Regional Institutional Strength and FDI Location Choice in China: Implications for East Asian FDI Source Countries/Areas

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Abstract

Using an extensive data set on foreign invested enterprises (FIEs) in the Chinese mainland, we explore the role of regional economic institutions as well as other more traditional factors in determining the locational choice of foreign direct investment (FDI). In particular, we compare the sensitivities of FDI from six major source countries/areas (Hong Kong, Taiwan, US, EU, Japan and Korea) toward the variation in economic institutional strength across China's regions. It is found that FIEs from the source countries/areas that are institutionally or culturally more remote from China exhibit a stronger aversion to regions with weaker economic institutions. Both the separate regression analysis for FDI from each major source country/area and the pooled regression analysis for FDI from all the six major source countries/areas lend support to this finding. Moreover, this pattern is 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 interplay of the institutional features of the FDI source countries and the host regions in China shapes the locational choices of MNEs in different regions 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 institutions and 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 closer. 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 and institutions between the FDI source country and host country. FIEs from the countries/areas that are institutionally close to the host country may easily apply their experience in dealing with bureaucrats and government agencies in the home country to coping with bureaucrats and government entities in different regions of the host country. However, FIEs from the countries/areas that are institutionally remote from the host country may find it difficult in maintaining frequent contacts with bureaucrats and government agencies in the host

country because their experience with home governments cannot provide a useful guide to their endeavor in the host country. Therefore, institutional proximity can facilitate the adaptation of FIEs to institutions in the host country.

Cultural proximity can also 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 institutionally and/or 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 the issue of how the cultural and institutional distances affect the sensitivity of MNEs toward local institutions in FDI location choices by looking at how FIEs from some major FDI source countries/areas choose FDI location among different regions (i.e., provinces) 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 and institutional distances to mainland China. For instance, EU and US are very remote from China in both culture and institutions. However, sometimes the cultural and institutional distances could deviate from each other. For example, Hong Kong is an ethnically Chinese economy. In terms of culture, it shares the same Chinese culture with the Chinese mainland. However, Hong Kong had been a British colony for more than 100 years and, as a result, has adopted the British-style government and legal institutions. In the post-colonial era, Hong Kong has retained most of

these institutions. This rich variety of FDI sources makes China an ideal setting to examine how the cultural and institutional distances between the source and recipient countries shape the FDI locational choices.

We are particularly interested in whether cultural and institutional similarities/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 institutionally or culturally from the Chinese mainland 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. 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 and institutionally 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 institutionally or culturally distant source countries/areas. In the empirical analysis, we do find that FOEs exhibit stronger responses to regional economic institutions in location choice than JVs do when they come from sources that are more culturally, and especially institutionally, remote from China.

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. [2]

The studies of the impact of institutions on FDI flows have grown quickly.[3] 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.

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 from one FDI source country to another based on their institutional and cultural proximity to China. To the best of our knowledge, our paper is the first one that systematically examines how cultural distance and institutional distance between the source and host countries affects the sensitivity of FIEs toward local institutions. Though Habib and Zurawicki (2002) examine the impact of the absolute difference in the corruption level between the host and home country on FDI flows, we conduct a much more systematic analysis of the distance in various dimensions of institutions between host and home countries.

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.

[2] 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.

[3] 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 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.

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 the impacts of economic institutions and institutional or cultural distances on 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.

2 Data and Variables

2.1 Data

Our data come 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.

In Fan-Wang-Zhu's (2003) China Regional Marketization Indices, there is a sub-index on legal institutions and contract enforcement. It is the proportion of lawyers in a region's total population. We use it as an alternative measure of contract enforcement in our robustness analysis. Again, our analysis will be restricted to the subsample of 1998-2001 when this variable is used, for it is available only after 1997.

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 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 important 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 ed-

ucation 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.

For robustness check, we use an alternative measure of intellectual property rights protection, which is a sub-index of the China Regional Marketization Indices developed by Fan, Wang and Zhu (2003). This index is constructed by combining two ratios. One is the ratio of the number of applications for various types of patent to GDP, and the other is the ratio of the number of various types of approved patent applications to GDP. Since the compilation of the Fan-Wang-Zhu index started as late as 1997, we have to restrict our analysis to the subsample of the period 1998-2001 when using this alternative index of IPR protection.

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.[4] 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, Jiangsu, Shanghai, Tianjin, and Zhejiang are at 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

[4]This survey was conduced 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.

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).

Again, for robustness check, we use an alternative index of government interference with enterprises, a sub-index in Fan-Wang-Zhu's China Regional Marketization Indices. It is constructed on the basis of the percentage of time the enterprise managers have spent dealing with government agencies and officials.

Government Corruption

China's economic reform has been accompanied by the rampant corruption 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?[5] 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 and Institutional Distances

Cultural Distance

[5] 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.

Based on the cultural proximity with the Chinese mainland, we can put the major FDI source countries/areas into three groups. The first group is composed of the ethnically Chinese economies such as Hong Kong and Taiwan. Hong Kong is a former British colony. Between 1853 and 1997, it was ruled by Britain and has adopted British-style government 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. These ethnically Chinese economies share the same language and culture as the Chinese mainland, though they have adopted completely different institutions. The second group consists of Japan and Korea. In history, these two East Asian powers had long been influenced by the Chinese language and culture, especially the Confusian doctrines. Though the Westernization movement following the Meji Restoration changed the landscape of the Japanese society and culture to a large extent, the Chinese cultural heritage still exists 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 closer to China than most of the other countries. The third group is made up of the US and EU. Cuturally they are rather distant from China with totally different languages, religions and ethics.

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 breakdown of the source countries/areas into three distinct groups. 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. In pooled regression analysis that puts together all source countries/areas, we calculate the cultural difference of each EU country with China separately.

Institutional Distance

Another angle to classify source countries is the institutional proximity to China. We can break down the source countries or areas largely into two groups. One group consists of Japan, Korea, and Taiwan. These economies fall into the so-called East Asian model, that is, the governments in those countries have played a central role in economic development. Their governments have been highly interventionist; the governments and the business

sectors have kept a rather close relationship. The merit of this approach is that the governments can channel economic resources toward the key industries and sectors to achieve certain developmental goals. However, this government intervention also has a dark side: it spurs crony capitalism, rent seeking between the governments and the businesses, and in some cases corruption.

China has been undergoing a transition process from a central planning economy to a market economy. In this period the governments at various levels still control a large part of social resources. Regional governments have served as locomotives of economic development since the decentralization-based reform began. As with the general case of the East Asian model, the extensive government intervention gives rise to the prevalent two-way rent seeking between the government and the businesses and rampant corruption. In this sense, we regard Japan, Korea and Taiwan as FDI source countries/areas that are institutionally proximate to China. US, EU and Hong Kong make up the other group. Comparatively speaking, these FDI source countries/areas have governments that are less interventionist in economic activities and conduct less rent-seeking than does the East Asian model, and as a result, they are institutionally less close to China.

We make use of different types of cross-country indices of institutional quality to measure the institutional distance between the Chinese mainland and the FDI source countries/areas. We experimented with many different cross-country institution indices and present four representative ones here: (1) Impartial courts index. This is a survey-based index constructed by the Economic Freedom of the World. It is based on the following question: Does a trusted legal framework exist for private businesses to challenge the legality of government actions or regulation? A higher score of the index corresponds to a more impartial court system. This index is also closely related to the regional contract enforcement index that we used for China's different regions, i.e., whether courts are effective in resolving contract disputes. They both reflect whether the court system can keep away the pressure from bureaucrats and businesses to remain impartial in trial and judgment. (2) A comprehensive index of government regulations. This index is constructed by the Economic Freedom of the World. It is a comprehensive measure of government regulations of credit markets, labor markets and businesses. A higher score corresponds to lighter government regulations of the economy. We use this index to match the regional index of government intervention in business contracting for China's different regions because they both reflect government interference with the private business sector. (3) Intellectual property rights protection index. This index is constructed by the Global Competitiveness Report. It measures the adequacy of IPR protec-

tion. A higher score indicates better protection of IPR in a country. This index matches well the regional IPR protection index. (4) Corruption index. We use the cross-country corruption index constructed by the International Country Risk Guide (ICRG) where a higher score corresponds to less severe government corruption. This index teams up with the regional corruption index for China's different provinces and municipalities.

We find that in general our grouping of the FDI source countries/areas in terms of institutional distance is supported by these indices. We illustrate by some examples. According to the 1995 impartial court index, a measure of rule of law compiled by the Economic Freedom of the World where a higher score means more justice in the court system, China has a score of 4.92. In the first group, Japan, Korea and Taiwan have a score of 6.13, 5.25, and 6.47 respectively, whereas in the second group, US, EU and Hong Kong have a score of 8.52, 7.73, 7.93 respectively. Similarly, according to the 1996 World Bank comprehensive corrupton index where a higher score indicates less severe government corruption, China has a score of -0.01. In the first group, Japan, Korea and Taiwan have a score of 1.22, 0.54 and 0.74 respectively. In the second group, US, EU and Hong Kong have a score of 1.71,1.54, 1.5 respectively.

