The Relationship between The Existence of MNEs and Regional Agglomeration in China

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Mei H.C. HO
ECIS\(^1\) Research School,
Technology University of Eindhoven, The Netherlands

Abstract

Because of the rapid growth of international business activities, this study focuses on examining the relationship between the existence of MNEs and the regional agglomeration. We apply the database of China Statistics Bureau to express the agglomeration effects from MNEs’ behaviours. Basing on the data of 31 regions, we use both graphs and regression model to examine the relationship between international business activities and the formation of regional agglomeration, which is represented by different regional economic activities. We have found that the regions with high inward FDI motivate more various local business and transactions that encourage the regional economic growth.

Key Words:
Agglomeration, FDI (foreign direct investment), MNEs (multinational enterprises), China market/region.

\(^1\) Eindhoven Centre for Innovation Studies
Introduction

The trend of globalization in China has become more obvious since the China market started to its open policy. Due to open policy, many foreign multinational corporations/enterprises (MNCs/MNEs) start to pay attention on China huge market. MNEs firstly enter China market by various activities, such as trade, technology transfer, licensing for manufacturing, or foreign direct investment. MNEs also establish their business centres in main economic regions so that they can base on the centre for extending markets. The main economic regions are mostly distributed the south China, such as Guandong, in which the better regional economic infrastructure has been established (Bao et al., 2002; Renard, 2002). Therefore, theses regions, comparing to the western or Northern China, attract more FDI and create more local industrial development. This study emphasizes on explaining how the existence of MNEs bring influences on regional economic activities.

Next section, we summarize the literature about MNE’s location decision and agglomeration. In the third section, we describe the data and methodology applied for explaining the relationship between MNE’s existence and regional agglomeration. The fourth section shows the results and the implications of the empirical statistics. At last, we summarize conclusions and limitations.

Literature Survey

The effects on agglomeration from the behaviours of MNEs have been discussed in both international business (IB) theories and agglomeration economics. IB research found that inward FDI encourages the indigenous firms to converge and grow and the regional agglomeration thus comes. The economists thought the FDI might change the factor price, such as wage rate, make the factor move between regions, and come up agglomeration phenomenon. Although there exist the negative arguments, depending on different assumptions, the effects of MNE’s existence still remain interesting.

The importance of location- OLI and Internationalization

From international literature, choosing a right location to extend business map is crucial. The well-known OLI (Ownership, Location and Internalise advantage) paradigm pointed out the right location is an advantage that firms can get the benefit of local resource and access the local market (Dunning, 1988). In addition, internationalization research showed that MNEs always start to invest in the location that MNEs can utilize local resource and adapt local condition efficiently and easily, such as the location with established infrastructure or geographic proximity (Johanson and Vahlne, 1977; Hirsh, 1976; Johanson and Mattson, 1988). Internationalization explains the development of local markets and industries are encouraged by the behaviours of MNEs on dynamic view.

Agglomeration effects

Agglomeration, including localization economies and urbanization economies (Feldman, 1999), is helpful to explain the regional impacts from IB activities. The inward FDI brings not only resource and capital but it also creates opportunities for knowledge spillover. The existence of MNEs makes the actors more inter-exchanges within a region so that higher innovative productivity comes out (Baptista and Swann, 1998; Feldman, 1999) and both agglomeration economies phenomenon thus follow. Barrell and Pain (1999) analyzed US FDI to explain the agglomeration economies in Europe that there is almost 90% production distributed in the first four
largest economies. They also showed FDI brings the potentials of agglomeration for regional economic growth. However, Brakman, et al. (2001) explained that the relationship between MNEs’ behaviours and agglomeration should depend on the vertical or horizontal activities that MNEs have distributed between countries. If MNEs tend to make the countries more similar, the agglomeration phenomenon is less likely. Concerning these views, we use region data with different characteristics to show that the MNEs existences increase regional agglomeration.

