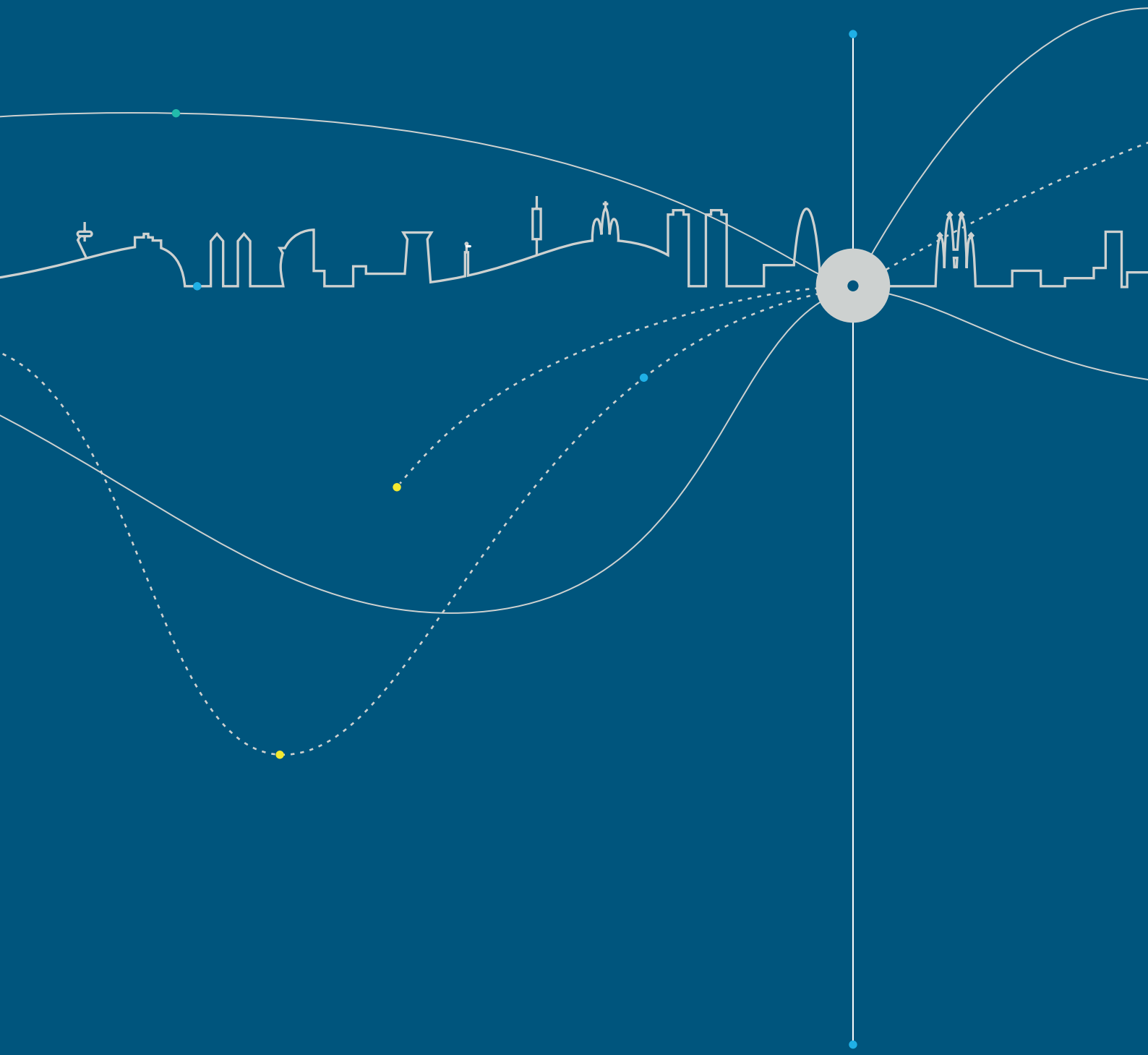
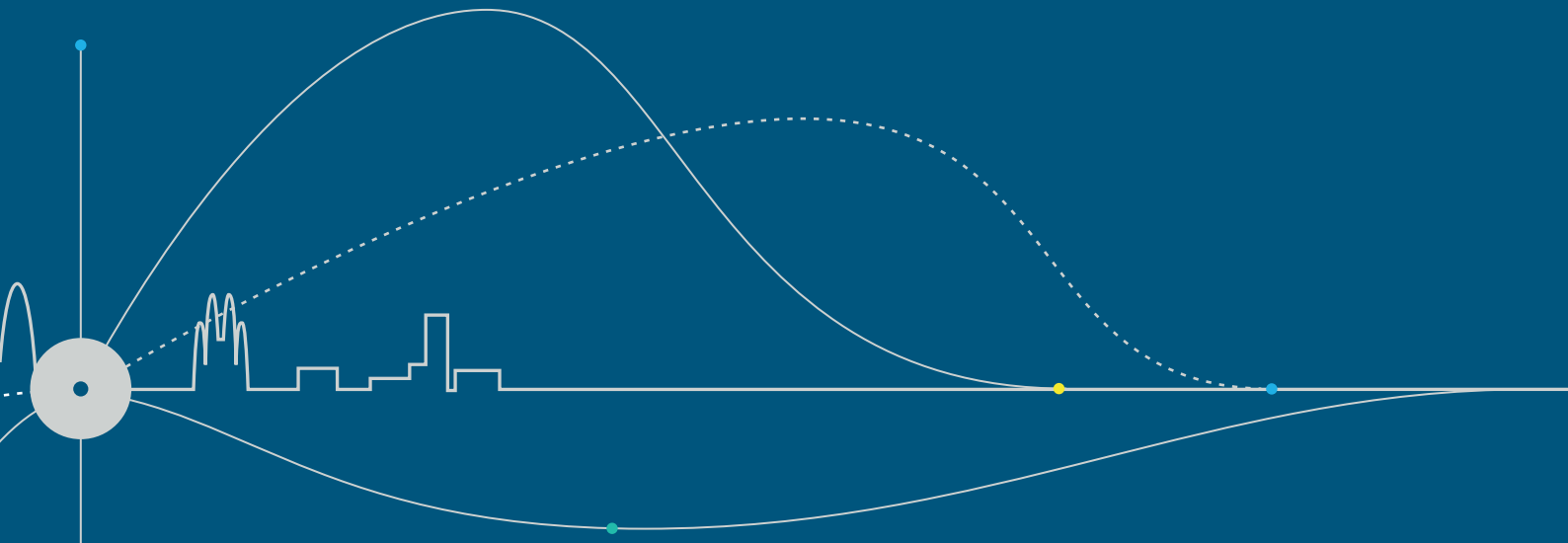


FOREIGN DIRECT INVESTMENT IN BARCELONA

TRENDS, OPINIONS AND IMPLICATIONS

Ajuntament de Barcelona



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1. INTRODUCTION

Because global Foreign Direct Investment (FDI) flows are constantly reshaping and competition for FDI among metropolitan areas is dynamic, it is important for the Barcelona area to continuously ask the question of why foreign firms invest in the region, and why not. As the seventh edition of the report on FDI in the area of Barcelona, this study aims to continue to provide useful knowledge about the importance of FDI in the Barcelona area. In a globalised economy, it is critical to understand the factors that make this region a favourable area for foreign investment and to be able to formulate insightful recommendations to the authorities.

The topic of FDI has long been of fundamental interest to managers and policy makers alike. The World Bank has referred to FDI as “the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor”. On the one hand, managers are interested in the topic of FDI because firms may increase their performance by reaching new consumer markets, accessing lower-cost labour and exploiting advanced knowledge in foreign countries. On the other hand, the interest of policy makers in FDI is mainly driven by the notion that an increase in FDI is typically associated with economic benefits for the host country, such as technological and knowledge spillovers from foreign to domestic firms, efficiency gains, job creation and increased tax revenues.

Barcelona Activa, the Barcelona City Council and the Public-Private Sector Research Center at IESE Business School (PPSRC-IESE) would like to thank all experts and organizations who participated in this study and shared their opinions with us.

This study is organised in five sections. After the introduction, the second section summarises the principal insights about FDI in the Barcelona area. The third section includes a quantitative analysis based on the exploitation of the main relevant existing public and private databases. Section four explores the qualitative analysis and shows the results of the focus group meetings and interviews with representatives of corporations and other institutions which have been involved in FDI decisions. Using the knowledge of the experts, we developed and conducted a survey to deepen the understanding of the key factors in driving or slowing down the foreign firms’ decision to invest in Barcelona. Finally, the fifth section provides recommendations for authorities about how to ensure and further strengthen the success of the Barcelona area as a magnet for foreign investments.

2. EXECUTIVE SUMMARY

The Barcelona area's relatively favourable performance in FDI has resulted in a positive impact on employment and in terms of leadership in several sectors at European level. The highly valued intangible assets, the favourable geographic location and infrastructure, the well-qualified yet low-cost workforce along with the development of attractive business ecosystems have been crucial factors in attracting FDI into the region. Improving perceptions is essential in order to lure new firms, ensure re-investments and seize the important growth opportunity provided by emerging market firms. To this end, Barcelona should increase the economic and political uncertainty and consolidate the city as an international ICT benchmark. The future of FDI is about cities, not countries.

Barcelona ranks in top-5 in 12 out of 15 most important sectors receiving FDI

1. Catalonia outperformed Europe and Spain during the crisis

During the period from 2007 to 2013, worldwide FDI flows decreased by almost 27%. While Europe's FDI inflows decreased by 72% and Spain's by 47%, Catalonia (mainly the Barcelona Area, which accounts for 91% of foreign companies settled in the region) was able to increase its inflows by up to 50% in the same period. The area increased its share of the total FDI received by Spain by up to 21% in 2013 and its FDI is recovering to levels prior to the crisis. Specifically, when considering only productive investment, Catalonia's share grew from 8% in Spain in 2008 to 22% in 2013. The region is host to 7,000 foreign firm establishments, with 46% of foreign firms located in Spain having at least one establishment in Catalonia. Barcelona is successfully accommodating the growth of emerging economies, which in 2012 and 2013 surpassed developed countries in volume of captured foreign investments.

2. Barcelona is the first city in Europe without English native population attracting FDI and it is the leading city in several sectors

Between January 2011 and October 2013, 270 foreign direct investments announced the creation of 20,334 jobs in Barcelona and drew 7,460 million dollars, which placed Barcelona 3rd in terms of job creation (if we do not take into account jobs in construction -of temporary nature-; 5th if construction is included). Ahead of Barcelona, only Dublin and London received more FDI, both in terms of capital invested and jobs created. In terms of jobs created by FDI, Barcelona ranks in the top five in 12 of the 15 most important sectors receiving FDI, and it ranks first in logistics and design. It is the most diversified European city in attracting investments in different sectors. ICT was the sector attracting the most projects to Catalonia, but the logistics sector invested the most capital and mobility, which includes the region's traditionally strong automotive industry, which has created the most jobs in the past 10 years. Barcelona stands out as the leader in design, accounting for 22% of all jobs created in Europe in this sector. ICT, logistics and mobility, along with the financial sector, currently appear to be the most popular industries in Barcelona for foreign investors.

3. The value of Barcelona's intangible assets

Although tangible assets such as the roads, railways, airport and port are important factors for the Barcelona area in attracting FDI, it is difficult to differentiate from competing Western European cities solely over infrastructure. What makes a difference in the perception of the consulted experts is the quality of life that Barcelona offers, as reflected in factors such as the quality of public and private schools and universities, convenient local transportation services, security and last but not least the climate, sea, architecture and recreational areas of Barcelona.

Quality of life constitutes an important part of Barcelona's FDI value proposition, attracting not only foreign entrepreneurs or firms active in tourism and entertainment, but also executives of established companies from all other sectors. Barcelona's quality of life attracts people and companies follow people, placing Barcelona in the eye of FDI decision-makers. Overall, our results suggest that the image and brand of Barcelona as a pleasant place to live and do global business has a positive influence on FDI decisions, which should not be underestimated but preserved and promoted as a specific strategic advantage attracting FDI.

4. Barcelona's well-qualified yet low-cost workforce attracts FDI

The availability of a skilled and motivated workforce at a price that is highly competitive in Western Europe attracts foreign investors. The combination of low-cost high-qualified people is especially attractive for firms from labour- and knowledge-intensive industries. Moreover, the interviewed experts argued that the presence of an international talent pool, which is mainly attracted by the high quality of life, provides important incentives for foreign firms to invest in the Barcelona area.

5. Barcelona is developing attractive business ecosystems

The Barcelona area is being able to differentiate itself from competing metropolitan areas by focusing on evolving attractive business ecosystems. Barcelona has a long and proven track record of Public-Private Partnerships in organising large events and urban development, which is currently evolving into a strategy to foster an ecosystem of innovation and entrepreneurship. Network- and innovation-based motives are highly important factors in explaining why foreign firms invest in the Barcelona area.

Experts that perceive business ecosystems as important are typically also more satisfied with their investments in the Barcelona area and have a higher intention to re-invest in the future. Since business ecosystems encompass links with suppliers, customers, business partners, research centres and knowledge networks, they can have a profound impact on technology and knowledge spillovers between foreign and domestic firms, the development of efficient and specialized supporting industries and the emergence of a specialised and skilled workforce. Consequently, our findings indicate that business networks provide an important vehicle for the economic development of the Barcelona area.

A higher development of business angels and venture capitalists will provide enormous opportunities in attracting foreign investments on innovative activities

6. Improving perceptions to attract new firms ensures re-investments

The willingness to invest in the Barcelona area depends therefore crucially on an investor's knowledge about the Barcelona area. The preferences and requirements of expert groups differ substantially, suggesting that the Barcelona area needs to develop differentiated policy actions to target foreign investors located inside and outside of Spain, and depending on whether they are entrepreneurial or established firms, the country (or continent) of origin and the sector they are investing in.

Entrepreneurial firms rated the motives for FDI in the Barcelona area stronger than established firms and are slightly more likely to invest in the future. For entrepreneurs the main motives to invest in Barcelona are the existence of attractive industry clusters, critical mass and ecosystems with a large presence of foreign companies, along with local market growth potential. Because the presence of innovative entrepreneurial firms increases the value of business ecosystems, and therefore also attracts established firms, the Barcelona area has opportunities for continuing to agglomerate an attractive mix of entrepreneurial and established firms. Experts located in Spain perceive most FDI motives but also most FDI barriers stronger than experts located outside of Spain. Remarkably, experts located in Spain were significantly more satisfied with their FDI projects in the Barcelona area and also significantly more likely to (re-)invest in the Barcelona area, both in the short and long term.

Barcelona's Mobile World Capital is improving the attractiveness for investing in ICT services

7. Emerging-market firms provide an important growth opportunity in the long term

Barcelona is one of the preferred European destinations of firms from Europe and Japan, and it has the potential to attract other major worldwide FDI players. Those metropolitan areas that earn the attention of emerging-market firms can realise growth of FDI inflows in the long term. While FDI from developed economies decreased since 2007, emerging-market firms increasingly invest in foreign countries. In 2013 the share of FDI outflows from emerging and transition economies achieved 39% of the total, when 15 years ago they represented only 7%. Whereas the prices of commodities will remain high over the next few years, this trend will go on.

Moreover, the survey indicated that emerging-market firms perceive most FDI motives in the Barcelona area stronger and FDI barriers weaker than developed-market firms do. In particular, South American firms appear to perceive FDI motives stronger than other firms do and Asia-Pacific firms indicate that they are most likely to invest in the long run. Moreover, because the port of Barcelona provides the faster entry point into Western Europe for trade and commerce shipped from the Asia-Pacific region, our results show that Barcelona's port is a valuable asset in attracting investments from Asia-based firms, which has yet to be fully exploited, especially when the freight railway connection with Europe is completely operational. Overall, although European firms will continue contributing with the largest share of productive FDI in the Barcelona area, emerging-market firms can provide an important opportunity to accelerate Barcelona's economic growth in the medium and long term.

Barcelona should both internally continuously reinforce its strengths and going outside to attract investments projects in origin

8. Economic and political certainty will increase the confidence of some FDI decision-makers

Barcelona should focus on improving its institutional and administrative framework relating to taxation, regulations and legal security, which are perceived as the main barriers for FDI. With respect to political uncertainty in Catalonia, some interviewees perceive the process as unfavourable but without a strong effect on FDI decisions, maybe except for capital intensive, long-term oriented projects. These concerns are also mentioned in the survey, which indicates that political uncertainty represents a barrier for FDI in the Barcelona area. Therefore, an important challenge for the Barcelona area is to increase the economic and political certainty, stabilising the confidence of foreign investors and safeguarding foreign investments in the region.

9. Consolidating Barcelona as an international ICT benchmark

The perception of Barcelona's ability in attracting ICT firms has grown in recent years, placing Barcelona as the 3rd most important city in the sector and the first non native-English city. Information and Communication Technology was the sector where FDI created most projects in the city in the last 10 years. The area is specialised in attracting projects from Europe and Japan and ICT projects from design, development and testing centres.

Barcelona has a rich ICT ecosystem that is benefiting from the impact of the Mobile World Capital and Barcelona's quality of life and brand image. The intention of foreign ICT firms for future FDI in the Barcelona area is favourable, and the challenge is to realise this potential. To consolidate its position as a benchmark of ICT cities, the Barcelona area could focus on automating all kinds of administrative processes for citizens and business, thereby decreasing FDI barriers and strengthening its reputation as an innovative business region. Leading ICT best practices pulls ICT investments. Moreover, Barcelona's economy is highly diversified but is losing industrial activities (as the rest of non-Germanic Europe), particularly in the ICT sector. Barcelona should stop this trend because ICT industrial activities provide productivity growth and competitiveness to the entire economy. Consequently, strengthening the ecosystem of innovation (i.e. efficiently transferring technology, aligning public and private agents and improving access to venture capital and European funds for SMEs) are key challenges. There are plenty of opportunities to attract more FDI projects in the ICT sector from the US and Asia. Political and commercial efforts should be done to achieve this.

10. The Future of FDI is about Cities, not Countries

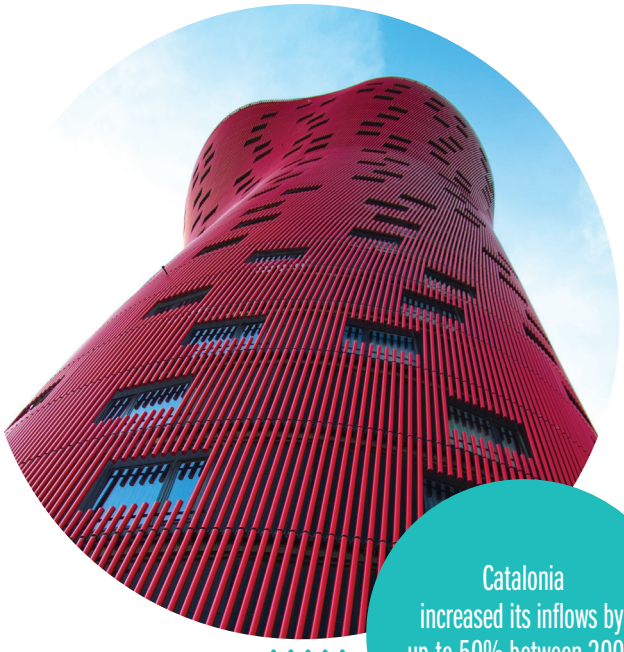
With about two-thirds of Europe's consumers and workforce living in metropolitan areas, cities increasingly emerge as FDI magnets and the new epicentres of power. The gradual law harmonisation within Europe in recent decades, the adoption of a common currency and a single European market were some factors that facilitated the direct comparisons between cities by international investors. The institutional and economic environment along with the more recent boost in political, financial and fiscal European integration will continue to pave the competition across cities to attract FDI in the future.

Globalisation is driving cities as major landmarks in investors' strategies. Accordingly, the interviewed experts of this study stated that FDI decision-makers directly compare cities such as London, Madrid or Barcelona rather than countries such as the UK or Spain when they evaluate FDI destinations, although the context of the host country continues to have an influence. This shift in managers' attention towards metropolitan areas provides enormous opportunities for the Barcelona area in positioning itself as a worldwide leading FDI destination, largely independent of the current economic image of Spain. Indeed, the findings of this study indicate that the interest of foreign investors in the Barcelona area recently increased and the interviewed experts predicted a positive trend for FDI in the Barcelona area, especially in the long term. Based on Barcelona's geo-economic location and a growing international recognition of the Barcelona brand, experts reinforce the trends that the metropolitan area of Barcelona has potential of becoming a leading destination of global FDI flows in several sectors such as information and communication technologies (ICT), logistics or mobility.

3. FDI TRENDS: THE WORLD, CATALONIA AND BARCELONA

FDI trends in the World

- Developing countries recently overtook developed countries as major FDI recipients
- FDI flows are very sensitive to GDP variations
- Greenfield projects are the main driver of FDI worldwide
- The U.S. is the main country receiving FDI flows but its predominance is being challenged by the BRICS, mainly China, Russia and Brazil
- In 2013 the share of global FDI outflows from emerging and transition economies achieved 39% of the total, when 15 years ago they represented only 7%



Catalonia increased its inflows by up to 50% between 2007 and 2013

3.1. DEVELOPING COUNTRIES RECENTLY OVERTOOK DEVELOPED COUNTRIES AS MAJOR FDI RECIPIENTS

During the last 20 years, global FDI flows have increased significantly and today they account for more than 8 times the flows reported at the beginning of the 90s. In 2012, for the first time since records are held, developing countries received more FDI flows (55% of total FDI flows) than developed countries (→SEE FIGURE 1).

There were two important peaks in FDI flows in 2000 and 2007, just before the dot-com bubble and the financial crisis respectively, followed by acute drops. In 2013, FDI flows barely represented almost 1.9% of the global GDP, whereas in 2000, they accounted for 4.3% of global GDP. FDI flows are very volatile and they are highly correlated with GDP variations (for example, FDI flows decreased by 33% in 2009 as compared with the previous year while the global GDP decreased by 5.3 %).

The composition of FDI flows changed slightly during the crisis as compared with 2007, when mergers and acquisitions (M&A) accounted for more than half of global FDI flows. M&A operations decreased their relative importance and reached a minimum share of 22% of FDI projects in 2009. Accordingly, greenfield FDI projects increased in relative terms. Between 2008 and 2013, greenfield projects summed up to $ 5,471 billion and M&A projects to $ 2,497 billion in FDI operations.

Barcelona continuously rates among cities in the world with highest quality of life

Barcelona stands out for its talented and motivated skilled workforce at competitive costs

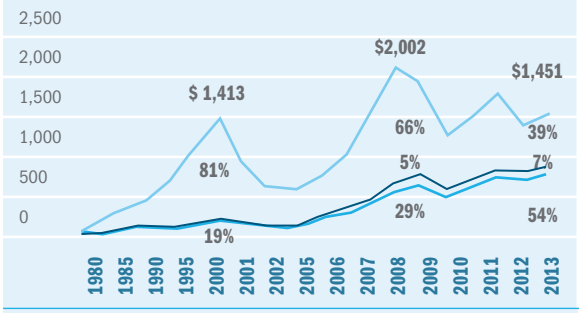
With respect to the evolution of the worldwide major recipient countries, the U.S. has had a predominant role in receiving FDI flows since 1978[1] with the exemption of 2005, when it was overtaken by the UK. However, its relative importance has decreased since 1987 from receiving 44% of global FDI flows to 12.9% in 2013. The ascent of China and other emerging economies such as Russia or Brazil Brazil is notable, which were ranked 2nd, 4th and 6th in 2013[2] , respectively. Russia has climbed 10 positions and Brazil 9 since 2005. In the same period, the relative positions of most developed economies, such as the UK or France, decreased. Not only BRIC and other emerging countries (→DASH LINES IN FIGURE 2) are replacing developed countries as major global FDI recipients, but they are also becoming an important source of global outflows.

Whereas world outflows increased barely 16% between both periods, East Asia's and BRICS' outflows between 2008 and 2013 were 3.1 times higher (and China 6.3 times) than in the period 2002-2007. In 2013 the share of global FDI outflows from emerging and transition economies achieved 39% of the total, when 15 years ago they represented only 7%. As long as the prices of commodities remain high in upcoming years, this trend will go on. This fast growing area of the world may evolve into a great source of foreign capital for cities such as Barcelona.

[1] U.S. FDI inflows are decreasing since 1987 with the exemption of the years prior to the dot-com bubble, when US inflows experienced a recovery of up to 26% of global FDI flows.

[2] In 2013, British Virgin Islands was the 3rd country in the world receiving FDI and Hong Kong was the 5th.

FIGURE 1
Historical evolution of FDI in the world (bilions USD), 1980-2013

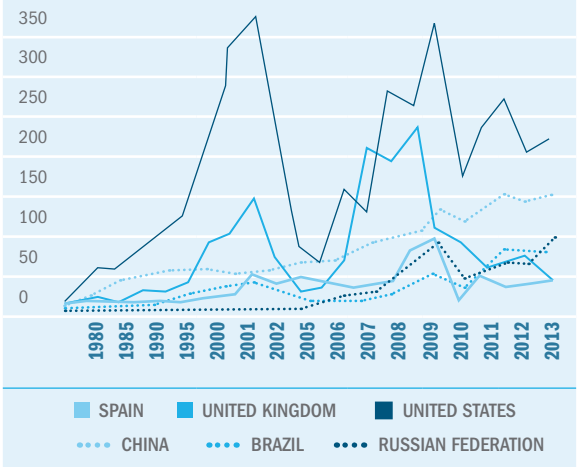


SOURCE: UNCTAD; WORLD INVESTMENT REPORT 2014

FDI trends in Europe, Spain and Catalonia

- Catalonia outperformed Europe during the crisis and increased its inflows by up to 50% between 2007 and 2013
- Catalonia significantly increased its share of Spain's FDI flows up to 20.6% in 2013, back to levels prior to the crisis, thanks to the recovery of productive investments
- FDI flows to Catalonia added up to 22,220 million euros between 2008 and 2013, Europe being the main source of the funds (79%)
- In the last 5 years Catalonia has doubled its FDI inflows from East Asian countries
- Catalonia hosts nearly half of the foreign companies operating in Spain and it is the first destination for East Asian and BRICS countries in establishing their headquarters
- More than 80% of North-American, Italian and Japanese firms with presence in Spain have at least one establishment in Catalonia

FIGURE 2
Evolution of worldwide major FDI recipient countries (billions usd and % of total global FDI), 1970-2013

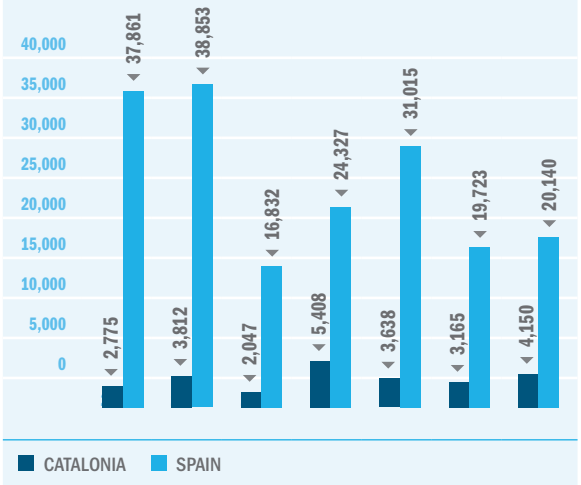


SOURCE: UNCTAD; WORLD INVESTMENT REPORT 2014

3.2. CATALONIA OUTPERFORMED EUROPE AND SPAIN DURING THE CRISIS

During the period from 2007 to 2013, worldwide FDI flows decreased by almost 27%. In Europe, they declined by 72% and in Spain by 47%. In contrast, Catalonia was able to increase its inflows by up to 50% during the same period (↓SEE FIGURE 3)[3]. The relative weights of Spain and Catalonia as FDI recipients are quite small in global terms. Spain´s share of global FDI peaked in 2002, when Spain accounted for 6.3% of global FDI flows. In 2013, Spain accounted for 2.7% of global FDI flows and Catalonia added up almost 0.6% of worldwide direct investment.