If we turn to government regulation, a similar pattern still emerges. According to the 1995 government regulation index compiled by the Economic Freedom of the World where a higher score means lighter government regulations of economic activities, China has an index value of 4.52. In the first group, Japan, Korea and Taiwan have a score of 6.57, 4.97 and 6.13 respectively. In the second group, US, EU and Hong Kong have a score of 8.32, 6.45, 8.81 respectively. It seems that EU has quite much government regulation of business activities so that its regulation index score is close to the Asian group. This is largely due to the welfare state policies implemented in the Continental Europe in the post-war era. If we break down EU into the English-legal-origin EU, i.e., UK and Ireland, and the continental EU, the former has a score of 8.165 that is comparable to the US and Hong Kong, whereas the latter has a score of 6.18 which is quite close to Japan and Taiwan. However, government regulation in EU is less related to rent-seeking and government corruption than it is in Japan or Korea. As testified above, EU has much better performance in the corruption index than the Asian group does. Even if we break down EU into English-legal-origin EU, i.e., UK and Ireland, and the continental EU, though the latter has a score of 1.48 in the corruption index that is smaller than the former (1.88), the continental EU still clearly scores higher than the Asian group. This suggests that the government regulation in EU could be much less predatory than that in the Asian group.

Systematically, we measure the institutional distance between the Chinese mainland and each FDI source country/area by calculating the difference in each of three representative institutional indices, i.e., the impartial courts index, the government regulation of business index, and the corruption index. Since all the FDI source countries/areas have better scores than the Chinese mainland in the three indices, it is equivalent to use the scores of each FDI source country/area to measure their institutitional distance from China.

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 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.[6]

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 α_{ij} is the input-output ratio reflecting the inputs from the upstream industry j required for one unit of output of industry i; β_{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.[7] The data used for constructing the indices for vertical agglomeration come from the *Annual Survey of Industrial Firms* by China's National Bureau of Statistics and the 1997 Input-Output Table of China.[8]

[6] 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.

[7] 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.

[8] 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.

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.[9]

(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 proportion 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 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

[9]Data sources for the five variables are listed in the Appendix A1.

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 institutional and cultural distance between the FDI source countries and China on the location choices of FIEs in China's various regions, we conduct two types of econometric analysis. First, we conduct discrete choice model regression analysis for each FDI source country/area separately. Next, we pool all FIEs from all FDI source countries/areas together.

In the first type of analysis, we employ the discrete choice model developed by McFadden (1974) to analyze how institutions as well as other potential determinants shape the FDI location choice for each of the FDI source countries/areas separately. 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 π_{ijt} be the profit firm i derives from setting up a manufacturing operation in region j at time t. As discussed earlier, π_{ijt} is determined by regional economic institutions, I_{jt-1}, and a host of region j's other characteristics including agglomeration etc. at time $t-1$, X_{jt-1}, and ε_{ijt} is a disturbance term:

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

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

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

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

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

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.

For FDI from each major source country/area, we analyze the importance of the four economic institution variables — *Intellectual Property Rights Protection*, *Government Intervention in Business Operations*, *Government Corruption*, *and Contract Enforcement* - one by one, with all the other variables included as control variables. We then compare the statistical significance and the magnitude of the estimated coefficients on the regional economic institutions indices in regressions for each source country/area. It is expected that countries/areas that are more culturally or institutionally proximate to China will have less statistically significant or smaller-magnitude estimated coefficients on the regional economic institutions indices in FDI location choice regressions, which suggests that cultural or institutional proximity may help FIEs better cope with weak economic institutions in local markets so as to reduce the impact of institutions on FDI locational choices. Similarly, we compare the importance of regional institutions in shaping the location choice of JVs and FOEs. We expect that FOEs would exhibit a higher degree of sensitivity toward regional institutions in location choice than JVs, and this pattern is more striking for FDI from source countries/areas that are more remote from the Chinese mainland.

In the second type of analysis, we conduct systematic regressions by pooling together FIEs from different source countries/areas over different years. The location choice hinges upon the profit π_{ijt} that firm i derives from setting up a manufacturing operation in region j at time t. π_{ijt} is determined by regional economic institutions in China, I_{jt-1}, a host of region j's other characteristics including agglomeration etc. at time $t-1$, X_{jt-1}, and the cultural or institutional distance between the home country h of firm i and China (c), D_{hc}. ε_{ijt} is a disturbance term. Thus, we have

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

Here we see that the profit of firm i is shaped by not only regional economic institutions and other regional characteristics in China but also by the interaction between China's regional economic institutions and the cultural or institutional distance between the FDI home country and China. 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 it 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 or institutionally more remote from China. Similarly, we expect that this interaction term will exhibit more statistically significant and/or large magnitude estimated coefficient for FOEs than for JVs, and this pattern is more salient for FDI stemming from source countries/areas that are more distant from the Chinese mainland in terms of culture or institutions.

Utilizing firm-level data can also minimize the endogeneity problem when we examine the impact of institutions, agglomeration and their interplay on FDI entry. Apparently, institutions, FDI inflow and agglomeration are interdependent with each other. For instance, strong initial regional institutions induce FIEs to enter the region. This can cause an increase in regional FIE agglomeration, which in turn attracts more FIEs to choose the region. Using discrete choice model with firm-level data, we can mainly focus on how the given regional institutions and industry agglomeration affect individual FIE locational choice without worrying about their codetermination.

4 Results

4.1 Institutional and Cultural Distances and FDI Location Choice

The four panels in Table 1 present the regression results based on each FDI source country/area separately, and compare the statistical significance and magnitude of the estimated coefficients of the regional institution indices in FDI location choice across six major FDI source countries/areas. In Panel 1, the index of contract enforcement displays positive coefficients with statistical significance level of 1% for U.S. and EU and positive coefficient with statistical significance level of 5% for Japan. However, the estimated coefficients of the contract enforcement index for Korea, Hong Kong and Taiwan are all statistically insignificant. They are even negative for Korea and Hong Kong. Interestingly, the estimated coefficient of the contract enforcement index for EU is particularly large in magnitude. This reflects that FIEs from the EU are particularly sensitive to the quality of contract enforcement in the local business environment.

In Panel 2, the indicator of government intervention in business operations exhibits strikingly different estimated coefficients for different FDI source countries/areas. It produces negative estimated coefficients that are statistically significant at the 1% level for US, EU, Japan, and Korea, whereas it generates positive estimated coefficients for Hong Kong and Taiwan, which

are statistically significant at the 1% and 10% levels respectively. This suggests that government intervention in business operations poses a threat to business interests for FIEs from non-ethnically-Chinese economies. On the contrary, government intervention could provide government protection and support to FIEs from those ethnically Chinese economies. This striking contrast of the effect of government intervention between the two types of FDI source countries/areas suggests that whether government intervention would become a grabbing hand or a helping hand hinges to a large extent on whether the FIEs know how to deal with local bureaucrats.

In Panel 3, we look at the impact of IPR protection across FDI source countries/areas. The results are quite consistent among different FDI source countries/areas. The regional IPR protection index displays positive estimated coefficients with statistical significance of 1% level for all FDI sources except Taiwan. The estimated coefficient for Taiwan is still positive, but statistically insignificant. It is clear that Hong Kong and Taiwan are less sensitive to regional IPR protection. The estimated coefficient for Hong Kong, though statistically significant, is obviously smaller than those for US, EU, Japan and Korea. Taiwan does not show sensitivity to regional IPR protection. This pattern suggests that the ethnically Chinese economies are more concentrated in low-tech and labor-intensive production and assembly processes so that they may not be very sensitive to the regional protection of intellectual property rights.

In Panel 4, we investigate the impact of regional corruption on FDI location choice. The effect is fairly consistent for almost all FDI source countries/areas except Korea: Regions having more severe bureaucratic corruption are less appealing to FIEs. Nonetheless, the estimated coefficient of the regional corruption index turns out to be positive and statistically significant for Korea. Perhaps the quite serious corruption problem at home enables Korean businesses to have learnt how to deal with corrupt bureaucrats so that regional corruption in China does not deter Korean multinationals at all. Also interestingly, the magnitude of the corruption index for EU, Japan, Hong Kong and Taiwan is higher than that for US. This means US FIEs are not especially vulnerable to local government corruption because of the self-binding 1977 US Foreign Corrupt Practices Act that prohibits US multinationals from bribing local bureaucrats to seek business favors.

Table 2 presents three panels of regression results that pool together FIEs from these six major FDI sources. In Panel 1, we look at how China's regional economic institutions affect the location choice of FIEs from all the six major FDI source countries/areas. Two regional institution indices produce statistically significant results: a higher regional level of IPR protection pro-

motes the entry of FDI; a more severe regional corruption deters FDI entry into the region.

