

# Institutions, Culture Distance, and FDI Location Choice: Evidence from China

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## Abstract

Using an extensive data set on foreign invested enterprises (FIEs) in the Chinese mainland, we compare the sensitivities of the location choice of foreign direct investment (FDI) from six major source countries/areas (Hong Kong, Taiwan, US, EU, Japan and Korea) toward the variation in the strength of economic institutions across China's regions. It is found that FIEs from the source countries/areas that are culturally more remote from China often exhibit a stronger aversion to regions with weaker economic institutions. Moreover, this pattern is often more salient when FDI takes the form of fully-owned enterprises (FOEs) than when it takes the form of joint ventures (JVs).

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# 1 Introduction

As a central part of the globalization process, foreign direct investment (FDI) has substantially changed the landscape of the world economy in the past few decades. Attracting FDI inflow is placed at the top of the agenda for most countries. What determines where FDI goes has long remained an intriguing question to academics and policy-makers. There is still much debate about what factors and policies most influence the location decision of multinational enterprises (MNEs) in the global marketplace. The conventional view puts much emphasis on the impacts of agglomeration economies, market size, taxes, trade policies, exchange rate and interest rate policies, production costs, infrastructure adequacy, etc. on FDI locational choices. Recently, more attention has been paid to the economic institutions of the FDI recipient countries. Economic institutions refer to the various dimensions of institutions that ensure the smooth operation of a market economy such as contract enforcement, property rights protection, government efficiency and government intervention in business operations.

This paper investigates the importance of economic institutions in addition to the more conventional factors like agglomeration economies, production costs and infrastructure as determinants of FDI locational choices. In particular, we explore how the cultural proximity between FDI source countries and the Chinese mainland shapes the locational choices of MNEs in different regions in China with varying institutional quality. In other words, we address the issue of whether FDI from different source countries/areas exhibits different sensitivities to the economic institutions of host regions based on the degree of difference in culture between home and host countries.

The decision of a foreign-invested enterprise (FIE) to enter a foreign market depends crucially on its knowledge and experience with the local market. FIEs typically give priority to the markets perceived to be psychologically close. It is argued that psychically close countries can reduce uncertainty over investment prospects and facilitate learning about the target countries (Johnson and Vahlne, 1977, 1990; Kogut and Singh, 1988). However, the psychic distance in turn depends on the proximity in culture between the FDI source country and host country.

Cultural proximity can play an important role in affecting the adaptability of FIEs to local institutions in the host country. FIEs from countries/areas that are culturally close to the host country may find it easier to learn to adapt to the different institutions in the host country. In other words, cultural proximity can alleviate the negative impact of institutional differences on FDI entry. For instance, FIEs from Hong Kong and Taiwan encounter a completely different institutional environment when they enter

the Chinese mainland. But the sharing of the same language and cultural heritage enable FIEs from these two areas to learn quickly how to build up connections with the mainland bureaucrats. Thus, in our opinion, FIEs from home countries/areas that are culturally proximate to the host country may find it easier to adapt to the local markets, institutions and business environment. Then they will be less sensitive to local economic institutions when they make decisions on FDI location.

We investigate this issue by looking at FDI in China. In recent years, China has emerged as one of the largest FDI recipient countries in the world. FDI is widely agreed to be one primary engine for China's economic growth. World Bank (1997) credited FDI as a main driving force behind China's economic miracle. At the same time, China is a vast country with substantial regional disparity in economic institutions as well as infrastructure, production costs, human capital endowments and industry agglomeration. This rich variation across regions makes China an ideal setting to study the impact of economic institutions on FDI locational choices.

China is also a country whose inward FDI comes from a rich variety of sources. Based on the FDI value, Hong Kong, Taiwan, US, European Union (EU), Japan and Korea are the major source countries or areas. They exhibit a wide variation in cultural distances to mainland China. For instance, EU and US are very remote from China in culture, whereas Hong Kong and Taiwan are ethnically Chinese economies that share the same culture with the mainland. This rich variety of FDI sources makes China an ideal setting to examine how the cultural distances between the source and recipient countries shape the FDI locational choices.

We are particularly interested in whether cultural similarities or dissimilarities between the FDI source countries/areas and China affect the sensitivity of FDI flows to the economic institutions of different regions in the Chinese mainland.

When we look at FDI in China, one striking feature emerges: FDI exhibits a highly uneven distribution across regions with the east coast taking the lion's share. What determines this spatial distribution pattern of FDI in China? Are the conventional factors such as infrastructure adequacy, human capital endowment, and industry agglomeration able to account fully for the pattern?

Using an extensive firm-level dataset on FIEs in China, we employ discrete choice model developed by McFadden (1974) to examine the factors determining the locational choices of FDI from Hong Kong, Taiwan, US, EU, Japan and Korea. Our empirical analysis shows that FIEs from source countries that are more remote culturally from the Chinese mainland often exhibit a higher degree of sensitivity toward regional economic institutions

in their choice of FDI location.

We further investigate the impact of regional economic institutions on the location choices of joint ventures (JVs) and fully owned enterprises (FOEs), i.e., the subsidiaries of MNEs. In terms of entry modes, FDI can take various forms. In our dataset, we find that FIEs typically set up a JV with a local partner firm or establish an FOE from scratch. We expect that regional economic institutions would exhibit different patterns in influencing FDI location choice for FIEs that enter China in the form of JVs or FOEs. It is likely that local partners in JVs can help deal with local governments and overcome the barriers posed by the inadequacy of local economic institutions so as to smooth business operations, while FOEs have to cope with local governments on their own. Therefore, we expect that FOEs are more sensitive to regional economic institutions than do JVs in their location choice. Depending on whether FIEs come from culturally close or distant countries/areas, we expect that JVs and FOEs from different sources exhibit different sensitivities to the variation in regional economic institutions in location choice. More specifically, if FOEs are more sensitive to regional institutions than do JVs, this differentiation will be more salient for FDI coming from more culturally distant source countries/areas. In the empirical analysis, we do find that both FOEs and JVs exhibit stronger responses to regional economic institutions in location choice when the cultural disparity between the source and host countries/areas are larger, and comparatively the sensitivities of FOEs are stronger than those of JVs.

As the largest FDI recipient country, China has recently caught much attention in the academic literature on FDI locational choice. For instance, Head and Ries (1996), Cheng and Kwan (2000), He (2002), Chang and Park (2005), and Amiti and Javorcki (2005) address the effects of agglomeration on FDI location determination in China. Belderbos and Carree (2001), Fung, Iizaka and Parker (2002), Zhou, Delios and Yang (2002), and Fung, Iizaka and Siu (2003) examine a host of FDI location determinants, but they did not touch upon the roles of agglomeration and institutions. Limited by the unavailability of firm-level FIE data, most of these studies only include city-level, region-level or industry-level data.<sup>2</sup>

The studies of the impact of institutions on FDI flows have grown quickly.<sup>3</sup>

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<sup>2</sup>As an exception, Chang and Park (2005) employ the firm-level data to examine the determinants of FDI location choice of Korean firms in China. However, they mainly focus on the role of agglomeration effects without considering regional institution strength.

<sup>3</sup>In recent years, various cross-country and within-country studies such as, among others, Besley (1995), Knack and Keefer (1995, 1997), Mauro (1995), Hall and Jones (1999), La Porta, Lopez-De-Silanes, Shleifer and Vishny (1999), Acemoglu, Johnson, and Robinson (2001, 2002) (See Pande and Udry (2005) for a brief review) have produced largely

In a cross-country study using aggregate data, Wei (2000a, 2000b) finds that corruption in a host country substantially deters inward FDI. More recently, Campos and Kinoshita (2003), Anghel (2005), Benassy-Quere, Coupet and Mayer (2005), Trevino (2005), and Hyun (2006) use aggregate FDI data to conduct cross-country studies to examine the impact of institutions on FDI flows. Du, Lu and Tao (2008) is the first study that examines the impact of economic institutions on FDI location choice in China. It employs the firm-level data to investigate how the variation in regional economic institutions shapes the location choices of US multinationals in different regions in China.

This study contributes to the literature in several aspects. First, our study provides a new perspective on the interrelationship between economic institutions and FDI flows. We demonstrate that the impact of economic institutions on FDI locational choice varies significantly with the cultural distance between the host and source countries/areas. To the best of our knowledge, our paper is the first one that systematically examines how cultural distance affects the sensitivity of FIEs toward local institutions.

Second, our single country study is more powerful in capturing the variation in *de facto* institutional strength than do cross-country studies. As a matter of fact, cross-country studies are likely to confound numerous factors. In contrast, our single-country analysis allows us to hold constant many aspects such as political system, legal tradition, *de jure* legal codes, culture and language, national tax policies, exchange rates, and trade policies that could vary dramatically across countries. This helps us single out the aspects of institutional quality that are most closely related to the effectiveness of law enforcement and the efficiency of economic institutions.

Third, as far as we know, ours is the first study that examines how the interplay of economic institutions and cultural distances affects FDI locational choice by using firm-level data. In so doing, we can virtually minimize the concern for endogeneity (including reverse causality) issue in econometric analysis.

The rest of the paper is organized as follows. Section 2 discusses the data and variables. Section 3 lays out the empirical estimation strategy. Results are discussed in Section 4. Section 5 concludes the paper.

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consistent results that a high quality of economic institutions contributes to a good economic performance. This provides the general background for the study of the impact of economic institutions on FDI flows.

## 2 Data and Variables

### 2.1 Data

Our data comes from a broad dataset of FIEs in China compiled by *China National Bureau of Statistics*. This extensive dataset on FIEs contains 150,602 FIEs in 2001, accounting for 74.44% of the total 202,306 FIEs in China as reported by *China Statistical Yearbook 2002*. Among them, our dataset has 141,668 enterprises engaged in the manufacturing sector, covering 75.45% of the total number of foreign manufacturing enterprises in China in 2001.

Our study focuses on FIEs from Hong Kong, Taiwan, US, EU, Japan and Korea. We focus on the period 1993-2001 because the data on many of the independent variables in regression analysis are not available in the years before 1993 and the FDI flow into China has increased dramatically only since 1992. After deleting those FIEs without registration dates and involving individual foreign investors and after restricting ourselves to the FIEs engaged in the manufacturing sector, we are left with 20,851 firms from Hong Kong, 3,097 firms from Taiwan, 4,445 firms from the US, 2,440 FIEs from the EU, 3,953 FIEs from Japan, and 1,786 firms from Korea. Though our dataset covers only one year (2001), we follow the common practice in the literature by using the year in which an FIE is registered as the year of its entry. This enables us to identify the entry year of all FIEs.

### 2.2 Variables

#### 2.2.1 Regional Institutions in China

Regional institutions mainly refer to the state of contract enforcement, government intervention in business operations, property rights protection and bureaucratic corruption in a region. Regions with weak economic institutions are typically characterized by weak contract enforcement, heavy government intervention in business operations, inadequate protection of property rights and severe corruption, which may increase the expropriation risks to FIEs. China is a unitary state with uniform *de jure* laws across the country. However, law enforcement may exhibit a wide variation across regions, i.e., provinces or province-level cities. In this sense, examining the variation in economic institutions across regions in China allows us to conduct a natural experiment to focus on the *de facto* law enforcement after holding constant the *de jure* legal codes. This certainly offers a better setting to distinguish between legal codes and law enforcement than does the cross-country analysis.

