1.83)
Average Length of Business Relationship		1.813^{+}	2.413*		1.867^{+}	2.733*
		(1.87)	(2.04)		(1.73)	(2.23)
Written Contract		7.682^{+}	10.646		6.806	11.311
		(1.73)	(1.54)		(1.52)	(1.62)
Private Firm × Business Association Membership			−5.802			−2.738
			(.94)			(.41)
Private Firm × Average Length of Business Relationship			−1.534			−2.074
			(.89)			(1.14)

Private Firm × Written Contract			−6.573			−9.134
			(.78)			(1.04)
log(Firm Age)	−.466	−1.438	−1.606	−.674	−1.628	−1.669
	(.33)	(1.00)	(1.15)	(.39)	(.95)	(.99)
log(Firm Size)	3.312**	2.657*	2.409*	3.894**	3.266*	3.014*
	(3.00)	(2.45)	(2.15)	(3.20)	(2.60)	(2.33)
% Foreign Sales	−.409**	−.408**	−.382**			
	(6.83)	(7.21)	(5.47)			
Private Firm × % Foreign Sales			−.043			
			(.63)			
R^2	.39	.40	.40	.37	.37	.38
F-statistic:						
Quality of Local Court + Private Firm × Quality of Local Court = 0			3.68+			4.05*
Quality of Nonlocal Court + Private Firm × Quality of Nonlocal Court = 0			.00			.00

Note. Robust standard errors are clustered at the city-industry level, and *t*-staticstics are in parentheses. City and sector fixed effects are included in all models.

+ Significant at 10%.

* Significant at 5%.

** Significant at 1%.

Table 8
Robustness Tests

	Investment Rate	New Auto	New Product 1998–2000	Nonlocal Sales
Quality of Nonlocal Court excluded:				
Quality of Local Court	.021+	.086+	.010*	.236*
	(1.74)	(1.73)	(2.00)	(2.13)
Additional controls	SG	. . .	. . .	AC, FS
R^2	.048	.208	.192	.400
Observations	470	279	510	502
Controlling for Average Regulatory Environment and Average FDI:				
Quality of Local Court	.037+	.079**	.016*	.265*
	(1.92)	(3.13)	(2.31)	(2.24)
Quality of Nonlocal Court	.103+	.240**	.011	−.005
	(1.91)	(3.53)	(.51)	(−.01)
Additional controls	SG	. . .	. . .	AC, FS
R^2	.057	.285	.191	.402
Observations	447	264	485	477

Note. Robust standard errors are clustered at the city-industry level, and *t*-statistics are in parentheses. All models include city and sector fixed effects and controls for log(Firm Age), log(Firm Size), and I(Private Firm). SG = Sales Growth Rate; AC = I(Business Association Membership), Average Length of Business Relationship, I(Written Contract); FS = % Foreign Sales.
+ Significant at 10%.
* Significant at 5%.
** Significant at 1%.

Another concern is that certain unobserved variations at the city-industry level (for example, regulatory environment) may affect both the quality of the local courts and the behaviors of firms located in a given city-industry and thus may account for the observed correlation of court quality and firm performance. To address this concern, I included two additional measures that reflect regulatory environment at the city-industry level among the explanatory variables: the percentage of firms choosing their current location because of fewer regulatory requirements and the average presence of foreign direct investment (measured by the average company share owned by foreigners, weighted by employment). Again, the coefficients estimated are similar to those obtained in Tables 4–7.

The main results are also robust to controlling for other firm characteristics (such as transportation costs and relationships with foreign firms) and to allowing these factors to influence the role of the court. Because of space limitations, these results are not presented here.

5. Conclusion

This study of the role of the formal legal system in promoting business growth in China finds that a higher proportion of business disputes settled through the court system (either in the local court system or in a nonlocal court) is correlated with a higher investment rate, a higher propensity to adopt automated tech-

nology, a higher probability of developing new products, and more long-distance sales for Chinese firms. How do these results help answer the question of whether the rights hypothesis applies to China?

