THE QUALITY OF DOMESTIC LEGAL SYSTEMS AND EXPORT PERFORMANCE: THEORY AND EVIDENCE FROM CHINA

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ABSTRACT

Does 'within country' heterogeneity in the quality of legal institutions matter for export performance? How do enterprise ownership types that reflect differential access to protections offered by local informal institutions moderate the relationship between quality of local formal legal institutions and exports? To answer these questions, we develop a theoretical framework drawing on insights from trade theory, institutional economics and research on local institutions in China. Using a sample of over 198,000 firms and institutional quality data at the city level in China, we find support for our prediction that higher quality legal systems in a location are associated with higher exports. We also find that firms that have higher access to local informal institutions benefit less from better developed legal institutions, suggesting that informal institutions can serve as substitutes to the legal system in reducing transaction costs associated with export.

Key Words: Quality of Law, Export, State-owned enterprises, China

INTRODUCTION

The quality of legal institutions was found to have a significant impact on the foreign trade level of a country; its effect is comparable to other standard determinants of trade levels cited in the literature such as GNP per capita, distance between countries, and language differences (Anderson and Marcouiller, 2002; de Groot *et al*., 2004). High quality legal systems can reduce the incentives of participants in a joint transaction (importers and exporters) to engage in opportunistic behaviors as well as allow for remedies to the victims of opportunistic behavior once such behavior is discovered. Reliable legal systems in exporting and importing countries therefore reduce transaction costs for exporters and importers (Anderson and Marcouiller, 2002; Berkowitz *et al*., 2006).

Prior studies in the international trade literature have largely used country-level trade information to investigate how the quality of the legal system in a country affects its trade with other nations (e.g., Berkowitz *et al.*, 2006). A few recent international business studies have started to use firm-level data to investigate the effects of some important components of institutions (e.g., free market mechanism development) on performance of exporters (e.g., Gao *et al*., 2010; Shinkle and Kriauciunas, 2010). We extend prior studies by examining the effects of other (arguably more) fundamental local institutions -- that is, the quality of domestic law -- on exporter performance. We further examine how the characteristics of exporting firms affect their interactions with the legal systems and thus moderate the relationship between legal quality and exporter performance.

Legal institutions, especially when they are inadequately developed, may have different effects on various groups of exporters in a country for two main reasons. First, there is a significant heterogeneity in the ability of different groups of traders to substitute informal institutional mechanisms for formal legal means to reduce opportunism, transaction costs, and the incidence of disputes. The higher the ability to utilize informal institutional mechanisms, the lower is the need of the traders for reliable legal institutions (Peng and Heath, 1996; Xin and Pearce, 1996). Trust relationships and social sanctions in networks are examples of important informal institutional mechanisms that are not available equally to all traders (Peng and Luo, 2000). For instance, in many cultures (e.g. collectivistic cultures), informal institutions magnify the divides between 'insiders' and 'outsiders' to groups and networks (Thomas, 2001). In these cultures it is more challenging for outsiders (e.g., foreign executives) to build connections with a local business network; as a result, the outsiders need to rely more on high quality legal institutions to reduce opportunism and transaction costs.

Second, exporters may have different degrees of ability to mobilize the courts in their country to enforce contracts or defend themselves from legal claims by others. For instance, in countries whose legal systems lack independence from the government, state owned enterprises can leverage their political ownership ties with the government to influence the decisions made by local courts. As a result, private firms may face discrimination in resolving legal disputes with state owned companies and face high transaction costs in dealing with them, while state-owned companies may enjoy more leeway in exploiting opportunities in the transactions (Huang, 2003).

To fully understand the impact of law on export performance, it is therefore necessary to consider the variation in the impacts that legal institutions have on different types of exporters in terms of the transaction costs they face as well as the expected net benefits they could gain from their own opportunistic behaviors. It is also important to consider how potential importers react to the influence of legal institutions in the home country of the exporters on the behaviors of specific exporters (e.g., importers may consider the specific risk of opportunism in deciding at what price to import from a particular exporter given the exporter's relative capacity to influence the courts in its home country).

Our intent in this paper is to explain how the interaction patterns of an exporter with its home legal environment moderate the relationship between the quality of the exporter's home legal systems and its exporting performance. In our empirical context, China, we identify the ownership types of exporters (foreign, state-owned, domestic non-state owned) to be a good proxy for their ability to mobilize formal and informal institutions to reduce transaction costs from opportunism of partners and to increase the benefits from their own opportunism (Park and Luo, 2001; Peng and Luo, 2000). Specifically, we articulate a theoretical framework that addresses the following questions: 1) how the quality of the legal system affects different ownership classes of exporters in terms of their production operations and transactions costs associated with crossing the domestic border, and 2) how importers perceive and react to the risks from opportunism associated with each type of exporter as a function of the quality of law in the exporter's country.

Our study contributes to the literature on law and export in two important aspects. First, we provide a more nuanced and complete understanding of the role of home country legal institutions in determining the performance of different types of exporters. We find that foreign producers in China benefit more than domestic ones from better developed legal institutions, given the lower ability of foreign producers to use alternative means (i.e., informal institutions) to reduce transaction costs in domestic production and at the border and thus their dependence on the legal system. We also find that domestic non-state owned firms which are less able to use their connections to influence the courts than state-owned firms benefit more from improved legal institutions than the latter.

Second, our study is among the first to examine the effects of 'within country' heterogeneity in the quality of the law on export performance (an exception is Gao *et al*., 2010). We recognize that, despite the overall low quality of the legal institutions of China, there are significant variations in legal quality within China (Luo, 2007; Zhou and Poppo, 2010). A location with more reliable legal institutions, we argue, contributes more to an exporter's performance. Our findings confirm this argument, suggesting that effective legal systems matter in firms' export activities in China, and that heterogeneity in institutional quality in China partially explains the variations in firms' export performance.

THEORY AND HYPOTHESES DEVELOPMENT

Literature Review

North (1990) argues that people form institutions because of imperfect insight and incomplete information. Institutions are "the rules of the game in a society" and are devised to reduce uncertainty by establishing a stable structure of human interactions (North, 1990: 3). As institutions "determine transaction and production costs and hence the profitability and feasibility of engaging in economic activity" (North, 1991: 97), the nature of institutions that govern the exchange relations affect the magnitude and direction of trade (Ranjan and Lee, 2007).

