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Catalonia

“The power-house of Spain”

FDI and location determinants

by

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Abstract

Catalonia has succeeded in attracting large flows of FDI. It is the main recipient of FDI to Spain with more than 3000 multinationals operating in the region. Determining factors have been its long industrial traditions, its strategic geographical location as a EU member-country, a pro-business Catalan government, a low-cost location, a diversified business structure, efficient and skilled labour force, and capacity to attract foreign talent, along with a high quality of life. FDI has enabled the region to take advantage of the advanced technology that many of the larger MNEs bring with them; economic benefits from clustering of companies such as better access to suppliers and other complementary activities, creation of jobs, among other effects. Due to its innovative potential, it has attracted services companies from many different fields as well as automotive design centres.

The structure of the thesis is as follows. Part 1 introduces Catalonia, with basic facts about the region, trade history and economic indicators. Part 2,3 and 4 lay out the basic features of the theory which the thesis is based upon. Part 5 presents the analysis, while part 6 describes some of the effects of FDI. Part 7 looks at new economic geography and Catalonia, and 8 gives a brief discussion and conclusion.

Preface

Writing this thesis has been very interesting and instructive, not only in terms of deeper knowledge about FDI and the world economy, but also through better knowledge about Catalonia – a region I find very interesting.

The autumn of 2004 I went on an exchange to Barcelona and I was amused by the dynamic atmosphere of the city. People from all over the world were gathered, pursuing different motives of being there –work or studies – exploring what the city had to offer.

So, when I was to start with the preparation for my thesis, I thought it would be interesting to look at what it is that has made Catalonia the “power-house” of Spain. In this respect, the more advanced economic courses at the master’s level have been very useful, as well as the Spanish courses offered at NHH (including the excursion to Madrid where we visited Innovasjon Norge’s office). Also, a meeting with the directors of Pro Ex International, which are engaged in promoting trade between the western regions of Norway and Catalonia, has been useful in determining the most important factors for Catalonia’s success in attracting FDI. However, it should be stressed that finding up-dated statistical data and information is a general problem in Spain, and therefore also for this thesis. Also, there has been some Catalan language problems in the search for information.

At last, I would very much like to thank my supervisor, Hans Jarle Kind, for valuable comments along the way.

Skjold, January 11th, 2006

Marianne Tveit

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1 Catalonia

Catalonia is an autonomous region in Spain, located in the north-eastern corner of the Iberian Peninsula, on the Mediterranean coast. The region, covering a triangular area of 31.950 square kilometres¹, is bordered by France and Andorra in the North (separated by the Pyrenees), on the west by the autonomous community of Aragon, and on the south to the autonomous community of Valencia. The total population in Catalonia is 6.8 million people (approximately 16 % of the Spanish population), 1.5 million of whom live in the region's capital Barcelona.²

Figure 1.1: Map over Catalonia



Source: Encarta (2005)³

Spain is divided into 17 Comunidades Autónomas; autonomous communities. Every region has its own capital, while Madrid is the capital for entire Spain. Based on the new national Spanish Constitution of 1978, a “Statute of Autonomy” was ratified in 1979 by referendum, establishing Catalonia as a democratic political entity with necessary self-governing attributes to conduct governmental functions.⁴ This has led

¹ <http://www.cidem.com/catalonia/en/why/catalonia/intro/general/index.jsp>

² <http://en.wikipedia.org/wiki/Catalonia>

³ http://encarta.msn.com/map_701511572/Catalonia.html

⁴ http://www.eurocities.org/_INDEX.php

to a development making Spain one of the most decentralized countries in Europe.⁵ Every region is again divided into provinces, and in Catalonia there are four provinces: Lleida, Tarragona, Girona and Barcelona (see appendix 1 for map over the Catalan provinces).

Generalitat de Catalunya

Generalitat de Catalunya is the official name given to the autonomous political institutions in Catalonia, made up by the Parliament, the President, the Executive Council, the High Court and the Ombudsman.⁶ Catalonia has one of the highest levels of self-government in Spain, and the Generalitat is basically sovereign with regard to health care and education (regulation and administration), trade, industry, tourism and agriculture. The region has gradually been allowed to use tax revenues as a source of autonomous funding; a mainstream issue which has been controversial for Catalan politicians seeing that Catalan taxes amount to 1/3 of national income tax and has been redistributed by the central administration in Madrid. In addition, Catalonia has, along with a few more regions, a special status in questions concerning language and culture. The regional language Catalá is appositional with Spain's official language Castellano (Spanish). Another good example of Catalonia's high level of autonomy is its own police forces.

The roots of Catalonia as a nation with its own territory and government go back to the early part of the middle ages. Unlike the institutions of the other Autonomous Communities, the Generalitat de Catalunya was not created after the adaptation of the new Spanish Constitution in 1978, but was "restored" in 1977 – prior to the adaptation of the Constitution!⁷ The term "restored" is used because Generalitat de Catalunya had existed in the democratic Spain during the Second Republic (1931-1939), but also because the name had been used to designate the executive body set up by the Corts Generals of the Federation of the Catalan-Aragon Crown back in 14th-15th centuries. Catalonia celebrates its own national day the 11th of September, in memory of the loss of its rights to independence with the defeat in the War of the

⁵ Stefansen (2004)

⁶ http://www.cidem.com/catalonia/en/why/catalonia/intro/03_gencat/index.jsp

⁷ <http://www.gencat.net/catalunya/eng/historia/historia9.htm>

Spanish Succession in 1714, and also for the regaining independence in present time. The region also has its own flag, which is one of the oldest in Europe.⁸

Throughout the centuries, the Catalan nation has had various political institutions and forms of governments, with varying degrees of sovereignty depending on the time in which they existed (that is, depending on the kingdoms, conquests and wars). Even though the Generalitat's role as an executive organ for power and legislation (authority) has changed over the past centuries, it still remains an expression of the political sovereignty of Catalonia.

After the end of the Spanish Civil War in 1939 and with the inauguration of General Francisco Franco as dictator, the Generalitat was abolished and Catalonia lost its autonomy. As revenge for the opposition Franco had met in Catalonia during the war, he made the Catalan language and the flag illegal. Franco carried out a program of "Castilianisation" (Spanification) in Catalonia, and had all the names of streets and places translated into Spanish.

When Franco died in 1975 and the transition to democracy started, the Generalitat immediately came into life again.

Catalonia versus Madrid

For centuries there has been a rivalry between Madrid and Barcelona; disagreements concerning who is entitled to make the decisions. Madrid has always meant that the city, being the country's capital, can make all important decisions in matters regarding social, economic and political issues. Barcelona is of the opposite opinion, and claims that most decisions should be taken in the regions capitals. This contradicting relationship can sometimes have fatale consequences. A good example to illustrate the tensions and its consequences would be that of Christmas 2004 – the peak season for drinking cava in Spain – when a Catalan politician voted against Madrid's application for hosting the Olympic Games. This led to an extensive SMS-campaign, encouraging a boycott of Catalan cava. The following consequence was a considerable decrease in the sale of the cava.

⁸ <http://www10.gencat.net/gencat/AppJava/en/catalunya/simbols/index.jsp>

After the death of Franco, the central government in Madrid has gradually given Barcelona and other major cities more and more autonomy.

Catalan independence

Catalan politicians are very concerned with the matter of Catalonia's independence. This is a matter that has been, and still is, on the political agenda in Catalonia. Disagreement over the distribution of national income, in which Catalonia accounts for 19% of total GDP in Spain⁹, is an unsettling issue. Catalonia claims that they receive too little compared to their importance in the Spanish economy. Nowadays there is a revision of the Catalan statute, in which Catalonia defines itself as an independent nation. Zapatero, the Spanish Prime minister, is willing to negotiate over a new, moderate statute. This is important both for Zapatero and Catalonia, seeing that Zapateros' political party, el Partido Popular (PP), governs the country from a so-called Tripartito where three parties (including representatives from Catalonia) govern together. The new statute from Catalonia is not in correlation with the national constitution, and raises a dilemma for the central socialistic party in Spain that has to vote against the regional labour party; the leading party in Catalonia. Furthermore, the Catalan statute makes claim to its own independent legal system and authority in collecting its own taxes. What is left now is for the central government (El Congreso de los Diputados) to pass the statute; a complicated and enduring process.

1.1 Trade and industrial traditions

Catalonia is a region with long traditions in trade and industry. The trading culture already arose during the building of the Mediterranean empire, with Barcelona as the main linkage to the rest of the world. In the 1400s, Barcelona was an important rival to the two most significant harbours on the Mediterranean coast: Venice and Genoa. In contrast to Venice and Genoa, which are now considered province harbours, Barcelona has maintained its position as an international port city.

⁹ <http://www.cidem.com/catalonia/en/why/catalonia/intro/economy/index.jsp>

In the 1700s, industrial activity started and made Catalonia, with Barcelona in the centre, a pioneer in the industrial revolution in Spain. The population in Barcelona increased with some 40% over a period of 20 years, of which most of the immigrants were industrial workers that participated in the industrial development of the region.¹⁰ A major kick-off could be seen in the textile industry, the cement and chemical industry, and also in trade, mining, banking and transportation. The first steamboat factory in Spain was created in Barcelona, and the first railway went between Barcelona and Mataró in 1848.¹¹ Barcelona was also one of the pioneers in the building of the first metropolitan railway in Europe. The newspaper “Diario de Barcelona” became the oldest and most influential of all the European newspapers, and the city was also one of the first to use electricity. The intense economic, social and cultural activities that are very characteristic for this period made Barcelona one of the most cosmopolitan cities in Europe. Catalonia furthermore contributed with ¼ of the total GDP in Spain.¹²

The industrialization led to an up rise in regionalism. Led by merchants, the demand for more sovereignty from the central power in Madrid increased. Barcelona’s mercantile sector meant that it would be more beneficial for the region if it could look after its own interests, and referred to the loss of Cuba, a former colony with a growing market for the Catalan merchants.

