How Effective Are Investment Promotion Agencies? Evidence from China

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Abstract

Using both firm-level and city-level data from National Bureau of Statistics, and unique information on investment promotion agencies (IPAs) in China, this paper mainly evaluates how this government policy affects the foreign direct investment (FDI) in terms of intensive and extensive margin. After controlling potential determinants of FDI and correcting for the endogeneity problems, we find that the existence of city IPAs does not necessarily lead to the growth of foreign investment in all cases. In contrast, the number of IPAs in a city has positive and significant effect on increasing the subsequent investment of individual firms. In the further verification of the employment decision made by foreign investors, we still find the number of IPAs is a more influential factor, but only in the city level.

This indicates that the influence of IPAs on foreign firms is proportionate to the effort made by the city government, but not the establishment of IPAs itself. This has been verified by using quality-differentiated IPAs as a proxy for IPAs' existence. Given the fact that the most successful IPAs are located in cities with the highest business potential, we believe that the decision-makers of China should reconsider the strategies, such as how to attract more FDI into less developed regions and boost their economic growth.

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1 Introduction

Foreign direct investment (FDI) is thought to be an indispensible driving force of the economic growth in developing countries. Thus FDI-inviting has become a major task for many governments. Under such circumstance, numerous policy tools have been invented to facilitate the investment of foreign firms. Though there are increasing studies to investigate the impact of these tools (Dean et al., 2009; Wang, 2013), the rigid evaluation has been hampered by limited data obervations (Harding and Javorcik, 2007).

This paper aims to enrich the empirical study on such policies by evaluating the role of investment promotion agencies (hereafter referred to as IPAs) in the context of China. IPAs are relatively recent strategic endeavors made by the government to supplement foreign firms' investment in the host country. The purpose of IPAs is defined as "to communicate to foreign investors the nature of the countrys investment climate, and to persuade and assist these investors to invest, or reinvest in the country" (Alvin, 1993). Obviously, the expected function of IPAs is different from that of the existing attempts, such as special economic zones (SEZs) which use tax incentives to attract FDI.

The evaluation will be conducted from both intensive and extensive perspectives. To reach the goal, we need to use different data for measurement. In terms of intensive aspect, we take advantage of the detailed firm-level data in China to verify how IPAs affect foreign firms' decision making in terms of their subsequent investment (because the "green" FDI is not available in the firm level). On the other hand, we apply the city-level data to investigate whether IPAs attract the "green" FDI into the cities, or in other words, if IPAs promote the extensive magin of FDI.

One challenge to our estimation is the potential self-selection of IPAs. The establishment of IPAs is usually not random. Some cities might set up IPAs in advance to others because they have higher needs of governmental institutions to attract more FDI. The normal OLS will lead to inaccurate estimation of IPAs' impact. Thus we try to use sample selection and instrumental variable (IV) models to alleviate this bias. In contrast to the previous literature that unanimously predict IPAs' positive impact on driving up the FDI in the country level, we find that the existence of city IPAs is not significantly correlated with the growth of foreign investment either in intensive or extensive margin. However, the number of IPAs in a city, which is equivalent to the government' effort towards IPA application, has positive and significant effect on increasing the subsequent investment of foreign firms. We further conduct the analysis on the employment of foreign investors and a similar pattern has been observed, but the number of IPAs only plays a positive role in the city level.

This study differs from the previous researches in several ways. First, by constructing a unique dataset using city IPAs in China, this paper attempts to fill in the research blank of empirical evaluation on city level IPAs, rather than national ones. Also to our best knowledge, it is the first paper to use micro-level data to analyze a policys effect on attracting FDI. Second, apart from investigating the location choice of new entrants, it examines how existing foreign investors make their incremental decisions[1]. Furthermore, very few studies have evaluated how the performance of IPAs matters, while in this paper we use different quantitative measurements of IPAs' effort and draw the conclusion that this is the most critical factor to determine IPAs' influence on FDI.

The paper will be organizaed as follows. Section 2 discusses the current situation

[1] Head et al. (1995), Head and Ries (1996) and Guimaraes et al. (2000) use a different term "Agglomeration effect", which indicates that existing FDI attracts further FDI.

of inward FDI and IPA establishment in China while Section 3 introduces related literature. Section 4 describes estimation strategy and the data collection. Section 5 then presents the estimation results and Section 6 concludes the paper.

2 FDI and investment promotion agency in China

The past three decades have witnessed a considerable expansion in inward FDI into China, one leading China to become the world's largest FDI recipient in 2005 and to have remained the top position since. According to World Invest Report (2014) issued by the United Nations Conference on Trade and Development (UNCTAD), by year 2012 inward FDI in China had reached a tremendous value of USD830 billion, second only to that of the United States. Even today, China continues to be one of the most populous host countries among the foreign investors surveyed. Statistics also show the importance of foreign capital in China's economic growth. According to the Ministry of Commerce (MOFCOM), foreign-invested enterprises account for over half of China's exports and imports and provide for 30% of Chinese industrial output. In this way, FDI helped maintain China's two-digit growth rate during most of the period between 1980 and 2010, while promoting the development of domestic firms through technological spillover and the demonstration effect.

While attempting to attract more FDI, the developing countries are calling on every favorable method and preferential policy available in order to maintain their own competence. One such method is the establishment of IPAs. Having realized the significant role of IPAs in attracting FDI, the majority (81%) of countries throughout the world have established a national IPA. Among them is China, the world's factory and one of the most promising economic entities. Attached to MOFCOM, the China Investment Promotion Agency (CIPA)[2] was established in the 1980s to facilitate the Chinese investment promotion process via promotion in two directions: "inviting in" (i.e., attracting FDI into China) and "going global" (i.e., promoting outbound investment). To achieve the "inviting" goal, it organizes and implements foreign investment promotion strategies through various channels, as outlined previously. However, the geographical scale of the country makes it impossible for CIPA to completely fulfill the responsibility in all regions, as each municipality has distinctive locational characteristics and an idiosyncratic business environment that fosters the growth of regional-level IPAs. Subordinate to CIPA, these regional IPAs are expected to play an supplementary role in inviting FDI within each particular area.