In Panel 2, we examine how the institutional distance between the FDI source country and the Chinese mainland affects the sensitivity of FIEs toward regional economic institutions. The central focus of our investigation is the interplay of the institutional distance and regional institutional indices. We find that the regional contract enforcement index has a particularly larger-magnitude positive effect on FDI location choice when the difference in the impartial courts index between mainland China and the FDI source country/area is larger. It is also found that the regional government intervention in business operations index has a larger negative impact on FDI entry when the difference in business regulation index between Chinese mainland and the FDI source country/area is bigger. Similarly, the positive effect of the regional IPR protection indicator on FDI location choice is more salient when there is a larger disparity in IPR protection between the Chinese mainland and the FDI source country/area. Finally, the deterrent effect of regional bureaucratic corruption on FDI entry is more striking for FIEs coming from a source country/area where the corruption problem is much less serious than in mainland China.

In Panel 3, we explore 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 cultural distance to significantly affect the effect of the regional contract enforcement index. In addition, the interplay of cultural distance and regional corruption turns out unexpected positive sign. However, we do detect statistically significant impacts of cultural distance on the importance of the remaining two regional institutional indices on FIE location choice. First, the deterrent effect of regional government intervention in business operations on FDI entry is more salient when the cultural distance between China and the FDI source country/area is larger. Second, the enhancing effect of regional IPR protection on FDI entry is more remarkable for FIEs stemming from the source countries/areas that are more culturally remote from China.

In both Table 1 and Table 2, 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 for FIEs as a whole 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 3.01%, while a 1% rise in the agglomeration of home country multinationals boosts the chances of investment of multinationals by 1.53%.[10] 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, based on Table 2, the effects of forward agglomeration (market access) are in most cases 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 11.37%, whereas the same increment in the backward agglomeration indicator will raise the probability by 6.43%. This suggests that market access is extremely more important in attracting FIEs than supplier access does.[11]

This is in contrast to the result of Head, Ries and Swenson (1995) that, when investing in the United States, the Japanese multinationals care more about the clustering of fellow Japanese firms than that of American firms.

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. However, there exists one exception: education has negative effects on FDI location choice for FIEs from Hong Kong and Taiwan. This somewhat surprising result is probably due to the fact that FDI from these two ethnically Chinese economies are mainly small-scale low-technology enterprises so that they do not put much emphasis on labor skill. 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 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 fluctuates a lot from negative and significant to positive and significant. The positive effects of wages mainly come from FDI from Hong Kong

[10] The effects of agglomeration are calculated based on the average of the estimated coefficients of the relevant explanatory variable in regressions 1, 2 and 4 of Table 4. The estimated coefficients in regression 3 are not used because of the much smaller sample size in that regression.

[11] 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.

and Taiwan. This seems inconsistent with the labor-intensive nature of FDI from these two areas.

4.2 Institutional and Cultural Distances and the Location Choice of JVs and FOEs

The four panels in Table 3 compare the importance of regional economic institutions in shaping the location choice of JVs and FOEs from the six major source countries/areas. Panel 1 examines the contract enforcement index. Clearly, regional institutions reflected in contract enforcement have no significant effect on the location choice of JVs. In contrast, contract enforcement strength produces positive and statistically significant impacts on the location choice of FOEs from US, EU, Japan and Hong Kong. This supports our prediction that FOEs are more sensitive to regional institutions than JVs do. Furthermore, in terms of the magnitude of the estimated coefficient of the contract enforcement index, those of US and EU are larger than that of Japan which in turn is larger than that of Hong Kong. This shows the importance of cultural distance in shaping the variation in the impact of regional institutions: the effect of institutions is more salient for FOEs from culturally more distant countries/areas.

In Panel 2, we look at the index of government intervention in business operations. It produces negative effects on the location choice of JVs and FOEs from US, EU, Japan and Korea. US, Japan and Korea exhibit the pattern that the government intervention index produces a negative effect of a larger magnitude for FOEs than for JVs. This is consistent with our expectation. However, the government intervention index generates positive and mostly statistically significant effects on location choice for FDI from Hong Kong and Taiwan. This suggests that the cultural proximity of Hong Kong and Taiwan to mainland China could allow FIEs from these two areas to lobby and seek rents from bureaucrats when local government officials have a strong tendency to intervene in the business operation.

In Panel 3, the indicator of regional IPR protection produces positive effects on the location choice of JVs, which is statistically significant for all source countries/areas except Taiwan. The IPR protection indicator has weaker and less consistent effects on the location choice of FOEs. FOEs from US, Japan and Korea show positive and statistically significant effects, but their estimated coefficients are not clearly larger than those for JVs. Surprisingly, the regional IPR protection index in regressions for Hong Kong and Taiwan produce statistically significant negative effects on FOE location choice. Perhaps FIEs from Hong Kong and Taiwan are typically not equipped

with proprietary assets and advanced technology as their counterparts from the West, Japan and Korea. Thus, FIEs from Hong Kong and Taiwan shy away from the regions with good IPR protection and active technology innovation to avoid fierce competition.

In Panel 4, we investigate the impact of regional corruption index on the location choice of JVs and FOEs. For FDI from all source countries/areas except Korea, a severe corruption in a region deters FDI entry in both JV and FOE forms. For EU, Japan, and Hong Kong, the deterrent effect of corruption on FOEs is larger in magnitude than that on JVs. However, for US and Taiwan, the reverse case applies. Quite puzzlingly, Korea produces positive estimated coefficient on the corruption index, and it is statistically significant in the case of FOEs. Perhaps the prevalent corruption in Korea itself enables Korean businesses to get adapted to a corrupted business environment, and they may even find a corrupted region offers more chances of lobbying and rent-seeking.

Table 4 addresses the issue by pooling together FIEs from all the six major source countries/areas. In Panel 1, we investigate how institutional distance between the FDI source country/area affects the sensitivity of locational choice of JVs and FOEs to regional economic institutions. It is found that the regional contract enforcement, the regional IPR protection and the regional corruption have significantly stronger impacts on the location choice of FOEs than that of JVs when the institutional distance between mainland China and the source country/area is larger. However, regional government intervention in business operations turns out to have significantly stronger and larger impacts on JV location choice than FOE location choice when the institutional distance is larger.

In Panel 2, 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. The results are much less strong and consistent than in the case of institutional distance. Regional contract enforcement index has stronger impacts on JVs when cultural diversity is larger, which is inconsistent with our expectations. The effect of government intervention in business operations on FDI location choice is stronger in both JV and FOE scenarios when the cultural distance is larger, and the magnitude of the effect is similar in both JVs and FOEs, though that of FOEs is a little larger. 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. Surprisingly and puzzlingly, regional corruption shows significantly larger positive effects on the locational choice of both JVs and FOEs when the cultural distance is larger.

Turn to the control variables. Based on the results for FIEs as a whole in Table 4, 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.

The sign of average wage rates in the region fluctuates tremendously. 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.

To test the robustness of our results on economic institutions, we use the alternative measures of Intellectual Property Rights Protection, Government Intervention in Business Operations, and Contract Enforcement from Fan-Wang-Zhu's (2003) China Regional Marketization Indices as described in Section 2.2. Table 2 summarizes the main results of the regressions that are restricted to the subsample 1998-2001 because of the limited availability of the Fan-Wang-Zhu indices. We find that all these three alternative measures of economic institutions have the same qualitative results as in our main regressions (Table 1). The results for the control variables are also similar to those of Table 1, except that the horizontal agglomeration of China's indigenous firms no longer exhibits a larger impact than that of U.S. multinationals. Actually the magnitude of the former effect is a bit smaller than the latter one. However, the backward agglomeration still exerts a positive impact of a larger magnitude than the forward agglomeration does. Other

regional characteristics variables present qualitatively equivalent results as in Table 1. In summary, our main results on economic institutions are robust to the alternative measures of the strength of economic institutions.

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 the importance of economic institutions in attracting FDI by multinationals. More importantly, it addresses the possible interactions between the national identity of foreign investors and local economic institutions. In particular, this study compares the sensitivities of FDI from six major source countries/areas (Hong Kong, Taiwan, US, EU, Japan and Korea) toward economic institutions across China's regions. 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 institutionally or culturally more remote from China exhibit a stronger aversion to regions with weaker economic institutions. Both the separate regression analysis for the locational choice of FIEs from each major source country/area and the pooled regression analysis for FDI from all the six major source countries/areas lend support to this finding. Moreover, this pattern is 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 sysmatically investigates how the interplay of regional institutions and the cultural or institutional 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 results on the importance of economic institutions for FDI are ro-

bust to alternative measures of economic institutions, and to the inclusion of control variables such as those for agglomeration economies, and other traditional factors of FDI location choice.

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 and/or institutional 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.

References

Acemoglu, Daron, Simon Johnson and James A. Robinson (2001) "The Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review* 91: 1369-1401

Acemoglu, Daron, Simon Johnson and James A. Robinson (2002) "Reversal of Fortune: Goegraphy and Institutions in the Making of the Modern World Income Distribution", *Quarterly Journal of Economics* 117: 1231-1294

Amiti, Mary and Beata Smarzynska Javorcki (2005) "Trade costs and location of foreign firms in China", IMF working paper.

