

# **EAST ASIAN DEVELOPMENT NETWORK**



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## **Policy Competition for FDI and Its Real Effect: Based on a Survey in Six Provinces in Central China**

**Yang Hongen**

**Wang Jing**

**Liu Zhilin**

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**Yang Hongen**, Professor, Institute of International Economics, Henan University

**Wang Jing**, Lecturer, Institute of International Economics, Henan University

**Liu Zhilin**, Associate Professor, Institute of International Economics, Henan University

**Abstract:** Based on the consensus that foreign direct investment (FDI) has positive effects on the local economy, many countries (or at least cities within a country) are attempting to attract FDI through incentive policies. The situation is such that these countries or cities find themselves in a frenzied policy competition. However, there is still no empirical evidence that policy competition has any factual effect on the absorption of FDI. Based on a survey of 60 cities in six provinces in central China, this paper constructs one dependent variable and five independent variables using documents and data from adjacent cities and forms an econometric model. The conclusion of this empirical study shows that more preferential tax policies make a difference in introducing FDI, that is, that the competition for foreign investment has a practical effect on actually introducing or attracting it. That the gross domestic product (GDP) also affects FDI is also supported. In addition, this paper puts forward new evidence about the influence of the mileage or length of highway and the location of the city in the region in introducing FDI. Finally, this paper describes the policy implications of these conclusions.

## **I. Introduction**

Many countries, particularly some developing countries in East Asia, have been attempting to attract foreign direct investment (FDI) through incentive policies. At the same time, local governments within these countries have also been attempting to attract FDI using the same method: incentive policies. The competition between the governments of different countries or municipalities to stimulate FDI is called policy competition. However, the effectiveness of such policies has not been proven yet. In the meantime, many scholars point out the significant cost of policy competition. Are these incentive policies effective? Can policy competition actually help attract more FDI? This paper will attempt to give sound answers to these questions, answers that could also tell us what China uses to attract a high level of FDI.

This study supposes that, if the incentive policies of local governments to attract FDI in China are effective, the policy competition going on among these local government units will eventually result in attracting FDI for the whole country. If this is the case, then other countries, particularly developing countries in East Asia whose economies depend heavily on FDI, will also benefit from such a strategy. If policy competition is not effective, then our research study will investigate other,

possibly more important, factors that can also provide insight to other countries. In a nutshell, these conclusions could help the central and local governments of developing countries adopt more proper policies to attract investment and avoid destructive competition. Especially considering China's typicality, this research is obviously and generally significant for developing countries.

In this paper, we do not intend to explain the effectiveness of all policies as a competitive means but to explain if policy competition is effective as a whole or by nature. This is to say, if one of the policies as a competitive means actually attracts foreign investments, we would consider the possibility that policy competition is effective, which then achieves the purpose of our study.

There is abundant literature discussing policy competition for FDI. However, factual evidence on the effectiveness of incentive policies and policy competition are seldom researched. Some studies acknowledge the effectiveness of the competition of incentive policies when they confront correlative research problems. As Buettner and Ruf (2007) pointed out, when incentive policies and institutional reforms prevail all over the world, countries that follow this trend acquire vast inflows of FDI, China being an example of one of the most successful in using incentive policies. Nevertheless, analyses on the effectiveness of incentive policies and policy competition reveal that said effectiveness remains in the realm of theoretical discussion. Chung and Wong (2009) said that the use of incentive policies to attract FDI in one country will cause other countries, especially those within the same region, to follow suit. This will result in an ineffective competition without a withdrawal mechanism. The result of the competition would be a "race to the bottom," which would lead to welfare loss for all, both winners and losers (Zhan 2002). World Bank (2001) has pointed out that incentive policies could encourage the inflow of FDI to some extent; however, the cost of these policies often outweighs the benefits throughout society. Without empirical evidence, though, those theoretical discussions tend to be persuasive. A great deal of study needs to be done and in this sense, this paper has an obvious value.

## **II. Basic understanding of the survey**

Since the beginning of 2013, our three-person research team has led several graduate students in gathering data from six provinces in central China for this study. As planned, each researcher investigated two provinces, with 10 cities surveyed in each province. We visited the commerce and investment office of the city's commerce bureau and interviewed key personnel. Sometimes, in order to get real/factual information or to confirm information from government officials, we conducted a second round of inquiry in the name of foreign investors. During the period of

investigation, the members of the team regularly exchanged their experiences and impressions. After completion of the investigation, the team held a small meeting to fully exchange viewpoints and form a consensus.

### **1. The policy competition for FDI is widespread**

Different levels of governments are working hard to attract FDI based on the belief that FDI has positive effects on the local economy. The amount of investment is often regarded as an indicator of the political performance of local officials, so attracting investment becomes the most important work of local governments. As a result, local governments are inevitably involved in the policy competition for FDI. They not only work out a variety of preferential policies to attract FDI but also look at what other cities are doing in order to make their policies more preferential than those cities' policies, which then results in widespread policy competition for FDI.<sup>①</sup> Let's take the tax holiday in Henan as an example. The *Regulation of Preferential Policy on Encouraging Investment by Foreign-funded Enterprises in Henan Province* shows that a productive foreign-funded enterprise will be exempted from enterprise income tax starting the first and second years it begins to make a profit and then taxed 50 percent the next two years after that. However, this baseline policy has been broken by almost all cities in Henan. For example, the city government of Hebi (a city in Henan) allows a productive foreign-based enterprise to use 50 percent of income tax in enterprise development from the third to the eighth year after it begins to make profit. In Sanmenxia and Xuchang, a similar regulation shows that the productive foreign-based enterprise will be exempted from income tax in the first three years and then taxed 50 percent in the next five years (after the first three-year exemption) after it turns a profit.

### **2. Policy enforcing takes the form of “one project, one discussion”**

Generally, the introduction of FDI should be carried out according to the city's policies for FDI. However, the survey found that written policies are only regarded as a reference for the policies that are actually put into effect for FDI, and the more preferential and unwritten policies for FDI are the ones mostly enforced. In effect, the truly enforced preferential policies often take the form of “one project, one discussion.” This means that every foreign investor should negotiate with local governments and confirm the specific preferential policies for a particular investment through bargaining. The foreign investors' ability to negotiate and the local government's demand for their investment will determine the kind of preferential policies a particular investment will be subject to.

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<sup>①</sup> These policies include tax holidays, land use, exchange control, financing (loan), investors' lives related, etc.

“One project, one discussion” has increasingly become a popular way of applying preferential policies for foreign investors. This system, however, makes it difficult to gauge the degree of policy competition for FDI because the FDI policies being applied gradually turn out to be “under cover” or unwritten.

### **3. FDI competition is mainly carried out among adjacent cities**

Oman (2000) pointed out that the competition to attract investments is widespread among local governments, a fact our survey confirmed and on which the econometrics method of this paper is based. Many cities are competing with neighboring cities to attract FDI. We found the officers in charge of attracting FDI to be quite familiar with the FDI policies and the actual situation in the cities around their own. During interviews, they frequently compared their cities with the surrounding cities. Furthermore, from the statistical analysis of data, we can see the obvious traces of imitation in the incentive policies for attracting FDI among adjacent cities. The direction of incentive policies of neighboring cities is similar (e.g., tax holidays) but the degree to which these incentives are applied is different, which reflects the character of the policy competition for FDI.

### **4. Preferential policies and positive work are effective**

Preferential policies are effective, according to the surveyed officials. Positive contact and interaction between foreign investors and local officials are useful mechanisms for fostering trust and familiarity. For some foreign investors, stable policies are as important as preferential policies. The maintenance of stable policies is incumbent upon local officials. Sometimes, it is trust in local officials that is key to attracting FDI. The officials in charge of attracting investments are like salesmen. Setting aside the conditions of local industries and other factors, the personability of these salesmen (i.e., local officials) becomes crucial in attracting investments. Of course, what they are selling are the preferential policies that are subject to negotiations and bargaining. Effective preferential policies and the active work of local officials, therefore, are valuable in attracting FDI. In this sense, the policy competition for FDI is effective.

### **5. FDI competition is not a competition without the bottom line**

Theoretically, the competition among the local governments for FDI should be a “race to the bottom” because many players are participating in this continuous game. In this sense, all the local governments competing for FDI are caught in a dilemma of sorts because both the so-called “winners” and “losers” of this race will ultimately contend with the overall loss or degradation of welfare resulting from the fierce competition. However, we realize the following facts. First, a city

can have a more preferential written policy than its neighboring cities. However, it is understood that the written policy can and will be seen by nearly every competitor and thus, this policy cannot be arbitrarily changed. This means that there are no short-term, continuous games among cities.<sup>②</sup> Second, the implementation of the massive investments obtained will be based on the “one project, one discussion” policy, which gives more favorable terms compared to the written policy but which is not seen by competitors in order to prevent imitation. Third, the behavior that the local governments exhibit with regard to preferential policies regardless of the huge cost would signal that not everything about these preferential policies is honest, so foreign investors are unlikely to endlessly chase the preferential policy. Based on these reasons, we think the policy competition for FDI is not a game of “race to the bottom.”

### III. The econometric model

#### 1. The idea of constructing an econometric model

It is difficult to prove the effectiveness of policy competition by quantitative method, so previous studies focused only on theoretical (e.g., game theory) analysis. This paper will build an empirical model to address this lack. The basic idea for building this kind of model is connecting “*the degree of preferential policy*” and “*the difference in acquiring foreign investment.*” For this, we needed to make a comparison of the cities under study. Furthermore, in accordance with the viewpoint that the “policy competition for FDI occurs mainly among neighboring cities,” we focused on comparing adjacent cities. We surveyed 60 cities in the six provinces of central China, covering about 10 cities in every province. Our methods were as follows: (1) number every city according to the order of adjacent regions (see table 1 and appendix chart 1); (2) estimate the specific indicators of the two cities adjacent to each other (e.g., We compared 1 [Datong] and 2 [Shuozhou], 2 [Shuozhou] and 3 [Xinzhou],...59 [Huangshi] and 60 [Xianning])<sup>③</sup>; and (3) consider the comparison results as corresponding variables by which the econometric model can be built.

Table 1. Cities investigated in the six provinces of central China and their numbers

No.	City name	Province	No.	City name	Province	No.	City name	Province
1	Datong		21	Huaibei		41	Hengyang	
2	Shuozhou		22	Suzhou		42	Yongzhou	

<sup>②</sup> For this consideration, the research method of this paper is based on comparing the contents of the written policies of a large number of cities instead of just observing the repeated game of a city

<sup>③</sup> Several cities are adjacent but the numbers of adjacent cities are not vital and influential to the research conclusion. Our primary purpose is to get the result of the various indexes between two adjacent cities.

3	Xinzhou	Shanxi Province	23	Bozhou	Anhui Province	43	Shaoyang	Hunan Province	
4	Taiyuan		24	Fuyang		44	Xiangtan		
5	Jinzhong		25	Huainan		45	Zhuzhou		
6	Luliang		26	Chuzhou		46	Changsha		
7	Linfen		27	Hefei		47	Yiyang		
8	Jincheng		28	Ma'anshan		48	Yueyang		
9	Yuncheng		29	Wuhu		49	Huaihua		
10	Sanmenxia		30	Huangshan		50	Zhangjiajie		
11	Luoyang		31	Shangrao		51	Jingzhou		Hubei Province
12	Nanyang		32	Jingdezhen		52	Jingmen		
13	Xinyang	33	Jiujiang	53	Qianjiang				
14	Zhumadian	34	Nanchang	54	Shiyan				
15	Xuchang	35	Fuzhou	55	Xiaogan				
16	Zhengzhou	36	Xinyu	56	Wuhan				
17	Jiaozuo	37	Yichun	57	Huanggang				
18	Anyang	38	Pingxiang	58	Ezhou				
19	Kaifeng	39	Ji'an	59	Huangshi				
20	Shangqiu	40	Ganzhou	60	Xianning				

The important task is to choose the variables and acquire the data to build the econometric model. As the chief competition object, tax policies and land policies are explanatory variables. Relative studies (e.g., Buettner and Ruf 2007) show that more preferential tax policies and land policies are the main instruments used by local governments in the policy competition for FDI. In fact, we acquired some data about policies on foreign exchange, financing, and foreign investors' lives. However, due to their similarity or deficiency, these policies are not regarded as research objects in this paper, which does not affect the research purpose. Similarly, this paper does not take labor and wage policies into account (two subjects many investors and researchers have concerned themselves with) as research objects because the labor situation and the minimum wage rate are, more or less, the same in these central provinces and local government officials are not able to set wage rates. In addition, the purpose of this paper is to prove the effectiveness of policy competition. This means that we can make our point even with only one policy (not all policies) being proven effective. Furthermore, choosing cleaner and more concise variables will make the conclusion of the study easy to reach. So we adopted two variables for comparison: "*whether the tax policies are more preferential*" and "*whether the land policies are more preferential.*"

Meanwhile, we have to consider the objective conditions of a city that can affect foreign investment. We especially focused on the economic aggregate, the infrastructure, and the city's

location within the region. Generally, regardless of the policies, the bigger is the economic aggregate, the better is the city infrastructure, and the more superior is the location, the higher the number of foreign investments the city attracts. In this paper, the economic aggregate, the infrastructure, and the city's location are represented by gross domestic product (GDP), the length of highways in miles (referred to in this paper as mileage), and the distance from the city center. The comparison of these elements among the different cities will produce the corresponding variables. It is common to regard GDP as economic aggregate. The use of length of highways to represent infrastructure not only avoids collinearity between GDP and infrastructure but also considers the traffic problems that foreign investors would have to contend with. In this research, the distance from the center city is measured by the distance to the local provincial capital city. In particular, if the distance from a city to the other provincial capital city is closer than that to the province's own capital city, we use the former one. Thus, based on comparing these three data points between cities, we get three variables, that is, “*the difference of GDPs, the difference of the length of highways in miles, and the difference of the distance from the center city to the other provincial capital city.*”

Obviously, these five variables are the independent variables in the model. At the same time, by comparing FDI between cities, we get “*the difference of acquiring FDI*” as the dependent variable. Thus, we can build a model.

## 2. Model and data

Following the aforementioned idea, we built the following model:

$$D\log FDI/people = \alpha_0 + \alpha_1 VsTax + \alpha_2 VsLand + \alpha_3 D\log GDP/people + \alpha_4 DHighway + \alpha_5 DLocation + \varepsilon$$

Where  $D\log FDI/people$  represents the difference of  $\log FDI/people$  between two cities. Considering the difference of city scale, we adopted the per capita value of the introduced  $FDI$ .  $VsTax$  represents the comparison of tax policies between two cities. If the former is more preferential than the latter, the value is 1, otherwise it is 0.  $VsLand$  represents the comparison of the land policies between two cities (the method of getting the value is same as  $VsTax$ ).  $VsTax$  and  $VsLand$  represent the research goals of this paper which we mostly focused on. We paid more attention to  $VsTax$  because it has more extensive implications due to its being used by governments at all levels.  $D\log GDP/people$  represents the difference of  $\log GDP/people$  between two cities. We also adopted the per capita value, which reflects the difference in the economic strength of two cities.  $DHighway$  represents the difference of the highway lengths in miles between two cities, which



reflects the traffic condition in adjacent cities.  $DLocation$  represents the difference in the location between two cities, the data for which was acquired by measuring the difference of the distance from the center city (the closest provincial capital city) to another provincial capital city.  $\varepsilon$  is residual.

It was not difficult to collect data on GDP, highways, and the locations of cities and to get the corresponding variables for comparison. This information was obtained from statistical yearbooks and other official documents. It was difficult, however, to get the original files of, and information on, tax and land policies and to estimate their preferential nature. Our team conducted field surveys for this part of the study. We obtained correlative documents on attracting FDI by investigating 60 cities in the six provinces of central China, and received a great deal information not publicly available by interviewing local government officials or their staff members. After getting the files and the information, we evaluated the tax policies and land policies among adjacent cities and made a comprehensive judgment on which policy of two neighboring cities was more preferential. This task was difficult because the contents and emphases of the documents (e.g., tax policy) are different. We cannot give a specific judgment criterion for this situation. Of course, it is easy to judge when the key points or emphases of the policy are the same (e.g., policy on tax holidays). That is why when we assessed which of two cities' policies is more preferential, we only made a synthesized subjective judgment based on their documents. We voted when the members of the team had different opinions.

#### **IV. The regression result of the econometric model**

We got a delightful result from the ordinary least squares (OLS) regression for the econometric model, which is shown in table 2. For two variables indicating policy competition for FDI, the coefficient of  $VsTax$  is statistically significant at 5 percent level on the basis of the t test while the coefficient of  $VsLand$  is not. As has been mentioned, with its extensive content, the tax policy is often used by all levels of government so it becomes the most important means to compete for FDI. Therefore, the coefficient of  $VsTax$  being statistically significant means that policy competition for FDI among local governments is effective. The coefficient value of 0.6655, in particular, signifies that when one city has more preferential tax policies, it will achieve a 66.55 percent change in the relative ratio of FDI/people of the adjoining city. At the same time, the coefficient of  $VsLand$  being statistically insignificant signifies that, because the land available for construction activities in China

is decreasing with rapid development, the use of land policy as a preferential policy to attract FDI has become weaker and unsustainable, resulting in foreign investors' gradual loss of interest in this.

Meanwhile, as the objective condition of attracting FDI,  $D\log\text{GDP}/\text{people}$ ,  $D\text{Highway}$  and  $D\text{Location}$ , are all statistically significant at the 5 percent level on the basis of the t test. The coefficient of  $D\log\text{GDP}/\text{people}$  conforms well to the common understanding of the relationship between GDP and FDI (i.e., that the bigger a city's GDP, the greater its chances of attracting FDI). In our research, the coefficient of  $D\log\text{GDP}/\text{people}$  is statistically significant at the 1 percent level on the basis of the t test. The value of the coefficient implies that the difference of  $\text{GDP}/\text{people}$  between two cities fluctuates at 1 percent, resulting in 1.38 percent fluctuation in the difference of  $\text{FDI}/\text{people}$ . Although  $D\text{Highway}$  and  $D\text{Location}$  are both statistically significant, the values of their coefficients exceeded our expectation. Generally, if a city's highway is the longer, its traffic condition is judged to be better and it is perceived to be more likely to attract more FDI. However, our research gives evidence contrary to this belief. Due to their geography, the highways of the mountainous cities in the six central provinces are usually much longer but foreign investors are reluctant to invest in these cities, which may explain the aforementioned regression result. Similarly, it also believed that a city closer to the central cities (i.e., the capital of province) will attract more FDI but our research refutes this. We think that those cities closer to the central cities may have had their thunder stolen by the central cities themselves, which is contrary to the notion that those farther cities attract more FDI. Of course, the coefficient of  $D\text{Highway}$  and  $D\text{Location}$  is too small to be ignored, especially in light of the fact that the cities are all in central China where transportation and location have no obvious differences.