This study mainly investigates the role of city-level IPAs. In tandem with China's economic growth, the number of city IPAs has been increasing at a fast pace. Most of the IPAs established during the first wave of growth, which occurred along with the economic reform in the early 1990s, were concentrated in the coastal and capital cities. During the second wave, when after China's entry into the World Trade Organization (WTO) in 2001, all major cities began to establish IPAs to increase their competitiveness. As shown in Figure-1, a positive relationship seems to exist between FDI inflow and the number of city IPAs. As for the general function of city IPAs, take Shanghai Investment Promotion Agency (SIPA)[3], for example, its inward responsibilities include "participating in formulating the policies to attract FDI in Shanghai", "organizing investment promotion fairs", "offering assistance in solving difficult problems

[2]See the homepage of CIPA for details. http://tzswj.mofcom.gov.cn/

[3]The formal name is Shanghai Foreign Investment Development Board. http://www.investsh.org.cn

during the investment process" and "providing follow-up services to expand and maintaining employment opportunities", etc. Seminars are held regularly to help foreign firms go through the problems encountered in the initial procedures as well as promote the government-investor relationship. Inside the organization, the departments within SIPA are divided by regions (Asian, American, European, African) and have the minimum professional staff who have the expertise of dealing with the foreign firms from that particular area. SIPA also has oversea offices in Los Angeles, London, Osaka, Frankfurt, etc. Information is exchanged often among all branches and SIPA uses these bases to enhance self-promotion. By so doing, it tries to establish the strong connection with investors from various continents and better serves as the intermediary to invite more FDI.

Despite the soar of city IPAs in quantities, the efforts made by the local government vary substantially. For instance, SIPA can be regarded as a well-functioned institution and its success is due to Shanghai's determination to maintain the economic leadership in China. Thus SIPA's administrative activities have gained full support from the Shanghai government. To share and better facilitate SIPA's responsibilities, other city IPAs such as "Shanghai investment service center" and "Shanghai foreign investors' complaining center" have been formed. Obviously their main focus is different from that of SIPA. They work as complementary to one another to maximize their function. Similar effort is observed in relatively open cities such as Guangzhou, Qingdao and Shenzhen. On the other hand, however, the regions that are supposed to attract more FDI usually do not have decent IPAs to help them do the work. Take Baoding (Hebei Province), for example. It is famous for the development of new-energy automobiles and industrial machinery, and its Dian Gu district is often compared to the Silicon Valley in the United States. Nevertheless, when we try to access the website of IPA in Baoding, it shows invalid link. We also fail to reach the representative of their city IPA. Such situation is quite normal among the second or third tier cities, especially in the inland area, where foreign investment is in desparate need to promote the local economic growth. We can't help thinking: do IPAs in these cities really function? Are IPAs actually the byproduct of economic development, rather than the driving force? Under what conditions are IPAs effective in inviting FDI?

This paper tries to disentangle the above complexity. We would evaluate IPAs' role objectively not only by their existence, but also by the level of effort or their quality. The detailed measurement strategy will be discussed in the later section.

Figure 1 is inserted here

3 Literature Review

Recently, numerous studies have investigated the regional determinants of foreign direct investment (FDI) into China (Cheng and Kwan, 2000 and Sun et al., 2002 study the location choice of FDI; Fung et al., 2002). Meanwhile a surge in the trend of using micro level data to verify potential factors has been witnessed. Among the studies conducted, Amiti and Javorcik (2008) use firm-level data to test the manner in which market and supplier access as well as trade costs affect the entryexit level in terms of the foreign investors in China. In an exploration of location choice from a different perspective, Liu et al. (2010) use the conditional logit model and control function approach to show that local wages defer the entry of foreign firms to a large extent.

Nevertheless, few empirical studies have attempted to examine the impact of government policy in China. Dean et al. (2009) examine the impact of different environmental standards enacted by the Chinese government in order to control pollution on the FDI of a sample of equityjoint ventures (hereafter referred as EJVs). They find that EJVs in high-polluting industries funded by Hong Kong, Macao, and Taiwan (hereafter referred to as HMT) tend to invest in areas with weak environmental standards. Although Graham (2004) and Cheng and Kwan (2000) both mention the positive function of preferential policy, specifically the enactment of SEZs, Wang (2013) has been the first to evaluate intensively the impact of SEZs on attracting FDI into China. By using municipal level data and combination of matching and difference-in-difference, she shows that the application of SEZ program not only increases the level of per capita FDI by about 20%, but is associated with larger TFP growth as well.

When it comes to the case of IPAs, firstly, the introduction of IPAs is believed to attract more FDI to countries under development. The reason is that compared with the developed countries, the developing countries lack detailed information on the prevailing business conditions, rules, and regulations, and the cost of gathering such information is quite high (Harding and Javorcik, 2007). IPAs thus shoulder the responsibility of assisting foreign investors in their local investing activities. The quantitative literature regarding this topic, however, is surprisingly scarce. Following Wells and Wint (2000), Morisset and Andrews-Johnson (2004) and Morisset (2003) use country-level data to support their hypothesis that the presence of IPAs exerts a positive influence, the result of which is supported by Charlton and Davis (2007). Harding and Javorcik (2011) show that sectors supported by IPAs receive more investment in the post-service period especially in developing countries.

Meanwhile, Morisset (2003) indicates that IPA isn't always effective and it is positively correlated with the quality of the investment climate. He also finds that IPAs' function and budget can determine their effectiveness. Using the index from Global Investment Promotion Benchmarking (GIPB), a recent study by Harding and Javorcik (2012) provides the evidence that the quality of national IPAs is a decisive factor of the performance. Not all IPAs perform equally well in information provision and only IPAs with highly rated websites translate directly to higher FDI inflow. However, no research has used micro-level data, though such data can control firm heterogeneity and better capture the direct effect of how foreign firms react to incentives provided by IPAs.

4 Estimation Strategy and Data

Estimation strategy 1: firms' investment

We implement the verification of IPAs' impact on attracting foreign firms' subsequent investment using a difference-in-difference framework. The group of cities that have IPAs are referred to as the "treated", while the cities that have not as the "control". We try to control for changes in observables and account for the process that cities build IPAs at different points of time. The baseline empirical specification in the firm-level analysis takes the following reduced form:

$$FDI_{ict} = \alpha_c + \delta_c IPA_{ct} + \beta_i x_{it} + \beta_c w_{ct} + g_t + \varepsilon_{ict} \quad (1)$$

We only focus on firms with foreign ownership confirmed by the actual foreign

share in capital[4]. Since 86 per cent of IPAs target investors that are already present in the host country (UNCTAD, 2001), we choose to investigate the incremental FDI, i.e. the investment of the existing investors, in this paper.