### **Contract Enforcement**

Contract enforcement hinges on legal institutions and law enforcement. While China has had commercial laws on paper since the early stage of its economic reforms, the quality of legal institutions and the degree of law enforcement, however, vary significantly across regions. A comprehensive indicator of the effectiveness of contract enforcement is the willingness to use courts in resolving business disputes. From the *Survey of China's Private Enterprises*, we construct a measure of *Contract Enforcement* in China's various regions. It is the proportion of private entrepreneurs answering affirmatively to the question: will you use courts to resolve business disputes? This index also exhibits a large variation across regions. For instance, some neighboring regions in North China, i.e., Beijing, Tianjin, Hebei and Shanxi, exhibit a large variation in the value of this index, having 0.24, 0.17, 0.22 and 0.10 respectively.

### **Intellectual Property Rights Protection**

Unlike some of the other transition economies, China did not have formal protection of private properties until fairly recently. However, various regulations and rules help maintain a reasonable level of protection for private properties, and the level of protection differs from one region to another. Thus, our measure of property rights protection intensively reflects the *de facto* property rights protection across China's regions. We use the protection of intellectual properties to measure property rights protection. This is ideal not only because we can rely on the quantifiable patent data in gauging intellectual property rights protection but also because it reflects the central concern of FIEs from advanced economies. For instance, multinationals from the United States and the EU are typically large companies equipped with modern technologies. This is consistent with the importance of intellectual property in achieving economic growth in those economies. According to Israel (2006), industries with significant intellectual properties account for over half of all U.S. exports; intellectual property accounts for over 1/3 of the value of all U.S. corporations, and represents 40% of U.S. economic growth. Similarly, in service/knowledge-based economies of the EU, protecting intellectual property rights (IPR) is considered essential by many businesses in their pursuit of innovation and competitiveness. According to the Technology Review Patent Scoreboard 2004, Philips and Ericsson filed over 1,400 and 650 patents respectively worldwide in 2003. It is thus not surprising that FIEs from advanced economies such as the United States and the EU are particularly concerned with intellectual property rights protection.

In recent years, the rising tide of counterfeiting and piracy in China has

posed an enormous threat to foreign business interests. For example, in a 2005 survey of the U.S.-China Business Council, members put enforcement of IPR protection at the very top on their list of concerns. The serious intellectual property infringement in China reflects the lack of proactive and deterrent intellectual property enforcement, especially at the local level (Israel, 2006; Stratford, 2006). Depending on the difference in government coordination capacity, corruption, staff training and legal enforcement power across regions, the degree of IPR protection also exhibits a large variation from region to region.

We use the logarithm of *the number of approved patents per capita* (available from *China Statistical Yearbook*, various issues) as a measure of IPR protection. Though patent number could be an outcome of research and development capacity and inputs, human capital endowment and other factors in various regions, property rights protection provided by regional governments no doubt plays an instrumental role. For example, Guangdong has a lower level of education achievements in terms of both the proportion of people enrolled in higher education institutions and that having higher education degrees than many other provinces such as Jilin and Heilongjiang, but the number of patents per capita in Guangdong is much higher than that in these two Northeastern regions. To further relieve the potential concern about whether the number of patents per capita mainly reflects regional human capital endowments, we control for the education level in various regions in China in our regression analysis. IPR protection varies substantially across the country. Beijing has the highest number of patents per capita, followed by Shanghai and Guangdong, whereas Gansu has the lowest number of patents per capita and followed by Guizhou and Qinghai.

### **Government Intervention in Business Operations**

The second variable for property rights protection concerns the degree of *Government Intervention in Business Operations*, constructed based on data from the *Survey of China's Private Enterprises 1995-2002*.<sup>4</sup> In the survey, there is a question about whether private entrepreneurs would go and ask for government help when they encounter business disputes, and the variable *Government Intervention in Business Operations* is defined as the proportion of entrepreneurs requesting government help in case of business disputes. This index exhibits a wide variation across regions. For example, in terms of level of economic development, the six regions of Beijing, Guangdong,

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<sup>4</sup>This survey was conducted by the United Front Work Department of the Central Committee of the Communist Party of China, the All China Industry and Commerce Federation, and the China Society of Private Economy at the Chinese Academy of Social Sciences, in 1995, 1997, 2000, and 2002.

Jiangsu, Shanghai, Tianjin, and Zhejiang are at a similar level, but they differ substantially in terms of government intervention. Beijing, Jiangsu, Tianjin and Zhejiang have a score of about 0.10 and 0.11, Shanghai has a value of 0.07, whereas Guangdong has 0.05 that is only about half of that for Beijing etc.

Government intervention in business operations could be indicative of either strong or weak protection of private properties. On the one hand, government help may fill the void created by the lack or weakness of the court system. That is to say, government intervention is a second-best solution to the lack of formal protection of private properties. If this is the case, FIEs may find government help in business operations an appealing feature of China's regional governments. On the other hand, government help may lead to rent-seeking and even corruption: entrepreneurs lobby or bribe government officials to seek favor in resolving business disputes. This becomes the grabbing hand of the government (Frye and Shleifer 1997; Shleifer and Vishny, 1999).

Drawing insights from the recent studies on market-preserving federalism and regional decentralization in China's economic reforms (Blanchard and Shleifer, 2001; Roland, Qian, and Xu, 2006; Clarke, Murrell, and Whiting, 2008), we believe that government helping hand is likely to exist. Although the Chinese government system is characterized by substantial devolution of administrative power from the central government to regional administrations that prominently features fiscal federalism or fiscal decentralization, the central government retains the political power to appoint, promote or sack regional government officials. Officials in regions with better economic performance are more likely to be promoted. This regional decentralization under the control of the central government is most likely to generate regional competition for economic growth in a variety of ways, including helping private entrepreneurs to resolve business disputes.

Arguably, whether government intervention ends up as a grabbing hand or a helping hand could hinge crucially on the cultural background of entrepreneurs. FIEs with a large disparity in culture with China are more likely to view government intervention as a grabbing hand rather than a helping hand because the distance in culture could deter FIEs from effectively communicating with local bureaucrats and prompt FIEs to suspect the intention of local officials in getting involved in private businesses. Hence, we expect to see cultural distance to be important in shaping the impacts of government intervention on FDI entry.

### **Government Corruption**

China's economic reform has been accompanied by the rampant corrup-

tion over the past three decades. The extensive state control of and state intervention in the national economy, the lack of democracy and freedom of media, the weak rule of law, etc. have contributed to the severe corruption problem. Government corruption, however, varies across China's regions, which provides us an opportunity to test the impacts of the severity of government corruption on FDI from different source countries/areas.

From the same *Survey of China's Private Enterprises*, we construct an indicator of the degree of *Government Corruption* in China's different regions. It is the proportion of private entrepreneurs answering "Yes" to the question: is it necessary to have stricter policies against government corruption in your region?<sup>5</sup> Guizhou has the highest degree of government corruption, followed by Hainan and Jilin, while Shanghai enjoys the lowest degree of government corruption followed by Hubei and Jiangsu. Like the cross-country corruption indices such as those constructed by Business International, Transparency International or International Country Risk Guide, our cross-region corruption measure for China is a subjective survey-based index based on entrepreneurs' perceptions of the severity of corruption.

### 2.2.2 Cultural Distance

The major FDI source countries/areas in this study display large disparities in cultural proximity with the Chinese mainland. Hong Kong and Taiwan, the two ethnically Chinese economies, have the closest cultural link with the mainland. Hong Kong is a former British colony. Between 1853 and 1997, it had been ruled by Great Britain and has adopted a British-style government system and legal institutions. Taiwan has been separated from the Chinese mainland since 1949 when the Nationalist Party retreated there after losing the civil war to the Communist Party. No matter it was under an autocracy of the Nationalist Party or a democracy since 2000, Taiwan has been a capitalist society under non-communist ruling. Although they have adopted completely different institutions, Hong Kong and Taiwan share the same language and culture as the Chinese mainland. Japan and Korea are the two East Asian powers that are quite close to mainland China in culture. In history, they had long been influenced by the Chinese language and culture, especially the Confucian doctrines. Though the Westernization movement following the Meiji Restoration changed the landscape of the Japanese society and culture to a large extent, the Chinese cultural heritage still exists

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<sup>5</sup>Because the question on the degree of government corruption was introduced only after the 1997 survey, our analysis using the "Government Corruption" index will be restricted to the subsample of the period 1998-2001.

and penetrates deeply into the Japanese society. Currently Korea is closer to China culturally than does Japan. The Confusian doctrines are still highly respected and extremely influential in Korea. In this sense, these two countries are culturally much closer to China than do most of the other countries. The US and EU are no doubt most distant from China culturally. Representing the Western civilization, the US and EU have totally different languages, religions and ethics from those of China.

Systematically, we measure the cultural diversity between various source countries/areas and China on the basis of the influential Hofstede's cultural values (Hofstede, 1997). According to this cultural value index, China has a score of 118, while Hong Kong, Taiwan, US, EU, Japan and Korea have scores of 96, 87, 25, 33, 80 and 75 respectively. The cultural distance reflected in this index largely testifies to our conclusion above. We can systematically measure the cultural distance between China and each FDI source country/area by calculating the square of the difference in this cultural index.

### **2.2.3 Other Variables**

While our focus is on the impacts of economic institutions on FDI location choice made by U.S. multinationals, we also control for a list of other factors that have been found to be important in the literature. The most important one is the agglomeration effect, including both horizontal and vertical agglomeration.

The growing literature on new economic geography focuses on knowledge spillover and the improved access to and the sharing of information about local markets and technology trends as the potential benefits of horizontal agglomeration (Krugman, 1991; Porter, 1998). On the other hand, agglomeration could also generate negative externalities. A firm's own knowledge and technologies can be transferred to rival firms to its disadvantages. Agglomeration may also give rise to intensified competition in both product markets and input markets among adjacently located firms.

The new economic geography theories also highlight the role of backward and forward linkages, as they promote complementarities and cooperation among firms of related production stages. The concentration of upstream firms indicates the accessibility to component suppliers in the region, whereas the concentration of downstream firms and final goods consumers shows the accessibility to markets in the regions (Krugman and Venables, 1995; Venables, 1996; Duranton and Puga, 2004). Therefore producers typically like to choose locations that have good access to large markets and to suppliers of intermediate inputs. It should be pointed out that the horizontal and vertical

agglomeration are often bundled together (Fujita, Krugman and Venables, 2001).

### Agglomeration

Horizontal agglomeration is measured by the ratio of the number of firms in the same region and same 4-digit industry to the national total of the same 4-digit industry. Here we differentiate two types of horizontal agglomeration: the agglomeration of multinationals from the same home country as the firm in question, which is constructed on the basis of the 2001 *Survey of Foreign Invested Enterprises*, and the agglomeration of China's indigenous firms based on the *Annual Survey of Industrial Firms* by China's National Bureau of Statistics.

$$\begin{aligned} Agglomeration\_FIE_{irt} &= \frac{Number\_FIE_{irt}}{Number\_FIE_{it}} \\ Agglomeration\_Domestic_{irt} &= \frac{Number\_Domestic_{irt}}{Number\_Domestic_{it}} \end{aligned}$$

where  $i$  represents industry,  $r$  denotes region and  $t$  indicates year.<sup>6</sup>