In spite of the economic as well as social and cultural dynamism that continued in the first part of the 1900s, the social and political tensions culminated in the Spanish Civil War in 1936. The post-war era, with the dictatorship of General Francisco Franco, was characterized by economic stagnation. Due to stiff trade barriers, foreign investors interested in the Spanish market were forced to set up production plants in Spain. This led multinational enterprises to establish agencies in Catalonia. In the 1950s and 1960s, Franco’s “Plan de Estabilización”, which liberalized foreign trade and encouraged foreign direct investments, converted Spain’s economic structure into one resembling a free-market economy. This had positive effects on the Catalan

¹⁰ Sánchez and Pomés (2001)

¹¹ Ibid

¹² Ibid

economy, and again made it the most developed, industrialized, and modern economy in Spain.

This economic "boom" in Catalonia, led to another significant flow of immigrants to Barcelona and the rest of Catalonia in the 1950s to 1970s. Thousands of people from all over Spain, especially from the poorer Southern part, came to the region to settle. Most of them were farmers escaping from hunger, unemployment and the tyranny of the landlords, and was attracted to the region's higher economic growth.

When General Franco died in 1975, Spain was an isolated and back warded country in the outskirts of Europe. Politically, economically and socially, the Spanish were several decades behind the other countries that were part of the European Community. However, with the building of a democratic state, several reforms were carried out in order to get the Spanish economy back on track. Government deficit, unemployment and inflation were controlled, and Spain qualified to apply for membership in the European Community. Well-placed to serve the European market, Catalonia would gain great benefits from an EU membership. Some Catalans began speaking of a Europe of "regions" rather than nations, and Catalans were doing their own lobbying in Brussels.¹³

In general, the 1980s became the first economic golden age for Spain.¹⁴ Investors from all over the world were allured by the low wages and a stable and democratic government, as well as a dramatic increase in the Spanish labour productivity. When Spain became member of the former European Community (now European Union) in 1986, this was very important, particularly for two reasons: 1) the economic development, and 2) the recognition of the Spanish as "fully Europeans" after a turbulent history of isolation, war and dictatorship.

Today, Spain is the world's 8th largest industrial country, and is about to catch up with the remaining West-Europe when it comes to prosperity.¹⁵

¹³ Williams (2000)

¹⁴ Ibid

¹⁵ Stefansen (2004)

1.2 The Olympic Games in Barcelona in 1992

When Barcelona was elected as the host city for the Olympic Games in 1992, an extensive transformation of the Catalan capital was initiated. With help from the central and the regional governments, Barcelona was to become a metropolis. The following years upon the Olympics was characterized by continuous development and expanding of the infrastructure, smaller Olympic cities, means of communication, sports arenas, and so on. This has contributed to the present exploitation of well-built and very modern telecommunication networks, architectural buildings, beaches and harbours, and a well-build service sector.

Spain's prestige abroad was at its highest in hundreds of years as the magic year of 1992 began – partly due to Barcelona serving as a site for the Olympic Summer Games.¹⁶

1.3 Economic indicators

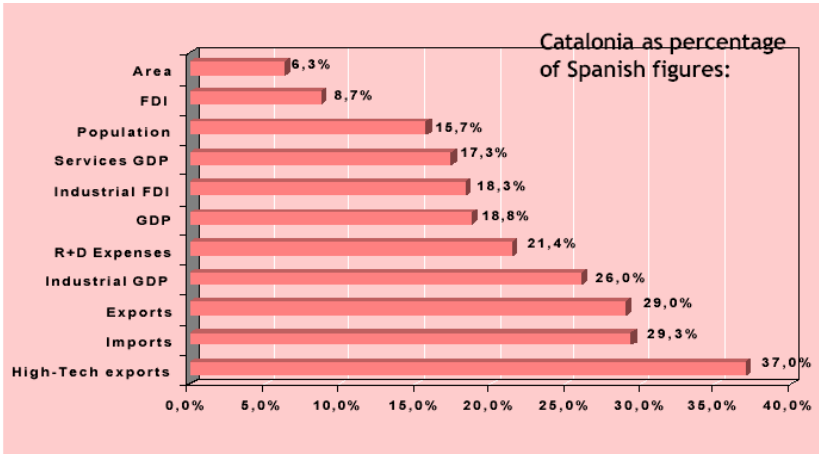
For centuries, Catalonia, with its capital Barcelona, has been the “power-house” of Spain.¹⁷ It is Spain's most industrially developed region and has been the forefront of Spain's modernization. Today Catalan production accounts for one-fifth of the Spanish national GDP (numbers from 2002), and Catalonia's Gross Added Value (GAV) accounts for about 20% of Spain's total.¹⁸ Figure 1.2 compares Catalan economic indicators to Spanish figures.

¹⁶ Williams (2000)

¹⁷ BISER (2003)

¹⁸ http://www.eurocities.org/_INDEX.php

Figure 1.2: Catalonia as percentage of Spanish figures



Source: CIDEM (2005)¹⁹, based on data provided by the Catalan Statistics Institute, the Spanish Ministry of Economy, and the Foundation of Confederate Savings Bank. 2002 and 2003 data.

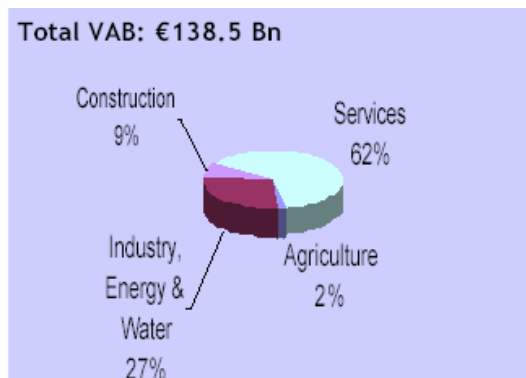
Catalonia is a region predominantly industrial, even though today this sector is of decreasing importance for the Catalan economy. Textile manufacturing used to be extremely important in the early days, but has given way to high-technology industries including the chemical, pharmaceutical and precision mechanics sector, and, more recently, the car building and allied industries, railway parts and machinery, the petrochemical and electronics industries, and so forth. The publishing industry, graphic arts and fashion are also economically important. The construction sector, often related to tourism, has always been and still remains a driving force of the economy.²⁰ Catalonia’s growing demand for petroleum products has led to the expansion of Barcelona’s petroleum refineries.²¹ Figure 1.3 illustrates the distribution of GDP in Catalonia by sector.

¹⁹ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

²⁰ www.gencat.net

²¹ <http://www.orbilat.com/Encyclopaedia/C/Catalonia.html>

Figure 1.3: Distribution of GDP in Catalonia by sector



2003 data.

Source: CIDEM (2005), based on data provided by FUNCAS.

The last decades, the economy (especially in Barcelona) pursued a major process of tertiarisation.²² Characteristic for the Catalan economy today – as for developed economies in general - is the progressive impact played by the service sector on the economy as a whole. This can be seen in the increasing demand for labour in this sector (especially tourism) as well as increased production.

1.3.1 GDP

During the economic crisis that lasted until 1985, Catalonia had a smaller growth in GDP than that of the rest of Spain together. This was a consequence due to the fact that the crisis hit the industrial sector: Catalonia's most important sector economically. The period afterwards, and up until 1991, with the international economic prosperity and the up rise in internal demand, the Catalan economy again grew with a rapid pace. Between 1986 and 1990, Catalonia experienced a stronger economic growth than the rest of Spain. This can indicate that Catalonia is more sensitive to economic changes and that the Catalan economy suffers more under economic crisis, thus making the effects of such crisis more crucial in this region. However, during periods of prosperity, the growth will be higher in Catalonia than in the rest of Spain.²³

²² http://europa.eu.int/comm/regional_policy/atlas/spain/factsheets/pdf/fact_es51_en.pdf

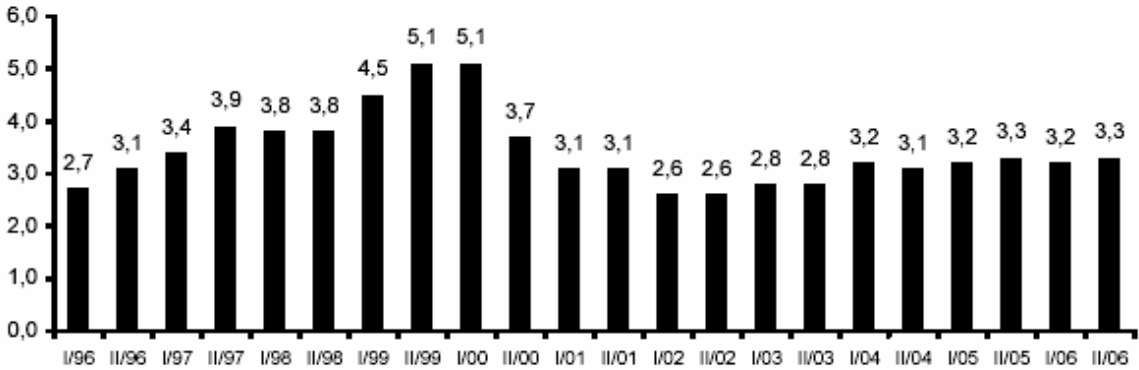
²³ <http://europa.eu.int/spain/publicaciones/ccaa/1999/cataluna/Cataluna2.html>

The development of GDP after the entrance into the European Union has been more or less the same as for the rest of Spain. However, expected growth in GDP for Catalonia is above EU average.²⁴

In 2002, Catalonia generated around 19% of Spain’s total GDP, 25% of its industrial GAV, 30 % of all Spanish exports, 28% of all Spanish imports, and received 13% of all foreign investment in Spain, making it the driving force of the country’s economy.²⁵

In 2004, Catalonia’s GDP increased 3.1%, and has an estimated growth of 3.2% in 2005 (see figure 1.4 below).²⁶

Figure 1.4: GDP in Catalonia (%), 1996-2006*



* For the period 1996-2000, based on estimations done by Caixa Catalunya, and previsions for the period 2005-2006.