IPA_{ct} is a dummy variable that specifies whether the city has an IPA by time t. Thus δ becomes our estimation of interest. It captures the dynamic change of foreign firms in their investment due to the presence of IPAs. In practice, we use the number of IPAs at time t as an alternative.

x_{it} is a vector of firm characteristics that might affect firm i's decision-making on subsequent investment. To be consistent with previous firm-level research on the micro determinants of FDI, firm age, sales revenue, number of workers, wage rate, and research and development (R&D) expenditure are included as control variables. Following Devereux and Rachel (1998), tax rate is also included.

w_{ct} represents a vector of city characteristics that represent the business potential of that particular city, such as GDP per capita and investment in infrastructure. For detailed description see statistical summary. Apart from these, we need to control the city level policy incentives other than IPAs, that might affect the FDI inflow. Cheng and Kwan (2000) prove the positive influence of the creation of SEZs on attracting FDI. Five special economic zones were set up following 1979, include Hainan province, three cities in Guangdong province (Shenzhen, Zhuhai, and Shantou), and Xiamen in Fujian Province. Similar to SEZs, other special incentive zones, namely Economic and Technological Development Areas (ETDAs), Hi-Technology Industry Development Areas (HTIDA), and Export Processing Zones (EPZs), have also been established ever since. Following Wang and Wei (2008), we name these incentive zones or areas "policy zones". Foreign firms located in certain zones enjoy various preferential treatments, such as tax reduction. Though the firms surveyed did not indicate whether they were located within a zone or not, it is likely that foreign firms attempt to establish their subsidiaries in areas with preferential incentives. To separate the individual impact of IPAs from "policy zones", we construct a new variable "zone_dummy". It takes a value of 1 if the city has any one of the special zones at time t[5]. In consideration of the fact that it might cost time for *zone_dummy* and *IPA_dummy* to take effect, we lagged both variables by one period. Finally Year dummy g_t is added to control the change over time and the error term captures all the unobserved elements that might affect the analysis.

This method controls for differences between the IPA-supervised cities and non-IPA-supervised ones. One implication of the fact that cities set up IPAs at different times is that the "control" is not restricted to cities that will never have IPAs. The "control" is the group of cities that have not yet had IPAs at time t, even if they might hold IPAs later.

One potential problem is the self-selection of IPAs, which can not be corrected by the method outlined above. This kind of bias can also be summarized as one of the omitted variable problems, which requires great care. Apart from the four special municipalities directly under the control of the central government (Shanghai, Beijing, Tianjin, and Chongqing), the development of IPAs has been uneven across China. Judging from the fact that most IPAs are clustered along the coastal areas (mainly South and East China) or located in the capital city of each province, we find that IPAs are more likely to be established in areas with relatively higher GDP per capita or with a

[4]Two sets of indicators are used as the dependent variable. The first is the log of absolute value of foreign capital for firm i in city c at time t. The second is the percentage of foreign share within firm i in city c at time t, which will be used as robustness check.

[5]For details of the special zones or areas, see Appendix Table 2 in Wang and Wei (2008).

better business environment. The criteria used to select cities for IPA establishment is not publicized. Thus, if unobserved city characteristics affect the criteria, they are correlated with foreign firms' investment decisions, and the estimation of the IPA coefficient is likely to be biased. To address the endogeneity, we model the investment decision of the firm can be modeled as a two-step procedure: the establishment of IPA and IPA's influence on the investment. See Equations 2 and 3.

$$IPA^*_{ct} = \gamma * Y_{ct} + u_{ct} \tag{2}$$

$$FDI_{ict} = \alpha_c + \beta_{ipa} IPA_{ct} + \beta X + \varepsilon_{ict} \tag{3}$$

where in Equation 2, IPA takes value of 1 if $IPA^* > 0$ (the city has at least one IPA), otherwise 0. While Y is a series of city variables that might affect the decision of IPA establishment, such as the business potential of the city (GDP per capita, infrastructure, etc.). In Equation 3, X is the combined vector of firm and city characteristics described in Equation 1. Different estimation methods are used depending on different assumptions on the relationship between ε and u in the above equations. It is possible that the unobserved micro-level elements are independent of the city-level factors that promote the construction of more IPAs, to be specific, $\varepsilon \perp u$. If this assumption holds, then the consistent estimation of β_{ipa} can be obtained and we can apply corresponding estimation strategies such as instrumental variable (IV) or control function regression[6]. Recent application of the control function can be found in Petrin and Train (2010), and Liu et al. (2010). In contrast, it is also likely that some cities' cultural advantage (e.g., Shanghai's close business ties with Japanese partners) will lower the investment costs for some foreign firms, which can not be controlled using the information in the dataset. In the case when ε is correlated with u, the conditional mean independence assumption is violated and the causal effect using the control function will be biased. Thus we have to resort to other methods, such as the Heckman two-stage sample selection model. In accordance with Wooldridge (2010, Chapter 21), we now assume that Equation 2 will take a more generalized form by allowing both observable and unobservable heterogeneity:

$$FDI_1 = \alpha_1 + \beta_1 X + \varepsilon_1, E(\varepsilon_1|X) = 0 \tag{4}$$

$$FDI_0 = \alpha_0 + \beta_0 X + \varepsilon_0, E(\varepsilon_0|X) = 0 \tag{5}$$

$$FDI = IPA * (FDI_1 - FDI_0) \tag{6}$$

when u in Equation 2 is correlated with ε_1 and ε_0 above, it is shown that consistent estimation can be achieved by conducting the following OLS:

$$E(FDI|X, IPA) = f(IPA, X) + \rho_1 \cdot IPA \cdot \frac{\phi(\gamma Y)}{\phi(\gamma Y)} + \rho_0 \cdot (1 - IPA) \cdot \frac{\phi(\gamma Y)}{1 - \phi(\gamma Y)} \tag{7}$$

where ρ_1 is the correlation between u and ε_1, ρ_0 for u and ε_0. $\phi(\cdot)$ and $\Phi(\cdot)$ are the density and cumulative normal distribution respectively, which can be obtained by running

[6]For linear estimation, control function approach is basically the same as IV. The procedure will be identical to two stage least square (2SLS) estimation. See Wooldridge (2010) for a detailed discussion.

Equation 6 using probit in the first step. By so doing the potential bias due to correlation between ε and u (or selection-on-unobservables) can be alleviated. In practice we use the IV model as the main solution and Heckman sample selection model as the robustness check.

