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THE COMPETITIVENESS OF ATTRACTING CREATIVE FDI, COMPARED WITH FINANCIAL & MANUFACTURING FDI

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Summary

During the last decades, the process of economic globalization and integration has been further accelerated. Driven by this trend, production factors actively circulate between cities, producing enormous transfers of international capital. As the main component of the capital transfers, foreign direct investment plays an increasingly important role in strengthening economic ties between cities. FDI could affect the city's performance through multiple channels to promote economic growth, improve living standard and eventually enhance the city's comprehensive competitiveness. Systematically summarizing previous experience and intensively analysing the impact mechanism will have enormous significance in the utilization of foreign investment.

Numerous theories have analysed the mechanism of FDI and the location factors. However, the mainstream research focused on the all over industries (e.g. Alderson and Beckfield, 2004), or only the advanced producer services (e.g. Taylor, Catalano, et al., 2002). By comparing the specific influence factors of FDI within three types of industrial sectors can assist the politicians and businessmen to develop specific and feasible proposals. In particular, comparison can promote the city competitiveness in the emerging creative industries.

In addition, the convenience of transportation and communication has shortened the distance between cities enabling cities to interact effectively and develop collaboratively. Previous researches put excessive emphasis on the hierarchy of cities by simply processing the cities' attribute data, while ignoring their power and positions in the world city system (Alderson and Beckfield, 2004). This study investigated the structure of FDI network and explored whether the position and power could impact the FDI attraction.

The research used negative binominal model and the outcome testified that for the three types of industries in different development stages, the determinants of FDI are similar to a certain extent. However, results also verify the research hypothesis that even with the same motives, different industrial sectors have different strategies of FDI attraction. Among them, the creative industrial investment indeed demands significantly for cultural facilities.

By borrowing techniques from social network analysis (Irwin & Hughes, 1992), this study compared the network characteristics of creative, financial and manufacturing FDI. In order to further explain the importance of the city interaction, also the network attribute index were introduced (Ni, 2012). Regression results show that the network attribute have a significant effect on FDI attraction. Networks with various structure impact their actors differently.

Aside from scientific relevance, this study offered policy recommendations on how to draw investors' attention. It is suggested that cities need to be more specific in FDI attraction strategies to avoid investments that overlapping or beyond the ability. Furthermore, the study offered suggestions on choosing preferred partners. Meanwhile, this study provided specific advices based on the cities' status as being core cities or not.

Keywords

Foreign Direct Investment, global network, network structure of FDI, spatial characteristics of FDI, industry type

Acknowledgements

After more than eight months' effort, this paper has been finally finished.

First of all, I would like to thank my supervisors, Dr. Ronald Wall and Spyridon Stavropoulos. Thanks to them for introducing me into the principles of Economic Geography and Urban Competitiveness. In this area of specialisation, I have learned some research tools of visualization, networking, and statistics, which are academic as well as practical. Dr. Ronald has inspired me and stimulated my creativity and desire to explore more to achieve an academic height that I had never thought of. Spyridon Stavropoulos's rigorous scientific attitude enhanced my understanding of the model from an academic perspective.

Furthermore, I would like to thank all teachers and staff at HIS for this inspiring year. Thanks to all the classmates for their kindness and interesting experience. Thanks to l my roommates and friends for taking care of me and sharing my frustration and laughter. And thanks to Degang Guo and douban FM for bringing me joy to go through hard time and helping me to concentrate on my work.

As the end of the thesis, I will finish my study life abroad and go back to Beijing, China. In this year, a lot of "first-times" happened: first time to travel abroad, to study with classmates from all over the world, to communicate with foreigners and to take care of myself. Although I have not achieved all the goals I had set for myself before I started my oversea study last year, like improving my English, I have learned a lot in this wonderful year. I enjoyed sitting in the same spot of the library every day and quietly completed my daily to-do-list. I enjoyed sleeping with confusion and waking up with ideas on the following morning. I also loved the communications with my roommates about our academic accomplishment during our dinner time and our fascinating trips after exams and assignments. The past year in the Netherlands opened a wide window for me and showed me a totally new style of life. If there is any opportunity, I will try my best to get back to this land and continue my academic career.

I hope this essay will not be the end of my academic career and this wish is not just a wish.

Abbreviations

IHS	Institute for Housing and Urban Development
3S theory	Sun, Skill, Sprawl
3T approach	Talent, Technology and Tolerance approach
BS	Business Services (firm activity)
CCI	Creative City Index
DDT	Design, Development and Testing (firm activity)
E&T	Education & Training (firm activity)
FDI	Foreign Direct Investment
GaWC	Globalization and World Cities Study Group and Network
GCIF	Global City Indicators Facility
GUCI	Global Urban Comprehensive Competitiveness Index
HQ	Headquarters (firm activity)
ICT	Internet and Communication Technologies and Infrastructure (firm activity)
LDT	Logistics, Distribution & Transportation (firm activity)
M&S	Maintenance and Servicing
R&D	Research & Development (firm activity)
SMS	Sales, Marketing and Support (firm activity)
UNCTAD	United Nations Conference on Trade and Development
WEF	World Economic Forum
WHO	World Health Organization

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Chapter 1: Introduction

Background:

There is a general agreement that in the interactions of factors constituting a developing region, capital accumulation occupies a central place. In particular, as the major form of capital flows, FDI has generated an inestimable influence on the global economy. By the year 2011, the representation of FDI in world's total GDP has increased from 8% to 29% since 1990 (Schwab, 2013).

According to the statistics of UNCTAD (United Nations Conference on Trade and Development), the inflow brought by FDI has been estimated to have increased by 11% in 2013, US$1.46 trillion, which is comparable to the pre-crisis average. To a certain extent, this trend indicates that FDI gradually overcomes the economic crisis' influence and ushers in a new era of economic growth. UNCTAD forecasts that FDI flows will rise gradually, in 2014 and 2015, to US$1.6 trillion and US$1.8 trillion respectively, as "global economic growth gains momentum which may prompt investors to turn their cash holdings into new investments" (UNCTAD, 2014).

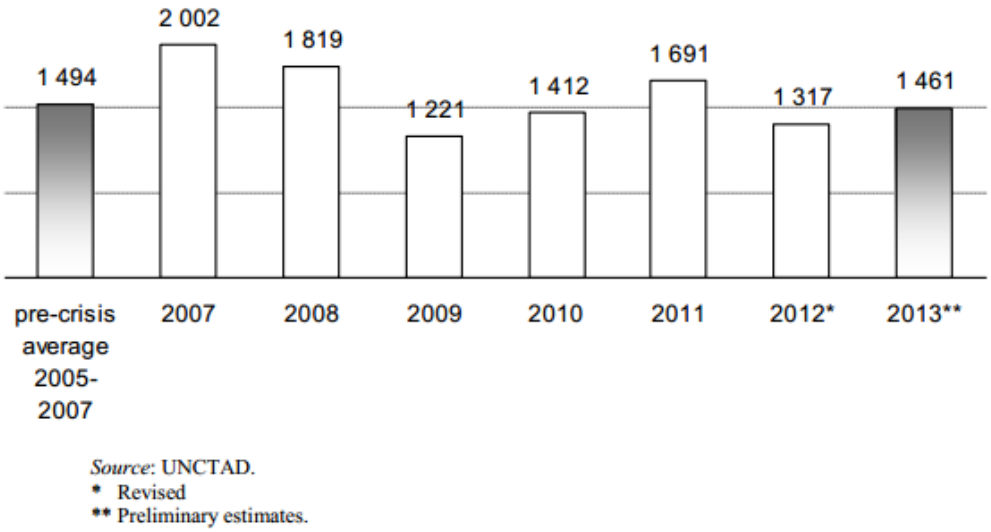


Figure 1: Global FDI inflows, average 2005-2007, 2007-2013 (Billions of US dollars)

(Source: UNCTAD, 2014)

In addition to the direct capital financing it supplies, successful FDI could stimulate economic development for both the host and home cities. For host cities, they will be able to keep up with the best practices and incorporate the latest technology and innovations into the operational practices from their lenders. By technological spill-overs, FDI promotes the host cities' technological progress and the construction of enterprises' management system. Besides, FDI could generate employment for the host cities, which would further increase the foreign capital income (Amadeo, 2014). For home cities, FDI expands the world market in a long-term way. The most important benefit is that as a form of capital flow, FDI strengths the interplay between cities and promotes cooperation in the global cities' network. Accordingly, industrialized and

developing countries have offered incentives to encourage foreign direct investments in their economies.

Since the second half of the 20th century, developed countries have entered the post-industrial era. Along with the arrival of the post-industrial era comes the transformation in the economic growth mode–from natural-source-based economy to knowledge-oriented economy. As a result, the creative economy emerges in response to the demand of knowledge and said knowledge based economy promises strong economic potential. As a burgeoning industry, creative economy has become a leading component of economic growth and social cohesion for the fact that creativity, knowledge and access to information are increasingly recognized as powerful engines driving economic growth and promoting development in a globalizing world (UTCTAD, 2010). Creative investment has become a new and popular filed of FDI. A targeted strategy for vigorous FDI appears to be a key feature of successful domestic creative industries. UNCTAD emphasizes that ICT has become the most important goal for FDI worldwide (UNCTAD, 2006). Overall, global trade in creative products more than doubled from 2002 to 2011. The average annual growth rate during that period is 8.8 percent (UNCTAD, 2013).

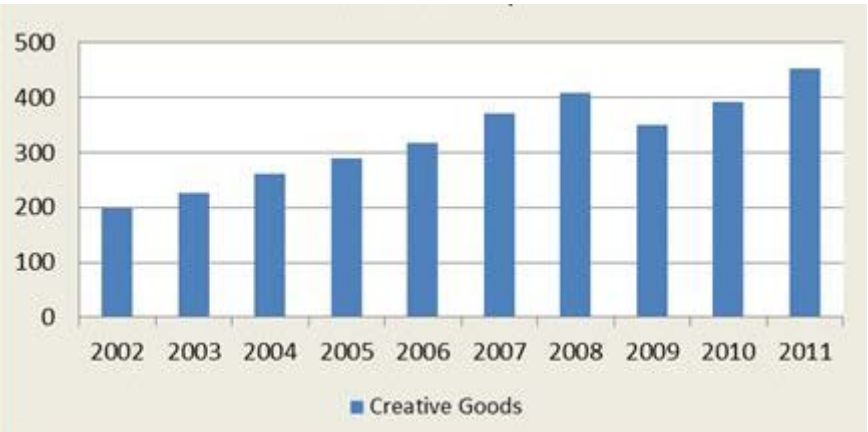


Figure 2: World exports of creative goods in billions of $

(Source: UNCTAD, based on official data in UNCTAD database)

Considering these two trends, promoting FDI, especially of the creative sectors, becomes the new direction of the development strategy of the modern government. Under the trend of industrial internationalization, it is important for a city to make full use of its geographical advantage to engage in the global production network in order to achieve the optimal allocation of resources. Therefore, studying the determinants of FDI attraction will be useful for a city to improve its competitiveness.

Problem Statement:

In Dunning's OLI framework, he proposes that the FDI determinants are related to the types of FDI motivation but not the industrial types of FDI (Dunning, 1980). The conclusion of traditional FDI theories is basically built on the examinations on manufacturing industry (e.g. Kindleberger, 1973, Vernon, 1966), advanced production service (e.g. Taylor et al., 2002) or the overall industry (e.g. Porter, 1990). However, for other industrial sectors, especially the newly flourishing creative industry, the research is not thorough. Specific strategies on FDI

for host cities were neglected in the previous researches. As different industries demand various resources endowment and human capital, the analysis of the FDI determinants should be conducted based on different categories, as different cities have different industrial development strategies and development priorities. Comparing creative FDI with the other types can help cities philosophy developed without blindly attracting overlapping investment.

The other issue is about the researches in city network system. Nowadays people live in a globalized world, and cities cannot exist isolated. Network analysis has already become one of the highlights in the city's economic landscape. The explanatory power of traditional hierarchy city system has reduced (Taylor, et al, 2002). However, the analysis of urban competitiveness and FDI attraction still generally use the dry attribute as the impact factors as the importance of relative relationship attribute is ignored sometimes and the relationship data is relatively hard to access (Smith and Timberlake, 1995). Network indicators are a higher form of data because they go beyond "investment point data" and instead indicate a city's relative relationship to every other point in the entire global investment system. Introducing network indicators with attribute indicators into the FDI competitiveness analysis could complement the existing theoretical system, and remind the politicians to embrace this reality and shift the thinking mode to take the network attribute seriously. Researchers should not only focus on the characteristics of urban attributes analysis but put more emphasis on the related characteristics of urban network spatial organization. In this way, the world city is no longer a static hub for controlling and demanding, but an actor of the city network to integrate the resources flow.

Research Objectives:

This study focuses on exploring the various characteristics of FDI in different industrial sectors, and especially compares the emerging creative industry with other sectors. Furthermore, the research uses the network theory to examine the network and attribute factors that affect the attraction of FDI in different sectors. It aims to explore if the structure of the FDI network and the relative locations of the host cities have influence on promoting the city's competitiveness in foreign financing.

The main purpose is:

To find the different characteristics of the creative FDI, financial FDI and manufacturing FDI behaviour;

To explore the relationship patterns of cities in the FDI network;

To explain the relationship between location factors and networks attributes of the host cities, and the performance of cities in different FDI departments, as well as evaluating the range of impact of these attributes; and

To propose policy recommendations in order to help a city to choose reasonable strategies for industrial upgrade and transformation; to improve the efficiency of governance by weakening the influence of a city's bureaucracy and governmental control by adopting urban network

governance. By offering alliance strategies, the research aims to strengthen the long-term viability of host cities.

Research Questions:

What specific network and attribute indicators are important for making cities more competitive in attracting creative FDI, compared with financial and manufacturing FDI?
Based on the main question and the research objectives, four sub-questions are formulated:

1. What are the differences of three types of investments in developmental trend and spatial distribution?
2. What are the interaction characteristics of creative, financial or manufacturing FDI network?
3. What is the importance of the attribute and network indicators and their distinction of the significant degree on the attraction of FDI into these three types of industry clusters?
4. What specific policy recommendations can be made for improving or transforming the competitiveness of the three types of cities' functions?

Significance of the Study:

Scientific Significance:

On one hand, this study analyses the factors affecting the attraction of creative FDI, financial FDI and manufacturing FDI. Built on the traditional FDI theory, the research inserts connectivity into the FDI model to test the importance of the driving factors in the coupling relationship between cities. It is an addition to the existing knowledge system because the research makes FDI theory coherent with the urban competitiveness theory and the global city network theory and enriches the industrial development theory.

Moreover, this article changes the traditional research paradigm that only studies the overall FDI system without considering the variance in the national and industrial conditions. It is important in the analysis to consider the different conditions of host cities, including their industrial development levels and macroeconomic situations. In this way, the study of FDI mechanism becomes more accurate and practical.

Policy relevance:

Because FDI may potentially generate an inestimable influence on the economic growth and a city's competitiveness, cities have started to offer incentives in order to encourage FDI in their economies. Due to the variety of urban advantages and development targets, this study helps policy makers to construct the necessary policies and to understand what the important factors are that will enhance the competitiveness of their city in attracting FDI.

Additionally, this research can help cities find appropriate partners of bilateral benefits and set up long-term cooperation relationship with strategic alliance. The study also promotes the efficiency of governance by transforming the traditional paradigm of administrative hierarchy to a new global system of integrative city networks.

Scope and limitations:

The industrial sector scope:

FDI is highly relevant with the industrial structure as it is a form of industrial investment capital and it creates employment at the same time. With the economic development, the industrial structure transforms correspondingly with certain regularity. Petty and Clark (1951) thinks that the main focus of economy and industry will gradually evolves from the production of physical property to the intangible service. Besides primary activities, secondary activities and tertiary activities, scholars add quaternary activities, thinking that in later stages, there will be sustained growth of information-based economy (Selstad, 1990) (Figure 3). Quaternary sector refers to the knowledge –based part of the economy with typically includes information services, such as ICT, consultation, education (Selstad, 1990), media, culture (QUT, 2010) and other knowledge-based services. Although it overlaps with tertiary sector as they both have the nature of service industry, quaternary activities are new emergence that emphasis more on information, education and culture (QUT, 2010). Creative industry roughly matches the characteristics. It greatly affect a city's economy, social and cultural development with its unique operation mode and complex linkages with other industrial sectors. Florida (2002) also divided the social development stages into agricultural economy, manufacturing economy, service economy and creative economy. The research select creative industry separately and compares with financial sector from tertiary activities and manufacturing sector from secondary activities.

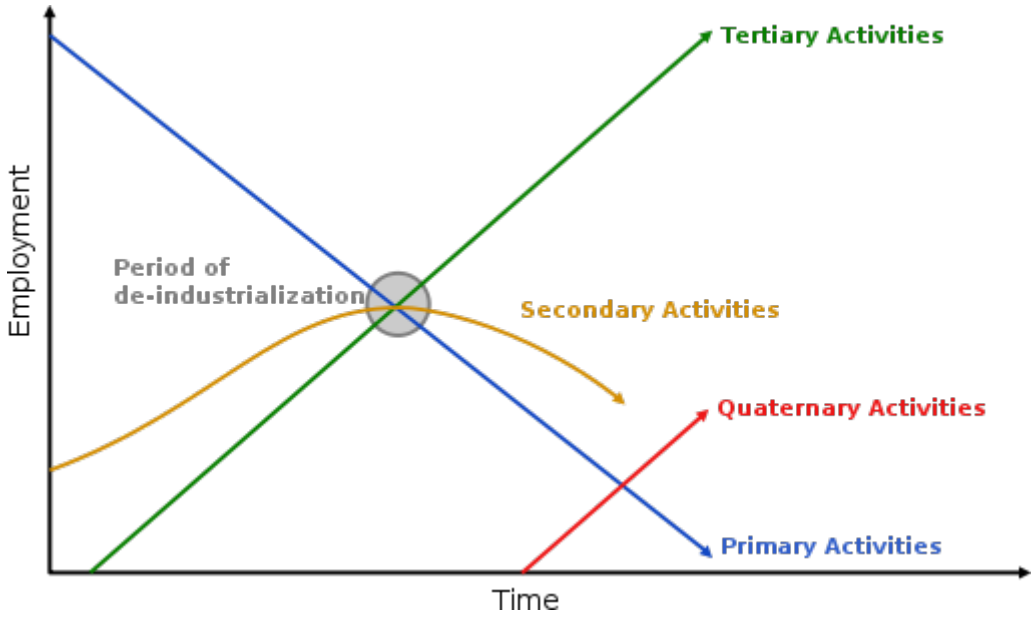


Figure 3 Clark's Sector Model (Source: Rompaey, 2007, wikipedia)

The geographical scope:

The geographical scope of the research is placed on at the global level. Due to the realities of the current available data, and the needs of this research, sample selection draws on the experience of Taylor's (2002) work. Cities are mainly capital cities or other cities ranking relatively high in the global competitiveness index system from all continents. Moreover,

selected cities should be active in the FDI network in order to explain the influence of interactions on the FDI attraction. Considering the above two requirements, the research used the top 150 cities in the global urban competitiveness index system. Also, this research selected the top 200 cities with massive FDI in the three types of investment activities. Within these cities, overlapped cases were synthesized, and missing cases were deleted. Only the cities with comparable inflows of FDI were chosen. As the minimum scale of the sample is 30 for each regression model, the research selected115 cities as its sample. The city list can be viewed in Appendix 1.

This option limits the potential replication of results to some extent as these cities have reached a certain degree of innovation driven. However, according to the relative difference of the industry development level [1], sample cities with distinct industrial advantages still have comparable amount although the gap between cities is quite small (Figure 4). In this way, the city samples can be used to study the three industrial FDI attraction.

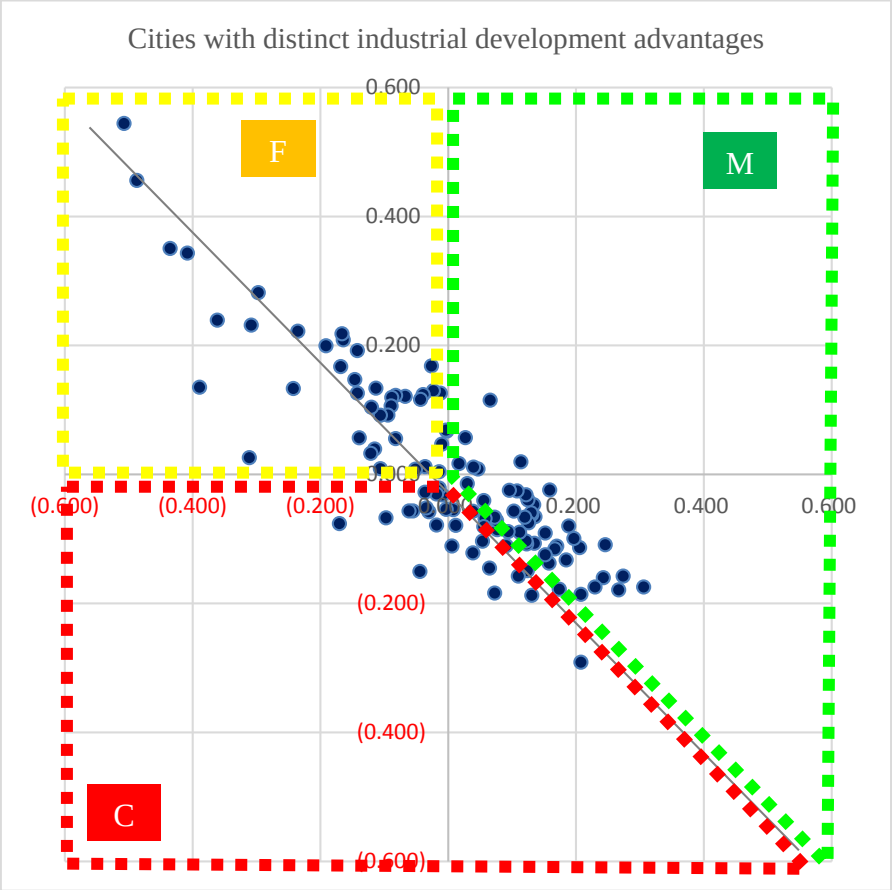


Figure 4. Cities with distinct industrial development advantages

(Source: author, 2014, based on the industry development level index of GUCI)

[1] After the standardization of cities' industrial development level, the research draws a chart using the difference between Manufacturing and Financial as the Y axis, and using the difference between Financial and Creative as the X axis. In the chart, dots in the green area have the characteristics that the development level of manufacturing industry is higher than financial sector and creative sector. Similarly, the dots in the yellow area are cities with advantages in financial industry and dots in the red area are cities with advantages in creative industry.

Limitations of the data:

First, the access to city data is limited. Due to the statistical calibre and cost issues, existing databases are mainly at national and regional levels. It is difficult to find complete databases for more than one hundred cities from all seven regions of the world; thus it is hard to measure the city performance with standard statistics. Therefore, some of the indicators used alternative index and the sources of data are various. Some data from online surveys was used. The uncertainty of the data quality may affect the results.

The second aspect is the lack of related data. It is even harder to find the related data compared to city attribute data. The major network data source is the Globalization and World Cities (GaWC). But the GaWC focuses more on the interactions between corporate networks as opposed to other urban networks. Furthermore, some of the databases are outdated. As a result, the research used some evaluation indexes regarding connectivity in the global urban competitiveness index database.

Third, based on the FDI theory, the location factors are not the only factors for FDI attraction. The model should also consider the ownership advantage and internalization effect. However, the location factors of host cities and the network attribute will reflect some characteristics of FDI decisions and lead to a higher level of competitiveness in order to receive a large amount of high quality FDI.

The limitation of the statistical data directly influences the accuracy and depth of this research. For the network relationship between cities, merely using the official data cannot obtain ideal results.

Chapter 2: Literature Review

This chapter mainly discusses the FDI theory, including the motivation of FDI and the location selection determinants. Four main theories are encompassed in this section. To start with, this research reviews city competitiveness and its relationship with FDI. After that, the research reviews the evolution of the definitions and motivations of FDI and some related theories. As the research intends to explain the FDI motivation by integrating the network attributes into the model, the third part of the literature review also involves the global network theory. At the end of this section is a summary of some mainstream discipline of creative industry and creativity-oriented development, considering that creative industry and culture related sectors is a new field in both the industrial location theory and FDI theory. Related concepts and views are constituted by the concept of FDI, urban competitiveness, industrial locations, creative industry and urban network.

Concept of the study

2.1 Urban Competitiveness:

Globalization has led the urban competitiveness becoming an essential issue. Numerous institutions regularly published research and report on urban comprehensive strength ranking. The prioritization process can be summarised into following stages: selecting the index, using the relevant statistical data for standardization and quantitative processing, and then comparing the respective urban comprehensive score status. The competitiveness evaluation can be about the comprehensive performance like Global Urban Competitiveness Index (Ni, 2012), or specific competitiveness like World Knowledge Competitive Index. This assessment concentrated on the historical performance of the city, rather than determinants that affect the discretion of the urban competitiveness. However, this index system helps demystify the in-depth study of urban competitive advantages for the future studies. The study of urban competitiveness should focus on effective investment portfolio rather than only the output. Therefore, study of determinants of city competitiveness is crucial for cities.

Citespace is a visualization literature analysis software (Chen, 2014). The core function of citespace is to generate a common cited network by literatures' mutual reference. Citation analysis shows the trends of a discipline and formats the research frontier evolution course in the knowledge domain. One of the analysis is burst terms that detecting the terms with high frequency in a certain period from amount of keywords.

Using the literature database from Web of Science, twelve burst terms are detected (the thirteenth is "regional" also). The twelve keywords and the appearance time are as table 1. It states that competitiveness study is zooming in to the city level and European Union and Chinese cities drew attentions of scholars. Network, economic growth, social development and Technopolis world are all emerging fields in urban competitiveness.

Table 1. Top 12 keywords with stronger annual citation frequency (Source: author, 2014 based on the database of Web of Science, made by CITESPACE)

Keywords	Year	Strength	Begin	End	1992-2013
Urban-competitiveness	2012	9.9736	2012	2013	
Economic-growth	2011	8.4657	2010	2011	
Index-system	2008	6.2587	2008	2009	
European-union	2012	4.9646	2012	2013	
Competitive-advantage	2008	4.3193	2008	2009	
Network/society	1996	3.6775	2002	2005	
Porter-model	1998	3.5604	2008	2009	
Chinese-cities	2010	3.4528	2010	2010	
Comprehensive-competitiveness	2008	3.3541	2008	2009	
Core-competitiveness	2008	3.3541	2008	2009	
Technopolis world	1994	3.2013	2005	2006	
Regional studies	1992	3.1877	1995	2007	

2.1.1 The theoretical basis of urban competitiveness:

The theoretical basis of urban competitiveness has experienced the transformation from “comparative advantage”, “technological innovation theory”, "competitive advantage" to “institution innovation theory”.