FIGURE 3
FDI evolution in Catalonia and Spain (million euros), 2007-2013



SCALE:
1 – MUCH LESS OF A BARRIER / 2 – SOMEWHAT LESS OF A BARRIER / 3 – ABOUT THE SAME / 4 – SOMEWHAT MORE OF A BARRIER / 5 – MUCH MORE OF A BARRIER

SOURCE: DATAINVEX (SPANISH MINISTRY OF ECONOMY AND COMPETITIVENESS)

Since 2007, Catalonia increased its share of the total FDI received in Spain from 7.3% to 20.6% in 2013 and it is recovering its share to prior to the crisis (→SEE FIGURE 4). If all types of FDI operations are included, i.e. productive and non-productive investments, Catalonia received an average share of 15.4% in the period 2008-2013, a similar share (15.5%) to the period 2002-2007. When considering only productive investment (no-ETVE operations[4]), Catalonia's share in Spain's FDI grew from 7.9% in 2008 to 22.1% in 2013[5]. The increase in productive investment (versus mergers or acquisitions that do not necessarily create activity) was the main driver behind Catalonian's high-performance. It seems to be a positive trend towards a higher share of Spain's FDI flows.

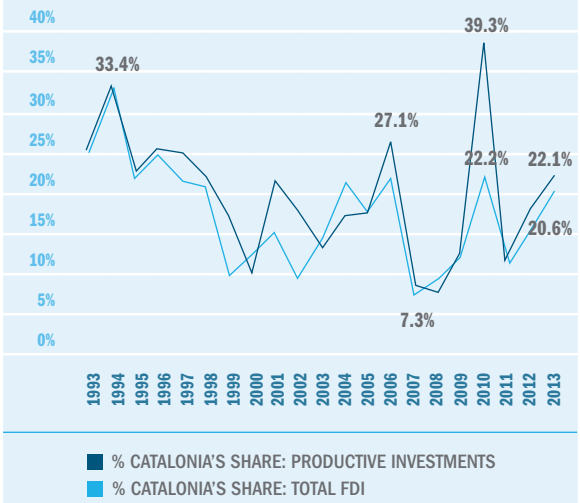
Catalonia experienced a sharp reduction of FDI inflows during the crisis, mainly in 2009, when total FDI flows dropped by almost 46% as compared with the previous year. Fortunately, the region experienced a strong recovery in 2010, and in the following years, FDI reached similar amounts to before the crisis. In the years following 2008, the composition of FDI flows partially changed due to the relative increase of productive investments.

[3] Catalonia and Spain data is provided by DataInvex (Ministry of Economy and Competitiveness). Europe and world data is based on the World Investment Report 2014 (UN). Using UN data, Spain's FDI inflows decreased by 39% between 2007 and 2013.

[4] ETVE (Entidades de tenencia de valores extranjeros) is the short name for Entities Holding Foreign Securities in Spanish. The Spanish Corporate Income Tax Law provides a special tax regime for international holding companies with a wide range of tax saving planning. The operations channeled through this vehicle are commonly considered non-productive investments.

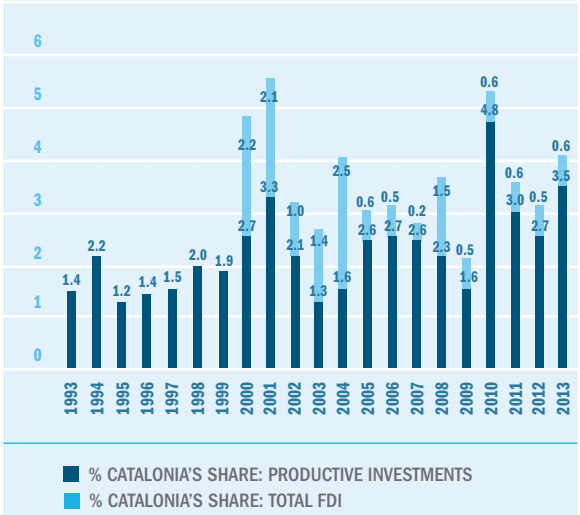
[5] The peak experienced in 2010 can be explained by significant foreign investments in logistics.

FIGURE 4
Catalonia's share of total FDI received in Spain, 1993-2013



SOURCE: DATAINVEX (MINISTRY OF ECONOMY AND COMPETITIVENESS) AND OWN ELABORATION (IESE-PPSRC)

FIGURE 5
Distribution of gross FDI received in Catalonia by type of operation (total FDI inflows in billion €), 1993-2013



SOURCE: DATAINVEX (MINISTRY OF ECONOMY AND COMPETITIVENESS) AND OWN ELABORATION (IESE-PPSRC)

Between 2008 and 2013, productive investments accounted for 80% of total operations (an accumulated sum of 18.0 billion euros), a significantly higher share than the 69% (12.9 billion euros) experienced between 2002 and 2007. During the crisis (period 2008-2013), accumulated productive investments were 40% higher than before the crisis (period 2002-2007). On the contrary, gross FDI investments in non-productive investments (ETVE's operations) dropped by 31% over the same period, from 6.09 billion to 4.23 billion (→SEE FIGURE 5). Therefore, the 17% increase in total gross FDI received by Catalonia, of up to 22,220 million euros in the period 2008-2013 as compared with 2002-2007, was due to the increase of productive investments. Only in 2010, non-ETVE operations were 3 times higher than in 2009.

Spain recovered at a slower pace than Catalonia. Between 2008 and 2013, Spain accumulated only 8% more inflows than in the period 2002-2007. Productive investments also became more important and accounted for 72% of total operations in Spain between 2008 and 2013, a share 11 points higher than in the period 2002 and 2007.

3.3. FDI FLOWS TO CATALONIA ADDED UP TO 22,220 MILLION EUROS BETWEEN 2008 AND 2013, EUROPE BEING THE MAIN SOURCE OF THE FUNDS (79%)

FDI in Catalonia has shown great resilience to the crisis, even as developed countries have tended to lose share as investment recipients. European countries have been the main contributors to FDI in Catalonia over the past 10 years. Between 2008 and 2013, these contributions totalled 17,566 million euros (79% of all FDI received within the territory) and this share rises to 85% when looking only at productive investment. This implies that Europe is the major source of productive investment for Catalonia.

This trend was strengthened during the crisis (2008-2013 period) when compared to the previous 2002-2007 period. The Netherlands stood out as the major investor in Catalonia between 2008 and 2013 with a share of 18% of total FDI inflows (including productive and non-productive operations) followed by Luxemburg (14%), Germany (14%), United Kingdom (11%) and France (10%).

However, the composition of the main FDI players in Catalonia has changed over the years. Figure 6 shows the main countries issuing productive FDI to Catalonia. The Netherlands, UK, Germany, and US have remained the most important benefactors of Catalonia in the last 10 years. When comparing both periods (before and after the crisis), Luxemburg increased its productive investments to Catalonia 4.1 times up to 2.6 billion euros and the Netherlands and France doubled them, whereas Italy decreased its FDI by 66% and the U.S. by 31% in the same period.

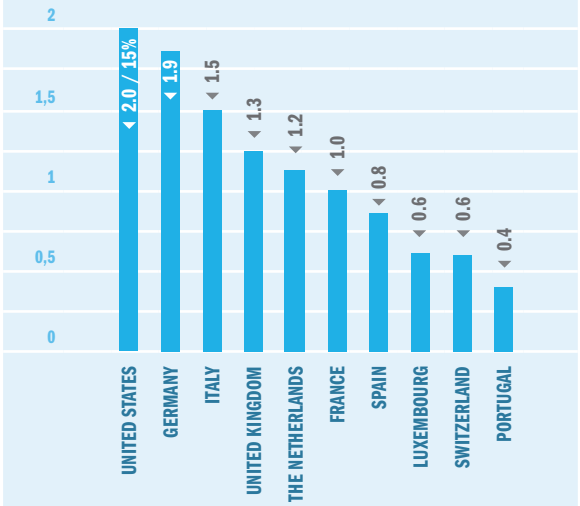
In Catalonia, growth coming from East Asian countries, whose investments almost doubled in the last five years as compared to 2002-2007, has been notable. East Asian flows towards Catalonia were mainly driven by Japan (181 million euros in the last five years). Investments from India and China still constitute modest inflows (60 and 12 million euros respectively), but they are rapidly increasing. Therefore, Barcelona should make an effort to attract more foreign capital from that fast growing area of the world which generated 39% of global outflows in 2013.

BARCELONA is the first city in Europe attracting FDI without English native population

FIGURE 6

Major issuers of productive FDI received* in Catalonia, 2002-2007 and 2008-2013, billion euros and in % out of total of productive FDI

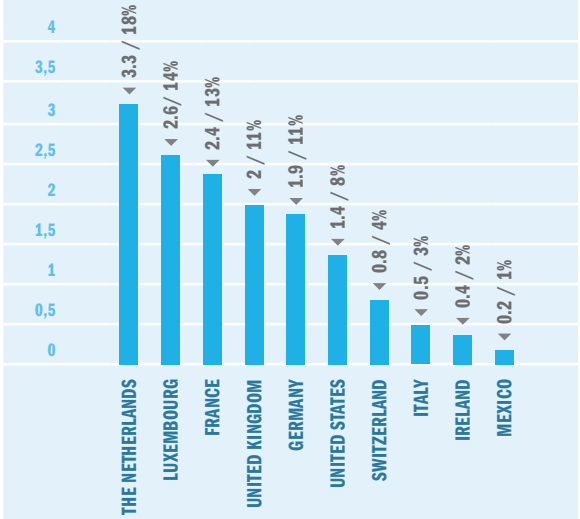
TOTAL PRODUCTIVE INVESTMENT (2002-2007): 12.9 BILLION EUROS



*PER COUNTRY OF LAST ORIGIN

SOURCE: OWN ELABORATION FROM DATAINVEX, SPANISH MINISTRY OF ECONOMY AND COMPETITIVENESS

TOTAL PRODUCTIVE INVESTMENT (2008-2013): 18.4 BILLION EUROS



*PER COUNTRY OF LAST ORIGIN

SOURCE: OWN ELABORATION FROM DATAINVEX, SPANISH MINISTRY OF ECONOMY AND COMPETITIVENESS

3.4. CATALONIA HOSTS NEARLY HALF OF THE FOREIGN COMPANIES OPERATING IN SPAIN

We explored the number of foreign companies in Catalonia as compared with Spain[6]. ACCIÓ provides the most complete database of firms with at least one establishment in Catalonia. Some 46% of foreign firms operating in Spain have at least one establishment in Catalonia. Germany has the strongest presence, with 987 firms located in the region. It is followed by France and the Netherlands, with 908 and 797 companies located in Catalonia, respectively. The United States (US) is the country with the largest presence in Catalonia in relation to the rest of Spain (86% of US firms in Spain are in the region), followed by Japan, Italy and Canada[7] (→ SEE TABLE 1).

When looking exclusively at foreign headquarters in Spain, Catalonia hosts 31.6% of foreign headquarters within Spain. Germany is also the country with the most headquarters, namely 547. Catalonia is the preferred destination for establishing headquarters in Spain for foreign investors from several European countries (such as Italy, Austria, Switzerland or Belgium) and for East Asia and BRICS countries (Brazil, Russia, India, China and South Africa), which places 278 and 202 Spanish head offices in Catalonia, respectively. Only Madrid, with a stronger presence of US, UK and Portuguese headquarters outnumbered Catalonia[8]. Within Catalonia, the province of Barcelona captures 92% of FDI head offices.

Sector analysis of FDI companies in Catalonia

- Manufacturing investment is being replaced by investment in the service sector, both in Catalonia and in Spain
- ICT, logistics and the automotive industry were the most attractive sectors for FDI between 2003 and 2013
- It is estimated that FDI has created 87,526 jobs in Catalonia during the past ten years
- US, focused on ICT, was the country with most FDI projects in Catalonia, but Germany brought more capital and generated more jobs

[6] As mentioned in the introduction, the basic criteria followed by the OECD and the World Bank for an investment to be considered FDI, when measuring equity ownership, is the ownership of at least 10% of the voting power, representing the influence by the investor.

[7] Some 44 out of 59 (80%) Canadian companies have at least one establishment in Catalonia.

[8] These three countries explain 76% of the difference in number of foreign headquarters between Catalonia (3,801 firms) and Madrid (4,682).

TABLE 1

Foreign companies established in Catalonia, last data available

	ESTABLISHMENTS IN CATALONIA	% ESTABLISHMENT CATALONIA / SPAIN
Germany	987	42%
France	908	64%
Netherlands	797	38%
United States	692	86%
Italy	670	80%
United Kingdom	474	33%
Switzerland	365	51%
Luxembourg	329	48%
Denmark	223	69%
Japan	186	80%
Portugal	176	28%
Belgium	144	55%
Austria	104	68%
Other countries	945	30%
TOTAL	**7,000**	**46%**

* INCLUDES COMPANIES WITH ONE FOREIGN COMPANY OWNING 10% OR MORE OF THE CAPITAL

SOURCE: ACCIÓ DATA IS BASED ON INVEST IN CATALONIA, INFORMA AND DUN & BRADSTREET DATABASES. SPAIN FIGURES USES INVEST IN CATALONIA FOR CATALAN COMPANIES AND INFORMA / BRADSTREET DATA FOR COMPANIES ESTABLISHED IN THE REST OF SPAIN.

Foreign companies headquarters in Catalonia, last data available

	HEADQUARTERS IN CATALONIA	% HEADQUARTERS CATALONIA / SPAIN
Germany	547	35%
France	388	47%
Netherlands	367	27%
United States	336	34%
Italy	259	34%
United Kingdom	184	36%
Switzerland	175	39%
Luxembourg	163	22%
Denmark	88	36%
Japan	85	39%
Portugal	83	15%
Belgium	59	28%
Austria	53	41%
Other countries	940	30%
TOTAL	**3,801**	**32%**

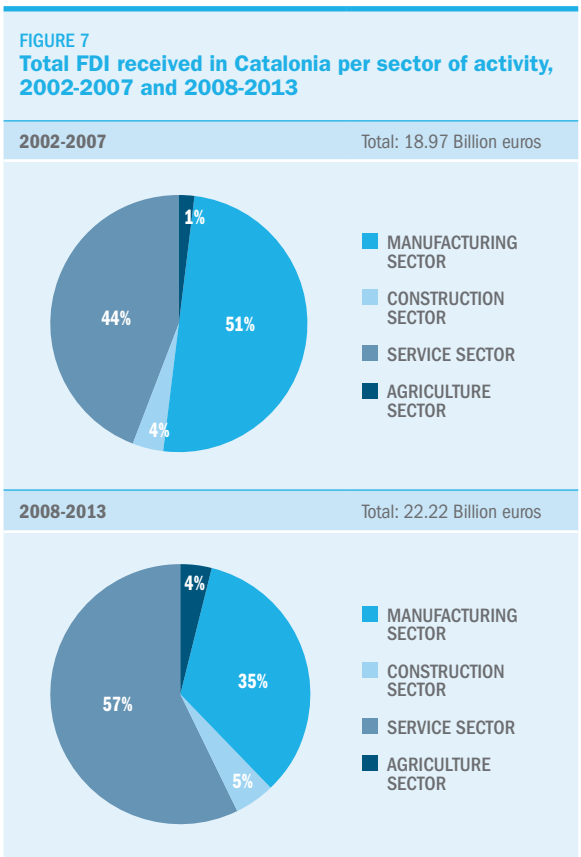
SOURCE: OWN ELABORATION (IESE-PPSRC) FROM SABI DATABASE.

3.5. MANUFACTURING INVESTMENT IS TAKING A BACK SEAT AS OPPOSED TO INVESTMENTS IN THE SERVICE SECTOR

To examine the evolution of foreign direct investment in Catalonia we compare the composition of the FDI before and after the crisis. Manufacturing investment is taking a back seat as opposed to investments in the service sector. The service sector is expanding, and in the period 2008-2013 its relative weight was 13 percentage points higher than in the period 2002-2007 (→SEE FIGURE 7). Most FDI increases in the past five years were driven by investments in the services sector. On the contrary, between 2008 and 2013 the manufacturing sector was the only sector that received less foreign direct investment in absolute terms (7,74 billion euros) than in the period 2002-2007 (9.58 billion). Since the peak in 2001, manufacturing, in relation to other sectors of activity, experienced a sharp decline. Agriculture and construction are relatively small sectors for investment, and they only account for 4% and 5% of total FDI, respectively. Overall, the net effect was positive and total FDI received in Catalonia increased up to 17% between both periods.

We use the FDI-Markets Database to gather data on the number of FDI projects (expansion of former activities or greenfield) located in Catalonia, the capital invested and the jobs created[9] during the past ten years (2003-2013). Data on FDI projects in the region show that Information and Communication Technologies (ICT), with 176 projects, was the most popular sector for investments over the last decade. However, the logistics sector has also seen growing capital investments - up to 7,949 million dollars (22% of total capital invested in that period) - and has spurred the creation of more jobs - 13,137 - (→SEE TABLE 2). The leading sector for job creation was mobility, which includes the region's traditionally strong automotive industry.

FIGURE 7
Total FDI received in Catalonia per sector of activity, 2002-2007 and 2008-2013



SOURCE: DATAINVEX (MINISTRY OF ECONOMY AND COMPETITIVENESS) AND OWN ELABORATION (IESE-PPSRC)

[9] Capital and jobs are estimated by investing companies.

In Barcelona, 70,000 employees, more than 3,400 companies (200 of them being foreign companies) are directly involved in the ICT business cluster.

TABLE 2
Number of FDI Projects in Catalonia, Capital Invested and Jobs Created (% by Sector and Cluster), 2003 -2013

CATALONIA (2003 - 2013)			
SECTORS	NUMBER OF FDI PROJECTS	CAPITAL INVESTMENT (IN MILLION DOLLARS)	JOBS CREATED
	% Share	% Share	% Share
ICT*	21%	14%	15%
Logistics*	8%	22%	15%
Mobility*	7%	20%	18%
Biotec. and Life Science*	7%	5%	5%
Financial Services	6%	5%	2%
Consumer Goods	6%	3%	5%
Physical Sciences	6%	6%	2%
Food and agriculture*	6%	4%	5%
Industrial	6%	2%	3%
Professional Services	5%	1%	5%
Construction	4%	4%	14%
Tourism*	3%	2%	2%
Design*	3%	1%	2%
Creative industries/ Media*	3%	1%	2%
Energy*	2%	6%	1%
Other sectors	8%	5%	4%
TOTAL	**836**	**36,074**	**87,526**

*SECTORS CONSIDERED AS STRATEGICAL BY THE BARCELONA MUNICIPALITY. WE MATCH THE FDI-MARKETS DATABASE DEFINITIONS WITH THE CATALAN CLASSIFICATION OF ECONOMIC ACTIVITIES DEFINED IN 2009 (CCAE-2009).

SOURCE: OWN ELABORATION FROM FDI-MARKET DATABASE

Between 2003 and 2013, 20% of all FDI projects came from the US with these projects totalling 11% of total capital investment. With respect to capital invested, Germany is the leader, totalling 21%. This difference in capital investment is because U.S. companies and projects are mainly focused on ICT, which require smaller levels of capital. Germany, meanwhile, is the leader in capital-intensive sectors such as mobility, design, medicine, biotechnology and life science. France stands out as the main foreign investor for logistics, tourism, creative industries/media and in the energy sector in the region (SEE APPENDIX II, TABLE 8).

In terms of FDI by branch of activity, pharmaceutical manufacturing, information and communication technologies (ICT), storage and transport activities (logistics) and vehicle manufacturing stand out as the fastest-growing areas in the region since 2011, along with activities related to the financial sector.

Position of Barcelona FDI in Europe

Barcelona is the leader in FDI employment creation and capital invested in continental Europe, while being the first city without native-English population

- Barcelona is ranked in the top-5 in 12 of the 15 most important sectors receiving FDI
- Barcelona is the most diversified city in attracting investments in different sectors
- ICT, logistics and the automotive industry are the key sectors attracting FDI in Barcelona
- The city is one of the preferred destinations from Europe and Japan, and it has the potential to attract other major FDI worldwide players such as US or China

3.6. BARCELONA IS THE FIRST CITY IN EUROPE WITHOUT NATIVE-ENGLISH POPULATION ATTRACTING FDI

By analysing the FDI-Market database, we identified 5,369 investment projects to compare the 39 main European Union (EU) metropolitan areas between January 2011 and October 2013. It was estimated that these projects represented $133,144 million in investments and created 316,349 jobs. Most of the FDI projects in Europe correspond to the ICT sector (1,756) though the construction sector created more employment (74,597 jobs). Ahead of Barcelona, only Dublin and London received more FDI, both in terms of capital invested and jobs created.

During that period, 270 foreign direct investments led to the creation of 20,334 jobs in Barcelona and drew $7,460 million, which placed Barcelona 3rd in terms of job creation, if we exclude the cluster of construction –since these activities are of temporary nature– (↓ SEE TABLE 3). Barcelona also ranks 3rd in terms of capital invested but 6th in number of projects.

TABLE 3
European city ranking of job creation by FDI

CITY	TOTAL FDI JOBS	CONSTRUCTION JOBS	FDI JOBS WITHOUT CONSTRUCTION
Dublin	31,799	178	31,621
London	36,638	9,941	26,697
Barcelona	**20,334**	**4,387**	**15,947**
Warsaw	21,631	9,397	12,234
Bucharest	35,862	28,665	7,197

SOURCE: FDI-MARKETS DATABASE

Barcelona stands out as the most diversified city in attracting investments in different sectors. It is ranked in the Top 5 in 12 of the 15 most important ones: construction, ICT, logistics, mobility, retail and consumer goods, biotechnology and life sciences, tourism, food and agriculture, creative industries/media, design, energy and higher education and research. Only London is close to Barcelona in diversification, ranked in the top-5 in 10 of the 15 sectors.

ICT, logistics and mobility, along with the financial sector, currently appear to be the most popular industries in Barcelona for foreign investors. Nevertheless, large variations can be identified in the different sectors when considering the attractiveness of cities as a factor in capturing foreign investors.

Between January 2011 and October 2013 and in terms of job creation, ICT was the most important sector for Barcelona (5,315 jobs), followed by mobility (1,904 jobs, mainly in the automotive industry) and logistics –1,663 jobs excluding construction– (→ SEE TABLE 4). The city is the European leader in logistics and design, accounting for 22% of all jobs created in Europe in the latter sector.

ICT investments have exceeded pre-crisis levels, placing the metropolitan area of Barcelona among the major European areas receiving FDI projects in ICT. Barcelona ICT jobs were created mainly from European (40%) and US (39%) investments. It is worth highlighting that the United States is the first investor in ICT in Europe, and its investments in this sector were estimated to create 36,000 jobs. However, the preferred destinations of US investments were Dublin and London – native-English speaking countries-, which place them as the leading European cities in ICT. The Anglo-Saxon countries summed up to 55% of all the jobs created by the US, whereas Barcelona only accounted for 6%. Barcelona has, in general, a lower presence of US investment projects than its main competitors. Therefore, Barcelona has a great opportunity if it focuses on attracting projects at the place of origin; for example, in California, as most US projects (40% of them, associated with 18,717 estimated jobs) came from that State.

TABLE 4

ESTIMATED JOBS CREATED BY FOREIGN DIRECT INVESTMENTS BY SECTOR IN MAIN EUROPEAN CITIES /METROPOLITAN AREAS, JANUARY 2011 - OCTOBER 2013

FDI IN MAIN EUROPEAN CITIES (2011 - OCT 2013)

SECTOR	#	TOP EUROPEAN CITIES	JOBS CREATED	EUROPEAN UNION	US	CHINA/JAPAN
Construction	1	Bucharest	28,665	90%	0%	0%
	4	**Barcelona**	**4,387**	**83%**	**0%**	**0%**
		Total	74,597	72%	2%	5%
ICT	1	Dublin	15,125	22%	73%	2%
	3	**Barcelona**	**5,315**	**40%**	**39%**	**12%**
		Total	70,350	32%	51%	8%
Financial Services	1	Warsaw	4,669	78%	15%	0%
	12	**Barcelona**	**582**	**80%**	**15%**	**2%**
		Total	24,244	60%	23%	3%
Logistics	**1**	**Barcelona**	**1,663**	**67%**	**12%**	**0%**
		Total	17,075	67%	19%	1%
Professional Services	1	Dublin	3,016	79%	17%	0%
	16	**Barcelona**	**276**	**52%**	**15%**	**20%**
		Total	16,821	60%	24%	1%
Mobility	1	Birmingham	2,410	0%	0%	9%
	2	**Barcelona**	**1,904**	**22%**	**0%**	**67%**
		Total	16,242	34%	14%	27%
Retail and Consumer Goods	1	Stuttgart	1,368	18%	17%	0%
	5	**Barcelona**	**1,008**	**77%**	**8%**	**9%**
		Total	12,867	24%	13%	6%
Biotech. & Sciences of Life	1	Dublin	4,263	10%	89%	0%
	4	**Barcelona**	**745**	**69%**	**31%**	**0%**
		Total	11,797	39%	51%	4%
Tourism	1	Birmingham	1,968	98%	0%	0%
	5	**Barcelona**	**529**	**43%**	**49%**	**0%**
		Total	8,978	76%	15%	0%
Food and Agriculture	1	Dublin	764	77%	5%	17%
	2	**Barcelona**	**577**	**95%**	**0%**	**0%**
		Total	7,643	55%	23%	8%
Creatives Industries/ Media	1	London	1,860	32%	54%	2%
	4	**Barcelona**	**575**	**97%**	**3%**	**0%**
		Total	7,265	54%	38%	1%
Design	**1**	**Barcelona**	**1,028**	**93%**	**7%**	**0%**
		Total	4,776	53%	30%	12%
Energy	1	Copenhagen	591	94%	2%	4%
	3	**Barcelona**	**392**	**100%**	**0%**	**0%**
		Total	4,273	58%	10%	2%
Aeronautics	1	Madrid	446	45%	55%	0%
	16	**Barcelona**	**21**	**0%**	**0%**	**0%**
		Total	2,547	47%	44%	4%
Higher education & research	1	Paris	306	76%	24%	0%
	5	**Barcelona**	**64**	**34%**	**31%**	**0%**
		Total	1,246	43%	27%	5%
Other sectors	1	Frankfurt am Main	2,792	15%	1%	9%
	11	**Barcelona**	**1,268**	**47%**	**17%**	**17%**
		Total	35,628	35%	27%	10%

SOURCE: FDI-MARKETS DATABASE AND OWN ELABORATION

In fact, the city has become specialised in attracting projects from Europe and Japan rather than the US and projects of design and development centres. At a European level, ICT investments are becoming focused on specific subsectors (such as shared services or technical support centres), in which Barcelona is becoming a strong player. The Barcelona ICT-mobile industry is benefitting from its reputation as the world's mobile technology capital and related service activities.

With respect to major Asian countries, China destines 39% of all its investments to London and 19% to German cities. China will have to increase its investments a lot in Barcelona in order to reach regional competitors such as Japan, which has the Mediterranean city as its first destination in terms of job creation. Barcelona is one of the preferred destinations from Europe and Japan, and it has the potential to attract other major FDI worldwide players such as the US or China.

When analysing investments by activities or parts of the value added chain, (following a complementary classification of FDI-markets), we can observe the specialisation of Barcelona in several parts of this chain, disregarding the receiving sector. This view analyses better the current strategies of transnational companies, which divide and place their activities optimally, considering the specific assets of every location. Then, Barcelona is the most attractive city for investment in logistics, distribution and transportation activities (→SEE TABLE 5), and ranks in the Top 5 in 8 of the 16 industry activities: construction; manufacturing (ranks 2nd); sales, marketing and support; logistics; headquarters; design, development and testing; technical support centres; and shared services centres. Only London and Dublin, with 11 appearances in the Top 5 industry activities outperform Barcelona. With the exception of business services, Barcelona is in the Top 5 activities that generate the most jobs

Focus: information and Communication Technology (iCT)

The metropolitan area of Barcelona is among the major European areas receiving FDI projects in ICT. Between 2011 and 2013, Barcelona ranked 3rd when considering the estimated creation of new job positions, 5th in capital invested and 8th according to the number of projects. Barcelona has recovered and even exceeded the pre-crisis records of foreign direct investment in the ICT sector, according to the FDI-markets database. The ICT-Mobile industry in Barcelona is benefitting from the image of being the Mobile Global Capital, and employment in service-related activities are growing and compensating the decline in ICT production. In general terms and at a European level, the lack of manufacturing projects is worth noting.

At a European level, ICT investments are also focused on service-related subsectors. There is also a shift in recent years regarding the type of investment. The ICT sector recently experienced a large growth in activities related to design and development, to the detriment of production and services with lower added value (as shared services centres). However, because of its diversification in other sectors, Barcelona has a relatively low-specialisation in attracting ICT projects compared to its main competitors, namely Dublin, London and Paris. Barcelona's high penetration in attracting ICT projects and development centres also contrasts with the low implementation in ICT business services.

Regarding regions of origin, Barcelona is specialised in attracting projects from Europe and Japan. On the contrary, the city attracts fewer projects from North America (the main investment region, which focuses its investments in London and Dublin) and China, whose investments (in number of projects) have been mainly directed to Germany.

Appendix III provides an in-depth analysis of Barcelona's ICT sector. Tables 9 to 12 describe labour costs, employment and investment; Table 13 motives to invest; and Tables 14-18 rankings and relative specialization by country of origin, subsector of activity and industry activity.

TABLE 5

ESTIMATED JOBS CREATED BY FOREIGN DIRECT INVESTMENTS BY SECTOR IN MAIN EUROPEAN CITIES /METROPOLITAN AREAS, JANUARY 2011 - OCTOBER 2013

FDI IN MAIN EUROPEAN CITIES (2011 - OCT 2013)

SECTOR	#	TOP EUROPEAN CITIES	JOBS CREATED
Construction	1	Bucharest	28,747
	5	**Barcelona**	**4,469**
		Total	90,981
Business services	1	London	6,906
	25	**Barcelona**	**430**
		Total	42,520
Manufacturing	1	Dublin	4,680
	2	**Barcelona**	**3,853**
		Total	39,181
Sales, Marketing & Support	1	London	5,415
	5	**Barcelona**	**1,981**
		Total	33,694
Logistics, Distribution & Transportation	**1**	**Barcelona**	**3,053**
		Total	28,400
Headquarters	1	Dublin	5,851
	4	**Barcelona**	**1,399**
		Total	24,242
Design, development & testing	1	Dublin	3,556
	2	**Barcelona**	**3,286**
		Total	20,389
Customer Contac Centre	1	Dublin	2,187
	6	**Barcelona**	**565**
		Total	9,382
ITC & Internet Infrastructure	1	London	1,584
	14	**Barcelona**	**172**
		Total	8,130
Researche & Development	1	London	3,227
	8	**Barcelona**	**148**
		Total	6,302
Technical Support Centre	1	Dublin	1,607
	5	**Barcelona**	**300**
		Total	4,165
Shared Services Centre	1	Dublin	1,290
	3	**Barcelona**	**428**
		Total	3,992
Education & Training	1	London	296
	8	**Barcelona**	**81**
		Total	1,799
Maintenance & Servicing	1	Sofiya	200
	6	**Barcelona**	**96**
		Total	1,685
Electricity	1	Antwerp	147
	8	**Barcelona**	**73**
		Total	943
Recicling	1	Parin	135
		Total	**544**

SOURCE: FDI-MARKETS DATABASE AND OWN ELABORATION

4. QUALITATIVE ANALYSIS:
FOCUS GROUPS, INTERVIEWS AND SURVEY

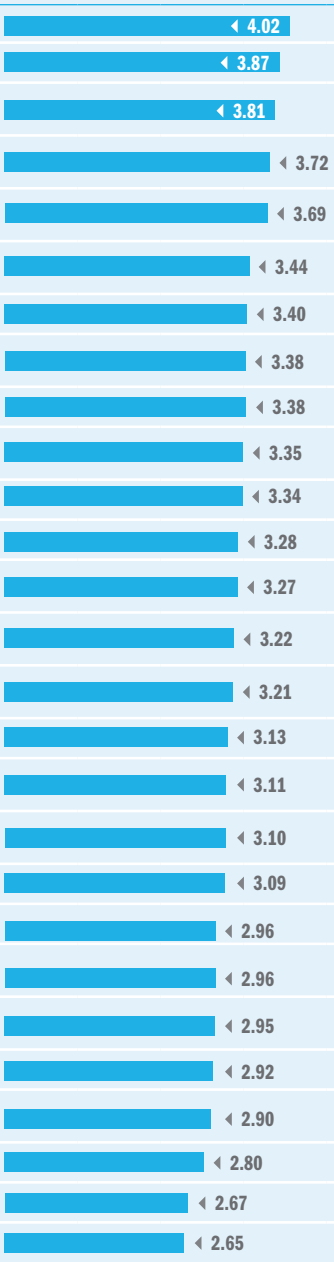
4.1. WHY DO FOREIGN FIRMS INVEST IN THE BARCELONA AREA?

Overall, consulted experts in focus groups, questionnaires, interviews and surveys stated that the factors influencing FDI in the Barcelona area range from personal and micro-level economic factors to macroeconomic considerations. Participants stated that Barcelona attracts foreigners and consequently foreign investment because it is a pleasant city to live. Second, from a micro-economic perspective, participants argued that the Barcelona area offers a well-qualified pool of human resources, competitive labour costs and attractive business ecosystems. And third, from a macro-economic perspective, interviewees argued that the Barcelona area has a geo-economic strategic advantage since it is the centre of the Mediterranean region, which is reinforced by its logistics and transportation infrastructure. In the following section, we describe the key reasons for FDI identified in the Barcelona area in more detail.

Barcelona's quality of life, image, and infrastructure lead the ranking of FDI motives

Based on the survey, experts indicated that intangible factors such as quality of life (mean 4.02) and the image of Barcelona (3.87) are the most important motives for FDI in the Barcelona area (see Figure 8). Barcelona's reputation as a pleasant place to live and its positive brand image constitute valuable intangible assets that explain why Barcelona attracts foreign investors as an FDI destination. Moreover, the experts widely agreed that Barcelona's transportation and logistics infrastructure (3.81), airport (3.72), and geo-economic location (3.69) provide important motives for foreign firms to invest in the Barcelona area. The availability of the well-qualified yet low-cost workforce and the existence of thriving business ecosystems have been also crucial factors in attracting FDI into the region. On the contrary, the surveyed experts tended to disagree that ease of doing business (2.80), administrative support (2.67) and the image of Catalonia (2.65) (unlike the image of Barcelona) explain why foreign firms choose the Barcelona area for their investments.

FIGURE 8
Ranking of FDI motives



SCALE:
1 – STRONGLY DISAGREE / **2** – DISAGREE / **3** – NEITHER AGREE NOR DISAGREE / **4** – AGREE / **5** – STRONGLY AGREE

SOURCE: IESE SURVEY

1. People love Barcelona

Barcelona consistently ranks among cities with the highest quality of life. One of the most frequently mentioned motive for FDI – both in the focus groups and survey– is also the positive image of Barcelona. The weather, the cultural and architectural heritage, the leisure and sport activities and a growing cosmopolitanism (foreign students, researchers and skilled workers), combined with a wide range of educational offer at all levels and high quality public services, make it a very attractive and affordable place compared to other major European cities. These findings are fully consistent with those found in numerous reports and external rankings as well as the entire series of pioneering studies of this report (started 15 years ago).

Similarly, participants in the study stated that the high quality of life – reflected by the same factors and others such as the quality of public and private schools and universities, convenient local transportation and security – attracts an international talent pool, making the region attractive for foreign investments. Because of this positive image of Barcelona, foreign investors and employees enjoy relocating with their families in Barcelona. Participants also stated that it is easy to invite foreign investors and entrepreneurs to Barcelona and talk about business deals, and residents in Catalonia typically said that they had no problems with the Catalan language.

2. Favourable geographic location and infrastructure

The Barcelona area provides a *favourable distribution hub* that is close to the rest of Europe and has global connectivity. The participants were generally satisfied with the *logistics infrastructure* and *transportation systems*. The port of Barcelona offers favourable opportunities for global trade, connecting the Barcelona area with Asia and the Americas. Also, being only 7 km from the city centre, the Barcelona airport is considered convenient for European business trips. However, participants stated that direct intercontinental flight connections could be improved to facilitate global business meetings. Moreover, participants argued that they were generally satisfied with the *road and railway network* but the scope of the port of Barcelona should be extended with freight rail. Finally, interviewees were satisfied with the quality of government support in developing an *efficient Information Technology (IT) infrastructure*.

Competitive labour costs and income tax

Average labour costs in Spain remain among the lowest in the EU15 and nominally on the same level as in 2009. Spanish labour costs exceed only those of Portugal and Greece. The other EU-15 countries in 2013 had costs per hour between 17% and 50% higher.

Similarly, labour taxation rates are among the lowest of the EU15 for both low and average wages, as well as for the highest (following the OECD's tax calculator and KPMG's Individual Income Tax and Social Security report). In particular, the Spanish tax system has a special regime for displaced workers from abroad in the first 6 years, paying only a flat 24.75% tax rate on their salary income (24% probably in 2015). This legislation (known as "Beckham's Law") provides greater benefits for wages between 50,000 and 600,000 euros.

In the ICT/computer programming sector, Catalonia's labour costs rank 30th among the 39 EU-28 regions, with the highest number of people employed in the sector and only above three regions in the EU-15 (detailed data are shown in Appendix III, Tables 9-11). Combining labour with other operational costs, IBM's global report The World's Most Competitive Cities places Barcelona in the group of world cities that offers the greatest possible competitiveness to firms at the least possible cost for both ICT sector and Shared Services Centers.

A full description of comparative income taxation and labour costs is provided in Appendix V.

3. Skilled workforce and low labour cost

Barcelona stands out for its talented and motivated skilled workforce at competitive costs. The combination of a qualified workforce and low labour cost makes the Barcelona area attractive for FDI as compared with other Western European cities. Specifically, several interviewees stated that the Barcelona area offers a pool of talented engineers with relatively low labour costs. Participants also highlighted the high *motivation of employees* which has been further increased during the crisis. The availability of a skilled and motivated workforce and the most competitive labour costs in Western Europe has increased the *competitiveness* of the Barcelona area in attracting FDI. The participants were also generally satisfied with the labour reforms, arguing that these reforms provide reasons to invest in the Barcelona area. Moreover, participants noted favourably that there is a relatively low employee turnover in companies and that it is relatively *easy to recruit young talent*.

4. A thriving business ecosystem for FDI

Business ecosystems are the combination of organisations and individuals that foster business creation and growth. The pool of research and technological centres, universities, corporate and public labs, incubators along with entrepreneurs constitute the basic ground for innovation. From there and thanks to business angels and mentors some projects evolve, involving venture capitalists and the private and public financial system. The Barcelona area offers a favourable place for foreign firms to establish links with suppliers, customers, business partners and research centres and to take advantage of the knowledge generated by creative entrepreneurs, innovation centres, and new technology and consumer trends. The Barcelona area has one of the most diversified industry sectors in Europe - there is currently no manufacturing sector with a share of over 11% production-, maximising the opportunity of finding the right suppliers for developing innovative projects.

Barcelona is creating *favourable business ecosystems* in various sectors (e.g. in ICT or in biotechnology) and the opportunities to collaborate could be further improved to intensify positive network effects. There is a *favourable presence of foreign firms* and a *potential to incorporate more local firms* in the business ecosystems. Overall, the Barcelona area is increasing its presence as *a hub of knowledge* in emerging *technology-based sectors*.

Moreover, *low renting* prices and a good availability of *new office space* is contributing positively to the creation of business ecosystems.

Together with these findings, it must be added that foreign experts describe Catalans as being realistic and serious business people, doing things "little by little" but with *openness to new initiatives*. However, this mentality is often accompanied by a perceived lack of ambition compared to other countries, which could be correlated with the distress about business failures, due to their personal social and economic costs.

Barcelona's ICT business ecosystem

ICT industry is an important sector in the economy of Barcelona, with nearly 70,000 employees and more than 3,400 companies with at least one employee, and 200 of them being foreign companies. Barcelona is the Mobile World Capital (MWC) and the most important congress of this industry will be organized annually in the city until 2018. In Barcelona, there is a powerful cluster of internationally leading e-commerce and internet companies. The Mobile World Capital Foundation also develops several public-private initiatives in order to transform Barcelona into a living lab for mobility solutions (m-health, m-education) and to foster the development of an entrepreneurial mobile ecosystem with initiatives such as Barcelona Soft Landing.

The city also organizes other global ICT industry activities such as Management and Clinical Innovation on Health (MIHEALTH) focused on e-health or 4 Years From Now (together with the MWC Congress) to foster new business. Moreover, Barcelona has the most important conference focused on Smart Cities: the Smart City Expo World Congress. Barcelona was the genesis of the City Protocol, for creating an international common exchange system of smart cities data.

Barcelona City Council (by means of the Economic Promotion Agency Barcelona Activa and the Municipal Institute of Informatics-IMI) is a catalyst of technological change and innovation. IMI created the Centres for Shared Innovation to conduct innovation activities, which are useful for the municipality, with companies and research centres. Barcelona has launched a potent programme on e-government (open data, transparency and e-democracy) and on innovative public procurement (Open Challenge Barcelona). The objective is to make Barcelona an urban laboratory for testing hardware and software (apps, etc.) to improve the efficiency in management and in the quality of urban life. Barcelona has more than 400 public WIFI hotspots (the largest network in southern Europe), as well as a wide coverage of fibre optics and 4G. As a result of this commitment to innovation, in 2014 Barcelona received the European Commission award for being the European Capital of Innovation.

Barcelona Growth Centre: Starting in 2014, the Barcelona City Council has concentrated several facilities in the MediaTIC building, in the 22@ innovation district, to foster innovation and entrepreneurship. These facilities foster innovation and entrepreneurship, and they include theBusiness Support Office as a showroom of city strengths and to assist new companies in Barcelona; Barcelona Soft Landing; Mobile Startup Barcelona and Corporate Startup Barcelona incubators; Barcelona Brand Agency; and two university research centres.

Education, research and clusters

Barcelona has an extensive network of universities and research centres across all disciplines. There are some of the best-rated business schools in the world (two of them are ranked in the top 10 among European business schools). There are more than 200,000 students in nine universities in the area of Barcelona (20,000 in ICT-related careers); around 5,900 engineers graduate annually (3,000 in ICT) and more than 300 doctoral PhD theses are awarded every year. The area of Barcelona hosts 23,000 foreign students, being a top destination of the Erasmus programme. Additionally, vocational schools in the Barcelona area educate 8,000 students annually in specialties related to ICT. The Catalan Government also has an ambitious plan to scale up dual vocational training, and it forecasts that 3,500 students will be studying and working in companies through this initiative in 2014-15.

Among research centres, technology centres and ICT-specialised clusters, noteworthy are the world-class facilities of the Barcelona Supercomputing Centre, Alba Synchrotron, the headquarters of the global ITER (International Thermonuclear Experimental Reactor) project and the Research Institute on Artificial Intelligence or the Microelectronics National Centre. In the regional network of Catalonia research centres (CERCA) and technology transfer centres (TECNIO), there are centres such as the Computer Vision Centre, the BDigital technology centre, Barcelona Media centre, the Internet Research Centre (I2CAT) foundation, TIC-Salut foundation and the Centre for Numerical Methods in Engineering (CIMNE).

Regarding associations or clusters, initiatives such as C-Tecno (forum of ICT companies, universities and administration), E-commerce & Tech Barcelona (retail and internet firms and investing companies) Digital Cluster of BDigital and Edutech (educational technologies firms) have been established.

Enablers

The ICT sector is considered by the Catalan Government as a driver of technologies in its Regional Research and Innovation Strategies for Smart Specialisation (RIS3) for focusing its European Structural Investment Funds from EU for the period 2014-2020. Catalonia also has its own European Enterprise Network office to facilitate the access of Small and Medium-sized Enterprises (SMEs) to European funding. The Catalan Government and Barcelona City Council are carrying out an active policy to support the participation in European Research and Development (R&D) projects (Horizon 2020). In the previous European R&D 2007-2013 framework programme (FP7), Catalonia was paired with countries receiving more grants per capita from the European Research Council.

Access to banking and non-banking finance is improving and there are new subsidies to foster job creation, not only in the ICT sector:

- For start-ups that aim to grow and operate in Barcelona there are over 30 private and public equity funds covering the different stages from the seed capital.
- Barcelona Activa (municipal economic promotion agency) has several incubation facilities, and there are also several additional private programmes of incubators and accelerators.
- Catalan and Spanish government facilitate obtaining loans and guarantees for operations with the traditional financial sector through public banking.
- The Catalan government and Barcelona municipality also grant investments creating jobs.
- The Spanish government has an aggressive policy of tax incentives for R&D as well as to favour the recruitment of disadvantaged groups (young people, long-term unemployed). The Catalan government also offers support for the recruitment of PhDs by companies.

[10] We operationalized the factors by computing an index over the single FDI motives that constitute a factor, i.e. ICT infrastructure, transportation and logistics infrastructure, port of Barcelona and Barcelona airport for "infrastructure-based motives"; network linkages with business partners, opportunity for alliances, attractive industry clusters, entrepreneurial spirit and climate to foster innovation for "network/innovation-based motives"; local market size, local market growth potential, local market profitability and proximity to customers for "market-based motives"; low labour cost and general competitive operating cost for "efficiency-based motives; administrative support, legal security and ease of doing business for "administration/ institution-based motives".

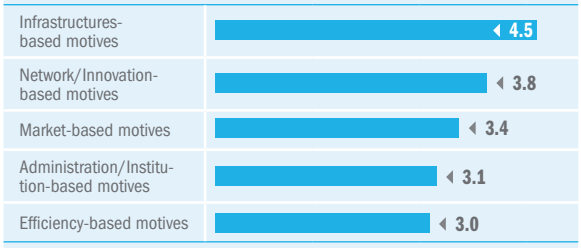
Infrastructure and network/innovation effects as magnets of FDI

To facilitate further interpretation of the importance of groups of similar FDI motives that we asked in the survey, we conducted a confirmatory factor analysis. In this research, a new factor clustered as "network/innovation-based" emerged as a differentiated motive from the four classical groups of motives behind FDI – infrastructure, market, efficiency and institutional (↓ SEE FIGURE 9)[10]. The analysis showed that the factor "infrastructure-based motives" is the most important in explaining FDI in the Barcelona area and that other FDI motives, such as "market-based" and "efficiency-based," are significantly less important for the Barcelona area than the "network/ innovation-based motives"[11].

The emergence of this motive reflects a shift from the traditional reasons behind FDI in Barcelona, as measured in previous studies. The importance of the domestic market in FDI decisions has dropped over the last three years, and other factors such as a skilled workforce, industrial clusters and universities and research centres have become more important.

Although tangible assets such as the roads and railways, airport, and port are important and necessary factors for the Barcelona area in attracting FDI, it is difficult to differentiate from competing Western European cities solely over infrastructure. The Barcelona area may well be able to differentiate itself from other developed metropolitan areas by providing added value to foreign firms through its attractive business ecosystems.

FIGURE 9
Relative importance of factors of FDI motives



SOURCE: IESE SURVEY

[11] Using mean comparison tests, we found that the mean of "network/innovation-based motives" is significantly higher than the mean of "market-based motives" (at $p < 0.05$) and "efficiency-based motives" (at $p < 0.01$).

There are other significant results observed by analyzing the responses to the survey by type of respondent:

Entrepreneurial firms rated the motives for FDI in the Barcelona area higher than established firms, and they are slightly more likely to invest in the future –short and long term-. For entrepreneurs the main motives to invest in Barcelona are the existence of attractive industry clusters, critical mass and ecosystems with a large presence of foreign companies, along with local market growth potential (significant difference with respect to established firms at $p < 0.01$). Because the presence of innovative entrepreneurial firms increases the value of business ecosystems, and therefore also attracts established firms, the Barcelona area has opportunities to continue to agglomerate an attractive mix of entrepreneurial and established firms.

Geographic proximity of decision-makers matters. Experts located in Spain perceive most FDI motives stronger than experts located outside of Spain, except legal security and administrative support, but also most FDI barriers. Remarkably, experts located in Spain were significantly more satisfied with their FDI projects in the Barcelona area and also significantly more likely to (re-)invest in the Barcelona area, both in the short and long term. Similarly, we found that experts with FDI experience in the Barcelona area are significantly more likely to invest in the short and long term than experts without experience. These findings suggest that re-investments by experts with experience are substantially more likely than initial investments by experts without experience.

Emerging-market firms perceive most FDI motives in the Barcelona area stronger and FDI barriers weaker than developed-market firms. Emerging-market firms perceive most FDI motives such as quality of life, legal security and administrative support stronger than developed-market firms do. Interestingly, emerging-market firms also tend to agree that the image of Catalonia helps to explain why foreign firms invest in Barcelona. In contrast, developed-market firms perceive efficiency-based FDI motives such as general competitive operating costs and low labour costs stronger than emerging-market firms do.

Emerging-market firms are significantly less likely to invest in the short term than developed-market firms are, while the likelihood of investing in the long term is similar among emerging- and developed-market firms. In particular, South American firms appear to perceive FDI motives stronger than other firms do, and Asia-Pacific firms indicate that they are most likely to invest in the long run. Remarkably, although firms from Asia-Pacific perceived several FDI barriers such as individual's bureaucracy stronger than firms from other world regions, they are still most likely to invest in the Barcelona area, especially in the long-term, followed by North American, European and South American firms. Because the port of Barcelona provides the fastest entry point into Western Europe for trade and commerce shipped from the Asia-Pacific region, our results show that Barcelona's port is a valuable asset in attracting investments from Asia-based firms, which has yet to be fully exploited, especially when the freight railway connection with Europe is completely operational.

Respect to the reasons for investment in ICT, the FDI database shows several changes in recent years. Reasons related to the access and proximity to the local markets decrease whereas factors improving business productivity, proximity to suppliers, R&D and better ICT infrastructure are on the rise.

The survey shows that infrastructures or efficiency-based motives are the most appreciated factors by managers of ICT companies, resident in Spain or abroad. Although, current satisfaction with the development of ICT projects in Barcelona is lower than in other sectors, ICT has the highest future expectations, as it is the sector where more firms expect to invest in the next 3 or more years.

The success of FDI projects in Catalonia

Appendix IV provides an in-depth analysis of the success of FDI projects in Catalonia. It exploits original data provided by ACCIÓ and Invest in Catalonia about successful and unsuccessful projects. Tables 19 to 21 explore 404 projects conducted between 2010 and 2013 and 191 projects that were still open and have the potential of creating more than 16,000 additional jobs. The success rate varies greatly depending on the sector, the type of investment and the part of the value chain. A change of strategy is the main reason explaining why firms abandon an FDI project whereas overheads, director's personal interest and the decision of the parent company are the main explanations for investing in another location (SEE TABLE 22 AND 23).

4.2. WHAT ARE THE OBSTACLES FOR FDI IN THE BARCELONA AREA?

Experts from focus groups and the survey indicated that institutional and administrative processes, as well as the current economic and political environment, represent the main obstacles for FDI in the Barcelona area.

Political uncertainty is the only barrier perceived by the survey participants as relatively strong to both other Spanish and European metropolitan areas. On the contrary, Barcelona is perceived to be better than other Spanish cities with respect to English proficiency. Overall, the FDI barriers are stronger relative to other European metropolitan areas than relative to other Spanish metropolitan areas.

1. Institutional and administrative obstacles

Participants perceived *taxes, regulations, and legal security* as the most important barriers for FDI in the Barcelona area. Although the participants stated that the tax benefits for displaced workers –also known as the "Beckham law"- are attractive and provide incentives for executives to re-locate to Barcelona, over-regulation, bureaucracy and delays in the deadlines of public management and administrative procedures in individual and business administrative processes represent substantial barriers. For example, the visa and driver's license application processes were mentioned several times as being too time consuming and complicated. Since foreign business people require such documents, interviewees generally considered the attitude towards business as "not business friendly", especially compared with other FDI magnets such as London.

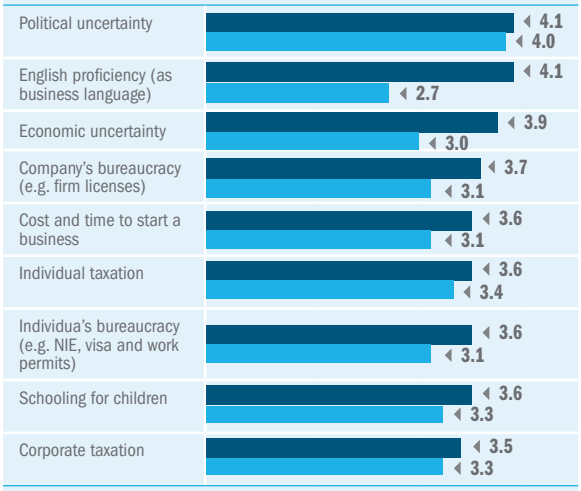
Similarly, the length of *time to set up a business* is perceived as too long. Moreover, access to financing was considered as less easy and abundant than in other European metropolitan areas such as London. Finally, participants stated that the *level of English* among administrative staff is typically relatively low. Despite these general institutional and administrative barriers, participants also mentioned the positive influence of Barcelona Activa and ACCIÓ in helping foreign businesses to start their operations in the Barcelona area.

In early 2014 the processing of residence and working permits substantially improved the new Spanish Law 14/2013 on support for entrepreneurs substantially reduced the requirements and time periods to obtain residence and working permits for five groups of non-EU foreigners: a) investors in real or personal property; b) entrepreneurs creating jobs and contributing to the scientific and technological innovation; c) Researchers and teachers; d) highly qualified professional managers of large enterprises, strategic industries, companies with business projects creating jobs and graduates and postgraduates from prestigious universities and business schools; and e) for intra-company transfers (from a company abroad to a parent or subsidiary in Spain). According to available data, the processing time has been reduced from 99 to 76 days on average and the minimum time processing a permit has been reduced from 55 to 30 days. Spain has recently become the EU country with greater flexibility in the processing of working and residence. Administrative procedures in Spain are now subjected to a positive response by default if within a limit of 20 days there is no answer from the administration, and visa processing can be performed the same day.

This law was also accompanied by the Law 20/2013 on the Single Market that facilitates business throughout the national territory. The law establishes the principle that any business entity (or good) operating (or being distributed) in a part of the Spanish territory shall be entitled to move to another part without further restrictions.

FIGURE 10

FDI Barriers relative to other Spanish and European metropolitan areas



SOURCE: IESE SURVEY

Full exploitation of the survey on FDI in Barcelona area

Appendix VI provides detailed information about why foreign firms invest in the Barcelona Area by type of respondent (Tables 27 and Figures 12-16). It also describes the obstacles for FDI and analyses Barcelona's barriers relative to other Spanish (Figures 18-26) and European metropolitan areas (Figures 27-36). Additionally, it shows different degrees of satisfaction with FDI in the Barcelona Area (Figures 37-62) and it concludes with the ITC sector (Figure 63-65).

2. Economic and political uncertainty

Some *unpredictability* of law courts and frequent changes of taxes and rules constitute considerable barriers for FDI in the Barcelona area. The law is often unclear and interpretation is difficult. Although in general, political uncertainty is considered as negative for long-term oriented investments, the data do not show any measurable impact in the Barcelona Area. FDI decisions, especially of US-and Asia-based firms, are not affected by the current political uncertainty. European-based firms' perception of the image of Catalonia is significantly lower than emerging-markets firms. Only if the independence movement jeopardises Catalonian membership in the EU or Eurozone, would it be a concern for foreign investors.

3. There are significant differences in perception of FDI barriers

According to the survey, *Figure 10* shows how experts perceive barriers for FDI in the Barcelona area relative to other Spanish and European metropolitan areas. While the surveyed experts perceive many FDI barriers in the Barcelona area, such as the bureaucracy for companies and individuals, similar to other Spanish metropolitan areas, they perceive these barriers stronger as compared with other European metropolitan areas.

Additionally, experts from emerging-market firms and specifically from South America perceive FDI barriers in the Barcelona area relative to other European metropolitan areas weaker than developed-market firms do. Experts from North American firms tend to perceive FDI barriers weaker than the remainder of firms. Firms from Asia-Pacific perceive bureaucracy as a significantly higher barrier than firms from other world regions do, while experts from Spain perceive the political uncertainty and cost and time to start a business as a significantly higher barrier than the remainder of firms.

5. RECOMMENDATIONS: HARNESSING THE POTENTIAL

A customized and coordinated message has to be given to investors by all stakeholders involved in promoting the Barcelona area, taking into account the different profiles and specific needs.

Based on our quantitative analysis, focus group discussions and interviews, we provide several recommendations about how the Barcelona area could become more attractive for FDI.

1. Barcelona, the "Best City in the Best Time Zone"

Because of its favourable geo-economic location and time zone between the Americas and Asia that allows conducting business uninterruptedly, paired with the high quality of life, Barcelona is the ideal place for doing global business. Therefore, Barcelona should take a leading role in Europe in attracting FDI by establishing an image as the "best city in the best time zone" for doing global business. For this goal, it is very important to improve intercontinental connectivity.

2. Barcelona area as the base for "Regional Sales Operations"

Because of the geo-economic location of Barcelona and the fact that sales people have to travel frequently, authorities could promote Barcelona by focusing on investments that build the base for regional sales operations (serving South Europe or Europe as a whole). Even if a foreign firm's local base for serving the domestic market is in the capital, its regional base for serving larger European markets could be located in Barcelona. Moreover, Barcelona also has a great potential as a bridgehead for operations and investments in Latin America and the South Mediterranean area.

3. A tailored Barcelona offer for different investor's profiles

Both qualitative and quantitative studies show some significant differences in the perceptions of the attractions and barriers of Barcelona to foreign investment in terms of different investor profiles. Combining the different sources of information of this study, the table below summarises the typical FDI profiles of investors and potential investors regarding their origin (→ SEE TABLE 6, where # indicates order of investor's preferences).

A customised and coordinated message has to be given to investors by all stakeholders involved in promoting the Barcelona area, taking into account the different profiles and specific needs. Emerging countries seek the intangible values or positioning the city to enter Europe and value less cost differentials than developed countries. Entrepreneurs and ICT companies equally value access to an innovative business ecosystem and penalise weak cosmopolitan and business friendly features.

All stakeholders involved in promoting the Barcelona area must understand these profiles and coordinate among themselves to transmit the same message and be adaptive to specific needs of potential investors. This includes developing systematic strategies of competitive intelligence.

4. Barcelona, gateway of Asia

The Investor's Profile shows that, currently, Asian countries typically invest in London, Köln-Düsseldorf, Barcelona and Birmingham. Asian presence in Barcelona is led by Japanese investment in the automotive industry, whereas FDI from China or South Korea is more restrained. Given that Asia is an important and fast emerging geo-economic area (the region multiplied almost 10 times its FDI outflows in the past 10 years), the findings of this study suggest that Barcelona should focus on improving its position, attracting FDI from Asia-based firms and investors mainly in the areas of logistics, ICT and services sectors, where the city is more competitive.

TABLE 6
Investors' profiles

WHERE DO I COME FROM?	#	EUROPE	NORTH AMERICA	SOUTH AMERICA	ASIA
In which sectors do I typicaly invest?	1	ICT	ICT	Industrial	ICT
	2	Logistics	Financial services	Food & Agriculture	Automotive
	3	Tourism	Biotechnology	Financial Services	Construction
In which areas does my FDI create most jobs?	1	Real Estate	Headquarters	Headquarters	Manufacturing
	2	Business Services	Sales, Marketing & Support	Business services	Real Estate
	3	Sales, Marketing & Support	Business services	Sales, Marketing & Support	Headquarters
What motivates me to invest in the Barcelona area?	1	Quality of life	ICT infrastructure	Legal security	Port of Barcelona
	2	Low labour cost	Quality of life	Administrative support	Image of Barcelona
	3	Skilled workforce	Image of Barcelona	Entrepreneurial spirit	Geo-economic-location
What concerns me about investing in the Barcelona area?	1	English proficiency	English proficiency	Economic uncertainty	Individual bureaucracy
	2	Political uncertainty	Political uncertainty	Political uncertainty	English proficiency
	3	Economic uncertainty	Company's bureaucracy	Company's bureaucracy	Corporate & Individual taxation
Which other metropolitan areas am I considering?	1	Stuttgart	Dublin	Madrid	London
	2	London	London	London	Köln-Düsseldorf
	3	Dublin	Paris	Wien	Birmingham

SOURCE: DATA FROM FDI-MARKETS DATABASE FOR THE PERIOD (2011-2013), IESE SURVEY, FOCUS GROUPS, INTERVIEWS AND OWN ELABORATION (IESE)

A higher development of business angels and venture capitalists will provide enormous opportunities in attracting foreign investments on innovative activities

Because Barcelona and its port represent the first major entry point in Europe from Asia, Barcelona could promote this distance-based competitive advantage better by clearly positioning itself as the most attractive European FDI destination for Asia-based firms. Ships crossing the Suez Canal towards the Atlantic ports take 5 to 6 days more than if they dock in Barcelona. This would also directly help the port of Barcelona and local transportation service providers in capturing higher loads and market share, enabling them to benefit from economies of scale.

5. Barcelona as the worldwide first "One-Click City"

To become a top destination for FDI in the world, Barcelona should further foster technological innovation to simplify administrative processes and make the life of its citizens and companies easier. Specifically, using the emergence of the smartphone and other technologies to automate administrative processes, Barcelona could become the first true ICT-mobile city. Investments in automating all kinds of processes and supplying data in real-time, would foster the innovative and creative image of Barcelona, which is in line with the technology-friendly image already established by the Mobile World Congress and smart city project. Based on the idea of the one-click city, it should be the ambitious objective of Barcelona to make it possible to create a new business in minutes by a one-stop-online-shop. This should include the possibility of creating virtual companies oriented to online international markets and services in specific incubators or facilities with attractive conditions.

Investors need reliable frameworks to develop efficient business ecosystems

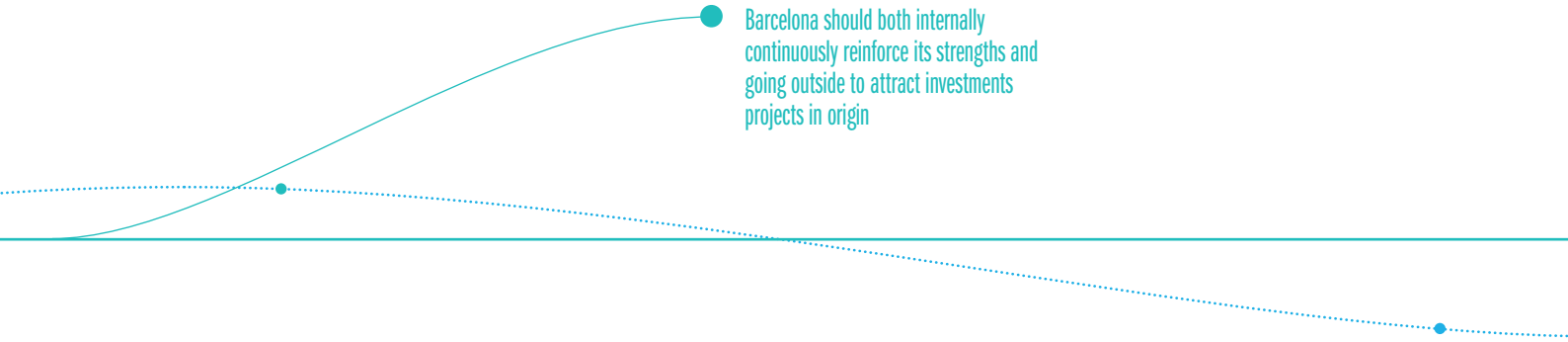
6. Entrepreneurial mindset

Investors need reliable frameworks to develop efficient business ecosystems. Foreign experts describe Catalans as being realistic and serious business people, doing things "little by little" but with openness to new initiatives. However, this mentality is often accompanied by a perceived lack of ambition compared to other countries, which could be correlated with the distress about business failures, due to their personal social and economic costs. The judicial procedures associated are slow and expensive, and Spain is one of the few European countries that do not have a fresh start legislation that allows the restarting of entrepreneurial life after a personal or corporate insolvency. Many EU countries have introduced a fresh start without undermining the payment culture, increasing the cost of credit, or jeopardising financial stability. This change would strengthen the entrepreneurial and innovative capabilities of the local people and would multiply the business possibilities with it.

7. Excelling in Barcelona's business ecosystems

Barcelona has an extensive and internationally recognised network of universities, research centres and business schools, and it hosts a very rich ICT ecosystem including the Mobile World Capital, specialised technological centres and a public administration focused on fostering technological change and innovation. To facilitate knowledge spillovers between geographically concentrated businesses and knowledge centres, the Barcelona area can foster cooperation between firms and universities and research centres by providing access to complementary resources as well as business and leisure-time activities.

The Barcelona area should promote on-line and off-line knowledge hubs and platforms, such as a unique portal for research and transfer of technology (informing about all the research offer of the area), community clubs and technology events that facilitate face-to-face interactions and promote the local diffusion of ideas. Transferring technologies created in universities and R&D centres to companies would improve their professionalism and the wide recognition of their social utility. Their profile should have a combination of scientific and business skills and the capacity of cooperating in the large Public-Private ecosystem.



Given the high importance of network- and innovation-based motives for FDI in the Barcelona area, the long-term commitment in channelling public resources to innovation should be also combined with a higher development of business angels and venture capitalists. The growth of local and international enablers will provide enormous opportunities for the Barcelona area to differentiate itself from competing metropolitan areas in attracting foreign investments for innovative activities.

8. Investing in Barcelona, a reliable engagement

According to the surveyed experts, political uncertainty along with the economic unpredictability due to the frequent changes of taxes and rules constitute the strongest barriers for FDI in the Barcelona area. Consequently, to establish a clear reform agenda and assure that legislative and political action will not have retroactive or unpredicted effects will certainly help safeguarding future FDI flows in the region.

9. Further develop the ICT sector

To consolidate its position as a benchmark of ICT cities, the Barcelona area could focus on automating all kinds of administrative processes for citizens and business, thereby decreasing FDI barriers and strengthening its reputation as an innovative business region. Leading ICT best practices attract ICT investments. To maximize this potential, the city should (some of these recommendations are also valid for other sectors) do the following:

- The ICT ecosystem should focus on the creation of synergies and detection of foreign direct investment opportunities with a global scope. Especially, the Barcelona area should establish a systematic monitoring programme to detect competitive opportunities and leverage the growing network of native managers, experts and researchers in major centres of global ICT companies.
- Stop the progressive disappearance of the ICT industrial base, given that industry is the main generator of productivity gains for the whole economy and its connection with the rest of the production ecosystem. Consequently, strengthening the ecosystem of innovation (i.e., efficiently transferring technology, aligning public and private agents, improving access to venture capital and European funds for SMEs) are key challenges.
- Strengthen R&D and technology transfer from research to new or established companies and create a local base of firms with global vocation as is being created in the ICT services sector. This includes strengthening entrepreneurial skills and developing a global business vision in the technological profiles. The public sector in Barcelona should increase efforts in innovative procurement, particularly for large deployments (for example introducing state-of-the-art technologies in the largest public contracts). This effort should be extended and coordinated with the entire metropolitan region.
- There are plenty of opportunities to attract more FDI projects from the US, Europe's leading ICT investor, as well as India and China. Barcelona has, in general, a lower presence of US investment projects than its main competitors (London and Dublin). Barcelona should both internally and continuously reinforce its strengths and go outside to attract investments projects depending on origin. A focus, for example, should be placed on California, given that 40% of US projects in Europe come from this state. Barcelona is one of the preferred destinations from Europe and Japan, and it has the potential to attract more investments from other emerging FDI worldwide players as China or India. Political and commercial efforts should be done to achieve this.

10. Fostering Barcelona's global brand

Barcelona should enhance the communication of its strengths, in particular:

- The availability of qualified personnel, competitive labour costs and associated taxes compared to most competing regions. An advantageous taxation for high-income foreign expatriates.
- Recent shortening of the time to obtain residence permits.
- Competitive costs in offices and telecommunications, and good connectivity with the rest of Europe.
- A large and diverse university and industrial base, combined with a city that has the aim of leading the Smart and Innovative City movement.
- Powerful global city-brand: *Designed, Made* or *Succeed in Barcelona* can be an asset for advanced ICT products or services associated with quality of life, culture or modern cosmopolitanism.

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APPENDIX

APPENDIX I: TECHNICAL NOTES

Statistical analysis

The United Nations Conference on Trade and Development (UNCTAD) database and the World Investment Report 2014 provide information about worldwide and national evolution and composition of FDI flows. DataInvex (Spanish Ministry of Economy and Competitiveness) provides regional data within Spain and a breakdown by sectors, type of investment and country of origin.

Invest in Catalonia-ACCIÓ (Catalonia Government Agency) data are used to estimate the number of companies established in Catalonia and the SABI- Bureau van Dijk (Analysis System of Iberian balances) database is used to estimate the number of foreign headquarters in Catalonia and Spain. The FDI-MARKETS database (Financial Times) provides detailed information about projects located in Barcelona (we explored the last 10 years, from 2003 to 2013) and in Europe (we analysed FDI projects in the 39 main EU metropolitan areas between 2011 and October 2013). We have harmonised different sector definitions with the European Statistical classification of economic activities (NACE) and according to Barcelona City Council's strategic sectors. The specialised company Gesdocument provides the data about the requirements and time periods to obtain residence and working permits. Complementary data are provided from several databases including: INE (Spanish National Institute of Statistics), Eurostat, Observatori d'Ocupació, AEAT (Spanish Tax Agency) and ICSA (Human Resources Consultancy).

Focus Groups and Survey

After analysing the data and reviewing previous reports about investment in the Barcelona area, we conducted four focus group meetings of two hours duration each, with a total of 15 FDI experts as participants and three researchers from the Public-Private Sector Research Centre at IESE Business School (PPSRC-IESE), as well as 10 individual interviews. Both focus groups and interviews were conducted using five predefined questions.

The focus group meetings took place at IESE Business School in Barcelona in February and March 2014. The aim of the focus group discussions was to establish an open dialogue about the strength and weaknesses of the Barcelona area in attracting FDI.

Based on the insights gained in the focus group discussions, we developed a survey questionnaire with several multiple-choice and open questions. The survey was sent to three main groups: Spanish IESE alumni working abroad, foreign IESE MBA (Master in Business Administration) alumni abroad and foreign alumni living in Catalonia.

Overall, 187 experts answered the survey between March and April 2014. Almost two-thirds of the experts who participated in the survey work at the senior management level and about one-fourth at the middle management level. Accordingly, more than half of the surveyed experts work in areas such as management, strategy and finance. Two-thirds of the experts live and work outside of Spain, whereas one-third is located in Spain. Moreover, 44% of the participating experts had been previously involved in an FDI project and almost one-fourth was previously involved in an FDI project in the Barcelona area. Regarding countries of origin, 18% of the sampled firms were from the United States, 9% from Germany and 8% from the United Kingdom. Out of the sampled firms' industry sectors, 18% have their main business in consulting, 15% in banking and finance, 14% in technology, internet or telecommunications.

APPENDIX II: RESEARCH TEAM AND PARTICIPANTS

Research team

The authors of this report are Dr. Timo Sohl (Postdoctoral Fellow), Víctor Burguete (Researcher) and Lluís Torrens (Manager) from the Public-Private Sector Research Center at IESE Business School (PPSRC-IESE).
Academic Director: Prof. Govert Vroom
Administrative Coordination: Carlota Monner

List of participants

- **Focus Group Participants:** Sebastian Waldburg, Managing Partner SI Capital Sustainable Investment; Andrés Gómez Núñez, Presidente, KDF - Círculo de Directivos de Habla Alemana; Anna Gener, Directora General, Aguirre Newman Barcelona; Carme Poveda, Economista del Servicio de Estudios, Chamber of Commerce of Barcelona; Rod Larson, CEO, Spandex Group; Niv Harel, CEO, Holmes Place Spain; Jan Willem de Haan, Founder, De Haan & Mulder; Joan Ramon Barrera, Director Sector Público, Colt Enterprese Services; Juan Pablo Pedemonte, President, IESE club VC; Eva Prada, National Director, British Chamber of Commerce in Spain; Véronique Oberlé, Responsible du service appui aux enterprises, French Chamber of Commerce in Barcelona; Alejandro Martínez, Member of Board of Directors and Head of International Business Development and Client Service, Grant Thornton; Verne Harnish, CEO, Gazelles; Amadeo Jensana, Economics and Business Director, Casa Asia; Ludovica Maglione, Projects Director, Barcelona Global.
- **Interview Participants:** Oscar Pallarols, Competence Center Director, Mobile World Capital Barcelona; Aleix Valls, Entrepreneurship and Innovation Director, Mobile World Capital Barcelona; Raimon Blasi, City Councilor in charge of Trade, Barcelona City Council; Carles Fradera, General Manager, Barcelona Digital; Jordi Hereu, Consultant, Barcelona Logistics Center; Maria Galindo, Management Coordinator of Urban Habitat, Barcelona City Council; Marco Scamuzzini, General Manager, Barcelona Aeronautica i Espacial; Laurent Renard, CEO, TORO, Jasper van Dorrestein, Director, Netherlands Business Support Office; Katherina Lueth, Senior Associate, McKinsey & Company, Inc.
- **Questionnaire Respondents:** 187 IESE alumni living abroad or foreigners living in Barcelona

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APPENDIX III: QUANTITATIVE ANALYSIS

TABLE 7
FDI in Catalonia by country of origin, 2003 -2013

COUNTRY OF ORIGIN	NUMBER OF FDI PROJECTS	CAPITAL INVESTMENT (IN MILLION DOLLARS)	JOBS CREATED
United States	20%	11%	19%
Germany	18%	21%	19%
France	13%	12%	13%
UK	8%	11%	5%
Japan	6%	10%	11%
Switzerland	6%	5%	5%
Italy	6%	6%	4%
Netherlands	4%	3%	2%
Sweden	4%	2%	3%
China	2%	2%	3%
Other countries	1%	1%	1%
Tourism*	16%	23%	19%
TOTAL	**836**	**36,074**	**87,526**

SOURCE: OWN ELABORATION FROM FDI-MARKET DATABASE

TABLE 8

ESTIMATED JOBS CREATED BY FOREIGN DIRECT INVESTMENTS BY SECTOR IN MAIN EUROPEAN CITIES / METROPOLITAN AREAS, JANUARY 2011 - OCTOBER 2013

FDI IN MAIN EUROPEAN CITIES (2011 - OCT 2013)

SECTORS / COUNTRY OF ORIGIN	NUMBER OF FDI PROJECTS	CAPITAL INVESTMENT (MILLION DOLLARS)	JOBS CREATED	SECTORS / COUNTRY OF ORIGIN	NUMBER OF FDI PROJECTS	CAPITAL INVESTMENT (MILLION DOLLARS)	JOBS CREATED
ICT	**176**	**5,121**	**13,071**	**Biotec. and life Science**	**57**	**1,643**	**4,608**
United States	33%	11%	37%	Germany	25%	28%	40%
Germany	15%	8%	12%	Switzerland	23%	46%	33%
France	11%	16%	6%	United States	18%	11%	7%
UK	10%	41%	6%	France	9%	6%	10%
Japan	7%	11%	8%	Italy	5%	1%	1%
Netherlands	6%	3%	3%	UK	5%	2%	3%
Switzerland	3%	0%	1%	Sweden	4%	1%	1%
Italy	2%	2%	11%	Austria	2%	0%	0%
China	2%	3%	0%	India	2%	0%	0%
Ireland	2%	1%	1%	Ireland	2%	1%	1%
Sweden	2%	1%	1%	Japan	2%	0%	0%
Argentina	1%	0%	0%	Netherlands	2%	1%	0%
Israel	1%	0%	0%	Portugal	2%	3%	2%
Luxembourg	1%	0%	4%	Singapore	2%	0%	0%
Portugal	1%	0%	1%	**Food and Agriculture**	**49**	**1,390**	**4,264**
South Korea	1%	2%	3%	Switzerland	27%	21%	21%
Austria	1%	0%	0%	United States	27%	16%	24%
Canada	1%	0%	0%	Germany	14%	13%	19%
Denmark	1%	0%	0%	France	8%	10%	15%
India	1%	0%	4%	UK	6%	29%	11%
Taiwan	1%	0%	1%	Belgium	4%	3%	2%
Logistics	**66**	**7,949**	**13,137**	Bermuda	4%	3%	3%
France	15%	11%	10%	Japan	4%	1%	2%
United States	15%	4%	5%	Netherlands	4%	3%	3%
Germany	14%	8%	8%	Canada	2%	0%	1%
Hong Kong	9%	36%	43%	**Tourism**	**26**	**688**	**1,844**
Ireland	8%	17%	10%	France	31%	37%	31%
UK	8%	7%	6%	United States	23%	24%	34%
Belgium	5%	2%	2%	UK	15%	13%	16%
Japan	5%	2%	2%	Germany	12%	1%	1%
Netherlands	3%	1%	2%	UAE	8%	8%	4%
Portugal	3%	3%	3%	Canada	4%	1%	0%
Switzerland	3%	2%	2%	Hong Kong	4%	15%	13%
UAE	3%	1%	1%	Russia	4%	0%	0%
Chile	2%	0%	0%	**Design**	**26**	**40**	**1,987**
Denmark	2%	0%	1%	Germany	31%	33%	29%
Hungary	2%	2%	2%	France	19%	26%	39%
Luxembourg	2%	4%	2%	Italy	15%	15%	12%
Romania	2%	0%	0%	United States	15%	8%	7%
South Africa	2%	2%	2%	Sweden	8%	15%	11%
Turkey	2%	0%	0%	Austria	4%	2%	1%
Mobility	**60**	**7,297**	**15,670**	Luxembourg	4%	0%	1%
Germany	35%	52%	50%	UK	4%	1%	1%
Japan	30%	38%	39%	**Creative Industries / Media**	**21**	**364**	**1,451**
Italy	10%	8%	6%	France	19%	41%	38%
France	7%	1%	1%	UK	19%	38%	33%
United States	7%	0%	1%	United States	19%	14%	22%
Canada	2%	0%	0%	Germany	14%	2%	3%
Finland	2%	0%	0%	Netherlands	10%	2%	1%
India	2%	0%	1%	Argentina	5%	0%	0%
Monaco	2%	0%	0%	Denmark	5%	1%	0%
Netherlands	2%	0%	0%	New Zealand	5%	1%	1%
Sweden	2%	0%	0%	Switzerland	5%	1%	1%
Switzerland	2%	1%	1%				

TABLE 8

ESTIMATED JOBS CREATED BY FOREIGN DIRECT INVESTMENTS BY SECTOR IN MAIN EUROPEAN CITIES / METROPOLITAN AREAS, JANUARY 2011 - OCTOBER 2013

FDI IN MAIN EUROPEAN CITIES (2011 - OCT 2013)

SECTORS / COUNTRY OF ORIGIN	NUMBER OF FDI PROJECTS	CAPITAL INVESTMENT (MILLION DOLLARS)	JOBS CREATED	SECTORS / COUNTRY OF ORIGIN	NUMBER OF FDI PROJECTS	CAPITAL INVESTMENT (MILLION DOLLARS)	JOBS CREATED
Energy	**19**	**2163**	**972**	**Other sectors**	**313**	**8,940**	**29,700**
France	32%	30%	28%	United States	19%	26%	28%
Germany	32%	29%	8%	Germany	16%	15%	8%
United States	11%	6%	8%	France	12%	12%	18%
Austria	5%	2%	10%	UK	9%	3%	5%
Greece	5%	20%	31%	Italy	5%	3%	2%
Italy	5%	1%	8%	Japan	5%	3%	6%
Portugal	5%	5%	5%	Netherlands	5%	5%	3%
UK	5%	7%	1%	Switzerland	4%	5%	3%
Medicine	**8**	**74**	**326**	Sweden	3%	7%	8%
Germany	38%	72%	70%	China	3%	1%	2%
Sweden	25%	5%	6%	Finland	2%	2%	1%
Italy	13%	17%	13%	Mexico	2%	0%	1%
Japan	13%	3%	6%	Belgium	1%	2%	2%
UK	13%	3%	6%	Canada	1%	0%	0%
Environment	**7**	**113**	**249**	Denmark	1%	0%	0%
Switzerland	29%	32%	62%	Luxembourg	1%	2%	0%
UK	29%	8%	14%	Australia	1%	5%	10%
Belgium	14%	8%	5%	Ecuador	1%	1%	0%
France	14%	44%	14%	Morocco	1%	1%	0%
Germany	14%	8%	5%	Portugal	1%	1%	0%
Higher education and Research	**6**	**63**	**163**	Austria	1%	0%	0%
United States	33%	13%	51%	Bermuda	1%	1%	0%
Canada	17%	22%	13%	Ireland	1%	0%	0%
China	17%	6%	9%	Israel	1%	3%	0%
Italy	17%	37%	13%	Norway	1%	0%	0%
UK	17%	22%	13%	South Korea	1%	0%	0%
Retail	**1**	**7**	**63**	Andorra	0%	0%	0%
UK	100%	100%	100%	Hong Kong	0%	0%	0%
Aeronautics	**1**	**23**	**21**	Philippines	0%	0%	0%
Canada	100%	100%	100%	Saudi Arabia	0%	0%	0%
				South Africa	0%	0%	0%
				Taiwan	0%	0%	0%
				Turkey	0%	0%	0%
				TOTAL	**836**	**36,074**	**87,526**

SOURCE: OWN ELABORATION (IESE-PPSRC) FROM FDI-MARKETS DATABASE

APPENDIX IV: BARCELONA'S ICT SECTOR

TABLE 9 A
Average labour cost in computer programming sectors in main European regions

COMPUTER PROGRAMMING, CONSULTANCY AND RELATED ACTIVITIES	NUMBER OF PERSONS EMPLOYED 201	RANK BY EMPLOYED	AVERAGE WAGE 2011	RANK BY AVERAGE WAGE
Karlsruhe	36,750	17	61,004	1
Stuttgart	43,600	12	58,546	2
Darmstadt	75,034	5	56,846	3
Denmark	54,264	9	55,936	4
Hessen	80,480	4	55,430	5
Oberbayern	61,596	8	52,727	6
Helsinki-Uusimaa	26,346	29	49,184	7
Köln	42,197	13	47,660	8
Île de France	215,135	1	47,480	9
Stockholm	52,009	10	45,525	10
Wien	19,091	37	44,812	11
Düsseldorf	33,170	21	44,362	12
Noord-Holland	30,993	26	43,239	13
London	143,319	2	42,383	14
Zuid-Holland	32,394	23	42,205	15
Provence-Alpes-Côte d'Azur	13,327	39	41,075	16
Södra Sverige	34,055	18	40,987	17
Hamburg	20,341	36	40,893	18
Belgium	65,372	6	40,516	19
Rhône-Alpes	33,182	20	38,735	20
Vlaams Gewest	39,311	14	37,486	21
West Midlands (UK)	32,413	22	36,809	22
Yorkshire and The Humber	23,082	34	36,713	23
Comunidad de Madrid	103,937	3	36,676	24
Niedersachsen	25,930	30	36,240	25
Lombardia	62,324	7	33,627	26
Lazio	45,208	11	33,580	27
Scotland	25,523	31	33,350	28
Berlin	25,460	32	32,600	29
Catalunya	**38,980**	**16**	**31,806**	**30**
Piemonte	31,941	24	31,746	31
South West (UK)	33,536	19	27,335	32
Praha	26,517	28	26,779	33
Lisboa	26,674	27	24,796	34
Bratislavský kraj	13,615	38	22,842	35
Mazowieckie	31,899	25	17,502	36
Közép-Magyarország	39,080	15	14,350	37
Bucuresti - Ilfov	24,143	33	13,424	38
Yugozapaden	22,707	35	13,282	39
Ireland	NA	NA	NA	NA
Oslo og Akershus	20,252		85,769	

SOURCE: OWN CALCULATIONS WITH EUROSTAT DATA

TABLE 9 B

Efficiency frontier of most competitive cities in software and web development

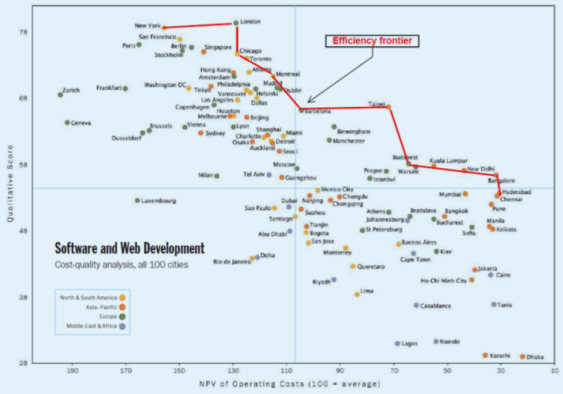


FIGURE 11

Total labour cost

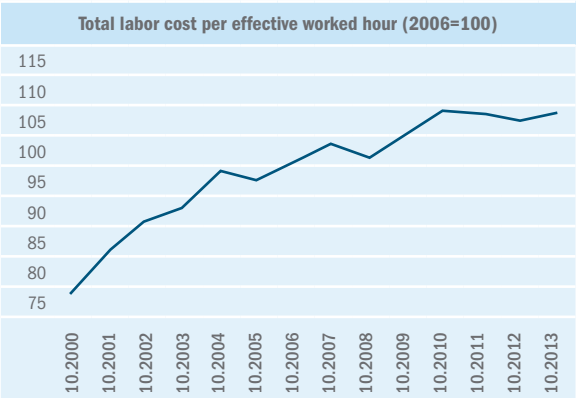


TABLE 10

Evolution of the employment and work centres 2008-2013

	NACE CODE	261-264	465	61-62	951	
Indicator	**Activities**	**ICT and electronics manufacturing**	**ICT wholesale commerce**	**ICT services**	**Computer repairment**	**Total**
Employment	Mar-2008	7,483	7,148	38,282	12,367	65,279
	Dec-2013	3,702	6,214	43,300	6,265	59,481
	2008-2013	-50.5%	-13.1%	13.1%	-49.3%	-8.9%
Work centers	Mar-2008	274	447	2.027	543	3,291
	Dec-2013	228	515	2.393	274	3,410
	2008-2013	-16.8%	15.2%	18.1%	-49.5%	3.6%
Size	Mar-2008	27.3	16.0	18.9	22.8	19.8
	Dec-2013	16.2	12.1	18.1	22.9	17.4
	2008-2013	-40.5%	-24.5%	-4.2%	0.4%	-12.1%

SOURCE: EMPLOYMENT OBSERVATORY. GENERALITAT DE CATALUNYA

TABLE 11
ICSA Study of remunerations in ict industry 2013-2014

CHIEF EXECUTIVE OFFICER (CEO)			
	Telco	ICT Manufacturing	ICT Consultancy
Large company	146,215	135,092	123,305
Medium company	125,464	123,439	119,900
Small company	74,390	76,946	74,428
COMMERCIAL DIRECTOR			
	Telco	ICT Manufacturing	ICT Consultancy
Large company	106,536	98,431	89,843
Medium company	86,262	84,870	82,437
Small company	65,709	67,966	65,742
CHIEF INFORMATION OFFICER (CIO)			
	Telco	ICT Manufacturing	ICT Consultancy
Large company	92,803	84,742	78,261
Medium company	73,002	71,843	69,784
Small company	58,553	60,564	58,582
PROJECT MANAGER			
	Telco	ICT Manufacturing	ICT Consultancy
Large company	92,803	84,742	78,261
Medium company	42,019	41,199	43,033
Small company	37,248	36,521	38,147
ANALYST-PROGRAMMER			
	Telco	ICT Manufacturing	ICT Consultancy
Large company	27,226	25,309	26,750
Medium company	26,429	24,568	25,967
Small company	24,299	22,588	23,874

SOURCE: ICSA

TABLE 12
ICT projects jan.2011 - Oct.2013

METROPOLITAN AREA	Nº PROJECTS (RIGHT AXIS)	INVESTED CAPITAL	ESTIMATED JOBS CREATED (LEFT AXIS)	JOBS / N.PROJECTS	$ CAPITAL / JOBS
Dublin	190	5,649.1	15,125	80	373,493
London	388	3,935.5	12,725	33	309,274
Barcelona	**68**	**1,715.6**	**5,315**	**78**	**322,791**
Paris	135	2,036.4	5,049	37	403,325
Amsterdam	75	2,876.6	2,591	35	1,110,208
Bucharest	27	656.3	2,295	85	285,956
Warsaw	30	475.3	2,264	75	209,938
Madrid	68	872.3	2,098	31	415,773
Frankfurt and Main	88	789.1	1,973	22	399,970
Berlin	65	290.5	1,772	27	163,916
Munchen	79	662.9	1,626	21	407,688
Stuttgart	80	473.0	1,430	18	330,750
Köln-Düsseldorf	87	361.8	1,427	16	253,523
Helsinki	54	743.1	1,420	26	523,317
Budapest	16	294.0	1,274	80	230,769
Stockholm	36	646.6	1,189	33	543,818
Sofiya	14	248.5	1,111	79	223,672
WIEN	23	1,005.0	975	42	1,030,769
Prague	14	389.9	896	64	435,156
Glasgow	7	257.6	885	126	291,127
TOTAL	**1,756**	**27,763.5**	**70,350**	**40**	**394,648**

SOURCE: FDI MARKETS

TABLE 13
ICT projects in Catalonia by motives

ICT FDI IN CATALONIA BY MOTIVES	2003-2010		2011-OCT2013		VARIATION
Motive	**Projects**	**% of FDI Projects**	**Projects**	**% of FDI Projects**	**% of FDI Projects**
Domestic Market Growth Potential	29	29%	9	19%	-10.1%
Proximity to markets or customers	23	23%	8	17%	-6.2%
Skilled workforce availability	12	12%	6	13%	0.6%
Infrastructure and logistics	11	11%	5	11%	-0.5%
Industry Cluster / Critical Mass	4	4%	4	9%	4.5%
Regulations or business climate	4	4%	4	9%	4.5%
Universities or researchers	0	0%	3	6%	6.4%
ICT Infrastructure	0	0%	2	4%	4.3%
Language Skills	4	4%	2	4%	0.2%
Lower Costs	4	4%	2	4%	0.2%
Other Motive	4	4%	2	4%	0.2%
Presence of Suppliers or JV Partners	1	1%		0%	-1.0%
IPA or Govt support	1	1%		0%	-1.0%
Natural Resources	2	2%		0%	-2.0%

SOURCE: FDI MARKETS

TABLE 14
ICT projects by country of origin (number of projects), 2011 - 2013

CITY / NUMBER OF PROJECTS	PROJECTS ICT	RANKING	NORTH AMERICA	RANKING	SPECIALIZATION	EU	RANKING	SPECIALIZATION	EFTA	RANKING	SPECIALIZATION
London	388	1	264	1	1.43	72	1	0.57	6	2	0.37
Dublin	190	2	127	2	1.41	46	3	0.74	4	4	0.50
Paris	135	**3**	61	**3**	0.95	56	2	1.27	1	14	0.18
Frankfurt and Main	88	4	36	5	0.86	20	12	0.70	4	4	1.08
Köln-Düsseldorf	87	5	19	10	0.46	35	4	1.24	1	14	0.27
Stuttgart	80	6	13	13	0.34	26	8	1.00	27	1	8.01
Munchen	79	7	36	5	0.96	29	7	1.13	4	4	1.20
Amsterdam	75	8	44	4	1.24	21	11	0.86	0	20	0.00
Barcelona	**68**	**9**	**25**	**8**	**0.78**	**31**	**6**	**1.40**	**3**	**8**	**1.05**
Madrid	68	9	23	9	0.71	35	4	1.58	2	10	0.70
Berlin	65	11	27	7	0.88	26	8	1.23	4	4	1.46
Helsinki	54	12	14	12	0.55	22	10	1.25	5	3	2.20
Stockholm	36	13	15	11	0.88	12	16	1.02	1	14	0.66
Warsaw	30	14	11	15	0.77	14	13	1.43	1	14	0.79
Bucharest	27	15	5	25	0.39	14	13	1.59	0	20	0.00
Hamburg	23	16	10	18	0.92	7	20	0.93	2	10	2.06
Milano	23	16	11	15	1.01	9	18	1.20	0	20	0.00
Wien	23	16	5	25	0.46	13	15	1.74	3	8	3.10
Copenhagen	21	19	11	15	1.10	9	18	1.32	0	20	0.00
Brussels	19	20	13	13	1.44	4	25	0.65	1	14	1.25
Birmingham	17	21	7	20	0.87	4	25	0.72	0	20	0.00
Budapest	17	21	3	29	0.37	12	16	2.17	0	20	0.00
Manchester	17	21	7	20	0.87	4	25	0.72	0	20	0.00
Antwerp	15	24	5	25	0.70	7	20	1.43	0	20	0.00
Lyon	14	25	6	23	0.90	6	22	1.32	0	20	0.00
Prague	14	25	8	19	1.20	4	25	0.88	0	20	0.00
Sofiya	14	25	4	28	0.60	6	22	1.32	2	10	3.39
Edinburgh	13	28	7	20	1.14	1	36	0.24	1	14	1.83
Marseille	10	29	6	23	1.26	3	30	0.92	0	20	0.00
Lisbon	9	30	0	35	0.00	6	22	2.05	0	20	0.00
Athens	8	31	0	35	0.00	4	25	1.53	2	10	5.93
Glasgow	7	32	2	31	0.60	2	34	0.88	0	20	0.00
Rotterdam	7	32	3	29	0.90	3	30	1.32	0	20	0.00
Roma	5	34	2	31	0.84	3	30	1.84	0	20	0.00
Katowice	4	35	1	34	0.53	3	30	2.30	0	20	0.00
Lille	4	35	2	31	1.05	1	36	0.77	0	20	0.00
Valencia	2	37	0	35	0.00	2	34	3.07	0	20	0.00
Total	**1,756**		**833**		**1.00**	**572**		**1.00**	**74**		**1.00**
Horizontal share	**100.0%**		**47.4%**		**1.00**	**32.6%**		**1.00**	**4.2%**		**1.00**

* Torino does not have any project classiffied as ict

SOURCE: FDI-MARKETS DATABASE AND OWN ELABORATION (IESE-PPSRC)

The ranking position by subsector/activity/region, as well as the relative specialisation (calculated as the item's city share over the total considering the relative weight of that region on ITC projects), is indicated for each region. For example, in the subsector tables, the specialisation index of total ICT projects (third column) is calculated as the subsector share of each region (relative to the total number of projects focused on that subsector) divided by the share that this region has over the total projects received by the region[12].

[12] For example, Barcelona has 7 projects in computer and peripheral equipment therefore it ranks 2nd and its specialisation is 3.29. Barcelona is relatively highly specialised in this subsector because it has a relative big share in computer and peripheral equipment, 7 out of 55 projects in Europe (12.7%) considering that Barcelona accounts for only 4% of European ICT projects. 7/55 divided by 68/1756 is 3.29.

CHINA	RANKING	SPECIALIZA-TION	JAPAN	RANKING	SPECIALIZA-TION	INDIA	RANKING	SPECIALIZA-TION	REST OF WORLD	RANKING	SPECIALIZA-TION
5	3	0.32	7	1	0.47	7	1	0.88	27	1	1.17
3	6	0.40	4	6	0.55	2	2	0.51	4	8	0.36
4	5	0.74	2	11	0.39	**2**	**2**	**0.72**	**9**	**2**	**1.13**
15	2	4.28	4	6	1.19	2	2	1.11	7	3	1.34
16	1	4.61	7	1	2.11	2	2	1.12	7	3	1.36
3	6	0.94	5	4	1.64	2	2	1.22	4	8	0.84
0	22	0.00	3	8	1.00	2	2	1.23	5	6	1.07
3	6	1.00	2	11	0.70	2	2	1.30	3	10	0.68
1	**12**	**0.37**	**7**	**1**	**2.70**	**0**	**19**	**0.00**	**1**	**19**	**0.25**
2	9	0.74	3	8	1.16	2	2	1.43	1	19	0.25
1	12	0.39	1	16	0.40	0	19	0.00	6	5	1.56
1	12	0.46	5	4	2.43	2	2	1.81	5	6	1.56
1	12	0.70	3	8	2.18	1	14	1.35	3	10	1.41
1	12	0.84	2	11	1.75	0	19	0.00	1	19	0.56
5	3	4.65	1	16	0.97	0	19	0.00	2	14	1.25
0	22	0.00	0	25	0.00	1	14	2.12	3	10	2.20
0	22	0.00	2	11	2.28	1	14	2.12	0	27	0.00
1	12	1.09	1	16	1.14	0	19	0.00	0	27	0.00
0	22	0.00	0	25	0.00	0	19	0.00	1	19	0.80
0	22	0.00	1	16	1.38	0	19	0.00	0	27	0.00
2	9	2.95	0	25	0.00	2	2	5.74	2	14	1.99
1	12	1.48	1	16	1.54	0	19	0.00	0	27	0.00
0	22	0.00	2	11	3.08	2	2	5.74	2	14	1.99
1	12	1.67	0	25	0.00	0	19	0.00	2	14	2.25
1	12	1.79	1	16	1.87	0	19	0.00	0	27	0.00
0	22	0.00	1	16	1.87	0	19	0.00	1	19	1.21
0	22	0.00	1	16	1.87	0	19	0.00	1	19	1.21
0	22	0.00	0	25	0.00	1	14	3.75	3	10	3.90
0	22	0.00	0	25	0.00	0	19	0.00	1	19	1.69
1	12	2.79	0	25	0.00	0	19	0.00	2	14	3.75
2	9	6.27	0	25	0.00	0	19	0.00	0	27	0.00
0	22	0.00	1	16	3.74	2	2	13.94	0	27	0.00
0	22	0.00	0	25	0.00	0	19	0.00	1	19	2.41
0	22	0.00	0	25	0.00	0	19	0.00	0	27	0.00
0	22	0.00	0	25	0.00	0	19	0.00	0	27	0.00
0	22	0.00	0	25	0.00	1	14	12.19	0	27	0.00
0	22	0.00	0	25	0.00	0	19	0.00	0	27	0.00
70		**1.00**	**67**		**1.00**	**36**		**1.00**	**104**		**1.00**
4.0%		**1.00**	**3.8%**		**1.00**	**2.1%**		**1.00**	**5.9%**		**1.00**

TABLE 15
ICT projects by country of origin (estimated jobs created), 2011 – 2013

CITY / ESTIMATED JOBS BY PROJECTS	PROJECTS ICT	RANKING	NORTH AMERICA	RANKING	SPECIALIZA-TION	EU	RANKING	SPECIALIZA-TION	EFTA	RANKING	SPECIALIZATION
Dublin	15,125	1	11,234	1	1.39	3,045	1	0.68	214	2	0.53
London	12,725	2	9,211	2	1.36	1,704	4	0.45	75	9	0.22
Barcelona	**5,315**	**3**	**2,140**	**4**	**0.76**	**2,356**	**2**	**1.49**	**87**	**7**	**0.61**
Paris	5,049	4	2,220	3	0.83	2,227	3	1.48	25	13	0.18
Amsterdam	2,591	5	1,729	5	1.25	566	14	0.73	0	20	0.00
Bucharest	2,295	6	448	15	0.37	983	6	1.44	0	20	0.00
Warsaw	2,264	7	792	8	0.66	1109	5	1.64	11	18	0.18
Madrid	2,098	8	861	7	0.77	792	8	1.27	162	4	2.88
Frankfurt am Main	1,973	9	878	6	0.84	583	13	0.99	65	11	1.23
Berlin	1,772	10	761	9	0.81	642	10	1.22	68	10	1.43
Munchen	1,626	11	726	10	0.84	634	11	1.31	80	8	1.84
Stuttgart	1,430	12	176	28	0.23	455	17	1.07	544	1	14.20
Köln-Düsseldorf	1,427	13	245	22	0.32	691	9	1.63	11	18	0.29
Helsinki	1,420	14	498	13	0.66	480	16	1.13	97	6	2.55
Budapest	1,299	15	245	22	0.35	917	7	2.37	0	20	0.00
Stockholm	1,189	16	417	17	0.66	292	20	0.82	130	5	4.08
Sofiya	1,111	17	629	11	1.06	169	22	0.51	191	3	6.42
Wien	975	18	189	26	0.36	551	15	1.90	40	12	1.53
Prague	896	19	272	20	0.57	447	18	1.68	0	20	0.00
Glasgow	885	20	450	14	0.95	35	33	0.13	0	20	0.00
Lille	750	21	627	12	1.57	89	27	0.40	0	20	0.00
Lisbon	688	22	0	35	0.00	594	12	2.90	0	20	0.00
Manchester	646	23	401	18	1.17	115	25	0.60	0	20	0.00
Lyon	608	24	184	27	0.57	404	19	2.23	0	20	0.00
Brussels	593	25	418	16	1.32	84	28	0.48	23	14	1.45
Birmingham	590	26	378	19	1.20	28	35	0.16	0	20	0.00
Copenhagen	530	27	248	21	0.88	203	21	1.29	0	20	0.00
Milano	412	28	202	24	0.92	73	29	0.59	0	20	0.00
Antwerp	402	29	198	25	0.92	160	23	1.34	0	20	0.00
Hamburg	290	30	138	31	0.89	65	30	0.75	20	16	2.57
Athens	263	31	0	35	0.00	50	32	0.64	22	15	3.12
Marseille	262	32	159	29	1.14	63	31	0.81	0	20	0.00
Edinburgh	261	33	149	30	1.07	31	34	0.40	20	16	2.86
Katowice	251	34	98	32	0.73	153	24	2.05	0	20	0.00
Roma	196	35	85	33	0.81	111	26	1.90	0	20	0.00
Rotterdam	119	36	74	34	1.17	27	36	0.76	0	20	0.00
Valencia	24	37	0	35	0.00	24	37	3.36	0	20	0.00
Total	**70,350**		**37480**		**1.00**	**20,952**		**1.00**	**1,885**		**1.00**
Horizontal share	**100.0%**		**53.3%**		**1.00**	**29.8%**		**1.00**	**2.7%**		**1.00**

* Torino does not have any project classiffied as ict

SOURCE: FDI-MARKETS DATABASE AND OWN ELABORATION (IESE-PPSRC)

CHINA	RANKING	SPECIALIZA-TION	JAPAN	RANKING	SPECIALIZA-TION	INDIA	RANKING	SPECIALIZA-TION	REST OF WORLD	RANKING	SPECIALIZA-TION
80	11	0.15	213	3	0.33	246	2	0.69	93	9	0.16
373	2	0.80	406	2	0.74	144	5	0.48	812	1	1.61
21	**17**	**0.11**	**609**	**1**	**2.67**	**0**	**19**	**0.00**	**102**	**7**	**0.49**
147	6	0.80	63	18	0.29	50	10	0.42	317	2	1.59
134	8	1.42	77	14	0.69	58	8	0.94	27	21	0.26
551	1	6.59	97	9	0.98	0	19	0.00	216	3	2.38
184	5	2.23	129	6	1.33	0	19	0.00	39	17	0.44
41	14	0.54	60	19	0.67	166	4	3.34	16	25	0.19
220	3	3.06	41	21	0.48	33	13	0.71	153	5	1.96
11	19	0.17	206	5	2.71	0	19	0.00	84	10	1.20
0	22	0.00	25	22	0.36	56	9	1.45	105	6	1.63
9	20	0.17	49	20	0.80	16	17	0.47	181	4	3.20
133	9	2.56	124	8	2.02	188	3	5.55	35	19	0.62
100	10	**1.93**	78	13	1.28	100	6	2.97	67	13	1.19
40	15	0.85	97	9	1.74	0	19	0.00	0	27	0.00
68	12	1.57	208	4	4.08	21	16	0.74	53	15	1.13
0	22	0.00	97	9	2.03	0	19	0.00	25	22	0.57
68	12	1.92	127	7	3.04	0	19	0.00	0	27	0.00
0	22	0.00	79	12	2.05	0	19	0.00	98	8	2.76
0	22	0.00	13	23	0.34	387	1	18.43	0	27	0.00
0	22	0.00	0	25	0.00	34	12	1.91	0	27	0.00
25	16	1.00	0	25	0.00	0	19	0.00	69	12	2.54
0	22	0.00	76	15	2.74	43	11	2.81	11	26	0.43
19	18	0.86	1	24	0.04	0	19	0.00	0	27	0.00
0	22	0.00	68	17	2.67	0	19	0.00	0	27	0.00
140	7	6.52	0	25	0.00	26	15	1.86	18	23	0.77
0	22	0.00	0	25	0.00	0	19	0.00	79	11	3.77
0	22	0.00	76	15	4.30	61	7	6.24	0	27	0.00
7	21	0.48	0	25	0.00	0	19	0.00	37	18	2.33
0	22	0.00	0	25	0.00	10	18	1.45	57	14	4.97
191	4	19.94	0	25	0.00	0	19	0.00	0	27	0.00
0	22	0.00	0	25	0.00	0	19	0.00	40	16	3.86
0	22	0.00	0	25	0.00	30	14	4.84	31	20	3.00
0	22	0.00	0	25	0.00	0	19	0.00	0	27	0.00
0	22	0.00	0	25	0.00	0	19	0.00	0	27	0.00
0	22	0.00	0	25	0.00	0	19	0.00	18	23	3.82
0	22	0.00	0	25	0.00	0	19	0.00	0	27	0.00
2,562		**1.00**	**3,019**		**1.00**	**1,669**		**1.00**	**2,783**		**1.00**
3.6%		**1.00**	**4.3%**		**1.00**	**2.4%**		**1.00**	**4.0%**		**1.00**

TABLE 16
ICT projects by subsector of activity (number of projects), 2011 - 2013

CITY / NUMBER OF PROJECTS	PROJECTS ICT	RANKING	SOFTWARE PUBLISHERS, EXCEPT VIDEO GAMES	RANKING	SPECIALIZATION	INTERNET PUBLISHING & BROADCASTING & WEB SEARCH	RANKING	SPECIALIZATION	CUSTOM COMPUTER PROGRAMMING SERVICES	RANKING	SPECIALIZATION	ALL OTHER ELECTRICAL EQUIPMENT & COMPONENTS	RANKING	SPECIALIZATION
London	388	1	186	1	1.29	91	1	1.49	30	1	0.72	4	9	0.15
Dublin	190	2	73	2	1.03	27	2	0.90	25	2	1.22	2	14	0.15
Paris	135	3	65	3	1.29	26	3	1.23	6	11	0.41	0	27	0.00
Frankfurt am Main	88	4	29	5	0.88	2	18	0.14	14	4	1.48	26	1	4.32
Köln-Düsseldorf	87	5	24	7	0.74	7	9	0.51	7	7	0.75	19	2	3.20
Stuttgart	80	6	21	9	0.70	2	18	0.16	22	3	2.56	10	3	1.83
Munchen	79	7	33	4	1.12	12	6	0.97	11	6	1.29	8	4	1.48
Amsterdam	75	8	25	6	0.90	7	9	0.59	12	5	1.49	0	27	0.00
Barcelona	**68**	**9**	**23**	**8**	**0.91**	**7**	**9**	**0.65**	**7**	**7**	**0.96**	**5**	**6**	**1.08**
Madrid	68	9	21	9	0.83	13	5	1.22	7	7	0.96	5	6	1.08
Berlin	65	11	17	11	0.70	24	4	2.35	5	12	0.71	3	12	0.68
Helsinki	54	12	12	13	0.60	8	8	0.94	7	7	1.20	7	5	1.90
Stockholm	36	13	13	12	0.97	4	15	0.71	3	14	0.77	2	14	0.81
Warsaw	30	14	5	23	0.45	5	12	1.06	2	17	0.62	4	9	1.95
Bucharest	27	15	10	15	0.99	2	18	0.47	2	17	0.69	2	14	1.08
Hamburg	23	16	7	20	0.82	11	7	3.04	1	24	0.40	0	27	0.00
Milano	23	16	11	14	1.28	5	12	1.38	0	32	0.00	3	12	1.91
Wien	23	16	8	18	0.93	5	12	1.38	2	17	0.81	0	27	0.00
Copenhagen	21	19	8	18	1.02	4	15	1.21	1	24	0.44	1	18	0.70
Brussels	19	20	10	15	1.41	1	24	0.33	2	17	0.98	0	27	0.00
Birmingham	17	21	2	27	0.32	2	18	0.75	0	32	0.00	2	14	1.72
Budapest	17	21	5	23	0.79	1	24	0.37	1	24	0.55	1	18	0.86
Manchester	17	21	7	20	1.11	2	18	0.75	5	12	2.73	0	27	0.00
Antwerp	15	24	7	20	1.25	0	29	0.00	3	14	1.86	1	18	0.98
Lyon	14	25	2	27	0.38	0	29	0.00	2	17	1.33	4	9	4.18
Prague	**14**	25	2	27	0.38	3	17	1.36	0	32	0.00	1	18	1.05
Sofiya	14	25	5	23	0.96	2	18	0.91	1	24	0.66	1	18	1.05
Edinburgh	13	28	9	17	1.86	0	29	0.00	1	24	0.71	0	27	0.00
Marseille	10	29	2	27	0.54	0	29	0.00	1	24	0.93	1	18	1.46
Lisbon	9	30	1	32	0.30	1	24	0.71	1	24	1.03	0	27	0.00
Athens	8	31	1	32	0.34	0	29	0.00	1	24	1.16	5	6	9.15
Glasgow	7	32	2	27	0.77	1	24	0.91	3	14	3.98	1	18	2.09
Rotterdam	7	32	5	23	1.92	1	24	0.91	0	32	0.00	0	27	0.00
Roma	5	34	1	32	0.54	0	29	0.00	0	32	0.00	0	27	0.00
Katowice	4	35	0	37	0.00	0	29	0.00	2	17	4.65	1	18	3.66
Lille	4	35	1	32	0.67	0	29	0.00	2	17	4.65	0	27	0.00
Valencia	2	37	1	32	1.34	0	29	0.00	0	32	0.00	1	18	7.32
Total	**1756**		**654**		**1.00**	**276**		**1.00**	**189**		**1.00**	**120**		**1.00**
Horizontal share	**100,0%**		**37,2%**		**1.00**	**15,7%**		**1.00**	**10,8%**		**1.00**	**6.8%**		**1.00**

* Torino does not have any project classiffied as ict

SOURCE: FDI-MARKETS DATABASE AND OWN ELABORATION (IESE-PPSRC)

DATA PROCESSING, HOSTING, & RELATED SERVICES	RANKING	SPECIALIZATION	COMMUNICATIONS EQUIPMENT	RANKING	SPECIALIZATION	COMPUTER & PERIPHERAL EQUIPMENT	RANKING	SPECIALIZATION	VIDEO GAMES, APPLICATIONS AND DIGITAL CONTENT	RANKING	SPECIALIZATION	REST OF WORLD	RANKING	SPECIALIZATION
18	1	0.90	8	1	0.65	5	3	0.41	14	1	1.27	32	1	0.55
14	2	1.42	6	2	0.99	9	1	1.51	8	2	1.48	26	2	0.91
8	5	1.14	4	4	0.93	2	8	0.47	5	3	1.30	19	4	0.93
9	4	1.97	0	22	0.00	1	13	0.36	0	14	0.00	7	13	0.53
1	15	0.22	4	4	1.44	4	4	1.47	0	14	0.00	21	3	1.60
0	23	0.00	4	4	1.57	4	4	1.60	0	14	0.00	17	5	1.41
3	7	0,.73	1	13	0.40	0	22	0.00	0	14	0.00	11	9	0.92
13	3	3.34	4	4	1.67	3	7	1.28	0	14	0.00	11	9	0.97
2	**8**	**0.57**	**1**	**13**	**0.46**	**7**	**2**	**3.29**	**3**	**6**	**1.55**	**13**	**8**	**1.27**
2	8	0.57	1	13	0.46	4	4	1.88	1	10	0.52	14	6	1.36
1	15	0.30	2	9	0.96	1	13	0.49	4	4	2.16	8	11	0.82
1	15	0.36	0	22	0.00	2	8	1.18	3	6	1.95	14	6	1.72
2	8	1.07	1	13	0.87	2	8	1.77	4	4	3.90	5	16	0.92
2	8	1.29	6	2	6.27	1	13	1.06	0	14	0,00	5	16	1.10
0	23	0.00	3	8	3.48	1	13	1.18	1	10	1.30	6	14	1.47
0	23	0.00	0	22	0.00	1	13	1.39	0	14	0.00	3	22	0.86
2	8	1.68	0	22	0.00	0	22	0.00	0	14	0.00	2	25	0.58
4	6	3.36	0	22	0.00	2	8	2.78	0	14	0.00	2	25	0.58
2	8	1.84	2	9	2.99	0	22	0.00	1	10	1.67	2	25	0.63
1	15	1.02	1	13	1.65	0	22	0.00	0	14	0.00	4	20	1.40
0	23	0.00	0	22	0.00	0	22	0.00	3	6	6.20	8	11	3.12
0	23	0.00	2	9	3.69	1	13	1.88	1	10	2.07	5	16	1.95
0	23	0.00	0	22	0.00	1	13	1.88	0	14	0.00	2	25	0.78
1	15	1.29	0	22	0.00	0	22	0.00	0	14	0.00	3	22	1.33
1	15	1.38	0	22	0.00	0	22	0.00	0	14	0.00	5	16	2.37
2	8	2.76	0	22	0.00	2	8	4.56	0	14	0.00	4	20	1.89
0	23	0.00	2	9	4.48	1	13	2.28	0	14	0.00	2	25	0.95
0	23	0.00	0	22	0.00	0	22	0.00	2	9	5.40	1	31	0.51
0	23	0.00	0	22	0.00	0	22	0.00	0	14	0.00	6	14	3.98
1	15	2.14	1	13	3.48	1	13	3.55	0	14	0.00	3	22	2.21
0	23	0,.00	1	13	3.92	0	22	0.00	0	14	0.00	0	34	0.00
0	23	0.00	0	22	0.00	0	22	0.00	0	14	0.00	0	34	0.00
0	23	0.00	1	13	4.48	0	22	0.00	0	14	0.00	0	34	0.00
1	15	3.86	1	13	6.27	0	22	0,00	0	14	0.00	2	25	2.65
0	23	0.00	0	22	0.00	0	22	0.00	0	14	0.00	1	31	1.66
0	23	0.00	0	22	0.00	0	22	0.00	0	14	0.00	1	31	1.66
0	23	0.00	0	22	0.00	0	22	0.00	0	14	0.00	0	34	0.00
91		**1.00**	**56**		**1.00**	**55**		**1.00**	**50**		**1.00**	**265**		**1.00**
5.2%		**1.00**	**3.2%**		**1.00**	**3.1%**		**1.00**	**2.8%**		**1.00**	**15.1%**		**1.00**

TABLE 17
ICT projects by subsector of activity (estimated jobs created), 2011 - 2013

CITY / NUMBER OF PROJECTS	PROJECTS ICT	RANKING	SOFTWARE PUBLISHERS, EXCEPT VIDEO GAMES	RANKING	SPECIAL-IZATION	CUSTOM COMPUTER PROGRAMMING SERVICES	RANKING	SPECIAL-IZATION	INTERNET PUBLISHING & BROADCASTING & WEB SEARCH	RANKING	SPECIALIZA-TION	COMMU-NICATIONS EQUIPMENT	RANKING	SPECIALIZA-TION
Dublin	15,125	1	5,375	1	1.31	1,663	1	0.80	3,078	1	1.65	441	5	0.27
London	12,725	2	3,469	2	1.01	1,021	2	0.59	1,821	2	1.16	3,357	1	2.46
Barcelona	**5,315**	**3**	**1,197**	**4**	**0.83**	**466**	**8**	**0.64**	**542**	**4**	**0.83**	**1,000**	**2**	**1.75**
Paris	5,049	4	1,753	3	1.28	877	3	1.27	848	3	1.36	74	13	0.14
Amsterdam	2,591	5	592	6	0.85	390	9	1.10	63	14	0.20	153	9	0.55
Bucharest	2,295	6	362	11	0.58	287	12	0.92	17	24	0.06	509	4	2.07
Warsaw	2,264	7	471	9	0.77	164	19	0.53	345	6	1.24	779	3	3.21
Madrid	2,098	8	703	5	1.24	282	13	0.98	276	7	1.07	60	15	0.27
Frankfurt am Main	1,973	9	586	7	1.10	506	5	1.88	25	22	0.10	0	22	0.00
Berlin	1,772	10	388	10	0.81	356	10	1.47	441	5	2.02	23	17	0.12
Munchen	1,626	11	578	8	1.31	469	7	2.11	231	8	1.15	10	20	0.06
Stuttgart	1,430	12	259	17	0.67	504	6	2.58	28	20	0.16	142	10	0.93
Köln-Düsseldorf	1,427	13	258	18	0.67	299	11	1.53	86	12	0.49	32	16	0.21
Helsinki	1,420	14	297	16	0.77	268	14	1.38	199	9	1.14	0	22	0.00
Budapest	1,299	15	336	13	0.96	10	29	0.06	146	10	0.91	169	8	1.21
Stockholm	1,189	16	302	15	0.94	53	24	0.33	53	15	0.36	130	11	1.02
Sofiya	1,111	17	145	21	0.48	95	21	0.63	50	17	0.37	277	6	2.32
Wien	975	18	149	20	0.57	54	23	0.41	66	13	0.55	0	22	0.00
Prague	896	19	25	34	0.10	0	32	0.00	37	19	0.33	0	22	0.00
Glasgow	885	20	38	31	0.16	825	4	6.82	12	27	0.11	0	22	0.00
Lille	750	21	56	29	0.28	123	20	1.20	0	29	0.00	0	22	0.00
Lisbon	688	22	100	25	0.54	3	31	0.03	15	26	0.18	8	21	0.11
Manchester	646	23	349	12	2.00	167	18	1.89	17	24	0.21	0	22	0.00
Lyon	608	24	80	28	0.49	178	17	2.14	0	29	0.00	0	22	0.00
Brussels	593	25	303	14	1.89	62	22	0.77	21	23	0.29	68	14	1.07
Birmingham	**590**	26	26	33	0.16	0	32	0.00	26	21	0.36	0	22	0.00
Copenhagen	530	27	93	26	0.65	18	28	0.25	51	16	0.78	96	12	1.69
Milano	412	28	145	21	1.30	0	32	0.00	41	18	0.81	0	22	0.00
Antwerp	402	29	122	23	1.12	185	16	3.37	0	29	0.00	0	22	0.00
Hamburg	290	30	102	24	1.30	10	29	0.25	130	11	3.64	0	22	0.00
Athens	263	31	19	35	0.27	19	27	0.53	0	29	0.00	184	7	6.52
Marseille	262	32	46	30	0.65	30	25	0.84	0	29	0.00	0	22	0.00
Edinburgh	261	33	151	19	2.14	30	25	0.84	0	29	0.00	0	22	0.00
Katowice	251	34	0	37	0.00	198	15	5.77	0	29	0.00	0	22	0.00
Roma	196	35	35	32	0.66	0	32	0.00	0	29	0.00	17	19	0.81
Rotterdam	119	36	92	27	2.86	0	32	0.00	9	28	0.61	18	18	1.41
Valencia	24	37	17	36	2.62	0	32	0.00	0	29	0.00	0	22	0.00
Total	**70,350**		**19,019**		**1.00**	**9,612**		**1.00**	**8,674**		**1.00**	**7,547**		**1.00**
Horizontal share	**100,0%**		**27.0%**		**1.00**	**13.7%**		**1.00**	**12.3%**		**1.00**	**10.7%**		**1.00**

* Torino does not have any project classiffied as ict

SOURCE: FDI-MARKETS DATABASE AND OWN ELABORATION (IESE-PPSRC)

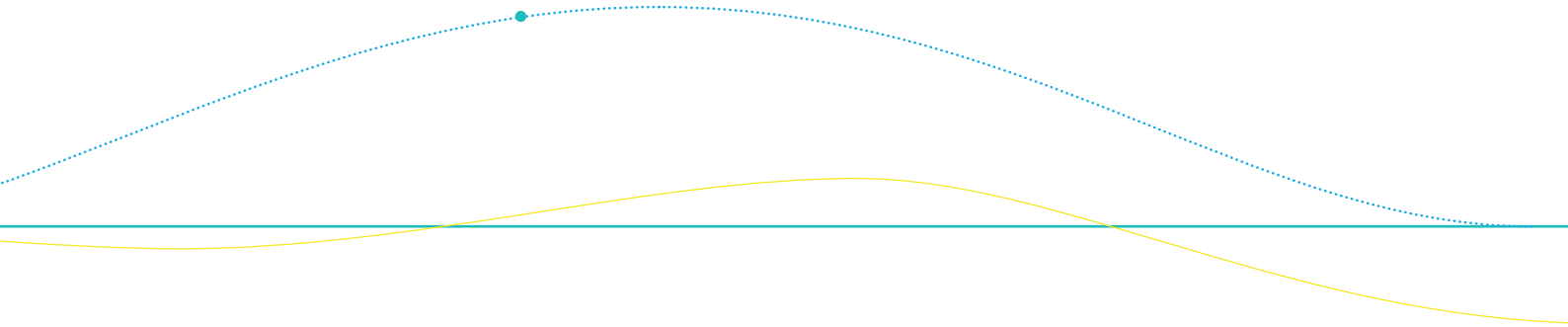
DATA PROCESSING, HOSTING, & RELATED SERVICES	RANKING	SPECIALIZATION	COMPUTER & PERIPHERAL EQUIPMENT	RANKING	SPECIALIZATION	VIDEO GAMES, APPLICATIONS & DIGITAL CONTENT	RANKING	SPECIALIZATION	WIRED TELECOMMUNICATION CARRIERS	RANKING	SPECIALIZATION	REST OF SUB-SECTORS	RANKING	SPECIALIZATION
693	4	0.62	867	1	0.97	807	1	1.56	211	4	0.43	1990	1	0.81
928	1	0.99	488	3	0.65	483	2	1.11	275	2	0.67	883	3	0.43
368	**5**	**0.94**	**622**	**2**	**1.98**	**63**	**9**	**0.35**	**121**	**8**	**0.70**	**936**	**2**	**1.08**
699	3	1.88	30	19	0.10	205	4	1.18	185	6	1.13	378	11	0.46
829	2	4.35	92	15	0.60	0	14	0.00	176	7	2.10	296	14	0.70
0	23	0.00	139	11	1.02	8	13	0.10	243	3	3.28	730	4	1.95
182	9	1.09	26	20	0.19	0	14	0.00	78	10	1.07	219	20	0.59
66	14	0.43	124	12	1.00	16	12	0.22	20	13	0.30	551	6	1.61
341	6	2.35	121	13	1.04	0	14	0.00	112	9	1.76	282	16	0.88
35	18	0.27	206	6	1.96	82	7	1.35	11	17	0.19	230	17	0.80
35	18	0.29	0	22	0.00	0	14	0.00	12	16	0.23	291	15	1.10
0	23	0.00	97	14	1.14	0	14	0.00	0	19	0.00	400	10	1.72
13	20	0.12	225	5	2.66	0	14	0.00	0	19	0.00	514	7	2.21
54	15	0.52	62	16	0.74	91	6	1.87	0	19	0.00	449	9	1.94
0	23	0.00	200	7	2.60	20	11	0.45	190	5	4.53	228	18	1.08
116	12	1.32	146	10	2.07	192	5	4.71	18	14	0.47	179	23	0.92
0	23	0.00	321	4	4.88	0	14	0.00	0	19	0.00	223	19	1.23
201	7	2.80	157	9	2.72	0	14	0.00	0	19	0.00	348	13	2.19
189	8	2.86	177	8	3.33	0	14	0.00	457	1	15.79	11	32	0.08
0	23	0.00	0	22	0.00	0	14	0.00	0	19	0.00	10	33	0.07
0	23	0.00	0	22	0.00	0	14	0.00	0	19	0.00	571	5	4.67
54	15	1.07	32	17	0.79	0	14	0.00	0	19	0.00	476	8	4.25
0	23	0.00	4	21	0.10	0	14	0.00	0	19	0.00	109	25	1.04
1	22	0.02	0	22	0.00	0	14	0.00	0	19	0.00	349	12	3.52
2	21	0.05	0	22	0.00	0	14	0.00	17	15	0.89	120	24	1.24
0	23	0.00	0	22	0.00	322	3	15.92	0	19	0.00	216	21	2.25
126	10	3.23	0	22	0.00	74	8	4.07	0	19	0.00	72	26	0.83
126	10	4.15	0	22	0.00	0	14	0.00	68	11	5.11	32	30	0.48
54	15	1.82	0	22	0.00	0	14	0.00	0	19	0.00	41	28	0.63
0	23	0.00	32	17	1.86	0	14	0.00	11	17	1.17	5	36	0.11
0	23	0.00	0	22	0.00	0	14	0.00	0	19	0.00	41	28	0.96
0	23	0.00	0	22	0.00	0	14	0.00	0	19	0.00	186	22	4.36
0	23	0.00	0	22	0.00	49	10	5.48	0	19	0.00	31	31	0.73
0	23	0.00	0	22	0.00	0	14	0.00	0	19	0.00	53	27	1.30
68	13	4.71	0	22	0.00	0	14	0.00	68	11	10.74	8	34	0.25
0	23	0.00	0	22	0.00	0	14	0.00	0	19	0.00	0	37	0.00
0	23	0.00	0	22	0.00	0	14	0.00	0	19	0.00	7	35	1.79
5,180		**1.00**	**4,168**		**1.00**	**2,412**		**1.00**	**2273**		**1.00**	**11465**		**1.00**
7.4%		**1.00**	**5.9%**		**1.00**	**3.4%**		**1.00**	**3.2%**		**1.00**	**16.3%**		**1.00**

TABLE 18
ICT projects by industry activity (number of projects), 2011 – 2013

INDUSTRY ACTIVITY / JOBS CREATED	PROJECTS ICT	RANKING	SPECIALIZA-TION	SALES, MARKETING & SUPPORT	RANKING	SPECIALIZA-TION	HEADQUAR-TERS	RANKING	SPECIALIZA-TION	DESIGN, DEVELOP-MENT & TESTING	RANKING	SPECIALIZA-TION	ICT & INTERNET INFRA-STRUCTURE	RANKING	SPECIALIZATION
Dublin	190	2	1.31	41	9	0,37	44	2	2,06	45	1	2.52	17	3	1.21
London	388	1	1.44	258	1	1.13	64	1	1.47	16	3	0.44	28	1	0.97
Barcelona	**68**	**9**	**0.77**	**29**	**12**	**0.72**	**2**	**14**	**0.26**	**21**	**2**	**3.28**	**3**	**8**	**0.60**
Paris	135	3	1.43	105	2	1.32	9	4	0.59	3	14	0.24	12	5	1.20
Amsterdam	75	8	1.37	35	10	0.79	13	3	1.54	1	23	0.14	21	2	3.78
Bucarest	27	15	0.67	12	19	0.75	0	25	0.00	5	8	1.97	1	17	0.50
Warsaw	30	14	0.81	21	14	1.19	1	20	0.30	0	28	0.00	2	12	0.90
Madrid	68	9	1.02	47	7	1.17	5	9	0.66	7	4	1.09	2	12	0.40
Frankfurt am Main	88	4	1.17	50	6	0.96	6	7	0.61	5	8	0.60	15	4	2.30
Berlin	65	11	1.23	44	8	1.15	9	4	1.23	4	12	0.65	0	24	0.00
Munchen	79	7	1.15	57	4	1.22	6	7	0.68	3	14	0.40	0	24	0.00
Stuttgart	80	6	0.61	54	5	1.15	5	9	0.56	5	8	0.66	0	24	0.00
Köln-Düsseldorf	87	5	0.67	61	3	1.19	9	4	0.92	6	6	0.73	3	8	0.47
Helsinki	54	12	0.89	35	10	1.10	3	12	0.49	7	4	1.38	4	6	1.00
Budapest	16	23	0.79	2	33	0.21	0	25	0.00	0	28	0.00	1	17	0.84
Stockholm	36	13	1.39	24	13	1.13	2	14	0.49	5	8	1.48	3	8	1.13
Sofiya	14	25	0.95	7	23	0.85	0	25	0.00	2	20	1.52	1	17	0.96
Wien	23	16	0.79	15	18	1.11	2	14	0.77	1	23	0.46	4	6	2.35
Prague	14	25	0.69	7	23	0.85	0	25	0.00	0	28	0.00	0	24	0.00
Glasgow	7	32	0,58	2	33	0.48	1	20	1.27	3	14	4.56	0	24	0.00
Lille	4	35	0.44	0	36	0.00	1	20	2.23	1	23	2.66	0	24	0.00
Lisbon	9	30	0.95	3	31	0.57	0	25	0.00	1	23	1.18	2	12	3.00
Manchester	17	21	0.60	6	26	0.60	4	11	2.10	3	14	1.88	0	24	0.00
Lyon	14	25	0.82	5	28	0.61	0	25	0.00	4	12	3.04	1	17	0.96
Brussels	19	20	0.62	11	21	0.98	3	12	1.41	2	20	1.12	1	17	0.71
Birmingham	17	21	0.59	12	19	1.20	2	14	1.05	1	23	0.63	0	24	0.00
Copenhagen	21	19	0.81	16	17	1.29	0	25	0.00	2	20	1.01	2	12	1.29
Milano	23	16	0.72	19	16	1.40	0	25	0.00	0	28	0.00	3	8	1.76
Antwerp	15	24	0.53	8	22	0.91	1	20	0.59	3	14	2.13	1	17	0.90
Hamburg	23	16	0.95	21	14	1.55	2	14	0.77	0	28	0.00	0	24	0.00
Athens	8	31	0.90	7	23	1.49	0	25	0.00	0	28	0.00	0	24	0.00
Marseille	10	29	1.05	5	28	0.85	0	25	0.00	3	14	3.19	1	17	1.35
Edinburgh	13	28	0.75	4	30	0.52	2	14	1.37	6	6	4.91	0	24	0.00
Katowice	4	35	0.45	3	31	1.27	0	25	0.00	0	28	0.00	0	24	0.00
Roma	5	34	0.46	2	33	0.68	0	25	0.00	0	28	0.00	2	12	5.40
Rotterdam	7	32	0.38	6	26	1.45	1	20	1.27	0	28	0.00	0	24	0.00
Valencia	2	37	0.20	0	36	0.00	0	25	0.00	0	28	0.00	0	24	0.00
Total	**1,755**		**1.00**	**1,034**		**1.00**	**197**		**1.00**	**165**		**1.00**	**130**		**1.00**
Horizontal share	**100%**			**58,9%**			**11,2%**			**9.4%**			**7.4%**		

* Torino does not have any project classiffied as ict

SOURCE: FDI-MARKETS DATABASE AND OWN ELABORATION (IESE-PPSRC)



BUSINESS SERVICES	RANKING	SPECIALIZATION	TECHNICAL SUPPORT CENTRE	RANKING	SPECIALIZATION	MANUFACTURING	RANKING	SPECIALIZATION	LOGISTICS, DISTRIBUTION & TRANSPORTATION	RANKING	SPECIALIZATION	RESEARCH & DEVELOPMENT	RANKING	SPECIALIZATION	REST OF ACTIVITIES	RANKING
5	5	0.53	16	1	4.77	3	3	0.96	1	8	0.44	5	1	2.31	13	1
11	1	0.57	1	4	0.15	0	16	0.00	3	1	0.65	3	2	0.68	4	2
0	**25**	**0.00**	**1**	**4**	**0,83**	**4**	**1**	**3.56**	**2**	**3**	**2.46**	**2**	**3**	**2.58**	**4**	**2**
5	5	0.75	0	13	0.00	0	16	0.00	0	13	0.00	1	4	0.65	0	18
4	9	1.08	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	1	8
3	11	2.24	1	4	2.10	1	9	2.24	2	3	6.19	1	4	3.25	1	8
1	18	0.67	1	4	1.89	1	9	2.02	2	3	5.57	0	14	0.00	1	8
4	9	1.19	1	4	0.83	0	16	0.00	2	3	2.46	0	14	0.00	0	18
5	5	1.15	3	2	1.93	1	9	0.69	2	3	1.90	1	4	1.00	0	18
0	25	0.00	3	2	2.61	0	16	0.00	0	13	0.00	1	4	1.35	4	2
8	3	2.04	0	13	0.00	2	5	1.53	0	13	0.00	1	4	1.11	2	5
10	2	2.52	0	13	0.00	4	1	3.03	1	8	1.04	0	14	0.00	1	8
2	14	0.46	0	13	0.00	3	3	2.09	1	8	0.96	1	4	1.01	1	8
5	5	1.87	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	0	18
6	4	7.56	0	13	0.00	2	5	7.56	3	1	15.67	0	14	0.00	2	5
1	18	0.56	1	4	1.57	0	16	0.00	0	13	0.00	0	14	0.00	0	18
1	18	1.44	1	4	4.04	1	9	4.32	0	13	0.00	0	14	0.00	1	8
0	25	0.00	0	13	0.00	1	9	2.63	0	13	0.00	0	14	0.00	0	18
3	11	4.32	0	13	0.00	2	5	8.65	0	13	0.00	0	14	0.00	2	5
1	18	2.88	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	0	18
2	14	10.09	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	0	18
2	14	4.48	1	4	6.29	0	16	0.00	0	13	0.00	0	14	0.00	0	18
3	11	3.56	0	13	0.00	0	16	0.00	0	13	0.00	1	4	5.16	0	18
2	14	2.88	0	13	0.00	1	9	4.32	0	13	0.00	0	14	0.00	1	8
0	25	0.00	0	13	0.00	0	16	0.00	0	13	0.00	1	4	4.62	1	8
0	25	0.00	0	13	0.00	2	5	7.12	0	13	0.00	0	14	0.00	0	18
0	25	0.00	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	1	8
0	25	0.00	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	1	8
1	18	1.34	0	13	0.00	1	9	4.03	0	13	0.00	0	14	0.00	0	18
0	25	0.00	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	0	18
0	25	0.00	0	13	0.00	0	16	0.00	1	8	10.45	0	14	0.00	0	18
0	25	0.00	0	13	0.00	0	16	0.00	0	13	0.00	1	4	8.78	0	18
1	18	1.55	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	0	18
0	25	0.00	1	4	14.15	0	16	0.00	0	13	0.00	0	14	0.00	0	18
0	25	0.00	0	13	0.00	0	16	0.00	0	13	0.00	1	4	17.55	0	18
0	25	0.00	0	13	0.00	0	16	0.00	0	13	0.00	0	14	0.00	0	18
1	18	10.09	0	13	0.00	0	16	0.00	1	8	41.79	0	14	0.00	0	18
87		**1.00**	**31**		**1.00**	**29**		**1.00**	**21**		**1.00**	**20**		**1.00**	**41**	
5.0%			**1.8%**			**1.7%**			**1.2%**			**1.1%**			**2.3%**	

APPENDIX V: THE SUCCESS OF FDI PROJECTS IN CATALONIA

The success of FDI projects in Catalonia (successful vs. unsuccessful projects)

- 191 projects of Foreign Direct Investment have the potential of creating almost 16,000 additional jobs.
- The rate of success greatly varies depending on the sector, the type of investment and the part of the value chain.
- A change of strategy is the main reason to abandon an FDI project.
- Overheads, director's personal interest and the decision of the parent company are the main explanation for investing in another location

It is also important in our analysis to explore the reasons behind the FDI projects that finally did not realise in order to be aware of Catalonia's potential of improvement.

Foreign direct investment has the potential of creating 15,715 additional jobs

The rate of success of FDI projects conducted in Catalonia between 2010 and 2013 –and registered by Invest in Catalonia- was 41% (only 165 projects out of 404 finally took place). On average, each project created 54 jobs and brought 10 million euros. FDI had the potential of creating 37,035 additional jobs investing 11.3 billion euros during that period. There were 191 projects opened with the potential of investing 1.2 billion euros and creating 15,715 jobs. FDI certainly plays an important role in the economy of Catalonia.

The rate of success greatly varies depending on the sector, the type of investment and the part of the value chain

ICT is the sector attracting more FDI, but only 42% of the projects in this sector finally succeed. Most of the sectors have a rate of success below 50%. Apart from medicine and paper and cardboard, the chemical industry stands out with 59% of success and polymers with 57%.

By type of investment, most of the projects are new investment but only 50% of them finally materialised. With respect to the value chain, 172 projects were initiated between 2010 and 2013 but only 63 succeed. Investments focusing on the industrial part of the value chain materialised 73% of the times and logistics 62%.

TABLE 19
FDI projects in Catalonia, 2010 -2013

	NUMBER OF PROJECTS		TOTAL INVESTMENT		JOBS CREATED		MAINTENANCE	
	#	%	Million €	%	#	%	Million €	%
DONE	165	41%	1,675	13%	8,964	19%	7,886	38%
CLOSED	239	59%	11,377	87%	37,035	81%	12,746	62%
TOTAL	404		13,052		45,999		20,632	
OPENED	191		1,173		15,715		4,965	

*DONE PROJECTS REFER TO FDI INVESTMENTS THAT TOOK PLACE BETWEEN 2010 AND 2013 INDEPENDENTLY IF IT WAS A SUCCESSFUL OR UNSUCCESSFUL PROJECT. CLOSED REFERS TO PROJECTS THAT WERE PLANNED BUT WERE NOT FINALLY REALISED.
**MAINTENANCE REFERS TO FDI DIRECTED TO EXISTING PROJECTS.

SOURCE: OWN ELABORATION (IESE-PPSRC) FROM DATA PROVIDED BY ACCIÓ / INVEST IN CATALONIA.

TABLE 20
Rate of success of FDI Projects in Catalonia (absolute numbers), 2010-201

SECTORS	PROJECTS DONE	PROJECTS CLOSED	RATE OF SUCCESS
ITC	35	49	42%
Mobility	26	44	37%
Chemical	24	17	59%
Biotec. And Life Science	18	23	44%
Services	11	13	46%
Food and agriculture	10	13	43%
Energy	7	13	35%
Design	5	6	45%
Other	4	8	33%
Polymers	4	3	57%
Logistics	4	6	40%
Metallurgical	3	11	21%
Creative Industries / Media	3	10	23%
Construction	2	6	25%
Paper and cardboard	2		100%
Medicine	2		100%
Several	2		100%
Tourism	1	9	10%
Aeronautics	1	3	25%
Financial	1	3	25%
Environment		2	0%
Total	**165**	**239**	**41%**

SOURCE: OWN ELABORATION (IESE-PPSRC) FROM DATA PROVIDED BY ACCIÓ / INVEST IN CATALONIA

TABLE 21
Rate of success of FDI Projects in Catalonia by type of investment and value chain, 2010-2013

TYPE OF INVESTMENT	PROJECTS DONE	PROJECTS CLOSED	RATE OF SUCCESS
New investment	55	56	50%
Greenfield	47	104	31%
Enlarge	18	22	45%
Reinvestment	16	12	57%
Maintenance	14	26	35%
Acquisition	11	11	50%
Joint venture	3	6	33%
Partnership	1	1	50%
Upgrading		1	0%
Total	**165**	**239**	**41%**
VALUE CHAIN	**PROJECTS DONE**	**PROJECTS CLOSED**	**RATE OF SUCCESS**
Manufactures	63	109	37%
Other services	22	38	37%
Shared Services Centre (SSC) & Call Centres (CC)	22	30	42%
R & D	19	20	49%
Logistics	13	8	62%
Commercial	10	13	43%
Industrial	8	3	73%
Headquarters	5	15	25%
Design	3	3	50%
Total	**165**	**239**	**42%**

SOURCE: OWN ELABORATION (IESE-PPSRC) FROM DATA PROVIDED BY ACCIÓ / INVEST IN CATALONIA

A change of strategy is the main reason explaining why firms abandon an FDI project

According to the data provided by ACC1Ó, 90 out of 342 projects were abandoned due to a firm's change of strategy (TABLE 8). This was the first reason for the closure of an FDI project. Between 2010 and 2013, firms claimed a change of strategy 26% of the times on average and 14% of the times the project did not materialise because the firm finally decided to invest elsewhere.

In the small sample provided by ACC1Ó, overhead (16% of times) is the first reason claimed by firms that decided to invest in another location. Director's personal interest and the decision of the parent company are also important reasons to invest in an alternative location.

TABLE 22
Main reasons behind FDI projects not materialising, 2010-2013

% OUT OF TOTAL	NUMBER OF CLOSED PROJECTS				
Reason for Closure	**2010**	**2011**	**2012**	**2013**	**Average**
Change of strategy	23.8%	27.0%	26.4%	27.2%	26%
Lack of feedback	20.6%	15.9%	23.1%	15.2%	19%
Investing elsewhere	17.5%	9.5%	16.5%	12.8%	14%
Although materialized, they did not used "Invest" services		19.0%	11.0%	8.0%	13%
Insolvency procedure / closure / closure of the subsidiary by the matrix	14.3%	7.9%	1.1%	3.2%	7%
Do not need "INVEST" service/ We cannot help	6.3%	4.8%	8.8%	3.2%	6%
Project does not move forward		6.3%	3.3%	5.6%	5%
Unviable project	1.6%		2.2%	7.2%	4%
Redirected to another ACC1Ó or DGI Department	6.3%	7.9%			7%
Difficulties with technology and / or technology partners / partner was not found suitable for investment	4.8%		2.2%	3.2%	3%
Lack of funding / investor				6.4%	6%
Lack or loss of the contract with the customer	3.2%			3.2%	3%
Project is not finally awarded to the firm		1.6%	5.5%		4%
Acquisition of the company or entry into the capital of another company				3.2%	3%
Insufficient incentives proposed for the project	1.6%				2%
ACIA aid granted but investment without proper justification				0.8%	1%
Political situation in Catalonia				0.8%	1%
TOTAL	**63**	**63**	**91**	**125**	**342**

SOURCE: ACCIÓ / INVEST IN CATALONIA

TABLE 23
Why investing in a different location than Catalonia? 2010-2013

	2010		2011		2012		2013		TOTAL	
Why investing in a different location?	**Number of Projects**	**Final investment location**	**Number of Projects**	**Final investment location**	**Number of Projects**	**Final investment location**	**Number of Projects**	**Final investment location**	**Number of Projects**	**%**
Overhead	2	Portugal / Amsterdam			2	UK	3	Portugal	7	16%
Director's personal interest	2	Madrid / Zurich			3	Netherlands			5	11%
Decision of the Matrix	1	Italy	3	Paris (1) / Germany (2)			1	Astúries / França	5	11%
Due to customers and increased aid	1	Vigo			1	Castellon			2	4%
Lower tax burden	1	Switzerland			1	Andorra			2	4%
Lack of confidence in the economic situation in Spain and excess capacity in France					2	France			2	4%
Higher intensity of aid; Land ownership in the area.							2	Aragó	2	4%
Headquarters in another city					1	Zaragoza	1	Amsterdam	2	4%
They have a local partner to market and agility to get permits	1	Ireland				UK			1	2%
Lack of local partner			1	Prague					1	2%
Had moved temporarily to another location			1	Valencia					1	2%
Location and meeting facilities given by the City			1	Valencia					1	2%
Cost of living and transfer time to fully settle the firm in other city					1	Stockholm			1	2%
Concentracion of the production in Linares and transfer to Jaen					1	Linares			1	2%
Company's strategic reasons					1	Madrid			1	2%
Internal business reasons							1	Brasil	1	2%
The company acquires another company with a subsidiary in Slovenia							1	Eslovènia	1	2%
Unknown					2		7	Polònia (2) Budapest (1) Londres (1) Madrid (1) Murcia (1) Valencia (1)	9	20%
TOTAL	**8**		**6**		**15**		16		**45**	100%

SOURCE: ACCIÓ / INVEST IN CATALONIA

APPENDIX VI: INCOME TAXATION AND LABOUR COSTS

TABLE 24
Comparative income tax for non-residents (IRNR) vs residents (IRPF)

ANNUAL GROSS EARNING	IRNR (5+1 YEARS UP TO 600.000€)	IRPF (SINGLE WITHOUT CHILDREN)	IRPF (MARRIED WITH TWO CHILDREN ASCRIBED)
26,000 €	24.75%	17.00%	13.00%
35,000 €	24.75%	20.00%	17.00%
50,000 €	24.75%	25.00%	24.00%
56,000 €	24.75%	26.00%	25.00%
75,000 €	24.75%	31.00%	30.00%
100,000 €	24.75%	35.00%	34.00%
150,000 €	24.75%	39.00%	39.00%
250,000 €	24.75%	44.00%	43.00%

SOURCE: AEAT

Taxation of permanent residents with higher wages is also better than in neighbouring countries.
The average business cost is below most advanced countries given the same gross salary. This is mainly due to social security contributions rather than the income tax, because the worker's and company's contribution has an upper limit of 43,164 euros per year (2014). The cost of social security is equivalent to a flat rate and, subsequently, a decreasing average tax. This is a very unusual (and competitive) situation compared to other countries.

The Spanish government has set a flat rate for all contracts signed in 2014; this applies to the employer's contribution to Social Security for a period of 2 or 3 three years for new permanent contracts if it involves an increase in staff in 2014. This is a saving of up to 10,000 euros per year for salaries listed by the maximum base. It has also announced a reform in income taxation, reducing marginal rates, for 2015 and 2016 (a two-step reduction).

In order to calculate the total cost for the company of a certain net salary we use the information from the study carried out by KPMG for more than 80 countries, using data from the tax legislation and social security in 2012 and a gross salary of $ 300,000 ($ 167,700 net for workers in Spain). Data for Catalonia would be slightly worse because the top marginal rate is two percentage points above the Spanish one, from € 120,000 and 4 points from 175,000€.

TABLE 26
OECD income tax calculator (single with no children)

COUNTRY	SPAIN'S AVERAGE WAGE 2012	NET	AVERAGE TAX
Germany	25,694	17,201	33.1%
Belgium	26,155	17,696	32.3%
Denmark	26,318	18,293	30.5%
Greece	26,021	18,441	29.1%
Italy	26,090	18,506	29.1%
Netherlands	25,891	18,444	28.8%
Portugal	25,901	18,497	28.6%
Austria	26,053	18,964	27.2%
France	26,098	19,137	26.7%
Spain	25,894	19,975	22.9%
Finland	26,247	20,683	21.2%
Sweden	25,852	20,380	21.2%
UK	25,807	20,674	19.9%
Ireland	26,012	22,193	14.7%
Romania	nd	nd	nd
Poland	nd	nd	nd
Czech R.	nd	nd	nd
Bulgaria	nd	nd	nd

COUNTRY	COUNTRY'S AVERAGE WAGE 2012	NET	AVERAGE TAX
Belgium	45,886	26,288	42.7%
Germany	44,300	26,682	39.8%
Denmark	52,637	32,250	38.7%
Netherlands	47,075	29,006	38.4%
Austria	40,708	26,893	33.9%
Italy	29,315	20,480	30.1%
Finland	41,662	29,386	29.5%
France	36,248	26,043	28.2%
Greece	22,240	16,322	26.6%
Sweden	44,572	33,473	24.9%
UK	43,012	32,374	24.7%
Spain	25,894	19,975	22.9%
Portugal	17,040	13,158	22.8%
Ireland	32,514	26,680	17.9%
Romania	5,635	4,004	28.9%
Poland	9,608	6,885	28.3%
Czech R.	12,048	9,289	22.9%
Bulgaria	4,590	3,599	21.6%

SOURCE: OECD

TABLE 25
KPMG's income tax and social security rate survey 2012

	300.000€ GROSS EARNINGS				NET EMPLOYEE INCOME	SPAIN=100	ESTIMATED TOTAL COMPANY COST FOR NET $167.700 (=SPAIN)	SPAIN=100	DIFFERENCE OF NET INCOME COMPARED TO SPAIN	DIFFERENCE OF TOTAL COST FOR COMPANY COMPARED TO SPAIN
	% IRPF EFFECTIVE RATE	% SOCIAL SECURITY TAX FOR EMPLOYEE	% SOCIAL SECURITY TAX FOR COMPANY	% TOTAL						
Austria	37.2	18.1	21.8	77.1	134,100	80.0	456,954	144.9	-33,600	141,654
Belgium	40.3	13.1	35	88.4	139,800	83.4	485,826	154.1	-27,900	170,526
Denmark	51.4	0.1	0.1	51.6	145,500	86.8	346,119	109.8	-22,200	30,819
Finland	41	7.7	23.7	72.4	153,900	91.8	404,376	128.3	-13,800	89,076
France	34	20	39	93	138,000	82.3	506,746	160.7	-29,700	191,446
Germany	39	5.2	4.9	49.1	167,400	99.8	315,264	100.0	-300	-36
Greece	39.5	5.6	9.8	54.9	164,700	98.2	335,400	106.4	-3,000	20,100
Holland	44.2	3.9	3.9	52	155,700	92.8	335,723	106.5	-12,000	20,423
Ireland	43	4	10.8	57.8	159,000	94.8	350,588	111.2	-8,700	35,288
Italy	41.8	10	30	81.8	144,600	86.2	452,303	143.5	-23,100	137,003
Luxembourg	36.4	5.9	7	49.3	173,100	103.2	310,986	98.6	5,400	-4,314
Portugal	36.6	11	23.8	71.4	157,200	93.7	396,207	125.7	-10,500	80,907
Spain	43	1.1	5.1	49.2	167,700	100.0	315,300	100.0		
Sweden	49.8	0	31.4	81.2	150,600	89.8	438,960	139.2	-17,100	123,660
United Kingdom	38.5	3.8	13.3	55.6	173,100	103.2	329,297	104.4	5,400	13,997
Bulgaria	10	0.8	1.1	11.9	267,600	159.6	190,073	60.3	99,900	-125,227
Croatia	35.6	6.5	15.9	58	173,700	103.6	335,690	106.5	6,000	20,390
Cyprus	30.8	1.5	3.9	36.2	203,100	121.1	257,371	81.6	35,400	-57,929
Czech Republic	15.6	2.8	8.1	26.5	244,800	146.0	222,161	70.5	77,100	-93,139
Estonia	21	4.8	5.7	31.5	222,600	132.7	238,893	75.8	54,900	-76,407
Hungary	20.2	9.7	28.5	58.4	210,300	125.4	307,410	97.5	42,600	-7,890
Latvia	25	11	24.1	60.1	192,000	114.5	325,181	103.1	24,300	9,881
Lithuania	15	9	31	55	228,000	136.0	289,062	91.7	60,300	-26,238
Malta	33	0	0	33	201,000	119.9	250,299	79.4	33,300	-65,001
Poland	30.6	4.9	6	41.5	193,500	115.4	275,600	87.4	25,800	-39,700
Romania	14.8	7.3	9.5	31.6	233,700	139.4	235,727	74.8	66,000	-79,573
Slovakia	19	1.9	5.8	26.7	237,300	141.5	224,307	71.1	69,600	-90,993

SOURCE: OWN ELABORATION (IESE-PPSRC) WITH KPMG DATA

In short, a resident in Spain with a gross salary of $ 300,000 has a net salary higher than a resident in Germany, France and Italy (7% on average). At the same time, the company bears a higher cost of 27% compared to the average of the four major countries. The data for Germany are very even but with respect to UK, it is worse. This is because the British social security system only covers the minimum pension and the rest is a mixed Public-Private funding system.

The taxation of the average and basic salaries of resident workers is also lower in Spain. Using data from the OECD Income Tax Calculator, we compare the taxation of major European countries for wages equal to the average salary in Spain and the average wage in each country. As for the other comparisons, we should note that pension benefits from taxation are different between countries. In particular, the pension benefits in Anglo-Saxon speaking countries are lower because of their private pension system capitalisation.

By type of investment, most of the projects are new investment but only 50% of them finally materialised. With respect to the value chain, 172 projects were initiated between 2010 and 2013 but only 63 succeed. Investments focusing on the industrial part of the value chain materialised 73% of the times and logistics 62%.

APPENDIX VII: SURVEY ON FDI IN THE BARCELONA AREA

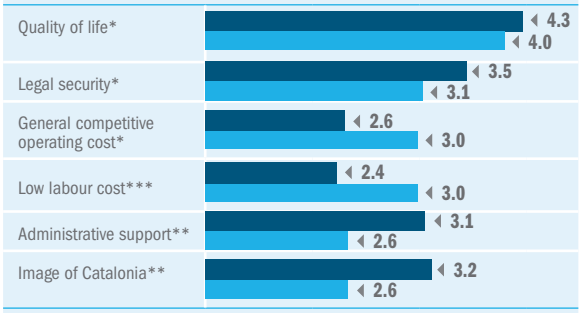
Why do foreign firms invest in the Barcelona area?

TABLE 27
Factors of FDI motives

FDI FACTOR	MEAN	SD	FDI MOTIVES
Infrastructure-based motives	3.57	0.79	ICT infrastructure Transportation and logistics infrastructure Port of Barcelona Barcelona airport and its connections
Network/ Innovation-based motives	3.30	0.88	Network linkages with business partners Opportunity for alliances Attractive industry clusters/ critical mass Entrepreneurial spirit Climate to foster innovation
Market-based motives	3.10	0.92	Local market size Local market growth potential Local market profitability Proximity to customers
Efficiency-based motives	2.93	0.99	Low labour cost General competitive operating cost
Administration/ Institution-based motives	2.87	0.92	Administrative support Legal security Easeof doing business

FIGURE 13

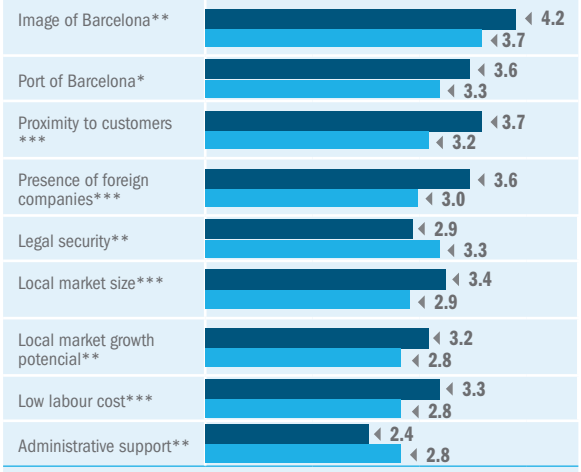
FDI motives for emerging and developed-market firms



NOTE: SIGNIFICANT GROUP DIFFERENCES AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 14

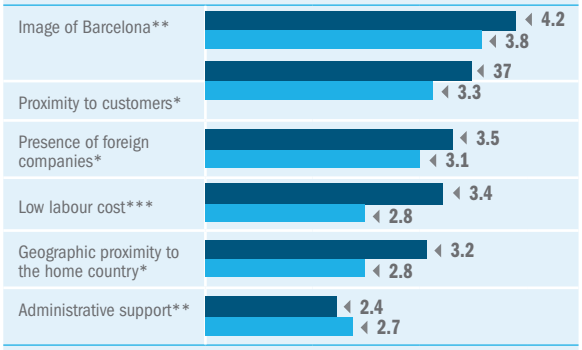
FDI motives for experts located inside and outside of Spain



NOTE: SIGNIFICANT GROUP DIFFERENCES AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 15

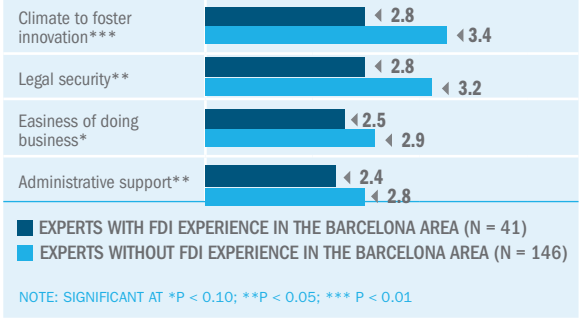
FDI motives for firms from Spain and the rest of the world



NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 16

FDI motives for experts with and without FDI experience in the Barcelona area

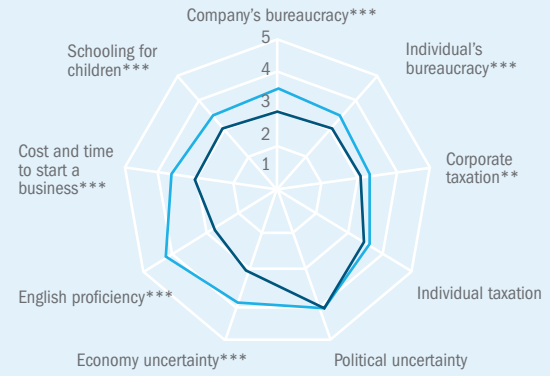


NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

What are the obstacles for FDI in the Barcelona area?

FIGURE 17

FDI Barriers relative to other Spanish and European metropolitan areas



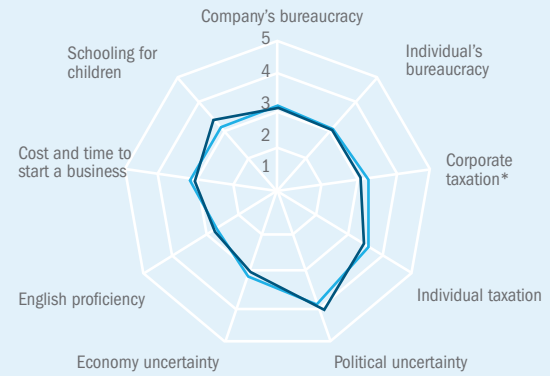
RELATIVE TO OTHER SPANISH METROPOLITAN AREAS (N = 168)
RELATIVE TO OTHER EUROPEAN METROPOLITAN AREAS (N = 168)

NOTE: SIGNIFICANT GROUP DIFFERENCES AT *P < 0.10; **P < 0.05; *** P < 0.01

Barriers relative to other Spanish metropolitan areas

FIGURE 18

FDI Barriers relative to other Spanish metropolitan areas for entrepreneurial and established firms

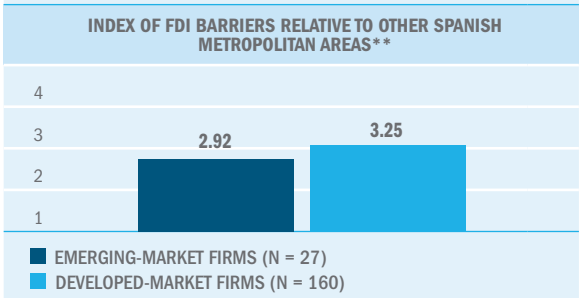


ENTREPRENEURIAL FIRM (N = 168)
ESTABLISHED FIRM (N = 168)

NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 19

FDI Barrier Index relative to other Spanish metropolitan areas for emerging- and developed-market firms

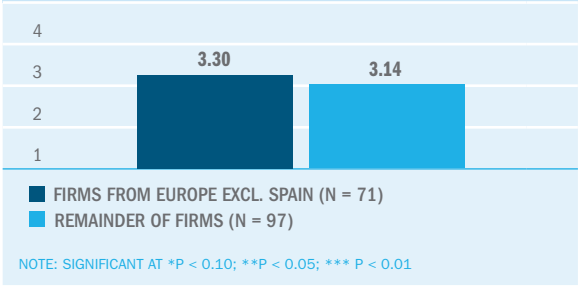


EMERGING-MARKET FIRMS (N = 27)
DEVELOPED-MARKET FIRMS (N = 160)

NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 20

FDI Barrier index relative to other Spanish metropolitan areas for firms from Europe (Excl. Spain) and the rest of the world

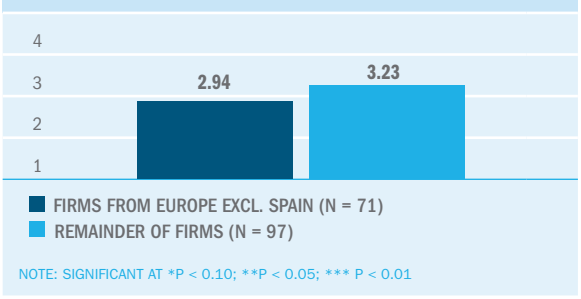


FIRMS FROM EUROPE EXCL. SPAIN (N = 71)
REMAINDER OF FIRMS (N = 97)

NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 21

FDI Barrier index relative to other Spanish metropolitan areas for firms from South America and the rest of the world

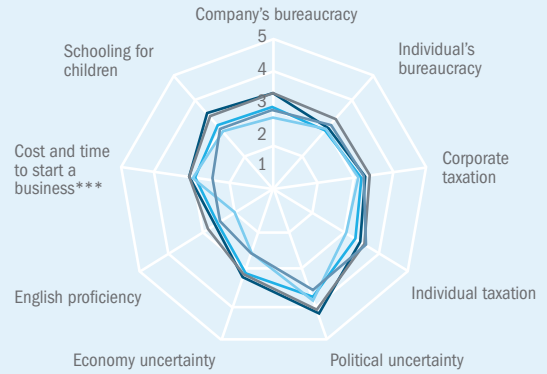


FIRMS FROM EUROPE EXCL. SPAIN (N = 71)
REMAINDER OF FIRMS (N = 97)

NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 22

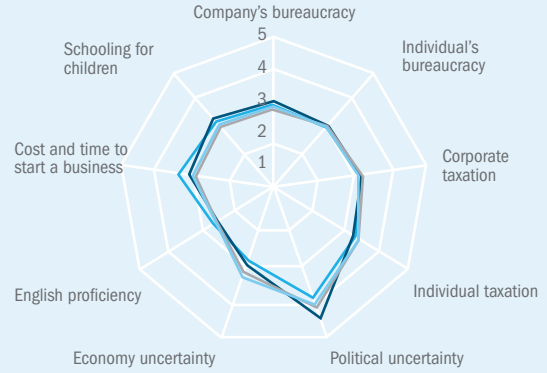
FDI Barriers relative to other Spanish metropolitan areas for firms from different geographical regions



- EUROPE WITHOUT SPAIN (N = 71)
- SPAIN (N = 35)
- NORTH AMERICA (N = 34)
- SOUTH AMERICA (N = 12)
- ASIA-PACIFIC (N = 12)

FIGURE 23

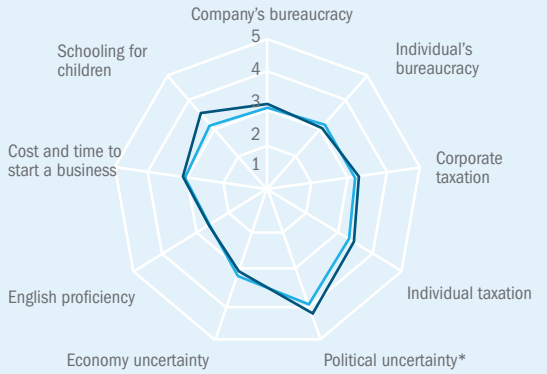
FDI Barriers relative to other Spanish metropolitan areas for firms from different industry sectors



- SERVICES (N = 72)
- MANUFACTURING/CONSTRUCTION (N = 28)
- ITC (N = 20)
- LOGISTIC / DISTRIBUTION / TRANSPORTATION (N = 17)

FIGURE 24

FDI Barriers relative to other Spanish metropolitan areas for experts located inside and outside of Spain

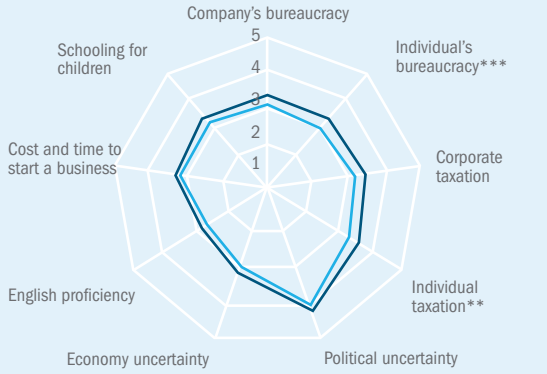


- EXPERTS LOCATED IN SPAIN (N = 58)
- EXPERTS LOCATED OUTSIDE OF SPAIN (N = 110)

NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 25

FDI Barriers relative to other Spanish metropolitan areas for experts with and without FDI experience in the Barcelona area

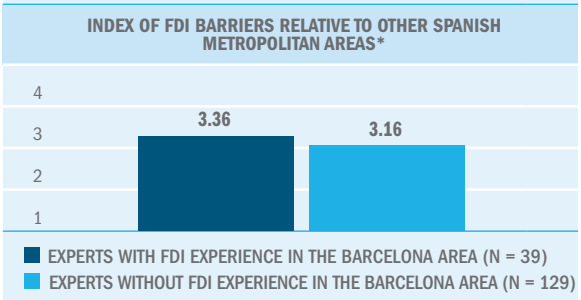


- EXPERTS WITH FDI EXPERIENCE IN THE BARCELONA AREA (N = 39)
- EXPERTS WITHOUT FDI EXPERIENCE IN THE BARCELONA AREA (N = 129)

NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 26

FDI Barrier Index relative to other Spanish metropolitan areas for experts with and without FDI experience in the Barcelona area

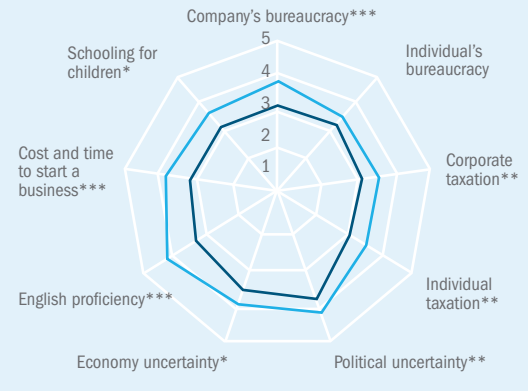


NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

Barriers relative to other European metropolitan areas

FIGURE 27

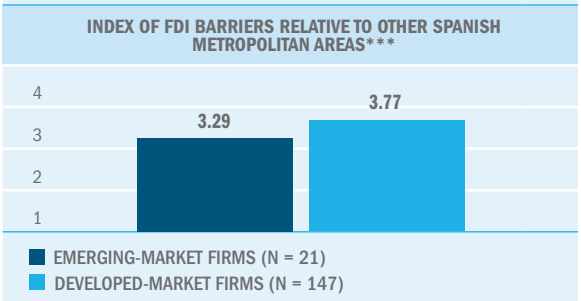
FDI Barriers relative to other European metropolitan areas for emerging- and developed-market firms



NOTE: SIGNIFICANT GROUP DIFFERENCES AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 28

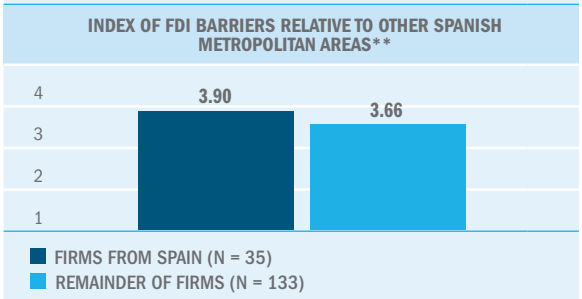
FDI Barrier Index relative to other European metropolitan areas for emerging- and developed-market firms



NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 29

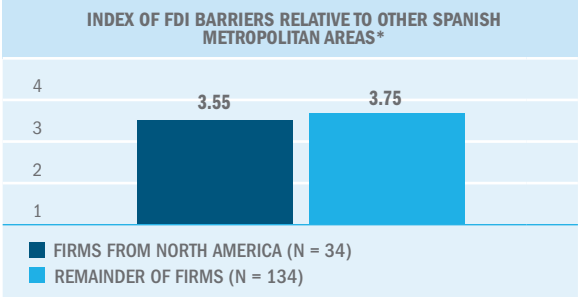
FDI Barrier index relative to other European metropolitan areas for firms from Spain and the rest of the world



NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 30

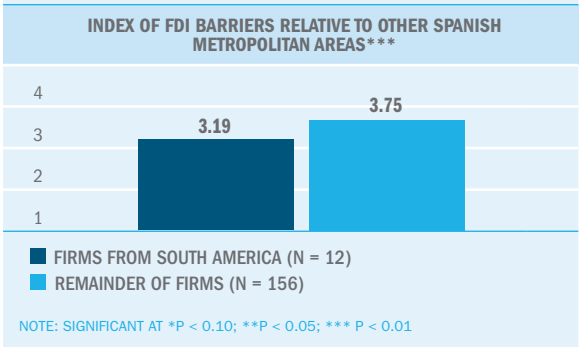
FDI Barrier index relative to other European metropolitan areas for firms from North America and the rest of the world



NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 31

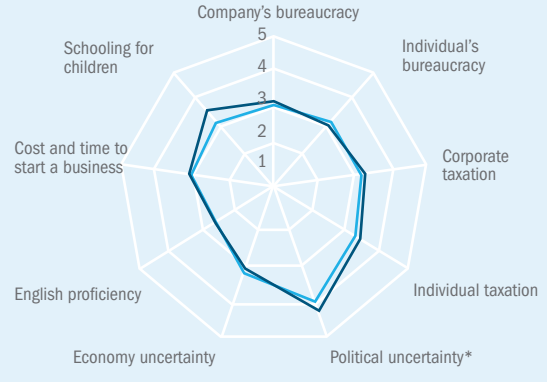
FDI Barrier index relative to other European metropolitan areas for firms from South America and the rest of the world



NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 32

FDI Barriers relative to other European metropolitan areas for Entrepreneurial and established firms



NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 33

FDI Barriers relative to other European metropolitan areas for firms from different Industry sectors

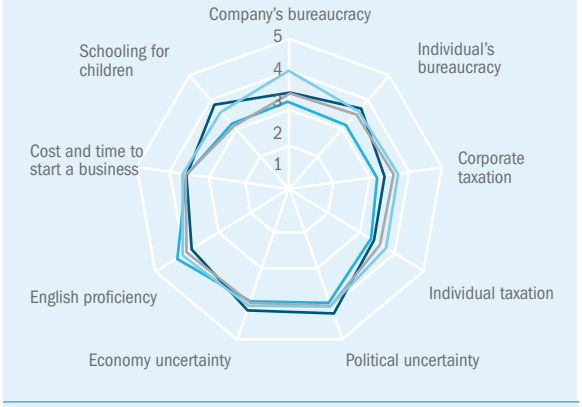
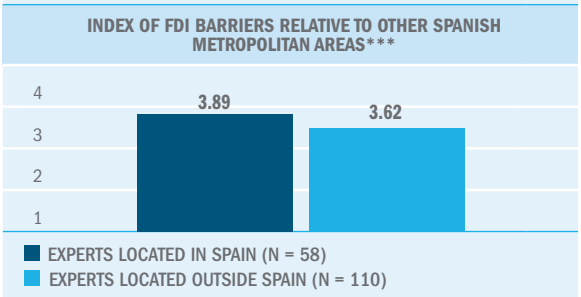


FIGURE 34

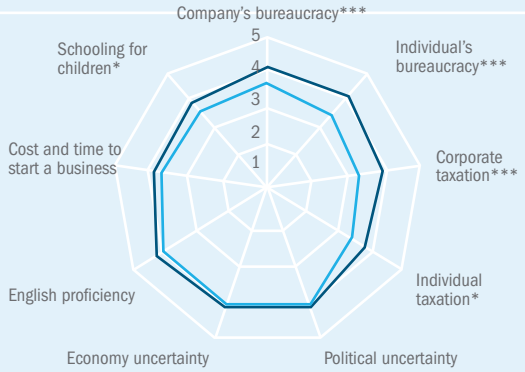
FDI Barrier index relative to other European metropolitan areas for experts located inside and outside of Spain



NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 35

FDI Barriers relative to other European metropolitan areas for experts with and without FDI experience in the Barcelona areas

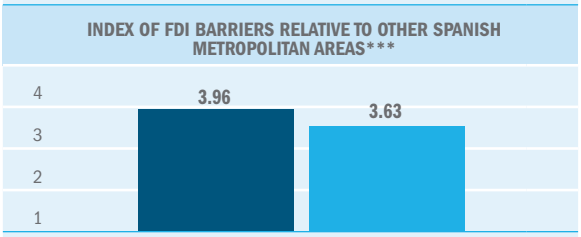


EXPERTS WITH FDI EXPERIENCE IN THE BARCELONA AREA (N = 39)
EXPERTS WITHOUT FDI EXPERIENCE IN THE BARCELONA AREA (N = 129)

NOTE: SIGNIFICANT GROUP DIFFERENCES AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 36

FDI Barrier index relative to other European metropolitan areas for experts with and without FDI experience in the Barcelona area



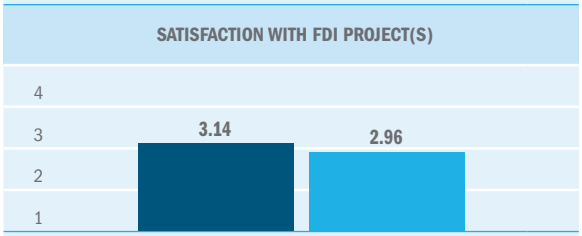
EXPERTS WITH FDI EXPERIENCE IN THE BARCELONA AREA (N = 39)
EXPERTS WITHOUT FDI EXPERIENCE IN THE BARCELONA AREA (N = 129)

NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

Satisfaction with FDI in the Barcelona area

FIGURE 37

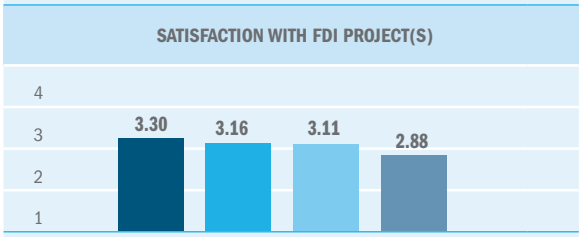
Satisfaction with FDI projects for Emerging- and developed-market firms



EMERGING-MARKET FIRMS (N = 14)
DEVELOPED-MARKET FIRMS (N = 114)

FIGURE 38

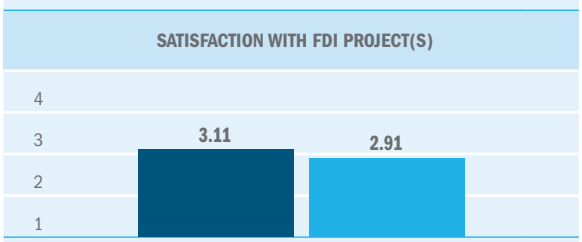
Satisfaction with FDI projects for firms from different geographic regions



ASIA-PACIFIC (N = 10)
NORTH AMERICA (N = 25)
SOUTH AMERICA (N = 9)
EUROPE (N = 81)

FIGURE 39

Satisfaction with FDI projects for entrepreneurial and established firms



ENTREPRENEURIAL FIRMS (N = 47)
ESTABLISED FIRMS (N = 81)

FIGURE 40
Satisfaction with FDI projects for firms from different industry sectors

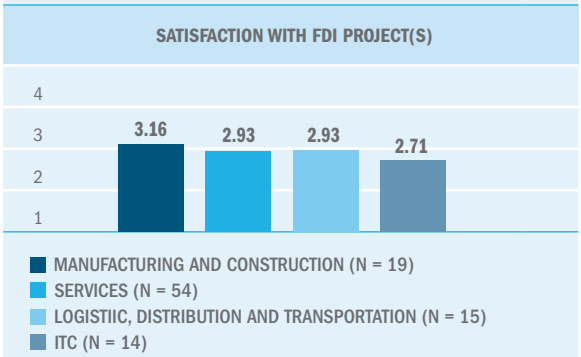


FIGURE 41
Satisfaction with FDI projects for Experts located inside and outside of Spain

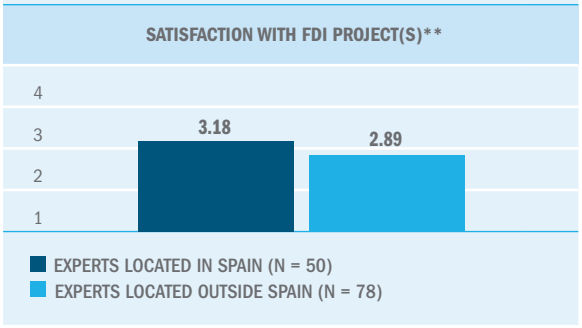


FIGURE 42
Satisfaction with FDI projects for Experts with and without FDI experience in the Barcelona area

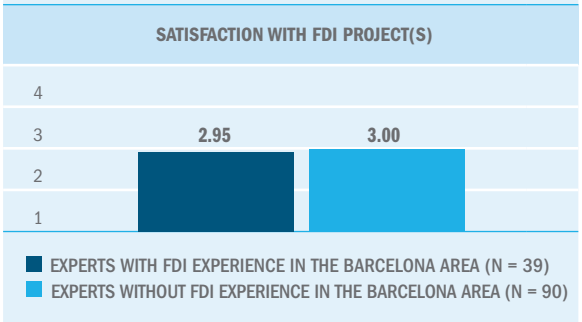


FIGURE 43
Network/innovation-based FDI Motives and Satisfaction with FDI

FIGURE 44
Infrastructure-based FDI Motives and Satisfaction with FDI

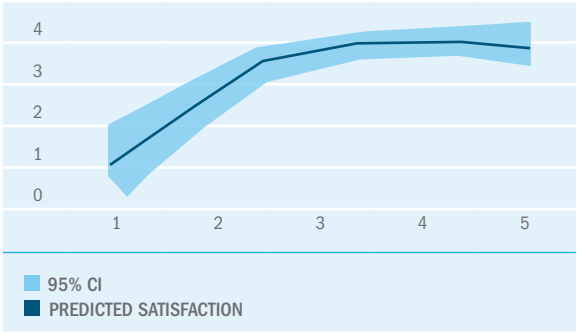


FIGURE 45
Market-based FDI Motives and Satisfaction with FDI

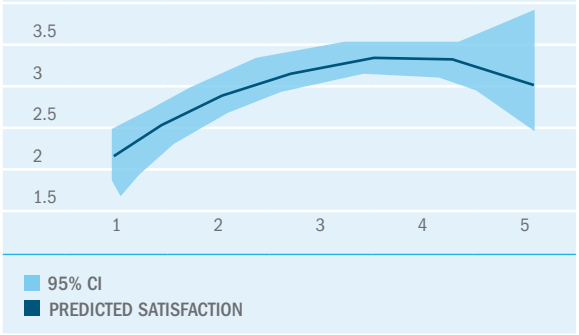


FIGURE 46

FDI Barrier index relative to other Spanish metropolitan areas and Satisfaction with FDI

FIGURE 47

FDI Barrier index relative to other European metropolitan areas and Satisfaction with FDI

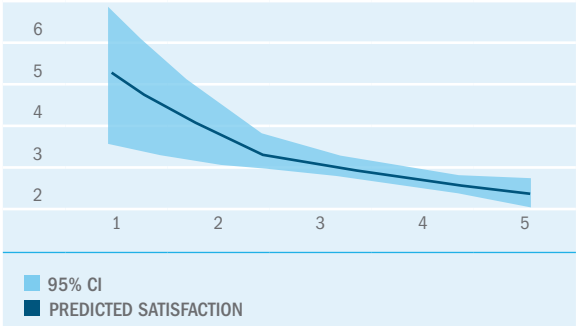


FIGURE 48

Future FDI in the Barcelona area for entrepreneurial and established firms

FIGURE 49

Future FDI in the Barcelona area for firms from different geographic regions

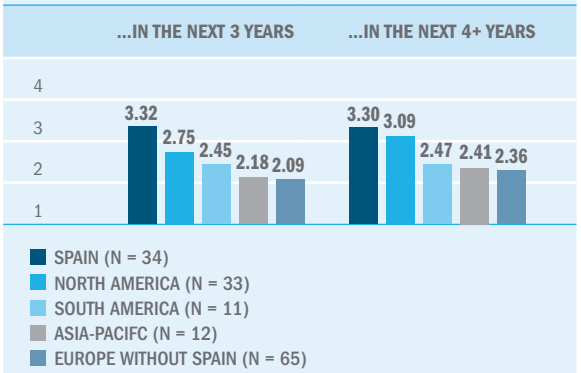


FIGURE 50

Future FDI in the Barcelona area firms from different industry sectors

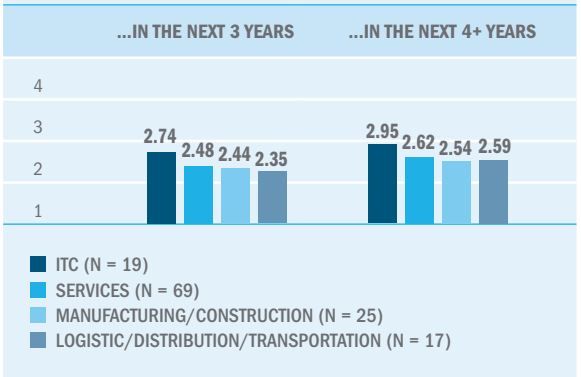
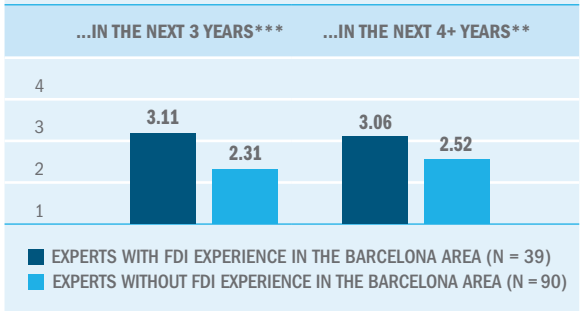


FIGURE 51

Future FDI in the Barcelona area for experts with and without FDI experience in the Barcelona area



NOTE: SIGNIFICANT AT *P < 0.10; **P < 0.05; *** P < 0.01

FIGURE 52
Satisfaction with previous FDI and intention for FDI in the next three years

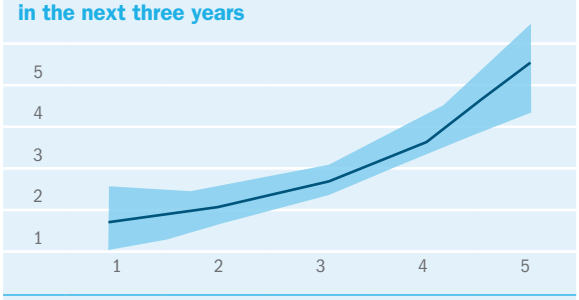


FIGURE 53
Satisfaction with previous FDI and intention for FDI in the next four or more years

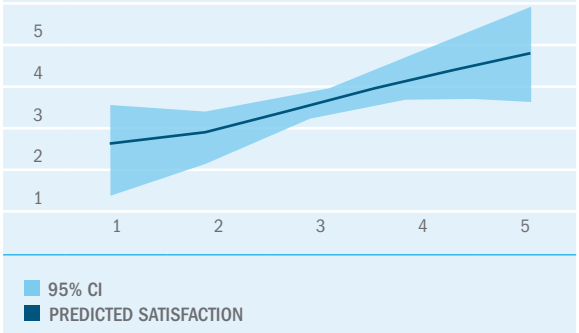


FIGURE 54
Efficiency-based FDI motives and intention for FDI in the next three years

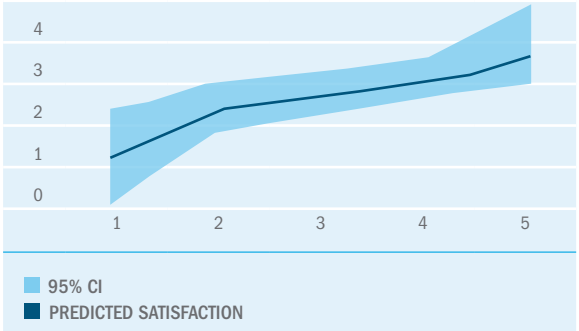


FIGURE 55
Infrastructure-based FDI motives and intention for FDI in the next three years

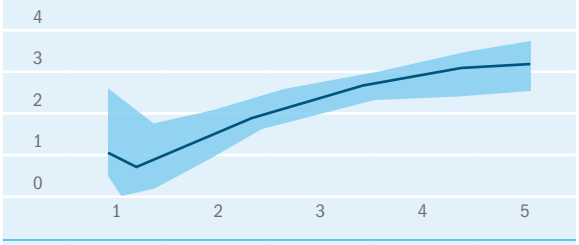


FIGURE 56
Network-based FDI motives and intention for FDI in the next three years

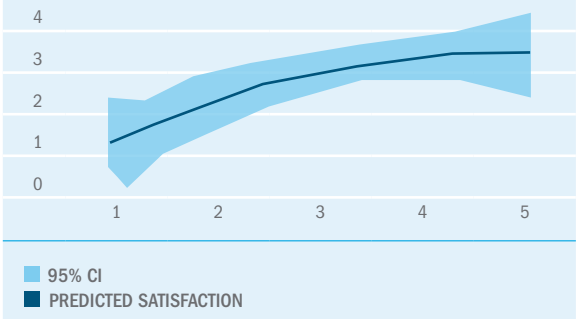


FIGURE 57
FDI Barrier index relative to other Spanish metropolitan areas and intention for FDI in the next three years

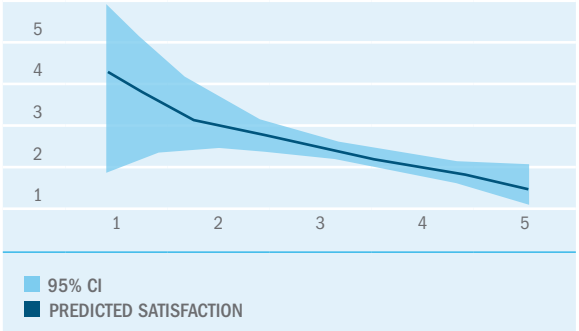


FIGURE 58

FDI Barrier index relative to other European metropolitan areas and intention for FDI in the next three years

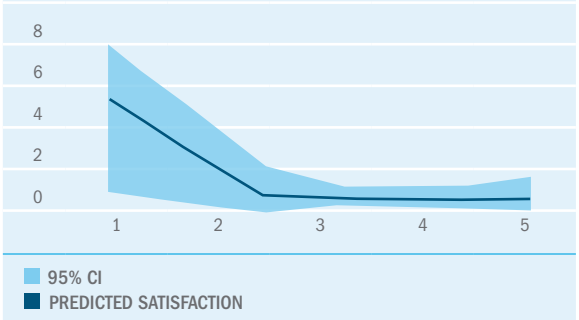


FIGURE 59

Satisfaction with FDI projects for firms from different industry sectors

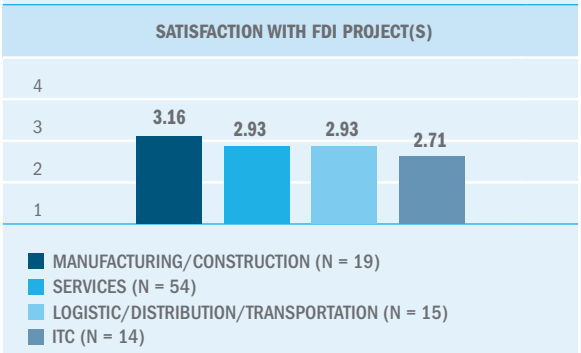


FIGURE 60

FDI in the Barcelona area in the short term

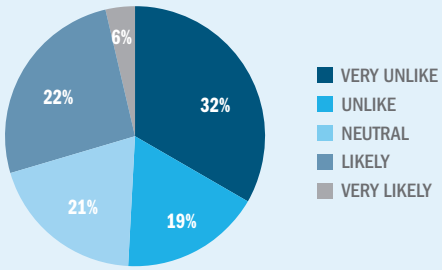
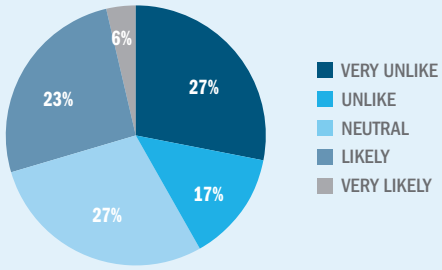


FIGURE 61

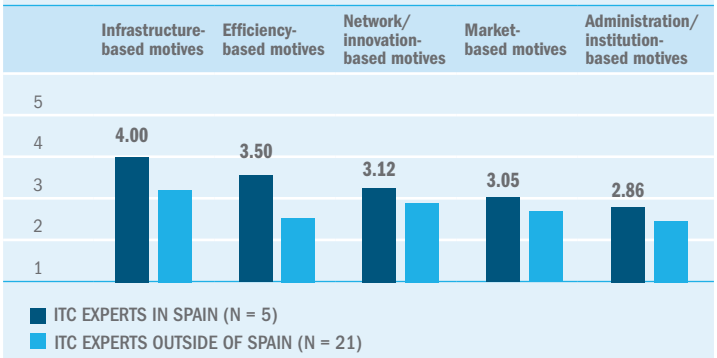
FDI in the Barcelona area in the short term



ITC

FIGURE 62

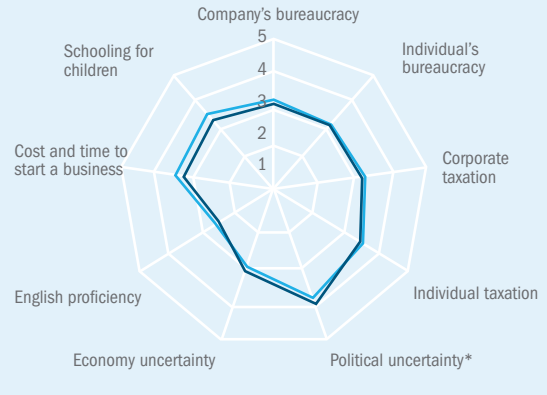
Factors of FDI motives for ICT experts located inside and outside of Spain



SOURCE: SURVEY

FIGURE 63

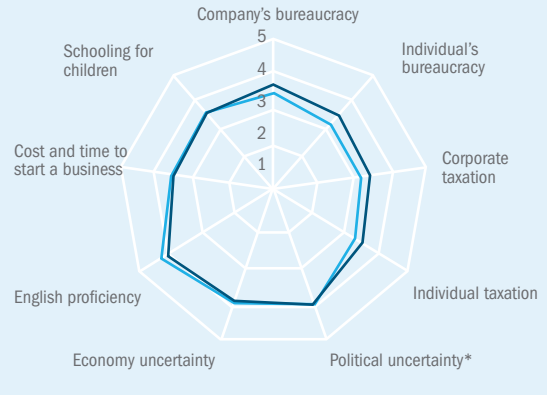
FDI Barriers relative to other Spanish metropolitan areas for firms from different Industry sectors



SOURCE: SURVEY

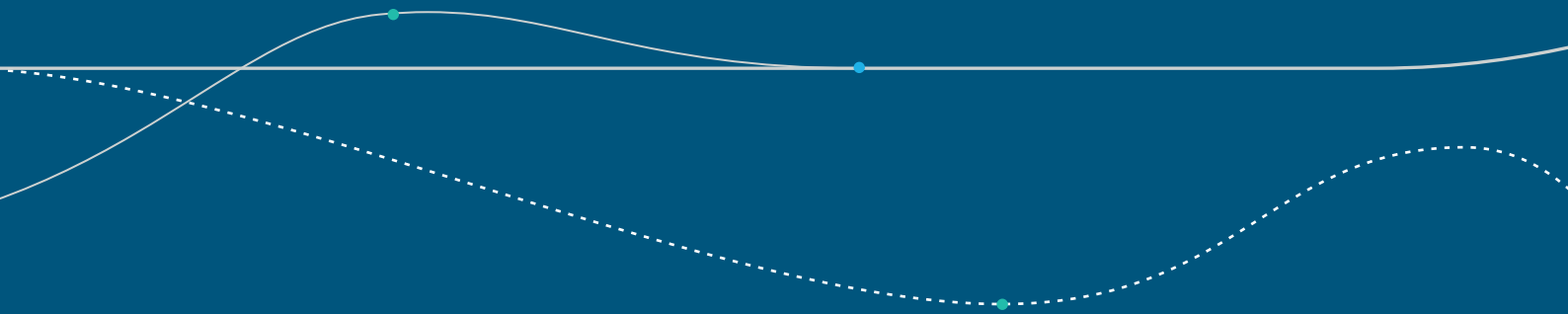
FIGURE 64

FDI Barriers relative to other European metropolitan areas for firms from different Industry sectors



SOURCE: SURVEY

Barcelona Growth



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