Source: Caixa Catalunya and Idescat (2005)²⁷

Figure 1.5 illustrates the high GDP growth forecast for Catalonia in comparison to other selected countries.

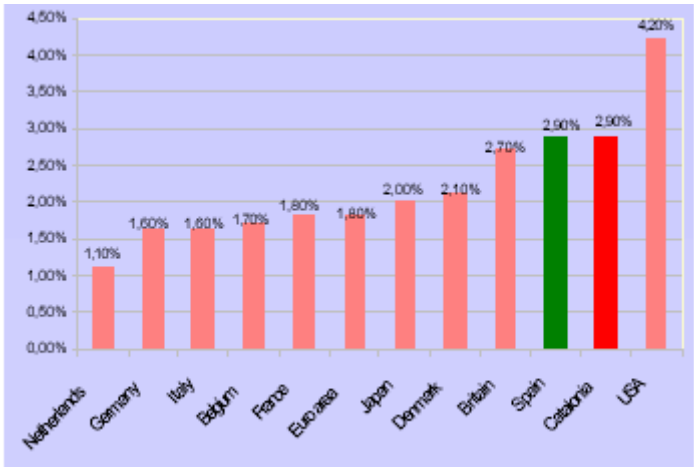
²⁴<http://www.cidem.com/catalonia/en/why/catalonia/intro/economy/index.jsp>

²⁵ http://www.eurocities.org/_INDEX.php

²⁶ Caixa Catalunya (2005)

²⁷http://www.caixacatalunya.es/CDA/caixacat/redirect.html?link=http://www.caixacatalunya.es/caixacat/es/ccpublic/particulars/publica/pb_hom.htm

Figure 1.5: GDP growth forecasts (%) for 2004



Source: CIDEM (2005)²⁸, based on data provided by The Economist (January 2004) and the Departement of Economy and Finance of the Government of Catalonia.

1.3.2 Unemployment

Unemployment in Catalonia is relatively low, especially in Spanish context, although above EU average (see appendix 2 for a comparison with Spain and EU in a given year). Unemployment has been very characteristic for the Spanish economy over the last 20 years. Because of the industrial sector, periods of declining activity have had great effects on employment in Catalonia. However, due to creation of jobs in the tertiary sector (which is becoming more and more important, *especially the service- and construction sector*), there has been an improvement in the unemployment rate (it should be noted that according to CIDEM’s data for January-September 2005, today’s unemployment rate is at 7.5%, compared to 16% in 1997²⁹) – despite the loss of jobs in the industrial as well as the agricultural sector. Almost 60% of the working population is employed in the service sector, 37% in the industrial/construction sector, and around 3 % in the primary sector.³⁰

²⁸ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

²⁹ http://www.eurocities.org/_INDEX.php

³⁰ Ibid

1.3.3 Population

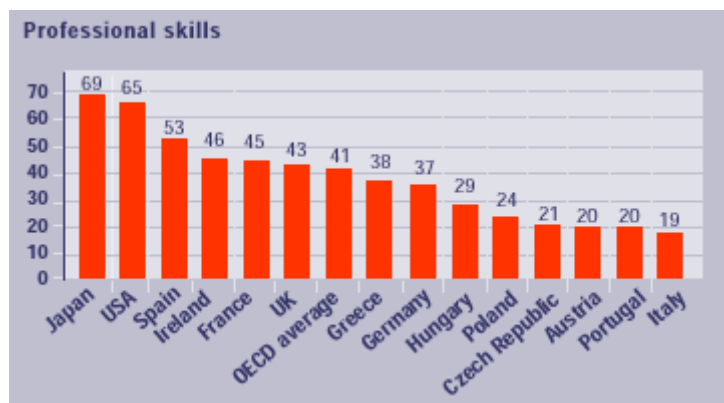
Catalonia has a young population, with more than 30% being in the age between 20-39 years old (see appendix 3 for detailed information about the population and the population structure).³¹ Life expectancy is estimated to be 82 years for women and 76 years for men, which is one of the longest in Europe.

Most of the population is located in the main urban centres, like Barcelona. Approximately half of the population lives in the Barcelona metropolitan area.³²

1.3.4 Education

School is mandatory for all children between the age of 6 and 15, and the education system is the responsibility of the region. Of higher education, Catalonia has 13 universities and 53% of the people between the age of 25 and 34 in Catalonia and Spain have a university-degree.³³ Figure 1.6 shows share of population aged between 25 and 34 with at least a tertiary education level in Spain compared to some other countries .

Figure 1.6: Professional skills



Notes: Data expressed in percentage.

Source: CIDEM (2005)³⁴ – based on data of Science, Technology and Industry Outlook by OECD, 2000.

³¹ http://www.copca.com/armari/calaix1/000/00/00/911/xifres_ang04.pdf

³² http://www.eurocities.org/_INDEX.php

³³ <http://www.cidem.com/catalonia/en/business/establishing/why/labourforce/labourforce/index.jsp>

³⁴ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

The region is known for possessing a well-educated labour force, and lately more and more companies have been engaging in co-operation with the universities in the region to promote R&D and to increase the number of researchers and facilities available in many areas.³⁵

Today there are more than 219 000 university students annually. 60 000 of these are students with a technical career, and 50 000 business-related students.³⁶ Some of the most renowned business-schools are located in Catalonia.

1.3.5 Infrastructure

The extensive transport and communications infrastructure has been of great importance in attracting foreign direct investment to Catalonia. The network of motorways follows the traditional highways from the south to the north, and includes a new highway that runs across the country from the east to the west. This modern transportation system facilitates the transport of people and goods – making it easy, convenient and efficient. The railway system has tight links to France, connecting Spain's main population centres to those of France.

The port in Barcelona is the most important in Catalonia and the Mediterranean, both in terms of goods traffic and passengers. Another important port for movements in the petrochemical area is located in Tarragona. These two ports have good connections with South-America and Asia. Smaller ports are located all along the coast, and are mainly locations for trading, fishing and pleasure.

Catalonia has three airports. Barcelona's International Airport, situated in El Prat de Llobregat, is the largest and the most important one. Girona Airport is mainly used for charter flights taking tourist to the Costa Brava, while Reus Airport has a similar function for the Costa Daurada.

³⁵http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

³⁶ http://www.cidem.com/catalonia/binaris/LOOK%20AT%20SERVICES_tcm51-4394.pdf

Future investment projects include enlargements of the Barcelona International Airport and the Barcelona port, and introduction of the fastest high-speed train network between Catalonia and the rest of Europe.³⁷

Due to its location Catalonia serves as an important link between the rest of Spain, Europe, The Mediterranean and North Africa.³⁸

1.3.6 Foreign trade and FDI

Trade with the European Union

Spain's entry into the European Union and its adaptation of the union's trading policy represented the breakthrough for the transformation of Spain's traditional protectionism into an economy with increased foreign trade and flows of foreign capital into Spain. This was a period characterized by economic liberalization and rapid economic growth.³⁹

Catalonia has a very open economy in terms of international trade (see appendix 4 and 5). A comparison of numbers from 1985 – before the entry into the EU – with numbers from 1995, shows an increase in the total amount of import and export between the region and member-countries of the EU from 20.1% in 1985 to 40.1% in 1995.⁴⁰ The European Union is Catalonia's major trade partner, accounting for 64% of its imports and 70% of its exports.⁴¹

Foreign investment

In the last few years, Barcelona and the surrounding areas have attracted some 20-25% of total foreign capital into Spain.⁴² Furthermore, Barcelona is considered one of the most preferred European destinations for foreign investors. Consequently, more than 3000 foreign companies are currently operating in Catalonia and 48 Fortune 100 companies have subsidiaries in Catalonia. FDI to Catalonia amounted to EURO 1.5 billion in 2004, and the accumulated FDI for the 1993-2004 period was approximately

³⁷ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

³⁸ http://www.eurocities.org/_INDEX.php

³⁹ Dunning and Narula (1996)

⁴⁰ <http://europa.eu.int/spain/publicaciones/ccaa/1999/cataluna/Cataluna2.html>

⁴¹ http://www.eurocities.org/_INDEX.php

⁴² http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf

EURO 28.3 billion. On average, Catalonia attracted 16% of total FDI to Spain during that period.⁴³

Almost 65% of total FDI comes from EU countries, particularly the Netherlands, Italy and Germany. In 2003, Catalonia was a major recipient of FDI from Switzerland, France, Germany, Poland and Turkey.⁴⁴ Table 1.1 gives an overview of FDI in Catalonia by areas of origin in 2004 (for a ranking of foreign investing countries in Catalonia, see appendix 6).