Anderson, Simon P., André de Palma, and Jacques-Francois Thisse (1992) *Discrete Choice Theory of Product Differentiation*, Cambridge, Mass.: MIT Press

Anghel, Brindusa (2005) "Do Institutions Affect Foreign Direct Investment?" PhD dissertation, Universidad Autonoma de Barcelona.

Bai, Chong-En, Yingjuan Du, Zhigang Tao and Sarah Y. Tong (2004) "Local protectionism and regional specialization: evidence from China's industries", *Journal of International Economics*, 63:397-417.

Bardhan, Pranab (1997) "Corruption and development: a review of issues", *Journal of Economic Literature*, 35 (3): 1320-46.

Belderbos, René and Martin Carree (2002) "The location of Japanese investments in China: agglomeration effects, keiretsu and firm heterogeneity", *Journal of the Japanese and International Economies,* 16: 194-211.

Benassy-Quere, Agnes, Maylis Coupet and Thierry Mayer (2005) "Institutional Determinants of Foreign Direct Investment", CEPII Working Paper.

Besley, Timothy (1995) "Property Rights and Investment Incentives: Theory and Evidence from Ghana", *Journal of Political Economy* 103: 903-937.

Blonigen, Bruce A. (2005) "A Review of the Empirical Literature on FDI Determinants", Working paper, University of Oregon.

Boudier-Bensebaa, Fabienne (2005) "Agglomeration economies and location choice: FDI in Hungary", *Economics of Transition,* 13: 605–628.

Boyreau-Debray, Genevieve and Shang-Jin Wei (2004) "Pitfalls of a state-dominated financial system: the case of China", CEPR discussion paper No. 4471.

Campos, Nauro F. and Yuko Kinoshita (2003) "Why Does FDI Go Where it Goes? New Evidence from the Transition Economies", IMF Working Paper.

Caves, Richard (1996) *Multinational Enterprise and Economic Analysis*, Cambridge University Press.

Chang, Sea-Jin and Sekeun Park (2005) "Types of firms generating network externalities and MNCs' co-location decisions", *Strategic Management Journal,* 26: 595-615.

Cheng, Leonard K. and Yum K. Kwan (2000) "What are the determinants of the location foreign direct investment? the Chinese experience", *Journal of International Economics,* 51: 379-400.

Coughlin, Cletus C. , Joseph V. Terza, and Vachira Arromdee (1991) "State characteristics and the location of forign direct investment within the United States", *Review of Economics and Statistics* 73, 675-683.

Crozet, Mattieu, Mayer Thierry, and Jean-Louis Muccheilli (2004) "How do firms agglomerate? a study of FDI in France", *Regional Science and Urban Economics* 34, 27-54.

Desai, Mihir A., C. Fritz Foley and James R. Hines Jr. (2004) "A Multinational Perspective on Capital Structure Choice and Internal Capital Markets", *Journal of Finance*, 59(6): 2451-2487.

Duranton, Gilles, and Diego Puga (2004) "Micro-foundations of Urban Agglomeration Economies", in J. Vernon Henderson and Jacques-Francois Thisse (ed.), *Handbook of Regional and Urban Economics,* Vol. 4: 2063-2118

Fan, Gang, Xiaolu Wang and Henpeng Zhu (2003) *Reports on the Relative Progress of Marketization in Different Regions in China*, Economic Science Publishing House, China.

Friedman, Joseph, Daniel Gerlovski, and Johnathan Silberman (1992) "What attacts foreign multinational corporations? Evidences from branch plant location in the United States", *Journal of Regional Science,* 32: 403-418.

Frye, Timothy and Andrei Shleifer (1997) "The Invisible Hand and the Grabbing Hand", *American Economic Review Papers and Proceedings* 87: 354-358.

Fujita, masahisa, Paul Krugman, and Anthony J. Venables (2001) *The Spatial Economy*, MIT Press.

Fung, K.C., Hitomi Iizaka, and Stephen Parker (2002) "Determinats of U.S. and Japanese direct investment in China", *Journal of Comparative Economics* 30, 567-578.

Fung, K.C., Hitomi Iizaka, and Alan Siu (2003) "Japanese direct investment in China", *China Economic Review* 14, 304-315.

Gao, Ting (2005) "Labor quality and the location of foreign direct investment: evidence from China", *China Economic Review*, 16:274-292.

Guimarães, Paulo, Octávio Figueiredo, and Douglas Woodward (2000) "Agglomeration and the location of foreign direct investment in Portugal", *Journal of Urban Economics,* 47: 115-135.

Habib, Mohsin and Leon Zurawicki (2002) "Corruption and Foreign Direct Investment", *Journal of International Business Studies*, 33(2): 291-307.

Hall, Robert E. and Charles I. Jones (1999) "Why Do Some Countries Produce So Much More Output per Worker than Others?", *Quarterly Journal of Economics* 114: 83-116

Harrison, Ann E. and Margaret S. McMillan (2002) "Does direct foreign investment affect domestic firms credit constraints?", Working paper, University of California, Berkeley and Tufts University.

He, C. (2002) "Information costs, agglomeration economies and the location of foreign direct investment in China", *Regional Studies*, 36(9), pp. 1029-36.

Head, Keith, and John Ries (1996) "Inter-city competition for foreign investment: static and dynamic effects of China's incentive areas", *Journal of Urban Economics,* 40: 38-40.

Head, Keith, John Ries and Deborah Swenson (1995) "Agglomeration benefits and location choice: evidence from Japanese manufacturing investments in the United States", *Journal of International Economics,* 38: 223-247.

Hofstede, Geert (1997) *Cultures and Organizations*, McGraw-Hill, USA: New York.

Huang, Yasheng (2003) *Selling China: Foreign Direct Investment During the Reform Era*, Cambridge University Press.

Hyun, Hea-Jung (2006) "Quality of Institutions and Foreign Direct Investment in Developing Countries: Causality Tests for Cross-Country Panels", working paper, Korea Institute for International Economic Policy.

Israel, Chris (2006) "Piracy and Counterfeiting in China", Testimony of U.S. Coordinator for International Intellectual Property Enforcement Before the US-China Economic and Security Review Commission, June 7.

Johanson, Jan and Jan-Erik Vahlne (1977) "The Internationalization Process of the Firm – A Model of Knowledge Development and Increasing Foreign Market Commitment", Journal of International Business Studies, 8:23-32.

Johanson, Jan and Jan-Erik Vahlne (1990) "The Mechanism of Internationalization", *International Marketing Review*, 7(4): 11-24.

Johnson, Simon, John McMillan, and Christopher Woodruff (2002) "Property Rights and Finance", *American Economic Review*, 92(5): 1335-56.

Knack, Stephen and Philip Keefer (1995) "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures", *Economics and Politics*, 7: 207-227

Knack, Stephen and Philip Keefer (1997) "Dose Social Capital Have an Economic Payoff? A Cross-Country Investigation", *Quarterly Journal of Economics* 112: 1251-1288

Kogut, Bruce and Harbir Singh (1988) "The Effect of National Culture on the Choice of Entry Mode", *Journal of International Business Studies*, 19(3): 411-32.

Krugman, Paul (1991) "Increasing returns and economic geography", *Journal of Political Economy*, 99:483-99.

Krugman, Paul and Anthony J. Venables (1995) "Globalization and the Inequality of Nations", *Quarterly Journal of Economics*, 110: 857-880

La Porta, Raael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny (1999) "The Quality of Government", *Journal of Law, Economics and Organization* 15: 222-279

Luger, Michael I. and Sudhir Shetty (1985) "Determinats of foreign plant start-ups in the United States: lessions for policymakers in the southeast", *Vanderbilt Journal of Transnational Law,* 18: 223-245.

Madura, Jeff (1998) *International Financial Management*, Southwestern College Publishing.

Marin, Dalia and Monika Schnitzer (2004) "Global versus Local: The Financing of Foreign Direct Investment", Working paper, University of Munich.

Mauro, Paolo (1995) "Corruption and Growth", *Quarterly Journal of Economics* 110: 681-712

McFadden, Daniel (1974) "Conditional Logit Analysis of Qualitative Choice Behavior", in Paul Zarembka (ed.), *Frontiers in Econometrics*, New York: Academic Press, 105-142

Pande, Rohini and Christopher Udry (2005) "Institutions and Development: A View from Below", working paper, Yale University

Porter, Michael (1998) "Clustering and the new economics of competition", *Harvard Business Review*, 76(6): 77-90.

Robbins, S. M. and R. M. Stobaugh, *Money in the Multionational Enterprise: A Study in Financial Policy*, London: Longman, 1974

Shleifer, Andrei and Robert W. Vishny (1999) *Grabbing Hand: Government Pathologies and Their Cures*, Harvard University Press.

Stratford, Timothy P. (2006) "China's Enforcement of Intellectual Property Rights and the Dangers of the Movement of Counterfeit and Pirated Goods into the United States", Prepared Statement of Assistant U.S. Trade Representative Before the U.S.-China Economic and Security Review Commission, June 7.

Trevino, James (2005) "Geography, Institutions, and Foreign Direct Investment", PhD thesis, Florida State University.

Wei, Shang-Jin (2000a) "How taxing is corruption on international investors?", *Review of Economics and Statistics*, 82(1): 1-11.

Wei, Shang-Jin (2000b) "Local corruption and global capital flows", *Brookings Papers on Economic Activity*, 2: 303-54.

Woodward, Douglas P. (1992) "Locational determinants of Japanese manufacturing start-ups in the United States", *Southern Economic Journal,* 58: 690-708.

World Bank (1997) *China Engaged: Integration with the Global Economy*, Washington, D.C.: World Bank.

Venables, Anthony J. ""Equilibrium Locations of Vertically Linked Industries", *International Economic Review*, 37: 341-359

Young, Alwyn (2000) "The Razor's Edge: Distortions and Incremental Reform in the People's Republic of China", *Quarterly Journal of Economics*, 115: 1091-1135.

Zhou, Changhui, Andrew Delios, and Jing Yu Yang (2002) "Locational determinants of Japanese foreign direct investment in China", *Asia Pacific Journal of Management* 19: 63-86.

Table 1

Panel 1: Rule of Law

	US	EU	JP	KO	HK	TW
Agglomeration						
Agglo_home	1.60***	1.04***	2.27***	2.87***	4.32***	2.45***
	0.09	0.10	0.08	0.08	0.05	0.08
Agglo_domestic	3.03***	3.22***	2.82***	1.09***	1.76***	2.38***
	0.22	0.30	0.23	0.29	0.10	0.2
Backward agglomeration	10.04***	10.64***	9.08***	0.46	5.04***	5.48***
	0.83	1.13	0.74	1.25	0.38	0.85
Forward agglomeration	7.82***	7.39***	8.39***	12.95***	3.55***	8.91***
	0.74	1.00	0.77	1.02	0.35	0.76
Institution Environment						
Contract enforcement index	0.92***	1.47***	0.82**	-0.02	-0.16	0.34
	0.33	0.45	0.36	0.4	0.19	0.39
Controlled Variables						
Wage	-0.76***	-0.14	-1.31***	-4.09***	0.46***	1.02***
	0.08	0.11	0.09	0.13	0.05	0.09
Highway	0.67***	0.75***	0.64***	0.79***	0.70***	0.65***
	0.04	0.06	0.05	0.06	0.02	0.05
Education	0.54***	0.39***	0.87***	0.97***	-0.21***	-0.13***
	0.03	0.04	0.03	0.04	0.02	0.03
Sezd	0.49***	0.29***	0.96***	1.12***	0.48***	0.52***
	0.04	0.06	0.05	0.06	0.03	0.05
Etdzd	0.29***	0.42***	0.32***	1.15***	0.33***	0.45***
	0.05	0.07	0.06	0.08	0.03	0.06
No. of Choosers	6,288	3,612	5,915	3,952	32,130	6,304
No. of Choices	29	29	29	28	29	29
Pseudo R2	0.1837	0.1901	0.2462	0.3188	0.3605	0.2650
LR chi2(10)	7780.66	4624.02	9805.49	8396.56	78001.59	11250.22

Standard Errors are reported in the parenthesis

*, **, *** represent the significance at 10%, 5%, and 1% level, respectively

Table 1
Panel 2: Government Intervention in Business Operation

	US	EU	JP	KO	HK	TW
Agglomeration						
Agglo_home	1.61***	1.04***	2.29***	2.79***	4.31***	2.45***
	0.09	0.10	0.08	0.08	0.05	0.08
Agglo_domestic	3.00***	3.19***	2.78***	1.04***	1.77***	2.38***
	0.22	0.29	0.23	0.29	0.10	0.2
Backward agglomeration	10.01***	10.39***	9.18***	0.95	5.00***	5.36***
	0.83	1.12	0.74	1.25	0.38	0.85
Forward agglomeration	7.72***	7.28***	8.34***	12.58***	3.60***	8.90***
	0.74	0.99	0.77	1.02	0.35	0.75
Institution Environment						
Government intervention in	-2.41***	-1.99***	-2.48***	-6.13***	1.47***	0.97*
business index	0.55	0.72	0.65	0.77	0.28	0.58
Controlled Variables						
Wage	-0.70***	-0.08	-1.26***	-3.96***	0.42***	0.99***
	0.08	0.11	0.09	0.13	0.05	0.09
Highway	0.63***	0.70***	0.60***	0.70***	0.71***	0.66***
	0.04	0.06	0.05	0.06	0.02	0.05
Education	0.51***	0.37***	0.84***	0.93***	-0.19***	-0.12***
	0.03	0.04	0.03	0.04	0.02	0.03
Sezd	0.47***	0.28***	0.94***	1.01***	0.50***	0.55***
	0.05	0.06	0.05	0.06	0.03	0.05
Etdzd	0.30***	0.41***	0.33***	1.26***	0.32***	0.43***
	0.05	0.07	0.06	0.09	0.03	0.06
No. of Choosers	6,288	3,612	5,915	3,952	32,130	6,304
No. of Choices	29	29	29	28	29	29
Pseudo R2	0.1840	0.1900	0.2464	0.3213	0.3606	0.2650
LR chi2(10)	7792.93	4621.53	9815.40	8462.81	78028.16	11252.26

Standard Errors are reported in the parenthesis

*, **, *** represent the significance at 10%, 5%, and 1% level, respectively

Table 1
Panel 3: Intellectual Property Rights

	US	EU	JP	KO	HK	TW
Agglomeration						
Agglo_home	1.62***	1.07***	2.31***	2.66***	4.30***	2.45***
	0.09	0.10	0.08	0.08	0.05	0.08
Agglo_domestic	2.87***	3.13***	2.71***	0.80***	1.75***	2.36***
	0.22	0.29	0.23	0.29	0.10	0.20
Backward agglomeration	9.44***	9.90***	8.81***	1.02	4.74***	5.38***
	0.83	1.12	0.73	1.24	0.39	0.85
Forward agglomeration	6.27***	6.33***	7.35***	8.91***	3.06***	8.76***
	0.75	1.01	0.79	1.04	0.35	0.77
Institution Environment						
Intellectual property rights	0.38***	0.25***	0.23***	0.98***	0.12***	0.03
protection indicator	0.04	0.05	0.04	0.06	0.02	0.03
Controlled Variables						
Wage	-0.86***	-0.23**	-1.31***	-4.47***	0.43***	1.01***
	0.08	0.11	0.09	0.13	0.05	0.09
Highway	0.50***	0.61***	0.54***	0.51***	0.65***	0.63***
	0.04	0.06	0.05	0.06	0.02	0.05
Education	0.22***	0.19***	0.66***	0.11*	-0.32***	-0.15***
	0.04	0.05	0.05	0.06	0.02	0.04
Sezd	0.50***	0.33***	0.98***	0.93***	0.46***	0.53***
	0.04	0.06	0.05	0.06	0.03	0.05
Etdzd	0.24***	0.36***	0.28***	1.05***	0.34***	0.44***
	0.05	0.07	0.06	0.08	0.03	0.06
No. of Choosers	6,288	3,612	5,915	3,952	32,130	6,304
No. of Choices	29	29	29	28	29	29
Pseudo R2	0.1864	0.1910	0.2470	0.3294	0.3607	0.2650
LR chi2(10)	7892.21	4644.99	9838.40	8674.79	78052.63	11250.02

Standard Errors are reported in the parenthesis

*, **, *** represent the significance at 10%, 5%, and 1% level, respectively

Table 1
Panel 4: Corruption

	US	EU	JP	KO	HK	TW
Agglomeration						
Agglo_home	2.84***	1.65***	3.28***	3.44***	4.87***	3.43***
	0.19	0.19	0.19	0.12	0.09	0.17
Agglo_domestic	2.45***	2.84***	2.98***	0.42	1.06***	1.52***
	0.36	0.47	0.42	0.45	0.21	0.35
Backward agglomeration	6.79***	7.11***	7.94***	5.52***	4.60***	6.33***
	1.41	1.83	1.38	1.95	0.73	1.46
Forward agglomeration	8.18***	9.71***	5.40***	10.69***	2.94***	9.50***
	1.18	1.00	1.41	1.49	0.64	1.20
Institution Environment						
Corruption indicator	-1.16***	-2.32***	-2.20***	1.20***	-1.95***	-2.07***
	0.23	0.30	0.29	0.34	0.16	0.26
Controlled Variables						
Wage	-0.82***	-0.25	-1.48***	-3.54***	0.64***	0.77***
	0.14	0.19	0.18	0.20	0.10	0.17
Highway	0.60***	0.68***	0.51***	0.59***	0.51***	0.46***
	0.06	0.09	0.08	0.08	0.04	0.08
Education	0.53***	0.39***	0.96***	0.94***	-0.41***	-0.16**
	0.06	0.09	0.08	0.07	0.04	0.07
Sezd	0.59***	0.14	0.92***	0.91***	0.42***	0.48***
	0.07	0.09	0.09	0.09	0.05	0.09
Etdzd	0.27***	0.44***	0.10	1.38***	0.58***	0.62***
	0.09	0.11	0.11	0.14	0.06	0.11
No. of Choosers	2,259	1,328	1,649	1,788	8,071	2,075
No. of Choices	29	29	28	27	29	28
Pseudo R2	0.2019	0.2143	0.2454	0.3377	0.3865	0.3069
LR chi2(10)	3071.01	1916.27	2696.84	3979.64	21010.54	4244.25

Standard Errors are reported in the parenthesis

*,**,*** represent the significance at 10%, 5%, and 1% level, respectively

Table 2 Panel 1

	1	2	3	4
Agglomeration				
Agglo_home	3.76***	3.76***	3.75***	3.77***
	0.02	0.02	0.02	0.02
Agglo_domestic	2.10***	2.10***	2.05***	2.09***
	0.07	0.07	0.07	0.07
Backward agglomeration	3.63***	3.62***	3.27***	3.38***
	0.27	0.27	0.27	0.27
Forward agglomeration	7.04***	7.04***	6.12***	7.05***
	0.25	0.25	0.25	0.25
Institution Environment				
Contract enforcement index	0.04			
	0.13			
Government intervention in business index		0.18		
		0.19		
Intellectual property rights protection indicator			0.21***	
			0.01	
Corruption indicator				-0.48***
				0.05
Controlled Variables				
Wage	0.20***	0.19***	0.14***	0.13***
	0.03	0.03	0.03	0.03
Highway	0.61***	0.61***	0.52***	0.62***
	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	0.54***	0.55***	0.53***	0.56***
	0.02	0.02	0.02	0.02
Etdzd	0.42***	0.42***	0.42***	0.43***
	0.02	0.02	0.02	0.02
No. of Choosers	58,201	58,201	58,201	58,201
No. of Choices	29	29	29	29
Pseudo R2	0.2907	0.2907	0.2915	0.2909
LR chi2(10)	113854.75	113855.50	114170.58	113941.13

Standard Errors are reported in the parenthesis

*, **, *** represent the significance at 10%, 5%, and 1% level, respectively

Table 2 Panel 2

	1	2	3	4
Agglomeration				
Agglo_home	4.22***	3.76***	4.17***	3.81***
	0.04	0.02	0.04	0.03
Agglo_domestic	1.65***	2.11***	1.57***	2.06***
	0.11	0.07	0.11	0.07
Backward agglomeration	6.21***	3.61***	5.57***	3.44***
	0.39	0.27	0.39	0.28
Forward agglomeration	5.86***	7.03***	4.68***	6.86***
	0.35	0.25	0.35	0.26
Institution Environment				
Regional contract enforcement index	-2.16**			
	0.90			
Regional contract enforce-	0.47***			
ment * Impartial courts	0.12			
Government intervention in		2.46***		
business operation		0.81		
Government intervention		-0.32***		
* Regulation		0.11		
Intellectual property rights			-0.04	
protection index			0.06	
Regional IPR protection *IPR			0.06***	
			0.01	
Regional corruption				-0.04
				0.21
Regional corruption *				-0.10*
Country-level corruption				0.05
Controlled Variables				
Wage	-0.08**	0.18***	’-0.47***	0.14***
	0.04	0.03	0.05	0.03
Highway	0.56***	0.61***	0.42***	0.62***
	0.02	0.02	0.02	0.02
Education	0.06***	0.05***	-0.13***	0.06***
	0.02	0.01	0.02	0.01
Sezd	0.52***	0.55***	0.55***	0.58***
	0.02	0.02	0.02	0.02
Etdzd	0.53***	0.42***	0.40***	0.42***
	0.03	0.02	0.03	0.02
No. of Choosers				
No. of Choices				
Pseudo R2	0.2954	0.2907	0.2969	0.2974
LR chi2(10)	54448.39	113864.88	54732.60	110065.21

Standard Errors are reported in the parenthesis

*, **, *** represent the significance at 10%, 5%, and 1% level, respectively

Table 2, Panel 3

	1	2	3	4
Agglomeration				
Agglo_home	3.82***	3.81***	3.81***	3.82***
	0.03	0.03	0.03	0.03
Agglo_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
Institution Environment				
Contract enforcement	-0.14			
	0.16			
Contract enforcement *	0.00			
Culture diversity	0.00			
Government intervention in business		1.46***		
		0.24		
Government intervention in business		-0.0005***		
* Culture diversity		0.00		
Regional IPR protection			0.17***	
			0.01	
Regional IPR protection			0.0000***	
* Culture diversity			0.00	
Regional corruption				-0.74***
				0.06
Regional corruption*Culture Diversity				0.0001***
				0.00
Controlled Variables				
Wage	0.19***	0.17***	0.12***	0.11***
	0.03	0.03	0.03	0.03
Highway	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 parenthesis

*,**,*** represent the significance at 10%, 5%, and 1% level, respectively

Table 3 Panel 1

	JV						FOE					
	US	EU	JP	KO	HK	TW	US	EU	JP	KO	HK	TW
Agglomeration												
Agglo_home	1.59***	1.01***	2.08***	2.25***	3.74***	1.69***	1.57***	1.08***	2.67***	3.36***	5.42***	3.04***
	(0.11)	(0.12)	(0.10)	(0.11)	(0.06)	(0.12)	(0.19)	(0.18)	(0.15)	(0.11)	(0.09)	(0.12)
Agglo_domestic	3.63***	3.59***	3.39***	2.16***	2.22***	3.28***	1.76***	2.36***	1.67***	0.51	0.41**	1.58***
	(0.27)	(0.36)	(0.27)	(0.44)	(0.12)	(0.29)	(0.40)	(0.52)	(0.41)	(0.38)	(0.20)	(0.27)
Backward agglomeration	10.40***	10.91***	9.46***	−1.84	7.44***	7.06***	8.84***	10.39***	7.99***	2.12	0.57	4.96***
	(0.99)	(1.36)	(0.90)	(1.84)	(0.46)	(1.23)	(1.53)	(2.01)	(1.30)	(1.73)	(0.74)	(1.21)
Forward agglomeration	6.15***	5.70***	7.66***	14.16***	4.30***	6.88***	11.29***	10.63***	9.82***	11.57***	0.00	9.20***
	(0.89)	(1.23)	(0.95)	(1.56)	(0.42)	(1.11)	(1.37)	(1.72)	(1.34)	(1.36)	(0.65)	(1.06)
Institution Environment												
Contract enforcement	0.59	0.81	0.53	−0.10	−1.15***	0.35	2.57***	2.99***	1.81***	−0.14	0.94***	0.27
	(0.40)	(0.54)	(0.45)	(0.58)	(0.24)	(0.51)	(0.70)	(0.87)	(0.65)	(0.58)	(0.35)	(0.64)
Controlled Variables												
Wage	−1.05***	−0.55***	−1.47***	−4.25***	0.47***	0.12	0.04	0.70***	−0.84***	−3.92***	0.73***	2.00***
	(0.10)	(0.13)	(0.11)	(0.19)	(0.06)	(0.12)	(0.16)	(0.20)	(0.17)	(0.21)	(0.09)	(0.13)
Highway	0.63***	0.73***	0.63***	0.59***	0.57***	0.61***	0.56***	0.72***	0.52***	0.95***	0.87***	0.55***
	(0.05)	(0.06)	(0.05)	(0.08)	(0.03)	(0.06)	(0.09)	(0.12)	(0.10)	(0.10)	(0.05)	(0.09)
Education	0.53***	0.41***	0.88***	1.15***	−0.15***	0.17***	0.61***	0.38***	0.86***	0.81***	−0.37***	−0.44***
	(0.03)	(0.05)	(0.04)	(0.06)	(0.02)	(0.04)	(0.06)	(0.07)	(0.06)	(0.06)	(0.03)	(0.05)
Sezd	0.48***	0.26***	0.84***	1.16***	0.37***	0.45***	0.55***	0.39***	1.22***	1.07***	0.74***	0.70***
	(0.05)	(0.07)	(0.06)	(0.09)	(0.03)	(0.07)	(0.08)	(0.11)	(0.09)	(0.09)	(0.05)	(0.09)
Etdzd	0.31***	0.40***	0.38***	0.68***	0.27***	0.37***	0.20***	0.56***	0.24***	1.80***	0.61***	0.65***
	(0.06)	(0.08)	(0.07)	(0.10)	(0.03)	(0.08)	(0.10)	(0.14)	(0.11)	(0.16)	(0.06)	(0.10)

No. of Choosers	4, 445	2, 440	3, 953	1, 786	20, 851	3, 097	1, 843	1, 172	1, 962	2, 166	11, 279	3, 207
No. of Choices	29	29	29	28	29	29	25	27	27	24	29	26
Pseudo R2	0. 1711	0. 1657	0. 2346	0. 2547	0. 3039	0. 1891	0. 1948	0. 2396	0. 2599	0. 3581	0. 4871	0. 3422
LR chi2(10)	5122. 61	2723. 31	6246. 22	3031. 53	42669. 40	3944. 33	2311. 48	1850. 64	3361. 83	4929. 50	36998. 98	7151. 79