The relatively rapid growth of FDI in China

In order to show the higher growth of FDI inward China, we compare the growth to other areas. The data that we collect from world investment report include the periods from 1990 to 2001. We base on the data in 1990 to calculate the increase of FDI in figure 1 and 2. Both graphs show the relatively higher growth of international business activities in China than in other regions, including EU, US, ASEAN, NIEs (new industrial economies). Figure 1 shows the FDI inflow to China become 13 times of FDI in 1990, but EU, US and NIEs only shows the increase in 3.5, 3, and 2 times of 1990 FDI. Considering the population of a country, we use FDI inflow per capita in figure 2, in which shows the same pattern of FDI growth among these areas. FDI inflow in China show a sharply increase in 1992 and reach the high peak in 2001. We can expect the high growth of FDI inflow is still going on because of the high potential of China market. The trend thus supports us to observe more the details of the China regions, which some of them would have higher potential to attract FDI inflows but some of them would not.
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Examining the relationship between MNEs existence and agglomeration

The rapid growth rate of international business has turned up in China that we have to look more details about the FDI resource distributions in China and how it affects. The literature from international business and international economics proposes that the MNEs bring resources and capital to local host countries and encourage the local economic and industrial developments. From the view of labour market, because the investment of MNEs provides job opportunities, the invested regions thus attract the labour forces that make the labour market become competitive. From the view of capital investment, the investment of MNEs needs the relevant industrial supports, such as upstream suppliers. The FDI thus encourage the local industrial investment and attract other investment from domestic firms. Therefore, the industrial value-added in the locations with higher FDI inward show the region agglomerate higher production value than the regions without FDI inward.

Hypothesis: The regions with more international business activities agglomerate more economic activities.

Methodology

This section includes the empirical evidence of the FDI growth in China and the influences of MNEs’ behaviours, including graphic results and regression relationship model.

In order to show out the relationship between the existence of MNEs and its regional development, we collect a data set on regional level to test the regression model. The data from regional level solves the small-size-sample problem that could help us to apply the regression model to test the relationship between the MNEs existence and its regional economic developments.

We collect the data from China statistics yearbook 2002, which is showed on regional level, to explain the agglomeration. The inwards FDI in each region is as independent variable to represent the existence of MNEs. The dependent variables include different economic indicators to show regional economic agglomeration phenomenon. We use both graphic descriptions and regression model to discuss the effects on regional agglomeration phenomenon.

Measurement

1. MNEs existences

We use the data of FDI inflow in each regions of China to represent the international business activities of MNEs. Although the trade data, which includes import and export, also show the international business, the inwards FDI seems represent the localized behaviours of MNEs more. We thus choose the foreign direct investment as the existence of MNEs in the local regions.

2. The phenomena of agglomeration

The regional agglomeration can be represented by different economic activities, including production, capital flow, and labour movement. Recent empirical research by Midelfart-Knarvik et al. (2000) used the country’s manufacture share in the total EU manufacturing activities as the proxy of the degree of regional agglomeration. Following this concept of spreading manufacturing activities, we calculate the regional ratio of industrial value added and industrial production value to show the degree of regional agglomeration (figure 4). In addition, for explaining more relevant regional agglomeration phenomenon, we include the regional contribution in capital market
(regional capital value, the number of established enterprises) and labour market (employment) in regression model to show the effects of FDI. Therefore, the different economic activities help us to show the regional agglomeration phenomenon.

Results

**Graphic Result:**

The FDI inflow data from 2001 and 2000 have shown out that the MNEs’ international business activities focus on some specific regions. The figure 3 shows the FDI distribution is concentrated in highly developed provinces, such Guandong, Jiangsu, Fujian, Shandong, and prosperous city, such as Shanghai and Beijing. The first three regions, attracting many MNEs to invest manufacture, R&D, and marketing activities, have covered more than 50% inwards FDI in China. The regional FDI inflow is used to be the proxy of the MNEs’ existence from which we could also find the advantage of some specific regions.