Table 1.1: FDI in Catalonia in 2004

Total FDI (Millions of euros): 4,037.57

| Areas of origin | Catalonia | |
|---------------------------|--------------------------------------|--------------------|
| | Gross figures (Millions of euros) | % of total FDI* |
| OECD COUNTRIES | | |
| EU countries | 1,030.39 | 66.30% |
| Non-EU European countries | 23.92 | 1.54% |
| Non-European OECD | 223.56 | 14.39% |
| TOTAL OECD COUNTRIES | 1,277.87 | 82.23% |
| NON-OECD COUNTRIES | 276.15 | 17.77% |
| <i>TOTAL FDI*</i> | <i>1,554.02</i> | <i>100%</i> |

Note: (*) Without ETVE's. Source: Catalonia Investment Agency, based on data provided by the Spanish Ministry of Industry, Tourism and Trade.

Source: CIDEM (2005)⁴⁵

1.3.7 European Structural Funds in Catalonia

Catalonia is almost entirely covered by Objective 2 Structural Funds, the INTERREG III Initiative, an URBAN II programme and Cohesion Fund projects.

- Catalonia's participation in Objective 2 Funds amounts to EUR 1.235 billion (EUR 2.748 billion for Spain).⁴⁶ The priorities are competitiveness,

⁴³ <http://www.cidem.com/catalonia/en/why/fdi/index.jsp>

⁴⁴ Ibid

⁴⁵ <http://www.cidem.com/catalonia/en/why/catalonia/figures/finvestment/index.jsp>

⁴⁶ http://europa.eu.int/comm/regional_policy/atlas/spain/factsheets/pdf/fact_es51_en.pdf

employment and productive fabric (especially for the small- and medium-sized companies), environment and water resources, knowledge society (new university centres), transport and energy networks (improvement of the road network, renewable energies, etc.); local and urban development (rehabilitation of urban areas, infrastructure and social and tourist facilities, etc.).

- Apart from the INTERREG III A “Spain/France” cross-border programme, which receives European aid worth EUR 84.3 million, Catalonia participates in the INTERREG III B cross-border programmes “South West Europe” (Spain, France, Portugal, and the United Kingdom) and “Western Mediterranean” (initial four including Italy). It is also included in the “South” zone of the INTERREG III C interregional co-operation programme.
- The URBAN II programme is intended to promote economic and social regeneration of cities and urban districts in crisis.

1.3.8 Inflation

Inflation in Catalonia is approximately the same as for Spain.

In the beginning of the 1990s, Spain’s inflation rate varied between some 4-5%. Due to a restrictive monetary policy led by the center-right government of president Aznar⁴⁷, the inflation rate fell down to around 2% in 1998.⁴⁸ Inflation in Catalonia in September 2005 was 4.3%.⁴⁹

1st of January 1999 Spain joined the economic union (EMU) and adopted the EURO.

1.3.9 Budget

The budget amounts to approximately €29 billion.⁵⁰ This is implemented in the policies that corresponds to the Government’s power in education, healthcare,

⁴⁷ <http://www.cia.gov/cia/publications/factbook/geos/sp.html#Econ>

⁴⁸ http://www.innovasjon Norge.no/templates/Page_Meta___54728.aspx#1

⁴⁹ <http://www.cidem.com/catalonia/en/why/catalonia/figures/macroeconomic/index.jsp>

⁵⁰ http://www.cidem.com/catalonia/en/why/catalonia/intro/03_gencat/index.jsp

industry, public works, culture, agriculture, the environment, tourism, local administration and employment, among other.

2 Foreign investments

Due to globalization, international economic activities are characterized by increased market integration through freer trade in goods and services, freer movement of firms, capital and labour, and a more rapid diffusion of technology. The importance of MNEs and the globalization of production are by now well recognized. The MNEs have become central actors in the world economy and, in linking foreign direct investment, trade, technology and finance, they are a driving force of economic growth.⁵¹ Their impact on the economic and social welfare of developed and developing countries is both widespread and critical. The opinions about FDI and multinational enterprises are mixed. Some claim that the MNEs are bearers of foreign wealth and knowledge, others threats to national wealth and economy. However, to determine the effects of FDI on the host economy, one should keep in mind what the situation would be like in the absence of an inward investment.

2.1 International investments

There are two types of international investments: 1) *foreign portfolio investment* (FPI), and 2) *foreign direct investment* (FDI).

Foreign portfolio investment is a pure financial passive investment. This takes form by buying stocks, obligations, or other financial assets that do not involve operating or managing a firm. The short time horizon involved in FPIs makes the investments more sensitive to fluctuations in the economic variables, like exchange rates and conjuncture indicators. However, it is positively influenced by high rates of return and reduction of risk through geographic diversification.

Foreign direct investment is an active investment with a longer time horizon and is positively affected by the ability to earn profits on activities in a foreign country. This will be discussed below.

FDI can be measured as either *flows* (amount of investment made in one year) or *stocks* (the total investment accumulation at the end of the year).

⁵¹ Dunning (1993a)

2.2 FDI

According to IMF/OECD, FDI is *an investment in a foreign company where the foreign investor owns at least 10 % of the ordinary shares, undertaken with the objective of establishing a 'lasting interest' in the country, a long-term relationship and significant influence on the management of the firm.*⁵²

FDI has been growing dramatically the last 15 years of the 20th century, faster than other economic aggregates like world production, capital formation and trade⁵³.

Table 2.1 indicates the total value (in dollars) of world-wide FDI.

Table 2.1: Indicators of FDI, 1982-2003

| Item | Value at current prices (\$ billion) | | | Annual growth rate (Percent) | | | | | | |
|-------------------|---|-------|-------|---------------------------------|-----------|-----------|------|-------|-------|-------|
| | 1982 | 1990 | 2 003 | 1986-1990 | 1991-1995 | 1996-2000 | 2000 | 2001 | 2002 | 2003 |
| FDI inflows | 59 | 209 | 560 | 22.9 | 21.5 | 39.7 | 27.7 | -41.1 | -17.0 | -17.6 |
| FDI outflows | 28 | 242 | 612 | 25.6 | 16.6 | 35.1 | 8.7 | -39.2 | -17.3 | 2.6 |
| FDI inward stock | 796 | 1 950 | 8 245 | 14.7 | 9.3 | 16.9 | 19.1 | 7.4 | 12.7 | 11.8 |
| FDI outward stock | 590 | 1 758 | 8 197 | 18.1 | 10.7 | 17.1 | 18.5 | 5.9 | 13.8 | 13.7 |

Source: UNCTAD (2004)⁵⁴

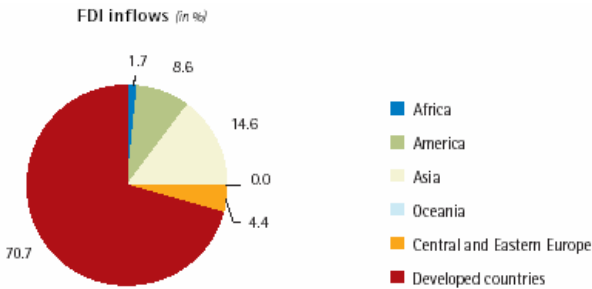
According to Barba Navaretti et al (2004), FDI is typically characterised by originating from advanced countries (see figure 2.1 below) and going to advanced countries, mergers and acquisitions account for the dominant share of FDI flows – especially to high income countries, and most FDI is concentrated in skill and technology intensive industries.

⁵² Barba-Navaretti et al (2004), page 2

⁵³ United Nations (2001)

⁵⁴ Scrap from http://www.unctad.org/en/docs/wir2004_en.pdf

Figure 2.1: FDI flows by region in 2002



Source: UNCTAD (2004)⁵⁵

There has been a shift of FDI towards services in all regions.⁵⁶ The fastest growth of inflows of services FDI has taken place in Western Europe and the United States, reflecting the fact that most service FDI is market seeking. The composition of services FDI is also changing. Until recently it was concentrated in trade and finance, however, industries such as electricity, water, telecommunication and business services (including IT-enabled corporation services) are becoming more prominent.⁵⁷

2.3 Types of FDI

FDI can be classified as either vertical or horizontal, depending on the reason for international production. Factors such as market access, strategy, costs, trade policies, and so forth, are important for the enterprise upon the decision on how, and if, to expand its activities.

2.3.1 Horizontal FDI

Horizontal FDI is a *foreign direct investment that involves the duplication of part of a firm’s activities in a foreign country.*⁵⁸ Or, in easier terms, HFDI is the kind of FDI firms undertake when they produce the same goods in different locations. This is probably the dominant type of FDI between high income countries and is designed to

⁵⁵ http://www.unctad.org/en/docs/gdscsir20041_en.pdf

⁵⁶ http://www.unctad.org/en/docs/wir2004_en.pdf

⁵⁷ UNCTAD (2004)

⁵⁸ Barba Navaretti et al (2004), page 299

supply the host country product market, thus with the aim of having better and cheaper access to the host country.⁵⁹

It is normal to distinguish between two types of horizontal foreign direct investment: 1) *greenfield investment* (building up a new plant abroad), and 2) *mergers and acquisitions* (buy or merge with a foreign (local) firm).

Horizontal FDI is sometimes referred to as '*market seeking*' FDI because its focus is on product market access. A firm might want to be located in a certain market in order to avoid the high trade barriers and the following costs that are related to serving this market through imports (like transportation costs). Jumping trade costs is one source of gain to be made from the proximity to markets, and can explain why foreign MNEs have established production plants in Europe, like car manufacturers, to serve the entire European market and avoid tariffs and other trade barriers.