In his masterpiece *On the Principles of Political Economy and Taxation*, Ricardo (1817) proposed the theory of Comparative Advantage. The basis of trading is the relative difference of production technology and the resulted difference in relative cost. Every country should focus on producing and exporting productions with comparative advantages, while importing the products of comparative disadvantage. Since then, scholars believed that the competitiveness of the city mainly depended on local production factors. At the trading economy stage, this theory is sensible.

Represented by Schumpeter, technological innovation theory considered technical and organizational innovation the source of competitive advantage. Innovation was described as a process of building a new production function using a new combination of production factors. The internal motive of competitiveness and economic development is the entrepreneurs’ constant pursuit of innovation (Malerba, 1996).

As the comparative advantage theory cannot explain the competition of similar products between industries, Porter challenged the comparative advantage theory and created the theory of competitive advantage by initiating the value chain analysis paradigm. Porter contended that the only meaningful concept of competition is productivity. From the microscopic perspectives, he focused on the enterprise's geographic cluster effects. Globalization facilitated enterprises to change the location at any time using the formulation of development strategies. Hence, a city’s (country’s) main goal is to attract more enterprises, improve the production standard and improve the living standard of the citizens (Porter, 1990). In terms of industry developments, he put forward the famous Porter diamond model which depicts the system with six factors as the basis of cultivating competitive industrial environment.

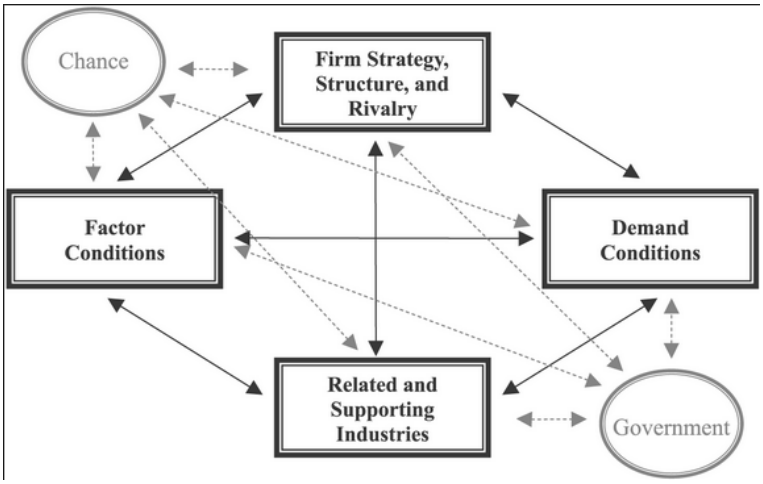


Figure 5: Michael Porter diamond Model (Porter, 1990)

These theories of competitiveness reflect the evolution of theoretical analysis under different social and economic backgrounds, as well as laying the foundation for empirical studies.

2.1.2 The connotation of urban competitiveness

Basing on the theory of competitive advantage, city competitiveness refers to a city's ability to attract, seize and control scarce resources and change them into wealth. Michael Storper (1997, p. 20) defined "place competitiveness" as "the ability of an economy to attract and maintain firms with stable or rising market shares in an activity while maintaining or increasing standards of living for those who participate in it".

Based on this definition, city competitiveness is not a single, static economic dimension, but with multiple dimensions including productivity, employment, standards of living (Rogerson, 1999) and sustainability (Lever, 2002). Martin and Sunley (2003) also agreed that the definition and explanation of regional competitive advantage should consider not only those hard productivity indicators but also some soft ones within the society and institutions (Figure 6).

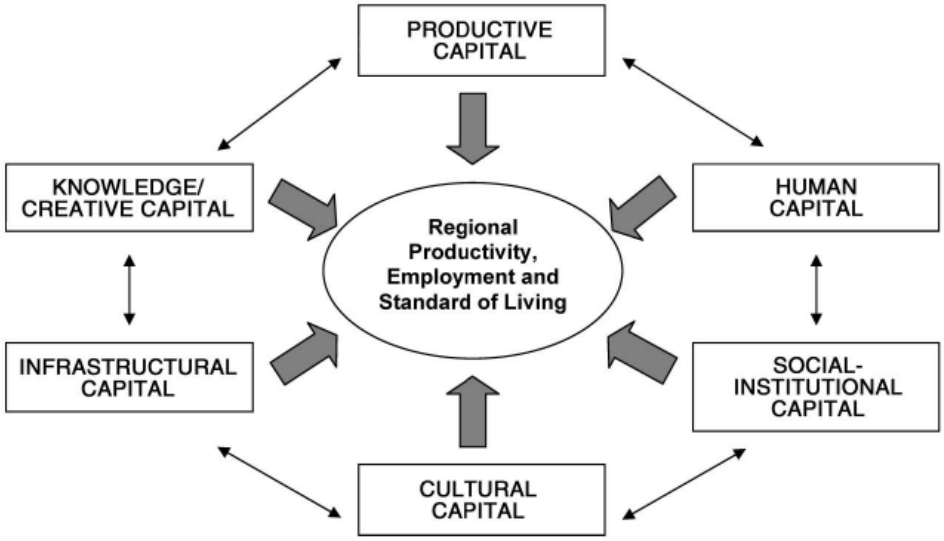


Figure 6: Bases of regional competitive advantage (Martin and Sunley, 2003)

Therefore, the city competitiveness investment portfolios have multiple dimensions. Some cities do this better than others in considering all facets of city competitiveness. The challenge lies in selecting a set of indicators to fill critical information in a systematic index, which can measure a city's performance. The Creative City Index (CCI) has summarized the primary index and 16 general themes of city index dimensions as showed in table 1. The index includes a wider range of city attractors (John, H. et al., 2012).

Table 2: 16 General Themes of City Index Dimensions (source: CCI, 2012)

1. Culture, Recreation & Tourism	9. Human Capital, Talent & Education
2. Creative Output & Employment	10. Social Capital, Engagement & Support
3. Cultural Capital & Participation	11. Government & Regulations
4. Venues, Resources & Facilities	12. Business Activity & Economy
5. Liveability & Amenities	13. Entrepreneurship
6. Transportation & Accessibility	14. Innovation & R&D
7. Globalisation, Networks & Exchange	15. Technology & ICT
8. Openness, Tolerance & Diversity	16. Environment & Ecology

2.2 FDI theories：

The world has seen an increase in the frequency and variety of multinational trading. The interdependence between countries has been strengthened because of the acceleration of international capital flow and the wider dissemination of technology. As the FDI of multinational corporations continues to play an important role in global economy, international investment has become the main factor affecting the world economy. The data from UNCTAD (2004) indicate that financing is gradually replacing trading to be the new engine of the global economic growth.

2.2.1 The definition of FDI

International Monetary Fund defines foreign direct investment, commonly known as FDI, as "… an investment made to acquire lasting or long-term interest in enterprises operating outside of the economy of the investor" (International Monetary Fund, 1993). Direct refers to the investor's purpose to gain an effective voice in controlling, managing the enterprise, or having significant influence over said enterprise. Aforementioned investor could be a foreign individual, an enterprise, or a group of entities. The formation of FDI can be incorporating a wholly owned company or a subsidiary in the host city, or by acquiring shares or participating in an associated enterprise (Haskel, et al., 2007). Multinational enterprises are the carriers of FDI. The International Monetary Fund also suggests that to qualify an investor as a foreign direct investment the threshold of equity ownership should be ten percent (International Monetary Fund, 1993).

2.2.2 The evolution of FDI theory

Generally, there are three categories of Foreign Direct Investment (FDI) theories. These three categories respectively focus on different levels of FDI determinants. From the macroeconomic point of view, FDI is a form of capital flows across the countries' border and obtaining investment from the revenues (Lipsey, 2001). The macroeconomic FDI theory stresses that the FDI attraction depends on the performance of macroeconomic environment. Here the macroeconomic determinants refer to the gross domestic production, the growth rate of GDP, domestic investment, openness and the real exchange rate (Sanjaya Lall 1997, Cushman, 1985, 1988). The main theories in this field are dynamic macroeconomic FDI theory, gravity approach to FDI and institutional analysis to FDI. The Economic Geography theory on FDI explains why specific countries are the best manifestation. The Gravity approach to FDI proposes a model take into consideration the distance, geographically, economically, and culturally. Between the host and home countries. The model assumes that the FDI connections between the two countries are inversely related to the distances (e.g. Pagano and Volpin, 2005). Wilhelms and Witer (1998) states that the political and institutional stability is a key factor for the FDI attraction. Daude and Stein (2001) also proved that corruption, unpredictability of policies and excessive regulation negatively impacts the FDI inflows.

In comparison, the microeconomic point of view focuses on the motivations of FDI from the viewpoints of investors (Lipsey, 2001). It also examines the outcome of both the host countries and the source countries. These theories were based on industrial organization theory. Classic theories includes the Existence of Firm Specific Advantage theory of Stephen Hymer (1976). Hymer noticed that the market deficiency would cause an imperfect competition. The imperfections prompt companies to obtain the domestic monopoly advantage and increase production through overseas investment. Hymer (1976) suggests that the direct investment takes place because the investors intend to control the multinational enterprises to ensure the capital safety and expand the overseas market. Based on Hymer's theory, Knickerbocker (1973) raised a point that that in an imperfect market, the oligopolists will counterbalance each other and are more likely to cooperate rather than compete. The prerequisite of the assumption of the micro level theory challenged the three basic assumptions of the new classical trade theory, that is, immovability of production elements, the identity of production features and free market competition. It considers that the motivations of FDI is to hunt low cost production elements, to expand the foreign market and to cooperate with monopoly multinational companies.

The third category of FDI theories combine the macro-level and the micro-level theories, considering the determinants of FDI rooted in both macroeconomic environment and micro location advantages. Major theories are the life circle theory, and eclectic FDI theory (Dunning, 1980), and the structure of global corporate networks (Faeth, 2009). Buckley, Casson (1976) and Hennart (1991) believed that firms can overcome the market imperfections by internalising their own markets. Through vertical integration and effective organization, firms internalize the external market in order to reduce transaction costs. When the internalization goes beyond the national boundaries, multinational companies come into being. Buckley reiterated that four specific factors -- industry, country, region and company -- are related to the internalization decision. Raymond Vernon (1966) considered that the FDI decision is related to the dynamic

changes in the production and competition conditions. He mentioned four stages in the production cycle, innovation, growth, maturity and decline. Only by combining the comparable advantages of the source companies and the position advantages can the investors yield funding (Vernon, 1966).

On the basis of internalization theory, Dunning (1980, 1993) came up with the Eclectic theory, which is the most widely used FDI theory now. He synthesized macroeconomic theory as well as microeconomic theory in his Eclectic theory to make the Eclectic theory comprehensive. OLI represents ownership advantages (trademark, production technique, entrepreneurial skills, returns to scale), location advantages (existence of raw materials, low wages, special taxes or tariffs) and internalization advantages, respectively. Ownership advantage addresses the firm-specific advantages that allow the company to overcome the operation costs in host countries. Location factors are the host characteristics that influence the location decision of multinational enterprises. Internalization advantages are the net benefits resulted from the internalization of product markets that can persuade investors to choose self-production rather than producing through a partnership arrangement such as licensing or a joint venture. Isabel Faeth (2009) also supported the FDI should incorporate factors from a variety of theoretical models, including ownership advantages, market characteristics, risk factors, protection and policy variables, rather than merely applying one model. Then the FDI theory has combined the macro-level and micro-level factors, greatly enhancing the interpretability of the model.

OLI theory claims that four types of FDI are defined based on four motivations. They are a) Resource seeking FDI, b) Market seeking FDI, c) Efficiency seeking FDI, and d) Strategic asset/capabilities seeking FDI (Dunning, 1993). Dunning believes the motivations are the determinants for location choice, but not the sectors. Resource seeking FDI is targeted at the host countries resource endowment. Marketing seeking FDI focuses on local affiliates which the investors take advantage of to gain access to a larger, integrated market. Efficiency seeking FDI intends to reduce production costs to achieve maximum efficiency. The determinants for this type of FDI are lower prices of labour, capital and materials. Strategic asset/capabilities seeking FDI is aimed at promoting long-term strategy and sustaining the company's competitiveness.

However, under the social economy development process, new production factors like modern science, technology, management, and information are emerged and play crucial role in the economic growth. The FDI was becoming more knowledge-intensive mainly due to two reasons. One is that the foreign affiliates have become more embedded in host countries to deepen their values chains. The other one is that the downstream activities are becoming more knowledge-intensive, which push the investors to add values to their competitive advantages. The combination of capital is changing correspondingly. Even with the same motivation, the requirement of different industrial sectors are various. On the basis of motivation, further sectorial discussion is necessary.

In addition, the FDI determinants study has gone deep into the subnational level. Even in the same host country, the distribution of FDI is not balanced but shows tendency of agglomerating into certain regions. Wheeler (2001) discover that agglomeration economy and the market size determine the location decision of American enterprises in developing countries. Here

agglomeration economy is measured by a function of infrastructure quality, industrialization level and existing FDI stock, etc. Other empirical study also indicate that industrial agglomeration benefits play important role on the multinational companies locational selection. (Head, et al., 1995, Zhang and Song, 2002). Agglomeration economy is an integration of advantages in low cost, market size and the investment environment. It benefits the upstream and downstream sectors vertically, and related sectors with similar skills and input horizontally (Porter, 1998). Therefore, not only is the agglomeration economy a geographical pattern, but the agglomeration of various production capital and resources. It has positive influence on FDI attraction.

2.3 The global urban network：

2.3.1 The global city network theory: from hierarchy to spatial flows

Friedmann (1986) connected the urbanization to the global economic power. Friedmann believed that the openness of world cities and the new international division of labour decides cities' function and industrial structure. Cities served as the accumulated space to attract the flow of capital, labour, information, commodity and other economic activities. In this case, cities gained political and economic power. He qualitatively mapped cities' hierarchical network as showed in Figure 7. Based on the political power and economic prosperity, cities can be divided into four levels: (1) Core: Primary City, (2) Semi-periphery: Primary City, (3) Core: Secondary City, and (4) Semi-periphery: Secondary City. Friedmann's theory laid a solid basis for the world city study. Cities became the main body of the world urban system study instead of countries.

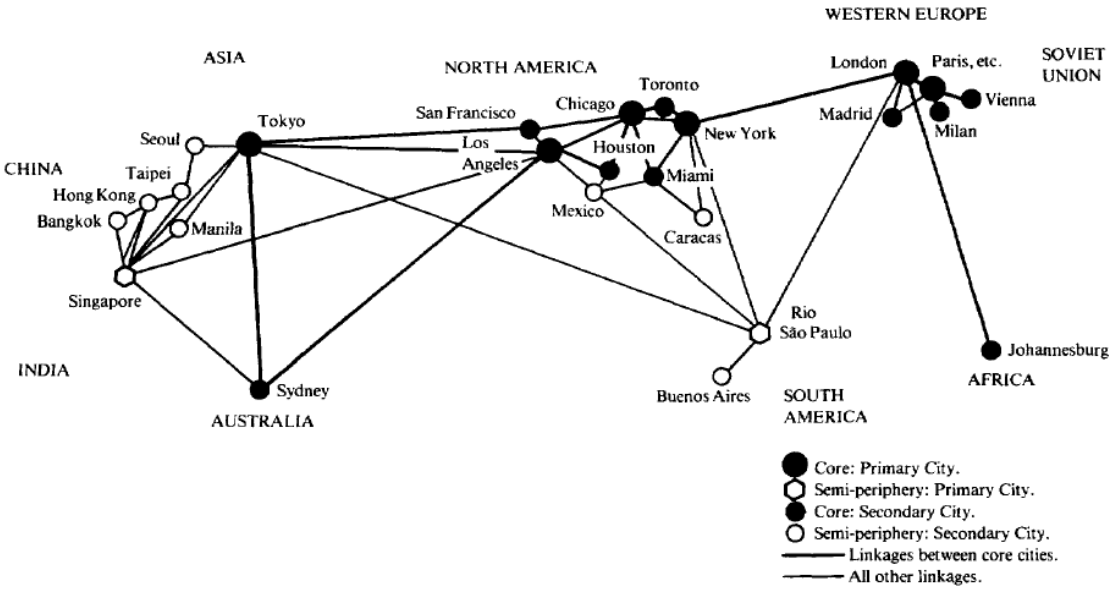


Figure 7: The hierarchy of world cities (Friedmann, 1986)

Sassen (2001) emphasized the importance of advanced producer services in global cities interaction. She selected New York, London and Tokyo as the research objects to indicate that global cities are essential aggregation of financial and professional services as they are the centre of production and main market of the advanced producer services.

Compared the two theories, Friedmann focused on the headquarters and branch of the multinational enterprises while Sassen oriented to the advanced producer services. Both of the theories realized the significance of cities in the process of globalization. However, city properties were used of network indicators to reflect the nature global cities interaction, hidden the assumption of urban hierarchy.

After the mid-1990s, the globalization and informationization cultivated intense interaction between cities. Cities can no longer be simply regarded as trading ports, financial centres or industrial hubs; they should be deemed to be the key nodes in the complex network for capital accumulation. Castells (1996, 2011) proposed the conceptual framework of space of flows. His point was that global network chose to link a city according to the value it could offer to the network. The selected city needed a multi-dimensional infrastructure connectivity as the premise. His contribution is that he realized although a city as its own features, it does not exist isolated from the network. The function and status of a city are decided by the network. But his research was still based on the city's attribute data.

Following Friedmann, Sassen and Castells, there are two major groups of scholars do the empirical study on the world city network. Taylor's work built on the point of Castells. Taylor (2002) argued that from the microscopic behaviour of actors within the city can reflect the macroscopic behaviour of the city. Taylor agreed with Sassen that the advanced producer services play a decisive role as they are the frontier of economic globalization. Oriented towards the network of world cities, he collected the distribution, scale and function of 100 multinational enterprises' headquarters and subsidiaries in accounting, finance, consulting and other three advanced producer services sectors in 315 global cities. In Taylor's study, the centrality of a city is measured by summing each company's service value in the specific city with the same company's service value. It is called the interlocking model which reveals the network connectivity on the global, dominant, and subordinate level (2002).

Based on different theory, methodology and data source, Alderson and Beckfieldo (2004) applied social network analysis to detect the layout of 500 multinational companies in 3692 cities in 2000. They adopted Friedmann's theory and discovered that the world city network distribution is skewed with minority cities monopolised power and reputation. The world city network presented a core-peripheral structure, with London, Tokyo and other 5 cities formed a closed contacted core, while the rest cities constituted interrelated weaker periphery. The whole world city network structure is hierarchical "star-shaped".

In 2006, a debate happened between P. J. Taylor and Alderson and Beckfield. On the one hand, Alderson and Beckfieldo affirmed the advantage of Taylor's method which is "sensitivity to the relative importance of firms within cities" (Wall, 2011). However, they disagreed that only discussing advanced producer services as the other industry sectors had also produced the connectivity between cities. Besides, they argued that Taylor's city-centred sample selection probably "result in a relatively dense, interconnected network structure." (Beckfield, 2006,

page 901) The firm-centred selection of cities, however, "may help guard against bias that could result from the use of website-based data on the producer-services sector." (Beckfield, 2006, page 902). Further, the introduction of social network analysis could help scholars generate distinctive insights of the world city system.

In general, the two methodologies both have their own advantages and insufficient. Future research should complement with each other.

2.3.2 Social network analysis in economic geography and economic sociology:

Georg Simmel is considered to be an originator in social network theory. He considers individuals are constraint by group norms when join a group. Thus a basic relation between individual and group is established, namely the network relationship (Simmel, 2011). Another point is when an individual enters a network, not only he acts as a node in the network, but also brings his used network relationship into the new one. In addition, Simmel proposes that the dialectical relationship between freedom and constraints. Individuals are constrained by group norms. However, Simmel considers freedom reflect on certain social relationship as the personality is hidden if individual does not participate in any group and has no specific social relations. Participating in groups makes it possible for personal interest and beliefs fully expressed. In this sense, the relationship between freedom and constraint is dual (Simmel, 2011). Since then, many sociologists devote on the network analysis theory and empirical research, and define many index to measure the network structure:

Coreness:

The core-periphery analysis can reveal the position of an actor in a network. The model seeks to identify a set of actors who have high density of ties with each other (the core) by sharing many events in common, and another set of actors who share fewer in common (the periphery). Actors in the core are able to coordinate their actions; those in the periphery cannot. As a consequence, actors in the core possess structural advantages compared to actors in the periphery (Hanneman and Riddle, 2005).

Coreness measures the degree of closeness between each node and the network core. The network core is defined as the cohesive subgroup of nodes in which the nodes are connected and integrated to a great extent (Spielman D J, Davis K, Negash M, et al, 2011).

Density:

Network density measures the closeness degree between actors. For a valued network with n actors, density is the sum of the ties divided by the number of possible ties.

$$\text{density} = \text{m}/n(n-1) \tag{2}$$

Where: m is the real sum of the ties (Hanneman and Riddle, 2005).

The density of a network gives insights in such phenomena as the speed of information diffusion among the nodes, and the extent to which actors have high levels of social capital and/or social constraint. The higher density a network has, the more likely will the actors within

the network have interactions. Also, the attitudes and actions of actors will be more susceptible to the entire network.

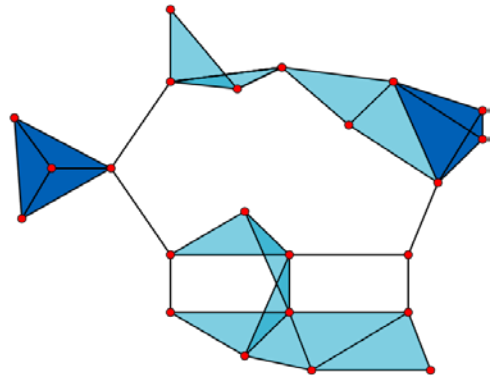
Sub group and Cliques:

Substructure analysis focuses on internal structures within a larger group. By cliques and sub-groups analysis, actors that are less connected to the others in the network can be isolated as the weaker ones. Also, to highlight the collaborators, the larger structure can be divided into sub-groups for close examinations. A clique in an undirected graph is a subset of its vertices which connects every two vertices by an edge[2] (Erdős & Szekeres, 1935).

Granovetter (1985) combines economic theory with the social network theory emphasizing economic action is embedded in structures of social relations. He criticizes the under-socialized and over-socialized conceptual tendency, pointing out that the actors can neither act detaching social context nor be slaves of the society rules. The rational-economic man hypothesis is a kind of under-socialized conception. Furthermore, in 1992, Granovetter divides embeddedness into relational embeddedness and structural embeddedness. The former one describes the dyadic relations between actors, while the latter refers to the actor with its network structure embeds in the society network. The analysis obvious absorbs the experience of Simmel's analytical paradigm.

By mapping the network theory in economic sociology and economic geography, Grabher (2006) criticizes Granovetter's point, considering economic activities are fundamentally social instead of embedded in the society. The challenge is how to study interdependent relationships in an imaginative way concerning the social context, rather than relying too much on the exploration of network analysis methodology.

2



A graph with 19 3-vertex cliques (the light and dark blue triangles), and 2 4-vertex cliques (dark blue areas). The six edges not associated with any triangle and the 11 light blue triangles form maximal cliques. The two dark blue 4-cliques are both maximum and maximal, and the clique number of the graph is 4 (source: http://commons.wikimedia.org/wiki/User:David_Eppstein).

To sum up, as a kind of interpreting paradigm of economic sociology, network analysis emphasizes structured social relations, power and positions instead of actors' attributes and the world is composed by network rather than groups of members (Zhang, 1999).

2.3.3 Types of urban network:

Diverse urban networks shape the regional urbanization and urban space. Malecki (2002) defined two forms of city network. One is "soft network" involving communication and collection of knowledge. Another is "hard" network based on the infrastructure network, especially the network of the Internet. Camagni (1993) also divided urban networks into two categories. The first related network is inter-city infrastructure system, including highway, railway, drainage network, etc. The other type of network involves economic interactions between the cities, such as between the branches and the enterprises, or people migration, for example, inter-city labour migration. Similarly, Smith (1995) classified urban network based on two dimensions, the form and the function of the flows. The human, material and information flow are defined according to the form of the flows. In terms of function there are Smith identified cultural, economic, political, and social flows in this category. A total number of 12 networks can be viewed in Figure 8.

Function	Form		
	Human	Material	Information
Economic	labour, managers, lawyers, consultants	capital, commodities	business phone calls, faxes, telex messages, technology transfer, advertisements
Political	troops, diplomats, social workers	military hardware, foreign aid	treaties, political threats
Cultural	exchange students, dance troupes, rock concerts, theatre	paintings, sculpture, artefacts	feature films, videos, phono albums (CDs)
Social reproduction	families, Red Cross, community organizers	remittances, foreign aid	post cards, night phone calls

Figure 8: Urban network classification (Smith, 1995)

2.4 Creative industry and Creativity-led development：

2.4.1 Creativity industry:

In the book *The Rise of the Creative Class*, Florida (2002) explained creativity as the ability to process the original data, feeling or material to generate something new and useful. In the knowledge economy era, creative industry has become the major force in economic

development and in city image formation in developed countries. Creative industry development has been mentioned at the strategic level in numerous regional policies. Meanwhile an upsurge in the research concerning creative economy boom can be detected (Figure 9).

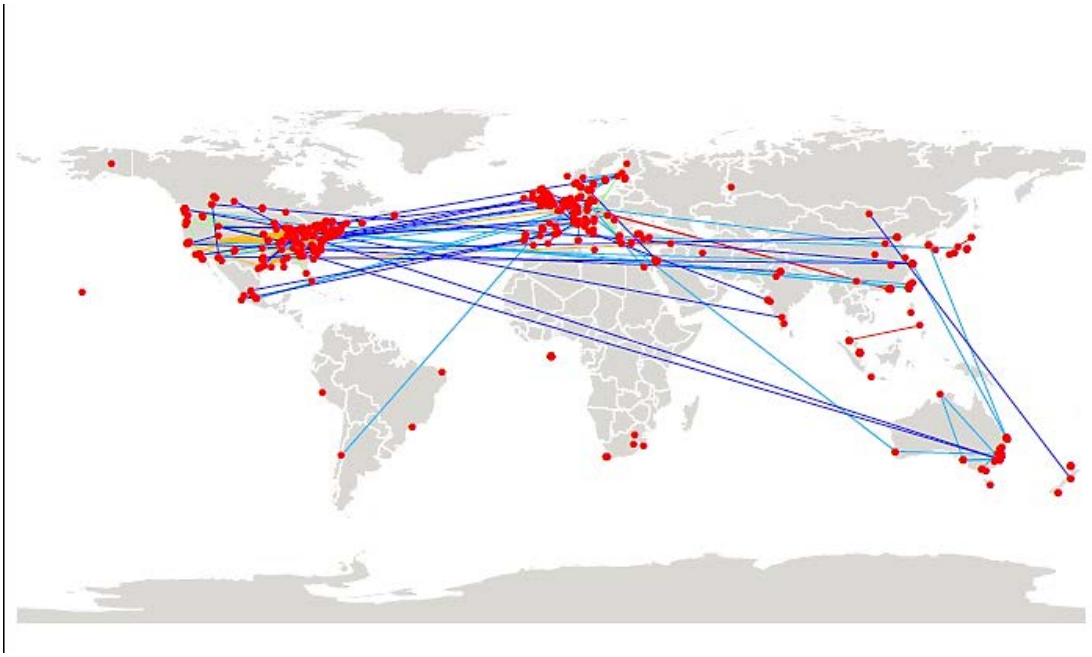


Figure 9: World urban network diagram of creative industries and creative cities research

(Source: author, 2014, based on data of Web of Science, made by CITESPACE)

The concept of creative industry was first noted by the British government. In the report of *Mapping documents in creative industry*, creative industry is defined as "…activities which have their origin in individual creativity, skill and talent and which have the potential for wealth and job creation through generation and exploitation of intellectual property" (BOP Consulting, 2010, page 16). It mapped the creative industries sector with the following activities: Advertising, Architecture, Arts and Antique Markets, Crafts, Design, Designer Fashion, Film, Interactive Leisure Software, Music, Television and Radio, Performing Arts, Publishing and Software (BOP Consulting, 2010). From the viewpoints of culture economics, Caves (2002) further defined the creative industries as industries providing generalized culture, art, or just the entertainment value of products and services. Another definition was given by Howkins (2002) which focused on the intellectual property rights. He expanded the scope of the creative industries to one incorporating intellectual property law, copyright, patent, trademark and design. All these industries comprise the creative industry.