The typical formulation of the rights hypothesis asserts that an effective formal judicial system is a prerequisite for modern economic growth (North 1990). As China has a legal system that is far from effective by Western standards, its experience in the last 30 years challenges this simple version of the hypothesis, but it may support a slightly more sophisticated theory.

In the early stage of development, personal relations and networks may provide reasonably good protection for property and contract rights. But as the economy grows larger and more sophisticated, uniform and impersonal enforcement of rules is needed to regulate more complex transactions. So a more sophisticated version of the rights hypothesis is that an effective formal judicial system will eventually prove superior to relation-based governance as the economy grows. This version of the hypothesis thus allows a country's development stage and other local conditions to help determine the most appropriate institutions to support its growth.

Viewed in this light, the results presented here suggest that China may have reached the stage at which a formal judicial system has become more effective in promoting firm growth than the old relation-based system. Because business development and further economic growth will benefit more from the formal legal system, a genuine domestic demand may be expected to emerge in China for the court system to play a greater role. This may bode well for a stronger and more effective judiciary in the future.

It is, however, important to highlight two limitations in China's legal system that are found in this study. First, the court system in China does a better job facilitating the growth of SOEs than that of private firms; second, courts do a better job protecting local firms than nonlocal firms. As the rapidly growing Chinese economy implies more complex transactions and private firms become increasingly prominent in the economy, it is crucial to resolve these issues in the legal system.

There is one more rationale for providing equal legal protection to private firms and SOEs: the lower degree of protection granted to private firms may have caused them to reduce their reliance on the courts, as evidenced by their lower frequency of using the court system to resolve business disputes compared with SOEs (14 percent versus 23 percent of disputes, respectively; see Table 1). The hesitance of private firms to use the court system may lead to their reluctance to participate in discussions that help shape future legal reforms and thus may result in further neglect of their interests in future legal development.

To summarize, findings from this study give evidence of the positive role of China's legal system in promoting business development but also suggest that additional initiatives are justified in China's institutional reforms and legal development. A better understanding of the appropriate content and timing of further legal reforms, however, awaits future studies.

Appendix

Definitions of Variables

World Bank Survey Variables

Investment Rate. The ratio of investment in the year 2000 to the total amount of existing fixed assets in 1999.

New Auto. A dummy variable indicating whether the firm adopted automated technology between 1995 and 2000.

Auto. A multinomial variable, where Auto = 1 indicates that the firm adopted automated technology between 1995 and 2000, Auto = 2 indicates that the firm adopted automated technology before 1995, and Auto = 0 (the comparison group) indicates that the firm did not adopt automated technology until 2000.

New Product 2000. A dummy variable indicating whether the firm developed any new products in the year 2000.

New Product 1998–2000. A dummy variable indicating whether the firm developed any new products between 1998 and 2000.

Nonlocal Domestic Sales 1. The percentage of sales made in domestic regions outside of the city where the firm is located.

Nonlocal Domestic Sales 2. The percentage of domestic sales made in regions outside of the city where the firm is located (with foreign sales excluded from the computation of sales share).

Firm Age. The firm's age in the year 2000 (in logarithms).

Firm Size. The number of employees working in the firm in the year 2000 (in logarithms).

Private Firm. A dummy variable indicating whether the firm is privately owned.

Business Association Membership. A dummy variable indicating whether the firm is a member of the industry business association.

Average Length of Business Relationship. The average length of a firm's business relationships with its clients.

Written Contract. A dummy variable indicating whether the firm uses written contracts with its clients.

Sales Growth Rate. The projected growth rate of sales in the year 2001.

% Foreign Sales. The percentage of sales made overseas.

Sector. The industry sector of the firm.

City. City where the firm is located.

Additional Variables Constructed from the World Bank Survey

Quality of Local Court. The percentage of all business disputes resolved through the court system by all firms in the same industry and city.

Quality of Nonlocal Court. The percentage of all business disputes resolved through the court system by all firms in the same industry but in all other cities.

Average Regulatory Environment. The percentage of firms in the same city-sector cell that chose their current location because of fewer regulatory requirements.

Average FDI. The average of the largest foreign partner's share in the same city-sector cell where the domestic firm is located, weighted by firm employment.

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