Estimation strategy 2: city level analysis

In this section, we would like to further investigate IPAs' influence in affecting the extensive margin of foreign investment. In the previous estimation, the emphasis is put on individual firms' investing behavior. And the analysis is only limited to the incumbent firms. Meanwhile it is also interesting to verify that if city IPAs have any impact on the FDI inflow of that city in a whole. Thanks to the availability of city-level "greenfield" FDI information collected by National Bureau Statistics of China, we are able to explore this issue as well. The same set of city characteristics used in Equation 1 will be applied as control variables. We use information on cities' characteristics covering 2001-2007 to merge with the constructed IPA list. The econometric strategy will be in accordance with Equation 1. To prevent reverse causality problem, we choose one period lag of $ipadummy$ (or $ipanumber$) and the reduced form is represented as:

$$FDI_{ct} = \alpha_c + \delta_c IPA_{ct} + \beta_c w_{ct} + g_t + \varepsilon_{ct} \tag{8}$$

The dependent variable to be used in Equation 8 consists of three kinds of information: the number of FDI contracts, newly contracted FDI amount and actually utilized FDI amount. Because the number of FDI contracts is the count data, when it is applied we will use poisson estimation strategy instead of the normal OLS. We measure FDI in each city alternatively by newly contracted FDI amount and actually utilized FDI amount (in log form). The vector of control variables w_{ct} is basically the same as the one used in the previous section, which is added to measure the quality of the investment climate where the IPA is located. However, we try different combinations to confirm IPAs' impact.

Data

The data on three types of variables examined in this paper–the ipadummy, firm characteristics, and city-level factors–are collected from three main sources. We merge all three datasets by operating year and the name of the city where the firm is located. To begin with, a unique list of 142 city-level IPAs[7] is constructed by combining two sources. To identify the several city-level IPAs not listed on the "Invest in China" website, we make reference to the information of the China Council for International Investment Promotion (hereafter referred as CCIIP), a nongovernmental organization subject to Ministry of Commerce People's Republic of China (MOFCOM). The CCIIP members range from state-owned IPAs to private companies that have made great contributions in attracting FDI. We try to collect the information on the establishment year for all city-level IPAs from their websites. Based on this, all IPAs can be identified as "before" and "after" groups, which makes us possible to conduct difference-in-difference estimation. The IPA dummy is created accordingly. If the city has IPAs at time t, the dummy takes value of 1, otherwise 0. The number of IPAs in each city at time t is also used later for confirmation.

[7] 362 cities are observed in our dataset while there are 50 cities that have at least one IPA during the period of estimation.

Data regarding firm characteristics is collected from the annual surveys conducted by the National Bureau of Statistics (NBS) covering 1998-2007. All industrial firms with sales above 5 million RMB are included. It contains detailed balance-sheet information, ownership, output, sales, value added, industry code (4 digits), export status, total employment, tangible asset, intermediate inputs, total capital and foreign capital amount, etc. We use unique company IDs to link firms over the time period of estimation.

Concerning the dependent variable, we use two kinds of measurement. The first one is FDI volume, which is equal to the sum of all foreign capital within the firm. The second one is FDI share, defined as the ratio of foreign capital to the total capital in the firm. We remove the obvious outliers such that the ratio is larger than 1 or negative. When it comes to independent variables, firm age is the current operating year less the establishing year of the firm. Naturally we omit the observations that have negative values. R&D is simply the expenditure on research and development activities. However, since most firms do not report this amount (or the record is missing), to include this term will reduce our observations considerably to 21822, we test both with and without this variable. Wage is a firm's total wage bill payable to the regular workers while the tax rate equals the income tax/total sales revenue. Here we assume it is reasonable to have negative figures for tax rate in the dataset. Because in China if a foreign company operating makes no profit (deficit) in a given year, the deficit will be deducted from the total tax that the company must pay in the following year. Labor is measured by "total employees". In practice, however, the information on "total employees" in year 2000 is missing. Since labor is an important element in our econometric verification and to unify the estimation, we drop the observations in that year. Also using this information together with fixed assets, intermediate inputs and value added, we calculate the TFP following Levinsohn and Petrin's method. After removing negative values of the key variables and those that fail to meet the error checks, we finally have a total of 1,843,248 observations over 9 years. As the entry and exit rates of foreign firms are quite high, we can only deal with an unbalanced panel in this analysis.

Data on city-level factors has been collected from "China City Statistical Yearbook". Other idiosyncratic city characteristics include: GDP per capita, average wage for workers, road length per capita, total annual deposit, total expenditure for postal mail and telecommunication business, and expenditure on education, etc. As the original units for all these variables are 10,000 yuan except for an average wage (yuan), the logarithm of each value is used.

Table 1 provides descriptive statistics, including the definition of the variables used and their units. It also includes the detailed summary on the structure of firms over time. The last two columns show the number of foreign firms that experience investment change over 100% and 500% respectively. Compared to the large pool of observations, the number of firms that change their investment volume considerably is only a small portion. Nevertheless, the variation still gives us the incentive to investigate how it can be related to IPAs.

Table 1 is inserted here

5 Results

Firms' investment

Table 2 shows the main results when we regress the presence of IPAs on FDI level and share respectively. We use *IPA_dummy* and *IPA_number* alternatively to represent IPAs' influence. All specifications use fixed-effects model over random-effects model to control for unobserved factors that might affect the establishment of IPAs, such as the city characteristics that are not reported in the dataset. *IPA_dummy* is not significant no matter whether we use FDI amount or FDI share, while *IPA_number* is positive and significant in both cases.

The lower part of Table 2 shows the results after correcting for endogeneity. Column 1 and 2 are the results using Heckman sample selection model while column 3 and 4 are based on IV method. *IPA_dummy* is not positively significant except for the Heckman case when we use *FDI_share* as the dependent variable. On the other hand, however, *IPA_number* is strongly effective to incur the increase of firms' investment. This indicates that the existence of IPAs actually do not promote incumbent foreign firms to increase their subsequent investment, but the number of established IPAs in that particular city does have a promotion impact on firms' investment behavior. Compared with the baseline results, the coefficients of *IPA_number* also rise to 0.239. This provides the evidence that baseline estimation, which might suffer from endogeneity problem, is likely to underestimate the influence of IPAs.

Meanwhile, when we use IV estimation, *firm_age* is negatively significant, indicating that the longer a foreign firm operates, the less it invests in China. *zone_dummy* doesn't have the positive sign as we have expected. In addition, including *ln_RD*[8] doesn't change the estimation results.

Table 2 is inserted here

City level FDI

As shown in Table 3, in both baseline and IV estimation, the presence of IPAs in most cases does not lead to new FDI increase in the city level. There is only one exception as shown in Column 5. When we use actually utilized FDI as dependent variable and *IPA_number* as presence of IPAs, the coefficient is positive and significant. The findings seem to send us the message that the establishment of IPAs itself does not sinificantly draw green FDI into the city, but the combined effort by several IPAs will to some extent help to increase the foreign investment in that city (which means that the potentially positive correlation between growth of city IPAs and FDI inflow is partially credible).