For a given 4-digit industry and a given region, the degree of vertical agglomeration is measured by the concentration of upstream or downstream firms in the same region, weighted by the degree of linkages between the industry and those upstream or downstream industries. Specifically the backward (i.e., upstream industries) and forward (i.e., downstream industries) agglomerations are defined as

$$\begin{aligned} Backward_{irt} &= \sum_j \alpha_{ij} \frac{Number\_domestic_{jrt}}{Number\_domestic_{jt}} \\ Forward_{irt} &= \sum_j \beta_{ij} \frac{Number\_domestic_{jrt}}{Number\_domestic_{jt}} + \beta_{iC} \frac{GDP_{rt}}{GDP_t} \end{aligned}$$

where  $\alpha_{ij}$  is the input-output ratio reflecting the inputs from the upstream industry  $j$  required for one unit of output of industry  $i$ ;  $\beta_{ij}$  is the input-output ratio showing the input made by industry  $i$  required for one unit of output of downstream industry  $j$ ; and  $\beta_{iC} \frac{GDP_{rt}}{GDP_t}$  indicates the proportion of final demand for industry  $i$ 's output by region  $r$  in the total final demand by the whole country.<sup>7</sup> The data used for constructing the indices for vertical

<sup>6</sup>Here we follow Head, Ries, and Swenson (1995) in considering the degree of horizontal agglomeration of both indigenous firms and firms from the same source country.

<sup>7</sup>Here we employ regional GDP to proxy for market demand and use the ratio of regional GDP to national GDP to indicate the share of final demand accounted for by some particular region.

agglomeration comes from the *Annual Survey of Industrial Firms* by China's National Bureau of Statistics and the 1997 Input-Output Table of China.<sup>8</sup>

### **Other Regional Characteristics as Control Variables**

We follow the literature on FDI location choice to control for the following factors in regression analysis.

(1) *Wages*. Low production costs mainly reflected in low wages are widely regarded as an advantage of China in attracting foreign manufacturing firms. To see how the regional differentiation in wage costs affects FDI distribution, we include in our analysis the average manufacturing wages in each region.<sup>9</sup>

(2) *Infrastructure*. It is widely reported in the literature that regions with superior transportation facilities are more appealing to FIEs. We use highway density, i.e., the length of highway per square kilometer in a region, as an indicator of infrastructure adequacy.

(3) *Education*. The average human capital level of the workforce could be an important determinant of FDI location for foreign multinationals, especially those engaged in technology-intensive industries. We therefore use the ratio of the number of students enrolled in higher education institutions in a region to its total population as a proxy for the average level of human capital in the region.

(4) *Government promotion policies*. The Chinese central government and the local governments at various levels set up a large variety of promotion policies to attract FDI. One important aspect of these promotion policies is establishing different types of special development zones. At the national level, the central government set up four special economic zones and fourteen open coastal cities in the 1980s. Later, the central government established various national-level economic and technological development zones in many cities in various regions. These areas are granted various types of preferential policies (like preferential tax policy) by the central government and are allowed to have deals with FIEs flexibly. At the same time, the provincial and the municipal governments have also established numerous provincial- or local-level economic and technological development zones and offered special tax incentives to attract FDI. However, it is virtually impossible to have a clear picture of how many provincial- or local-level development zones and what kinds of special tax incentives there are in different regions because there

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<sup>8</sup>Our backward and forward agglomeration indicators are similar in nature to the supplier access and market access measures respectively adopted in Amiti and Javorcki (2007). In their work, industry output is used to gauge the market access and supplier access, while we use the number of firms instead because of data limitation. They have also consider the effect of distance on the impacts of agglomeration economies.

<sup>9</sup>Data sources for the five variables are listed in the Appendix A1.

are no complete statistics from publicly available informational sources. We thus focus on the national-level zones.

Following Fung, Iizaka and Parker (2002), we adopt two dummy variables. One (SEZD) takes value one if a region has either special economic zone or open coastal city, and zero otherwise. The other one (ETDZD) takes value one if a region has national economic and technological development zone, and zero otherwise. By including these promotion policies, we are able to control for the effects of government incentive policies on FDI location choice and at least partially distinguish between the effects of regional institutional strength and those of government promotion policies.

### 3 Estimation Strategy

To investigate the impacts of cultural distance between the FDI source countries and China on the location choices of FIEs in China's various regions, we pool all FIEs from all FDI source countries/areas together.

We employ the discrete choice model developed by McFadden (1974) to analyze how cultural distance shapes the responses of different FDI source countries/areas to the variation in local institutions. The basic premise of the discrete choice model is that the location chosen by an FIE must offer the highest profit over all other possible regions. Let  $\pi_{ijt}$  be the profit that firm  $i$  derives from setting up a manufacturing operation in region  $j$  at time  $t$ . As discussed earlier,  $\pi_{ijt}$  is determined by regional economic institutions,  $I_{jt-1}$ , a host of region  $j$ 's other characteristics including agglomeration etc. at time  $t-1$ ,  $X_{jt-1}$ , and the cultural distance between the home country  $h$  of firm  $i$  and China ( $c$ ),  $D_{hc}$ .  $\varepsilon_{ijt}$  is a disturbance term:

$$\pi_{ijt} = \theta + \beta I_{jt-1} + \gamma \cdot X_{jt-1} + \delta I_{jt-1} * D_{hct-1} + \varepsilon_{ijt}$$

The probability of firm  $i$  locating in region  $j$  is given by:

$$\begin{aligned} P_i(j) &= \Pr ob\{\pi_{ijt} \geq \pi_{ikt}\} \text{ for all } k \neq j \\ &= \Pr ob\{\theta + \beta I_{jt-1} + \gamma \cdot X_{jt-1} + \delta I_{jt-1} * D_{hct-1} + \varepsilon_{ijt} \\ &\geq (\theta + \beta I_{kt-1} + \gamma \cdot X_{kt-1} + \delta I_{kt-1} * D_{hct-1} + \varepsilon_{ikt})\} \text{ for all } k \neq j \\ &= \Pr ob \left\{ \begin{array}{l} \varepsilon_{ijt} - \varepsilon_{ikt} \geq \beta(I_{jt-1} - I_{kt-1}) \\ + \gamma \cdot (X_{jt-1} - X_{kt-1}) + \delta(I_{jt-1} - I_{kt-1}) * D_{hct-1} \end{array} \right\} \text{ for all } k \neq j \end{aligned}$$