Prior international trade studies have found empirical evidence supporting the important role of legal institutions in determining trade patterns (Anderson and Marcouiller, 2002; Berkowitz *et al*., 2006; de Groot *et al*., 2004; Iwanow and Kirkpatrick, 2007; Ranjan and Lee, 2007). Iwanow and Kirkpatrick (2007), for instance, observed that a 10 percent improvement in the regulatory environment would yield an increase in exports of about 10-11 percent. Aulakh and Gençtürk (2008) and Cavusgil *et al.* (2004) found that poorly developed legal environments in the importer's country reduce the effectiveness of formal contracts as a governance tool to minimize importer opportunism. Berkowitz *et al.* (2006) and Ranjan and Lee (2007) found that reliable legal institutions in both the exporting and importing countries contribute to international trade between countries. In particular, Ranjan and Lee (2007) observed that level of contract enforcement in exporting countries has a larger impact on bilateral trade compared with that in importing countries.

Recent international business studies have found that formal institutions affect export strategy and performance of firms. Gao *et al*. (2010) found that provincial level institutional

development (captured by the development of free market mechanisms and intermediate institutions) positively affects export propensity and intensity of Chinese firms. They also found that the effect of institutional development on export behavior is greater than that of firm competencies and industry factors. Shinkle and Kriauciunas (2010) investigated how firm age and size, which reflect the ability of firms to benefit from or take advantage of institutions, affect the export growth of firms in Central and Eastern European countries. They found that in countries with less developed free market institutional environments, firm size has a U-shaped relationship with export growth, suggesting that compared with medium-sized firms, large firms (with more employment opportunities) tend to receive more favorable institutional treatment, and small firms are better able to deal with institutional voids. Shinkle and Kriauciunas (2010) thereby suggested the importance of considering the interactions of firm characteristics with institutions in examining the effect of institutions on firms' export performance.

These international business studies have yet to investigate specifically the role of legal systems (arguably the most fundamental component of institutional environment) in firms' export performance. Our study extends prior studies by investigating how legal systems in an exporter's country matter in export performance as a function of ownership characteristics of the exporter.

Quality of Legal Institutions and Export Performance

High quality legal systems refer to systems that are impartial, promote transparency in business relationships and enforcement of contracts, and impose penalties on illegal

opportunistic behaviors (North, 1990). High quality legal institutions in an exporter's country can facilitate international trade in three aspects. First, reliable legal institutions in an exporter's country reduce international transaction costs for importers. The unobserved barriers to international trade are often related to asymmetric information between importers and exporters and to uncertainty in exchange (Anderson and Marcouiller, 2002; de Groot *et al*., 2004). Since exporters may possess more information on product quality and shipment standards, importers may face risks of receiving substandard shipments and low quality products (Berkowitz *et al.* 2006; Ranjan and Lee, 2007). When the importer can rely on legal institutions in the exporter's country to solve disputes over contract enforcement, reliable legal systems reduce the propensity of the exporter to engage in opportunistic behavior and provide remedies for the importer when opportunistic behaviors of an exporter are discovered (Berkowitz *et al*., 2006).

The legal quality and impartiality in the exporter's country is particularly critical for offsetting importer risk because the importer has fewer mechanisms to reduce risks than the exporter. For exporters, a variety of contractual mechanisms emerged to offset the risks of cross border transactions, the major risk being a failure to be paid. This risk can be handled efficiently through available formal contractual mechanisms such as letters of credit, prepayment, and counter trade (Berkowitz *et al.*, 2006). Importers can inspect the goods imported but typically inspection opportunities are costly and time constrained and do not allow sufficient opportunity for verification that all the quality and other specified attributes of the imported goods are fulfilled upon paying for the goods. Warranties can reduce the risks

of substandard inputs but they must be enforced when exporters do not comply within their terms. To enforce contracts, importers must typically rely on the legal institutions in the exporter's country. International arbitration specified in contracts can be an alternative but its enforcement depends on legal institutions in the places where the exporter has assets, usually its home country (Berkowitz *et al*., 2006; Ranjan and Lee, 2007).

Second, a high quality legal institution in the exporter's country reduces transaction costs that exporters face in their domestic production (e.g., in dealing with suppliers). This is especially significant when producing complex products that involve multiple suppliers and specifications of characteristics that are difficult to fully articulate in a contract (Berkowitz *et al*., 2006). The third benefit of having a good legal system is that it reduces transaction costs and risks of appropriation at the border (Anderson and Marcouiller, 2002). When law enforcement institutions are ineffective, corrupt government officials and other predators are able to steal and collect bribes from traders at the exporter's border.

In summary, since high quality legal institutions lower transaction costs between trade partners, production costs of exporters and transaction costs at the border, we expect that better developed legal institutions at the exporter's location contribute to its export performance. A firm operates both in a national and local institutional context. These institutional contexts tend to converge in small countries but may diverge significantly in large countries, especially countries with inadequate development of legal institutions. Our empirical context China is a good case in point -- it has significant regional variations in the quality of legal institutional environments (Luo, 2007). Although business laws and

regulations, stipulated by the central government, are basically the same in China, the degree of protection offered by decisions of local judges and the effectiveness of legal enforcement vary across different provinces (Fan and Wang, 2005; Zhou and Poppo, 2010). The Southeast (e.g., Jiangsu and Shanghai) and Bohai regions (e.g., Beijing and Shandong), for instance, have stronger protection of property and contract rights than other regions in China (*World Bank*, 2006). The regional variations in legal quality reflect mainly differences in the degree of legal enforcement by local governments, corruption, quality of judges, and administrative efficiency (Luo, 2007; *World Bank*, 2006; Zhou and Poppo, 2010). We contend that the regional patterns of the development of legal institutions in China are a critical factor in explaining the effects of the quality of legal systems on export performance of firms. Specifically, we expect that, other things being equal, exporters in locations with higher legal quality will outperform those in locations with lower legal quality. Stated formally,

H1: In China, the higher the quality of legal institutions in a location, the higher the performance of exporters in that location.