Also, the firm might seek to take advantage of their firm level assets in order to gain economies of scale. Firm level assets include the headquarters staff of the firm, finance operations, R&D activities, and brand development (such as marketing). These are often *intangible assets* having no direct physical manifestation, such as "knowledge-capital" (scientific know-how, patents and management skills) and reputation and brand name. Other firm specific assets are *tangible*, for example headquarter buildings. To many large firms, the intangible assets are often the most important ones. Scientific know-how or management skills applied in one part of the firm can easily be transferred and applied in another part of the firm, thus provide "services" to all operations of the firm independent of the firm being domestic or foreign. The tangible assets can also be a source of economies of scale. For example a headquarters' operation costs need not double even though the output of the firm does.

The firm level assets (both tangible and intangible) are sometimes referred to as the basis of the firm level economies of scale.⁶⁰ The firms can benefit from economies of scale by expanding its business and do the same activity (produce the same good) in

⁵⁹ Barba-Navaretti et al (2004)

⁶⁰ Ibid

different locations (countries) because that does not necessarily imply that the firm's assets need to be "enlarged".

Plant level scale economies relates to the fixed costs in the production, like capital equipment such as machinery, and administration of the plant. However, for example with the development of a new assembly plant to serve a foreign market, this extra plant means that some economies of scale will be lost; but that is only those at the plant level, not the firm level. An additional plant requires additional machinery and also additional administration of this new plant.

The market also creates additional reasons for a horizontal division of investment (for the firm). First, it will be beneficial for the firm to stay close to its final consumers. Being present in the market enables the firm to easier adjust and shape its final product to local tastes and resources and to respond to changes in the market. The following statement from Unilever, a Dutch company established in Catalonia, summarizes this concept very well: "*Many of our brands have international appeal, while others are leaders in local markets. It is our keen understanding of cultures and markets that allow us to anticipate consumers' needs and to provide them with what they need, when they need it*"⁶¹. But this is not the only reasons for why it may be beneficial. The presence in the local market might have a strategic effect in the way that it can help the firm to shape its interactions with the other competitors present in the market. This strategic effect is due to imperfect competition in the market.

An investment that reduces the trade costs reduces the marginal costs of supplying the market. Due to lower marginal costs the firm will benefit from expanding the business. As the firm is expanding its business, it might also lead to a reduction in the competitors' sales volumes and the prices. This change in the behaviour of the competitor that is in the interest of the investor (as the rivals cut their sales!) thus has a strategic effect and gives the expanding firm market power. This gain in market power will be even stronger if it reduces the number of competitors in the market (by "force"), or for example by a merger and acquisition that directly eliminates one potential rival (buying market power).

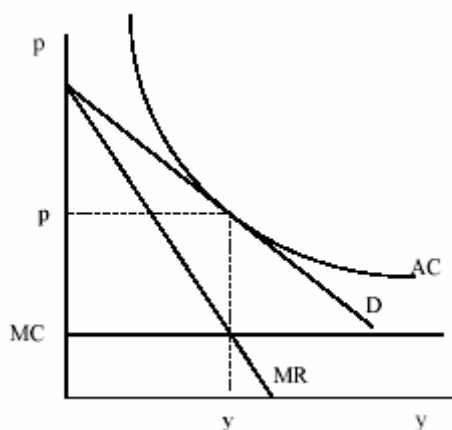
⁶¹ Barba Navaretti et al (2005), p.28

Monopolistic competition

The model of monopolistic competition is a special form of oligopoly which emphasizes issues of product differentiation and entry, but typically abstract from the strategic interactions between the firms.

Assume a market where there are several firms with products that are not identical, but very close substitutes (that is, they satisfy basically the same consumer needs, which is the case for example with cars, clothes, food, etc.).⁶² This implies that each firm act as a monopolist and is facing a downward-sloping demand curve for its product⁶³, but its position as a monopolist is very weak (must compete for customers in terms of both price and the kinds of products they sell). This gives the firm incentives to differentiate its product as much as possible. The more successful the firm is at differentiating its product from other firms selling similar products, the more monopoly power it has and the less elastic is the demand curve for the product.⁶⁴ With free entry, the price level will be forced down until it equals average cost (AC). Therefore, in long-run equilibrium the profit will equal zero. However, the price will be higher than marginal cost.⁶⁵

Figure 2.2: Monopolistic competition equilibrium with symmetric products:



Source: ECO426⁶⁶

⁶² Sandmo (2005)

⁶³ Varian (1999)

⁶⁴ Ibid

⁶⁵ Sandmo (2005)

⁶⁶ Lecture ECO426 (04.02.2005), Haaland, J.I. (NHH)

Monopolistic model⁶⁷

First, assume a market with a large number of firms, where each firm produces a unique variety of a differentiated product, and where there is free entry and exit (from above). Second, assume that a single representative consumer demands many varieties of a differentiated product (a so-called “love of variety approach” from Dixit and Stiglitz).

There is a fixed number L of consumers, each of whom receives the following utility of consuming c_i of each variety:

$$U = \sum_{i=1}^N v(c_i), \quad v' > 0, \quad v'' < 0 \quad (2.1)$$

The same function $v(c_i)$ applies to the consumption of each (the utility function is symmetric over the product varieties). The consumer will seek to maximize its utility, given its income (the budget constraint).

The effect of a change in price on consumption can be derived by totally differentiating the first-order condition for $v(c_i)$ subject to the budget constraint. However, it can be argued that if the number of varieties is sufficiently large, then it is possible to ignore the impact of a change in one price on the marginal utility of income. Then we can define the elasticity of demand for variety i :

$$\eta_i = (dc_i/dp_i)(p_i/c_i) = - (v'/c_i v'') > 0 \quad (2.2)$$

Furthermore, assume that v is increasing and concave (from (2.1)), thus ensuring that the elasticity is positive, and that as we move up a demand curve (as consumption falling), the elasticity rises (because individuals are spreading their expenditures over more product varieties).

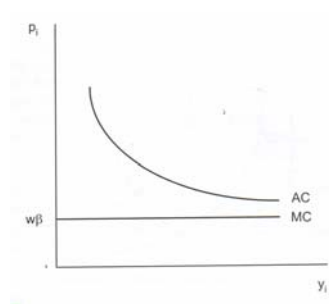
On the production side, labour is the only resource, and each firm requires the following labour to produce output y_i :

⁶⁷ Fenstra (2004)

$$L_i = \alpha + \beta y_i \quad (2.3)$$

where α is the fixed labour input needed for production and β is the marginal labour input. Given the equilibrium wage w , it follows that average costs (AC) for the firms are $AC_i = wL_i/y_i = w\alpha/y_i + w\beta$, while marginal costs (MC) are simply $w\beta$. These are both graphed in figure 2.3 below.

Figure 2.3



Source: Fenstra (2004)⁶⁸

Monopolistic competition has two equilibrium conditions for firms (this is for a single economy): first, each firm maximizes its own profits ($MR = MC$), and second, free entry whenever economic profits are positive, so in the long-run equilibrium we must have zero profit, or price equal to average cost ($P = AC$). In addition, we add the requirement that the equilibrium is “symmetric”, that is, prices and quantities are identical across varieties. This gives the following equilibrium conditions:

$$\mathbf{MR = MC:} \quad p[1 - (1/\eta)] = w\beta, \text{ or } (p/w) = \beta[\eta/(\eta - 1)] \quad (2.4)$$

$$\mathbf{P = AC:} \quad p = [w\alpha/y] + w\beta, \text{ or } (p/w) = [\alpha/Lc] + \beta \quad (2.5)$$

Notice that in (2.5) supply of each good, y , has been replaced by the demand for each good, Lc .

The intersection of the two curves (2.4) and (2.5) determines the equilibrium values of (p/w) and c . The number of product N is determined by the equilibrium value of c :

⁶⁸ Fenstra (2004), page 139

$$N = 1/[(\alpha/L) + \beta c] \quad (2.6).$$

Although this is for a single economy, monopolistic competition gives rationale for trade. Because firms produce differentiated products, they will begin to export to the other country, and at the same time face competition from firms abroad. This increase in the number of competitors lower the equilibrium price. Having two identical countries trading is just like doubling the population L . It shifts the AC curve down. As firms move down their AC curve, this implies that the output y increases, which further means that any firm produces both in autarky and under free trade will be selling more with trade. But the full employment condition for each economy is $L = N(\alpha + \beta y)$, where now L is fixed. So the increase in y , as the firms exploit economies of scale, necessarily implies a reduction in the number of firms in each country; opening up for trade between countries thus implies that some firms must exit in each, while the remaining firms expand their output and take advantage of scale economies.

Last, but not least, a firm might want to be located near its customers to lighten the cultural barriers that can arise between a foreign company and a host market. If the firm does not familiarize itself with local language, business customs, legal requirements and marketing procedures, it might find itself at a disadvantage vis-à-vis local firms in selling consumer goods.⁶⁹ Due to uncertainties with regard to production quality and supply, the firm will chose to keep the production within the firm rather than using local suppliers.

Horizontal FDI is typically found in industries where final goods have high transportation costs. Therefore, a company will engage in multinational activity through a horizontal investment to locations with good market access, so that the sales will be large enough to cover the plant level fixed costs of operating the new plant. A good market access can be characterized by a high-income population in the country, or the country is well-located with access to such markets (like the EU), as well as its size and growth potential.

⁶⁹ Dunning (1993a)

The distinction between firm level economies of scale and plant level economies of scale is important in analyzing FDI. Firms with high levels of firm scale economies will typically be large and have sales in many countries. On the contrary, where firms operate under high plant level economies of scale, it will not be profitable to split its production into many separate units because of the additional costs related to this extra production plant.

The main cost of HFDI is plant level economies of scale foregone. Therefore, multinational activity is more likely to occur when there is high firm scale economies *combined with* relatively low plant scale economies.⁷⁰

Another phenomenon related to HFDI is that of export-platform FDI. It is generally defined as *investment and production in a host country where the output is largely sold in third markets, not the parent or the host-country market.*⁷¹ Export-platform FDI has elements of both HFDI (market seeking production) and VFDI (resource/efficiency seeking investment). Very often production is to serve a large and integrated market with an assembly plant; as in horizontal investments, but the location of this plant is chosen within the region on the basis of cost considerations; as in vertical investments. This can be exemplified by US MNEs that want to serve the integrated EU market, and do so from Ireland where they have set up their production plants; a low cost location. Export-platform FDI occurs when trade costs are high and/or there exist a low-cost location from which the MNE might have access to a large market. These are decisive factors when foreign producers choose to set up their production facilities inside one country in order to serve a whole free-trade market area, like the EU or NAFTA.

Important variables when analyzing horizontal foreign direct investment are thus the benefits from market access versus the costs of economies of scale foregone.

⁷⁰ Barba Navaretti et al (2004)

⁷¹ Ekholm, Forslid and Markusen (2003)

2.3.2 Vertical FDI

A vertical foreign direct investment involves *the transfer abroad of one or more of a firm's stages of production, generally in order to access low-cost inputs and to use output to supply other parts of the multinational's operations by means of intra-firm exports.*⁷² This means that the production process has been split up into separate parts that are carried out in different locations, including countries. These stages may be the production of components or stages of the manufacturing process, and are also increasingly service activities – the outsourcing of customer support services, call centres, and information technology support.⁷³

The motive behind VFDI is that of reducing costs (input costs and factor prices). Lower costs include trade costs such as transportation costs, distance, trade policy barriers, etc., and significant differences in factors prices and costs of production. If there were no such differences, there would be no cost savings from geographically splitting up the production.

As the costs of primary inputs may vary across locations, access to low cost inputs is thus a major reason for splitting up the firm's activities. MNEs will typically gain from moving unskilled labour intensive industries to locations (countries) where unskilled wages are low, and R&D intensive activities to where scientists are relatively cheap. However, factor prices have to be adjusted for the *quality* of the factor input, and according to Barba Navaretti et al (2004), evidence shows that FDI rarely goes to the lowest wage economies, but to countries that have an abundant labour with basic education. Furthermore, firms consider the cost of labour and not its abundance. However, it should be stressed that in equilibrium, there is likely to be a relationship between the cost of labour and the abundance of labour. R&D intensive activities, for instance, are more likely to take place in countries where scientists are relatively abundant. This then leads to an agglomeration of such activities seeking to benefit from access to technology, information and specialized management.⁷⁴

⁷² Barba Navaretti et al (2004), page 300

⁷³ Barba Navaretti et al (2004)

⁷⁴ Dunning (1993a)

Vertical FDI may lead to a technical efficiency loss due to the loss of integration. Though the plant may still handle the firm's production of that particular function or process, with the fragmentation of the activities across different countries "trade costs" will arise. These costs include the packaging and freight costs, costs of time in transit, import tariffs on goods that cross borders, and a whole package of penalties associated with having to manage geographically separate operations.

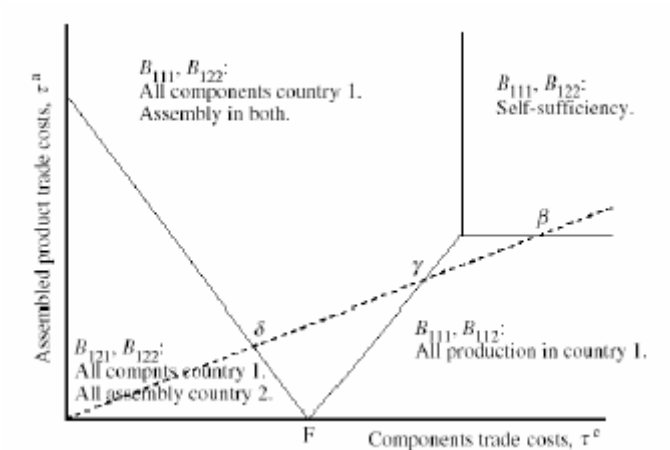
Vertical FDI is typically found in industries where trade and disintegration costs are low. Because a multinational company splits up its production and moves stages of the production process to locations with lower factor prices, the trade costs are of particular importance as the products at different stages of the production process may cross borders several times. Locations with low wages and good transportation and trade links to other parts of the corporation will therefore be favoured destinations for VFDI. Trade costs further emphasize geographical closeness as an important factor for VFDI as they increase the cost of trading components between production units.

Contrary to what is the case for HFDI where plant level economies of scale favour the *concentration* of production, the role of plant level economies of scale can encourage vertical investment and the *fragmentation* of production. Firms can locate one stage of the production in one location, not necessarily in home country, with lower costs and serve all assembling plants from there. Also, whereas HFDI is considered a substitute for trade, VFDI is a complement to trade (export of components (intermediates) to foreign countries for final production).

With regard to vertical FDI, what is important is the disintegration costs relative to the benefits of producing in countries with lower factor costs.

Figure 2.4 may serve as an appropriate model in illustrating the effects of trade costs on the firm's choice between splitting up its production process between several locations and thus make a vertical foreign direct investment rather than keeping an integrated production process.

Figure 2.4: Trade costs and optimal choices



Assembly labour intensive; country 1 high wage

Source: Barba Navaretti et al (2004)⁷⁵

Assume two countries, 1 and 2, and that country 1 is a higher wage country (the ‘Northern’ economy). There is one firm, whose primary interest is reducing costs, that has a production process consisting of two parts; components and assembly. Both parts use two primary inputs; labour and capital (though it can be best thought of as unskilled and skilled labour), with country i prices w_i and r_i . Both parts operate with constant return to scale, so that the unit costs can be described as $c(w_i, r_i)$ for components in country i and $a(w_i, r_i)$ for assembly in country i . There exist some trade costs between the countries, but zero trade costs within countries. Trade costs are the same in both directions ($\tau_{ij} = \tau_{ji}$), and can thus be written: τ^a for assembly, and τ^c for components. The total costs B_{ijk} for production of one unit of output with component produced in country i , assembly in j and final consumption/sale in country k , will be: $B_{ijk} = (c(w_i, r_i)\tau^c_{ij} + a(w_j, r_j))\tau^a_{jk}$

Say, for example, that components are produced in country 1, assembled in country 2, but final consumption/sale takes place in country 1 (B_{121}). This means that the costs of component production in country 1 is $c(w_1, r_1)$, with additional shipping costs of sending the component to country 2 for assembly; τ^c_{12} . Additional assembly costs in country 2 are $a(w_2, r_2)$. Further trade costs are incurred on the whole product when shipped back to country 1 for consumption; τ^a_{21} . Note that components incur trade

⁷⁵ Barba Navaretti et al (2004), page 82

costs twice if they are produced in one country, assembled in another, and then shipped back for final consumption in the country of origin. For an integrated production in country 1, however, the production costs will be $B_{111}=c_1+a_1$.

By making some simplifying assumptions, giving country 1 a comparative advantage in both integrated and component production and country 2 with a comparative advantage in assembly, and lastly that factor prices are given, it is possible to analyze how the location of production and the pattern of trade depend on the trade costs, as illustrated in figure 2.1.

The horizontal axis is the transportation costs for components (disintegration cost), and the vertical axis is the trade cost for final assembled products. The different “areas” correspond to the possible production patterns, and the reference of final consumption of the product in market 1, is B_{ij1} , and for final consumption in market 2, is B_{ij2} . For example, B_{122} indicates that consumption for market 2 is met by component production in country 1 and final assembly in country 2.

The lower right area, (B_{111}, B_{112}) , corresponds to an initial situation in which it is relatively cheap to trade in assembled products, but the disintegration costs are high (due to high trade costs in components). Therefore, the two stages of production take place in the same country, and in line with the assumption of the comparative advantage the good is produced entirely in country 1. If there are high trade barriers in the assembled product as well, then there would be no trade at all. Both countries would be self-sufficient with regard to the product, as illustrated in the upper right area (B_{111}, B_{122}) . However, with low trade costs in both component production and assembly, as in the bottom left area (B_{121}, B_{122}) , there would take place a fragmentation of the production (VFDI), with all component production taking place in country 1 and all assembly in country 2. In the upper left area (B_{111}, B_{122}) , the trade costs for component production are low, while those for assembly are high, making it more profitable for the firm to locate the component production in country 1 while splitting up the assembly – that is, assembly will take place in the country where the final consumption will take place (assembly “production” in the same location as the consumption). The stippled line dividing these areas is the locus of trade costs at which country 2 can be supplied from either two countries at the same costs;

$B_{112}=B_{222}$. That is: $(c(w_1,r_1) + a(w_1,r_1)) \tau^a = (c(w_2,r_2) + a(w_2,r_2))$. F is the point in which there will be a change in the mode of supplying both countries; country 1 is now supplied by products assembled in country 2 rather than in 1, and similarly it becomes more profitable to supply country 2 with product assembled in 2 rather than in 1 (when $\tau^a = 1$ these two relationships are identical, giving the value of τ^c marked by point F, for $\tau^a > 1$, the relationship differs; corresponding to the downwards and upwards sloping lines in the figure). When trade costs are high, both countries are self-sufficient. Reducing trade costs to point β , all production will take place in country 1 who has a comparative advantage in the product as a whole. Further reduction of the trade costs until point γ , will cause assembly for market 2 to move to country 2. At point δ trade costs are sufficiently low so that full fragmentation will occur.

Though this analysis is based entirely on cost-minimizing location decisions in a world with constant returns to scale and perfect competition (which we are well aware of not reflecting the reality!), it illustrates however, that both VFDI and HFDI can arise. While the lower left area illustrates VFDI, the central/upper left area is equivalent to HFDI; production of all components is taking place in country 1, while assembly is taking place in the country of final consumption.

2.3.3 Horizontal FDI versus Vertical FDI

Horizontal foreign direct investment and vertical foreign direct investment are not competing theories seeking to explain a given multinational activity. On the contrary, they respond to *different motives* for investments abroad and are thus different theories applied to make predictions of the different types of investment projects and the different sets of investing and receiving countries (locations).

As previously mentioned, HFDI is the most common foreign investment. This is what one should expect due to the fact that most FDI is between North-North countries, and driven by factors such as market size and similarity between host and home factor endowments.⁷⁶ However, VFDI has been increasing since the early 1990s; mainly due to the EU Single Market and trade liberalization.

⁷⁶ Barba Navaretti et al (2004)

It should be stressed that there are restrictions attached in separating the data into investments that are horizontal and vertical. Because the distinction is not always very clear-cut, for example lack of information on firm level sales and purchases of foreign inputs by foreign subsidiaries, and so on, problems in distinguishing either type of investment arise.

Finally, it should be noted that not all divisions of production can be put into one “package” as nicely as it has been done in this introduction. Component parts from home country might have to be shipped to an assembly plant in a foreign country thus adding disintegration costs into the production process as well as the loss of plant level economies of scale (the same can also occur for vertical investments). However, this distinction between horizontal and vertical investments can help in explaining investments that differs in nature, such as Japanese automobile plants in Catalonia that are designed to serve the European market, and investments in call centres in Catalonia (Barcelona) to service world-wide activities of home country companies.

2.4 Multinationals

Multinational enterprises (MNEs) are *firms that own a significant equity share (typically 50 % or more) of another company (henceforth subsidiary or affiliate) operating in a foreign country.*⁷⁷ In order to become a multinational enterprise, one has to make a foreign direct investment.

2.4.1 Dunning's OLI framework

Dunning's OLI framework, where the capital letters stand for the main forces underlying the internationalization of production, is meant to be a systemic theory of international production – in which it incorporate former theories of trade into a theory that intends to explain why, where and how an enterprise becomes multinational.⁷⁸

According to this model, a firm will engage in foreign direct investment if three conditions are fulfilled:

- 1) It possesses an exclusive ownership to something (a product or production process) generating potential pure profits in several countries (O – ownership advantage)
- 2) Foreign production is better than exports (L – location advantage)
- 3) It is more beneficial to the enterprise to produce internally in the firm rather than to sell or lease their advantages to foreign firms (I – internalization advantage)

4) Ownership advantage

The O advantage is the “why” of MNE activity. This factor is related to the firms' specific advantages and is thus *internal* to the particular firm.

In order for a firm to be competitive in a foreign market it needs some ownership advantage that is readily transferable across borders within the MNE network relative

⁷⁷ Barba Navaretti et al (2004), page 2

⁷⁸ CEPR Policy Paper no 8 (2002)

to other firms (national and international), so that it can enjoy some market power advantage in the foreign market. This is important because there are additional, and sometimes very high costs related to operating in a foreign market. These costs could be due to cultural, legal, institutional and/or language differences, lack of knowledge about local market conditions, and/or the increase expense of communicating and operating at a distance. Therefore, in order to be successful in another country, the foreign firm must possess some advantages that overcome the costs of operating in a foreign market.⁷⁹

These O advantages take the form of a privileged possession of tangible and intangible assets. These are typically:

1. Knowledge-based assets (include all forms of innovation activities: know-how, R&D capacity, etc.)
2. Economies of large size (advantages of common governance: economies of scale and scope, economies of learning, broader access to financial capital throughout the MNE organization, and advantages from international diversification of assets and risks)
3. Monopolistic advantages (patent rights, brand names, reputation, ownership of scarce natural resources that acts as barriers of entry and enables firm to earn monopoly rents)

In brief, these advantages stem from *size, monopoly power* and better *resource capability and usage*.⁸⁰

5) Location advantage

The L advantage determines the “where” of production. Location advantages reflect the advantages associated with locating the production abroad. These advantages include both the location advantages specific to the region, but also the O advantages that the firm can make use of especially in that region. The firm always has an option to produce at home and export rather than producing in a foreign

⁷⁹ Dunning (1993a)

⁸⁰ Dunning (1981), page 27

affiliate. Foreign production implies that location specific endowments (for example what the foreign affiliate has to offer to the parent company) favour a foreign country, but ownership endowments favour the home country's firms. These ownership endowments must be sufficient to overcome the costs of producing in a foreign environment (country). Then it follows that in order to explain the determinants of international economic involvement and the advantages of any one region (country) in terms of location, such factors as the firm and its assets (tangible and intangible) must be taken into account. Therefore, location-specific endowments itself is not necessarily sufficient in explaining trade in goods based on ownership-specific endowments; often the use of ownership advantages is better exploited in conjunction with location specific endowments in a foreign country.⁸¹

The location advantages of various countries are thus of great importance in determining which will be the host country for the MNE.

These country specific advantages can be divided into three categories:

1. Economic (quantities and qualities of the factors of production, size and scope of the market, transport and telecommunications costs, etc.)
2. Social/cultural ('psychic distance' between the home and the host country, general attitude towards foreigners, language and cultural differences, and the overall stance towards free enterprise)
3. Political (general and specific government policies affecting inward FDI flows, international production, and intra-firm trade)

The location specific advantages include *intangible assets* such as technology and information (knowledge), managerial, marketing and entrepreneurial skills, organizational systems and access to intermediate or final goods markets that are specific to a particular location in their origin and use, but available to all firms. For example, a clustering of companies (national as well as international) has potential spillover effects that might be beneficial to all companies. An additional advantage can be the cultural environment in which it is deployed. Historical ties between

⁸¹ Dunning (1993a)

countries, for example between European countries and former colonies in Latin America, can be determining for European firms to invest in those countries. Geographical closeness is also important as it reduces the 'psychic distance' between the countries. Other advantages that might be related to the environment (*tangible assets* such as natural resources, manpower and capital⁸²) can take form as legal, political and institutional actions, market structure and government legislation and policies. For example, creations of investment agencies, general tax incentives, membership in the EMU, etc. positively contribute in making a region look attractive.

Alternatively, these assets may be owned by particular enterprises of the home country, but capable of being used with other resources elsewhere, like property rights or a commercial monopoly.

For some kinds of *trade*, it is sufficient for the exporting country to have only a location advantage over the importing country. This is typically the case for trade between developed and developing countries. Other kinds of trade, like the trade taking place between developed industrialized countries, is more based on the O advantages of the exporting firm as it involves more innovatory activities/products. However, foreign-owned production will replace trade whenever the firm is able to use their O advantages *in combination* with the location-bound advantages of an importing (or third) country. Again, it must be stressed that it is the existence of a market failure (the market's inability to organize interactions efficiently) that causes MNE activity rather than trade.

Although the three factors in the OLI framework interact with each other, they are variables that can be considered separately. Especially the location and the mode of foreign involvement are two independent decisions which a firm has to take. Though the final decision on where to locate its production will itself depend on the network and characteristics of its O advantages and the extent to which it perceives that a certain location will help it to internalize intermediate product markets better than another.

⁸² Dunning (1993b)

What location specific advantage the firms perceive to be the most important one depends on the motive behind the decision to invest abroad. If the enterprise is seeking natural resources (could be land and labour), possession of such resources and the development of related transport and communications infrastructure, tax and other incentives will be decisive factors in determining location. Other resources, such as technological capability, management or marketing expertise and organizational skills, can also be related to a certain location (and in accordance with the need of a firm to acquire such capabilities). This is typically important in sectors such as the pharmaceutical and automotive (and is increasing in its importance!). Market seeking FDI focuses on market size and characteristics, and prospects for market growth. This type of FDI is typically undertaken by enterprises that invest in a particular country or region to supply goods and services to markets in these or nearby countries. This caused the large inflow of FDI to certain European countries after the EU Single Market in 1992. But also material and labour costs, as well as governmental policies (with respect to regulations and import controls, investment incentives, etc.) are important factors for market seeking FDI.

If it is a so-called efficiency seeking FDI, the main motive for undertaking FDI will be that of reducing costs. The efficiency seeking investment can be divided into two kinds: 1) the one designed to take advantage of the traditional differences in the availability and of traditional factor endowments in different countries (a reason for why MNEs produce in both developed and developing countries), and 2) the one designed to take advantages of the economies of scale and scope, and the differences in consumer tastes and supply capabilities. These are thus related to both products and processes.

FDI for strategic purposes usually contains both economic and pure strategic elements. Therefore it includes reasons mentioned above, although it is important to notice the major emphasis whether or not the *location* is also able to *offer* technology, markets and other assets in which the firm is deficient. The presence of other MNEs can thus be very important (to benefit from spillovers).