Standard Errors are reported in the parenthesis

*, **, *** represent the significance at 10%, 5%, and 1% level, respectively

Table 3, Panel 2

	JV						FOE					
	US	EU	JP	KO	HK	TW	US	EU	JP	KO	HK	TW
Agglomeration												
Agglo_home	1.60***	1.01***	2.09***	2.21***	3.73***	1.69***	1.61***	1.10***	2.70***	3.24***	5.39***	3.03***
	(0.11)	(0.12)	(0.10)	(0.11)	(0.06)	(0.12)	(0.19)	(0.18)	(0.15)	(0.11)	(0.09)	(0.12)
Agglo_domestic	3.61***	3.56***	3.36***	2.13***	2.24***	3.29***	1.69***	2.36***	1.61***	0.44	0.42**	1.60***
	(0.27)	(0.36)	(0.27)	(0.44)	(0.12)	(0.29)	(0.40)	(0.52)	(0.41)	(0.38)	(0.20)	(0.27)
Backward agglomeration	10.37***	10.85***	9.55***	−1.64	7.45***	6.95***	8.65***	9.54***	8.09***	2.88*	0.36	4.81***
	(0.99)	(1.36)	(0.90)	(1.84)	(0.46)	(1.23)	(1.53)	(1.99)	(1.30)	(1.74)	(0.74)	(1.20)
Forward agglomeration	6.11***	5.68***	7.62***	13.99***	4.36***	6.88***	10.88***	10.26***	9.72***	11.05***	0.02	9.23***
	(0.89)	(1.23)	(0.95)	(1.56)	(0.42)	(1.11)	(1.37)	(1.72)	(1.34)	(1.37)	(0.64)	(1.06)
Institution Environment												
Government intervention	−1.47**	−2.21***	−1.88**	−2.51**	1.98***	1.03	−4.34***	−0.91	−3.78***	−9.39***	1.63***	2.01**
in business operations	(0.64)	(0.86)	(0.79)	(1.05)	(0.33)	(0.79)	(1.05)	(1.34)	(1.15)	(1.12)	(0.50)	(0.90)
Controlled Variables												
Wage	−1.01***	−0.49***	−1.43***	−4.20***	0.43***	0.10	0.12	0.74***	−0.81***	−3.66***	0.69***	1.94***
	(0.10)	(0.14)	(0.11)	(0.19)	(0.06)	(0.79)	(0.16)	(0.21)	(0.17)	(0.20)	(0.09)	(0.13)
Highway	0.61***	0.69***	0.60***	0.57***	0.62***	0.61***	0.51***	0.65***	0.48***	0.77***	0.87***	0.58***
	(0.05)	(0.06)	(0.05)	(0.07)	(0.03)	(0.06)	(0.09)	(0.12)	(0.10)	(0.10)	(0.05)	(0.09)
Education	0.51***	0.38***	0.86***	1.13***	−0.14***	0.18***	0.55***	0.38***	0.82***	0.76***	−0.34***	−0.41***
	(0.03)	(0.05)	(0.04)	(0.06)	(0.02)	(0.04)	(0.06)	(0.07)	(0.06)	(0.06)	(0.03)	(0.05)
Sezd	0.47***	0.24***	0.82***	1.11***	0.37***	0.47***	0.52***	0.46***	1.20***	0.89***	0.80***	0.75***
	(0.05)	(0.07)	(0.06)	(0.09)	(0.03)	(0.07)	(0.08)	(0.11)	(0.09)	(0.09)	(0.05)	(0.09)
Etdzd	0.31***	0.40***	0.39***	0.73***	0.29***	0.35***	0.22***	0.49***	0.23***	1.97***	0.57***	0.63***
	(0.06)	(0.08)	(0.07)	(0.10)	(0.03)	(0.08)	(0.10)	(0.14)	(0.11)	(0.17)	(0.06)	(0.10)
No. of Choosers	4,445	2,440	3,953	1,786	20,851	3,097	1,843	1,172	1,962	2,166	11,279	3,207

No. of Choices	29	29	29	28	29	29	25	27	27	24	29	26
Pseudo R2	0. 1712	0. 1660	0. 2348	0. 2552	0. 3039	0. 1892	0. 1951	0. 2381	0. 2602	0. 3634	0. 4871	0. 3425
LR chi2(10)	5, 125. 71	2, 727. 84	6, 250. 60	3, 037. 27	42, 679. 48	3, 945. 56	2, 315. 37	1, 839. 54	3, 365. 19	5, 003. 01	37, 002. 21	7, 156. 60

Standard Errors are reported in the parenthesis

*,**,*** represent the significance at 10%, 5%, and 1% level, respectively

Table 3, Panel 3

	JV						FOE					
	US	EU	JP	KO	HK	TW	US	EU	JP	KO	HK	TW
Agglomeration												
Agglo_home	1.60***	1.04***	2.11***	2.04***	3.73***	1.69***	1.645***	1.12***	2.71***	3.15***	5.42***	3.03***
	(0.10)	(0.12)	(0.10)	(0.11)	(0.06)	(0.12)	(0.19)	(0.18)	(0.15)	(0.11)	(0.09)	(0.12)
Agglo_dm	3.48***	3.47***	3.24***	1.88***	2.20***	3.26***	1.55***	2.34***	1.61***	0.22	0.41**	1.62***
	(0.27)	(0.36)	(0.27)	(0.44)	(0.12)	(0.29)	(0.40)	(0.52)	(0.41)	(0.38)	(0.20)	(0.27)
Backward	9.91***	10.34***	9.22***	−1.31	7.16***	6.99***	7.73***	9.23***	7.60***	2.62	0.63	5.34***
	(0.99)	(1.36)	(0.89)	(1.83)	(0.46)	(1.23)	(1.53)	(1.99)	(1.30)	(1.72)	(0.75)	(1.21)
Forward	4.77***	4.49***	6.45***	10.03***	3.71***	6.65***	9.12***	9.87***	9.09***	7.86***	0.26	9.84***
	(0.90)	(1.24)	(0.96)	(1.60)	(0.42)	(1.14)	(1.39)	(1.75)	(1.37)	(1.40)	(0.66)	(1.08)
Institution Environment												
IPR protection	0.36***	0.31***	0.28***	0.99***	0.16***	0.04	0.46***	0.12	0.16**	0.92***	−0.07**	−0.17***
	(0.04)	(0.06)	(0.05)	(0.09)	(0.02)	(0.05)	(0.07)	(0.08)	(0.07)	(0.09)	(0.03)	(0.05)
Controlled Variables												
Wage	−1.14***	−0.65***	−1.47***	−4.61***	0.44***	0.12	−0.08	0.67***	−0.89***	−4.29***	0.76***	2.10***
	(0.10)	(0.14)	(0.11)	(0.19)	(0.06)	(0.12)	(0.17)	(0.21)	(0.17)	(0.20)	(0.09)	(0.14)
Highway	0.48***	0.59***	0.51***	0.32***	0.54***	0.59***	0.30***	0.60***	0.46***	0.70***	0.87***	0.64***
	(0.05)	(0.07)	(0.06)	(0.08)	(0.03)	(0.06)	(0.10)	(0.13)	(0.10)	(0.10)	(0.05)	(0.09)
Education	0.21***	0.14**	0.63***	0.24**	−0.31***	0.13**	0.26***	0.32***	0.73***	0.03	−0.31***	−0.34***
	(0.05)	(0.06)	(0.06)	(0.10)	(0.03)	(0.06)	(0.07)	(0.09)	(0.08)	(0.09)	(0.04)	(0.06)
Sezd	0.46***	0.27***	0.84***	0.98***	0.32***	0.45***	0.65***	0.50***	1.27***	0.89***	0.78***	0.71***
	(0.05)	(0.07)	(0.06)	(0.09)	(0.03)	(0.07)	(0.08)	(0.10)	(0.09)	(0.09)	(0.05)	(0.08)
Etdzd	0.28***	0.35***	0.35***	0.60***	0.31***	0.36***	0.08***	0.44***	0.17	1.77***	0.58***	0.66***
	(0.06)	(0.08)	(0.07)	(0.10)	(0.03)	(0.07)	(0.10)	(0.14)	(0.11)	(0.16)	(0.06)	(0.10)
No. of Choosers	4,445	2,440	3,953	1,786	20,851	3,097	1,843	1,172	1,962	2,166	11,279	3,207

No. of Choices	29	29	29	28	29	29	25	27	27	24	29	26
Pseudo R2	0. 1736	0. 1676	0. 2360	0. 2663	0. 3042	0. 1891	0. 1977	0. 2383	0. 2598	0. 3669	0. 4871	0. 3427
LR chi2(10)	5, 195. 86	2, 753. 34	6, 281. 52	3, 169. 94	42, 710. 16	3, 944. 59	2, 346. 02	1, 841. 16	3, 359. 79	5, 051. 53	36, 996. 16	7, 161. 27