McFadden (1974) shows that, if and only if  $\varepsilon_{ijt}$  follows Type I extreme distribution,  $P_i(j)$  can be further simplified to the following logit expression:

$$P_i(j) = \frac{e^{\beta I_{jt-1} + \gamma \cdot X_{jt-1} + \delta I_{jt-1} * D_{hct-1}}}{\sum_{k \in K} e^{\beta I_{kt-1} + \gamma \cdot X_{kt-1} + \delta I_{kt-1} * D_{hct-1}}}$$

where  $K$  is the set of location choices faced by firm  $i$ . And it can then be estimated by the conditional logit method, which has been used extensively in the FDI location literature (e.g., Coughlin, Terza and Arromdee, 1991; Head, Ries and Swenson, 1995). The conditional logit method estimates how each regional characteristic increases or decreases the chances that a region will be chosen rather than all other potential regions available for choice.

We analyze the importance of not only the four economic institution variables — *Intellectual Property Rights Protection*, *Government Intervention in Business Operations*, *Government Corruption*, and *Contract Enforcement* — but also their interaction with the cultural distance measure, after including all the other variables as control variables. The determination of the probability of choosing region  $j$  can be derived in a similar way as stated above. We expect that the estimated coefficient of the interaction term  $I_{jt-1} * D_{hct-1}$  will be statistically significant and will suggest that China’s regional economic institutions play a more important role in shaping FDI location choice for FDI coming from countries/areas that are culturally more remote from China.

Next, we conduct this regression analysis for the subsamples of FOEs and JVs separately. Similarly, we expect that this interaction term will exhibit more statistically significant and/or larger-magnitude estimated coefficients for FOEs than for JVs.

## 4 Results

### 4.1 Cultural Distances and FDI Location Choice

Table 1 provides summary statistics for the key variables in this study.

Table 2 presents results on how cultural distance between the FDI source country and the Chinese mainland shapes the patterns of responses of FIEs to regional economic institutions. We do not find contract enforcement to have appreciable impacts on FDI location choice, and the cultural distance does not significantly affect the sensitivity of FIEs toward regional institutions either. However, we do find that regional government intervention in business stimulates FDI entry, but its effect is diminished for FIEs from source countries/areas that are culturally farther away from the Chinese mainland. This suggests that FIEs from source countries/areas closer to mainland China could effectively take advantage of government intervention to turn it into a government helping hand, whereas FIEs from source countries/areas farther away from China are less able to do so.

Similarly, the enhancing effect of regional IPR protection on FDI entry

clearly exists, and it is more remarkable for FIEs stemming from the source countries/areas that are more culturally remote from China. Hence, FIEs from culturally remote sources have deeper concerns with the property rights protection in the investing region.

Finally, a higher degree of corruption truly deters FDI entry, but surprisingly and puzzlingly the interplay of cultural distance and regional corruption turns out unexpected positive sign.

We find that all the four control variables of agglomeration economies generate positive and statistically significant impacts on the FDI location choice of multinationals from the six major source countries/areas. This suggests that foreign multinationals tend to choose those regions where there are concentration of other FIEs engaged in the same industry from the same home country, clustering of China's indigenous firms of the same industry, and wide market and supplier access. Results in Table 2 suggest that the positive impact of agglomeration of home country FIEs is larger than that of China's indigenous firms: if the agglomeration of China's indigenous firms increases 1%, it raises the probability of investment of foreign multinationals by 1.98%, while a 1% rise in the agglomeration of home country multinationals boosts the chances of investment of multinationals by 3.68%.<sup>10</sup> This is reasonable because the clustering of home country FIEs could help disseminate information, share experience and thus enhance the adaptability of new FIEs to the new regional business environment. Interestingly, the effects of forward agglomeration (market access) are much larger than those of backward agglomeration (supplier access) on the location choice of FIEs. It can be calculated that a 1% increment in the ratio of the forward agglomeration indicator will push up the chances of investment of foreign multinationals by 6.51%, whereas the same increment in the backward agglomeration indicator will raise the probability by 3.53%. This suggests that market access is extremely more important in attracting FIEs than supplier access does.<sup>11</sup>

The other control variables for regional characteristics mostly exhibit results consistent with both theoretical predictions and existing findings in the literature. Highway density in a region consistently promotes FDI entry, suggesting that basic infrastructure is one essential factor in luring FDI. Human capital endowment reflected in higher education enrollment also in most cases boosts FDI. Our results are largely consistent with the findings of Fung, Iizaka and Parker (2002) and Gao (2005) that regional labor quality significantly affects regional aggregate FDI flows from developed countries. The

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<sup>10</sup>The effects of agglomeration are calculated based on the average of the estimated coefficients of the relevant explanatory variable in regressions of Table 2.

<sup>11</sup>Amiti and Javorcik (2007) find that the supplier access and market access have similar impacts on the changes of FDI flows of China's regions.

national government promotion policies consistently produce the expected positive and significant impact on FDI entry. The most puzzling result is concerned with the regional average wage. It turns out to be positive and significant. This is likely the case that regions with higher wages have a larger proportion of skilled labor, and higher average wages reflect the skill premium. This result implies that FDI often flows to regions with more skilled labor.

## 4.2 Cultural Distance and the Location Choice of JVs and FOEs

In Table 3, we explore how cultural distance between the FDI source country/area and the Chinese mainland shapes the sensitivity of locational choices of JVs and FOEs to the variation in regional institutions. Regional contract enforcement index has significantly positive impacts only on the location choice of FOEs but it has negative effects on JVs. This shows that FOEs care much more about contract enforcement than do JVs. Nonetheless, the contract enforcement index exerts stronger positive impacts on JVs when cultural diversity is larger, whereas the index has more negative impacts on FOEs when cultural diversity is more striking. This suggests that cultural diversity reduces the impact of contract enforcement on FOE entry but enhances that of JV entry, which is inconsistent with our expectations.