The high quality legal systems are particularly important for exporters and importers to reduce transaction costs and solve disputes when they face high export market uncertainties. When the uncertainties in the export market are high, contracts written tend to be incomplete as it is more difficult to anticipate all contingencies, and as result, the chance of opportunism and disputes is higher (Luo, 2007; Williamson, 1985). Trade partners are therefore in greater need of reliable legal systems for resolving conflicts and finding redress when opportunism occurs. We thus reach the following hypothesis.

H2: The positive impact of legal quality on export performance, as specified in H1, is stronger in industries with higher export market uncertainty.

Ownership Type, Legal Quality and Export Performance

Having discussed the relationship between the quality of legal systems and an exporter's performance, we now move on to examine how this relationship is moderated by an exporter's ownership type. Exporters in China can be broadly divided into two types: foreign exporters and domestic exporters (state-owned and non-state owned). We contend that the relative influence of high quality legal institutions on the export performance varies significantly among different ownership classes of exporters in China.

Having a well developed legal system may benefit foreign exporters more than it may benefit domestic exporters for three main reasons. First, relative to domestic exporters, foreign exporters face liability of foreignness and may have more conflicts when dealing with local stakeholders (e.g., employees, suppliers, and governments) both in domestic operations and at the border (Zaheer, 1995). Second, foreign exporters may face more discrimination than domestic exporters in resolving legal disputes with transaction partners in domestic operations. For instance, according to the survey conducted by the US-China Business Council in 2008, sixty-one percent of the surveyed US companies reported that there were tighter enforcement of rules against foreign firms (*USCBC*, 2008).

Third and more important, foreign exporters are typically less capable of utilizing informal institutional mechanisms, such as guanxi or personal connections with local stakeholders, to reduce the number of conflicts or incidences of opportunism. Developing

reliable business networks and trusting relationships with transaction partners can to some extent substitute for formal legal support, but building guanxi requires family and social ties as well as deep understanding of Chinese culture (Park and Luo, 2001; Peng and Luo, 2001; Xin and Pearce, 1996; Yeung and Tung, 1996). For instance, there are important but subtle differences between guanxi in China and networking in Western societies (Park and Luo, 2001; Yeung and Tung, 1996). Foreign exporters, even after many years of operations in China, may not be able to fully grasp these differences. Since building personal connections with local stakeholders in China depends primarily on shared identification with family, hometown, region, school, or place of work (Xin and Pearce, 1996; Yeung and Tung, 1996), foreign exporters are at an apparent disadvantage in connection building as compared to domestic exporters. As a result, we expect foreign exporters to rely more on formal legal institutions in China than domestic exporters to solve disputes and reduce conflicts/opportunism arising in domestic operations and at the border.

Foreign exporters, however, can rely on relational and reputational capital with respect to transactions with potential importers. An important share of exports of foreign subsidiaries and joint ventures in China is intra-firm trade. For instance, eighteen percent of the US's imports from China were conducted inside firms in 2000 (Bernard *et al.*, 2007). In the case of intra-firm trade, there is a negligible chance for opportunism. Furthermore, the importers can deal effectively with any manifestation of opportunistic behavior on the part of exporters using internal corporate institutions (e.g., organizational policies, procedures, information systems and sanctions). In dealing with other foreign exporters that are originally

from countries with high quality legal systems, the importer may find redress in courts of the home countries of the exporters. Thus, its reliance on the effectiveness of Chinese courts is likely to be lower. Foreign exporters may also have more reputational assets than domestic exporters, which can further reduce the perceived risks of opportunistic behavior by the importers and thus the dependence on legal systems in China.

Our arguments taken together suggest that, on the one hand, foreign exporters may benefit more from effective legal systems because they face higher production costs in China than domestic exporters. On the other hand, foreign exporters may face lower transaction costs in dealing with importers, which lowers their need of effective legal systems in China. Since it is not clear which effect is stronger, we have the following competing hypotheses.

H3a: The positive impact of legal quality on export performance, as specified in H1, is stronger for foreign exporters than for domestic exporters.

H3b: The positive impact of legal quality on export performance, as specified in H1, is stronger for domestic exporters than for foreign exporters.

In China, law provides protections for and imposes constraints on domestic firms to different degrees contingent on whether the firms are state-owned or not. State-owned firms, by leveraging their political ownership ties to the government, have a stronger ability than non-state owned firms to mobilize the courts to enforce contracts or defend themselves from legal claims by others (Allen *et al*., 2005; Huang, 2003; Qin, 2007). This is because in China the judicial system lacks independence from the government; the government heavily influences the decisions made by local courts and the enforcement of court rulings (Allen *et*

al., 2005; Huang, 2003; Khanna, 2007). Although non-state owned firms can actively build political ties with the government, their informal social ties with government officials may not be as strong as the state-owned firms' ownership ties with the government. Indeed, studies have shown that non-state owned firms often face discrimination by local courts when they have disputes with state-owned firms and cannot rely on the legal systems to protect their property rights (Huang, 2003).

As discussed earlier, there are strong regional variations in legal quality in China. In places with better developed legal environments (e.g., Zhejiang), non-state owned firms are likely to suffer less discrimination, their property rights are better protected, and they can rely more on the effective local courts to solve conflicts (Huang and Di, 2004). State-owned enterprises, on the other hand, do not benefit as much from an improved legal environment as non-state owned firms. Instead, state-owned enterprises may even prefer a low quality legal environment where they can leverage their political ties with the governments to receive preferential treatment by local judicial systems.

From the perspective of importers, they will face less uncertainty and have more confidence in dealing with non-state owned exporters in cities with higher quality legal environments. Their confidence in dealing with state-owned exporters, however, may not vary as much between places with high and low quality legal systems. Improvements in the quality of legal systems are likely to affect state-owned firms, but may be less effective in eliminating both the influence of strong ties of the judiciary with the government and the common interests that the courts and the government have (Qin, 2007). Thus, while

improvement in the legal system will increase the confidence of importers in their ability to reduce transaction costs, the effect will be lower in the case of state-owned firms than in the case of non-state owned companies.