Compared to the robust and positive impact of *IPA_number* when firm-level FDI is applied, this result makes it possible for us to evaluate the function of IPAs from a different perspective. While the combined effort made by city IPAs promote foreign firms to increase their investment, they do not have strong effect on driving up the aggregated FDI inflow into the city (at least not robust). In this sense, we can make the conclusion that IPAs are more firm-oriented than city-oriented. To be more specific, IPAs attract more investment of the existing foreign firms but have less signaling impact

[8]There is a lot of missing data for R&D. Including this variable will reduce the number of observations considerably. Thus we run the estimation with and without *ln_RD*.

on the countries where these foreign firms come from. This implies that information on IPAs diffuse within the city but does not spread to foreign firms' source country. Thus, if more work can be done to promote the importance of IPAs, it will help foreign investors to know better of the regional situation inside China and thus make up their mind to set foot on this attractive continent.

Table 3 is inserted here

Further issue: employment

In this section, we further explore the impact of IPAs on foreign firms in terms of job creation. Theoretically, the entry of foreign investors has both positive and negative influence on the employment in the host country. On one hand, the products made by foreign firms usually act as the sustitute for the inputs in domestic market and it in turn reduces the employment range provided by domestic firms. On the other hand, the technology advantages of the foreign competitors help them expand the business and create more job opportunities. This has been described by Chen and Ku (2003) as "substitution effect" and "output effect" respectively. Since we would like to focus on foreign firms' behavior in this paper, only the second effect will be tested.

The estimation strategy is similar to the one used for FDI analysis. We will regress *IPA_dummy* and *IPA_number* on the employment by foreign investors in both firm level and city level. The control variables are basically the same as in the previous estimation except that we use the number of total labor as the dependent variable. And in the city level, we apply the rough way by aggregating the employees of each foreign firm to account for the employment share by foreign. Given the high surviving rate of the foreign firms (Table 1), we assume that this might capture the dynamic change of job creation (or loss) by foreign investors due to the presence of IPAs in that city.

Table 4 presents us a quite consistent result. In the firm level, neither *IPA_dummy* or *IPA_number* seems to lead to the growth of foreign firms' employment level. Nevertheless, in the city level, *IPA_number* is positive and significant in increasing the employment chance created by all foreign firms in the city. Though *IPA_dummy* has positive sign, its impact is not significant. The finding of this endeavor strengthens our belief that the effort made by the local government, rather than the existence of IPAs, is more likely to have profound influence on foreign firms' employment behavior.

Table 4 is inserted here

Robustness check: does the quality of IPAs matter?

Following Harding and Javorcik (2012), we try to collect more detailed information on IPAs, and divide them into the group that has websites and the one that doesn't have. Another criteria is to see whether the website has decent English version, which will be used as a double check[9].

Among all the 142 city IPAs, 64 have valid website[10] and only 34 of them have informative English version. It is hard to imagine how a foreign firm is willing to enter

[9] We do not include the results when using this categorization to save space. The finding is similar to that when we use website information only.

[10] Accessible at the date of 2015, April 30th.

a new market without getting the information in advance. Thus we assume the quality of IPAs measured by information visualization will have differential influence on firms' decsion-making. Table 5 verifies our assumption. $IPA\_website$ is a dummy variable which takes the value of 1 if the city IPA has website at time t. When it is proxied for IPA_dummy, the impact becomes significant whether the firms' behavior is evaluated by investment or employment. At the same time, its influence in the city level is not obvious. This is consistent with the finding in the city FDI analysis and hints that more effort by IPAs is needed to enhance the "scale effect".

Table 5 is inserted here

6 Conclusion

The aim of this paper is to address the research gap regarding the empirical study of how a government policy, namely IPAs, can affect foreign firms' investment as well as their employment decision in China. We attempt different methodologies to correct for the potential econometric problem, and show that the number of IPAs, rather than the establishment itself, has a significantly positive and robust effect on increasing foreign firms' subsequent investment. However, IPAs do not necessarily increase the new FDI inflow in the city. This confirms IPAs' firm-oriented nature, and further implies that even though IPAs can alleviate information asymmetries between the host country and foreign firms and promote the latter' investment, the influence does not spread to foreign firms' source country. More efforts can be made by the Chinese government to promoting the importance of IPAs.

Furthermore, we come up with the conclusion that combined effort made by IPAs tend to increase the employment opportunity offered by foreign investors in that city, but it does not promote each individual firm to enlarge the employment. This indicates that IPAs do have positive impact on the job creation in the region, but the impact is limited and depends on how IPAs can fulfill their responsibilities.

Finally we use IPAs' website information to evaluate how the quality of IPAs matters and the result is consistent with the one in Harding and Javorcik (2012). The quality is especially important in helping each foreign firm make the decision. Still, due to insufficient information, neither the detailed quality of IPAs nor the impact of firm heterogeneity can be examined. Further study should thus be undertaken to determine the best means of evaluating IPAs in terms of their qualities and functions. Foreign investors' influence on domestic firms' performance can be another interesting topic to discuss. We will leave that to our future study.

References

[1] Alvin G. Wint (1993) "Promoting Transnational Investment: Organizing to Service Approved Investors", *Transnational Corporations*, Vol. 2, No. 1, pp. 7190.

[2] Blundell, R. and Bond, S. (1998) "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, Vol. 87, No. 1, pp. 115143.

[3] Cerulli, G. (2014) "ivtreatreg: A command for fitting binary treatment models with heterogeneous response to treatment and unobservable selection", *The Stata Journal*, Vol. 14, No. 3, pp. 453-480.

[4] Charlton, A. and Davis, N. (2007) "Does Investment Promotion Work?", *The B.E. Journal of Economic Analysis & Policy*, Vol. 7, No. 1, pp. 1935-1682.

[5] Cheng, T. J. and Ku, Y. H. (2003) "The Effects of Overseas Investment on Domestic Employment", NBER Working Paper 10156.

[6] Cheng, L. K. and Kwan, Y. K. (2000) "What are the determinants of the location of foreign direct investment? The Chinese experience", *Journal of International Economics*, Vol. 51, No. 2, pp. 379-400.

[7] Cho, S. and Tung, S. (1998) "Special tax incentive zones and regional tax incentive policy in the peoples republic of China", *The International Tax Journal*, Vol. 14, No. 3, pp. 453-480.

[8] Dean, J., Loverly, M. and Wang, H. (2009) "Are foreign investors attracted to weak environmental regulations? Evaluating the evidence from China", *Journal of Development Economics*, Vol. 90, No. 1, pp. 1-13.

[9] Fan, C. S. and Hu, Y. F. (2007) "ivtreatreg: A command for fitting binary treatment models with heterogeneous response to treatment and unobservable selection", *The Stata Journal*, Vol. 14, No. 3, pp. 453-480.