Given the difficulty of defining creative industry, countries and organizations generally adopt the enumeration method of partitioning the industry category with obvious features into the creative industries. In this way, it becomes convenient for statistics and management, as well as political decision making.

In general, creative industry statistical classification basically contains the following three trends: (1) Cultural and artistic creativity. Associated with the traditional culture and art crafts,

its dominant trend is to make creative market-oriented industrialization; (2) Digital technology creativity. Related to the emerging industry, it aims to introduce science and technology into the content industry market; (3) Industrial technology design. Related to other manufacturing sectors, the dominant forces are the second and third industry.

Compared with the creative department, the definition and classification of financial sector and manufacturing sector are basically commonly accepted. Financial sectors encompasses a broad range of organizations that provide financial services. The sectors includes banks, investment funds, insurance companies, real estate, accountancy companies and some government sponsored enterprises (EconomyWatch, 2010). The North American Industry Classification System defines that "The manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products" (Bureau of Labour Statistics, 2014).

2.4.2 Creativity-led development:

Porter's Theory of Competitive Advantage. Porter argued that sustainable competitive strength comes from product differentiation, leadership cost and market orientation. Industrial evolution from labour-intensive to capital-intensive and then to knowledge-intensive resulted in a transition in urban development. Investment/capital replaced low cost to be the driving power of urban development and then was subsequently replaced by innovation (Porter, 1990). In Porter's theory, agglomeration of production activities is important for innovation as it promote knowledge spill-over. However, the lack of social dimension may cause an excessively designed management mode and top-down urban development planning style. Porter's theory is only an inspiration for creativity-led development as it discussed competitiveness of overall industries but not targeted at creativity or creative sectors.

Florida 3Ts Theory and Glaeser 3Ss Theory. The first idea that deserves attention is the Creative Class Theory by Richard Florida in 2002. Florida believed urban economic development is driven and decided by talents rather than companies and industries, because companies' investment will choose to follow the flow of talents, not vice versa. Based on his concept, cities could promote their development by improving their talent status, technology level and tolerance to develop creativity (Florida, 2002). Based on the 3Ts approach: Technology, Talent, Tolerance, the Martin Prosperity Institute (2014) adds the fourth measurement, Quality of Place as it makes the city a desirable place for talents to live.

However, this approach is questioned by many scholars. Glaeser (2006) argued that the talent and technology is the same with traditional human capital theory and using the quantity of gay as a measurement index for tolerance is inappropriate. Instead the real determinants are "sun, skill, and sprawl". He supports that transportation makes geographic distance less troublesome and talents prefer to live in dry and warm place. Sprawl refers to that densely populated cities tend to be the source of knowledge, technology and culture innovation by offering quantity communication opportunities.

Although there are debates, the two approach both emphasized the role of talent, communication and openness, and the quality of liveability can be attraction for talent migration.

Amartya Sen's Theory of Cultural Capital. Sen (1999) believes that the cultural capital of a city is an endogenous factor that stimulates the development of creative industries, as the consumption of cultural products will take place only after the cultural competence reaches a certain level. It is not easy for creative industries to develop in a city with a blue-collar dominated culture, because lifestyles and preferences determine the consumption of cultural products. Creative capital, the appreciation of the arts and creativity, is an intrinsic property of creative industries. As the fundamental requirement and a microscopic basis for the shaping of creative industries, creative capital will last throughout the industrial chain from the beginning to the end. It will eventually result in the connections between specific products, services or production processes with symbolic value, social meaning and cultural connotation. In order to promote the development of creative industries, attention should be given to increase the stock of urban creativity capital. O'Connor (2004), combined cultural capital with the other theories and proposed his theoretical system including concepts of external quality of living, industrial competitive factors, as well as the indicators to improve social cohesion and engagement.

2.4.3 Location factors of creative industries:

Florida (2002) believes that the key elements to build a creative city are 3T, technology, talent and tolerance. Technology level reflects high-tech ability which could be measured by the number of patents within the city's region. Talents refer to individuals with a certain level of educational experience in the creative industries. Tolerance is defined as the inclusiveness of ethnic minorities, sexual orientations the bohemian and different living styles/attitudes. Glaeser (2006) believes 3S shape creative cities- sun, skills and sprawl. He specifically emphasizes that a mild climate is an important factor in attracting talent. Landry (1995) believes that creative city should have the following seven elements: personnel qualities, vision and leadership, diversity in human resources and access to talent, organizational culture, local identity, urban spaces and facilities, and networking dynamics. In addition, a large number of scholars have conducted regression analysis to compare creative production's spatially economic performance and attributes factors of a city's performance. Kwan and Kin (2013) believe that an accessible economy; high capacity of trade and transport; transparent credit information and secured price level; governance efficiency; and a developed financial system will contribute to the development of creative industries in a city.

To summarize, a conclusion can be drawn that most scholars believe that urban industrial and economic power, labour and talent status, governance efficiency, and high-quality living environment could attract creative talents and creative investments. These concepts could be considered as the foundation of the creative FDI attraction formation.

2.4.4 Urban network and creative, financial and manufacturing sectors:

As a knowledge-intensive sector, creative industries are more likely to form a city network. Scott (1997) stated that the international creative industry agglomeration forms the global network with venture investment and creative partnership. As a result, the network relationships will be established between different creative industrial sectors to achieve competitive advantages (Scott, 1997). Similarly, Nathaniel believes that creative industries have flexible labour relations and embrace innovation. On one hand, it encourages a localized concentration of urban clusters of cultural products. On the other hand, it produces a new trading network of cultural products beyond the regional level by an interconnected network of affiliates of global companies (Batten, 1995). Through the analysis of two urban agglomerations in the Netherlands and Japan, Nathaniel contended that network cooperation mechanism between cities tends to promote innovation (Kratke. 2003).

Relationship with the soft network

Regional knowledge networks between research institutions and enterprises are becoming increasingly prevalent. Huggins (2008) highlighted the potential role of universities to act as the international knowledge sources in the knowledge network. Intermediary institutions such as science parks could be a means to improve the interactions between universities and the business community. Bathelt (2004) established the model of local distribution and global pipelines to accelerate knowledge dissemination. On one hand, the learning process is embedded in the local communications between the stakeholders; on the other hand, knowledge can be attained through specific pipelines provided by surroundings outside of the local areas. It is assumed that the more developed the pipelines between the local cluster and distant sites are, the higher quality of local "buzz" will have to benefit local industries Hence if a company performed actively in the world network, other companies in this network would also receive the radiation of knowledge and thus enhance the competitiveness of the entire cluster (Bathelt, 2004).

Relationship with the hard network

The “time-space compression” effect caused by transportation and communication technology has constantly strengthened the linkages between cities. Researches have shown that a city with a higher density of and accessibility to both modern communications and international airport gets more opportunities to expand employment opportunities and increase residents’ income (O’Connor and Gu, 2006). Some scholars demonstrated the spatial pattern of infrastructure and internet facilities that constituted the “network of networks”. It is found that Internet (nodes) network presents a similar structure as the city grading system. The choice of internet backbone network is closely associated with world urban development (Malecki, 2002; Choi, 2006). Grabher (1993) considered a good network the basic driven force for creative transfers as it provides an accessible way to produce and diffuse goods and services.. Cooperation between enterprises and other organizations plays a key role in sustainable growth, especially applicable to implicit knowledge (Grabher, 1993).

Conceptual framework

The conceptual framework embeds economic geography into social network analysis to investigate the competitiveness of cities in attracting foreign direct investments under the condition of globalization. As in the literature review, the performance of cities in the world city system can be reflected by observing the internal city actors behaviour characteristics. Hence the FDI attraction ability highly is related with the city competitiveness.

The research points three industrial departments to study determinants of FDI separately, especially comparting creative FDI with other sectors' FDI. On the one hand, according to Alderson and Beckfield study, in the new international labour division, advanced producer services have become a pillar sector in parts of cities in West Europe and North America while manufacturing activities gradually spread to newly industrialized countries and connect cities in these countries into the global city network. Avoiding sectorial issue cannot reflect the panorama of the city system. On the other hand, creative industry is generally a knowledge-intensive sector with low energy cost and high output characteristics. It is the most attractive field for modern cities. Although overlaps with the financial sectors, there still exist some specific preference for creative FDI location like cultural capital and quality of place.

As shown in the conceptual framework, sectorial FDI attraction is determined by industrial agglomeration effect, macroeconomic environment and micro location advantages according to FDI theories and creativity-led-development mechanism. In theory, the agglomeration effect, stable and healthy macroeconomic environment and the high quality of city performance produce positive effects on attracting FDI. Different sectors of business activity has its unique location requirements.

In addition to the city attribute characteristics, network variables are considered in the sectorial FDI attraction model. The nature of FDI is a capital flows between cities built on interaction between global network and local clusters. Taylor pointed out that using city hierarchy system to reflect cities' relationship characteristics may be misleading. All cities are in the process of globalization. Hence, breaking the bondage of administrative region unit and introducing relationship characteristics of a city is essential for deeply understanding the nature of the world FDI flows. Relationship indicators in the framework contains connectivity index and network structure variables as in the literatures. Network attribute should significantly determine the FDI competitiveness and be a complementary for the attribute indicators. City is an extremely rich geographical concept with economic, political and cultural connotation, so the hard-network, soft-network and org-network are all related with the economic performance of the city.

Last, cities with different position in the network have various power and constraints. For the core and peripheral cities, the influencing factors should be distinct. It is another reflection of network structure function.

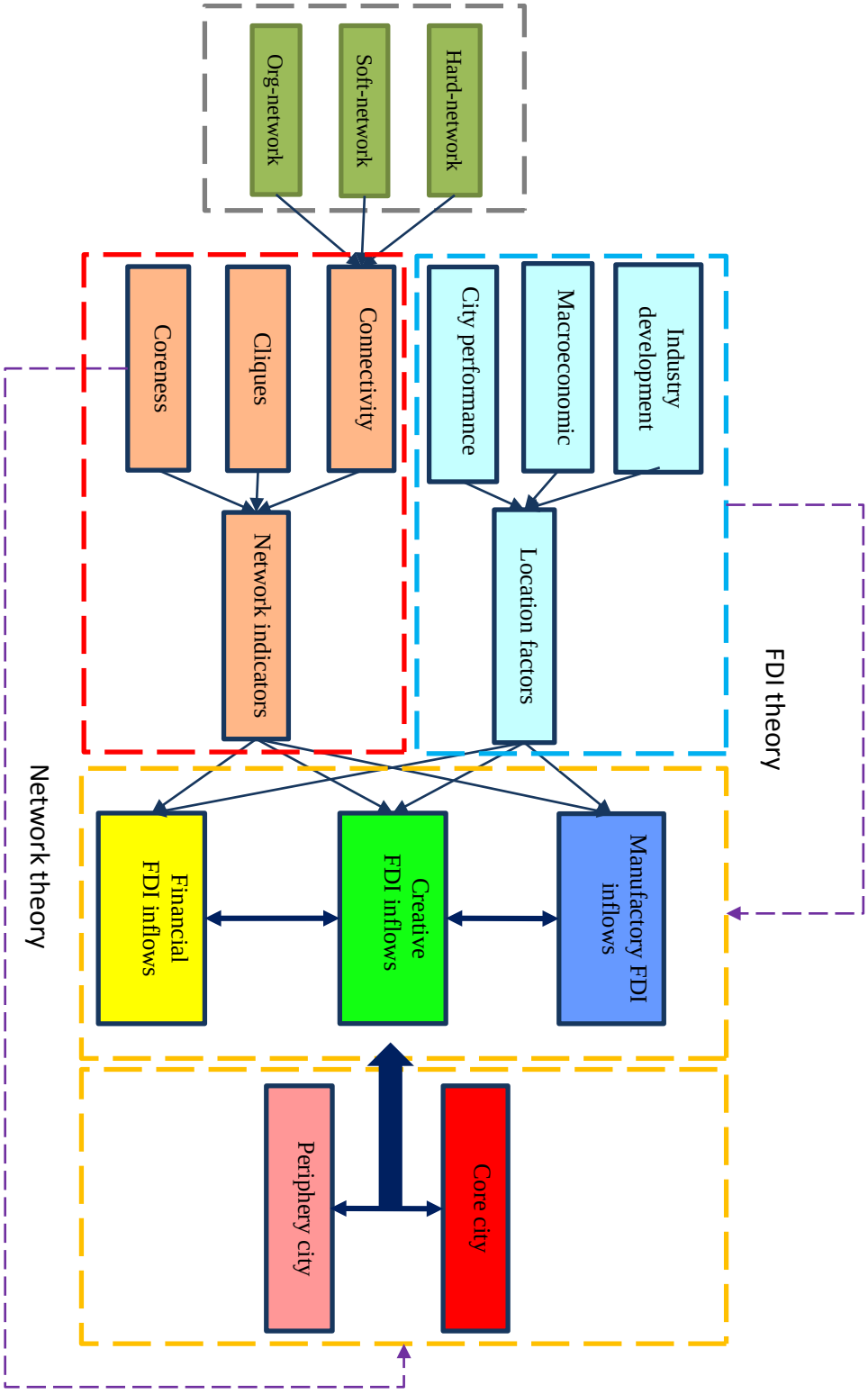


Figure 10: The conceptual framework

(Source: author, 2014)

Chapter 3: Research Design and Methods

Revised Research Questions

This research intends to find difference in contributing attributes and indicators for the competitiveness of creative, financial or manufacturing cities. As city competitiveness is characterized by the ability to attract different FDI activities. Therefore, the research question can be phrased as:

What specific network and attribute indicators are important for making cities more competitive in attracting creative FDI, compared with financial and manufacturing FDI?

The sub-research-questions can be derived as follows:

1. What are the differences of three types of investments in developmental trend and spatial distribution?
2. What are the interaction characteristics of creative, financial or manufacturing FDI network?
3. What is the importance of the attribute and network indicators and their distinction of the significant degree on the attraction of FDI into these three types of industry clusters?
4. What specific policy recommendations can be made for improving or transforming the competitiveness of the three types of cities' functions?

Operationalization: Variables and indicators

The dependent y-variable in this research is the amount of total FDI and FDI number of creative, financial and manufacturing industries. The FDI data source is financial times FDI market database from 2003-2012. This database detailed records global cross-border investments. 90% of the records are validated with company sources, and cross-referenced with other sources (Burger and Wall, 2012). In particular, the research only aims at "greenfield FDI" which are "investments from parent companies into a new subsidiary that didn't exist before." (Burger and Wall, 2012). As compared with other types of FDI, the "greenfield FDI" can be clearly tracked and credibly reflect the city's ability to attract investments (Meyer and Saul, 2001). Due to the missing value of FDI investment value, the research selects the number of FDI input as the dependent variable (Burger and Wall, 2012). Earlier studies have confirmed that there was a strong correlation between the investment number and the investment value so that the number can be a reliable substitution of value to measure the FDI attraction.

The X-variables include industry competitiveness, city profile indicators on macro level, city performance indicators on micro level, and network indicators. The variable table gives an overview of the indicators being used in the model. The first three categories of variables are attribute factors that focus on the property of the city itself, while the network factors on the interactions between cities.

The source of industry competitiveness is global urban competitiveness report 2012 (Ni, 2012). In the report, the industry competitiveness is defined as the competition ability of the relatively specific industrial sectors of one region in the production efficiency, meeting market demand,

profit sustainability and other aspects. The sub indicators includes the industry chain structure and the industry development level.

City profile data on the macro level include economy, geography and language (GCIF, 2010). These indicators were selected from the Global City Indicators Facility report (2010). On micro level, the city performance indicator system is built according to the 16 general themes of city index dimensions summarized by CCI (John Hartley, 2012). It includes culture, recreation facilities, liveability and amenities, transportation and accessibility, openness, tolerance and diversity, human capital and education, government and regulations, innovation and R&D, social equity, technology and ICT, and environment and ecology.

The network indicators can be divided into two categories: one is connectivity, which is measured by "summing the products of every firm's service value in the city with their service values in all other cities" (Taylor, 2006, p. 886). Besides, the research investigates the number of Starbucks as a connectivity indicator as it is a multinational coffee chain and coffee houses are convenient place for negotiation and communication. The other one is relationship factors calculated by social network analysis, like coreness, cliques, density and centrality (e.g., Granovetter 1985). The types of urban network are classified as hard-network, soft-network and org-network data according to the City Network theory mentioned in the literature review. Considering the accessibility of network database, hard-network and soft-network indicators are measured by connectivity from Global Urban Comprehensive Competitiveness Index. The data constitute the results used in GaWC Research Bulletin No. 119 "Geography of Global Civil Society: NGOs in the World City Network". Here the NGOs refer to social related organizations of four aspects: Environment, Development, Human Rights and Humanitarian. The figures are measures of network connectivity which show how deeply embedded the cities are into the international organizations world city networks. Other network indicators are calculated by analysing the FDI network.

Y-variable table

Name	Description	Source	Data Type
-Total FDI number	Number of FDI	FDI Markets	Count
-FDI of creative activities	Number of FDI	FDI Markets	Count
-FDI of financial activities	Number of FDI	FDI Markets	Count
-FDI of manufacturing activities	Number of FDI	FDI Markets	Count

X-variable

Industry competitiveness

variable	indicator	Source	Data Type
Industry competitiveness	C_development index	GUCI	ratio
	F_development index	GUCI	ratio
	M_development index	GUCI	ratio
	Industry chain	GUCI	Ratio

(Macro) economics and environment (based on the Global City Indicators Facility)

variable	indicator	Source	Data Type
Population	Percentage of country's population	GUCI+wikipedia	Ratio
	Percentage of population that are children (0-14)	GCIF	Ratio
	Percentage of population that are senior citizens (aged 65+)	GCIF	Ratio
economy	Nominal GDP ($)	GUCI	interval
	GDP Growth Rate (%)	GUCI	Ratio
Language	English proficiency	EF	ordinal
Government	Administrative level	Wikipedia	ordinal
Geography	Area (Sq. Km)	GUCI	interval

(Micro) city performance indicators

variable	indicator	Source	Data Type
Culture & Recreation facilities	No. of music halls and theatres	triposo	interval
	No. of museums	triposo	interval
	Entertainment and nightlife	triposo	interval
Liveability & Amenities	Shopping	GUCI	Ratio
	restaurants	GUCI	Ratio
	Health index	Numbeo	Ratio
	housing	GUCI	Ratio
	No. of hotels	triposo	interval
	temperature in January(℃)	Wikipedia	interval
Transportation & Accessibility	System length of metro (km)	Wikipedia	interval
	Metro Ridership (million)	Wikipedia	interval
	public transport	GUCI	Ratio
	No.of airport	airportdata	interval
	No.of top 150 airport	bjcaac	interval
Labour & Talent	No. of world's top 300 university	QS+goolge	ordinal
	Status of Talent	GUCI	Ratio
	Unemployment rate	GCIF	Ratio

variable	indicator	Source	Data Type
Innovation & R&D	No. of patents (20100101-20140520)	uspto	interval
	The Ability for Innovation	GUCI	Ratio
Technology & ICT	Total websites hosted in cities	MYIP.MS	interval
Environment & Ecology	Environmental Quality	GUCI	Ratio
	PM10 concentration	WHO	interval
Market & Industry	Multinational Corporate	GUCI	interval
	Market Scale	GUCI	Ratio
	Market Regulation	GUCI	Ratio

Network indicators

variable	indicator	Source	Data Type
Network attribute	Creative clique	fDi Markets	ordinal
	Financial clique	fDi Markets	ordinal
	Manufacturing clique	fDi Markets	ordinal
	Creative core-ness	fDi Markets	Ratio
	Financial core-ness	fDi Markets	Ratio
Openness & connectivity	No. of Starbucks	citydata	ordinal
	Information connectivity	GUCI	Ratio
	Enterprise connectivity	GUCI	Ratio
	Resident connectivity	GUCI	Ratio

Research strategy and methodology

There are primarily three categories of research methods: spatial analysis, network analysis and quantitative analysis. First, in the spatial analysis section, the research describes the geographic distribution of the FDI. As the spatial features changes with the industry development, it is meaningful to observe the moving trend of the FDI destinations to find the patterns of location selection. Also the overall spatial patterns of the FDI indicate the stage of the industrial development as well. In the spatial analysis section, ARCGIS will be applied to conclude the moving trend of the FDI destination within regions. The second part attempts to describe the spread of resources and the distribution of “city power” within a network made up of cities with different functions by the method of social network analysis. In this part, FDI marketing database, which contains information of firm, destination city, firm activity, year of investment, was used. In this part, UCINET, a network analysis software, was used to analyse the FDI network structure. The main exogenous variables within the relationship attribute category

were measured. The third part explains the influencing factors for three types of inflow of FDI. Statistical analysis was used, with the general city data, specific attribute data of city performance and relationship data of city network collected from primary and secondary databases. In this part, a statistical analysis software called Stata was used to analyse the determinants of total FDI and specific FDI in creative, financial and manufacturing industrial sectors. Through a variety of mathematical statistics methods, a conclusion was thus derived.

Data collection methods

Secondary data utilised in this paper mainly come from the following four sources.

1. FDI number data is derived from the Financial Times FDI Markets database (Financial Times, 2012) over the period 2003 to September 2012.
2. City profile data were collected from professional city research institutions such as Global City Indicators Facility and Global urban competitiveness index, etc. These institutions are rigorous scientific research institutions that can ensure the reliability of the data. They provide an established set of city indicators with globally standardized methodology of global comparability on city performance.
3. City performance data comes from various sources as it has nine basic dimensions. Some indicators were gained from large-scale databases. The culture, recreation and tourism information was primarily from Triposo, a travel guide app with more than 6 million travellers to share their travelling experiences. Through a set of search algorithm, this app grasps and analyses the information of all the tourist sites on the Internet, then ranks these places using a variety of criteria (Triposo, 2014). As it uses the large-scale database from Google, Wikipedia and the feedback of users simultaneously, the data has relatively stronger reliability and the outcome is similar to Google's rankings. Indicators of Liveability & Amenities are from Numbeo and other official statistics departments (Numbeo, 2014). Numbeo is the world’s largest database about cities worldwide. It has conducted an online survey and by far received 1,276,397 pieces of data entered by more than 147,000 users. Other information like the number of patents and PM10 concentration are from related professional organizations such as World Health Organization (WHO) and United States Patent and Trademark Office.
4. City relationship data are mainly from the essential network research institution, Globalization and World Cities Study Group and Network (GaCW).

Data analysis methods

Modelling was implemented as the research strategy, concretely composed by the social network analysis model and the statistical regression model. The reason for applying modelling is that it is more operable in data acquisition within the global research scope. Meanwhile, it serves better to answer the research question and explain data collected.

The network model analyses the structure of FDI network in creative, financial and manufacturing sectors, and the role and power of different cities and city agglomerations. With this model, the power of actors, the flow path of information and resources, and the association

between members can be analysed. The needed information cannot be obtained by only using statistical methods and attribute factors.

The statistical regression model was applied to explain the importance of the indicators and their significance in attracting FDI into these three types of industrial sectors. It tested the influence of multiple factors on the development variables simultaneously, as well as the interactions between different independent factors.

The specific techniques and steps are as follows:

PART A. Descriptive research on FDI of the global city level

In the first part of the analysis, the geographic distribution and city FDI network structure are analysed. It is divided in two sections to answer the following two questions:

A1. What are the trends of firm activities in creative, financial and manufacturing FDI?

Subject: Description of the trend in FDI at city level			
Result: Overview of what firm activities are growing / declining in FDI.			
Data:	*Method*:	*Software*:	*Outcome*:
FDI markets	Trend analysis	Excel	Distinct characteristics of industry activities of the three types of FDI Trends and growth rate for industry activities of the three types of FDI

A2. What is the geographic distribution of the inflows of FDI?

Subject: Description of the geographic distribution of FDI at city level			
Result: Overview of FDI source and destination cities and their connections.			
Data:	*Method*:	*Software*:	*Outcome*:
FDI markets	Mean centre analysis Spatial autocorrelation analysis	ArcGIS	The trajectory of investment centres Moran's I analysis

Economic activities show spatial correlations. Economic phenomena and attributes in a unit of a region are always correlated to its adjacent area's phenomena and attributes. Spatial autocorrelation refers to potential interdependencies between observed data within the same region. The first law of geography according to Waldo Tobler is "everything is related to everything else, but near things are more related than distant things" (Tobler, 1970). The ArcGIS Spatial Analyst extension provides a rich set of spatial analysis and modelling tools. There are mainly two sets of spatial analysis tools. One is spatial autocorrelation which uses Global Moran's I to assess overall patterns of clustering or dispersion processes based on feature locations and attribute values. The other one identifies statistically significant spatial clusters (hot spots/cold spots) (Esri, 2012). The research uses the overall spatial analysis to discriminate the distribution patterns of the three types of FDI.

Moran's I evaluates whether the pattern expressed is clustered, dispersed, or random. The tool calculates the Moran's I Index values and both z-score and p-value to evaluate the significance of that Index (Esri, 2012). The Moran's I statistic for spatial autocorrelation is given as:

$$I = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} W_{ij}\,(X_i-\bar{X})\,(X_j-\bar{X})}{S^2 \sum_{i=1}^{n}\sum_{j=1}^{m} W_{ij}} \quad (1)$$

Where: X_i, X_j represent the investment number received by the city i and city j. W_{ij} is the weight between feature i and j. n is equal to the total number of features, and S^2 is the aggregate of all the spatial weights (Esri, 2012).