Government intervention in business operations have significant and positive effects on FOE and JV entry, but this effect is reduced for both entry modes when the cultural distance is larger. The magnitude of the estimated coefficient of the interaction term between government intervention and cultural distance is slightly larger for FOEs than for JVs. This is consistent with our expectation that FOEs are more likely to regard government intervention as a grabbing hand.

IPR protection has positive effects on both JVs and FOEs. The impact of IPR protection on the locational choice of both JVs and FOEs is stronger when the cultural distance is larger, but the magnitude of the effect shows no difference between JVs and FOEs.

Government corruption deters the entry of both FOEs and JVs. Nonetheless, surprisingly and puzzlingly, the negative effects of regional corruption on the locational choice of both JVs and FOEs shrink when the cultural distance is larger.

This puzzling result along with the similar one in Table 2 could be the consequence of the increasing practice of bribery behavior adopted by many large MNEs around the late 1990s. It is reported that more and more large

MNEs, which typically come from US, EU, Japan etc., realize that they have to bribe government officials in various ways to gain access to the Chinese market. They often provide large amounts of funds to support the children of local bureaucrats' to study abroad; they often promise to offer local bureaucrats a high-paid position in the company once the officials retire from their government posts (He, 2005). In this way, FIEs from culturally remote countries become less susceptible to local government corruption.

Turn to the control variables. The agglomeration of home country multinationals has an appreciably larger promoting effect on the entry of FOEs than on that of JVs. At the same time, clustering of Chinese indigenous firms has a much larger stimulative effect on the entry of JVs than on that of FOEs. This suggests that when foreign multinationals build a fully-owned subsidiary in the Chinese mainland, the agglomeration of home country multinationals could provide a useful network for sharing experience and enhancing collective bargaining power with local bureaucrats and businesses; however, when FDI adopts JVs, the importance of home country multinationals diminishes, and that of the clustering of Chinese indigenous firms of the same industry increases because the Chinese partners in the JVs can make good use of the connections with Chinese industry partners. Backward agglomeration plays a much larger role in attracting JVs than FOEs, while there is no clear difference in the effect of forward agglomeration on JVs and FOEs.

Highway density consistently produces positive and significant effects on FDI entry, and the magnitude of the effect is larger for FOEs than for JVs. This indicates that FOEs prefer regions with better infrastructure more than JVs do. The effect of human capital endowment is not consistent, sometimes positive and sometimes negative. Government promotion policies reflected in development zones do produce consistently positive effects on the entry of both JVs and FOEs. The effects are typically larger for FOEs than for JVs, which suggests that government promotion policies are more appealing to FOEs than to JVs. The average wage rate has positive and statistically significant effects on the entry of FOEs, whereas its effect is insignificant for JVs. This is probably because FOEs often are more likely than JVs to possess proprietary technology that requires a large number of skilled workers.

## 5 Conclusion

Foreign direct investment by multinationals of developed countries/areas has been shown to be important for transition economies as well as developing economies, for it brings capital, advanced technologies and management

know-how. This is especially the case in China, as its transition from a centrally planned economy to a market economy has been driven by its open-door policy (i.e., opening to foreign trade and investment) since 1978. Indeed, many of these developing countries or transition economies have been trying to attract foreign direct investment, mostly through tax incentives.

This paper, however, focuses on how the interplay of economic institutions and cultural distance affects FDI entry. Using a data set covering FIEs from six major FDI source countries/areas in various regions in China for the period 1993-2001, we find that FIEs from the source countries/areas that are culturally more remote from China often exhibit a stronger aversion to regions with weaker economic institutions. Moreover, this pattern is slightly more salient when FDI takes the form of fully-owned enterprises (FOEs) than when it takes the form of joint ventures (JVs).

This study is the first attempt that systematically investigates how the interplay of regional institutions and the cultural distance between the host country and the home country/area gives rise to different patterns of sensitivity of FDI toward regional economic institutions. Moreover, compared with some cross-country studies of the impacts of economic institutions on FDI, our study avoids the problem of controlling for the differences in political system, culture and language, corporate tax policies, and national trade and investment policies across countries.

Our study generates policy implications for the governments in transition and developing economies as FDI recipients on the importance of strengthening economic institutions in attracting FDI. Since East Asian economies such as Japan, Korea, Hong Kong and Taiwan are the largest FDI sources for the Chinese mainland, our comparative analysis of FDI from different major source countries/areas will help East Asian governments and East Asian MNEs understand better the importance of institutions versus other factors in shaping the location choice patterns of FIEs in China. Both governments and MNEs in East Asian FDI source economies can urge the Chinese governments at the national and regional levels to improve their institutional infrastructure and thus investment environment. At the same time, given that institutional structure might take quite some time to improve, East Asian governments and MNEs can take advantage of their cultural proximity to the Chinese mainland to overcome institutional barriers and outperform their counterparts in North America and Europe in exploring the vast Chinese market. This competitive edge for the East Asian source economies should be of great significance because the Chinese economy is growing rapidly and offers numerous business opportunities to FIEs.