Considering the differential need of a high quality legal system by state-owned and non-state owned firms, as well as the perceptions of importers on the restricting power of laws on state-owned and non-state owned firms, we expect non-state owned firms to benefit more from a strong rule of law than state-owned firms in improving export performance.

H4: The positive impact of legal quality on export performance, as specified in H1, will be weaker for state-owned exporters than for domestic non-state owned exporters.

METHODS

Data and Sample

China represents an appropriate context for studying export performance (Gao *et al*., 2010). Export growth in China surged after China's accession to the World Trade Organization in 2001, averaging 29% a year during 2002-2007 (*Economist Intelligence Unit*, 2009). China is one of the most important exporters to many countries or regions including the US, the EU, and Japan (*Economist Intelligence Unit*, 2009). Along with rapid export growth, the Chinese government has improved the coverage of the legal framework by enacting different types of commercial laws and extending property rights but "law enforceability varies by regions and locations within a socially and economically diversified economy" (Luo, 2007: 44; Qin, 2007; Zhou and Poppo, 2010).

We used two main data sources to construct our sample. They are the 2005 edition of the Annual Census of Industrial Enterprises and World Bank (2006)'s "Investment Climate Survey" in China. The former was conducted by the National Bureau of Statistics of China (NBSC) and provides information on companies' export performance, financial data, and ownership structures while the latter provides information concerning the quality of contract enforcement and protection of property rights in 120 cities in China. The 120 cities included in the survey accounted for 70-80 percent of China's GDP, and about 100-200 companies were surveyed in each city.

Our sample is derived from the 2005 China Census data which contains all the Chinese manufacturing firms with annual sales exceeding RMB 5 million. The total number of firms in this dataset is 303,456. From this pool, we chose 221,460 firms located in the 120 cities in which the World Bank conducted the investment climate survey. To test our hypotheses, we further identified the ownership types of these firms. The Census data has detailed information on the equity contributions by four types of owners, namely, state, non-state, foreign, and HMT (Hong Kong, Macau, and Taiwan). We defined firms' ownership type based on which type is the largest source of equity capital. Specifically, we classified a firm as state-owned if the state is the largest contributor of equity among the four types of owners, as non-state domestic owned if the non-state domestic owners are the largest equity contributor, and so on. We dropped 4,144 firms with unclear ownership types (that is, firms with at least two types of owners that contribute the same level of equity). We further dropped 18,156 HMT firms due to their ambiguous ownership types (many of them are not

"true" foreign invested companies and are actually mainland companies registered in Hong Kong or Macau) (Huang, 2003).[1] After dealing with missing values of the included variables, we had 198,143 firms in our final sample, among which 6% are state-owned, 84.6% are domestic non-state owned, and 9.4% are foreign owned. As shown in the robustness checks later, we investigated the differences between HMT and foreign firms in terms of their benefits from improved legal systems.

Variables and Measures

Dependent Variable

Export performance is measured by a firm's *export revenue* in 2005. We also used a firm's export revenue in 2006 in the robustness checks and found similar results.

Independent Variables

Legal quality of a city is measured by the quality of contract enforcement and protection of property rights in a city in 2005 (hereafter referred to as *contract enforcement*). In the World Bank (2006)'s investment climate survey, firms were asked the question: "Amongst the commercial or other disputes that your company was involved with, what has been the likelihood (in terms of percentage) that your company's contractual and property rights (including enforcement) are protected?" Since local protectionism in other regions often discourages firms from conducting businesses outside its own region or resorting to legal systems outside its own region for solving disputes (Bai *et al*., 2004), the answers to this question largely reflect firms' experience with their local courts and can thus largely capture

[1] The data does not allow us to separate firms from Hong Kong or Macau from those from Taiwan.

the quality of the local legal systems.[2] The contract enforcement measure is based on the average rating of the firms surveyed in respective cities.

For robustness checks, we also used another measure of contract enforcement based on Fan and Wang (2006)'s index of the market development of Chinese provinces. One main component of Fan and Wang's index is the "legal environment" measure, which is based on the rating of firms to a question regarding the "protection of legitimate business operation" in a province. As we will discuss later, using Fan and Wang's measure leads to similar results.

To test the moderating effect of ownership types on the relationship between legal quality and export performance, we defined two ownership dummy variables: *foreign firms* and *state owned firms*. *Foreign firms* takes the value 1 if a foreign entity is the largest equity capital contributor to a firm and is 0 otherwise. Similarly, *state owned firms* is 1 if the state is the largest equity contributor to a firm and is 0 otherwise.

As we will further examine how *industry export volatility* moderates the effect of legal quality on export performance, the proxy we employed is the standard deviation of annual industry level export revenue from 1999 to 2003. We used the export revenue information in the 1999-2003 Census data to calculate this measure, and export information in 2004 is not available to us.

Control Variables

[2] In the early 1980s, the Chinese central government introduced fiscal decentralization and delegated control rights and residual income rights over local public enterprises to local governments, which provided the local governments with strong incentives to protect their tax base by shielding local firms from interregional competition (Bai et al, 2004; Park et al., 2006).

We included the following control variables at firm, industry, and location levels. The firm and industry level variables were constructed based on the information in the Census data. Following previous studies (Brouthers and Xu, 2002; Gao *et al*., 2010; Shinkle and Kriauciunas, 2010), we included the following firm level variables: *advertising intensity* (ratio of advertisement expense to total sales), *firm age* (log of [2005-founding year]), *firm size* (log of total assets), *new product sales ratio* (new product sales to total sales), *export experience* (a dummy: 1 if a firm exported in 2003 and 0 otherwise). The last measure is a good proxy for the company's historical export record and captures to a large extent whether the company is export-oriented.