The index values fell between -1.0 and +1.0. If the values in the dataset tend to cluster spatially, the Moran's Index will be positive. When high values tend to be surrounded by low values, the Index will be negative and the spatial pattern will be dispersed. Otherwise the Index will be near zero and the spatial pattern will be random (Esri, 2012).

PART B. Network analysis on FDI of the global city level

In the second part of the analysis, the network attribute of cities in each FDI network is analysed. This part explore three dimensions:

B1. Core-periphery analysis

Subject: Centrality and network structure of creative, financial and manufacturing investment clusters' network			
Result: the structure of FDI network			
Data: FDI markets	*Method*: Core-periphery analysis	*Software*: Ucinet	*Outcome*: Network indicators database (coreness)

In UCINET, through running network/core-periphery analysis, core cities can be identified.

B2.Network density analysis

Subject: Centrality and network structure of creative, financial and manufacturing investment clusters network			
Result: Average linkage strength within and between groups			
Data: FDI markets	*Method*: Network density analysis	*Software*: Ucinet	*Outcome*: Network density within and between groups

In UCINET, running "network/density/by group" can help calculate the densities in regions by specifying an attribute data set. In this way, the tool can be used to calculate density within and between blocked densities of group data.

B3. Sub-group analysis

Subject: Centrality and network structure of creative, financial and manufacturing investment clusters' network			
Result: the sub-groups of FDI network/ find the collaborators in different types			
Data: FDI markets	*Method*: Faction analysis	*Software*: Ucinet	*Outcome*: Network indicators database (clique) Factions

By running Network>Subgroups>Cliques in UCINET, a census of all cliques can be produced. A clique is a sub-set of a network in which the actors are more closely and intensely tied to one another than they are to other members of the network (Hanneman and Riddle, 2005). As smaller cliques overlaps with parts of the larger cliques, the research used the number of the sub-structures that one actor involved in to represent its centrality (isolation) from the cliques. These independent variables are labelled as "C_cliq", "F_cliq" and "M_cliq" to represent the cliques in the three types of networks abovementioned.

Another method of sub-groups analysis is called faction analysis. In an extreme faction, actors are completely connected within the sub-groups but completely disconnected between groups. The faction analysis finds the optimal arrangement of actors when put into factions and tries to isolate these actors in smaller communities designed based on the ideal factions (Hanneman and Riddle, 2005).

PART C. Explanatory research on FDI, city attribute and relationship characteristics

In this part, the research focuses on which characteristics are determinants for the FDI attraction in general and in specific activities. It intends to explore if relationship characteristics are more effective than general city attributes in attracting FDI.

C. Quantitative analysis

Subject: determinants for FDI			
Result: Overview of FDI attraction determinants in firm activities			
Data: All data	*Method*: Negative binominal model	*Software*: STATA	*Outcome*: regression outcome

The number of connections between countries in the MNC network can be perceived as numeric data, as these variables indicate the frequencies of subjects to be measured. Although count data are often regarded as continuous, using Ordinary Least Squares (OLS) in a linear regression framework to estimate the FDI number often results in inefficient and biased estimates of the parameters (Long, 1997). The most common regression model applied to this type of data is the Poisson regression. Numbers of FDI applied in this model are nonnegative and discrete. Assuming that the observed FDI number y_i of the spatial unit i obeys the parameters:

$$P(Y_i = y_i|X_i) = \frac{e^{-\lambda_i}\lambda_i^{y_i}}{y_i!};\ \lambda_i = e^{\beta x_i},\ i = 1,2,3,4\ldots\ldots, \quad (3)$$

Parameter λ_i depends on a series of explanatory variables. Xi indicates the factors that are likely to affect the FDI location selection. The β is the regression coefficient of each Xi. The maximum likelihood could be estimated through the log-likelihood function as follows:

$$L(\beta) = \sum_{i=1}^{n} [y_i \ln \lambda_i - \lambda_i - \ln(y_i!)], \quad (4)$$

An important assumption of Poisson model is that both the mean and variance of the dependent variable equal λ_i:

$$Var(Y_i|X_i,\beta) = E(Y_i|X_i,\beta) = m(X_i,\beta) = \lambda_i = e^{\beta x_i}, \quad (5)$$

If the number of FDI meets the conditions of Poisson distribution hypothesis, the log-likelihood function is used to estimate the variance and conduct auxiliary regression as follows:

$$(y_i - \hat{y}_i)^2 - y_i = \alpha \hat{y}_i^{\,2} + \tau, \quad (6)$$

where τ is the residual. A test to examine the significance of the coefficient α was run. The mean and variance of the dependent variable are not equal if the significance was greater than zero. Under the circumstances, the negative binomial regression model would be introduced to revise the Poisson regression model.

$$E(Y_i|X_i,\beta) = \lambda_i = e^{\beta x_i}, \quad (7)$$

$$Var(Y_i|X_i,\beta) = e^{\beta x_i} + \alpha^{2\beta x_i}. \quad (8)$$

Negative binomial distribution model allows the variance of the dependent variable greater than the mean value. Poisson distribution is the special case of negative binomial distribution when the overspread parameter α equals to zero. Due to the extreme variation of cities' economic development levels, regional cultures, institutional structures and other sectors, the research directly adopted the stepwise negative binomial distribution model applying a confidence level of 90 percent.

Validity and reliability

The databases, indicators and methods used in this research have been proven to be consistent and operational in previous scientific research. The quantitative data in this research was collected from official sources to guarantee the reliability of the data. The calculation method and the practical implications should also be unambiguous.

The distribution of negative binominal is substantially more general and the assumption included the independence of X-variables (cross validated, 2013, Hilbe, 2011). To run the negative binomial regression model the data is tested on the following assumptions that are required to give a valid result of the analysis.

1. Check for significant outliers of data.

2. Check for multi-collinearity (correlation of the x-variables) with a VIF-test (Variance Inflation Factor) in SPSS. Variables with a VIF>10 have been excluded.

Chapter 4: Research Findings

Descriptive Research on FDI of the global city level

Trends and growth of firm activities in creative, financial and manufacturing clusters

The FDI database covers the FDI information from 2003 to 2012. By the characteristics of clusters, the FDI activities are divided into creative industry, financial industry and manufacturing industry. Depending on the data, the trends and growth of FDI activities can be analysed to show the different development paths of the three industries.

4.1.1 Distinct focuses of industry activities within the three types of FDI

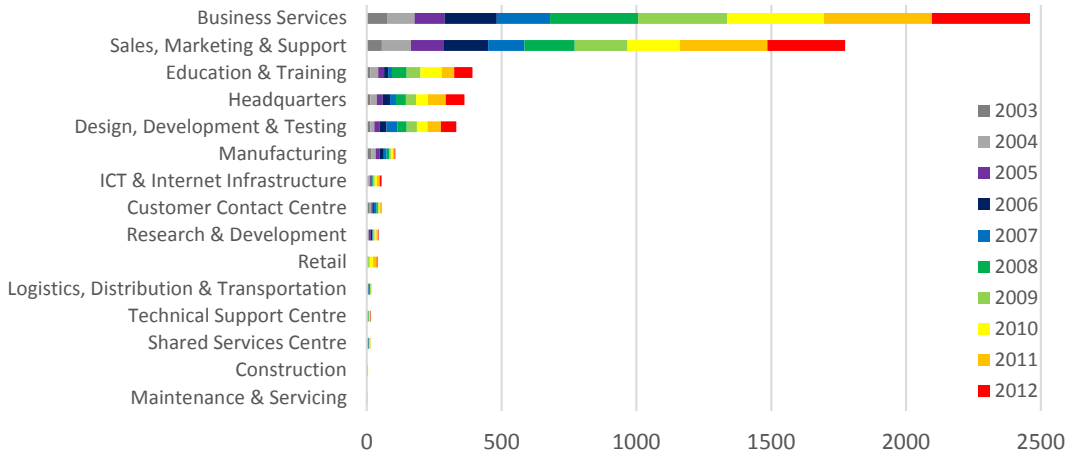


Chart 1: Number of FDI for various firm activities in the **creative** industry during the period 2003 – 2012 (source: author, 2014, based on FDI markets, 2013)

In the creative industry sector, investment activities primarily concentrate on BS (Business Services), accounting for 43.4 percent. The second is SMS (Sales, Marketing & Support) with a share of 31.3%. E&T (Education & Training), HQ (Headquarters) and DDT (Design, Development & Testing) have similar share of around 6 percent. These five activities constitute almost all of the creative FDI. LDT (Logistics, Distribution & Transportation), Construction, M&S (Maintenance and Servicing) only occurred in a few years (Chart 1).

For the other two sectors, the accumulating trend is dominant in the financial investment activities. BS accounts for 72.8 percent of the entire financial FDI activities. Together with SMS and HQ, they own 95 percent of the financial FDI market share in total. In the financial cluster, Construction, Retail, M&S and LDT can be barely seen (Chart 2). Different from the creative and financial FDI, the primary-level manufacturing FDI activities are Manufacturing (45.6%) and SMS (27.8%). BS only accounts for 10 percent of the total investment amount. DDT, M&S, LDT are also important activities in manufacturing FDI even though they have small proportion in other two sectors (Chart 3).

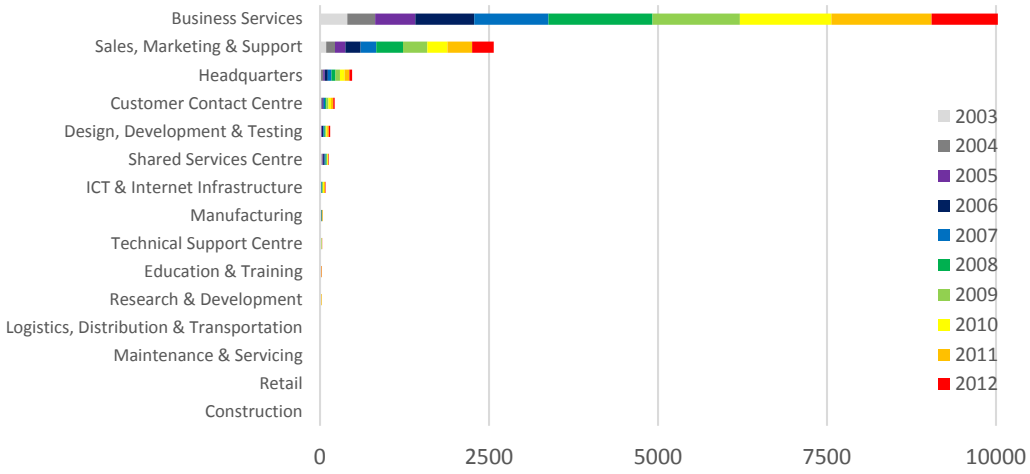


Chart 2: Number of FDI for various firm activities in the **financial** industry during the period 2003 – 2012 (source: author, 2014, based on FDI markets, 2013)

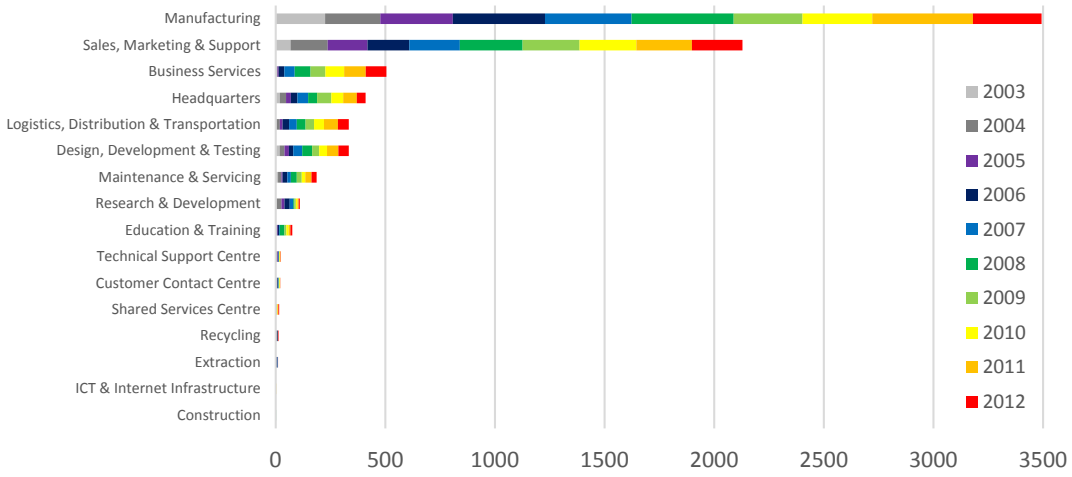


Chart 3: Number of FDI for various firm activities in the **manufacturing** industry during the period 2003 –2012 (source: author, 2014, based on FDI markets, 2013)

Generally speaking, creative FDI has multiple key areas. It is different with financial FDI which has formed a clear investment direction in BS and SMS. Another feature is that the manufacturing FDI has unique fields such as manufacturing, LDT and M&S. The knowledge-intensive activities have not occupied absolute primary position in creative FDI.

4.1.2 Trends and growth rate of industry activities within the three types of FDI

As the data of year 2012 was only available after the completion of data collection, the growth rate analysis only tracked activities took place from 2003 to 2012 (chart 4). Through the line chart, it can be concluded that financial industry is still the main area of investment. However, financial FDI decreased from the crest value in 2008 to 2009, affected by the financial crisis. After two years of adjustment, it has been on the rise again since 2010. Manufacturing industry was also affected by the financial crisis. Nevertheless, the creative industry was barely affected by the financial crisis. With its gradual growth, creative industry has gotten closer to

manufacturing FDI in the numbers. The detailed growth rate of three industry sectors are as follows.

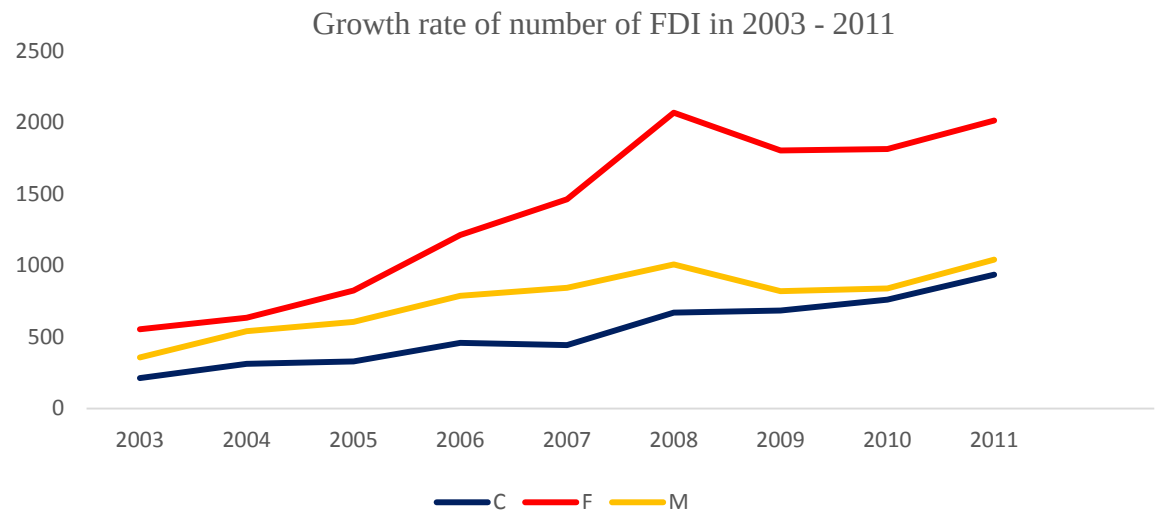


Chart 4: The growth rate of the FDI number for the three industry sectors during the period 2003 – 2012 (source: author, 2014 based on FDI markets, 2013)

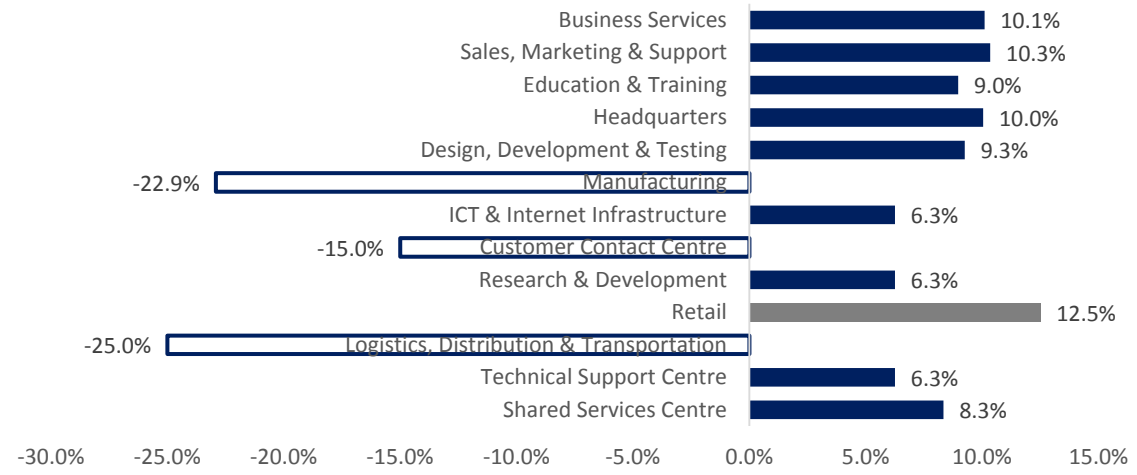


Chart 5: Growth percentages of **creative** FDI in industry activities in 2003-2011 (source: author, 2014 based on FDI markets, 2013)

From the chart 5 it can be seen that, except for Retail, which has a high growth rate created by the missing value in 2003, the top five activities maintain their highest growth rates at around 10 percent in the creative industry. It can be predicted that in the future these activities will be popular investment fields. On the contrary, Manufacturing and LDT have experienced a reversal in their growth rate. It is likely that these types of investments will continue to reduce or even disappear in the future.

Basically, an accelerating growth pattern can be found in almost all activities in the financial sector. The most significant growth takes place in HQ, ICT and E&T. In particular, ICT and

E&T have experienced a stable investment increase from 2006 till now, which demonstrates the upgrading tendency from financial FDI to knowledge-intensive FDI (chart 5).

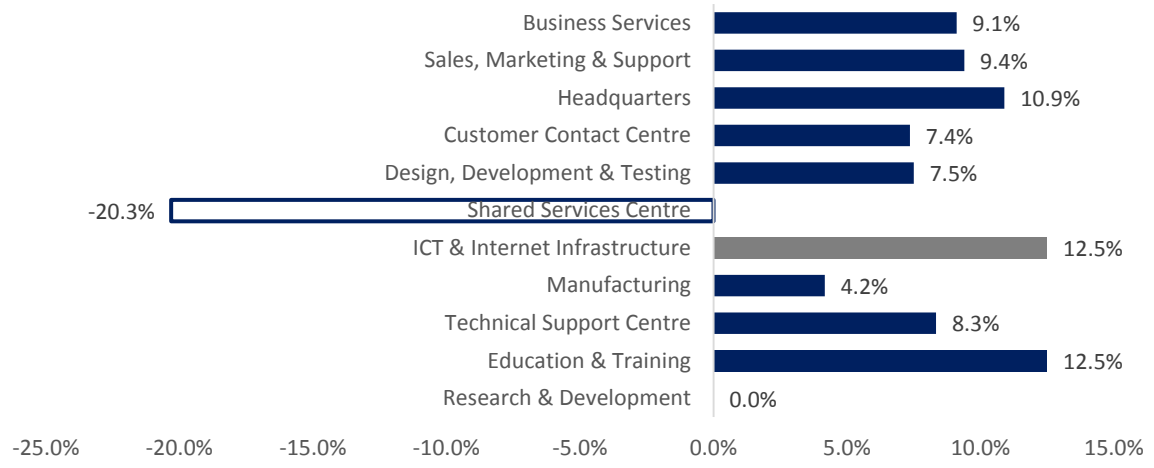


Chart 6: Growth percentages of **financial** FDI in industry activities in 2003-2011 (source: author, 2014 based on FDI markets, 2013)

Basically, an accelerating growth pattern can be found in almost all activities in the financial sector (Chart 6). The most significant growth takes place in HQ, ICT and E&T. In particular, ICT and E&T have experienced a stable investment increase from 2006 till now, which demonstrates the upgrading tendency from financial FDI to knowledge-intensive FDI.

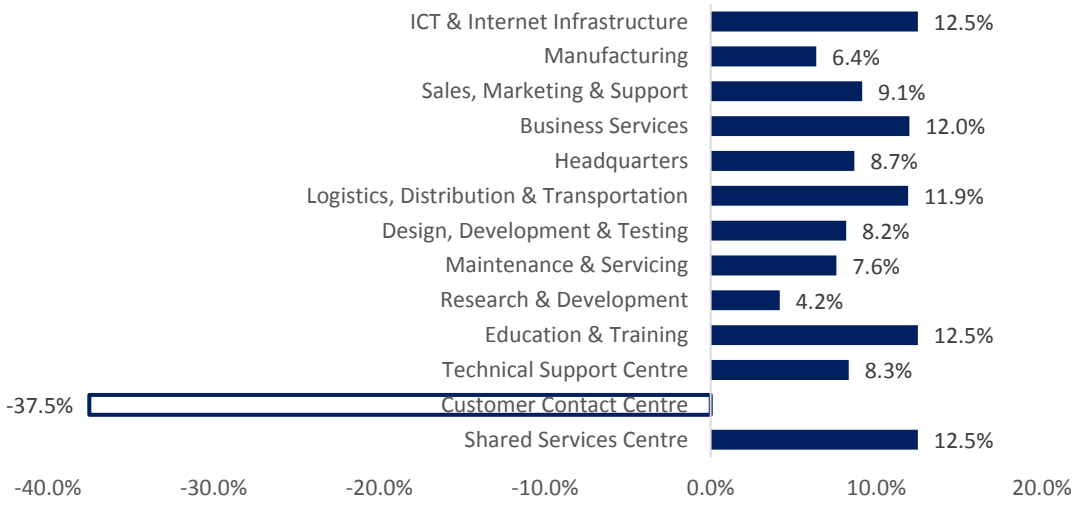


Chart 7: Growth percentages of **manufacturing** FDI in industry activities in 2003-2011 (source: author, 2014 based on FDI markets, 2013)

In the manufacturing sector, also almost all activities have an upward trend (Chart 7). Although it has the highest share, the growth rate of manufacturing FDI is less than most other activities. Activities associated with infrastructure as ICT, TSC and LDT have the highest ascent rates.

The focus of FDI varies in different industry activities. Whether or not can a city attract FDI somehow depends on the development environment that a city can offer. Cities can determine which type of FDI they will adopt to maximize attractiveness, taken into account their comparative advantages in hardware and software. Given 80% of the financial FDI concentrated in the BS, cities with excellent business development environment will have

better chance to attract financial FDI. Meanwhile, similarities and distinctions of location factors are highly related to the types of activities a city focuses on.

To summarize, for creative FDI, the overall growth trend of the last ten years proved that the creative industry has immense potential. The growth rate of both the capital intensive sector and the knowledge intensive sector describes and projects bright prospects for the creative economy. Manufacturing FDI signals a shift from traditional manufacturing investment into capital intensive activities. On the other hand, data showed the financial FDI had the tendency to reinforce the development of the knowledge intensive activities.

The spatial distribution characteristics and trends of creative, financial and manufacturing FDI

By calculating the mean centre of the FDI number of each region during the period of 2003 to 2012, the pattern change of the FDI distribution can be shown in the maps (Appendix 2). The summary of the moving direction is in table 3.

Table 3: the summary of the moving direction of three types of FDI centre (source: author, 2014 based on the FDI markets, 2013)

Region	Creative cluster	Financial cluster	Manufacturing cluster
West Europe	Random	Random	Random
North America	East to west	West to east	West to east
Asia and Pacific	West to east	To southwest	To southwest
Latin America	To southeast	To southeast	To southeast
Rest of Europe	West to east	West to east	West to east
Africa	Fluctuation	To southeast	To southeast

According to the law of industrial development, regional, social and economic development will change employment structure and the market share of urban industries (Kim, 1995). Along with the urban development, the level of industrialization has been constantly improved and the industrial structure has progressively restructured. The following conclusions can be obtained by comparing the three movement tracks of the mean centre within the creative, financial and manufacturing FDI clusters.

1. For West European cities, the distribution of investment concentrates in one region, with no clear direction detected. It is because West European countries have a small physical space and are at similar stages of economic development. These cities have comparable capacity and responsibility to attract all types of FDI investment. There is no policy guidance at regional level to divide functions between national cities.
2. North America and Asia and the Pacific have a relatively higher development level. The routes of financial and manufacturing investment mean centre are the same; while the routes of creative investment mean centre differ. Manufacturing industry in developed areas is gradually transforming from production activities into the SMS and BS sectors. As the financial investment concentrates on the SMS and BS sectors as well, the trends of these

two clusters remain the same. The discrepancies in the levels of manufacturing industry development suggest that there are still distinctions in Asia and Pacific region.

3. For Latin America and other European countries, the movement tracks of investment mean centre of all the three sectors are similar. These two regions share a lot in common, both experiencing a movement to the inner region. On one hand, it is probably caused by the enhancement of radiation capacity from North America and West Europe. On the other hand, the trend might derive from the regional development.
4. The creative industry in Africa is still in the primary stage, so the distribution shows a random pattern.

In general, the movement directions of financial and manufacturing industries are similar. On the contrary, creative industries have different moving tracks from the other two industry sectors. Due to different demands for location factors, urban spatial layouts need to be adjusted to follow the new patterns of industrial agglomeration location selection. The investment moving trend indicates that the creative FDI location has specific characteristics compared with other industries.

Aside from the spatial relocation of FDI destinations, economic activities also show spatial correlations. The research first drew the Voronoi diagram for the FDI to be the coverage area of the FDI radiation area. Then it used the spatial autocorrelation analysis tools to calculate the Moran's I value.

In the research, globally, it can be concluded that:

1) The creative investment is spatially dispersed globally. The creative industry is still at the early stage of the industrial development. The destination cities are distributed in dots. It has not formed large-scale economy and aggregation effect yet.

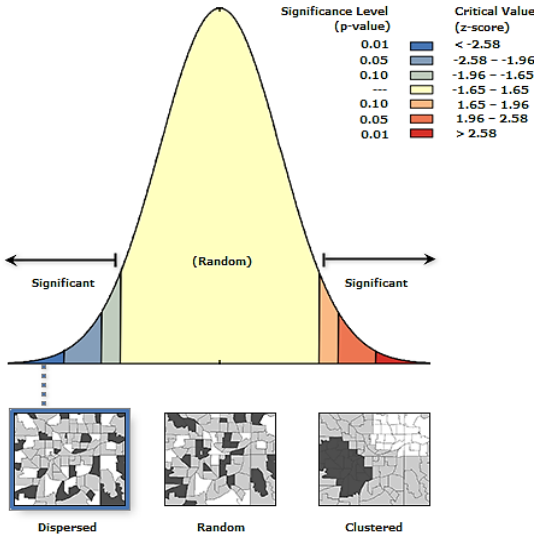


Figure 11: *The Moran's I value of the **creative** FDI distribution (source: author, 2014 based on FDI markets, 2013)*

2) The manufacturing industry is spatially clustered in the global scope. During the past 10 years, the manufacturing FDI is clustered at the global level. Manufacturing industry has already matured and formed scale economy and aggregation effect. There is clear division of labour in the global industrial chain. Clusters bring positive externality so that the

upstream and downstream companies compact for better collaboration.

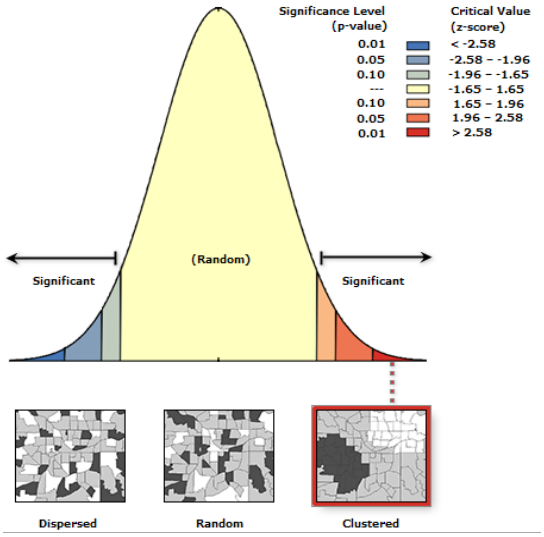


Figure 12*: The Moran's I value of the* ***manufacturing*** *FDI distribution (source: author, 2014 based on FDI markets, 2013)*

3) In the past 10 years, financial FDI spatial pattern has transformed from being clustered to random. The development stage of the financial industry is more developed than the creative industry as it used to possess the characteristics of the agglomeration effect. However, financial FDI belongs to the capital-intensive industries. For enterprises, the demand for collaboration and mutual relationship between upstream and downstream enterprises is low. Compared with resource endowment, financial FDI appears to be located close to the market; therefore, its spatial agglomeration degree is not high (Zhang and Sun, 2012).

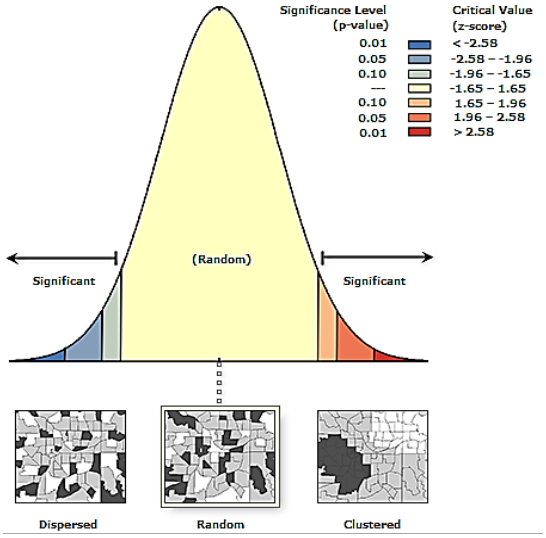


Figure 13*: The Moran's I value of the* ***financial*** *FDI distribution (source: author, 2014 based on FDI markets, 2013)*

To summarize, the spatial distribution pattern of different sectorial FDI number also various. Spatial patterns reflected the maturity of the industry. With the increase of industrial maturity, function scale structure would gradually evolve into economies of scale structure. The spatial

autocorrelation results stated that in the last ten years, the creative FDI was spatially dispersed which indicated that creative multinational enterprises were still at the early development stage. The host cities were distributed and had not formed the scale economy and aggregation effect yet. The manufacturing FDI, on the contrary, was spatially clustered during the past 10 years on a global scale. Multinational manufacturing companies had already matured and formed an industry chain with a clear division of labour. Under these conditions, cities should combine their own competitive advantage and find their position in the international manufacturing chain. Besides, the spatial distribution of financial FDI changed from clustered to random because of the more market orientated capital intensive activities.

Network analysis on FDI of the global city level

The hierarchy of global cities in attracting FDI for creative, financial and manufacturing industry clusters

From 2003 to 2012, there are nearly 30,000 numbers of FDI involving more than 2500 source cities and more than 4400 destination cities. Interactions via FDI between cities have become increasingly frequent. Within these cities, London has received the largest amount of FDI (1039), followed by Shanghai (853), Singapore (725), Dubai (652), NYC (620), Hong Kong (602) and Beijing (524). More than 90% of world cities have received less than 10 FDIs (Chart 8). Top 50 cities account for 43% of the total investment amount, showing the concentration of properties.

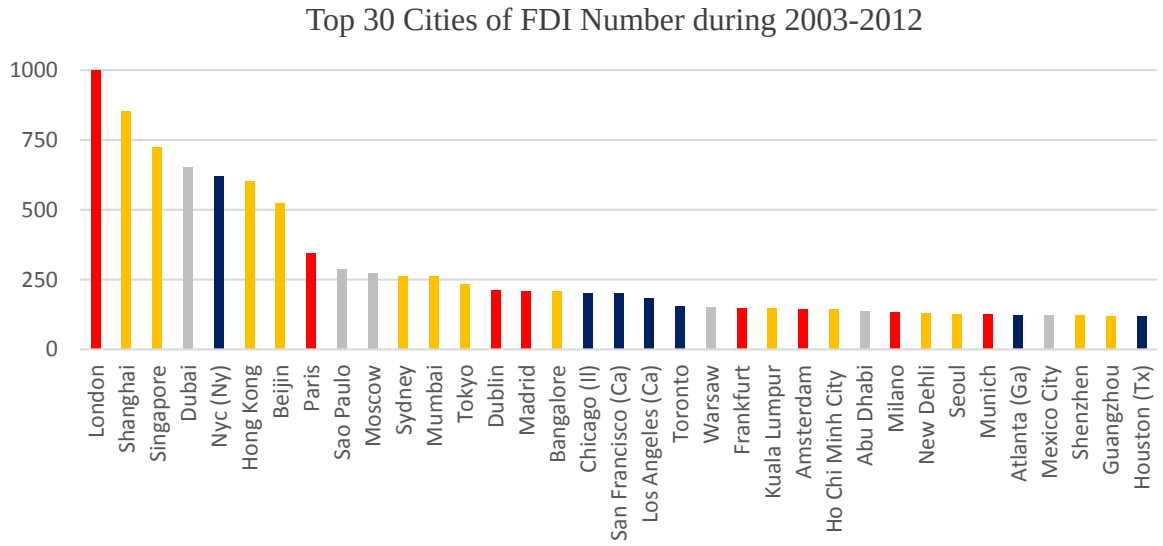


Chart 8: Top 30 cities of total FDI number in 2003-2011 (source: author, 2014 based on FDI markets, 2013)

Table 4. Top ten FDI attractive cities in creative, financial and manufacturing sectors.

Creative FDI inflows		Financial FDI inflows		Manufacturing FDI inflows	
London	415	London	587	Shanghai	364
Nyc (Ny)	277	Hong Kong	441	Singapore	131
Singapore	199	Singapore	395	Dubai	125
Paris	157	Dubai	371	Bangalore	100
Dubai	156	Shanghai	350	Beijing	97
Shanghai	139	Nyc (Ny)	331	Suzhou	88
Beijing	138	Beijing	289	Pune	84
Hong Kong	120	Moscow	172	Chennai	73
Los Angeles (Ca)	119	Paris	155	Sao Paulo	66
San Francisco (Ca)	108	Dublin	145	Tianjin	61

Table 4 indicates the top ten FDI attractive cities in creative, financial and manufacturing sectors. There are four cities belong to the three list at the same time and they are Singapore, Dubai, Shanghai and Beijing. The star cities highly overlap in creative FDI and financial FDI. Four cities, London, NYC, Hong Kong, Paris, are both the most competitive cities in creative and financial sectors but not in manufacturing sector. Besides, Los Angeles (Ca) and San Francisco (Ca) are two cities particularly outstanding in creative FDI attraction.

As mentioned above, the interactions between cities play key roles in urbanization and industrialization. Network analysis is urgently demanded to describe the relationship between interaction participants. This part intends to describe network attributes from the following three aspects, network centrality, network density and network cohesion.

4.3.1 Core-periphery analysis

The results of core-periphery analysis show that the cities with financial industry have the most noticeable heterogeneity structures among all the cities in the network. Cities like Amsterdam and Beijing have higher core-ness scores. However, manufacturing FDI network has a more decentralized structure. In these cities, core and periphery can barely be identified. Nine cities, including Amsterdam, Atlanta (GA), Beijing, Chicago (IL), Dublin, London, Mumbai, NYC and Tokyo are core cities in all three FDI networks. Among the rest of the cities, 13 cities play as core actors in two of the FDI networks; 44 cities are core actors outside of the FDI network (See Appendix for the grouping list). The geographical distribution of all the core cities is displayed in the figure 14.

Figure 14: The distribution of core cities for three types of FDI (source: author, 2014 based on FDI markets, 2013)

Table 5 describes the distribution of cities' coreness in creative, financial and manufacturing FDI network. It separately lists the maximum value and the medium of FDI inflows and cities with corresponding coreness degree. The results in the table indicates that cities with high FDI

inflows are not necessarily in the core position. In the creative sectors, for example, Los Angeles (Ca) is the ninth competitive city while it is the third core cities of the whole network. On the contrary, San Francisco (Ca) attracts the comparable number of FDI with Los Angeles (Ca) is one of the most periphery members in the network with a coreness of 0.001.

Table 5. The descriptive analysis of cities' coreness in creative, financial and manufacturing FDI network (Source: author, 2014, based on FDI database, 2012)

Creative FFDI		Financial FDI		Manufacturing FDI	
The maximum value of coreness and the top three core cities					
0.631	London	0.61	NYC (Ny)	0.66	Shanghai
0.577	NYC (Ny)	0.555	London	0.548	Tokyo
0.201	Los Angeles (Ca)	0.17	Paris	0.153	Singapore
The medium value of FDI and the corresponding cities					
0.02	Charlotte (Nc)	0.0265	Cleveland (Oh)	0.041	Warsaw
	Denver (Co)		Monterrey		Wuhan
	Portland (Or)		Liverpool		Suzhou
	San Jose (Ca)		Buenos Aires		
	Zurich		San Jose (Ca)		
			Tel Aviv		

4.3.2 The network density analysis

It can be seen from Table 6 that financial cluster shows more internal discrepancies than the other two clusters. The manufacturing sector has the lowest density; while the financial network's density is the highest. As closely connected networks provide information and expedite processing for individuals and exchanges. It can be considered that West European performances outstanding in financial and creative FDI interaction, embraces more teamwork and tends to see more communication and information exchanges as its network has the highest density. Asian and Pacific areas have the highest density in manufacturing, which indicates that this region remains the core of manufacturing investment destinations. North America is has lower density than West Europe in terms of creative FDI and financial FDI, with the lowest density seen in the manufacturing cluster. The low density of a network reflects there are barriers that block information exchange and collaboration in the FDI interaction. Latin America has a relatively higher density in the creative and manufacturing clusters but a much lower density in the financial cluster.

Table 6. Network density/ Average tie strength by region (source: author, 2014 based on FDI markets, 2013)

Region	Network density / Average tie strength					
	N	Creative Cluster	N	Financial Cluster	N	Manufacturing Cluster
West Europe	29	0.248 (1.685)	26	0.781 (3.113)	20	0.051 (0.253)
North America	34	0.154 (1.374)	36	0.498 (2.698)	24	0.030 (0.175)
Asian and Pacific	31	0.188 (1.149)	27	0.344 (1.606)	31	0.171 (0.865)
Latin America	6	0.182 (0.790)	6	0.060 (0.421)	7	0.092 (0.330)
Rest of Europe	6	0.127 (0.563)	6	0.159 (0.791)	6	0.098 (0.375)
Africa	3	0.097 (0.507)	3	0.083 (0.491)	2	0.067 (0.291)
Middle East	2	0.432 (2.091)	2	0.219 (0.884)	1	0.344 (0.702)

* The standard deviation statistics in parentheses

Furthermore, the density within and between regions in every FDI network reveals the degree of closeness. In the creative sector, FDI investment interactions that started by West Europe has the highest density (Table 7-9). Together with North America, the capital flows cover almost the whole world and the density is much higher than the other regions. In Latin America, the highest density of regional interactions differs significantly from that of the inter-regional exchanges. The economy in this area has a relatively closer tie in the creative sector. Therefore, it can be concluded that, by far, the core sections of creative FDI are still in the developed regions of West Europe and North America.

Table 7. Network density/ Average tie strength within and between regions in **creative** sector (source: author, 2014 based on FDI markets, 2013)

	West Europe	North America	Asian and Pacific	Latin America	Rest of Europe	Africa
West Europe	0.443	0.332	0.078	0.034	0.04	0.046
North America	0.257	0.221	0.039	0.074	0.034	0
Asian and Pacific	0.32	0.175	0.138	0.048	0.059	0.011
Latin America	0.351	0.127	0.054	0.433	0.167	0
Rest of Europe	0.253	0.118	0.054	0.056	0.1	0
Africa	0.218	0.078	0.011	0	0.056	0

In terms of industry, financial FDI holds the highest density and maximum variance, with the manufacturing network showing minimum values in these two parameters. Financial interactions are more concentrated within regions, and the manufacturing FDI more on inter-regional collaboration. Currently, the creative FDI concentrates on West Europe and North America.

Table 8. Network density/ Average tie strength within and between regions in **financial** sector (source: author, 2014 based on FDI markets, 2013)

	West Europe	North America	Asian and Pacific	Latin America	Rest of Europe	Africa
West Europe	0.938	0.301	1.046	0.628	1.404	0.808
North America	0.476	0.508	0.595	0.319	0.352	0.093
Asian and Pacific	0.189	0.079	0.906	0.099	0.222	0.173
Latin America	0.071	0.042	0.062	0.2	0	0
Rest of Europe	0.237	0.046	0.185	0.056	0.233	0.333
Africa	0.077	0	0.074	0.056	0.056	0

Table 9. Network density/ Average tie strength within and between regions in **manufacturing** sector (source: author, 2014 based on FDI markets, 2013)

	West Europe	North America	Asia and Pacific	Latin America	Rest of Europe	Africa
West Europe	0.089	0.046	0.055	0	0.008	0.025
North America	0.042	0.058	0.012	0	0.007	0.021
Asia and Pacific	0.248	0.125	0.244	0.005	0.005	0
Latin America	0.157	0.101	0.074	0.048	0.024	0
Rest of Europe	0.242	0.09	0.054	0	0.033	0
Africa	0.075	0.063	0.081	0	0	0

Regional differences can be detected in the financial FDI network (Table 8) and manufacturing FDI network (Table 9) also. The highest densities of financial FDI network appear in the interactions between Asia and Pacific and West Europe, and between the Rest of Europe and West Europe. Most West European cities actively participate in the financial FDI activities. North America has a hierarchical structure with a lower density compared to West Europe. In the manufacturing sector, its overall network density is low. Asia and Pacific is the core of the manufacturing FDI network. The closest linkages can be found between West Europe and Asia and Pacific, and within Asia and Pacific.

Considering regional discrepancies, West Europe has the highest density in FDI outflow. In North America, the FDI presents a hierarchical structure. Asia and Pacific is the core region of both incoming and outgoing interactions in the manufacturing sector. Compared to other

regions, Latin America has seen less flow with other regions. Africa, in contrast, has a lowest level of FDI attraction in all three types of industries

4.3.3 The cliques and sub-groups analysis

The optimized group number in creative FDI network is four. After grouping, there is obviously a group of core cities (Figure 15). This group includes most of the cities in West Europe and parts of cities in North America, Asia and Pacific, as well as Dubai in the Middle East.

In creative FDI network, besides the core group, the other three factions have some regional characteristics. One faction involves linkages between North American and European cities. Rotterdam belongs to this faction with a superior level of connections. Other European countries like Zurich, Lyon, Athens, and Glasgow are also in his faction. The strongest linkage is between Lyon and Indianapolis. Another faction contains interactions between Asia and Pacific cities and American cities with Paris being the cement of these two regions. This fraction includes 10 Asian cities and 10 America cities. The core cities in this group are Paris and Tokyo. In this fraction, Paris frequently collaborates with Singapore and Las Vegas. The rest of the cities from 6 regions form the last faction.

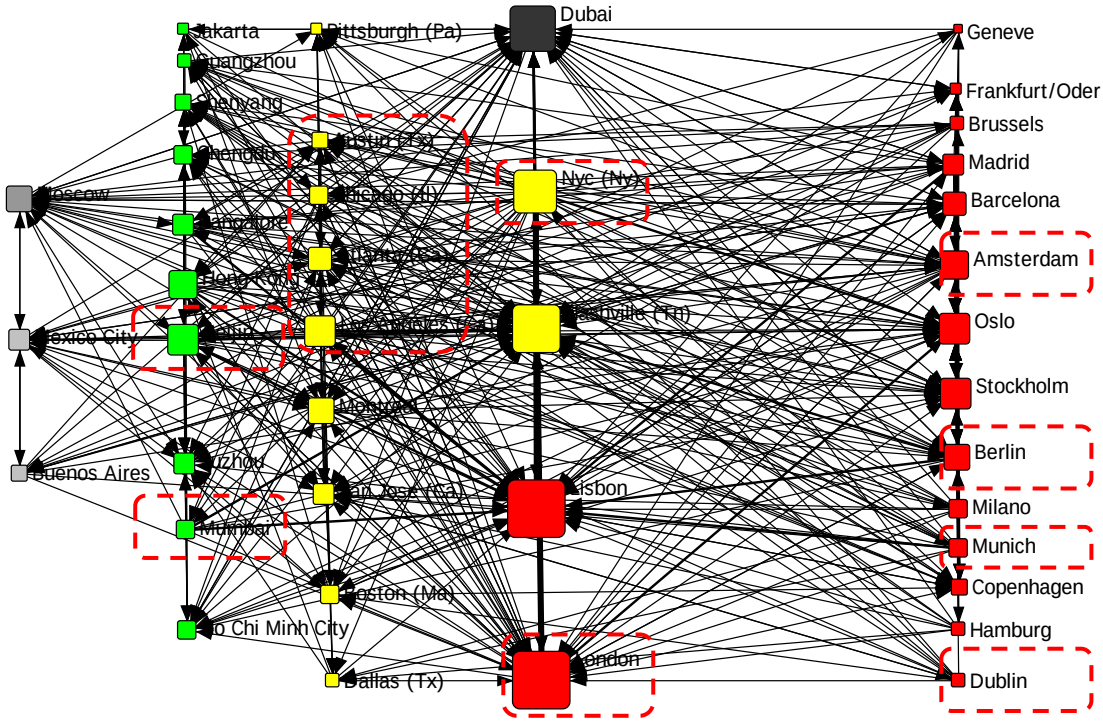


Figure 15: The core city faction in the **creative** FDI network

(Source: author, 2014 based on FDI markets, 2013)

For financial FDI network, there is also a core group, including most of the West European cities, part of North America and Asia, and individual cities like Dubai, Moscow, St. Petersburg and Istanbul (Figure 16). Both of the two sample cities from Netherlands, Amsterdam and Rotterdam, are in this core group.

The other groups are North America to Asia and Pacific faction, Asia and Pacific faction, America faction and a faction of the rest members. It also shows that in financial FDI network, the collaborations are more regional and exclusive.

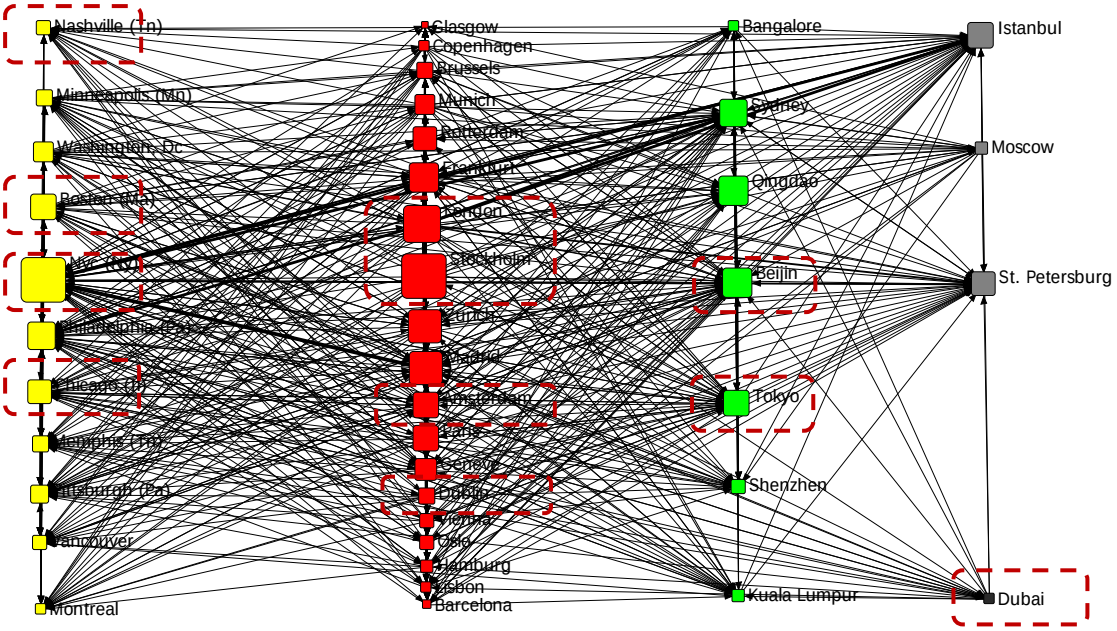


Figure 16: The core city faction in the **financial** FDI network

(source: author, 2014 based on FDI markets, 2013)

There is no obvious core group in the manufacturing FDI network. Based on the figure obtained from the research, there are four factions in the network. Asia and Pacific region plays a significant role in the global manufacturing network. These four factions are Asia and Pacific region (Figure 17), Asia and Pacific -- Europe, Asia and Pacific -- West Europe -- North America, and the rest members.

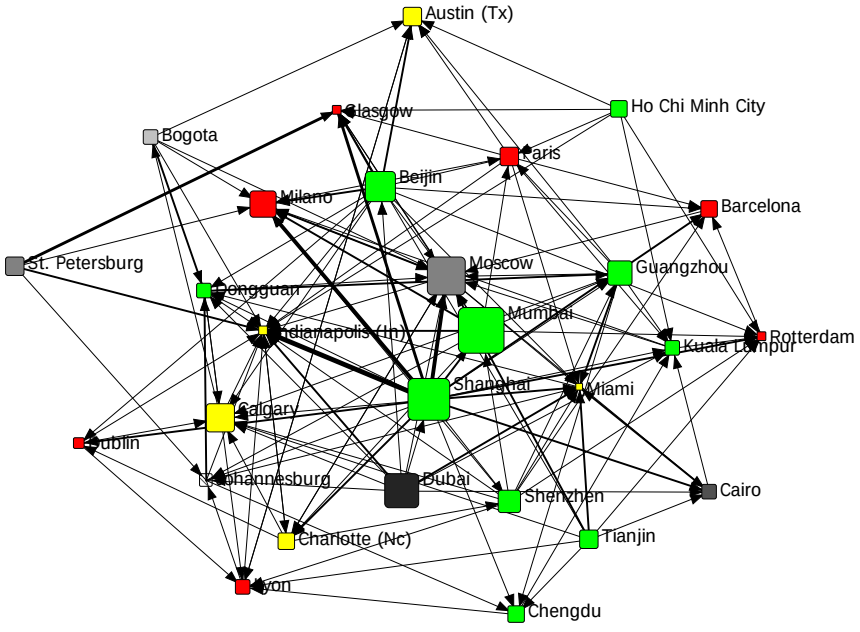


Figure 17: The Asia and Pacific faction in the **manufacturing** FDI network

(Source: author, 2014 based on FDI markets, 2013)

To sum up, there are discernible core groups in creative and financial clusters. Most West European cities are in this group except that cities like Lyon, Helsinki, Rome and Athens have more connections with cities from other regions. There is no clear core-periphery structure in the manufacturing FDI network.

Explanatory research on FDI, city attribute and relationship characteristics

Mechanism that affects the investment decision is complex. The factors influencing different types of investments also vary. Considering the diversity of FDI, the study divides the location factors into three categories, city profile, city performance and relationship indicators.

Model result

Generally speaking, the regression results are consistent with the theoretical framework mentioned in chapter two and confirmed the assumptions of the descriptive analysis. Detailed analysis was as follows:

Industry competitiveness:

Cities with higher level of development are more likely to attract corresponding FDI. If other factors stay the same, every change in one unit of the creative development index will cause the number of creative FDI change by 3.315 on average. Similarly, for the financial FDI sector, the development level of financial industry has significant influence as well. However, its impacts vary from that in the creative sector. For example, if other factors are constant, every unit increased in the financial industry result in 1.951 more in the number of financial FDI.

As the three types of industrial sectors are in different development stages, the industry development index measures different levels of impacts. Creative industry is still at its initial stage. A city's capacity becomes the significant location factor. In contrast, for such a mature industry like manufacturing, which has clear division of labour and large-scale effects at the global level, industrial development does not impose a direct impact on the FDI number. What really mattered is a city's comparative advantage in resource and labour.

City profile (economy, population and geographic feature)*:*

The research found that the economic condition of a city promotes its FDI competitiveness. The growth rate of the GDP has positive effect on the FDI attraction. The overlapping movement paths and directions of investment centre in each region also verified the conclusion. City profiles reveal that GDP growth influences the creative FDI more than financial FDI, but less than manufacturing FDI. When keeping the other factors fixed, one unit of increase in GDP growth rate could increase creative FDI by 4.238, while increase financial FDI by 3.029, and manufacturing FDI by 5.947.

The regression result also shows that the English proficiency significantly affected the FDI attraction positively, especially in financial and creative sectors. (In the research, the indicator equals to 1 means the level is good and 3 means poor.) This is because possessing a similar language capacity reduces transaction costs. As economies are more globalized and more delocalized, and information more decentralized. A shared language is a necessary tool when communication is no longer tied to geography. The insignificant coefficient of manufacturing FDI probably relates with the communication requirement that the financial and creative industry need more verbal communication to exchange ideas when establishing the investment linkages, while for manufacturing, the communication is more focused in technology intercommunion in production and maintaining activities.

Table 10. Results of Negative Binominal Regression Analysis

Category	Variables	Model-(1)	Total FDI	Model-(2)	Creative FDI number	Model-(3)	Financial FDI number	Model-(4)	Manufacturing FDI number
Industry competitiveness	Creative			3.315	(3.29) ***				
	Financial					1.951	(4.93) ***		
	Manufacturing	-1.376	(-3.46) ***						
City profile	GDP growth rate	3.246	(2.62) ***	4.238	(2.33) **	3.029	(2.22) **	5.947	(4.62) ***
	GDP			-0.167	(-1.85) *				
	English proficiency	-0.925	(-2.27) **	-1.369	(-2.24) **	-1.319	(-3.47) ***		
	regional capital					-0.258	(-2.46)**		
	local cities					-0.0122	(-0.10)		
Culture facilities	No. of theatres	-0.766	(-1.95) *	1.159	(1.67) *			-2.08	(-3.69) ***
	No. of nightlife	0.069	(3.78) ***						
Government	corruption	0.892	(3.50) ***	0.834	(2.16) **				
Market	Multinational Corporate	0.921	(4.80) ***			0.17	(5.41) ***		
	Market Scale	-0.635	(-2.00) **						
	Market Regulation	-1.164	(-2.16) **			-1.485	(-2.30) **		
Labour & talent	unemployment rate	1.9	(1.78) *			-2.151	(-2.05) **		
	status of talent					0.572	(2.11) **		
Transportation	Length of metro	-0.094	(-2.01) **						
	Public transport	-0.678	(-4.19) ***						
	Metro ridership							-0.022	(-2.09) **
	No. of top airports	0.133	(3.00) ***	0.186	(2.14) **			0.178	(2.52) **
	No. of airports			0.03	(1.85) *	0.02	(1.72) *		

Category	Variables	Model-(1)	Total FDI	Model-(2)	Creative FDI number	Model-(3)	Financial FDI number	Model-(4)	Manufacturing FDI number
Environment	PM10			0.134	(1.68) *	0.107	(1.77) *	0.242	(2.52) **
	Environment							1.133	(2.59) ***
Liveability	No. of hotels	0.079	(2.11) **	0.272	(4.52) ***	0.097	(2.33) **	0.165	(3.44) ***
	Shopping	0.742	(1.93) *					1.112	(2.34) **
	Restaurant	0.637	(1.75) *						
	JAN temperature			2.045	(3.16) ***				
Network attribute	Creative clique	0.129	(3.33) ***	0.452	(7.20) ***				
	Financial clique	0.246	(6.85) ***			0.238	(5.41) ***		
	Manufacturing clique	0.234	(6.65) ***					0.577	(12.43) ***
	Creative core-ness			-1.058	(-1.77)*				
	Financial core-ness					-1.232	(-2.47) ***		
Connectivity	No. of Starbucks	0.036	(1.71) *	0.056	(2.07) **			0.062	(2.31) **
	Information connectivity	1.265	(3.16) ***	1.146	(2.13) **			1.491	(2.59) ***
	Residents connectivity					0.4	(1.88) *	-0.84	(-3.13) ***
	International Organization	-0.483	(-2.73) ***			-0.9	(-4.48) ***		
_cons		3.853	(5.05) ***	-1.439	(-1.75) *	3.472	(5.00) ***	-1.641	(-2.06) **
Lnalpha _cons		-2.986	(-15.36) ***	-2.172	(-9.25) ***	-2.565	(-12.66) ***	-2.158	(-10.08) ***
N		100		105		94		102	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

In addition, creative FDI is effected by some specific factors compared with the other two sectors. Model results show the possible impacts of the GDP on the location preference of creative FDI. The negative influence of GDP on creative FDI could be attributed to the outstanding performance of some small, though innovative cities. For example, Mumbai has 71 creative FDI with a GDP per capita of 1,659; Bangalore has 61 creative FDI with a GDP per capita of 1,326. Also, not all global metropolis with high GDP have a corresponding level of creative industry development. For instance, Washington DC has 37 creative FDI with GDP per capita of 58,549; Oslo has only 5 creative FDI with GDP per capita of 57,931. The moving trends of FDI destination centre also support the regression result.

The administrative level of a city has no significant influence on creative FDI attraction, which indicates that capital cities have no obvious advantage in attracting creative FDI. However, for financial FDI, the capital cities have advantage as if all other factors are constant, the regional capital cities FDI is, on average, 0.258 less than the capital cities' respective FDI number. To answer the question concerning a city's administrative level, it is necessary to group a State's cities accordingly. For example, first, the nation's capital will be in its own group, next, the respective capitals of the nation's regions, and finally, local cities will be grouped together. The density between aforesaid different administrative levels will be analysed in order to test whether the FDI network has a trend of administrative centralization.

In financial and creative FDI network, the regional cities have the lowest connective density (Table 11). The extent of the capital cities network is greater than that of the regional cities. It is mainly because capital cities embrace the majority of multinational companies which greatly affect the global economy. This places capital cities at the top of the global urban system. Next, comparing regional cities with local cities, local governments are more practical than regional cities. The major task of local government is to improve the local economy rather than to promote ideology and political culture. Local cities are more tolerant for investors with relatively favourable investment conditions and lower labour costs. For manufacturing, the local cities have the most complete contact. However, for both creative and manufacturing FDI, the density difference between the three levels of cities is minor.

Table 11 Network density/ Average tie strength within and between different levels of Administration level (*source: author, 2014 based on FDI markets, 2013*)

Administration level	Network Density / Average tie strength					
	N	Creative Cluster	N	Financial Cluster	N	Manufacturing Cluster
Capital of nation	34	0.252 (1.597)	34	0.588 (2.776)	26	0.079 (0.335)
Region	57	0.158 (1.017)	53	0.357 (1.382)	49	0.085 (0.436)
Local	20	0.184 (1.688)	19	0.557 (3.490)	16	0.158 (0.986)

* The standard deviation statistics in parentheses

City performance:

Cultural facilities:

Since the number of theatres is correlated with the number of museums in a city, the model only considered the number of theatres as the indicator of the cultural facilities. Results indicate that the number of cultural facilities have positive relationship with city's competitiveness in attracting creative FDI.

Also the results verify Amartya Sen's cultural capital theory that for a manufacture-oriented city with low demand of cultural products, it is hard to develop creative industries because of the residents' lifestyles and preferences (Sen, 1999). The negative coefficients prove that the number of cultural facilities significantly affects the manufacturing FDI number in a adversely way.

Administrative capacity:

The research used the Corruption Perceptions Index 2013 to reflect cities' administrative capacity. It scores countries on a scale from zero (highly corrupt) to 100 (very transparent) (Transparency International, 2014). The results indicate that government transparency could significantly influence the total foreign investment attraction, especially for creative sector. As an emerging industry, creative sectors require protection and support from the government. A transparent government puts people's interest above theirs and devotes the public finance into the construction of essential infrastructure for industry development rather than abuse and corruption.

However, for financial and manufacturing sectors, at their relatively mature stage, the FDI number is relatively robust to the corruption as they are more influenced by market force than government intervention.

Market:

The results show that the total FDI is impacted by market factors. However, no significant influence by market factors has been brought about in the creative FDI, while being market-oriented, the financial FDI is affected significantly by market elements.

It is easy to understand the positive effect of the multinational corporations' development on the financial FDI number. Market regulations have negative influences on the financial FDI number as they can be used to either support or prevent FDI activities. A city's regulatory framework supervises its market transactions and helps to settle disputes. However, when the regulations are designed or implemented in an inefficient and arbitrary way, such as increasing the costs of entry rather than protecting the rights of the investors, the city's competitiveness will be reduced (Sun, 2002). In practice, too much market regulation can limit a firm's ability to compete internationally, distort investment decisions, or even deter investment entirely. Therefore, cities seeking foreign trade and investment are suggested to make their regulatory procedures concise and clear. Besides, the negative influence of market scale for total FDI

attraction contradict most of the theories (e.g. Lipsey, 1999; Chakrabarti, 2001) and empirical study (e.g. Love and Lage-Hidalgo, 2000). The results have high probability to be illogical caused by poor data.

Labour and talent:

The regression results indicate that labour and talent have no significant effect on creative FDI attraction. Labour market and talent capacity of a city both have marked impacts on financial FDI. The negative coefficient of the unemployment rate indicates the negative effects of serious unemployment situation on financial FDI. The positive impact of talent status indicates the positive effects on financial FDI attraction.

Theoretically creative industry is sensitive to talent in that it cannot survive or prosper without being located in places where there are people with creative abilities. However, the results cannot be used to contradict Florida and Glaeser's theories as their theories focus on creativity and creative cities instead of creative sectors. In Florida's definition, the creative class can be broke into two categories of the "Super-Creative Core" and "Creative Professionals". The latter refers to classic knowledge-based workers working in all the industry sectors. They create new approaches to solve specific problems (Florida, 2002.). Hence, there will be creative talents work in financial and manufacturing sectors, while not creative people work in creative industrial sectors as well. The results can only indicate that in the current stage, the FDI activities in creative industrial sectors do not mainly focus on knowledge-intensive activities. The trend analysis aforesaid also support the view. In the future, with the emphasis of activities being transferred from business-related to knowledge-intensive areas, talent might show a significant positive impact. Further study considering the time factors are necessary.

Transport and accessibility:

The transport and accessibility element was analysed in inner city traffic and intercity traffic. In terms of traffic within the city, the data about the development of public transportation was included in the model. The metro capacity and metro routes were separately included in the model. As for inter-city transportation, the number of airports, especially most important airports, were considered in the model to measure cities' accessibility.

The outcome from regression model indicates that intercity accessibility has positive effects on the FDI number in all sectors; while the inner city accessibility has negative effects on FDI in total and manufacturing FDI. Therefore, only through ameliorating the accessibility between cities could FDI attraction be improved, as this process reduces the cost of communication and promoting cooperation.

Environment:

The regression results show that the environment quality has both positive and negative influence on the FDI attraction as the value of PM10 is inverse indicator. For creative sector,

the FDI tends to choose cities with lower air quality. Grossman and Kruger (1995) proposed that increased incomes are positively associated with an increase in pollution in poor countries, but a decline in pollution for rich countries. The negative impact may be interpreted that the pressure of global competition caused or aggravated the inefficiency of environmental policy. Less developed countries will reduce the environmental standard to maintain their competitiveness, which partly explains why polluting industries shift to these areas. FDI flows to more polluted regions because of their deficient environmental conditions.

Meanwhile, environmental level, according to the global city competitiveness index, has positive impact on the FDI in that better environment will promote manufacturing investment. FDI helps increase awareness of environmental protection as developing countries desire to attract investment.

Because the influence of FDI on the environment varies from case to case as there is a two-way relationship between FDI and environment. The impact of environment on FDI still needs more specific indexes and samples for further study.

Liveability:

In general, a higher living standard improves a city's industrial capital attractiveness. The number of hotels has significant effects on each sector of FDI, particularly the creative FDI (Chart 9). To some extent, the other three indicators, shopping, restaurants and nightlife also influence the total number of FDI. Also the climate of a city positively impact the creative FDI attraction.

The high quality of place makes a city a desirable place to live. Rogerson (1999) suggested the life quality should be viewed as part of the city's profile of competitiveness as it has been proved to be effective in promoting capital inflow and urban development. The coefficients of climate verify Glaeser's 3Ss theory (2006) that warmer cities have more potential to become creative as talents prefer to live in dry and warm place. Facilities like restaurants and shopping malls provide convenient life and offer quantity communication opportunities, which improve work efficiency and promote knowledge, technology and culture innovation. The numerous hotels are conducive to cross regional cooperation and connectivity.

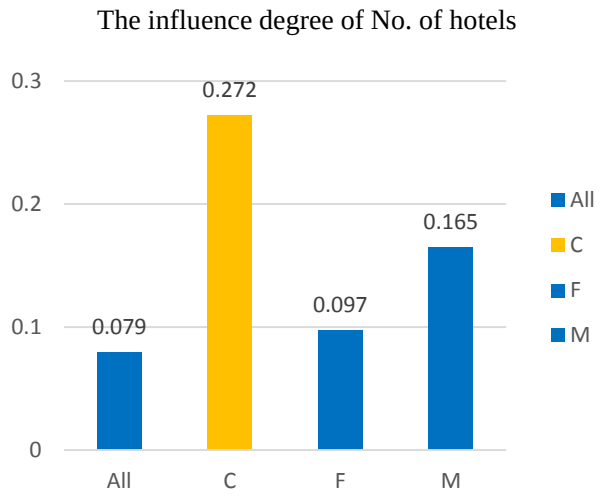


Chart 9: The influence degree of the number of hotels (Source: author, 2014 based on the result of model 1-4)

Relationship attribute:

Connectivity:

Generally, global connectivity has a positive influence on the FDI attraction in all sectors. Information connectivity has the strongest effect on the FDI number as the information and technology cycle gets shortened. Foreign investors are thus driven to constantly equip host cities with advanced technology in order to stand out. At the same time, technological development and modern consumption have sped up the pace of R&D and depreciation of productions. In order to make the investment pay off, as soon as some R&D achievements have the possibility of commercial success, they will be combined with host cities' resource endowments to quickly put into the host cities' market. Under this precondition, keeping information unobstructed gives unlimited convenience to speed up the technical spill over effect.

The regression outcome also indicates that the centrality of international organization interaction network has a significant negative effect on the financial FDI. As the selected NGOs are from environment, development, human rights and humanitarian departments, the negative effect may be interpreted as the social related NGOs play as the monitors and "police-man" of multinational enterprises. By boycott strategies, NGOs threaten the multinational enterprises not to violate their environmental and social responsibility, which pressures foreign investors. However, this negative impact is necessary in most cases, to ensure that development is sustainable and that development does not damage the interests of the people of the host cities.

Coreness versus cliques:

The influence degree of Coreness and N-clique is showed in the graph (Chart 10). It shows that coreness has a negative impact on attracting financial and creative FDI. Based on the previous analysis, the financial and creative FDI network has a core-periphery structure while manufacturing FDI network is more decentralized without obvious core actors. The regression results indicate that for an obvious core-periphery FDI network, narrowing the distance to the network core has a reverse impact. The more centralized, the greater the reverse impact is felt. From the graph, it could be concluded that in the financial FDI network, if other factors are fixed, one unit increase of financial coreness could lead to 1.232 decreases in the FDI number.

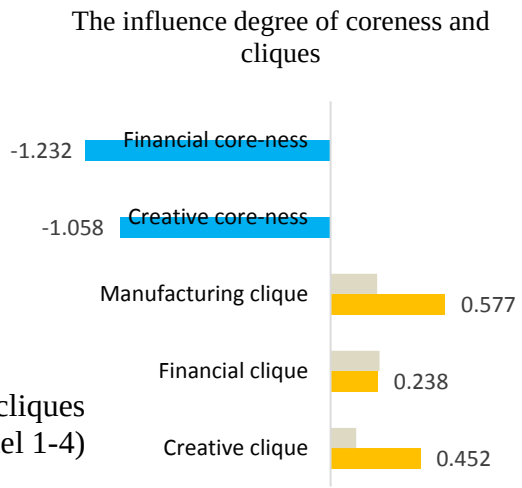


Chart 10: The influence degree of the coreness and cliques (Source: author, 2014 based on the result of model 1-4)

On the contrary, the N-clique has a positive influence on all the three types of FDI and the total number of the FDI (the grey bars), especially for the manufacturing network with a low degree of coreness. Using the graph explained in the note as an example, the vertices in the dark blue cliques are more likely to attract FDI than the vertices in the light blue triangles. It can be concluded that what matters is the maximum number of the group in which all the cities have a close relationship with each other, rather than the closeness of the absolute core subgroup.

To summarize, the regression results verified some parts of Dunning's theory by the fact that the FDI determinants are related with the types of FDI motivation. But it also proves that there are specific determinants for sectorial FDI attraction that are related to the industrial characteristics of respective departments.

Taking city characteristics as the determinants for FDI in all three sectors, basically 8 out of 16 themes in city index's dimensions are major predictors for the total number of FDI. These eight dimensions are: (1) culture, recreation and tourism; (2) liveability and amenities; (3) transportation and accessibility; (4) globalization, network and exchange; (5) human capital, talent and education; (6) government and regulations; (7) business activity and economy; (8) environment and ecology. The result shows that the attraction of FDI is related to the comprehensive strength of a city. Host cities need to enhance urban strength in general and ensure the sustainable development from all aspects, instead of merely offering preferential policies for foreign investors.

Specifically, for creative FDI, the influencing factors include **the development level of creative industry, the growth rate of GDP, the climate, culture facilities, the liveability, administrative ability and intercity transport**. Foreign investment on creative industry requires both hardware and software facilities in good conditions. The results also verified Florida's (2002) 3T as well as Quality of Place approach and Glaeser's 3S theory (Sun, Skill, and Sprawl) (Glaeser, 2006). The driving force behind an effective creative economic strategy is talented people. In this mobile age, people moved around a lot so that the liveability and climate condition of a city is important in attracting and retaining talents (Florida, 2009). Moreover, administrative ability is a major determinant for city competitiveness in the attraction of creative FDI. In the current stage, city government's efforts to support creative financing are essential to develop urban industries.

Compared with creative FDI, impacts of financial FDI are similar and mainly come from **a city's industry level, market, labour and talent, and the liveability**. Nevertheless, the influencing mechanism for manufacturing FDI has less commons with the other two types of FDI sectors. First, **the industrial development level has no significant effects on the manufacturing FDI**. For mature industry sectors, the absolute state of industrial development does not affect the location selection significantly. To develop manufacturing industry, it is important to adjust the structure to better fit the global manufacturing industry chain. Secondly, **cultural facilities** had a negative impact on manufacturing FDI. Based on Sen's cultural capital theory, there is a contradiction between blue-collar culture and creative cultural consumption (Sen, 1999). Besides, the relationship between **environment** and FDI needs further researches.

From the perspective of network characteristics, the creative FDI also resembles financial FDI. Generally, the degree of global connectivity has a positive influence on the FDI number, especially the **information connectivity**. Moreover, the centrality of i**nternational organization interaction** network has a significantly negative effect on the FDI. NGOs act as monitors, enforcing environmental regulations in multinational enterprises to protect the interests of the vulnerable host cities, which, to some extent, impose pressure on foreign investors.

Being able to communicate effectively in English could help a city attract foreign investment in its financial and creative sectors. Shared language, instead of geographical factors, has become more and more important modern communications. The administrative level of the bilateral cities, on the contrary, has no clear effects on FDI attraction.

In terms of network structure, the **coreness** has negative impacts on actors in centralized networks, while the **N-clique** has a positive influence on all the three types of FDI. In a typical core-periphery FDI network, host cities endeavour to narrow their distance to the network core by establishing linkages with members in the core group. This strategy is tested in the model to be ineffective in drawing attentions from foreign investors. An appropriate strategy should be increasing the capacity of each group and strengthening ties between the cities within the group.

Difference between core and periphery cities:

In order to study the impact of the network structure, the research further compares the different influence factors between core cities and the periphery cities in creative sector. Due to the limitation of the sample size, the outcome for the core cities in creative FDI is only a reference.

Model 5 and Model 6 compare the core and periphery cities in creative FDI network (Table 12). Combined the outcome of model 2, there is some meaningful difference between factors influencing core and periphery cities. The coefficient of creative development index is 4.97 for periphery cities but 3.315 for the total sample, which means for periphery cities, more efforts are needed to improve the local industry. Number of theatres has a positive impact on periphery cities but negative impact on core cities. Due to the limitation of the sample size, it is possible to say that building new cultural infrastructure would hinder core cities in obtaining more creative FDI. From the transport and accessibility aspect, the result can be interpreted that for core cities, an increase in the total airport number creates a positive effect on FDI, but for periphery cities upgrading the airports is a more efficient way to achieve the same effect. The third difference is instantiated in the innovation ability. In the whole sample model, the number of patents is not significant while for core cities it is positive. Compared with the peripheral cities, **core cities need to improve their innovation ability to maintain their competitiveness.** In addition, there are four more indicators that are significant for **periphery cities** but not for core cities. They are: **the number of multinational corporations, enterprises connection, English proficiency and centrality in the international organization network.** Periphery cities should pay special attention to these factors.

Table 12. CORE AND PERIPHERY CITIES OF CREATIVE FDI

Variables	Model-(5) C_num (C_core=0)		Model- (6) C_num (C_core=1)	
C-development	4.97	(4.71) ***		
GDP growth rate	7.12	(4.45) ***	8.732	(2.22) **
GDP	-0.334	(-3.44) ***	0.491	(2.19) **
population	0.873	(1.86) *	2.571	(1.81) *
English proficiency	-0.867	(-1.98) **		
No. of theaters	1.197	(2.06) **	-3.386	(-1.66) *
No. of museums	-0.812	(-1.98) **		
No. of hotels	0.131	(2.10) **	0.343	(2.56) **
JAN temperature	1.526	(2.54) **		
No. of top airports	0.155	(1.67) *		
No. of airports			0.104	(2.87) ***
patent			0.287	(1.68) *
Website hosted	-0.094	(-2.57) **		
PM10	0.198	(2.64) ***		
Multinational Corporate	0.122	(2.80) ***		
financial	-1.886	(-3.77) ***		
C-clique	0.233	(3.72) ***	0.584	(3.56) ***
No. of Starbucks			0.226	(1.93) *
Enterprises connectivity	2.906	(3.39) ***		
International Organization	-0.496	(-2.03) **		
_cons	-1.201	(-1.65) *	-0.737	(-0.53)
lnalpha_cons	-2.975	(-7.68) ***	-19.26	(-0.05)
N	78		18	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Chapter 5: Conclusions and Recommendations

Introduction

Globalization, as an objective and continuous process, is beyond the national borders and sovereignty, featuring a global trend of communication and contact. Economic globalization has had a profound influence in various regions and cities of the world. It is generally agreed that in a vigorously developing region, capital accumulation occupied a central place. In particular, as the major form of capital flows, FDI has generated an inestimable influence on the global economy.

This research analysed the link between the host cities' environment and investment institutions in terms of their influence in attracting FDI. It analysed two aspects of the FDI attraction: one is the specific context for drawing investors' attention to creative, financial and manufacturing sectors; the other one is the role the relationship attributes play in promoting the host cities' competitiveness in the FDI market. Chapter 5 concludes the analysis mentioned above and offers recommendations for policy makers of the host cities.

Retrospect: research objective

As the research emphasis is to explain the significant network and attribute factors that contribute to cities' competitiveness in attracting creative, financial and manufacturing FDI. The initial purpose of the research was to find the different characteristics among the three FDI behaviour and to explore the relationship patterns of cities in the FDI flows. Using the observations of the comparison, the research then tended to explain the causal relationship between the "hard-network", the "soft-network" and the "org-network" attributes of the city and the performance of cities in different FDI departments, and evaluate the influence degree of these attributes. After all the analysis, the research tended to propose policy recommendations in order to help the city to choose reasonable direction for industrial upgrading and transformation.

Conclusions and discussions

Different investment activity structure of three types of FDI

The trend analysis of the firm activities over the years 2003-2011 showed that the three types of FDI had different focus areas. Financial FDI had formed a clear investment direction specifically in Business Service and Sales and Marketing. These two activities shared more than 90 percent of the total financial FDI. While for creative and manufacturing FDI, there were multiple key areas. Another feature is that the manufacturing FDI had some unique fields such as logistic and distribution, maintenance and service and manufacturing, which were also the major departments. By now, creative FDI had an advantage in the number of knowledge intensive activities like education and training.

The fastest growing sectors showed the differences in future projections. Manufacturing FDI signals a shift from traditional manufacturing investment into capital intensive activities. On the other hand, data showed the financial FDI had the tendency to reinforce the development of the knowledge intensive activities.

Different network attribute three types of FDI

The result of the core-periphery analysis showed that the micro-community, which includes 14 global cities, shows a high level of compactness in the financial industry. Two categories of actors were examined, the key actors and the outsiders. Cities in the core group like Amsterdam, Beijing, and NYC, frequently interact with each other. However, outsiders were excluded in financial FDI to some extent. By far, creative FDI has a similar structure compared to financial FDI, but to a smaller extent.

In manufacturing FDI network, there were no distinct boundaries between core and periphery actors. Division rather than prioritization exist in the manufacturing FDI network. Similar to the other two types of FDI, cities in the manufacturing sector have close contact with each other.

City characteristics as determinants for FDI

The regression results verified part of Dunning's theory that the FDI determinants are related with the types of FDI motivation but not the industrial department of FDI. The determinants are more related with the focus activities of the FDI. However, these three types of FDI still have their specific influencing factors that related to the industrial characteristics themselves.

Looking at city characteristics as the determinant for the total FDI, basically the 8 of the 16 general themes of city index dimensions were all found to be the major predictor for the total number of FDI to some extent. Eight dimensions were: 1.the culture, recreation and tourism, 2, the liveability and amenities, 3, transportation and accessibility, 4, globalization, network and exchange, 5, human capital, talent and education, 6, government and regulations, 7, business activity and economy, 8, environment and ecology. The results stated that the attraction of FDI was related to the comprehensive strength of the city development. The host cities needed to enhance urban general strength and ensure urban sustainable development from all aspects, but not just by offering preferential policies for foreign investment. FDI attraction should not be separated from the balance of urban development.

Specifically, for creative FDI, the influencing factors included **the development level of creative industry, the growth rate of GDP, the climate, culture facilities, the liveability, administrative ability and intercity transport**. Foreign investment on creative industry required both hardware facilities and software facilities in good conditions. The results also verified Florida's 3T plus Quality of Place approach (Florida, 2002) and Glaeser's 3s theory (Sun, skill, sprawl) (Landry, 2007). The driving force behind effective creative economic strategy was talented people. In this mobile age, people moved around a lot so that the liveability and climate condition is important for a city to attract and retain top talent (Florida, 2009). Moreover, administration ability was a main determinant for city competitiveness in

attraction of creative FDI. In this phrase, the government's efforts to support the creative financing were essential to help industrial upgrading.

For financial FDI, impact mainly came from **the industry level, market, labour and talent, and the liveability**. The FDI data stated that the financial sector had the enlargement of knowledge intensive items input. As talent had a positive impact on industrial upgrading and foreign financing, it was understandable that the labour and talent had significant influence.

The influencing mechanism for manufacturing FDI was not similar with the other two. First, **the industry development level had no significant effect on the manufacturing FDI**. For mature industry sectors, the absolute state of industrial development did not affect the location selection significantly. To upgrading manufacturing industry, it's important to adjust the structure to better fit the global manufacturing industry chain. Secondly, **cultural facilities** had a negative impact on manufacturing FDI. Based on Sen's cultural capital theory, there was a contradiction between blue collar culture with creative and cultural consumptions (Sen, 1999). **Liveability** could improve manufacturing foreign financing as well. Besides, the relation between **environment** and FDI was still on that discussion.

Relationship characteristics as determinants for FDI

Generally, the degree of global connectivity had a positive influence on the FDI number, especially the **information connectivity**. Besides, the centrality of **International Organization interaction** network had a significant negative effect of the FDI. NGO played as monitors and forced the multinational enterprises to abide by the environmental and social responsibility to protect the interests of the vulnerable hosts, which put pressure on the foreign investors.

Ability of using English could promote the communication and the FDI in financial and creative sectors. A shared language is a necessary tool when communication is no longer tied to geography. Interactions between cities demanded communication so that English proficiency significantly affected the cooperation between cities positively. The administrative level of the bilateral cities, on the contrary, had no clear effect.

On the network structure aspect, the **coreness** had negative impact on actors in centralized network while the **N-clique** had the positive influence on all the three types of FDI. In an obvious core-periphery FDI network, host cities endeavoured to narrow the distance to the network core by establishing linkages with members in the core group could not help drawing attentions from foreign investors. The appropriate strategy should be enlarging the maximum number of the group in which all the cities have a close relationship with each other actors.

Core cities and periphery cities

The research also compared the determinants for core cities and periphery cities. First, in the creative sector, more effort was needed to improve the **local industrial ability** and **English proficiency** for periphery cities while for core cities, while **innovation ability** was necessary

to maintain the competitiveness. Secondly, in the financial sector, **market regulation** could negatively predict the FDI number for periphery cities but could not be used for core cities. The core cities linked closely with a high degree of trust between members that core members were adapted to the institution system. While this trust was lacked within periphery cities. Also English proficiency had no significant effect on core members but on periphery cities. Thirdly, in the manufacturing sector, four indicators were only necessary for periphery cities which were **the manufacturing industry development level, housing, the number of airports and the industry chain development. The number of top airports, environment and information connectivit**y, on the contrary, only applied to core cities.

Interpretation of the main research question

Synthesizing all the analysis mentioned, the answer to the core issue of this research could be summarized as follows:

Network indicators and attribute indicators both are influential on the city's competitiveness to attract FDI in all the three industrial departments. The three types of FDI share some factors like the growth of GDP, the liveability of the city and the transport and accessibility in the city. However, these three types of sectors have their specific determinants, specified and decided by their industrial development stages, network structures and strategic investment areas. In practical terms, financial FDI is most sensitive to factors like English proficiency, labour and talent, and market regulations. Manufacturing FDI is more likely to be determined by intercity transport, city environment. Creative FDI, in comparison, is mostly influenced by cultural facilities and administrative ability of the city government.

As for network properties, the creative FDI has a similar network structure to the financial FDI. For both sectors, coreness of the host cities has a negative impact on city's attractiveness of FDI. However, the max number of cliques has been found to have a positive influence on FDI attraction. Manufacturing FDI has a distinct network structure with no hierarchical structure detected. The coreness of host cities has no significant impact while the N-clique promotes the foreign financing.

Furthermore, the research tested the effects of the connectivity degree of cities' hard-network, soft-network and org-network. The result indicated that generally the connectivity would stimulate the financing activities, with the information connectivity weighing the most.

An addition to the existing body of knowledge

This research combined the conceptual and theoretical evolution of FDI and the global city network. In addition, it discussed the determinants of the creative industries. Besides, quantitative analysis was used to explain the location factors that influencing the FDI destination selection. The study created cohesion between FDI theory, urban competitiveness theory and the global city network theory; this will enrich and help to continue to develop the industrial development theory.

The novel approach of this article is in changing the traditional research paradigm which only studied the overall FDI without considering the variance of the national and industrial conditions. This study analysed the distribution patterns and performance of FDI in seven regions, and explained the different determinants for the three types of FDI. In this way, this study allowed the analysis of the FDI mechanism to be more accurate and practical.

Moreover, the traditional theory of FDI mainly used the individual attribute data and rarely considered the interactions between cities. This paper described the network structure and explored the role of relationship attribute and the alliance strategy, providing a new train of thought for the FDI theory.

Owning to the limitation of data, more specific discussion on the network attribute and the time effect will be discussed in the future.

Recommendations

As FDI could generate an inestimable influence on the economic growth and city competitiveness, cities have offered incentives to encourage FDI in their economies. Returning to the practical recommendations, four aspects should be considered in policy discussions on spatial and economic development to influence the competitiveness of the city in attracting more FDI.

1. **The FDI introduction should adapt to the development stage of the city.** The industrial development strategy should be consistent with the country's endowment structure so that the enterprises could have surplus accumulation (Lin, 2008). The development of FDI should also be in accordance with the local competitive advantages to fully use the resources and talent. As three types of FDI have different key development activities, cities should recognize their own conditions to choose the appropriate direction.

   In addition, both the city endowment structure and the FDI activities are not static. The industrial policy of FDI should be in conformity with the national economic structure strategic adjustment. For example, labor and talent are not significant indicators for creative FDI. Compared with the development route of financial FDI during the past year, there is high probability that the future trend of creative FDI will be focused on knowledge intensive industries. Cities that plan to have a position in this area should be proactive in order to take advantage of this projected shift.

2. **In order to attract foreign capital, it is necessary to strengthen the hardware facilities and soft environment construction.** In addition to formulating industrial policy, host cities should strengthen their physical infrastructure. Having a developed infrastructure is advantageous to foreign capital investment. Cities' physical infrastructure and facilities should meet the requirements that would allow all parties to achieve a win-win situation.

The soft power of the host cities will gradually become more important because foreign investors have to bear a cost to adapt their strategies to the specific context and institutional frameworks that will vary depending on the city in question.

3. **Besides the self-development, cities need to find the appropriate partners of bilateral relations and set up long term cooperation relationship with strategic alliance.** In recent years, foreign investment giants also constantly seek new strategic alliances with interested partners. The goal for these strategic alliances is to bring and allocate the resources needed to optimize their respective competitive advantage. Different sectors of FDI have specific partnership strategies because patterns of network structure vary. For host cities, the appropriate strategy should be enlarging the maximum number of the group in which all the cities have a close relationship with each actor rather than shorten the distance with the core members, as the number of the max clique of a city will have a more significantly effect on FDI introduction than its degree of coreness.

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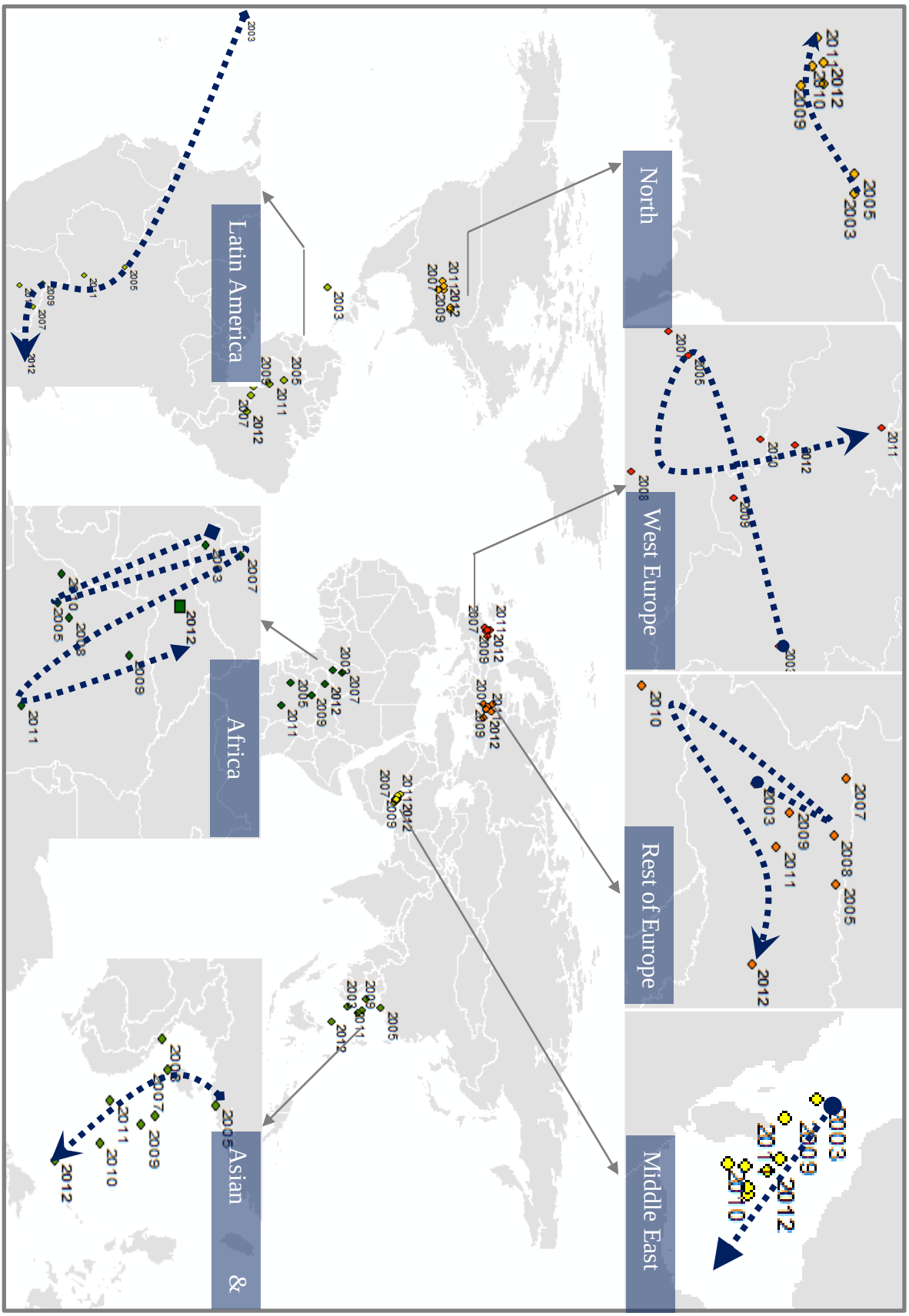
ANNEX 1: CITY LIST

ID	city	country	region
1	Amsterdam	Netherlands	West Europe
2	Athens (Athina)	Greece	West Europe
3	Atlanta (Ga)	United States	North America
4	Auckland	New Zealand	Asian and Pacific
5	Austin (Tx)	United States	North America
6	Baltimore (Md)	United States	North America
7	Bangalore	India	Asian and Pacific
8	Bangkok	Thailand	Asian and Pacific
9	Barcelona	Spain	West Europe
10	Beijin	China	Asian and Pacific
11	Berlin	Germany	West Europe
12	Bogota	Colombia	Latin America
13	Boston (Ma)	United States	North America
14	Brisbane	Australia	Asian and Pacific
15	Brussels	Belgium	West Europe
16	Budapest	Hungary	Rest of Europe
17	Buenos Aires	Argentine	Latin America
18	Cairo	Egypt	Africa
19	Calcutta	India	Asian and Pacific
20	Calgary	Canada	North America
21	Cape Town	South Africa	Africa
22	Charlotte (Nc)	United States	North America
23	Chengdu	China	Asian and Pacific
24	Chicago (Il)	United States	North America
25	Cincinnati (Oh)	United States	North America
26	Cleveland (Oh)	United States	North America
27	Columbus (Oh)	United States	North America
28	Copenhagen	Denmark	West Europe
29	Dalian	China	Asian and Pacific
30	Dallas (Tx)	United States	North America
31	Denver (Co)	United States	North America
32	Detroit (Mi)	United States	North America
33	Dongguan	China	Asian and Pacific
34	Dubai	United Arab Emirates	Middle East
35	Dublin	the Republic of Ireland	West Europe
36	Frankfurt	Germany	West Europe
37	Geneve	Switzerland	West Europe
38	Glasgow	UK	West Europe
39	Guangzhou	China	Asian and Pacific
40	Hamburg	Germany	West Europe
41	Hangzhou	China	Asian and Pacific
42	Helsinki	Finland	West Europe

ID	city	country	region
43	Ho Chi Minh City	Vietnam	Asian and Pacific
44	Hong Kong	Hong Kong, China	Asian and Pacific
45	Houston (Tx)	United States	North America
46	Indianapolis (In)	United States	North America
47	Istanbul	Turkey	Rest of Europe
48	Jakarta	Indonesia	Asian and Pacific
49	Johannesburg	South Africa	Africa
50	Kuala Lumpur	Malaysia	Asian and Pacific
51	Las Vegas (Nv)	United States	North America
52	Lisbon	Portugal	West Europe
53	Liverpool	UK	West Europe
54	London	UK	West Europe
55	Los Angeles (Ca)	United States	North America
56	Lyon	France	West Europe
57	Madrid	Spain	West Europe
58	Manila	Republic of the Philippines	Asian and Pacific
59	Melbourne	Australia	Asian and Pacific
60	Memphis (Tn)	United States	North America
61	Mexico City	Mexico	Latin America
62	Miami	United States	North America
63	Milano	Italy	West Europe
64	Milwaukee (Wi)	United States	North America
65	Minneapolis (Mn)	United States	North America
66	Monterrey	Mexico	Latin America
67	Montreal	Canada	North America
68	Moscow	Russia	Rest of Europe
69	Mumbai	India	Asian and Pacific
70	Munich	Germany	West Europe
71	Nashville (Tn)	United States	North America
72	Ningbo	China	Asian and Pacific
73	Nyc (Ny)	United States	North America
74	Osaka	Japan	Asian and Pacific
75	Oslo	Norway	West Europe
76	Paris	France	West Europe
77	Philadelphia (Pa)	United States	North America
78	Phoenix (Az)	United States	North America
79	Pittsburgh (Pa)	United States	North America
80	Portland (Or)	United States	North America
81	Prague	the Czech Republic	Rest of Europe
82	Qingdao	China	Asian and Pacific
83	Rio De Janeiro	Brazil	Latin America
84	Rome	Italy	West Europe
85	Rotterdam	Netherlands	West Europe
86	San Antonio (Tx)	United States	North America

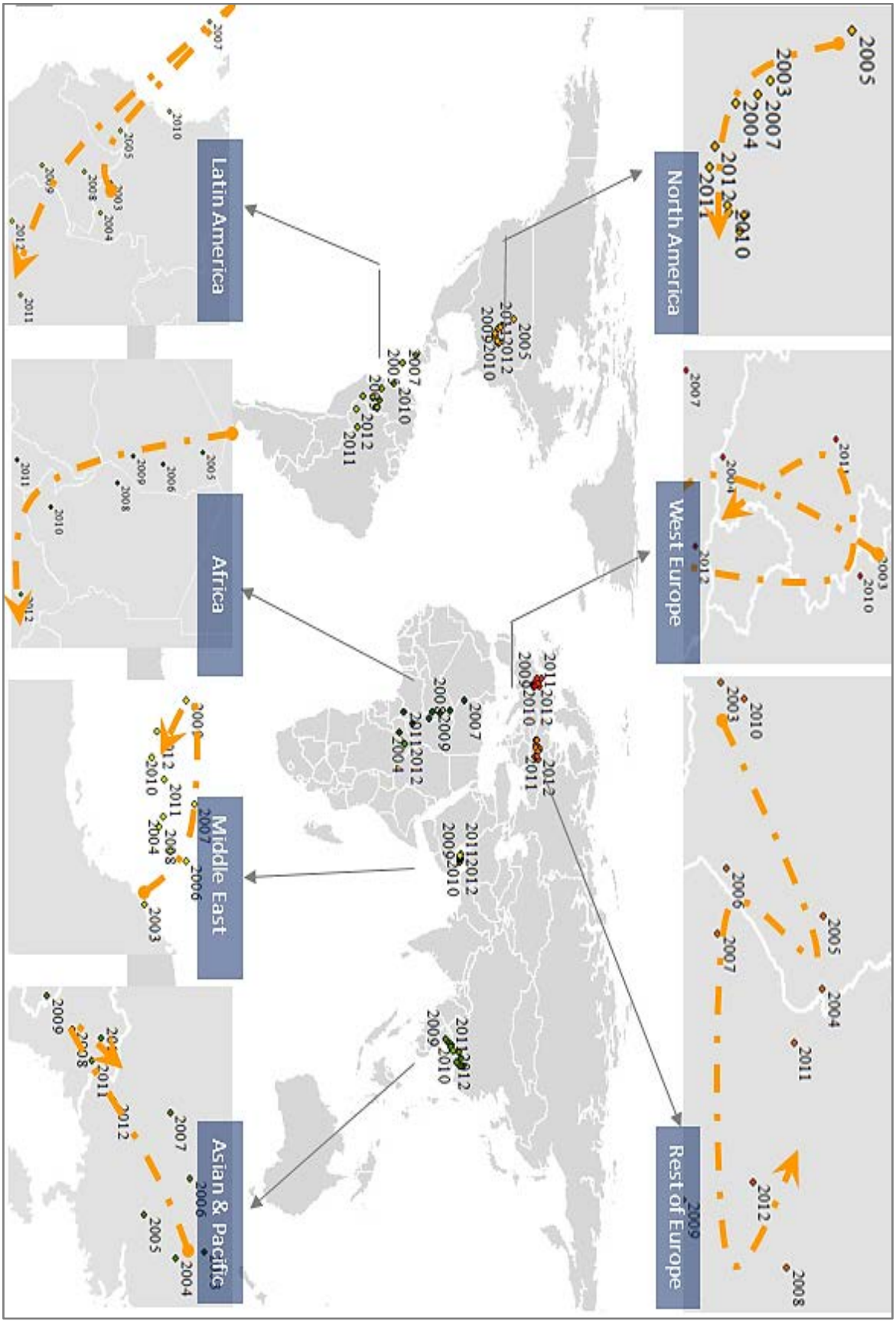
ID	city	country	region
87	San Diego (Ca)	United States	North America
88	San Francisco (Ca)	United States	North America
89	San Jose (Ca)	United States	North America
90	Santiago De Queretaro	Chile	Latin America
91	Sao Paulo	Brazil	Latin America
92	Seattle (Wa)	United States	North America
93	Seoul	South Korea	Asian and Pacific
94	Shanghai	China	Asian and Pacific
95	Shenyang	China	Asian and Pacific
96	Shenzhen	China	Asian and Pacific
97	Singapore	Singapore	Asian and Pacific
98	St Louis (Mo)	United States	North America
99	St. Petersburg	Russia	Rest of Europe
100	Stockholm	Sweden	West Europe
101	Suzhou	China	Asian and Pacific
102	Sydney	Australia	Asian and Pacific
103	Taipei	Taiwan, China	Asian and Pacific
104	Tel Aviv	Israel	Middle East
105	Tianjin	China	Asian and Pacific
106	Tokyo	Japan	Asian and Pacific
107	Toronto	Canada	North America
108	Vancouver	Canada	North America
109	Vienna	Austria	West Europe
110	Warsaw	Poland	Rest of Europe
111	Washington, Dc	United States	North America
112	Wuhan	China	Asian and Pacific
113	Xiamen	China	Asian and Pacific
114	Xi'An	China	Asian and Pacific
115	Zurich	Switzerland	West Europe

ANNEX 2.1: MOVING TREND OF CREATIVE FDI



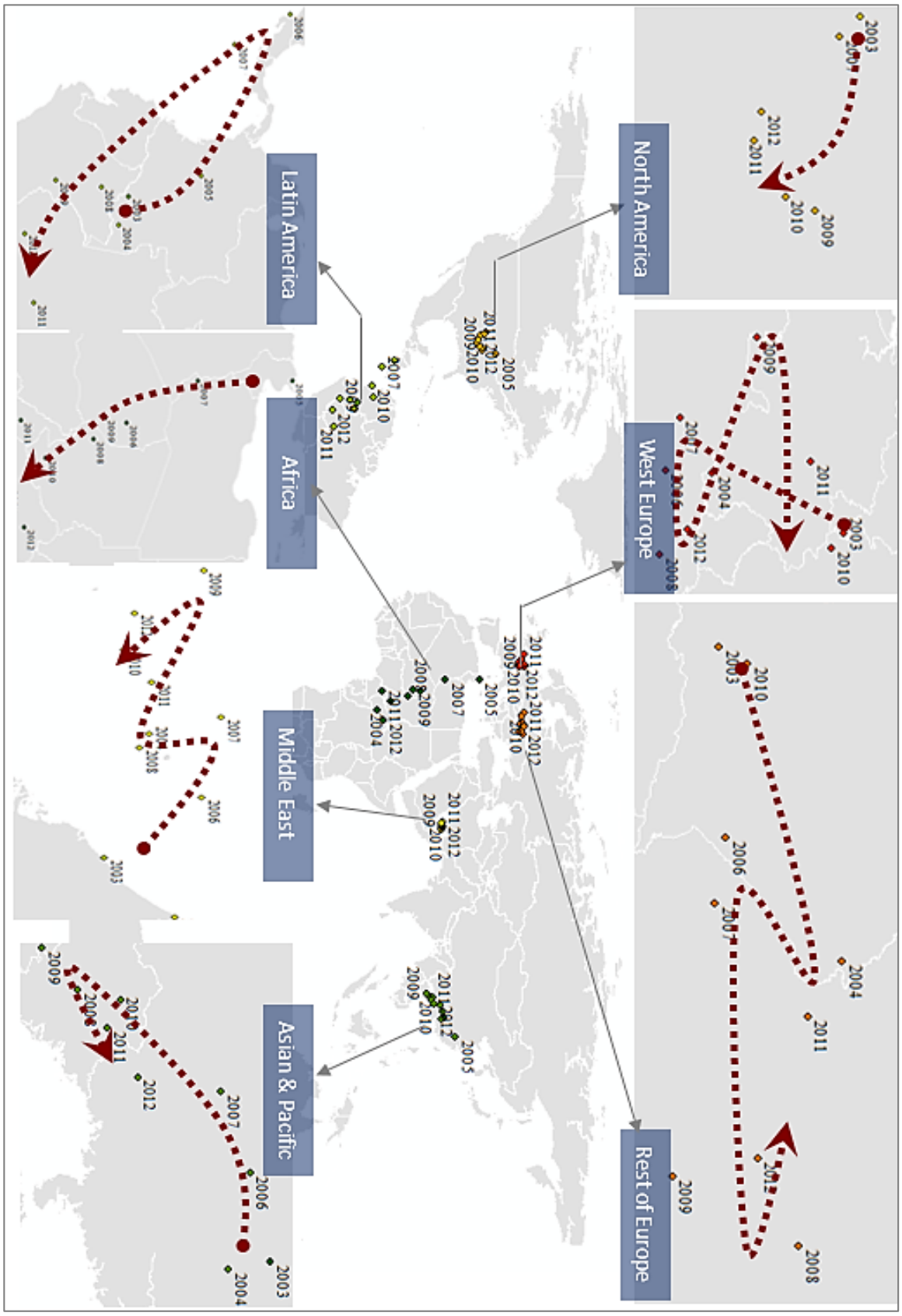
The moving trend of **creative** FDI centre in seven world regions in 2003-2012

ANNEX 2.2: MOVING TREND OF FINANCIAL FDI



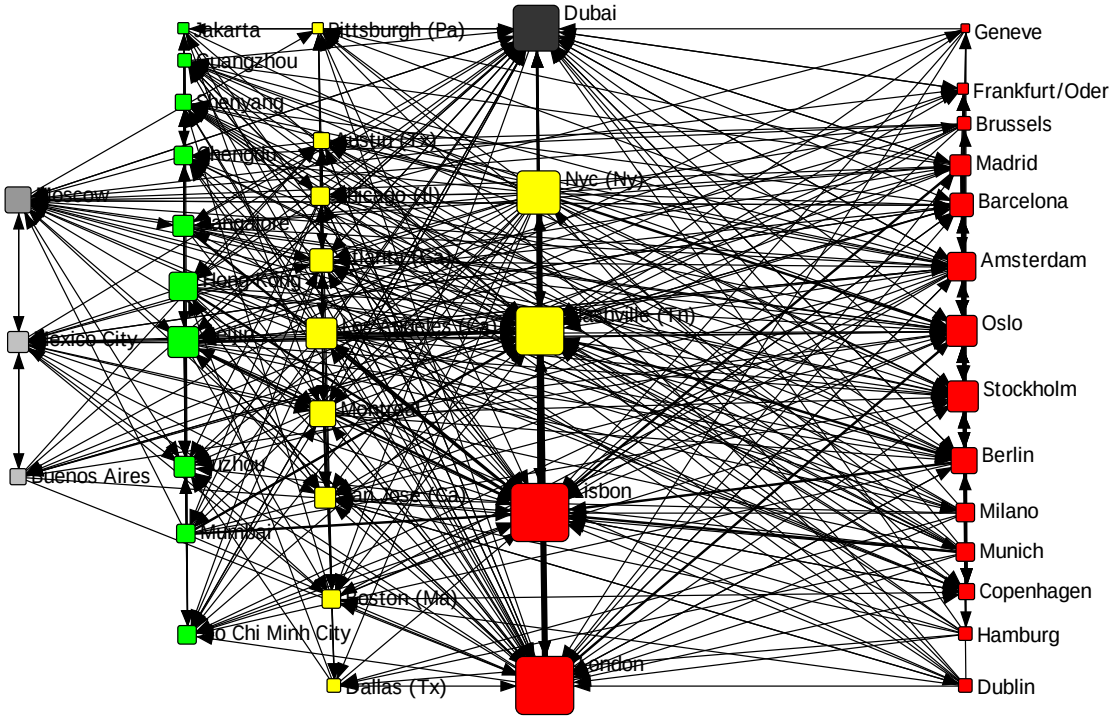
The moving trend of **financial** FDI centre in seven world regions in 2003-2012

ANNEX 2.3: MOVING TREND OF MANUFACTURING FDI

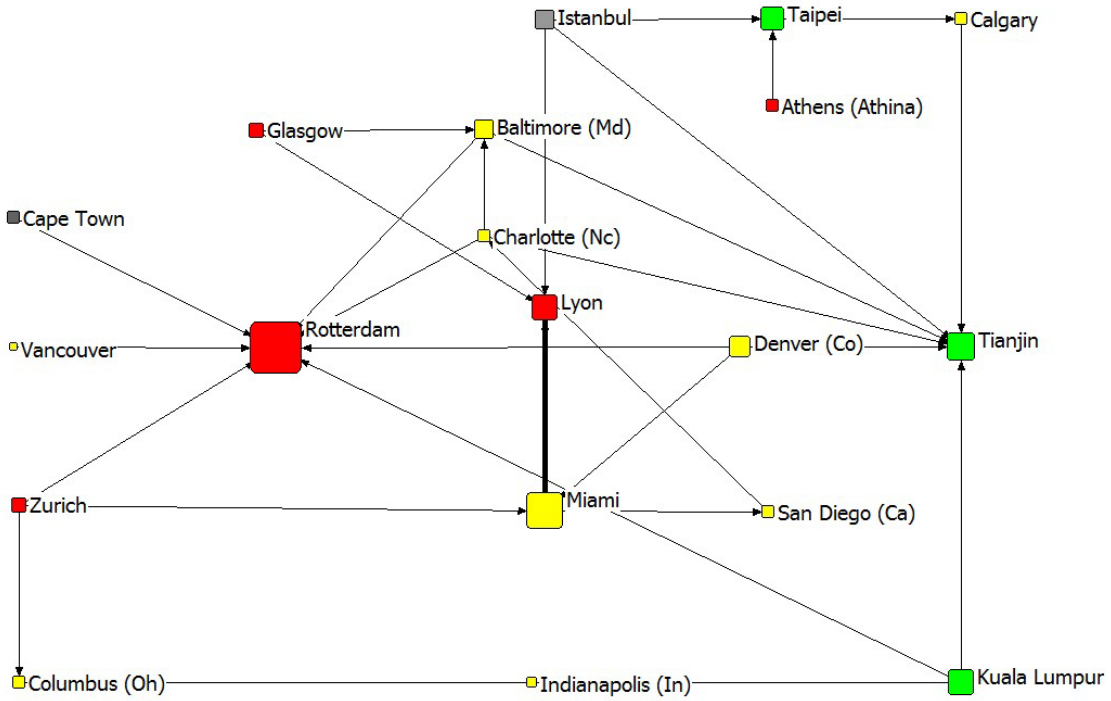


The moving trend of **manufacturing** FDI centre in seven world regions in 2003-2012

ANNEX 3.1: FACTIONS OF CREATIVE FDI HOST CITIES

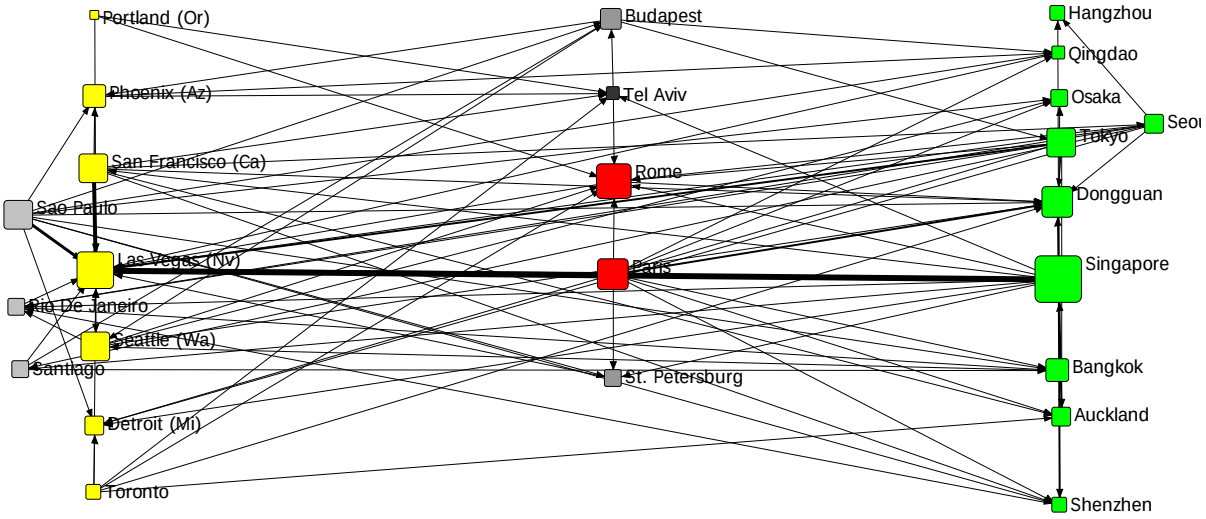


The core cities group[3]

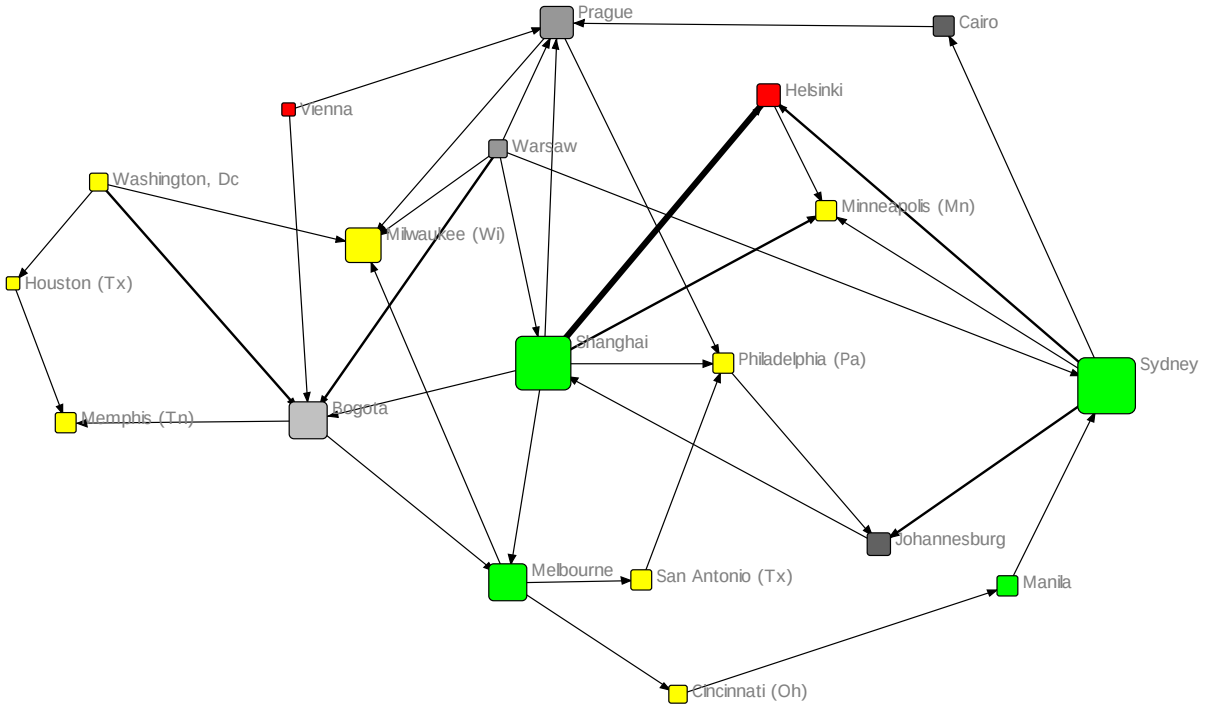


The North America and European group

[3] Note: the green block represents Asia and Pacific cities. The red ones are West European cities. The yellow ones are North America. The others are from the rest regions.

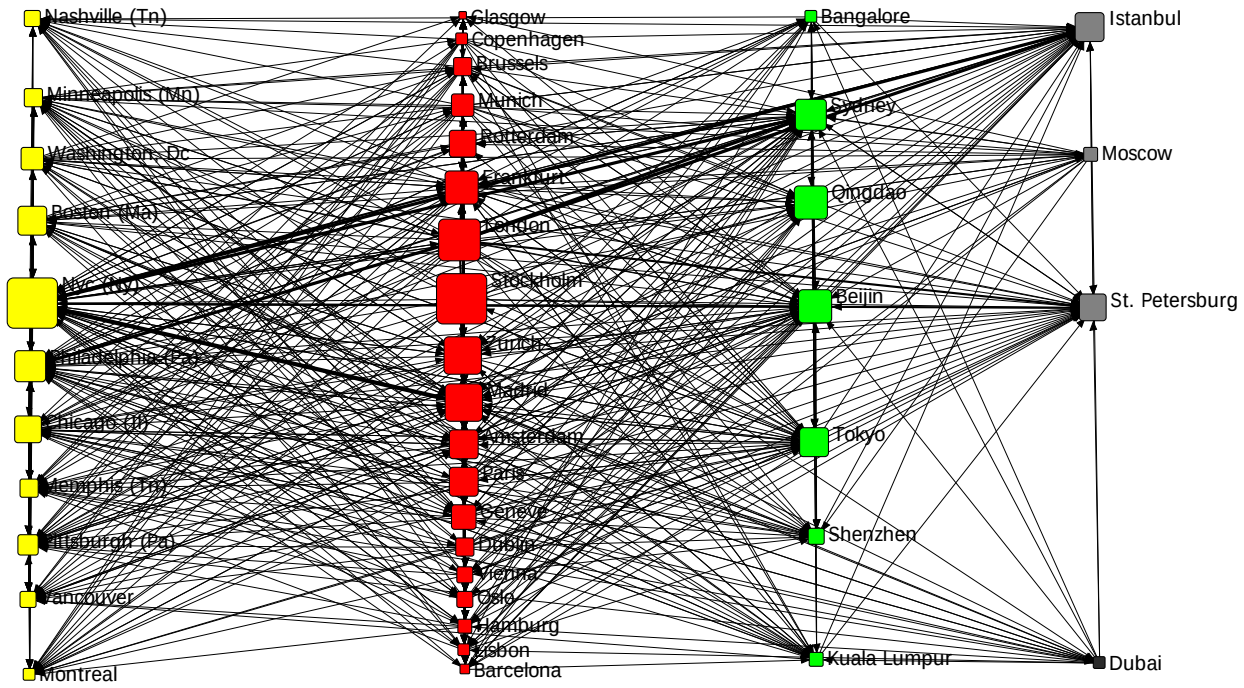


The Asia and Pacific cities and American group

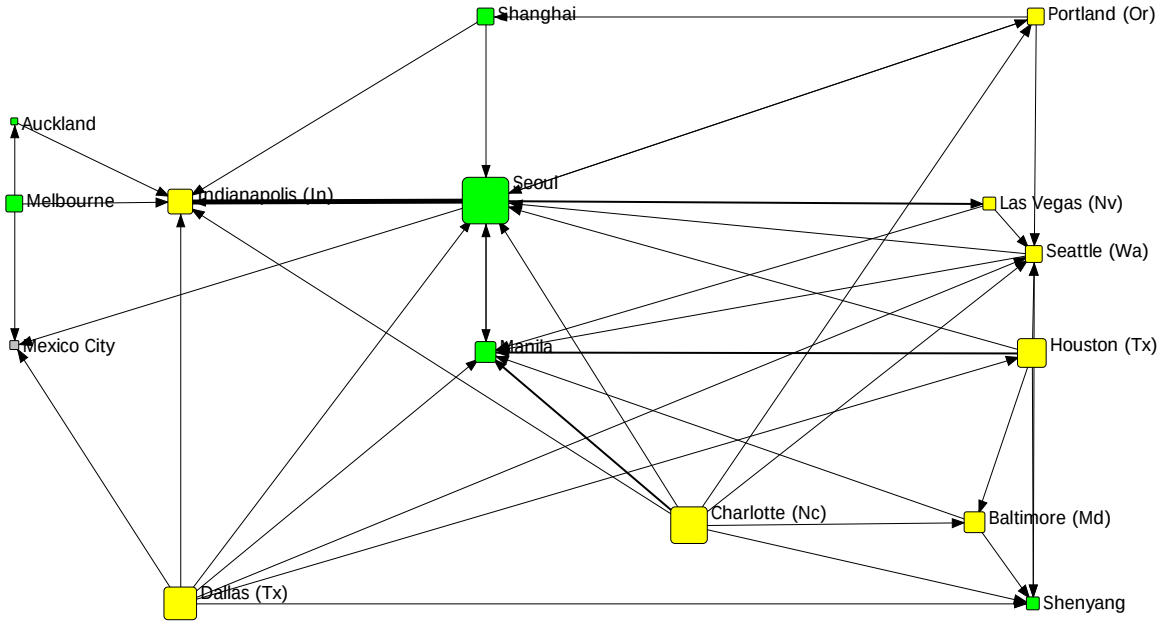


The periphery group

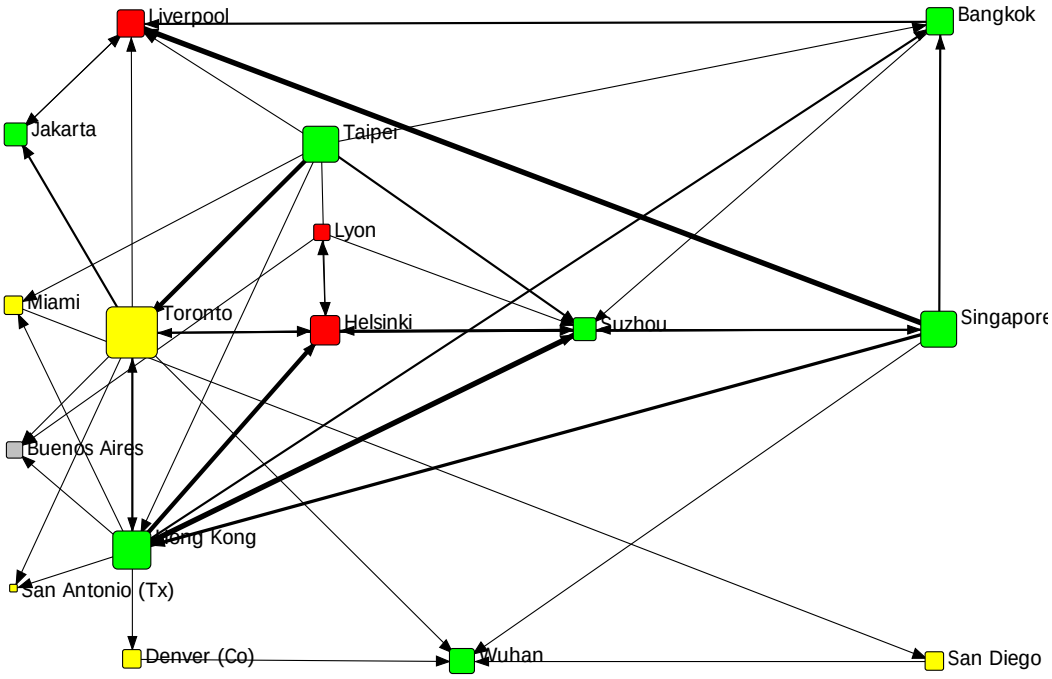
ANNEX 3.2: FACTIONS OF FINANCIAL FDI HOST CITIES



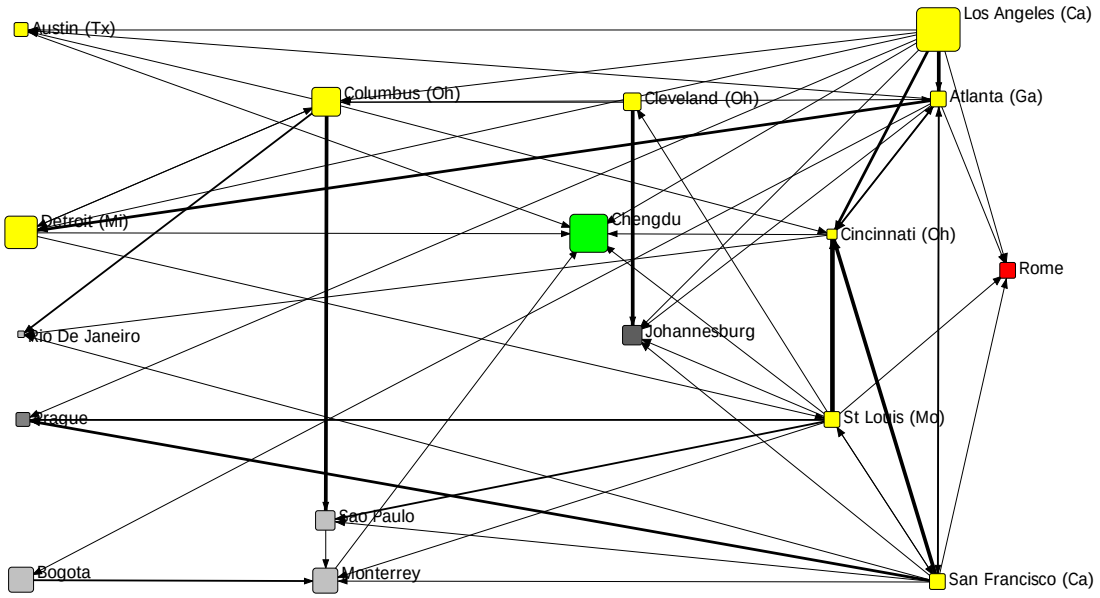
The core cities group



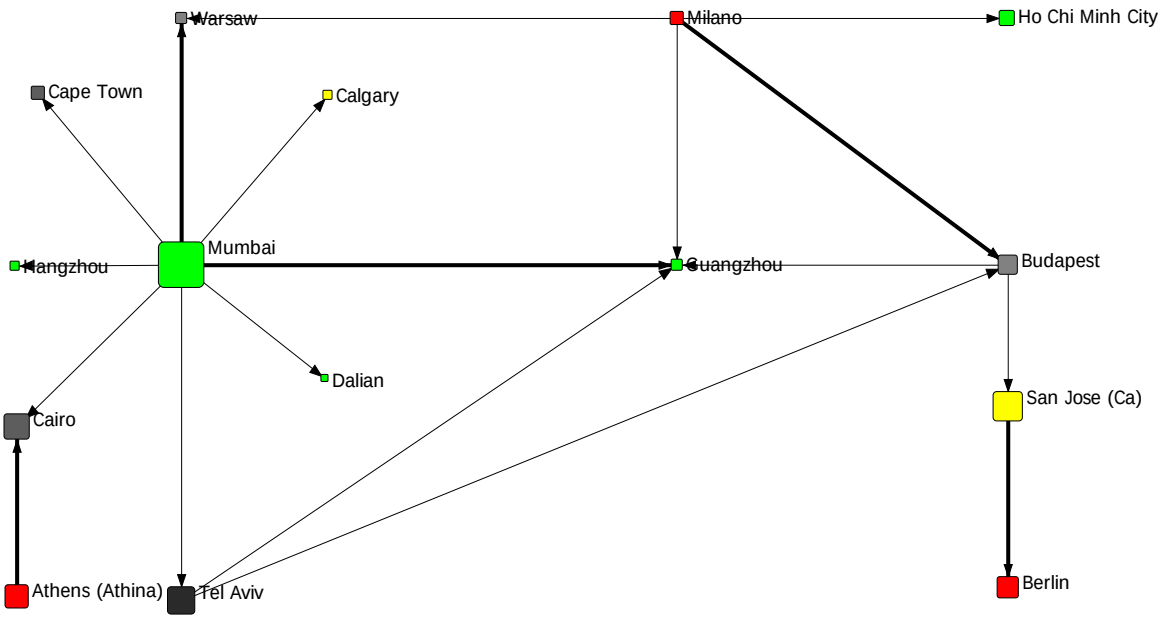
The North America and Asia and Pacific group



The Asia and Pacific group

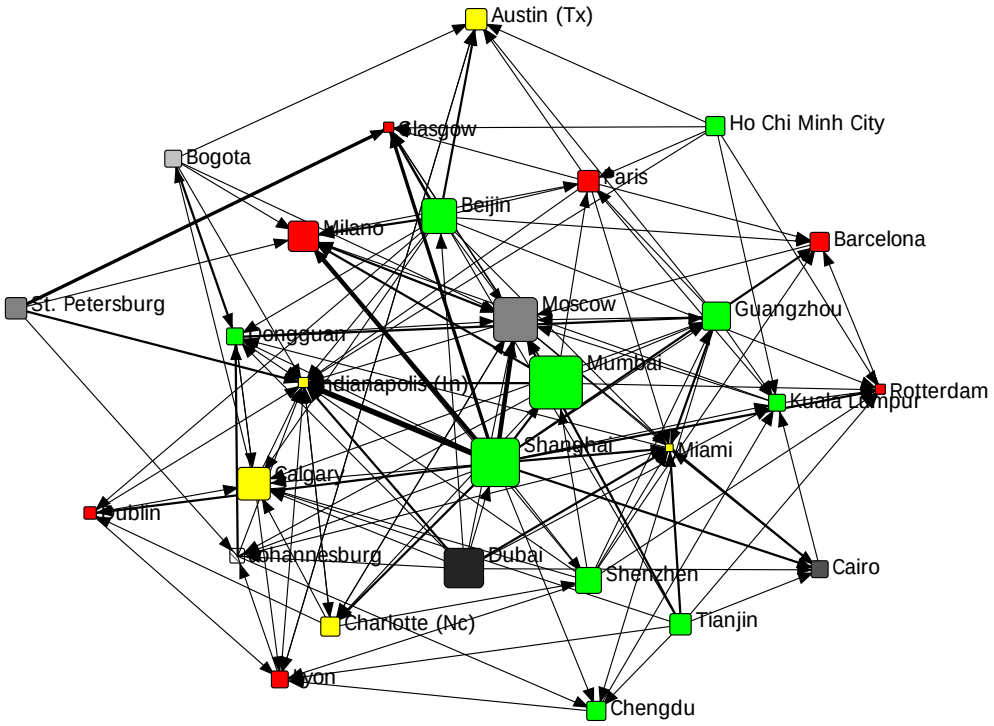


The North America and Latin America group

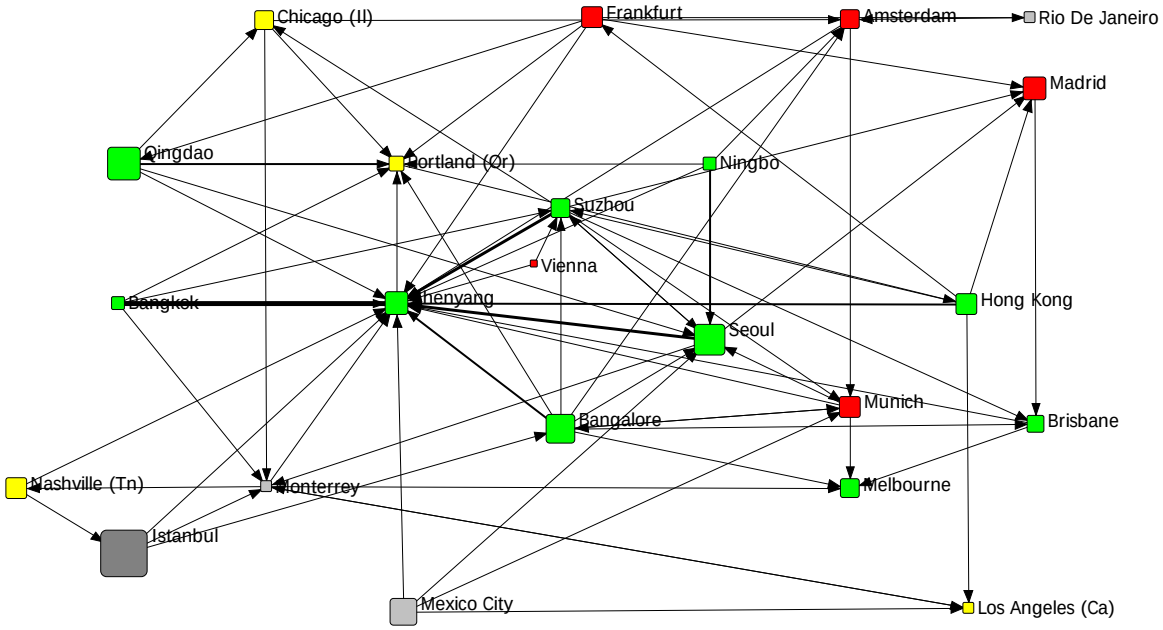


The periphery group

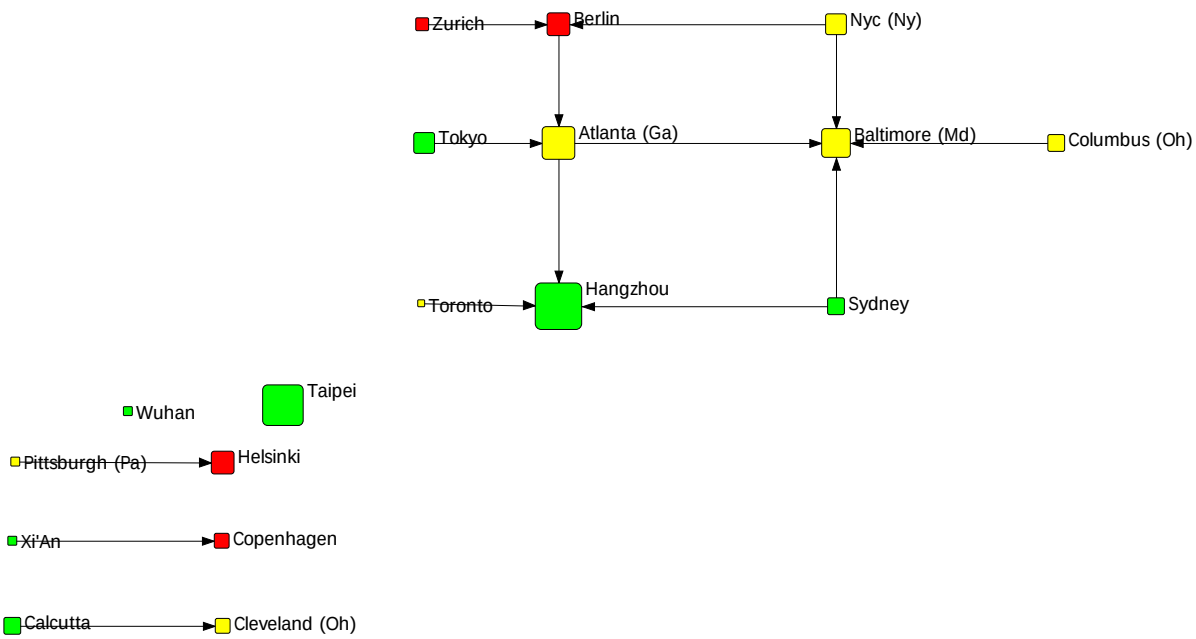
ANNEX 3.2: FACTIONS OF MANUFACTURING FDI HOST CITIES



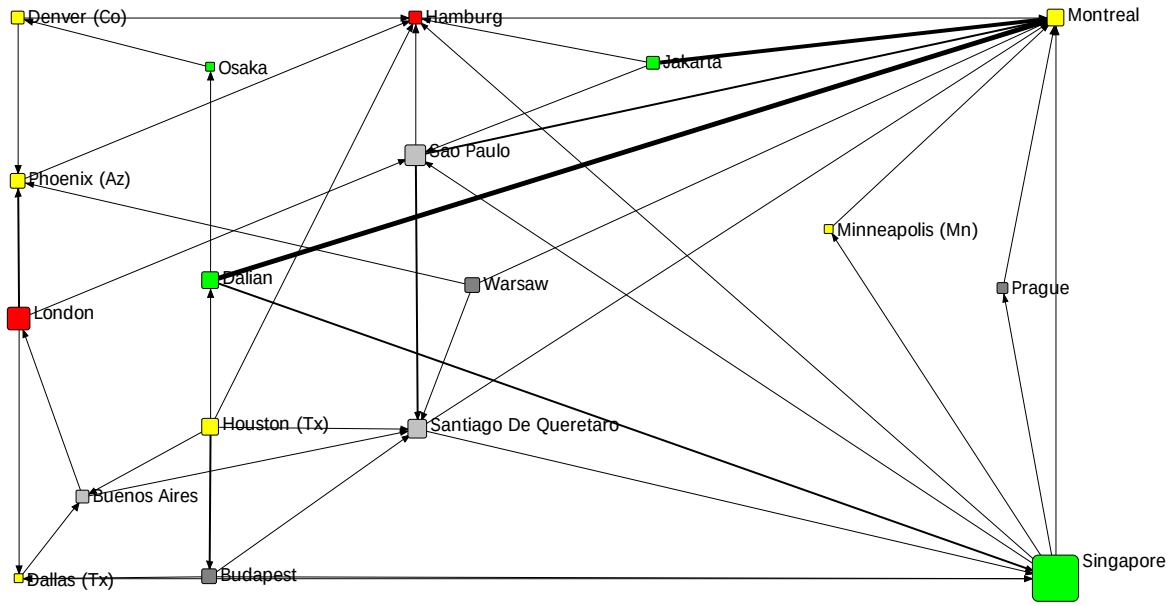
The Asia and Pacific group (core)



The Asia and Pacific and Europe group



The Asia and Pacific - West Europe - North America group



The periphery group