We can also see from table 2 that  $R^2$  and adjusted  $R^2$  are both higher, indicating that the model fits well and that the variables chosen for this model, such as tax policy and GDP, explain it well. The F-statistic value 22.35419 shows that the model passes the F test.  $DW=2.10$  indicates that there is no serial correlation in this model. Akaike info criterion=2.631522 also shows that the model fits better.

Table 2. The regression result of the econometric model

<b>Number of Observations:</b> 59 for every variable					
Dependent variable	Independent variable	Coefficient	Std. Error	t-Statistic	Probability

	C	-0.333332	0.167985	-1.984294	0.0528
	VsTax	0.665455	0.270596	2.459219	0.0175
	VsLand	0.020978	0.245298	0.085522	0.9322
	DLogGDP/people	1.377338	0.262712	5.242760	0.0000
DLogFDI/ people	DHighway	-4.78E-05	1.50E-05	-3.190213	0.0025
	DLocation	0.001624	0.000928	1.748793	0.0866
R-squared		0.695219	Mean dependent var.		-0.088330
Adjusted R-squared		0.664118	S.D. dependent var.		1.478438
S.E. of regression		0.856833	Akaike info criterion		2.631522
Sum squared resid		35.97399	Schwarz criterion		2.850504
Log likelihood		-66.36685	F-statistic		22.35419
Durbin-Watson stat		2.098369	Prob (F-statistic)		0.000000

In order to avoid missing information, we conducted White's heteroskedasticity test (see table 3). The result shows that  $nR^2=6.0349$ . In the case of  $\alpha=0.05$ ,  $\chi^2_{0.05}(5) = 11.07 > nR^2=6.0349$ , so the test accepts the null hypothesis, which indicates that there is no heteroskedasticity.

Table 3. The result of White's heteroskedasticity test

F-statistic	0.261016	Probability	0.998202
Obs*R-squared	6.349300	Probability	0.994562

## V. Concluding remarks and policy implications

This paper carried out an empirical study of the effectiveness of policy competition for FDI based on a survey of six provinces in central China. The preferential nature (i.e., how preferential is the policy of one city compared to that of another city) of the FDI policies of the different cities was used as a dummy variable while the other continuous variables were used as a comparative variable between cities. The study's conclusion is that more preferential tax policies make a difference in a city's ability to attract FDI, that is, policy competition has a practical effect on the introduction of foreign investment in a city.

Due to the realities of land policy, this paper does not support the finding that the differences in the degree of preference (preferential nature) of the land policies between cities has an obvious effect on the ability of cities to acquire or attract foreign investment, which does not influence the main conclusion of this paper. This paper also supports the general idea that GDP affects FDI. In fact, the regression coefficient shows that GDP is the main factor influencing FDI. In addition, this paper considers the length of a city's highways and its location in the region to be influential in

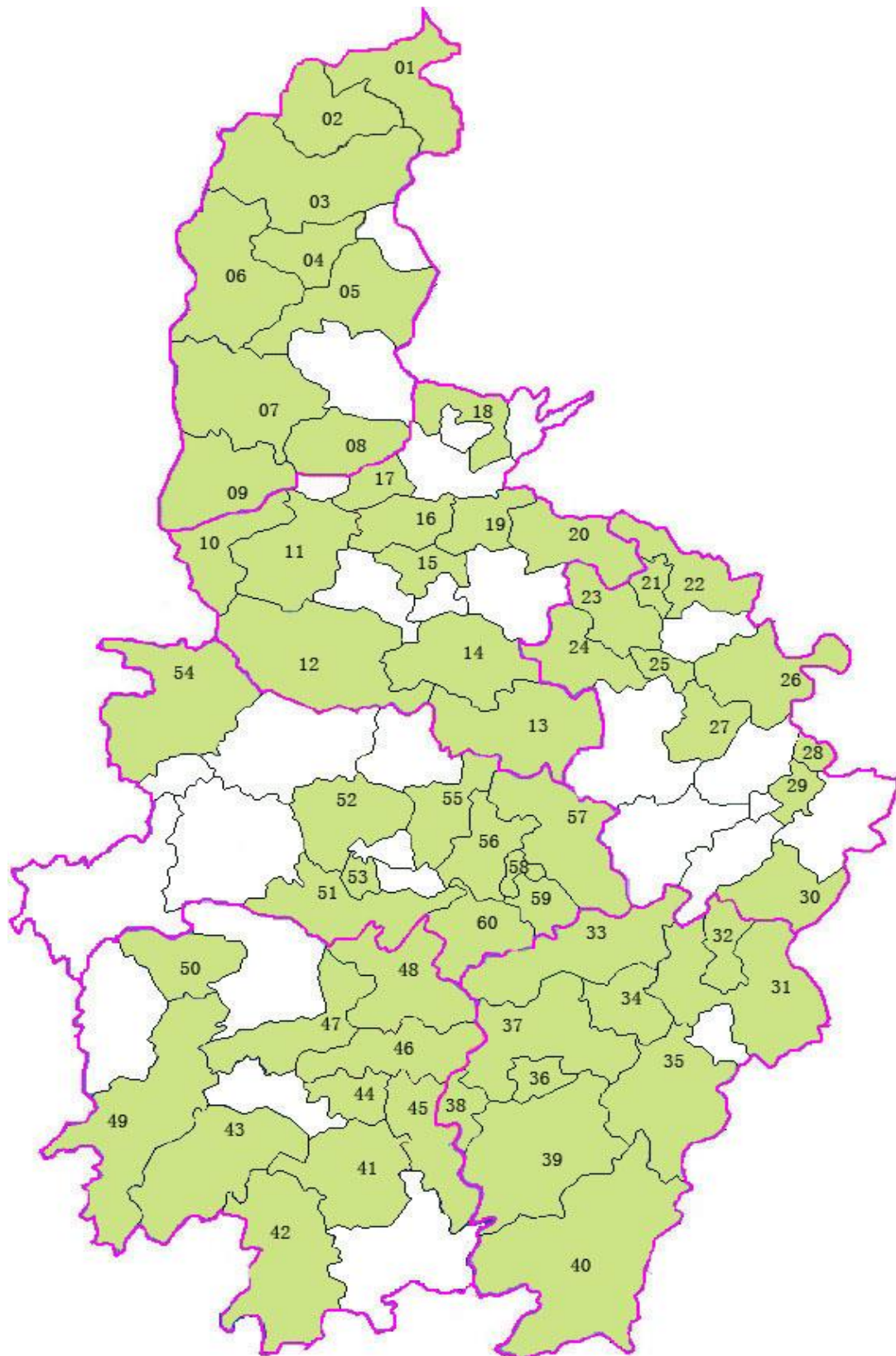
attracting FDI. However, research on these two factors leads to a conclusion that is not in accordance with what has been commonly believed. Of course, the value of two coefficients is too small to be influential. There are also answers for these phenomena from the reality of 60 cities in China's central provinces.

We can get some policy implications from the conclusions of this paper. More preferential FDI policy has a real effect on attracting FDI, indicating that local governments should enact positive policies for foreign investment. Of course, when enacting policy, the officers should also study the policies of neighboring cities, and encourage staff to execute their own policies flexibly. The positive work mode is “searching,” not “waiting,” which goes a long way in attracting foreign investment. The officials of the Bureau of Commerce should go out of their offices to actually seek out and attract investments. However, excessive preferential policy is difficult to carry out mostly because GDP and other objective factors play a fundamental role. Policy competition for FDI, therefore, is not a “race to the bottom”; the officials in charge of attracting foreign investments should not promise the lack of a bottom line because the latter situation also makes foreign investors feel unsafe to the point that they stop investing.

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**Appendix: Chart 1 - Six provinces in central China and 60 cities surveyed**



Note:

1.1-60 is the number of cities we investigated.

2.The thick lines represent the borders of the provinces. The fine lines represent the

borders of the cities.