Figure 4 also shows that the manufacturing has mostly occurred in Guandong, Jiangsu,Shandong, and Shanghai, which are distributed mostly in coastal areas. The surprising result is that Heilongjiang, locating in northeast China, did not attract many MNEs investment but produce high industrial value-added. For explaining the phenomenon, Heilongjiang locates in a place that is full of nature resource, such as mineral and oil, which Heilongjiang mostly based on for the local main industries. In addition, the low ratio of FDI in Heilongjiang could be that the nature resources are controlled and ruled with high FDI restrictions by government. However, although there is the low FDI ratio in Heilongjiang, the developments of local industries are encouraged indirectly by the FDI in other regions. The derivative demand from other manufacturing industries in other regions could explain the high contribution in industrial value-added activities from Heilongjiang.

![Figure 3. FDI inflow distribution in regions](image-url)
The Results of Regression Model:

Besides the graphic results, we use regression model to show the effects of the existences of MNEs. Model I-V all show the independent variables are able to explain the regional economic contribution significantly. The general result that we have found is that FDI is highly positive influence these regional economic contribution ratio, especially the regional capital value that the coefficient is more than 0.9. In other words, the regional FDI inward encourage the capital inflow, labour move-in, and the establishment of new enterprises (Table 1).

<table>
<thead>
<tr>
<th>V: Agglomeration effects (regional contribution ratio)</th>
<th>Model I</th>
<th>Model II</th>
<th>Model III</th>
<th>Model IV</th>
<th>Model V</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>0.976***</td>
<td>0.810***</td>
<td>0.799***</td>
<td>0.684***</td>
<td>0.827***</td>
</tr>
<tr>
<td>F value (df=30)</td>
<td>572.234***</td>
<td>55.514***</td>
<td>49.489***</td>
<td>24.616***</td>
<td>62.710***</td>
</tr>
<tr>
<td>Adj R square</td>
<td>0.952</td>
<td>0.645</td>
<td>0.626</td>
<td>0.449</td>
<td>0.673</td>
</tr>
</tbody>
</table>

Note: “DV”: dependent variable; “df”: degree of freedom; “***” means the p-value < 0.001

Concerning the assumption in core model (Brakman et al., 2001), we suppose there are only two regions, including high FDI flow and low FDI regions. High inward FDI makes the local markets so competitive that the factors in other regions are attracted to the high competition, wage,
and return regions. The high FDI region thus forms regional agglomeration phenomenon. The factor movement between the two regions, such as between Yunnan and Guangdong, can be observed in China because the advantage of geographic proximity (low transportation cost) and Guangdong’s FDI converges more capital and labours to move in. The same phenomenon also turns up between Beijing and other under-invested regions, such as Anhui.

Discussion and Conclusion

In this study, we express the FDI growth is relatively higher in China and find the inward FDI effects on regional agglomeration. The regional manufacturing contributions are most distributed in the regions with higher ratio of FDI. The regional agglomeration indicators, including productivity, employment and capital creation, are positively encouraged by inward FDI in regression model. We have found that the growth of FDI induces more commercial opportunities for labors and firm owners. It also explains why some regions grow rapidly.

The limitations of our research include few points. Firstly, we have not applied long time data to show the relationship but only explained the limited period. We also only use the regional data within a nation that might be different from the phenomenon of cross-nations. Secondly, the sizes of the regions, classified by local administrative classification, are not controlled in this analysis. Therefore, some municipal cities, such as Beijing and Shanghai, have been classified as an independent region. Although we cannot judge if the size is matter for regional agglomeration, the result of this classification shows some municipal cities attract more than some large regions. The third limitation is the measurement of agglomeration that we only calculate regional contribution ratio. It should have measured by a particular proxy, such as the measurement in Ciccone (2002).

The relationship between regional agglomeration and MNEs’ existence seems hard to explain which is cause or effect. What we could expect is that the behaviours of MNEs bring some challenges and competitions for the markets in the host regions. The interactive relationship between regional agglomeration and MNEs investment makes specific regions prosperous.
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Reference: