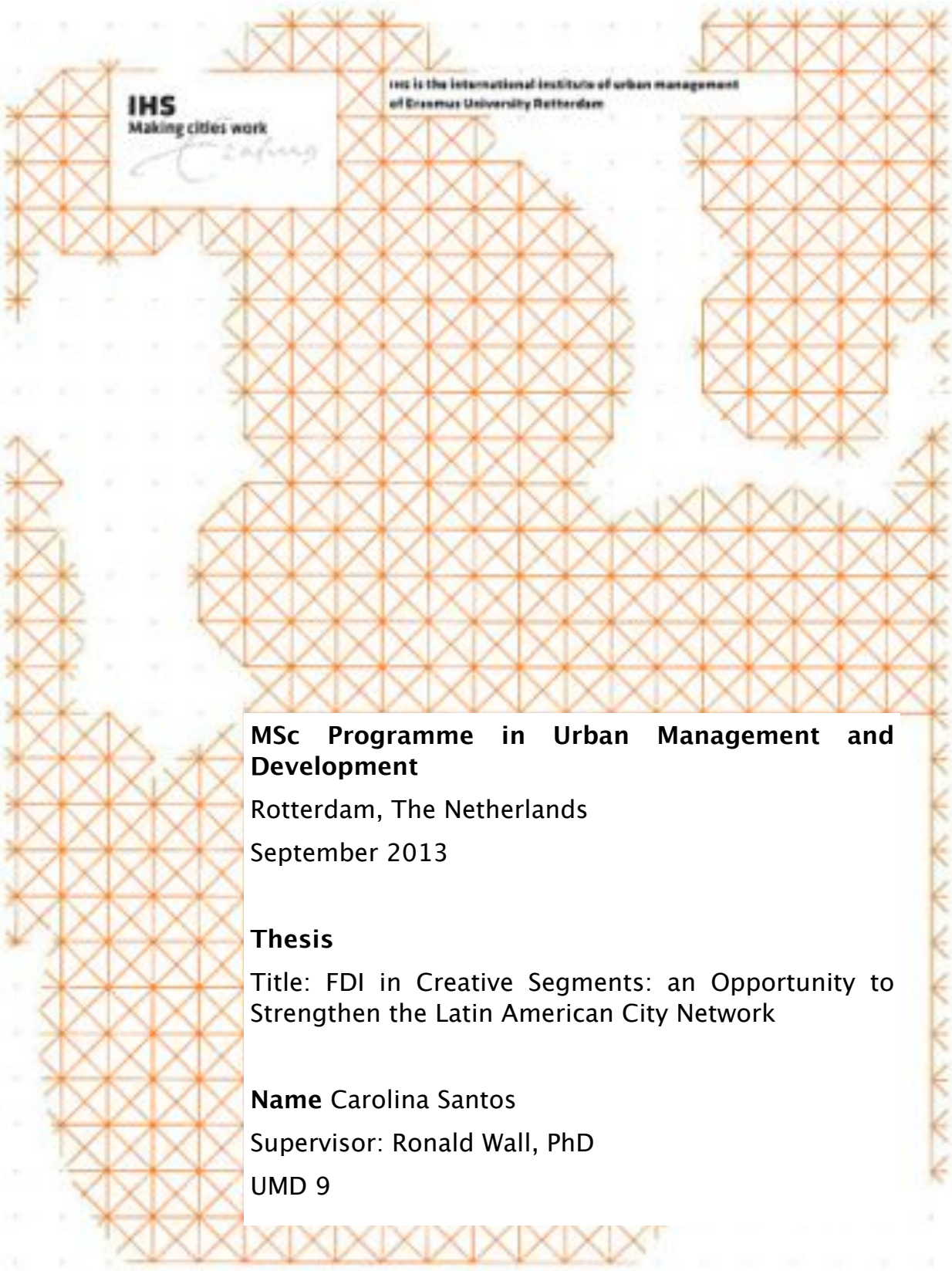

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Title: FDI in Creative Segments: an Opportunity to Strengthen the Latin American City Network

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FDI in Creative Segments: an Opportunity to Strengthen the Latin American City Network

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Rotterdam, September 2013

Summary

By selecting creative industries as the subject of this study, we support the argument that the promotion of creative segments is beneficial to the general development of a city and a society. The research seeks to understand the general dynamics of the creative segments network by the profound study of a region of the world. The regional analysis in Latin America included observation of trends, description of actors, and evaluation of indicators which resulted in empirical evidence of important factors to attract creative segments. In consequence, we present a tool to help cities identify factors that will improve competitiveness in creative segments.

To ensure the thoroughness of the study, we used analyses and techniques that complemented each other's results. The use of longitudinal and network analyses, allowed to describe the development of the network over a period of time, as well as to present a picture of the accumulated linkages. In our methodology, we argue that FDI can be useful in regional analysis by using the number of investment as a measure of attractiveness. By relating location factors and FDI, we recognised significant factors for the attraction of creative segments.

The research confirmed the positions of Sao Paulo and Mexico City as the leading FDI destinations of the region, however these cities have a limited participation on the regional network. Through the evidence we identified a second group of cities that hold the place of regional hubs and are among the top sources of investment; Buenos Aires, Santiago, and Bogotá Even though the network within the region is relatively weak, we argue that the promotion of creative segments can be a strategy to strengthen the regional city network..

Within the factors that positively affect the attraction of FDI we can recognise connectivity, human capital, and capacity for innovation. Human capital is a weakness for Latin America in general, but we found that the promotion of skills is more important than higher education enrolment. Meanwhile, the capacity for innovation also relates to the importance and reputation given to creative functions. Connectivity is basic for competitiveness, and therefore the region would benefit from a stronger network.

Ultimately, the evidence shows that FDI in Latin America is increasing and that creative segments are growing faster than other segments. It also shows that there is a fair amount of FDI in creative segments going from Latin American cities to others in the region, which present an opportunity for Latin America to reinforce the intraregional network through.

Keywords

Creative classes, Latin America, network analysis, Foreign Direct Investment, Competitiveness

List of Abbreviations

BS - Business Services
DDT - Design, Developing, and Testing
FDI - Foreign Direct Investment
GCI - Global Competitiveness Index
H - Headquarters
ICT - Information and Communication Technologies
M&A - Merger and acquisition
R&D - Research and Development
SMS - Sales, Marketing, and Support
VIF - Variance Inflation Factor

User's Guide

This section is a source of reference for the reader, which presents basic terms and concepts of network studies and how they should be interpreted for the purpose of this study.

- Industrial sectors: Categorization of industries based on their final products.

- Business activities: The distribution of functions in an industry to carry on a productive process. The business activities referred to in this study are: *Extraction*; *headquarters*; *research & development*; *design, development, & testing*; *manufacturing*; *sales, marketing, & support*. They are often presented by their initials and in italics for easier comprehension.

- industrial segments: Industrial segment is the combination of an industrial sector and a business activity. For purpose of clarity, industrial segments are presented in italics and joined by a hyphen in the following format: *Industrial sectors - BA (Business Activity)*

- lock-in: The lack of openness and flexibility in searching for economic solutions which restricts the innovation process.

- nodes: actors within a network; they can be persons, cities, countries. In the context of this study, the nodes are the Latin American cities.

- flows or linkages: The interactions and exchanges that happen between two nodes. The linkages referred to in this study are the FDI transactions.

- source: The node where a flow originates. In the context of this study, sources are the cities providing outward investment.

- destination: The node that receives a flow. In the context of this study, destination refers to the city or the industrial segment that receives the investment.

- foreign direct investment (FDI): Investment made by one firm in a foreign country with the purpose of expanding its activity. It can take the form of mergers and acquisitions, or greenfield investment. The results of the study only present data on greenfield investments.

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Chapter 1: Introduction

1.0 Introduction

The proliferation of information and communication technologies allows us to interact with different locations easily, and has turned the economy into a global phenomena. The interconnectedness of the world has given access to large and diverse markets as well as a vast array of resources, both critical for economic growth. In consequence, we have a world growing GDP of $70 trillion, 20% larger than in 1990 (World Economic Forum (WEF), 2013).

The global network has also increased the importance of Foreign Direct Investment (FDI). According to the World Economic Forum (2013), FDI has gone from representing 8% in 1990 to 29% of the world's total GDP in 2011. FDI is not only an indicator for the world economy, it is also an instrument to promote local development and economic growth.

However, interconnectedness does not only represent an expansion of opportunities, it may also pose obstacles and higher vulnerability. For more than 20 years, and particularly after the 2008 economic crisis, intellectuals, economists, and politicians have all turned their interest to globalization. Not only is it important to understand its effects on national economies, but it is also critical to improve local resiliency to global crises.

Peter Dickens (2011, p.8) expressed that globalization "is not an inevitable end-state but, rather, a complex, indeterminate set of processes operating very unevenly in both time and space." These processes occur in the form of continuous flows of people, resources, values, or even ideas. The number, type, and quality of a place's networks are clear indicators of its competitiveness.

Some regions, countries, and cities have proved to be more competitive in attracting investment than others. This study presents FDI as a tool to measure competitiveness. Although FDI is highly concentrated in the OECD region, the progressive growth of investments going in and out of developing countries has gotten attention in many reports (WEF, 2012; fDi Intelligence, 2013).

Costs, location, market size, and cultural proximity are some of the factors that affect FDI attraction (Wall, Burger, Knaap, 2011). The role of population in attracting investments has been the center of the theories of authors like Jane Jacobs, Edward Glaeser, and Richard Florida. Whether it is called diversity, capability, or creativity, the relation of human factors and economic growth has increasingly caught attention.

By using a network analysis approach in analyzing FDI, this study aims to understand the relative role of location factors in shaping the world's creative economic geography, more particularly in Latin America. Based on Richard Florida's description of the creative classes,

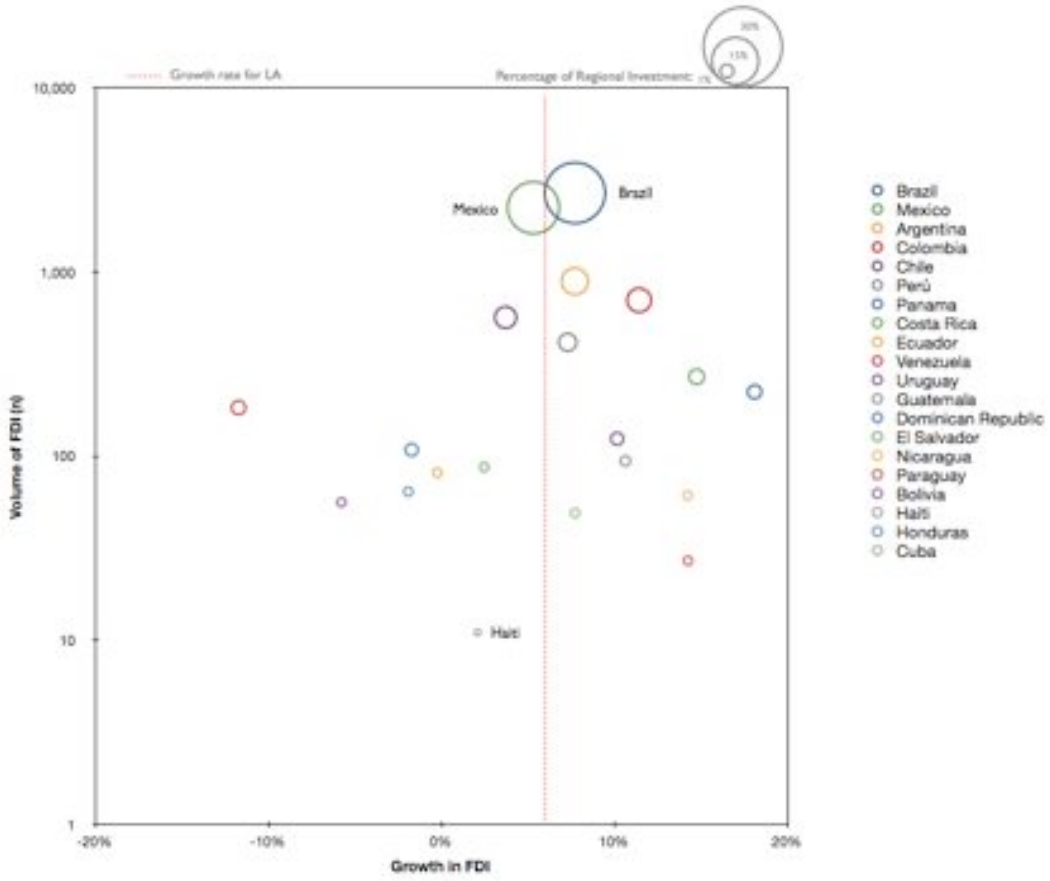
we analyze a series of industrial segments recognized as creative to establish the geographical network trajectories of creative segments in the region. More in detail, the study helps determine the relation between location factors and the amount of investment in the region.

1.1 Background

After the debt crisis in Latin America in the 1980s, the continents agreed to follow a set of recommendations promoted by international institutions, they came to be known as the Washington Consensus. Among these recommendations, number 7 was the Liberalization of Inward Foreign Direct Investment (Williamson, 1990). From that moment on, the FDI flows to the region have been in constant expansion.

The volume of FDI in Latin America has grown at a 6.91% growth rate in the past 10 years. The year 2010 was the exception to the trend, with a decrease in FDI most probably as a consequence to the world economic recession. Chart 1 shows an evaluation of the performance of Latin American countries in terms of volume and growth of FDI. It is important to note that although in general FDI is increasing, not every country experienced an increase in FDI. The extreme case is Venezuela with a decreased rate of -11.71%. Bolivia, Honduras, Dominican Republic, and Ecuador also present negative values.

Chart 1. FDI (n) inflow in Latin America per country (2002-2012)



We can see that FDI inflows are strongly concentrated in 6 countries. More than 79% of FDI of the past 10 years went to Brazil, Mexico, Argentina, Colombia, and Chile; Brazil and Mexico alone were destination for 55.05%. Additionally, Colombia is also among the fastest growing FDI destination with a 11.44% growth rate. In addition, the countries with higher growth rates are Panama (18.11%), Costa Rica (14.76%), Paraguay (14.26%), Nicaragua (14.23%), Guatemala (10.64%), and Uruguay (10.17%).

The industrial sectors that received more FDI in Latin America during the past 10 years are *Software & IT Services*, *Business Services*, *Metals*, *Financial Services*, *Communications*, and *Food & Tobacco*. These six industries together received 44.25% of the total FDI of the region. Among these industries, three are also among the fastest growing: *Business Services*, *Financial Services*, and *Software & IT Services*. On the contrary, the metal industry has been reducing it's importance by decreasing at a rate of -8.34%.

In terms of business activities, 30.85% of FDI for the past 10 years was directed to *Manufacturing Activities*. Followed by *Sales, Marketing & Support* which received 19.41%, and *Business Services* with 11.77%. To recognize the evolution of the economy in Latin America, it is relevant to comment that although *Extractive Activities* are one of the most important destination activities for FDI, the number of investments are decreasing at a rate of -26.66%.

1.2 Problem Statement

Latin America is a region that presents big contrasts between the economies of different countries. The two clear leaders in the region are Brazil and Mexico. In the past 10 years, the two combined were the destination to over 50% of the total FDI of the region. At the same time, there are countries like Haiti, Paraguay, and Cuba which together do not even have 1%.

Additionally, only 10.35% of the total FDI inflow of the region comes from other Latin American countries while 76.49% comes from North America and Western Europe. The weak regional FDI network and strong dependance on foreign investment, leaves the region highly vulnerable.

Although the importance of creative industries for economic growth has been previously acknowledged and efforts to support the creative industries are being promoted, there is no information about the current situation of the creative industries in Latin America and the opportunities they pose to strengthen the regional network. Moreover, there is little understanding on what location factors attract creative FDI to certain Latin American cities.

1.3 Objectives

By analyzing the FDI flows and the network trajectories, this study seeks to understand the growth pattern of the creative industries in Latin America, as well as analyze the creative sectors that are more competitive in the area. Furthermore, we want to determine the geographical distribution of the FDI.

Moreover, by mapping major interactions and the most important nodes in the creative industries network, we will recognize major trends and characteristics of the network. We also seek to understand which are the relevant location factors that represent strengths and weaknesses for Latin America as a region, and for cities and countries in particular.

This study will present an empirical instrument to help local governments recognize their own strengths and weaknesses, and a guidance to design their policies accordingly. Ultimately, we intend to assess wether creative industries present an opportunity for cooperation within Latin American countries to enrich the regional network.

1.4 Significance of the Study

Florida (2005, p. 22) stated that “human creativity is the ultimate source of economic growth”. On top of that, the Global Creativity Index also proved a positive relation between creativity and a city’s competitiveness, entrepreneurial activities, and human development (Martin Prosperity Institute, 2011).

Creativity has not only gained the attention of intellectuals, international organizations also recognize the importance of creativity in the international trade system. Proposals encourage governments to create policies that promote the development of local creative industries as a strategy for inclusive and sustainable economic growth (UN, 2010), as well as for improving resiliency during times of crisis (Gabe, Florida, and Mellander, 2013).

In order to attract further FDI in creative segments, national and local governments need to strengthen their environment for investment. Through the description of the process and dynamics involved during the formation of networks, this study helps recognize the characteristics that make cities attractive, as well as identify the factors that represent weaknesses. Overall, the study will help determine the locational factors that local governments need to improve their competitiveness.

In particular, the study recognizes the interests of investors in creative industries in Latin America. Innovation and creativity are qualities that improve economic growth and therefore understanding the economic sectors that attract investment to Latin America gives a better orientation for recognizing possible competitors and partners.

1.5 Central Research Questions

- What are the patterns of investment and the geographical network trajectories for the creative industries in Latin America?
  - Which Latin American cities are the most competitive in attracting investment for creative industries?
  - Which factors contribute most to the attraction of FDI of creative industries in the region?
  - What is the relation between domestic, regional and global investment in creative industries?

1.6 Scope and Constraints

The present study was conducted using network analysis methods and techniques used in the field of Economic Geography. Although we recognize the importance of creative industries for a country's economic growth, this study takes a different approach and seeks to determine Latin America's attractiveness by analyzing the linkages in the creative industries network.

A weakness of the fDi Market database[1] is that around 60% of the investment values were originally not known and had to be estimated by fDi Markets. To avoid distorted results, the decision was made to use the number of investments as the unit of analysis. Furthermore, a correlation analysis between the number of investments and the value of investments showed a high correlations between the two.

The FDI analyzed corresponds to the creative segments present in Latin America and therefore results may vary in other parts of the world depending on their own strengths. The variety of economic segments analyzed allowed to give general recommendations, however, some highly specialized segments may require additional attention.

The model developed in the study was based on location factors that could be applied worldwide, yet the results were interpreted based on the reality of this region and are not conclusive for the rest of the world. The interpretation of models should always be enriched by additional information and literature about the geographical area of study.

Two data limitations were encountered during the effectuation of the study. First, there is no comparative database comprising combined information on foreign and domestic investments. Nonetheless, even if we recognize the relevance of domestic investment, many studies emphasize on the impact of FDI due to its capacity to deliver higher levels of capital, employment, and technological innovation.

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[1] Refer to section 3.1.2 for further details.

Second, in spite of the fact that the study aims to understanding the dynamics in the city network, data at local level is scarce and difficult to obtain. Considering that cities exist within the national context, we felt that the use of country level information was representative.

Chapter 2: Literature Review

2.0 Literature Review

This chapter seeks to introduce key elements of the network society in order to give a clear and understandable theoretical base to the network analysis that will be conducted in the following chapters. It is first necessary to define the main dynamics within the networks in order to later substitute general concepts with specific characteristics applicable to the creative segments in Latin America. This approach will support the conclusions about the interests and drives of the main actors involved in the FDI network for the creative industries.

2.1 City network

Innovation and technological changes affect the processes of economic growth and development. The Information and Communication Technologies (ICTs) produced a change in the techno-economic paradigm giving rise to a new economic cycle (Dickens, 2011). With globalization trends and the diffusion of ICTs, writers have tried, and continue to make an effort, to describe the dynamics that shape the current global situation.

Among the most important theoretical contributions is the concept of Network Society, as a form of social organization based on the establishment of global networks (Castells, 2002). The proliferation of ICTs has been fundamental to this process by extending the opportunity to establish networks easier, beyond geographical boundaries.

Networks are formed by constant exchanges or *flows* between *nodes* (actors) in different geographical contexts. These interactions are no longer confined to geographical limitations. The *space of flows* transcends geographical boundaries; it consist of the electronic networks and the places linked by them (Castells, 2002).

The premise to the current theories of city networks is that globalization changed the way geography is understood, and we have witnessed a shift from the primacy of the state to a city-centered economy. This responds to the fact that the city, rather than the state, is the fundamental geographical unit of a global division of labor (Brenner, 1998).

2.2 Variables of Competitiveness

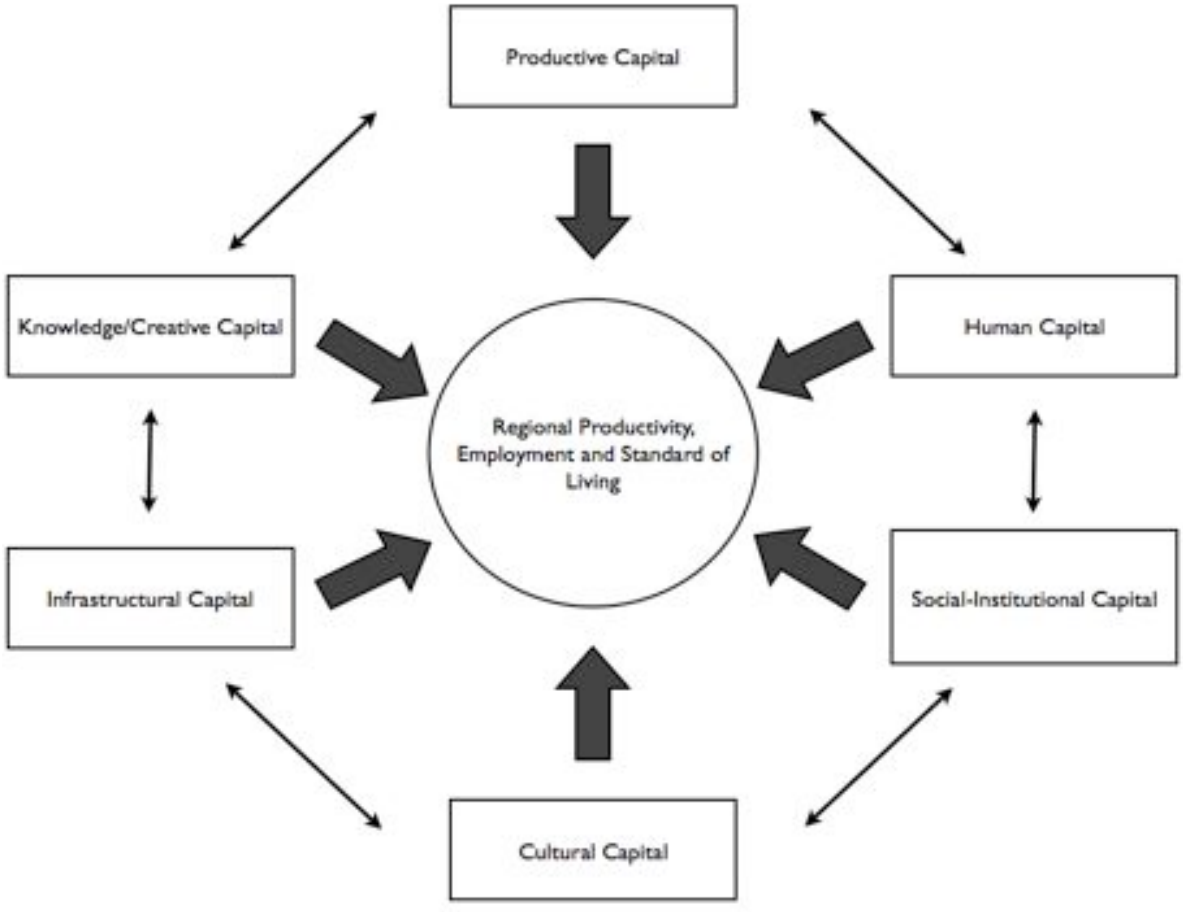
Most current theories understand the city network as a hierarchical system where the status of a city depends on “what flows through (it) them, rather than what (it) they statically contain” (Beaverstock, Smith, and Taylor, 2000, p. 126), in other words, the city’s capacity to attract investment and capture leading functions of today’s economy (Alderson and Beckfield, 2004).

For understanding urban competitiveness, it is important to recognize that cities compete in different markets simultaneously. They compete to get more and "better quality" of population, foreign direct investment, the attraction of tourists, and access to networks. Every city has qualities that define its attractiveness or *competitiveness*.

A shortcoming of competitiveness theory is that it often ignores that local and global contexts happen simultaneously; location factors are often described as intrinsic qualities of a city, and the relational characteristics that improve a node's attractiveness are ignored. But overall, networks are also scarce and therefore connectivity represents an asset to a city. Therefore, we argue that competitiveness studies can be enriched by network analysis techniques.

Intrinsic factors can be organized in six capitals that are in continuos interaction with each other, and that ultimately affect the regional productivity, employment, and the standard of living. These capitals are, as shown in the figure below: productive capital, knowledge/ creative capital, infrastructural capital, cultural capital, socio-institutional capital, and human capital (Kitson, 2004).

Figure 1: Bases of regional competitive advantage (Kitson, 2004, p. 995)



Relational factors also impact the attractiveness of a city, for example proximity. Once again, the current studies on city networks challenge the traditional geographical interpretation of the term and applies it to a broader spectrum of characteristics: cognitive proximity, organizational proximity, social proximity, and institutional proximity. Although most of the literature talks about the positive impact of proximity in the process of innovation, some criticisms refer to how overemphasizing proximity can lead to a lack of openness and flexibility or *lock-in*[2] (Boschma, 2010).

Sheppard (2002) presents *positionality* as a key to competitiveness. It refers to the position of entities in relation to each other within the global economy, independent of their geographical position. This position depends on how well-connected an entity is and its hierarchical level within the network.

2.3 Geographical Network Trajectories

Every flow leaves a trajectory in the city network, the strength of this trajectory depends on its frequency and repetitiveness. Needless to say, geographical network trajectories are not created randomly, they are the product of an evolutionary process consisting of selection, retention, and variation (Glückler, 2007).

Selection is made based on the advantages and disadvantages that an actor perceives in a linkage. The shift of the global system to the network society widened the range of factors that make a network attractive. For example, connectivity, or the access one network can grant to additional networks, is key to determine its competitiveness in the system (Castells, 2002, Castells 2005).

Once a selection has been made, the relation will often remain and strengthen. Network retention means that, amongst the competition, a link remains the best option for both nodes. This decision is affected by factors including proximity, strength and history of ties, organizational inertia, etc.

Preferential attachment hypothesis highlights the importance of reputation in network retention, it states that firms with many ties are more likely to build new ties in the future than firms with fewer ties. Meanwhile, the embedding hypothesis calls attention to the role of the leading actors by expressing that referrals favor ties around existent strong ties. Finally, the multi-connectivity hypothesis shows how similar firms tend to network with the same partners when trying to expand their networks (Glückler, 2007).

The last step of establishing geographical network trajectories is variation, or innovation in the network structure. The search for innovation in networks is constant and it

[2] Boschma (2010) interprets lock-in as a lack of openness and flexibility. Refer to user's guide for details.

will answer to the needs and strategies of firms at a particular moment in time. When looking to innovate, firms can try to connect with non traditional partners in different locations or between different sectors in the same geographical area.

2.4 Creative Economy

To understand the process of this study, we need to begin by defining what creative segments are. As Richard Florida describes in his book *The Rise of the Creative Classes* (2012), the concepts and intellectuals of creative economy can be traced back to the 1960s. The creative economy comes from the shift in the values of society, from valuing bureaucracy and effectiveness to creativity and efficiency.

Behind the idea of the creative class lies the effort to stress the importance of the role played by the individual in the creation of value. This explains why Florida's typology of the creative classes is based on occupation rather than education, keeping the emphasis on the power of the individual. After all, creativity can not only be accounted for by the number of creative goods, but "it is a matter of sifting through data, perceptions, and materials to come up with combinations that are new and useful " (Florida, 2012, p. 18).

The creative classes can be further categorized into super-creative core and creative professionals depending on the role of creativity in the professions. The super-creative core relies completely on creativity to achieve their functions. According to Florida (2005, p.34), they are the professions with the goal of "producing new forms or designs that are readily transferable and broadly useful". Among these, he includes mathematics, musicians, engineers, architects, etc. On the other side, the creative professionals are part of a wide variety of knowledge-intensive industries and, although their function is not purely creative, they "engage in creative problem-solving, drawing on complex bodies of knowledge in seeking innovative solutions" (Florida, 2005, p.34).

The increment of creative classes and creative industries does not only have impact on the economic growth of a city (Florida, 2005), but also it enhances resilience to global trends and crises (Gabe, et al., 2013), and can be a strategy for improving human well-being (UN, 2010). Creative classes are more likely to innovate in the creation of new jobs making the economies more dynamic, and in turn making a location more attractive for foreign investors.

Many contestations have been made to Florida's theory, Edward Glaeser (2005) recognize how, even if the conclusions might be right, the Creative Index is not a new concept and is in reality just another way to show skills and human capital. Nonetheless, he recognizes the importance of the human factor and of creativity for the local and global economy.

By choosing creative industries for this study, we acknowledge the limitation posed by the traditional categorization of the economy into " primary, secondary, and tertiary" sectors.

As well, we argue that Florida is right in saying that specific (professions) segments, rather than industries, contribute more to innovation and economic growth.

If we consider creative economy as a market in which cities compete, a city needs to focus on providing lifestyle and consumption advantages to be competitive in attracting the creative population and /or investment. According to Florida (2005, 2012) the three pillars to achieve this are Talent, Tolerance, and Technology.

2.5 FDI

FDI has gone from representing 8% in 1990 to 29% in 2011 of the world's total GDP (World Economic Forum, 2013). The theoretical importance of FDI is based on the understanding that it has positive economic effects on the local economy; technology and knowledge transfers, knowledge spillovers, economic growth, access to new markets. However, there seems to be no direct relation between FDI and economic growth; instead it depends on the city's local capacity to take advantage of the externalities of the FDI (Herzer, Klasen, Nowak-Lehmann, 2007; Alfaroa, Chandab, Kalemli-Ozcanc, Sayekd, 2004).

The conventional justification for FDI include reduction of transaction costs, maximization of assets, access to new markets/resources, etc. The deficiency of these theories rests on the fact that they are too static and neglect the dynamics of a globalized economy. Alternatively, in the network approach, "linkages via FDI are considered to be a strategic choice that enhances maintains, or restores the investor's competitiveness in a globalized market, rater than a profit-seeking motive aimed at extracting economic rent from a foreign market by exploiting its own strategic assets." (Chen and Chen, 1998, p.446)

The international business theory offers an important tool to recognize the major factors that a firm searches for, what Maskell (2001, p.339) refers to as; "localized capabilities that establish the platform of heterogeneity on which competitiveness of firms can be built or augmented." Degree of financial development, low wages, low taxes, market size and other location factors impact FDI, however the extent of the impact should not be generalized because it varies according to the particular characteristics of the actors (Wall, et al. 2011). Under these assumptions, FDI can be a tool to evaluate the attractiveness of a destination's investment environment based on location factors.

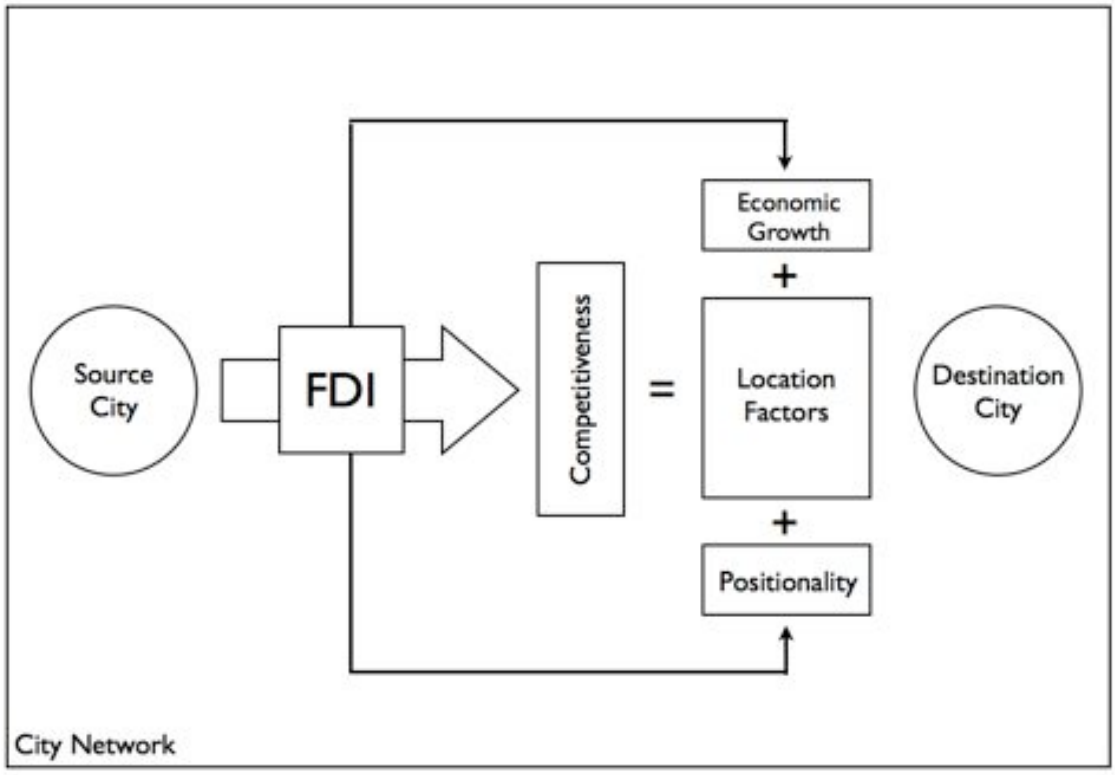
2.6 Conceptual Framework

Figure 2 presents two cities, nodes of the city network, in constant interaction with one another. Besides the importance of their local context (the internal characteristics of a city), they also share a global context (the space of flows).

In the local context, every city has a set of characteristics, or location factors that will determine its competitiveness within the network. In other words, every city has a profile of strengths and weaknesses. For our study, we want to determine whether the locational factors recognized in literature as important for attracting FDI in creative segments.

In the global context, the flows between cities. The selection, repetition, and variation in these flows will strongly determine the paths of development of these cities.

Figure 2: Dynamics of the city network



Chapter 3: Research Design and Methods

This chapter, presents an in-depth description of the methods and techniques that were implemented to answer the research questions.

3.1 Revised Research Questions

- What is the pattern of investment of the creative industries in Latin America?
    - What is the growth of FDI for creative industries in Latin America?
    - Which creative segments attract more FDI to Latin American cities?
    - Which Latin American cities are the strongest in attracting investment for creative industries?
    - What is the relation between domestic, regional, and global investment in creative industries?
    - Based on investment profiles, which cities are competitors?
    - What factors contribute to attract FDI for creative industries in the region?
- Do creative industries represent an opportunity to increase intra-regional networking?

3.2 Operationalization: Variables, Indicators

In order to conduct the study, we established FDI as the dependent variable (*y* variable) and a series of indicators as independent variables (*x* variables). The objective is to measure the relation between the *y* variable and the indicators, and hereby determine the impact of specific location factors on the attraction of investments for creative industries in Latin America.

3.2.1 Dependent variable

FDI basically consists of two major types of investment: (a) mergers and acquisition (M&A), and (b) greenfield investment. M&A is the process in which two or more firms decide to combine themselves into a single new firm (merger), or when a single firm takes monetary possession of other firms (acquisition). In practice, the nature of M&A processes makes it difficult to define its impact on regional development. On the contrary, the impact of greenfield projects is clearly traceable because companies invest on new operational facilities to start an entirely new venture.

Consequently, the decision was made to base this study on greenfield investment data contained in fDi Markets database[3]. Due to limitations expressed previously in section 1.6, the data was not analyzed in terms of value of investments, whereas by the number of investments which gives an upfront measure of a place's attractiveness.

One of the major criticisms of the creative class theory is its ambiguity and the difficulty to define the professions it encompasses. To reduce this ambiguity, we selected 85 segments from the fDi Markets database which can be linked to the definition of creative classes. Furthermore and based on theory, a categorization of the sectors was made based on Florida's own division of the creative class: super-creative core and creative professional segments.[4]

First, the super-creative core professions include: Computer and mathematics; architecture and engineering; life, physical, and social science; education, training, and library; and arts, design, entertainment, sports, and media (Florida, 2012). The segments chosen to represent the super-creative core are

- Aerospace - Design Development & Testing
- Aerospace - Research & Development
- Alternative/Renewable energy - Design Development & Testing
- Alternative/Renewable energy - Research & Development
- Automotive Components - Design Development & Testing
- Automotive Components - Research & Development
- Automotive Components - Design Development & Testing
- Automotive - OEM - Design Development & Testing
- Automotive - OEM - Research & Development
- Beverages - Design Development & Testing
- Beverages - Research & Development
- Biotechnology - Design Development & Testing
- Biotechnology - Research & Development
- Building & Construction Materials - Design Development & Testing
- Building & Construction Materials - Research & Development
- Business Machines & Equipment - Design Development & Testing
- Business Machines & Equipment - Research & Development
- Ceramics & Glass - Design Development & Testing
- Ceramics & Glass - Research & Development
- Chemicals - Design Development & Testing
- Chemicals - Research & Development
- Communications - Design Development & Testing
- Communications - Research & Development
- Consumer Electronics - Design Development & Testing
- Consumer Electronics - Research & Development

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[3] Refer to section 3.1.3 for details.

[4] The categories are based on whether the role of creativity in the fulfillment of functions is critical or complementary. Refer to section 2.4 for further details.

- Consumer Products - Design Development & Testing
- Consumer Products - Research & Development
- Electronic Components - Design Development & Testing
- Electronic Components - Research & Development
- Engines & Turbines - Design Development & Testing
- Engines & Turbines - Research & Development
- Financial Services - Design Development & Testing
- Financial Services - ICT & Internet Infrastructure
- Financial Services - Research & Development
- Food & Tobacco - Design Development & Testing
- Food & Tobacco - Research & Development
- Healthcare - Design Development & Testing
- Healthcare - Research & Development
- Industrial Machinery Equipment & Tools - Design Development & Testing
- Industrial Machinery Equipment & Tools - Research & Development
- Leisure & Entertainment - Design Development & Testing
- Medical Devices - Design Development & Testing
- Medical Devices - Research & Development
- Non-Automotive Transport OEM - Design Development & Testing
- Paper Printing & Packaging - Design Development & Testing
- Paper Printing & Packaging - Research & Development
- Pharmaceuticals - Design Development & Testing
- Pharmaceuticals - Research & Development
- Plastics - Design Development & Testing
- Semiconductors - Design Development & Testing
- Semiconductors - Research & Development
- Software & IT services - Design Development & Testing
- Software & IT services - Research & Development
- Space & Defense - Design Development & Testing
- Space & Defense - Research & Development
- Textiles - Design Development & Testing
- Textiles - Research & Development
- Transportation - Design Development & Testing
- Wood Products - Design Development & Testing
- Wood Products - Research & Development

Second, the creative professional services category includes activities within knowledge intensive industries, that require creativity to be efficient: Management; business and financial operations; legal activities; health-care practitioners and technical occupations; and high-end sales and sales management. The segments chosen to represent creative professional are

- Automotive - OEM - Sales, Marketing & Support
- Beverages - Sales Marketing & Support
- Business Services - Design Development & Testing
- Business Services - ICT & Internet Infrastructure
- Business Services - Research & Development

- Business Services - Sales Marketing & Support
- Ceramics & Glass - Sales Marketing & Support
- Communications - Sales Marketing & Support
- Consumer Products - Sales Marketing & Support
- Financial Services - Sales Marketing & Support
- Food & Tobacco - Sales Marketing & Support
- Hotels & Tourism - Design Development & Testing
- Hotels & Tourism - ICT & Internet Infrastructure
- Hotels & Tourism - Sales Marketing & Support
- Leisure & Entertainment - Business Services
- Leisure & Entertainment - Education & Training
- Leisure & Entertainment - Headquarters
- Leisure & Entertainment - ICT & Internet Infrastructure
- Leisure & Entertainment - Sales Marketing & Support
- Paper Printing & Packaging - Sales Marketing & Support
- Software & IT services - Business Services
- Software & IT services - Headquarters
- Software & IT services - Sales Marketing & Support
- Textiles - Business Services
- Textiles - Sales Marketing & Support

3.2.2 Independent variables and indicators

To thoroughly understand the location factors that influence FDI attraction for creative industries, we defined the variables based on literature about FDI attraction, as well as literature specifically on creative industries.

On one side, a set of the indicators were inspired by the Creative Index (Florida, 2011) and what he recognizes as the 3 T's: Talent, Technology, and Tolerance. To complement the theory, and given that the study focuses on international networks instead of internal social processes, indicators on macroeconomic conditions and "host-country determinants" were included (Wall, et al., 2011).

The indicators used for the purpose of regression analysis in section 4.5 were extracted from the Global Competitiveness Index (World Economic Forum, 2012). The structure of the GCI consists of 111 indicators (location factors) organized in 12 pillars, a description of the structure and the individual indicators is included in Annex 2. After removing multicollinear indicators, a test of statistical significance was conducted to the remaining 23 indicators shown in Table 1.

Table 1. Operationalization of variables and indicators

y variable	GCI	Pillar	Indicators
FDI (n)	Global Competitiveness Index	Infrastructure	Quality of roads
			Quality of railroad infrastructure
			Quality of air transport infrastructure
			Available airline seat kilometers
			Quality of electricity supply
			Mobile telephone subscriptions
		Higher education and training	Secondary education enrollment rate
			Tertiary education enrollment
			Internet access in schools
			Local availability of specialized research and training services
			Extent of staff training
		Labor market efficiency	Hiring and firing practices
			Reliance on professional management
			Brain drain
			Female participation in labor force
		Financial market development	Financing through local equity market
			Ease of access to loans
			Regulation of securities exchange
			Legal rights index
		Market size	Domestic market size index
			Foreign market size index
		R&D Innovation	Capacity for innovation
			Government procurement of advanced tech products

3.2.3 Data Collection Methods

This investigation is based on secondary data from reliable and globally recognized sources. The data for the *y* variable is based on the fDi Markets database elaborated by The Financial Times Ltd. This database covers greenfield data from 2002 to 2012, and presents information of about 126,501 transactions. The data for this study concerns 8910 investments made in Latin America.

The individual investments are coded by (a) year of investment; (b) parent company name; (c) target company name; (d) industrial sector; (e) corporate function; (f) investment value; (g) country code of parent company; and (h) country code of subsidiary company. Since about 30% of the regional locations of firms are incomplete, the missing values were completed with information available in other databases and search engines. Furthermore, the urban regions were geocoded by its metric geographic coordinates for representation purposes.

For the data of the cities' indicators (*x* variables), we used an average of the data contained in the Global Competitiveness Index (GCI) from 2002 to 2012 which corresponds to the time period of the investments in fDi Markets. The GCI evaluates the competitiveness of 144 countries based on their performance in 12 pillars[5]. By using statistical data from internationally recognised agencies, and collecting and analysing the World Economic Forum's annual Executive Opinion Survey, the index allows to understand the business environment as well as the political-economic situations of each country.

3.3 Selection

The goal of the study is to analyze the impact of location factors on FDI in creative industries. This is done by taking a selection of the world and recognizing how the variables interact. Because of personal affinity, Latin America was selected as the region of study. Latin America corresponds more to a historical, cultural, and political definition than to a geographical one. It is the part of the American continent that speaks Spanish and Portuguese, with the exception of Haiti where French and Haïtian are the official languages. The 20 Latin American countries are

- Argentina
- Bolivia
- Brazil
- Chile
- Colombia
- Costa Rica
- Cuba

[5] Refer to Annex 2 for further details on the structure of the GCI.

- Dominican Republic
- Ecuador
- El Salvador
- Guatemala
- Haiti
- Honduras
- Mexico
- Nicaragua
- Panama
- Paraguay
- Peru
- Uruguay
- Venezuela

For analyzing the investments in the urban areas, the data was further organized into metropolitan areas based on information collected by the University of Rosario in Colombia (2013). Table 2 presents the municipalities that make up every metropolitan area, the FDI data of the municipalities was added to give a clearer geographical picture of the network trajectories.

Table 2. Metropolitan Areas

Metropolitan areas	Municipalities
São Paulo	São Paulo, Barueri, Sao Bernardo do Campo, Sao Caetano do Sul, Santana do Parnaiba, Osasco, Cajamar, Jandira
Buenos Aires	Buenos Aires, San Fernando, Berazategui, San Isidro, Vicente López, San Martín
Mexico City	Mexico city, Chapultepec Morales, Colonia Lomas de Santa Fe, Teotihuacán, Cuautitlán Izcali, Tlalnepantla de Baz
Santiago	Santiago, Pudahuel, Quilicura, Renca, Las Condes, Providencia
Monterrey	Monterrey, San Pedro Garza García
Guadalajara	Guadalajara, El Salto, Tonalá, Zapopán
Belo Horizonte	Belo Horizonte, Betim, Contagem
San José	San José, Alajuela
Santiago de Querétaro	Santiago de Querétaro, El Marqués
Porto Alegre	Porto Alegre, Canoas, Sao Leopoldo
Curitiba	Curitiba, Araucaria

3.4 Validity and Reliability

This study uses methods and techniques that are affective in measuring trends, growth of investment, competitiveness, and relevance of location factors. To do this, various softwares were used, e.g. UCInet, SPSS.

When using models, the quality of the data is critical for the success of the results. In this case, I used secondary data that is globally known and accepted. This is the case of the fDi Markets database and the Global Competitiveness Index.

Moreover, I conducted trials and evaluations to avoid statistical and modeling errors. Some of the characteristics that were tested and discarded were:

- Heteroscedasticity: skewness of *y* variable
- Multicollinearity: linear relationship of *x* variables.
- Outliers: values outside the normal distribution of the data

3.5 Data Analysis Methods

The thorough analysis of the data requires two types of analysis, each with its own methods and techniques. First, a descriptive analysis to understand the patterns of development of the FDI network of creative industries in Latin America. Later, an explanatory analysis to understand why the patterns are developing the way they are.

3.5.1 Descriptive analysis

A descriptive analysis intends to describe a situation. In this case, we used a descriptive approach to understand the current state of the creative industries and its network in Latin America. We used methods, techniques, and softwares that allowed the description of trends, make comparisons, and establish geographical trajectories.

3.5.1.1 Longitudinal analyses

The time period contained in fDi Markets enabled a longitudinal analysis to set growth trends in Latin America for the period between 2002-2012. First, we did a trend analysis of all FDI in Latin America to get a general overview of the situation of the region. In order to determine the regional relevance of creative segments, the results were complemented with a comparison between trend analyses corresponding to data from the creative professional, super-creative core, and remaining segments.

Afterwards, we analyzed the countries' growth trends in creative and remaining segments. The performance of the countries was evaluated and compared regarding two

aspects: volume of investment and FDI growth rate. This process helped create a regional ranking and identify local leaders.

In line with the objective of identifying opportunities for the region, the performance of the individual creative segments was also evaluated in terms of volume of investment and FDI growth rate. For more clarity on the results, in this part of the analysis only those segments with more than four investments were taken into consideration.

3.5.1.2 Network analyses

After determining the relative strength and importance of some segments, we searched for evidence of specialization in the region by analysing two-mode data[6] on the city and segment network. Only segments with at least 10 investments were considered. With the information we created a visual representation of the network.

Next, we proceeded with a network analysis using two-mode data on the source and destination[7] city network. This gave the opportunity to recognize major FDI sources and destinations. UCInet software was used to a better visualization of the results of the network analyses conducted.

3.5.1.3 Similarity analysis

Finally, we defined competitors by conducting a similarity analysis on the Latin American cities based on: (a) segments destination for investment, and (b) source cities of FDI. For measuring similarity we used the *Manhattan Distance,* which measures the absolute distance between the investments of the two cities.

$$\text{Manhattan Distance}_{xy} = \sum_{i=1}^{n} = |x_i - y_i|$$

In this formula, x_i is the inward investment for 'city x' and y_i represents the investment in 'city y'. If when applying the formula the result is 0, the two cities present total competition. Therefore the results should be interpreted as: the closer a result is to 0, the more similarities the two cities have, and in consequence, the higher the level of competition between them.

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[6] Two-mode data is the minimal network database that consists of two sets of objects related by one set of linkages. Refer to the user's guide for more detail.

[7] *Source* and *destination* define the role of the cities in the FDI network. Refer to the user's guide for more detail.

3.5.2 Explanatory analysis

This study is not limited to the description of the city network in Latin America, it also aims to understand the reasons behind its pattern of development. The explanatory part of the analysis is to prove the connection between particular locational factors stated in literature and the actual results of the network trajectory.

Using the software SPSS, we conducted a multicollinearity diagnostic which helped determine the Variance Inflation Factor (VIF) of each indicator in the GCI[8]. Any indicator presenting VIF > 5 was discarded from further analysis. Finally, a series of linear regression analyses using the enter method were conducted to determine which remaining predictors[9] significantly contributed to a variation in FDI.

First, the Global Competitive Index was used as a lone predictor of FDI in creative segments. Afterwards, the 6 pillars were used as predictors of FDI. Finally, additional regressions were conducted to determine the impact of the individual indicators on FDI. The objective of this analysis is to understand better which location factors represent strengths and weaknesses for the region and what should be considered for a short, medium, and long term policy in FDI attraction.

[8] For a complete list of the indicators, refer to Annex 2.

[9] Table 1, page 17 presents a list of the predictors used for this stage of the analysis.

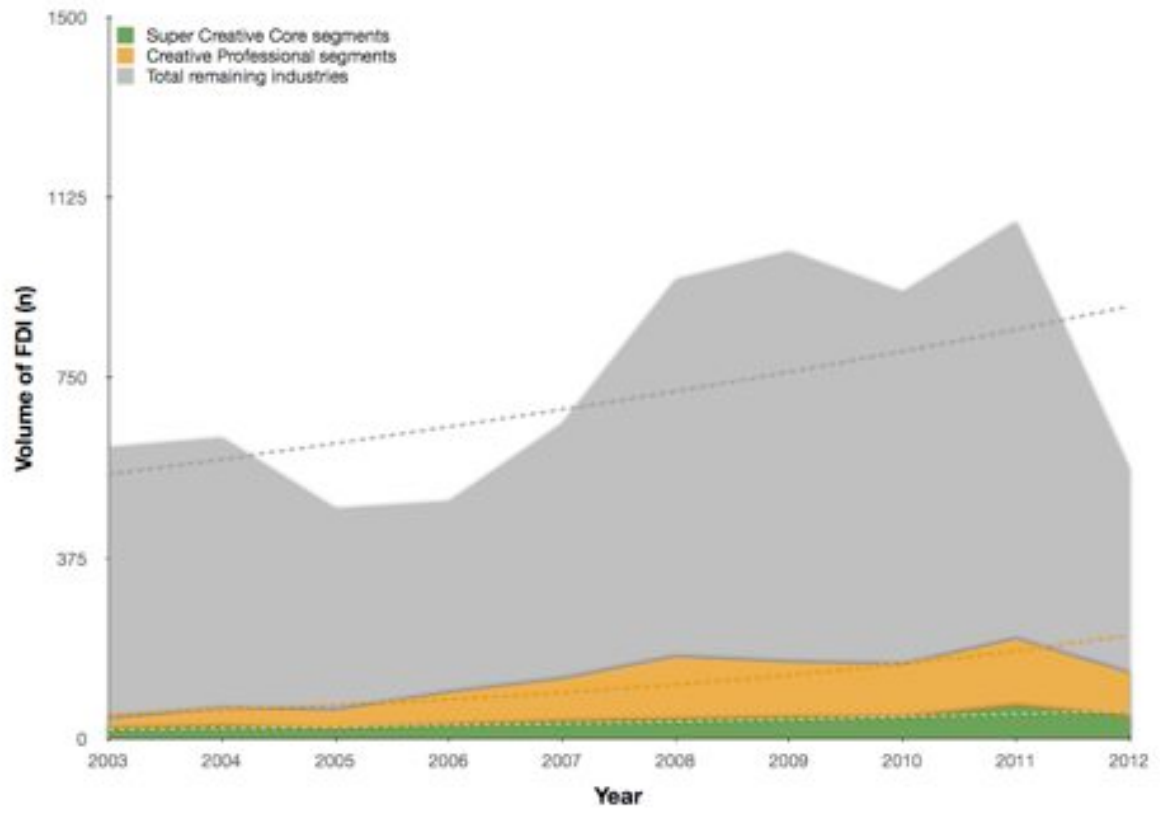
Chapter 4: Research Findings

4.1 Latin America and the Creative Segments

As explained in earlier chapters, creative segments are made up of a combination of segments that encompass purely creative industries (super-creative core) and activities within other industries that also require creativity for their efficiency (creative professionals). It is in the interest of this study to understand the evolution of this network and compare it to the non-creative networks.

When comparing FDI (n) in creative segments and remaining segments, results showed that in 2003, creative segments made up only 8.93% of the FDI (n), while in 2012 this amount increased to 24.35%. Not only has the volume of FDI for these segments increased in Latin America, but it has done so at a much faster pace than the remaining industries. Chart 2 shows a comparison between the FDI for super-creative core segments, creative professional segments, and remaining segments. As described earlier, although the remaining segments still make up most of the region's FDI, creative segments are growing faster.

Chart 2. Growth trends of FDI (n) in Latin America (2002-2012)

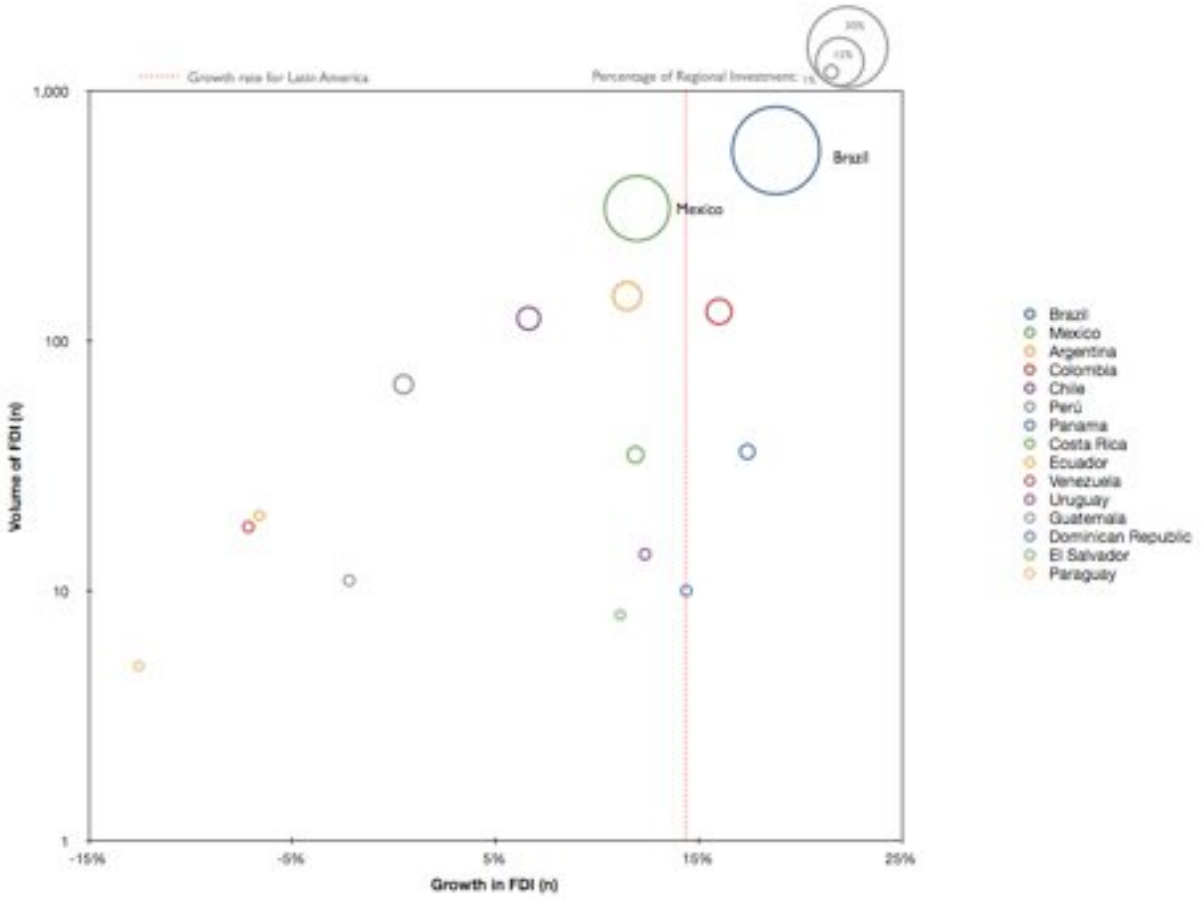


The growth rate for both categories of creative segments combined is 14.89%, significantly higher than the 5.44% growth rate of the remaining industries. When we combine both categories of creative segments, the distribution of FDI for the past 10 years is the following: creative professional segments received 77.11%, leaving 22.89% for the super creative core. Furthermore, the growth for the FDI on creative professional segments is growing faster than the super creative segments with a rate of 15.79% and 12.45% respectively.

We can also see in Chart 2 that 2012 was a year were FDI in general decreased, but the decline in creative segments was less dramatic. The theory of the resilience of creative classes proved to be explanatory for this case (Gabe, et al., 2013).

Once the trend of the region as a whole was established, and considering the differences between Latin America countries, it is important to understand the countries' performances individually. Chart 3 evaluates the performance of the countries by analyzing the volume and growth of FDI (n) in creative segments. The two clear leaders of the region are Brazil and Mexico, while the worst in performer is Paraguay.

Chart 3. FDI in Latin American creative segments, per country (2002-2012)



We can see that even though the regional growth is 14.89%, only 3 countries are growing over that number (Brazil, Colombia, Panama). On the contrary, four countries have a negative growth: Paraguay (-12.53%), Venezuela (-7.14%), Ecuador (-6.6%), and Guatemala (-2.18%). Two of these, Venezuela and Ecuador, also presented negative growth when analysing all the segments in Chart 1.

Chart 3 gives an idea of the the big disparities between Latin American countries. We can also conclude that Brazil is a big contributor in raising the growth trend of the region. Comparing this chart with Chart 1 we can see that in the case of creative segments less countries are performing over the regional growth. We can also recognise three categories of countries according to their volume of FDI (n): big destinations, mid-size destinations, and small destinations.

The big destinations are clearly Mexico and Brazil. In the mid-size destinations we find Argentina, Colombia, Chile. Peru is in between categories, in general FDI it is closer to the mid-size destinations while in creative segments it is moved closer to the small destinations. The group of the small destinations is more heterogeneous in terms of performance. Nonetheless, Costa Rica and Panama constantly position themselves as the leaders of the group.

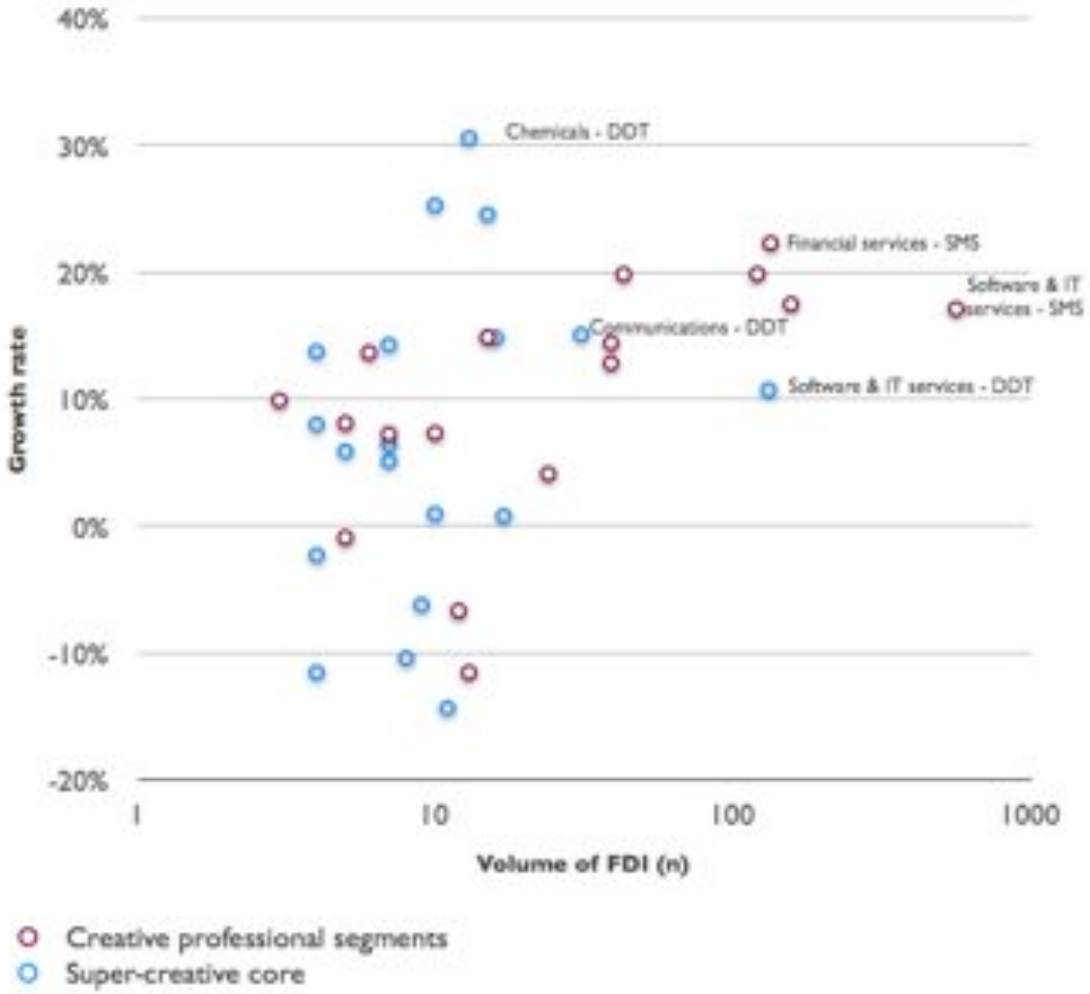
4.2 Creative Segments

In order to determine which segments present greater opportunities for the development of the region, the individual performance of the segments was evaluated. Although a first analysis was done individually for every creative category, it proved more informative to presents a conjoint analysis.

Chart 4 shows that there are five segments that contribute larger amounts of investment than the rest. Four of them are part of the creative professional segments: *Software & IT services - SMS*[10], *Communications - SMS*, *Financial Services - SMS*, and *Software & IT services - BS*. The fifth is *Software & IT services - DDT* which belongs to the super-creative core segments.

[10] For details on the segments, refer to the List of Abbreviations, page i.

Chart 4. Creative Segments performance (2002-2012)



Out of the 20 professional creative segments discussed in Chapter 2, four performed considerably better than the rest: *Financial Services - SMS*, *Software & IT services - BS*, *Communications - SMS*, and *Software & IT services - SMS*. Together they represent 81.32% of the FDI for creative professional segments and are among the fastest growing with rates of 22.28%, 19.84%, 17.47%, and 17.10% respectively.

On the other category, the fastest growing super-creative core segments are: *Chemical - DDT* (30.55%), *Industrial machinery equipment & tools - DDT* (25.26%), and *Food & tobacco - DDT* (24.53%). Nevertheless, the segment that represents the largest number of FDI is *Software & IT services - DDT*. This segment alone received 37% of FDI for the super-creative core segments in the past 10 years and has a growth rate of 10.71%. The second segment in terms of number of investments is *Communication - DDT* with 8.71% of the total.

In general we can say that although creative professional segments represent a higher number of investments, the performance of the segments is not directly related to its creative category. Particularly, Chart 4 depicts the importance of *Software & IT services* for Latin America by placing three of its activities among the top performing creative segments of the region.

4.3 Creative Industries and Cities

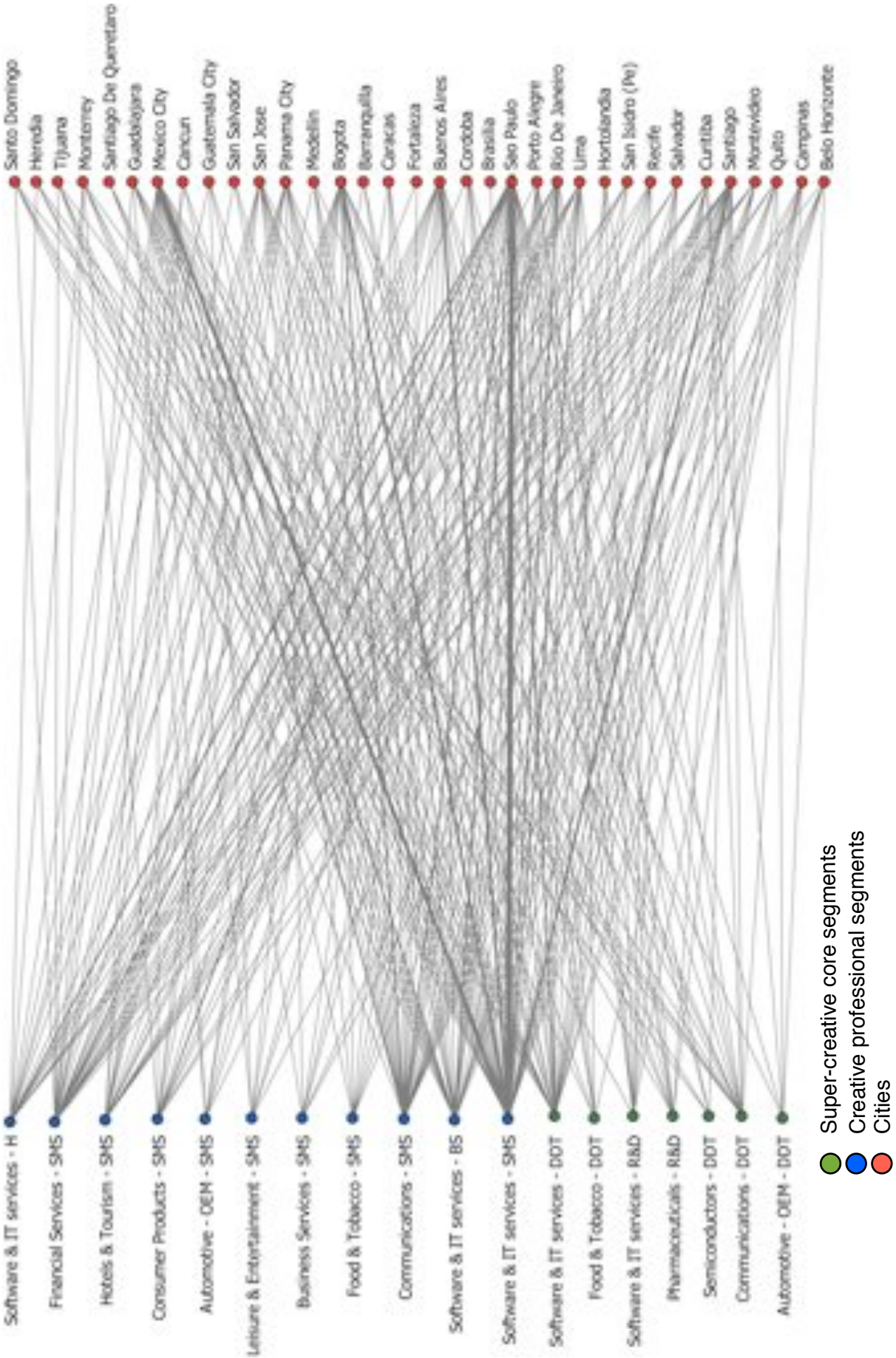
The next step was to analyze the linkages between cities and creative segments. Figure 3 complements the results in section 4.2, by showing a higher number of linkages between cities and creative professional segments. It also shows that *Software & IT services - SMS* is the segment with more linkages to the cities.

Sao Paulo and Mexico City are the cities with the highest number of linkages, this shows that the strength of these cities is not a result of specialization but comes from their attractiveness to diverse investments. It seems contradictory that Sao Paulo is the city with the highest diversity of linkages, while Brasilia, Brasil's national capital, only shares linkage with one segment.

As it might have been expected, the stronger ties of the diagram are between *Software & IT Services - SMS*, and Sao Paulo and Mexico City. Other important connections give hints to possible specialization of some cities. For example, Bogota has a strong link to *Communications - SMS* segment, and Rio de Janeiro, home of the Brazilian Development Bank, has is strongly linked to *Financial services - SMS*.

Finally, it is important to note that, excluding Mexico City, cities geographically located in the Southern hemisphere seem to receive a higher number of investments in creative segments than cities in the North. This statement specially applies to super-creative core segments.

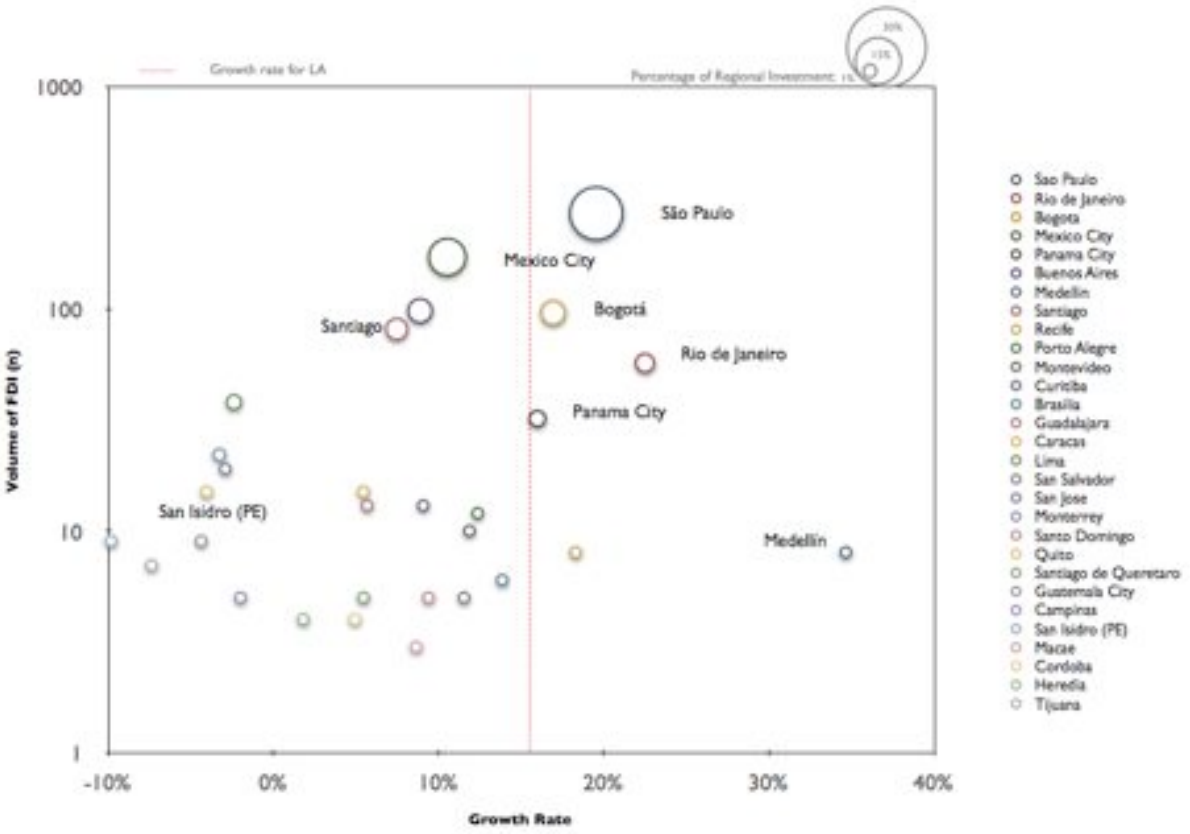
Figure 3. Creative segments and city network



4.3.1 Cities and Creative Professional Segments

We have already established that creative professional segments attract more investment in Latin America than super-creative core segments. Chart 4 complements this information by showing the performance of Latin American cities individually, and allowing to compare and pin-point the main destinations for FDI.

Chart 5. City performance on Creative professional segments (2002-2012)



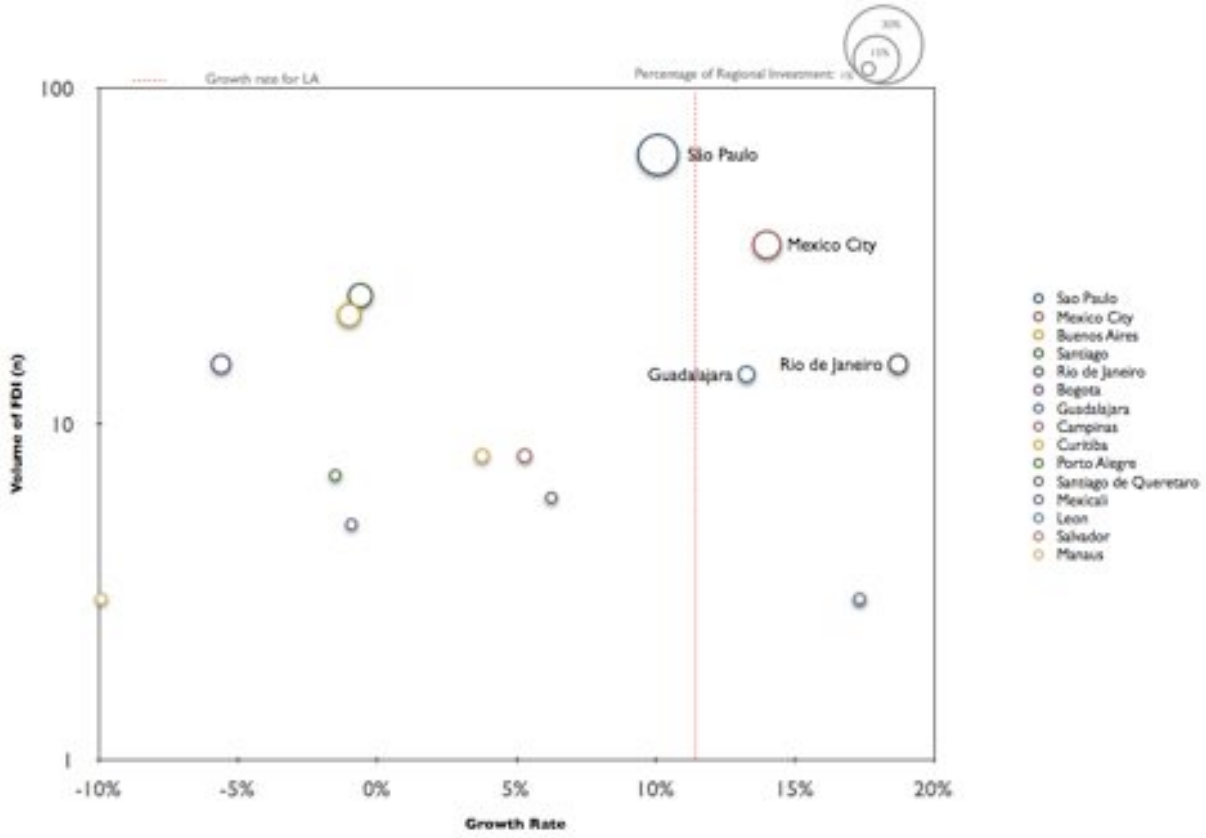
Sao Paulo and Mexico City are the two cities that receive the most FDI in creative professional segments. Together they make 36.7% of all the investment from 2002 to 2012. Sao Paulo has a growth rate of 19.56%, higher than the regional rate. Meanwhile, Mexico City's growth rate of 10.54% is below the regional rate.

In terms of performance we can mention Rio de Janeiro, Bogotá, and Panama. The three cities are growing at a rate higher than that of the region with 22.51%, 16.95%, and 15.99% respectively. Medellin shows the highest growth of the region, but the number of investments is not enough to be considered among the top performers. On the other side, Tijuana's FDI is decreasing at a rate of 7.36%.

4.3.2 Cities and Super-Creative Core Segments

Afterwards, the same analysis was performed for the Latin America cities and their FDI in super-creative core segments. San José, Barranquilla, Panama City, and Jacarei where excluded from the analysis because their growth rates were not representative of the reality of Latin America. Chart 5 presents the performance of cities in FDI attraction for super-creative core segments.

Chart 6. City performance on Super-Creative Core segments (2002-2012)



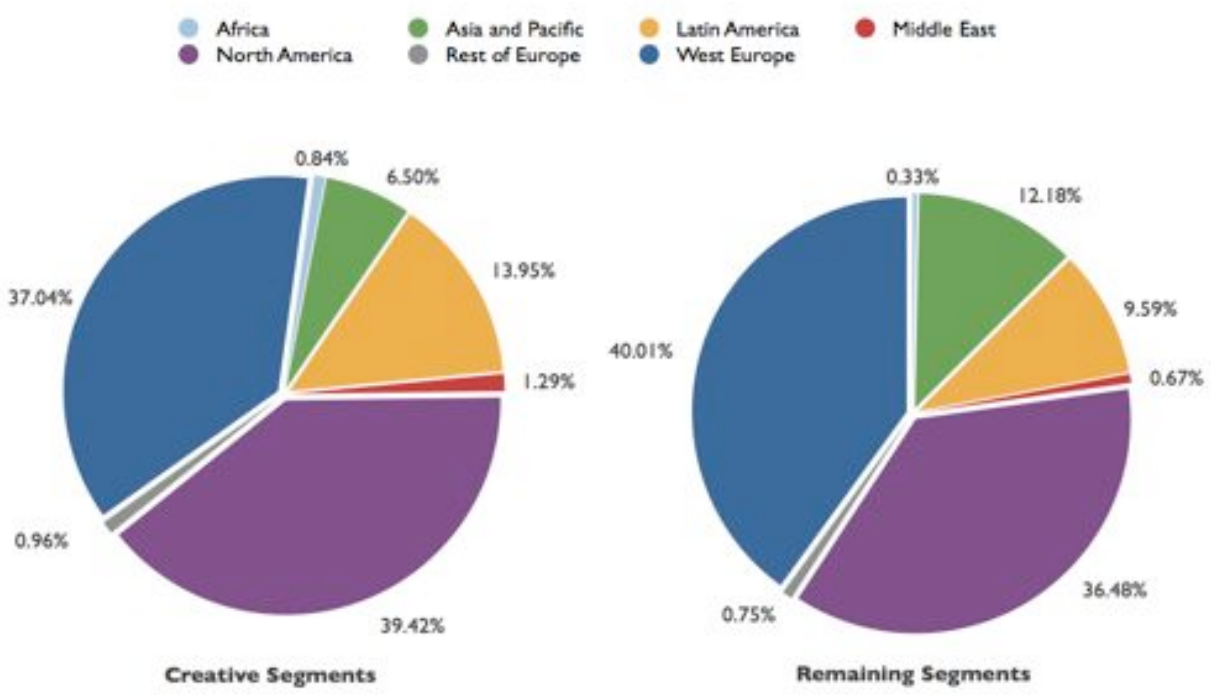
In this chart we can see that the number of cities reduced significantly from those receiving FDI in creative professional segments. Although Sao Paulo still holds a bigger share of the investment, Mexico City is performing slightly better with a growth rate of 14.04%, above the regional rate .

Rio de Janeiro is the city with the highest growth rate (18.71%) and the second Brazilian city in the top 10. Among the best performers, we can also find a second Mexican city, Guadalajara, with a growth rate of 13.27%. Buenos Aires and Santiago, often recognized as leading creative cities, have negative growth rates of 0.01% and -0.6% respectively. Although these rates are not significantly low, it inclines us to interpret that the strength of these cities stands mostly on the creative professional segments.

4.3 Regional and Global Investment

Understanding FDI networks requires a thorough observation both of the sources and destination cities. This section gives further information on the source regions and cities for FDI in Latin America. Chart 5 gives an overview of the geographical source of the FDI for creative segments and allows to compare how this relates or differ from the remaining segments.

Chart 7. Geographical distribution of sources of FDI (2002-2012)



North America and West Europe remain the most important partners for LA measured by the amount of FDI, together they were source of 76.49% of the total FDI from 2002 to 2012. While West Europe is the most important partner for the remaining segments, North America is the leading investor in the creative industries. Asian partnerships are weaker in the creative industries than in the remaining segments. The regions that source the least amount of FDI for Latin America in general are Africa, the Middle East, and the Rest of Europe.

One of the most important facts shown in Chart 7 is how the ties within the region escalate in importance when talking about creative industries. 13.95% of the FDI in these industries are sourced in Latin America which shows they represent an opportunity for further regional partnerships and to strengthen the intraregional network.

The top destination cities are more obvious in Figure 4. Leading is Sao Paulo with 343 investments. Followed by Mexico City, Buenos Aires, Santiago and Bogotá. Among the top 10 cities we find two Brazilian cities (Sao Paulo, Rio de Janeiro) and three Mexican cities (Mexico City, Monterrey, Guadalajara).

Among the source cities, Madrid is the largest node with a total of 87 investments. It is followed by two Latin American cities, Santiago and Buenos Aires. The first North American city to appear in the top 10 sources is New York City, in position 7. It is interesting to note that even when Sao Paulo and Mexico receive at least double the number of investments that the rest, Buenos Aires and Santiago have more regional ties in terms of sourcing FDI. Table 3 presents a complete list of the main destinations and sources.

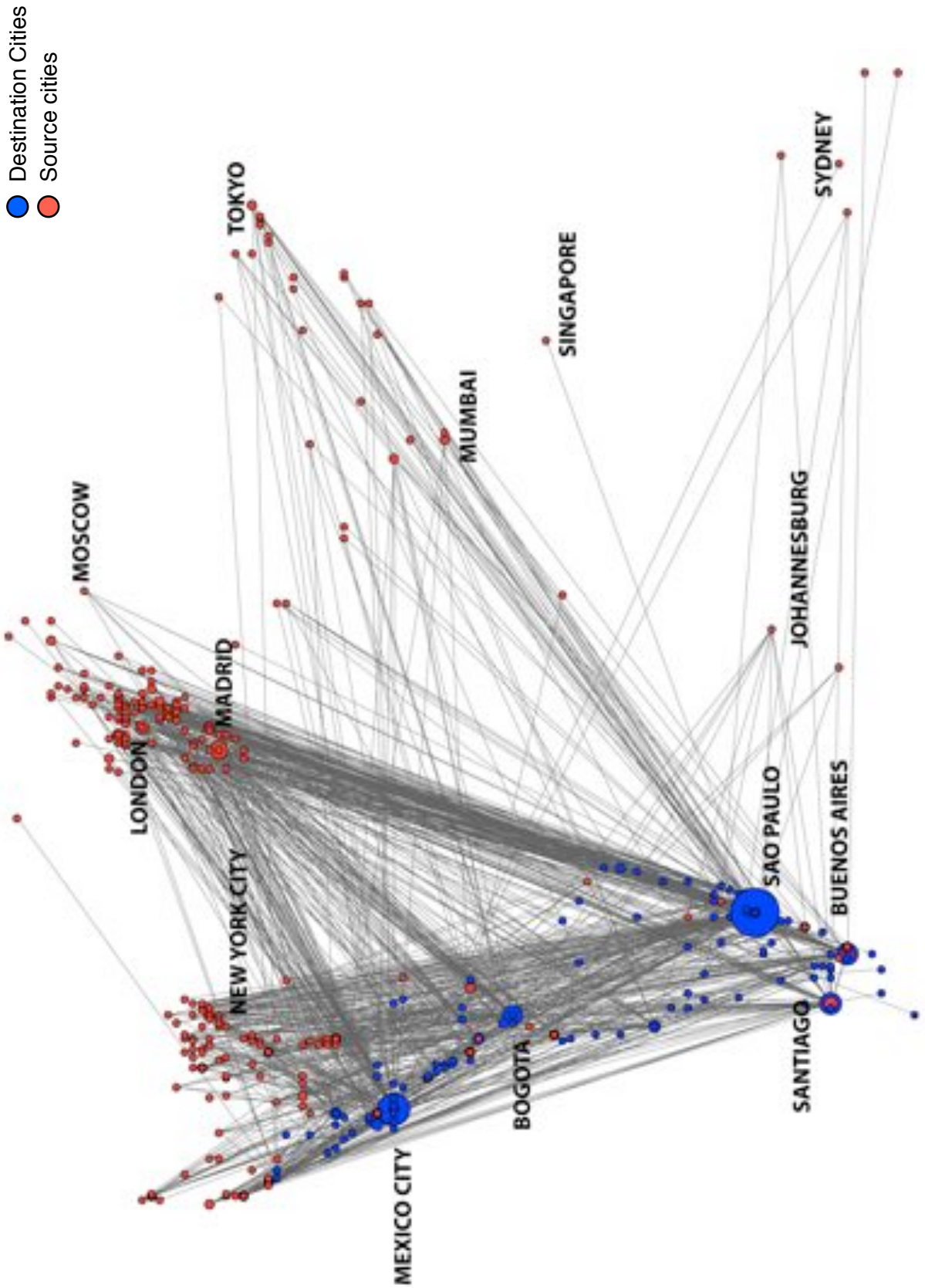
Table 3. Top 10 destinations and sources

	Top 10 destinations	Top 10 sources
1	Sao Paulo	Madrid
2	Mexico City	Santiago
3	Buenos Aires	Buenos Aires
4	Santiago	Paris
5	Bogota	Barcelona
6	Rio De Janeiro	London
7	Lima	New York City
8	Monterrey	Armonk
9	Panama City	Miami
10	Guadalajara	Zurich

At this point, it is relevant to point out San José, Costa Rica as a case for example on the use of strategic links to improve its connectivity and attractiveness in a network. Although it is not part of the main destinations of FDI, it has established relations with the top performers of the region by sourcing FDI.

Figure 4 presents a visualization of the ties and nodes that make the network of creative segments in Latin America. This graph contains every interaction of the past 10 years. To complement the geographical information of the network, the nodes are presented according to the geographical coordinates of the city.

Figure 4. Geographical Network Trajectories of FDI in Latin America's creative segment



4.4 Defining competitors

Up until now, we have focused on the general growth trends of cities concerning FDI in creative segments. This section seeks to understand more profoundly the dynamics of the network by analyzing the competition present among the nodes. For achieving this purpose, we used the Manhattan Distance technique described in section 3.5.1.3. Table 4 presents the results for the analysis of the 10 top destination cities.

Table 4. Top destination cities and main competitors

City	Competitor 1	Competitor 2	Competitor 3
Sao Paulo	Mexico City	Buenos Aires	Santiago
Mexico City	Buenos Aires	Bogotá	Santiago
Buenos Aires	Santiago	Bogotá	Rio de Janeiro
Santiago	Buenos Aires	Bogotá	Lima
Bogota	Buenos Aires	Santiago	Lima
Rio De Janeiro	Lima	Panama City	Porto Alegre
Lima	Panama City	Caracas	Quito
Monterrey	Guadalajara	Panama City	Porto Alegre
Panama City	Lima	Quito	Caracas
Guadalajara	Porto Alegre	Monterrey	Santiago de Querétaro

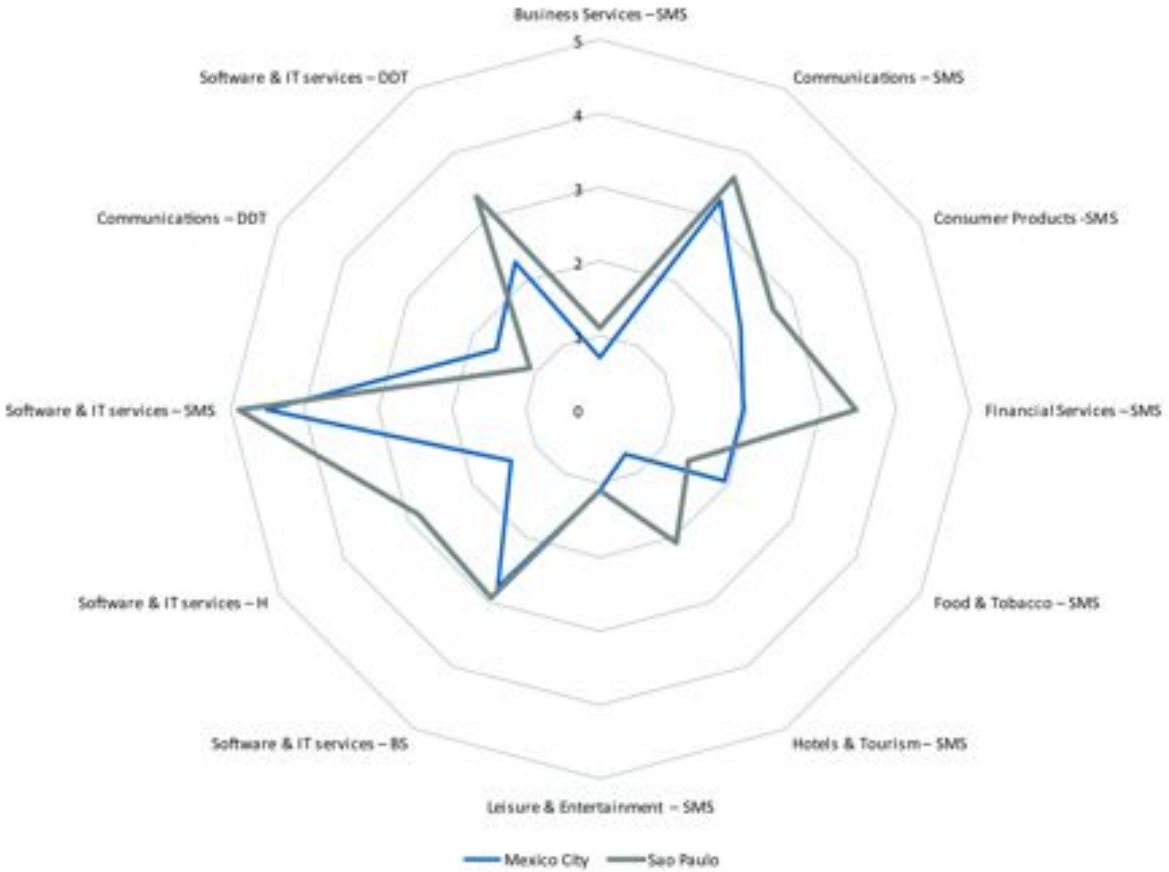
An important detail to highlight in table 4 is the high competition between Mexican cities; as well as, between Brazilian cities. This gives a further idea on the level of competitiveness of both countries in creative segments. From the results of the top performing cities, we will describe the typology of two main categories based on their destination segments and sources of FDI.

4.4.1 Global Stars

First, it is important to recognize the leading role of Sao Paulo in the region, up until now the cities has proved to be among the top performing in every category that has been analyzed. The Manhattan Distance analysis showed that Sao Paulo's top competitor, both in source of FDI and range of segments, is Mexico City. This it is not the case when analyzing the other way around. In either case, the only city that is competing at the same level as Sao Paulo is, in fact, Mexico City.

One of the parameters used to determine the Manhattan distance was the range of destination segments in every city. Chart 6 shows a comparison of the FDI (ln) corresponding to the main segments of Sao Paulo and Mexico City. Each of the cities has its own strengths and weaknesses. Among the important segments for the regions, Sao Paulo shows an advantage in financial services - SMS and in Communications - SMS. While Mexico has an advantage in a top performing SCCS, Communications - DDT.

Chart 8. Manhattan distance: Sao Paulo - Mexico City



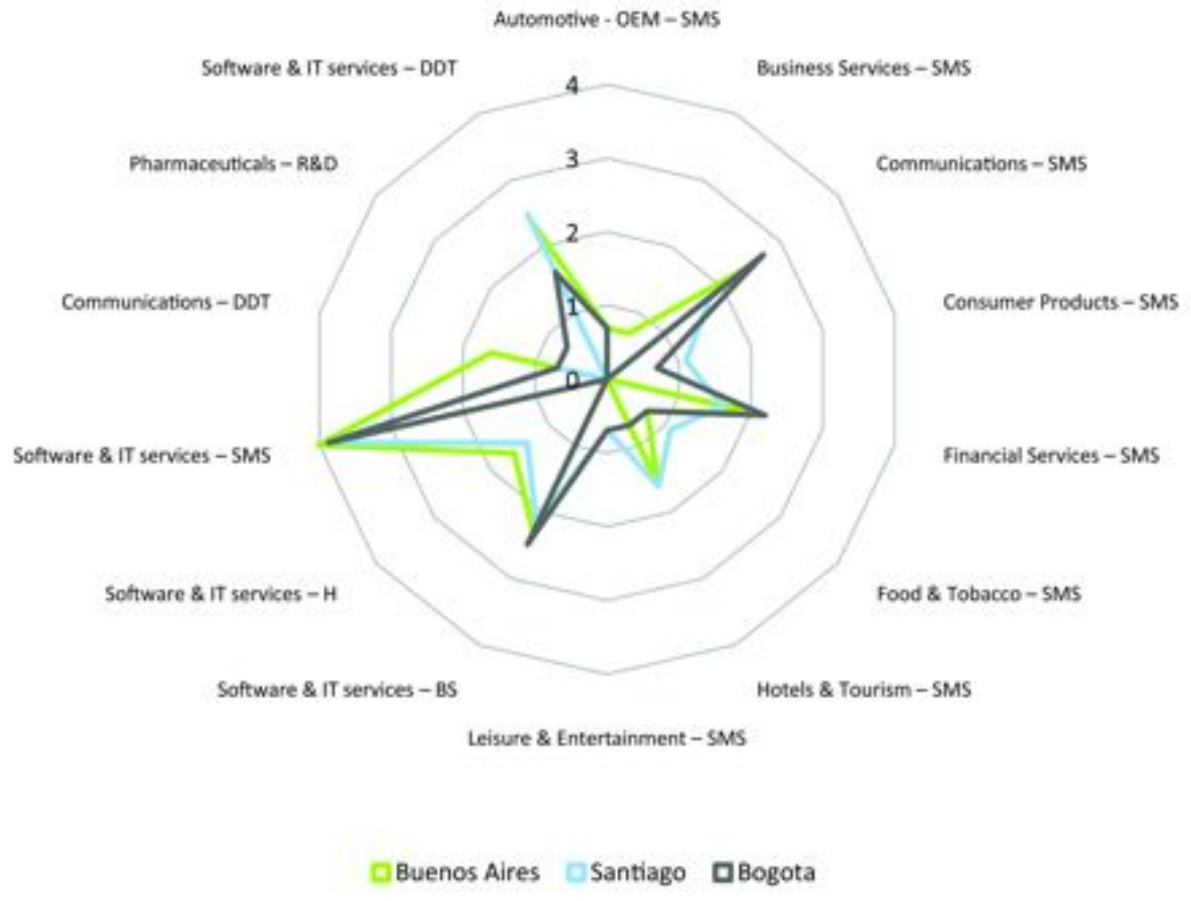
Beside the similarities in segments, we can point out that both cities are global hubs. The top FDI source for both cities is Madrid, followed by Buenos Aires. The rest of the top 10 investors for both cities are made up of European cities (including Paris, London, and Barcelona) and North American (US) cities.

4.4.2 Regional Heroes

The Manhattan Distance analysis showed that mid-size destinations are not only competitors in size but that they also compete in terms of segments. For Buenos Aires its first competitor is Santiago, and vice-versa. For Bogotá the biggest competitor is Buenos Aires and in second place Santiago.

Chart 6 presents a comparison of the FDI (ln) corresponding to the main segments of Buenos Aires, Santiago, and Bogota. Among the important segments for the regions, the three cities seem to be particularly strong in Software & IT services - SMS, as well as in Communications - SMS. Buenos Aires shows an advantage in Communications - DDT. Both Buenos Aires and Santiago are strong in Software & IT services - H.

Chart 9. Manhattan distance: Buenos Aires - Santiago - Bogotá



Further characteristics worth mentioning is the pattern of networking. The the three cities are very active regionally in terms of sourcing FDI. Bogota and Santiago are among the top 10 source cities of FDI for creative segments in the region. As well, the three cities are important investors in each other showing that not only do they compete but they also have complementarities to exploit.

4.5 Location Factors

The last step of the analysis seeks to determine which indicators significantly contribute to FDI attraction. The indicators used for this part of the analysis are mentioned in section 3.2.2 and further described in Annex 2. Table 4 presents the regression results for the indicators that proved to be significant predictors of FDI.

Table 4. Results for main predictors of FDI in Latin America

	B, p***<.001, p**<.01, p*<.05	
GCI	11.908	(0.004)**
Pillar: Market size	5.105	(0.001)***
Available airline seat kms/week, millions	0.858	(0.001)***
Quality of electricity supply	1.724	(0.001)**
Secondary education enrollment, gross %	4.747	(0.044)*
Availability of research and training services	9.959	(0.043)*
Reliance on professional management	6.840	(0.048)*
Financing through local equity market	6.037	(0.014)*
Regulation of securities exchanges	8.953	(0.035)*
Foreign market size index	6.678	(0.049)*
Capacity for innovation	7.985	(0.026)*

The GCI is an empirical attempt to understand the determinants of productivity and competitiveness, and our results confirmed its significance to FDI attraction in creative industries. Although our study proved that some indicators were more relevant than others in attracting FDI to creative segments, the GCI presents a series of benchmarks useful for governments to improve policies and promote competitiveness.

Among the 6 pillars on which regressions were conducted, only *market size* was a significant predictor of FDI. Out of the indicators that make up this pillar only *foreign market size index* was a significant indicator for FDI. This is consistent with findings in section 4.3, which show the leading positions of the global cities Sao Paulo and Mexico City. Although the remaining pillars are not significant predictors of FDI as a whole, we still evaluated the individual indicators.

The indicator *available airline seat kms/week* measures the scheduled available airline seat/kilometers that originate in a country weekly. This should not be interpreted literally, but as we discussed in section 2.3 the connectivity of a city is an important asset for attractiveness.

Among the findings, *secondary education enrollment* and the *availability of research and training services* were factor with a significant relation to FDI. On the contrary, *tertiary education enrollment* proved not significant, which confirms the theory that creative professions depend more on skills than level of education (Florida, 2012).

Although the indicator *reliance on professional management* focuses on the selection process for senior managerial positions, it gives a general impression of the importance a society places to personal merits and qualifications. In the Latin American context this indicator may also be related to the perceived corruptibility of the system, which could discourage investment.

Another significant predictor is *capacity for innovation* which is directly linked to the available creativity within local firms. Creativity in not only important for innovation processes, but it ultimately results in FDI attraction. Furthermore, according to the theory the creative classes are interested in cities where firms not only acknowledge the importance of investigation and innovation, but properly compensate it (Florida, 2005).

Chapter 5: Conclusions

5.1 Conclusions

Interest on the relevance of creative industries for economic development has steadily been growing in the past years. Not only do these industries have a positive impact on GDP, but they are also related to lower levels of inequality, higher levels of human development, and sustainable economic growth, making them desirable to the economy of every city. The purpose of this study was to describe the network of creative segments in Latin America, identify the competitiveness of the region, and point out the main location factors that represent strengths or weaknesses. Additionally, we intended to identify whether creative segments are an unexplored opportunity to strengthen the weak intraregional network of Latin America.

Even though FDI is often evaluated in terms of its impact on local economies, this study shifted from the traditional FDI analysis and used the number of investments as a measure of the connectivity and attractiveness of a region. Taking the network approach to analyze competitiveness enriches this type of studies by involving a relational dimension in the results. Furthermore, we included information from longitudinal analyses to overcome the network analysis limitation, which only analyzes information in one moment of time.

The case of Latin America and its creative industries gives evidence of a hierarchical system led in number of interactions by two global cities, Sao Paulo and Mexico City. Paradoxically, these cities hold a secondary role in the regional network which is reflected on their limited outward investment in the region. In addition, there is also a strong second category of regional hubs (Buenos Aires, Santiago, and Bogota) which don't receive as much investment as global cities, but are very active regionally, however, most of their activity is concentrated in the Southern hemisphere. In consequence, there is a limited number of linkages going from the North to the Southern hemisphere, and vice versa.

The results of longitudinal and growth trends analyses, show that creative segments in Latin America are growing at a much faster pace than the remaining segments. Additionally, the study confirmed the resilience of the creative classes (Gabe, et al., 2013) in the case of Latin America (Chart 2, p.23).

*Software and ICT service*s is clearly an important industry for the region in general, but it also gives an image of the distribution of functions within the region. While s*ales, marketing, & support* is widely distributed in the region, the highly specialized activities (*design, development, & testing* and *research and development*) are concentrated in Sao Paulo, Santiago, Buenos Aires, Mexico City.

In general, the network analysis of city-segment relations showed a small number of all encompassing strong cities with links to the main segments. Besides Bogota with *Communications - SMS* and Rio de Janeiro with *Financial services - SMS*, there is no major

evidence of specialization in the cities. This explains why the destination cities that received the most FDI also turned out to be competitors. Nonetheless, this lack of specialization has not inhibited bilateral investments and cooperation between them, particularly between the mid-size destinations.

Judging by the results of the geographical distribution of FDI sources, we can say that Latin America cities are investing in creative segments in the region. Additionally, two Latin America cities, Buenos Aires and Santiago, are among the top 10 investors in creative segments in the region, followed closely by Sao Paulo. This should be interpreted as a latent opportunity for Latin America to reinforce the intraregional network through FDI in creative segments.

The study evidences a lack of attractiveness in the region for super creative core professions and scientific activities. Although we can determine the absence of this segments, our analysis does not allow to interpret what causes some segments to develop better than others. Because of the nature of these segments, it can be inferred that one of the basic obstacles for the region is inadequate human capital. The study further proved that secondary education is relevant to the attraction of FDI in creative industries while tertiary education was not significant, supporting the theory of skills being more important than cognitive intelligence (Florida, 2012).

5.2 Recommendations

This study presented an analysis on the factors that improve the attractiveness of cities to creative segments, but there is still plenty of analysis that can be performed on the factors that discourage or even prevent the growth of these segments. For example, it is yet to be proven whether the theory that creative classes do not grow in industrial cities applies to Latin America (Florida, 2005). Furthermore, the literature on creative segments can be enriched by comparative regional analysis.

When conducting this research we were aware of the limitation of network analysis for presenting the development of a network over a period of time. Although we used longitudinal analyses to complement this information, it was not enough to obtain critical information particularly of the surge and evolution of nodes. Considering that time is a factor that has impact in the level of development of a network, we encourage future investigators to immerse in prolonged observation of networks to achieve a more accurate comparison between the nodes.

Furthermore, regional actors are encouraged to seize the opportunity posed by the presence of creative segments to promote the creation of linkages and to strengthen the regional city network. From what we can tell on this study and in the literature, connectivity is critical for attractiveness and therefore can help enhance the competitiveness of the whole region. Moreover, a strong city network will contribute positively to the implementation of any regional strategy.

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Annexes

Annex 1: Data for Chart 1

Country	Volume of FDI (n)	Growth in FDI
Brazil	2678	7.73%
Mexico	2227	5.33%
Argentina	888	7.73%
Colombia	701	11.44%
Chile	565	3.72%
Peru	414	7.31%
Costa Rica	269	14.76%
Panama	223	18.11%
Venezuela	183	-11.71%
Uruguay	124	10.17%
Dominican Republic	108	-1.71%
Guatemala	94	10.64%
El Salvador	87	2.49%
Ecuador	81	-0.22%
Honduras	64	-1.90%
Nicaragua	61	14.23%
Bolivia	56	-5.76%
Cuba	49	7.74%
Paraguay	27	14.26%
Haiti	11	2.10%

Annex 2: Description of the structure of GCI and indicators

Global Competitiveness Index	
1st pillar: Institutions	Property rights
	Intellectual property protection
	Diversion of public funds
	Public trust in politicians
	Irregular payments and bribes
	Judicial independence
	Favoritism in decisions of government officials
	Wastefulness of government spending
	Burden of government regulation
	Efficiency of legal framework in settling disputes
	Efficiency of legal framework in challenging regs
	Transparency of government policymaking
	Gov't services for improved business performance
	Business costs of terrorism
	Business costs of crime and violence
	Organized crime
	Reliability of police services
	Ethical behavior of firms
	Strength of auditing and reporting standards
	Efficacy of corporate boards
	Protection of minority shareholders' interest
	Strength of investor protection, 0–10 (best)*
2nd pillar: Infrastructure	Quality of overall infrastructure
	Quality of roads
	Quality of railroad infrastructure
	Quality of port infrastructure
	Quality of air transport infrastructure
	Available airline seat kms/week, millions*
	Quality of electricity supply
	Mobile telephone subscriptions/100 pop.*

Global Competitiveness Index	
	Fixed telephone lines/100 pop
3rd pillar: Macroeconomic environment	Government budget balance, % GDP*
	Gross national savings, % GDP*
	Inflation, annual % change*
	General government debt, % GDP*
	Country credit rating, 0–100 (best)*
4th pillar: Health and primary education	Business impact of malaria
	Malaria cases/100,000 pop.*
	Business impact of tuberculosis
	Tuberculosis cases/100,000 pop.*
	Business impact of HIV/AIDS
	HIV prevalence, % adult pop.*
	Infant mortality, deaths/1,000 live births*
	Life expectancy, years*
	Quality of primary education
	Primary education enrollment, net %*
5th pillar: Higher education and training	Secondary education enrollment, gross %*
	Tertiary education enrollment, gross %*
	Quality of the educational system
	Quality of math and science education
	Quality of management schools
	Internet access in schools
	Availability of research and training services
	Extent of staff training
6th pillar: Goods market efficiency	Intensity of local competition
	Extent of market dominance
	Effectiveness of anti-monopoly policy
	Extent and effect of taxation
	Total tax rate, % profits*
	No. procedures to start a business*
	No. days to start a business*
	Agricultural policy costs

Global Competitiveness Index	
	Prevalence of trade barriers
	Trade tariffs, % duty*
	Prevalence of foreign ownership
	Business impact of rules on FDI
	Burden of customs procedures
	Imports as a percentage of GDP*
	Degree of customer orientation
	Buyer sophistication
7th pillar: Labor market efficiency	Cooperation in labor-employer relations
	Flexibility of wage determination
	Hiring and firing practices
	Redundancy costs, weeks of salary*
	Pay and productivity
	Reliance on professional management
	Brain drain
	Women in labor force, ratio to men*
8th pillar: Financial market development	Availability of financial services
	Affordability of financial services
	Financing through local equity market
	Ease of access to loans
	Venture capital availability
	Soundness of banks
	Regulation of securities exchanges
	Legal rights index, 0–10 (best)*
9th pillar: Technological readiness	Availability of latest technologies
	Firm-level technology absorption
	FDI and technology transfer
	Individuals using Internet, %*
	Broadband Internet subscriptions/100 pop.*
	Int'l Internet bandwidth, kb/s per user*
	Mobile broadband subscriptions/100 pop.*
10th pillar: Market size	Domestic market size index, 1–7 (best)*

Global Competitiveness Index	
	Foreign market size index, 1–7 (best)*
11th pillar: Business sophistication	Local supplier quantity
	Local supplier quality
	State of cluster development
	Nature of competitive advantage
	Value chain breadth
	Control of international distribution
	Production process sophistication
	Extent of marketing
	Willingness to delegate authority
12th pillar: Innovation	Capacity for innovation
	Quality of scientific research institutions
	Company spending on R&D
	University-industry collaboration in R&D
	Gov't procurement of advanced tech products
	Availability of scientists and engineers
	PCT patents, applications/million pop.*

Annex 3: Data for Chart 2. Growth trends of FDI (n) in Latin America (2002-2012)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Overall Investment	Growth rate
Creative Professional segments	40	62	58	95	123	169	158	153	206	135	1199	15.79%
Super Creative Core segments	19	24	18	27	34	38	42	43	67	44	356	12.45%
Total Creative Industries	59	86	76	122	157	207	200	196	273	179	1555	14.89%
Total remaining industries	602	622	475	490	652	951	1010	925	1072	556	7355	5.44%

Annex 4: Data for Chart 3. FDI (n) in creative segments per country (2002-2012)

Country	Volume of FDI (n)	Growth in FDI
Brazil	578	18.82%
Mexico	339	11.99%
Argentina	151	11.5%
Colombia	131	16.02%
Chile	123	6.65%
Peru	67	0.49%
Panama	36	17.41%
Costa Rica	35	11.91%
Ecuador	20	-6.6%
Venezuela	18	-7.14%
Uruguay	14	12.38%
Guatemala	11	-2.18%
Dominican Republic	10	14.41%
El Salvador	8	11.16%
Paraguay	5	-12.53%

Annex 5: Data for Chart 4. Creative Segments performance (2002-2012)

Creative Professional Segments		
Segment	**Volume of FDI (n)**	**Growth in FDI**
Financial Services - Sales Marketing & Support	134	22.28%
Software & IT services - Business Services	121	19.84%
Communications - Sales Marketing & Support	157	17.47%
Software & IT services - Sales Marketing & Support	563	17.10%
Software & IT services - Headquarters	43	19.83%
Consumer Products - Sales Marketing & Support	39	14.41%
Leisure & Entertainment - Sales Marketing & Support	15	14.87%
Hotels & Tourism - Sales Marketing & Support	39	12.82%
Business Services - Research & Development	6	13.66%
Food & Tobacco - Sales Marketing & Support	24	4.11%
Textiles - Sales Marketing & Support	10	7.32%
Beverages - Sales Marketing & Support	5	8.11%
Paper Printing & Packaging - Sales Marketing & Support	7	7.25%
Business Services - ICT & Internet Infrastructure	3	9.90%
Automotive - OEM - Sales Marketing & Support	12	-6.69%
Business Services - Sales Marketing & Support	13	-11.55%
Business Services - Design Development & Testing	5	-0.92%

Super-Creative Core Segments		
Segment	**Volume of FDI (n)**	**Growth in FDI**
Semiconductors - Design Development & Testing	11	-14.35%
Biotechnology - Design Development & Testing	4	-11.55%
Communications - Research & Development	8	-10.43%
Biotechnology - Research & Development	9	-6.22%
Paper Printing & Packaging - Design Development & Testing	4	-2.31%
Automotive - OEM - Design Development & Testing	17	0.78%
Software & IT services - Research & Development	10	0.95%
Automotive - Components - Design Development & Testing	7	5.11%
Industrial Machinery Equipment & Tools - Research & Development	5	5.87%
Chemicals - Research & Development	7	6.39%
Alternative/Renewable energy - Design Development & Testing	4	8.00%
Software & IT services - Design Development & Testing	132	10.71%
Financial Services - ICT & Internet Infrastructure	4	13.73%
Electronic Components - Design Development & Testing	7	14.26%
Pharmaceuticals - Research & Development	16	14.83%
Communications - Design Development & Testing	31	15.08%
Food & Tobacco - Design Development & Testing	15	24.53%
Industrial Machinery Equipment & Tools - Design Development & Testing	10	25.26%
Chemicals - Design Development & Testing	13	30.55%

Annex 6: Data for Chart 5. City performance on creative professional segments (2002-2012)

Destination City	Volume of FDI (n)	Growth in FDI
Sao Paulo	269	19.56%
Mexico City	171	10.54%
Buenos Aires	98	8.89%
Bogota	96	16.95%
Santiago	81	7.48%
Rio De Janeiro	57	22.51%
Lima	38	-2.37%
Panama City	32	15.99%
Monterrey	22	-3.26%
San Jose	19	-2.90%
Caracas	15	5.46%
Quito	15	-4.03%
Curitiba	13	9.08%
Guadalajara	13	5.69%
Porto Alegre	12	12.38%
Montevideo	10	11.88%
Guatemala City	9	-4.36%
San Isidro (PE)	9	-9.81%
Medellin	8	34.66%
Recife	8	18.31%
Tijuana	7	-7.36%
Brasilia	6	13.86%
Belo Horizonte	6	-
San Salvador	5	11.55%
Santo Domingo	5	9.24%
Santiago De Queretaro	5	5.47%
Campinas	5	-1.98%
Cordoba	4	4.95%
Heredia	4	1.82%
Fortaleza	4	-
Salvador	4	-
Cancun	4	-
Macae	3	8.66%
Belem	3	-

Annex 7: Data for Chart 6. City performance on Super-creative core segments (2002-2012)

Destination City	Overall Investment	Growth rate
Sao Paulo	63	10.09%
Mexico City	34	14.04%
Santiago	24	-0.60%
Buenos Aires	21	-0.01%
Rio De Janeiro	15	18.71%
Bogota	15	-0.56%
Guadalajara	14	13.27%
Monterrey	14	-
Campinas	8	5.30%
Curitiba	8	3.77%
San Jose	7	52.00%
Porto Alegre	7	-1.50%
Santiago De Queretaro	6	6.26%
Mexicali	5	-0.92%
Cordoba	5	-
Panama City	4	34.66%
Lima	4	-
Barranquilla	3	69.31%
León	3	17.33%
Salvador	3	17.33%
Manaus	3	-9.90%
Jacarei	3	-69.31%