At the industry level, we controlled for the Herfindahl industry concentration index (Zhao and Zou, 2002). Specifically, for a given firm *i* in an industry *k* with a total number of firms of n_k,

$$Industry\ concentration_{ik} = \sum_{i=1}^{n_k} (sales_{ik} / \sum_{i=1}^{n_k} sales_{ik})^2 .$$

We also included several location level factors using the information in the World Bank (2006) survey: the log of *GDP per capita* in a city, the log of foreign direct investment per capita in a city (*FDI per capita*) (Buck *et al*., 2007), and an array of measures that capture the quality of infrastructure of the respective cities, including *road length*, *electricity price*, *infrastructure inefficiency* (loss due to insufficient infrastructure), *customs inefficiency* (number of days of custom clearance). Finally, we included provincial dummies and industry dummies (based on the NBSC's 2-digit industry classifications).

Estimation Method

The testable hypotheses are examined using OLS regressions. The basic regression model is presented below.

Export revenue = α_0+ α_1 *contract enforcement* + α_2 *industry export volatility* +α_3 *ownership dummies* + α_4 *control variables*

Depending on the specific hypothesis examined, we included interactions of *contract enforcement* with *industry export volatility* and *ownership dummies.* The direction and significance of the coefficients of contract enforcement and the interaction terms are of primary interest to us.

RESULTS

Table 1 reports the summary statistics of export revenue, contract enforcement, and other control variables. The average export revenue of the whole sample is RMB 18,600 and the average is RMB64,020 in the subsample of firms that export. In our sample, 68,446 firms had export revenues in 2005. In terms of contract enforcement, the average score is 65.5 out of 100. The cities with top five scores are Hangzhou (98), Shantou (96), Qingdao and Shangrao (95), Jiangmen (94), and Suzhou (93) while the city with the lowest score (27) is Hohhot. Table 2 summarizes the correlations among variables.

Insert Tables 1 and 2 about here

Table 3 shows the main effect of contract enforcement in a city on export performance of companies in the city. The difference between Models 1 and 2 is that the

dependent variable is export revenue in Model 1 and a dummy that indicates whether the firm has export revenue (1) or not (0) in Model 2. The two models show that improved legal quality not only increases significantly the companies' likelihood of export ($p<0.01$ in Model 2) but also helps them to export more ($p<0.10$ in Model 1). Thus, H1 (reliable legal systems contribute to export performance) is supported.

In Model 3, we included the interaction of contract enforcement with industry export volatility. The interaction term has a positive and significant coefficient ($p<0.05$), implying that if a firm is in an industry with greater uncertainty in export, an institutional environment with better contract enforcement will be more important in facilitating the firm's export. Thus, H2 is supported.

**Insert Table 3 about here **

We further examined whether the relationship between contract enforcement and export performance varies for firms with different ownership types by introducing an interaction term of contract enforcement and ownership dummies. Specifically, we compared the relationship between two pairs of ownerships, that is, (1) foreign versus domestic ownership, (2) state versus domestic non-state ownership. The results are reported in Models 4 and 5 in Table 4. The interaction of foreign firms and contract enforcement is significantly positive ($p<0.10$) in Model 4, which suggests that compared with domestic companies, foreign companies depend more heavily on a better legal system to improve their export performance. Thus, H3a is supported and H3b is not.

In Model 5, we conducted tests in the sample that contains domestic firms only. The significantly negative coefficient of the interaction term between state owned firms and contract enforcement ($p<0.01$) indicates that contract enforcement quality is less important for state-owned companies to improve export performance than for non-state owned firms. These results show strong support for H4.

**Insert Table 4 about here **

We further drew Figures 1 and 2 to illustrate vividly the above comparisons across different ownership types. The calculation is based on the regression results in Table 4. The figures show changes in export performance when contract enforcement quality increases from low (the 25th percentile value of contract enforcement) to high (the 75th percentile value) while all other variables stay at the level of sample means. Figure 1 shows that both foreign and domestic firms benefit from improved legal environment in their export performance. Furthermore, it shows that the improvement in export revenues of foreign firms as a result of a better legal environment is more significant than that of domestic firms. Figure 1 thereby shows more support for H3a.

Insert Figure 1 about here

Figure 2 shows that, among domestic firms, non-state owned firms benefit more from improved contract enforcement quality in their export performance than state-owned firms. Indeed, state-owned firms have higher export revenues when the legal environment is less

favorable. These results suggest that state-owned firms may face more constraints in cities with better legal quality and may instead have advantages in operating in cities with poor legal quality because they can more effectively leverage their connections with the government to benefit themselves.

Insert Figure 2 about here

Robustness checks

We first investigated whether foreign and HMT firms benefit differently from improved legal systems in the sample that contains foreign and HMT firms only. The significant, positive effect of the interaction (*foreign firms X contract enforcement*, $p<0.01$) in Model 6 in Table 4 suggests that relative to HMT firms, foreign companies depend more heavily on the quality of contract enforcement to improve their export performance. To illustrate the result in Model 6, we drew Figure 3 following the same method for Figures 1 and 2. Figure 3 shows that improved legal environment contributes to the export revenues of foreign firms but harms the revenues of the HMT firms. These results indicate that the HMT firms have more advantages in utilizing their personal connections and social networks to reduce product costs in places with weak legal systems and these advantages disappear when they operate in places with strong legal systems.

Insert Figure 3 about here

Furthermore, we replaced the World Bank (2006)'s measure of quality of contract enforcement in a city with Fan and Wang (2005)'s index of the legal environment in a province and found consistent results. Specifically, we found that legal quality of a province has a significant, positive effect on firms' export revenues ($p<0.05$), and that industry export volatility strengthens the relationship between legal quality of a province and firms' export revenues ($p<0.001$), and that foreign firms benefit more from improved legal environment than domestic firms ($p<0.001$).

Finally, we tested whether there is endogeneity of the legal quality measure in a city. If the unobserved factors that affect a Chinese firm's export performance were correlated with those that determine legal quality in a city, there would be an endogeneity problem. To this end, we conducted a Hausman test by first estimating a reduced-form model with city-level legal quality as the dependent variable and all other regressors and two city-level instrumental variables (population and percentage of girl enrollment in elementary schools) as the right-hand side variables. Next, the residual from the model was saved and then included in the main equation of interest as an additional regressor. Under the null hypothesis of no endogeneity, the coefficients of the additional regressor should not be significantly different from zero. It turns out the test results failed to reject the null ($F=1.53$, $p<0.22$), and we thus had no further treatment for endogeneity issues.

DISCUSSION AND CONCLUSION

We have investigated in this study how legal quality of an exporter's location affects the exporter's performance as a function of different ownership classes of exporters. Our study extends the trade literature that has largely emphasized the relationship between country-level institutional quality and bilateral trade between countries (Anderson and Marcouiller, 2002; Berkowitz *et al*., 2006) as well as the emerging international business research on the role of market supporting institutions in firms' export strategy and performance (Gao *et al*., 2010; Shinkle and Kriauciunas, 2010). Specifically, we have examined 1) how locational variations in legal quality within a country (China) affect exporters' performance in different locations, and 2) how ownership types of an exporter (foreign, domestic state-owned, domestic non-state owned) moderate the importance of legal quality for the performance of the exporter.

Using information on city-level contract enforcement quality and export revenues of more than 198,000 firms in China, we found that the quality of legal systems in a city matters in the performance of exporters in that city. This result was robust after we controlled for several economic and infrastructural factors in a city and used alternative measures for the quality of legal systems. We suggested that a reliable legal system contributes to export performance in two ways -- it reduces domestic production costs for exporters as well as reduces international transaction costs facing importers. Furthermore, we found that the quality of legal environment is particularly important for export performance in industries with high volatility in export revenues because industry export volatility increases the likelihood of opportunism of trade partners.

We also found that foreign producers in China benefit more from better legal systems in improving their export performance than domestic producers. We suggested that although foreign producers, with strong reputational assets and connections with some importers, may face lower international transaction costs when dealing with importers, foreign producers likely encounter higher production costs than domestic producers in China. This is because foreign producers, being outsiders to the Chinese culture, are less capable of developing or utilizing alternative means (i.e., personal connections) to deal with problems arising from transactions with domestic suppliers. This argument is further supported by our result that foreign producers benefit more from improved legal environment than producers from Hong Kong, Macau, and Taiwan (who are presumably better able to develop and leverage their ethic ties in reducing transaction costs).

We further found that among domestic producers, non-state owned exporters benefit more from better legal systems than state-owned exporters, and that state-owned exporters enjoy higher export revenues in places with poor (rather than strong) legal environment. These results can be explained by the fact that state-owned exporters, with their political ownership connections with the government, generally receive more favorable treatment from local courts (which are heavily influenced by the government). Their advantages over non-state owned firms are more salient in locations with lower legal quality. In places with higher legal quality (i.e., fairer treatment over firms regardless of ownership types), the advantages of state relative to non-state owned firms are significantly reduced.

Our results have important implications for theory development. In particular, they highlight the role that informal institutions play in shaping the dynamics of cross border transactions. Differential access to protections offered by domestic informal institutions such as local social and professional networks, explain in part differences in transaction costs that exporters face in their domestic and cross border transactions. Thus, for example, domestic exporters can use access to local networks as substitutes to legal systems to protect themselves from opportunistic behavior in their local production activities and in their transactions at the border. They also can benefit from protection by influencing the formal legal system when they take advantage of opportunities (legally or illegally) or are sued by importers. Our study therefore provides empirical evidence supporting the institutional view of firm strategies; firms can utilize the informal institutional mechanisms to substitute for the weak development of formal institutions for increased performance, and when formal institutional environment improves, firms depend less on relationship-based strategies and more on rule-based strategies to improve their performance (Peng *et al*., 2008; Peng, 2003; Peng and Heath, 1996).

Our study has important implications for firm strategy. Exporters and importers should be aware that there are strong locational variations in the quality of legal systems in China. Exporters should strategically choose their locations in order to take advantage of the legal systems in improving their export performance. While foreign and non-state domestic producers may prefer to locate their factories in cities with stronger legal systems, state-owned or HMT producers may instead prefer to build factories in cities with underdeveloped

legal systems. Importers should also pay attention to where the exporters are located within China and the ownership types of the exporters. They should understand the challenges in dealing with exporters from locations with low quality legal systems as well as the challenges in dealing with state owned exporters.

Our findings also have important policy implications. We showed that on balance exports are higher when the quality of the local legal system is higher. However, not all groups are affected in a similar way. Private Chinese firms, for example, tend to export more in locations with higher quality legal systems. In contrast state owned firms experience net loss in exports with improvements in the local legal system as the advantages conferred by informal institutions are significantly larger than the expected benefits from improvement of their image as reliable trade partners. Since the economic significance of state owned firms is declining, local authorities in China could increase significantly exports by improving the quality of their local legal systems. They can anticipate, however, resistance from those who rely on informal systems to gain competitive advantages.

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Table 1 Summary Statistics of Variables

	Mean	Std. Dev.
Export revenue (in RMB thousand)	18.60	310.03
Contract enforcement (%)	65.54	17.21
Firm size	9.73	1.44
Advertising intensity (%)	0.12	1.42
New product sales ratio (%)	3.75	15.69
Industry export volatility (%)	43.30	49.52
Foreign firms	0.09	0.29
State owned firms	0.06	0.24
Export experience	0.15	0.35
Industry concentration (%)	0.29	0.35
Firm age	10.96	9.94
GDP per cap	9.41	0.63
FDI per cap	4.52	1.10
Road length (in Kilometer)	2.28	0.38
Electricity price (in RMB)	0.59	0.15
Infrastructure inefficiency	2.89	2.25
Customs inefficiency	2.22	0.45