[10] Griliches, Z. (1986) "Productivity, R&D, and Basic Research at the Firm Level in the 1970s", NBER Working Paper No. 1547.

[11] Guimaraes, P., Figueiredo, O. and Woodward, D. (2000) "Agglomeration and the location of foreign direct investment in Portugal", *Journal of Urban Economics*, Vol. 47, No. 1, pp. 115-135.

[12] Harding, T. and Javorcik, B. S. (2007) "Developing economies and international investors: Do investment promotion agencies bring them together", Working Paper 4339, The World Bank Policy Research.

[13] Harding, T. and Javorcik, B. S. (2011) "Roll out the red carpet and they will come : investment promotion and FDI inflows", *Economic Journal*, Vol. 121, No. 557, pp. 1445-1476.

[14] Harding, T. and Javorcik, B. S. (2012) "Investment Promotion and FDI Inflows: Quality Matters", Working Paper 612, Department of Economics, University of Oxford.

[15] Head, K. and Ries, J. (1996) "Inter-city competition for foreign investment: Static and dynamic effects of Chinas incentive areas", *Journal of Urban Economics*, Vol. 40, No. 1, pp. 38-60.

[16] Head, K., Ries, J. and Swenson, D. (1995) "Agglomeration benefits and location choice: Evidence from Japanese manufacturing investment in the United States", *Journal of International Economics*, Vol. 38, No. 3-4, pp. 223-247.

[17] Holz, C. A (2013) "Chinese statistics: classification systems and data sources", *MPRA Paper* 43869.

[18] Imbens, G. M. and Wooldridge, J. M. (2009) "Recent developments in the econometrics of program evaluation", *Journal of Economic Literature*, Vol. 47, No. 1, pp. 5-86.

[19] Ito, B., Yashiro, N., Xu, Z. Y., Chen, X. H. and Wakasugi, R. (2012) "How do Chinese industries benefit from FDI spillovers", *China Economic Review*, Vol. 23, No. 2, pp. 342-356.

[20] Lin, P., Z. M. and Zhang, Y. F. (2009) "Do Chinese domestic firms benefit from FDI inflow: Evidence of Horizontal and Vertical Spillovers", *China Economic Review*, Vol. 20, No. 4, pp. 677-691.

[21] Liu, K. and Daly, K. (2011) "Foreign direct investment in China manufacturing industrytransformation from a low tech to high tech manufacturing", *International Journal of Business and Management*, Vol. 6, No. 7, pp. 15-27.

[22] Liu, X. P., Lovely, M. and Ondrich, J. (2010) "The location decisions of foreign investors in China: Untangling the effect of wages using a control function approach", *The Review of Economics and Statistics*, Vol. 92, No. 1, pp. 160-166.

[23] Mary, A. and Javorcik, B. S. (2008) "Trade Costs and the Location of Foreign Firms in China", *Journal of Development Economics*, Vol. 85, No. 1-2, pp. 129-149.

[24] Morisset, J. and Andrews-Johnson, K. (2004) "The effectiveness of promotion agencies at attracting foreign direct investment", Occasional Paper 16, FIAS.

[25] Morisset, J. (2003) "Does a country need a promotion agency to attract foreign direct investment? A small analytical model applied to 58 countries", Working Paper 3028, The World Bank Policy Research.

[26] Petrin, A. and Train, K. (2010) "A Control Function Approach to Endogeneity in Consumer Choice Models", *Journal of Marketing Research*, Vol. 47, No. 1, pp. 3-13.

[27] Roodman, D. (2009) "How to do xtabond2: an introduction to difference and system GMM in Stata", *The Stata Journal*, Vol. 9, No. 1, pp. 86-136.

[28] Todo, Y., Zhang, W.Y. and Zhou, L.A. (2011) "Intra-Industry Knowledge Spillovers from Foreign Direct Investment in R&D: Evidence from China's 'Silicon Valley"', *Review of Development Economics*, Vol. 15, No. 3, pp. 569-585.

[29] UNCTAD (2014) World Investment Report 2014: Investigating in The SDGs: An Action Plan, ISBN: 978-92-1-112843-7.

[30] UNCTAD (2001) The World of Investment Promotion at A Glance: A Survey of Investment Promotion Practices, ASIT Advisory Studies No. 17.

[31] Wang, Z. and Wei, S. J. (2008) "What Accounts for the Rising Sophistication of China's Exports?", NBER Working Paper No. 13771.

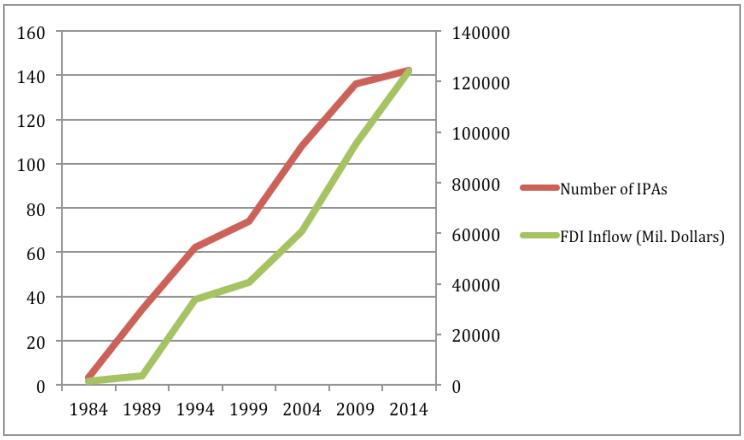
[32] Wang, J. (2013) "The economic impact of special economic zones: Evidence from Chinese municipalities", *Journal of Development Economics*, Vol. 101, No. C, pp. 133-147.

[33] Wang, J. (2009) "The economic impact of special economic zones: Evidence from Chinese municipalities", Job Market Paper, London School of Economics.

[34] Wooldridge, J. M. (2010) "Econometric Analysis of Cross Section and Panel Data", 2nd Edition, MA: MIT Press, Cambridge.

[35] Zhang, H. L. (2005) "Why does so much FDI from Hong Kong and Taiwan go to mainland China", *China Economic Review*, Vol. 16, No. 1, pp. 293-307.

Figure 1 FDI inflow and IPA growth



Source: UNCTAD and "Invest in China".

Table 1 Statistical summary

Firm characteristics

Variable	N	Mean	S.D.	Max	Min	Variable definition	Unit
ln_labor	383827	5.108	1.156	12.145	0	log of total employees	Persons
ln_fdi	383827	8.755	1.640	16.278	0	log of foreign capital	1,000 Yuan
fdi_share	383827	0.749	0.314	1	0	the ratio foreign capital to total capital	percentage
ln_sale	263913	10.510	1.375	19.047	0	log of sales volume	1,000 Yuan
ln_RD	21822	5.994	2.335	14.416	0	log of R&D expenses	1,000 Yuan
ln_wage	383827	7.763	1.280	15.791	0	log of total wages payable	1,000 Yuan
tax_rate	263913	0.018	8.233	4229.500	-0.056	the ratio of total tax to sales volume	percentage
firm_age	383827	7.153	5.933	125.000	0	current year minus establishment year	Year
IPA_dummy	383827	0.578	0.494	1	0	if the city where the firm locates has IPA	

Source: Annual Enterprise Survey, National Bureau of Statistics of China.

City characteristics

Variable	N	Mean	S.D.	Max	Min	Variable definition	Unit
ln_gdp	311343	16.461	1.092	18.457	12.097	log of total GDP	10,000 Yuan
ln_gdp_percapita	282256	10.229	0.641	11.932	7.415	log of total GDP per capita	10,000 Yuan
ln_no_of_fdi	310854	6.016	1.904	8.661	0	log of number of FDI	Number
ln_contracted_fdi	310854	11.788	2.066	14.281	1.792	log of contracted FDI amount	10,000 Yuan
ln_act_fdi	310858	11.260	1.950	13.474	0.693	log of actual FDI amount	10,000 Yuan
ln_total_road	282374	7.669	1.252	9.975	1.792	log of total road length	10,000 sq.m.
ln_road_percapita	282374	2.310	0.582	4.159	-1.966	log of road per capita	sq.m.
ln_infrastructure	213888	12.227	1.789	14.514	2.565	log of infrastructure investment	10,000 Yuan
ln_edu_expen	282350	11.924	1.388	14.536	6.531	log of educational expenditure	10,000 Yuan
ln_ave_wage	311390	9.834	0.402	11.828	2.283	log of average wage	Yuan

Source: China City Statistical Yearbook, National Bureau of Statistics of China.

Statistical summary on the number of various firms

Initial year	foreign firms	domestic firms	foreign firms in two consecutive years	investment change over 100%	investment change over 500%
1998	23,556	100,399	17,086	897	260
1999	27,590	112,296	15,907	1,332	300
2001	31,577	118,133	24,962	1,459	381
2002	34,116	127,786	26,813	1,612	408
2003	37,997	140,508	23,492	1,686	411
2004	54,668	196,730	42,765	3,101	709
2005	54,130	195,530	45,172	3,134	755
2006	58,055	218,900	49,099	3,421	881
2007	63,310	247,967			
Total	384,999	1,458,249	245,296	16,642	4,105

Source: Annual Enterprise Survey, National Bureau of Statistics of China.

Table 2 Analysis on firms' investment

Baseline results

	(1)	(2)	(3)	(4)
VARIABLES	ln_fdi	fdi_share	ln_fdi	fdi_share
IPA_dummy_lag1	0.0545	0.0235		
	(0.0728)	(0.0198)		
IPA_number_lag1			0.0446**	0.0120***
			(0.0203)	(0.00449)
Observations	127,559	127,559	127,559	127,559
R-squared	0.045	0.030	0.045	0.030
Number of companyid	57,212	57,212	57,212	57,212

Firm characteristics include log form of firm age, Sales volume, total labor, firm average wage, tax rate.
City characteristics include zone_dummy, GDP per capita, road per capita, infrastructure investment, education expenditure and city average wage. One period lag of the dependent variable is also included.
Fixed effect model is applied due to the result of Hausman Test.
Year dummy is included. Clustered standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Results after correcting for endogeneity

	(1)		(2)		(3)	(4)	(5)	(6)
	Heckman		Heckman		IV	IV	IV	IV
		first		first				
VARIABLES	ln_fdi	stage	fdi_share	stage	ln_fdi	fdi_share	ln_fdi	fdi_share
IPA_dummy_lag1	-0.00640		0.0193***		-0.351***	-0.0778***		
	(0.0211)		(0.00488)		(0.0612)	(0.0141)		
IPA_number_lag1							0.239**	0.102***
							(0.101)	(0.0229)
firm_age	-0.00219***	-0.0105**	-0.000324***	-0.00745*	-0.00150***	-0.000703***	0.000830	-0.000493
	(0.000422)	(0.00430)	(9.77e-05)	(0.00430)	(0.000514)	(0.000120)	(0.00252)	(0.000573)
zone_dummy	0.0232	-7.855	-0.0160	-8.059	-0.00279	-0.0145	0.0403	-0.0455
	(0.136)	(157.9)	(0.0313)	(202.9)	(0.142)	(0.0328)	(0.164)	(0.0372)
ln_road_percapita	0.0378***	0.103	0.0153***	0.106	0.0397***	0.0179***	-0.0134	0.00385
	(0.0125)	(0.153)	(0.00288)	(0.151)	(0.0124)	(0.00285)	(0.0178)	(0.00404)
ln_gdp_percapita	0.0254	3.275***	-0.00452	3.188***	0.109***	0.0215***	0.0595	-0.0322***
	(0.0227)	(0.294)	(0.00524)	(0.291)	(0.0251)	(0.00577)	(0.0483)	(0.0110)
ln_infrastructure_invest	-0.0152***	0.582***	-0.00252***	0.600***	-0.0168***	-0.00281***	0.0116**	0.00481***
	(0.00268)	(0.103)	(0.000618)	(0.102)	(0.00257)	(0.000592)	(0.00496)	(0.00112)
ln_education_expen	0.00637	-2.129***	-0.00281	-2.159***	0.0220**	0.00186	0.160***	0.0653***
	(0.00864)	(0.139)	(0.00199)	(0.139)	(0.00931)	(0.00215)	(0.0538)	(0.0122)
ln_city_average_wage	0.0214	4.849***	0.00990	4.918***	0.00499	0.00387	-0.0583	-0.00481
	(0.0398)	(0.327)	(0.00916)	(0.325)	(0.0399)	(0.00920)	(0.0568)	(0.0129)
Observations	70,902	70,902	70,902	70,902	70,902	70,902	70,902	70,902
Number of companyid					41,443	41,443	41,443	41,443

Firm characteristics include log form of firm age, Sales volume, total labor, firm average wage, tax rate.
One period lag of the dependent variable is also included.
The instruments used as proxy for IPA are the second period lag of the city characteristics listed above.
Year dummy is included. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 3 Analysis on city FDI