Standard Errors are reported in the parenthesis

*,**,*** represent the significance at 10%, 5%, and 1% level, respectively

Table 3, Panel 4

	JV						FOE					
	US	EU	JP	KO	HK	TW	US	EU	JP	KO	HK	TW
Agglomeration												
Agglo_home	2.94***	1.66***	3.00***	2.56***	3.87***	2.05***	2.56***	1.57***	3.64***	3.30***	5.85***	3.94***
	(0.23)	(0.24)	(0.25)	(0.19)	(0.12)	(0.29)	(0.33)	(0.31)	(0.31)	(0.18)	(0.15)	(0.22)
Agglo_domestic	3.44***	3.19***	4.11***	1.42*	2.13***	3.24***	1.18***	2.36***	1.19*	0.24	-0.37	0.62
	(0.47)	(0.63)	(0.53)	(0.73)	(0.27)	(0.59)	(0.56)	(0.70)	(0.71)	(0.57)	(0.33)	(0.45)
Backward agglomeration	7.57***	7.59***	8.33***	0.52	8.65***	7.46***	3.86***	7.29**	7.70***	12.68***	0.98	5.51***
	(1.80)	(2.36)	(1.73)	(2.91)	(0.98)	(2.35)	(2.32)	(2.92)	(2.31)	(2.85)	(1.13)	(1.96)
Forward agglomeration	4.73***	5.96***	3.41*	10.02***	3.56***	4.64**	11.61***	12.29***	8.86***	6.11***	1.07	10.58***
	(1.53)	(2.11)	(1.79)	(2.43)	(0.86)	(2.03)	(1.88)	(2.29)	(2.29)	(1.98)	(0.99)	(1.57)
Institution Environment												
Corruption indicator	-1.37***	-1.97***	-1.86***	0.05	-1.04***	-2.83***	-0.92**	-2.27***	-2.53***	6.06***	-3.18***	-1.24***
	(0.29)	(0.40)	(0.37)	(0.48)	(0.20)	(0.40)	(0.37)	(0.48)	(0.48)	(0.66)	(0.26)	(0.38)
Controlled Variables												
Wage	-1.43***	-0.63***	-1.64***	-3.48***	0.02	-0.65***	0.62**	0.41	-1.36***	-3.67***	1.60***	2.20***
	(0.18)	(0.24)	(0.22)	(0.28)	(0.12)	(0.25)	(0.26)	(0.36)	(0.30)	(0.30)	(0.16)	(0.27)
Highway	0.54***	0.59***	0.45***	0.40***	0.51***	0.52***	0.41***	0.83***	0.61***	1.18***	0.51***	-0.01
	(0.07)	(0.10)	(0.10)	(0.10)	(0.05)	(0.10)	(0.13)	(0.19)	(0.16)	(0.14)	(0.08)	(0.16)
Education	0.63***	0.40***	0.98***	1.05***	-0.17***	0.32***	0.23**	0.28**	0.99***	0.24**	-0.79***	-0.47***
	(0.07)	(0.11)	(0.10)	(0.11)	(0.05)	(0.11)	(0.11)	(0.14)	(0.13)	(0.11)	(0.07)	(0.10)
Sezd	0.65***	0.30**	0.76***	1.19***	0.37***	0.51***	0.62***	0.03	1.29***	0.71***	0.47***	0.63***
	(0.09)	(0.12)	(0.11)	(0.13)	(0.06)	(0.12)	(0.13)	(0.15)	(0.16)	(0.13)	(0.08)	(0.13)
Etdzd	0.28***	0.40***	0.38***	0.82	0.46***	0.44***	0.09	0.53***	-0.53***	2.04***	0.79***	0.76***
	(0.11)	(0.14)	(0.14)	(0.17)	(0.07)	(0.15)	(0.16)	(0.19)	(0.19)	(0.27)	(0.09)	(0.16)
No. of Choosers	1,411	781	1,021	745	4,090	792	848	547	628	1,043	3,981	1,283

No. of Choices	29	28	27	26	29	27	24	25	26	18	29	23
Pseudo R2	0. 1907	0. 1774	0. 2314	0. 2581	0. 2974	0. 1998	0. 2001	0. 2418	0. 2542	0. 3618	0. 5007	0. 3609
LR chi2(10)	1, 812. 50	923. 47	1, 557. 62	1, 253. 13	8, 192. 22	1, 043. 26	1, 078. 75	851. 56	1, 040. 28	2, 181. 32	13, 424. 05	2, 903. 51

Standard Errors are reported in the parenthesis

*, **, *** represent the significance at 10%, 5%, and 1% level, respectively

Table 4, Panel 1

	1 JV	1 FOE	2 JV	2 FOE	3 JV	3 FOE	4 JV	4 FOE
Agglomeration								
Agglo_home	3.58***	4.88***	3.27***	4.54***	3.53***	4.80***	3.30***	4.63***
	0.05	0.06	0.03	0.04	0.05	0.06	0.03	0.04
Agglo_domestic	2.56***	0.50***	2.68***	1.01***	2.44***	0.50***	2.61***	0.98***
	0.14	0.16	0.09	0.12	0.14	0.16	0.09	0.13
Backward agglomeration	8.03***	5.02***	5.45***	0.98**	8.20***	3.15***	5.52***	0.24
	0.52	0.61	0.33	0.47	0.51	0.60	0.34	0.49
Forward agglomeration	4.42***	6.72***	6.60***	6.61***	3.55***	5.15***	6.53***	6.36***
	0.47	0.52	0.31	0.42	0.47	0.53	0.32	0.44
Institution Environment								
Regional contract enforce-	-2.13*	-4.70***						
ment index	1.28	1.29						
Regional contract enforce-	0.25	1.12***						
ment index* Impartial court	0.17	0.17						
Government intervention			4.46***	1.98				
in business operations			0.97	1.45				
Government intervention in			-0.50***	-0.31				
Business * Regulation			0.13	0.20				
Regional IPR protection					0.06	-0.35***		
					0.08	0.09		
Regional IPR protection * IPR					0.05***	0.11***		
					0.01	0.01		
Regional corruption							-0.05	-0.15
							0.29	0.33

Regional Corruption							−0. 02	−0. 26***
* Country-level corruption index							0. 07	0. 08
Controlled Variables								
Wage	−0. 48***	0. 52***	0. 03	0. 55***	’−0. 89***	0. 19**	0. 10***	0. 34***
	0. 05	0. 07	0. 04	0. 05	0. 06	0. 08	0. 04	0. 05
Highway	0. 51***	0. 64***	0. 55***	0. 69***	0. 40***	0. 44***	0. 55***	0. 73***
	0. 03	0. 04	0. 02	0. 03	0. 03	0. 04	0. 02	0. 03
Education	0. 18***	−0. 11***	0. 12***	−0. 08***	−0. 04	−0. 26***	0. 09***	−0. 04**
	0. 02	0. 02	0. 01	0. 02	0. 02	0. 03	0. 01	0. 02
Sezd	0. 51***	0. 58***	0. 44***	0. 77***	0. 45***	0. 74***	0. 43***	0. 84***
	0. 03	0. 04	0. 02	0. 03	0. 03	0. 04	0. 02	0. 03
Etdzd	0. 43***	0. 74***	0. 37***	0. 67***	0. 34***	0. 56***	0. 38***	0. 68***
	0. 03	0. 05	0. 02	0. 04	0. 04	0. 05	0. 02	0. 04
No. of Choosers								
No. of Choices								
Pseudo R2	0. 2342	0. 3846	0. 2454	0. 3827	0. 2362	0. 3839	0. 2502	0. 3935
LR chi2(10)	23418. 09	32430. 02	60414. 93	55686. 97	23628. 19	32368. 43	58099. 19	54240. 26

Standard Errors are reported in the parenthesis

*,**,*** represent the significance at 10%, 5%, and 1% level, respectively

Table 4, Panel 2

	1 JV	1 FOE	2 JV	2 FOE	3 JV	3 FOE	4 JV	4 FOE
Agglomeration								
Agglo_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
Agglo_dm	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	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	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
Institution Environment								
Contract	-1.08***	0.88***						
	0.20	0.27						
Contract*Culture Diversity	0.0002***	-0.0001***						
	0.00	0.00						
Government			2.34***	1.20***				
			0.27	0.41				
Government*Culture Diversity			-0.0006***	-0.0007***				
			0.00	0.00				
Intellectual Property					0.19***	0.03		
					0.02	0.02		
Intellectual Property*Culture Diversity					0.0000***	0.0000****		
					0.00	0.00		
Corruption							-0.50***	-1.38***
							0.08	0.11

Corruption*Culture Diversity							0.0001***	0.0001***
							0.00	0.00
Controlled Variables								
Wage	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	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
No. of Choosers								
No. of Choices								
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

Standard Errors are reported in the parenthesis

*,**,*** represent the significance at 10%, 5%, and 1% level, respectively