Table 2 Correlation among Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Export revenue	1.00																
2	Contract enforcement	0.01*	1.00															
3	Firm size	0.15*	-0.02*	1.00														
4	Advertising intensity	0.00	-0.02*	0.06*	1.00													
5	New product sales ratio	0.04*	-0.04*	0.15*	0.03*	1.00												
6	Industry export volatility	0.04*	-0.04*	0.07	0.00*	0.07*	1.00											
7	Foreign firms	0.09*	0.01*	0.18*	0.02*	0.01*	0.06*	1.00										
8	State owned firms	0.00	-0.07*	0.13*	0.00	0.01*	0.03*	-0.08*	1.00									
9	Export experience	0.10*	0.03*	0.22*	0.01*	0.07*	0.01*	0.21*	-0.03*	1.00								
10	Industry concentration	0.03*	-0.04*	0.17*	0.01*	0.02*	0.08*	0.00	0.14*	-0.05*	1.00							
11	Firm age	0.02*	-0.08*	0.20*	0.01*	0.03*	0.03*	-0.05*	0.31*	0.17*	0.05*	1.00						
12	GDP per cap	0.04*	-0.03*	0.07*	0.00	0.02*	0.11*	0.20*	-0.11*	0.11*	-0.06*	0.02*	1.00					
13	FDI per cap	0.02*	0.02*	-0.04*	-0.02*	0.02*	0.06*	0.15*	-0.14*	0.12*	-0.10*	-0.03*	0.65*	1.00				
14	Road length	-0.02*	0.23*	-0.01*	0.00	-0.01*	-0.06*	-0.10*	0.03*	-0.03*	0.03*	-0.01*	-0.22*	-0.10*	1.00			
15	Electricity price	0.01*	0.16*	0.00	-0.01*	-0.02*	0.03*	0.07*	-0.10*	0.07*	-0.05*	-0.04*	0.29*	0.35*	0.04*	1.00		
16	Infrastructure inefficiency	0.00	-0.20*	0.00	0.01*	0.03*	0.04*	-0.03*	-0.03*	0.06*	0.01*	0.00	0.04*	-0.12*	-0.09*	0.02*	1.00	
17	Customs inefficiency	-0.04*	-0.38*	-0.03*	0.01	0.02*	-0.07*	-0.17*	0.09*	-0.08*	0.05*	0.03*	-0.47*	-0.41*	0.15*	-0.25*	0.19*	1.00

Note: * if $p<0.01$.

Table 3 Effects of contract enforcement and its interaction with uncertainty on export performance

	Model 1	Model 2	Model 3
Contract enforcement	0.11*	0.008***	0.11*
	(0.06)	(0.001)	(0.06)
Firm size	28.04***	0.174***	28.04***
	(0.54)	(0.005)	(0.54)
Advertising intensity	-1.37***	-0.041***	-1.37***
	(0.49)	(0.008)	(0.49)
New product sales ratio	0.18***	0.012***	0.18***
	(0.05)	(0.000)	(0.05)
Industry export volatility	0.11	-0.003	0.12
	(0.11)	(0.002)	(0.11)
Contract enforcement* Industry export volatility			0.16**
			(0.08)
Foreign firms	41.08***	1.602***	41.05***
	(2.55)	(0.022)	(2.55)
State owned firms	-2.22	-0.074**	-2.29
	(3.27)	(0.037)	(3.27)
Export experience	45.85***	3.190***	45.86***
	(2.14)	(0.020)	(2.14)
Industry concentration	-16.85	-0.750	-17.09
	(22.30)	(0.482)	(22.30)
Firm age	-5.49***	-0.194***	-5.48***
	(1.07)	(0.011)	(1.07)
GDP per cap	-5.09***	0.057***	-5.11***
	(1.84)	(0.019)	(1.84)
FDI per cap	4.04	-0.033	4.02
	(5.90)	(0.082)	(5.90)
Road length	-4.39*	-0.140***	-4.41*
	(2.31)	(0.024)	(2.31)
Electricity price	-2.22	-0.029	-2.28
	(5.94)	(0.060)	(5.94)
Infrastructure inefficiency	1.01*	0.116***	0.99*
	(0.56)	(0.005)	(0.56)
Customs inefficiency	-5.74**	-0.020	-5.72**
	(2.60)	(0.025)	(2.60)
Number of obs.	198143	198143	198143
F Stat. / Chi stat.	96.7	89078.07	95.57
R square/ Pseudo R square	0.038	0.379	0.0381

Notes: This table reports OLS results for models 1 and3 and logit results for model 2. The dependant variable in models 1 and 3 is export revenue and in model 2 is a dummy indicating whether the firm has export revenue or not. Industry dummies, province dummies and constant are included but not reported due to space limitation. F statistics and R square are for OLS (models 1 and3). Chi statistic and Pseudo R square are for logit (model 2). Standard errors appear in parentheses; *** if p<0.01, ** if p<0.05, * if p<0.10.

Table 4 Interaction effects of contract enforcement and ownership dummies on export performance

	Model 4	Model 5	Model 6
	Foreign VS. domestic ownership	State owned VS. domestic non-state ownership	Foreign VS HMT
Contract enforcement	0.09	0.04	-0.39
	(0.06)	(0.02)	(0.37)
Firm size	28.05***	13.57***	119.71***
	(0.54)	(0.21)	(2.93)
Advertising intensity	-1.37***	-0.36**	-9.61***
	(0.49)	(0.19)	(3.04)
New product sales ratio	0.18***	0.25***	1.10***
	(0.05)	(0.02)	(0.24)
Industry export volatility	0.11	0.05	0.96
	(0.11)	(0.04)	(0.82)
Foreign firms	40.87***		14.60*
	(2.55)		(8.19)
Foreign firms* Contract enforcement	0.22*		1.18***
	(0.13)		(0.43)
State owned firms	-2.33	3.57***	
	(3.27)	(1.24)	
State owned firms *Contract enforcement		-0.24***	
		(0.07)	
Export experience	45.88***	34.68***	53.40***
	(2.14)	(0.86)	(8.85)
Industry concentration	-16.96	-3.41	46.98
	(22.30)	(8.57)	(134.24)
Firm age	-5.49***	-1.39***	-29.50***
	(1.07)	(0.40)	(7.91)
GDP per cap	-5.06***	-2.32***	-21.66*
	(1.84)	(0.70)	(12.87)
FDI per cap	4.08	1.57	16.53
	(5.90)	(2.19)	(48.74)
Road length	-4.36*	-2.68***	-19.55*
	(2.31)	(0.87)	(11.57)
Electricity price	-2.44	4.24*	22.07
	(5.94)	(2.31)	(35.90)
Infrastructure inefficiency	0.96*	0.50**	-1.03
	(0.56)	(0.21)	(3.75)
Customs inefficiency	-5.44**	-4.79***	0.36
	(2.61)	(1.00)	(14.43)
Number of obs.	198143	179447	36852
F stat.	95.55	116.7	38.44
R square	0.0381	0.0501	0.0754

Notes: This table reports OLS results. Model 4 has 179,447 domestic firms and 18,696 foreign firms. Model 5 has 167,596 domestic non state owned firms and 11,851 state owned firms. Model 6 has 18,156 Hong Kong, Taiwan, and Macau firms and 18,696 foreign firms. Industry dummies, province dummies and constant are included but not reported due to space limitation. Standard errors appear in parentheses; *** if p<0.01, ** if p<0.05, * if p<0.10.