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**Table 1 Summary Statistics**

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>Economic Institutions</b>				
Contract enforcement	0.1151	0.0868	0.0222	0.5
Regional IPR protection	-1.2588	0.9009	-2.9051	1.6527
Government intervention in business	0.0431	0.0493	0	0.4239
Regional corruption	0.4617	0.1397	0.1905	0.8788
<b>Agglomeration</b>				
Agglomeration_home	0.0338	0.0943	0	1
Agglomeration_domestic	0.0341	0.0527	0	1
Backward agglomeration	0.0191	0.0211	0.0001	0.2713
Forward agglomeration	0.0263	0.0253	0.0000	0.3641
<b>Other Controlled Variables</b>				
Wages	8.3951	0.4319	7.6811	9.7518
Highway density	-1.6074	0.8435	-4.1585	-0.2120
Education	0.9561	0.6570	-0.2231	3.1355
Sezd	0.3754	0.4842	0	1
Etdzd	0.5153	0.4998	0	1

**Table 2 Institutions, Cultural Distance and FDI Location Choice**

	1	2	3	4
<b>Agglomeration</b>				
Agglomeration_home	3.82***	3.81***	3.81***	3.82***
	0.03	0.03	0.03	0.03
Agglomeration_domestic	2.07***	2.07***	2.02***	2.06***
	0.07	0.07	0.07	0.07
Backward agglomeration	3.70***	3.68***	3.28***	3.47***
	0.27	0.27	0.27	0.27
Forward agglomeration	6.93***	6.96***	6.10***	6.97***
	0.25	0.25	0.26	0.25
<b>Institution Environment</b>				
Contract enforcement	-0.14			
	0.16			
Contract enforcement *	0.00			
Cultural distance	0.00			
Government intervention in business		1.46***		
		0.24		
Government intervention in business		-0.0005***		
* Cultural distance		0.00		
Regional IPR protection			0.17***	
			0.01	
Regional IPR protection			0.0000***	
* Cultural distance			0.00	
Regional corruption				-0.74***
				0.06
Regional corruption*Cultural distance				0.0001***
				0.00
<b>Controlled Variables</b>				
Wages	0.19***	0.17***	0.12***	0.11***
	0.03	0.03	0.03	0.03
Highway density	0.61***	0.61***	0.52***	0.61***
	0.02	0.02	0.02	0.02
Education	0.04***	0.05***	-0.13***	0.07***
	0.01	0.01	0.01	0.01
Sezd	0.55***	0.56***	0.54***	0.57***

	0.02	0.02	0.02	0.02
Etdzd	0.43***	0.42***	0.42***	0.43***
	0.02	0.02	0.02	0.02
No. of Choosers	56,896	56,896	56,896	56,896
No. of Choices	29	29	29	29
Pseudo R2	0.2943	0.2945	0.2953	0.2946
LR chi2(10)	112676.61	112753.00	113078.58	112806.77

Standard Errors are reported in the parentheses

Superscripts \*, \*\*, \*\*\* indicate the statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 3 Institutions, Cultural Distance and the Location Choice of Fully-owned Enterprises and Joint Ventures**

	1	1	2	2	3	3	4	4
	JV	FOE	JV	FOE	JV	FOE	JV	FOE
<b>Agglomeration</b>								
Agglomeration_home	3.34***	4.57***	3.33***	4.56***	3.33***	4.57***	3.34***	4.60***
	0.03	0.04	0.03	0.04	0.03	0.04	0.03	0.04
Agglomeration_domestic	2.64***	0.99***	2.66***	0.99***	2.59***	0.97***	2.64***	0.96***
	0.09	0.12	0.09	0.12	0.09	0.12	0.09	0.12
Backward agglomeration	5.52***	1.11**	5.53***	1.01**	5.20***	0.63	5.54***	0.28
	0.34	0.47	0.34	0.47	0.34	0.47	0.34	0.47
Forward agglomeration	6.48***	6.59***	6.52***	6.55***	5.64***	6.19***	6.52***	6.71***
	0.31	0.42	0.31	0.42	0.32	0.43	0.31	0.42
<b>Institution Environment</b>								
Contract enforcement	-1.08***	0.88***						
	0.20	0.27						
Contract enforcement *Cultural distance	0.0002***	-0.0001***						
	0.00	0.00						
Government intervention in business			2.34***	1.20***				
			0.27	0.41				
Government intervention in business *Culture Distance			-0.0006***	-0.0007***				

			0.00	0.00				
Regional IPR protection					0.19***	0.03		
					0.02	0.02		
Regional IPR protection * Cultural distance					0.0000***	0.0000***		
					0.00	0.00		
Regional corruption							-0.50***	-1.38***
							0.08	0.11
Regional corruption*Cultural distance							0.0001***	0.0001***
							0.00	0.00
<b>Controlled Variables</b>								
Wages	0.06	0.56***	0.03	0.55***	0.01	0.50***	0.03	0.38***
	0.04	0.05	0.04	0.05	0.04	0.05	0.04	0.05
Highway density	0.52***	0.69***	0.55***	0.68***	0.45***	0.62***	0.54***	0.73***
	0.02	0.03	0.02	0.03	0.02	0.03	0.02	0.03
Education	0.11***	-0.09***	0.12***	-0.09***	-0.09***	-0.18***	0.18***	-0.04**
	0.01	0.02	0.01	0.02	0.02	0.02	0.01	0.02
Sezd	0.45***	0.76***	0.45***	0.78***	0.42***	0.80***	0.45***	0.81***
	0.02	0.03	0.02	0.03	0.02	0.03	0.02	0.03
Etdzd	0.35***	0.69***	0.33***	0.68***	0.38***	0.68***	0.38***	0.70***
	0.02	0.04	0.02	0.04	0.02	0.04	0.02	0.04
<b>No. of Choosers</b>	36,582	21,631	36,582	21,631	36,582	21,631	36,582	21,631

No. of Choices	29	29	29	29	29	29	29	29
Pseudo R2	0.2485	0.3859	0.2487	0.3861	0.2495	0.3870	0.2486	0.3871
LR chi2(10)	59564.04	55286.74	59613.27	55310.12	59785.47	55439.98	59585.37	55460.24

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Standard errors are reported in the parentheses.

Superscripts \*, \*\*, \*\*\* indicate the statistical significance at the 10%, 5%, and 1% levels, respectively.