Baseline results

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ln_contracted_fdi	ln_actual_fdi	no_of_fdi_	ln_contracted_fdi	ln_actual_fdi	no_of_fdi_
IPA_dummy_lag1	-0.244***	0.333	0.0404			
	(0.0824)	(0.255)	(0.0460)			
IPA_number_lag1				0.151	0.335***	0.0902
				(0.110)	(0.0861)	(0.0618)
zone_dummy	0.784***	2.626***	-0.256**	0.793***	2.639***	-0.243**
	(0.117)	(0.106)	(0.105)	(0.117)	(0.106)	(0.107)
ln_road_percapita	-0.225*	-0.0897	-0.114	-0.226*	-0.0892	-0.112
	(0.126)	(0.0990)	(0.118)	(0.126)	(0.0990)	(0.118)
ln_gdp_percapita	0.161	0.494*	-0.156	0.160	0.491*	-0.165
	(0.330)	(0.264)	(0.336)	(0.329)	(0.263)	(0.338)
ln_infrastructure_invest	0.00712	-0.0275	-0.000359	0.00815	-0.0254	0.00247
	(0.0379)	(0.0302)	(0.0322)	(0.0379)	(0.0301)	(0.0320)
ln_education_expense	-0.0379	0.0557	0.0426	-0.0377	0.0536	0.0416
	(0.0717)	(0.0498)	(0.0609)	(0.0720)	(0.0499)	(0.0607)
ln_city_average_wage	0.135***	0.216**	-0.00127	0.136***	0.217**	-0.00339
	(0.0358)	(0.0976)	(0.0430)	(0.0356)	(0.0973)	(0.0415)
ln_contracted_fdi_lag1	0.00180			0.00144		
	(0.0650)			(0.0651)		
ln_actual_fdi_lag1		0.109*			0.109*	
		(0.0588)			(0.0586)	
no_of_fdi_lag1			-0.000112			-0.000112
			(0.000114)			(0.000115)
Observations	1,049	1,043	1,047	1,049	1,043	1,047
R-squared	0.078	0.154		0.079	0.158	
Number of id	277	276	274	277	276	274

For ln_actual_FDI and ln_contracted_FDI, fixed effect model is applied due to the result of Hausman Test. When number of FDI is used as dependent variable, poisson model is applied.
Year dummy is included. Clustered standard errors are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Results after correcting for endogeneity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Heckman	Heckman	Heckman	IV	IV	IV	IV	IV	IV
FDI measure	Contracted	Actual	Number	Contracted	Actual	Number	Contracted	Actual	Number
IPA_dummy	-	-	-	-	-	-			
IPA_number							-	○	-
Observations	502	502	502	502	502	502	502	502	502

Control variables include zone_dummy, one period lag of the dependent variable, and city characteristics (GDP per capita, road per capita, infrastructure investment, education expenditure and city average wage). The instruments used as proxy for IPA are the second period lag of the city characteristics listed above.
Year dummy is included.

Table 4 Analysis on employment

Firm level

	(1)	(2)	(3)	(4)
FDI measurement	ln_FDI	FDI_share	ln_FDI	FDI_share
VARIABLES	ln_labor	ln_labor	ln_labor	ln_labor
IPA_dummy	0.0559	0.0412		
	(0.0644)	(0.0644)		
IPA_number			-0.0288***	-0.0290***
			(0.00670)	(0.00671)
Observations	70,902	70,902	70,902	70,902
Number of companyid	41,443	41,443	41,443	41,443

The result is based on the instrumental variable (IV) estimation.
City characteristics include GDP per capita, road per capita, infrastructure investment, education expenditure and average wage. Firm characteristics are the same as in the foreign investment analysis except that we exclude labor. Two kinds of FDI measurement are used alternatively: ln_FDI and FDI_share.
Year dummy is included. Standard errors are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

City level

	(1)	(2)	(3)	(4)	(5)	(6)
FDI measurement	Contracted	Actual	Number	Contracted	Actual	Number
	ln_foreign_em	ln_foreign_em	ln_foreign_em	ln_foreign_em	ln_foreign_em	ln_foreign_em
VARIABLES	ploy	ploy	ploy	ploy	ploy	ploy
IPA_dummy	27.78	22.19	5.962			
	(20.35)	(16.64)	(8.231)			
IPA_number				0.990**	1.034**	1.145**
				(0.467)	(0.446)	(0.467)
Observations	463	460	462	463	460	462
Number of id	237	236	237	237	236	237

The result is based on the instrumental variable (IV) estimation. There are three kinds of new FDI measurement: newly contracted FDI amount, actually utilized FDI amount and the number of new FDI contracts.
City characteristics include GDP per capita, road per capita, infrastructure investment, education expenditure and average wage.
The dependent variable is measured as the total employment of foreign firms located in one city (log form).
Year dummy is included. Standard errors are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 5 Robustness check (use IPA_website as proxy)

Firm level

	(1)	(2)	(3)	(4)
VARIABLES	ln_FDI	FDI_share	ln_labor	ln_labor
IPA_website	0.127**	0.0399***	0.264***	0.263***
	(0.0559)	(0.0121)	(0.0237)	(0.0238)
Observations	46,030	46,030	46,030	46,030
Number of companyid	26,615	26,615	26,615	26,615

The result is based on the instrumental variable (IV) estimation. Columns (1)-(2) are for analysis on foreign investment while column (3)-(4) are for analysis on foreign employment.
City characteristics include GDP per capita, road per capita, infrastructure investment, education expenditure and average wage.
Firm characteristics are the same as in the foreign investment analysis, while in the estimation of foreign employment we exclude labor. Two kinds of FDI measurement are used alternatively: ln_FDI and FDI_share.
Year dummy is included. Standard errors are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

City level

	(1)	(2)	(3)	(4)	(5)	(6)
FDI measurement	ln_contracted_	ln_actual_utiliz	ln_number	Contracted ln_foreign_em	Actual ln_foreign_em	Number ln_foreign_em
VARIABLES	fdi	ed_fdi	_of_fdi	ploy	ploy	ploy
IPA_website	-1.290	1.154	-0.160	-2.804	-0.526	-0.361
	(1.170)	(1.101)	(0.980)	(3.247)	(1.293)	(1.970)
Observations	92	90	92	90	88	90
Number of id	46	45	46	45	44	45

The result is based on the instrumental variable (IV) estimation. Columns (1)-(3) are for analysis on foreign investment while column (4)-(6) are for analysis on foreign employment.
City characteristics include GDP per capita, road per capita, infrastructure investment, education expenditure and average wage.
In column (4)-(6), the dependent variable is measured as the total employment of foreign firms located in one city (log form).
Year dummy is included. Standard errors are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1