Figure 1 Effects of contract enforcement on export performance: foreign vs. domestic firms

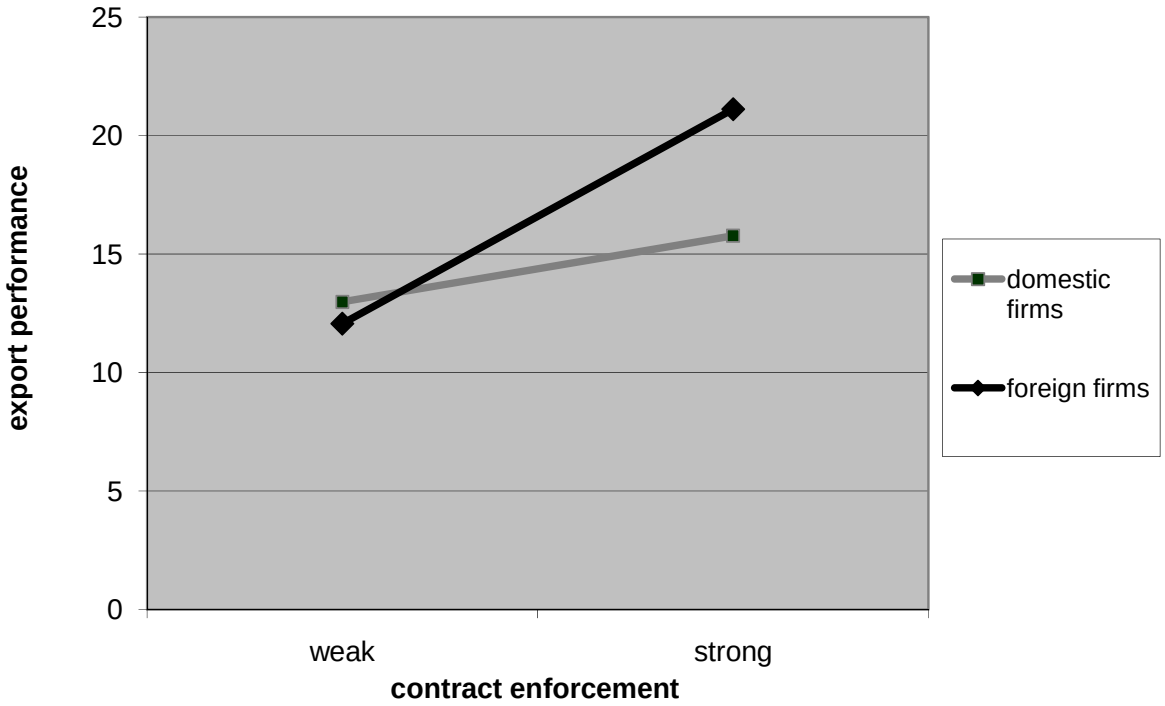

Figure 2 Effects of contract enforcement on export performance: State owned vs. domestic non-state owned firms

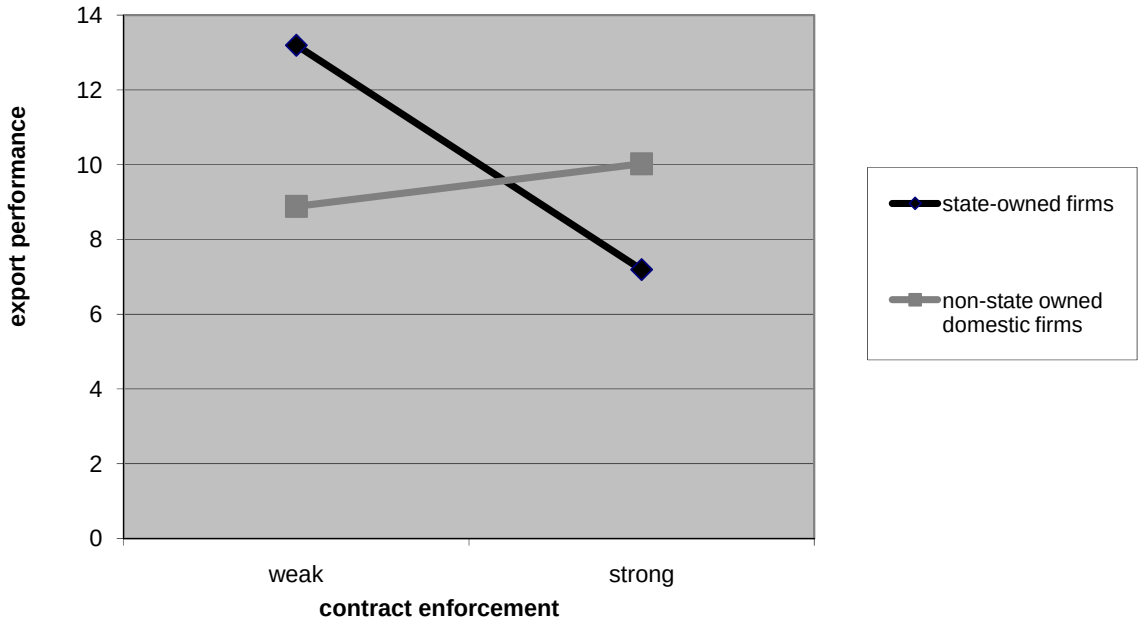

Figure 3 Effects of contract enforcement on export performance: Foreign vs. HMT firms