To summarize then, a foreign country is very attractive for inward FDI if it can offer a large, growing and high income market (as for market seeking and strategic seeking FDI for instance), low production costs (efficiency seeking), a large endowment of factors scarce in the home country (resource seeking), an economy that is politically stable, and is culturally and geographically close to the home market.

6) Internalization advantage

The I advantage determines the “how” of involvement. There are different ways of doing an entry into a new market (expanding to new markets). Export is a natural alternative. Furthermore, contractual resource arrangements may be organized through leasing (licensing), outsourcing, technical assistance, management and franchises, and so forth, and are all modes of entry. The decision rests however, upon the preference of the firm to keep its functions internal or choose to rely on market relations. FDI is to do with firms choosing to keep their activities inside their firm, operating wholly owned foreign subsidiaries⁸³.

Due to imperfections and disequilibria in external mechanisms of resource allocation, an enterprise chooses to replace, or not to use, the mechanism in the market to organize the allocation of its activities. Instead they allocate their resources by their own control procedures; they *internalize* their activities. It is a well-known fact that where markets are perfectly competitive, the co-ordinating of interdependent activities cannot be improved upon; there is no advantage in replacing a perfectly working market system by a centrally administered control system. From this it is clear then, that the incentive for internal co-ordination of activities by a firm does not rest on the advantages of centralization per se, but rather it is a consequence of the fact that external markets are imperfect, thus giving the enterprise a possibility to exploit such imperfections through the internalization of activities or, on the other hand, protect themselves against such market failure.⁸⁴

⁸³ Barba Navaretti et al (2004)

⁸⁴ Dunning (1993a)

Dunning distinguishes between two types of market imperfections: *structural* and *cognitive*.⁸⁵ Structural imperfections may be barriers to competition and economic rents earned, and/or high transaction costs. Transaction costs include costs related to search, communication, specification of details, (re-)negotiation, monitoring of quality, transport, payment of taxes, enforcement of contracts - so-called hold-up problems that can arise in the presence of incomplete contracts between MNE and local producer-, or economies of interdependent activities cannot be fully explored. Cognitive market failures are related to information and information asymmetries and consequently agency costs. Information may not be readily available or it may be very costly to acquire. Also, there is a certain degree of risk involved in the transmission of intangible assets owned by the MNE to the benefit of their local partner (can later become a competitor).

Another incentive for internalization of the activities is the uncertainty over future market conditions. The enterprise may have to compensate for absence of future markets. Public intervention in the allocation of resources may also encourage internalization of activities. Governments may create distortions (however justified in the pursuance of for example macroeconomic goals and thus have a legitimate economic purpose!) by using taxes, tariffs and other forms of trade barriers that create additional costs for firms and reduces the profitability. Through *transfer pricing* and other financial manoeuvres, MNEs can, by internalizing the activities, to some extent avoid these imperfections.⁸⁶

However, there is a trade-off that firms must consider when choosing to internalize their activities rather than relying on market transactions: internalization may bring a direct cost penalty, but avoids problems of contractual incompleteness in dealing with outside agents. The cost penalty of internalization is that of by undertaking the activity itself, the firm cannot benefit from a potential local lower-cost supplier. The local supplier may have better information about local conditions (labour skills, demand conditions, administrative procedures) that helps him/her produce at a lower cost than a MNE. Also, it can be highly specialized with particular expertise in the activity, and with a substantial plant-level economy of scale, in which case the costs

⁸⁵ Dunning (1981)

⁸⁶ Dunning (1993a)

of expanding the production of the local firm will be lower than building up a new plant. On the contrary, the costs of using the market are determined by transaction costs, imperfect information, and contractual incompleteness.⁸⁷ And these costs of outsourcing can be very high for a MNE due to the nature of the activities (brand, reputation, technology, etc.). From this following conclusion can be drawn that the higher the O advantages of the firm are, the more likely is it to internalize its activities.

In the case of HFDI, the motives behind keeping the activities within the firm will mainly be related to the necessity of protecting the firm's intangible assets; for example preventing it from imitation and dissipation of knowledge capital and brand image. For VFDI, the main advantage of internalizing the activities is that of avoiding transaction costs that can arise as a result of incomplete contracts and assets specificity. But in both cases the cost of internalizing the activity stem from not using the comparative advantage of a local producer. By not relying on a specialized agent (upstream as input suppliers and downstream as assemblers or distributors), average costs of supplying the final market increase.

Other reasons for internalization of activities include the possibility to benefit from differences in interest rates, avoid fluctuations in the exchange rate, etc.⁸⁸

⁸⁷ Barba Navaretti et al (2004)

⁸⁸ Dunning (1993a)

3 FDI and the host country

3.1 Policies towards FDI

Although there are split opinions about the effects of FDI and the existence of multinational enterprises on the host economy, host governments tend to consider foreign direct investment as a potential source for economic growth and therefore use policies as a tool to make themselves more attractive as a location for direct investments. And the different policies applied do matter for the overall economic activity of the MNEs; in terms of location as well as activity levels.⁸⁹ In South Korea, although the government had led a restrictive policy to control the inflows of foreign capital, the country was one of the hardest hit by the Asian financial crisis in 1997. Before then, most private R&D was done within large corporations, *chaebols*, financed by bank loans (from abroad). Lenders assumed that the government would never let the biggest *chaebols* fail, and so let them over-borrow. In 1997, the most indebted *chaebols* went bankrupt and were broken up, and caused a sudden withdrawal of foreign capital. Those *chaebols* that stayed in South Korea started outsourcing more high-tech work to small companies. At the same time the government opened up for foreign investment to stimulate high-tech start-ups: tax breaks and subsidies for venture capital created a new market, and venture capital investments shot up from \$1m in 1995 to \$65m in 2000.⁹⁰ Also in India, due to the liberalization of the policy regime in the 1990s, along with an active courting on the behalf of the government, there was a considerable improvement in the investment climate.⁹¹ India has now become one of the most favoured IT business outsourcing destinations in the world.

Such policies may be of a *general* character, such as increased government spending on education to raise the level of human capital or to make sure of a political and macroeconomic stable environment. This is important in order to make one selves more favourable in terms of location opportunities for foreign investors. A direct investment is the start of a long-term relationship in which the firms will be

⁸⁹ Barba Navaretti et al (2004)

⁹⁰ http://www.economist.com/displaystory.cfm?story_id=850773

⁹¹ Dunning and Narula (1996)

exposed to the economic and political conditions in the host country, with significant costs involved. For such reasons a foreign investor are not likely to make investments in a market characterized by unsettled, political disputes, corruption, or the possibility of their investment suffering from expropriation. An institutional framework that is reliable and makes sure that the profit earned abroad can be transferred out of the country, can therefore be used as a governmental instrument. This will provide a calm atmosphere indicating that potential future disputes may be solved in a fair and efficient manner. Another general policy lies in the labour market and the legacy of short-term versus long-term employment.

Specific policies, on the other hand, are direct policies in order to make it easier and more beneficial for the foreign investor to choose a certain country over another as a location for its investments, and reduce the fixed or operating costs of setting up a foreign subsidiary. These are investment subsidies, special tax regimes, and an advanced and efficient-working infrastructure. Such policies may reduce the fixed or operating costs of setting up a foreign subsidiary.⁹²

Policies may be welfare improving depending on their level of importance in spillovers and linkages to local firms. Most FDI takes place in the modern sector and as soon as the size of the sector matters, investments may be positively linked to starting a process which increases the overall productivity of the firms and their competitiveness.⁹³ R&D activities are perhaps the most important source for potential and beneficial spillovers, but it is also an activity that is relatively footloose. Here it may be necessary to offer special policies in order to keep the activity within the region. However, policies to attract FDI are not always good for the country. It may reduce overall welfare if political economy mechanisms dominate. Then the subsidized sector will become too large and cause other sectors to loose due to higher wages and increased taxes. Another potential negative effect on the overall welfare is if there exist policy competition between countries and regions. The effects may be a redistribution of income from the host economy to the MNEs. Also, the presence of MNEs mean that some of the profit earned in a location will be

⁹² Barba Navaretti et al (2004)

⁹³ Ibid

transferred out of the country (due to the foreign ownership), and thus not end up in “national pockets”.

Transfer pricing – the ability of MNEs through the prices they set on internal transactions, to move earnings between subsidiaries – is a well-known phenomenon related to MNEs. To the extent that income is taxed differently on different regions, the MNEs can by this manoeuvre affect their overall tax burden by moving their income between countries.⁹⁴

It is important to notice that the incentives to use policies arise in the wake of market imperfections. In the case of well-functioning markets all benefits would be realized through market interaction (market equilibrium), and there would be no gain in using policies to regulate or attract FDI; thus policies serve as a tool for correcting market failures.

With regard to trade policies, trade liberalization typically leads to more vertical foreign direct investment. This can partly explain the increase in VFDI since the 1990s; especially in the case of the EU Single Market. On the contrary, horizontal foreign direct investment is the type of investment that is likely to occur when there are high trade costs involved.⁹⁵

Empirical studies show that MNEs adjust to differences in tax regimes, and that labour market conditions and investment incentives are of importance. However, general policies and host country conditions are by far more important factors of attracting FDI than specific policies.⁹⁶

⁹⁴ Barba Navaretti et al (2004)

⁹⁵ Ibid

⁹⁶ Ibid

3.2 Effects of FDI on host country

FDI can be beneficial for the host economy, but it is not a prerequisite for economic development!⁹⁷ Positive effects of FDI on the host economy may take form through inflows of capital and additional technology, adding competition to the host economy, and their ability in creating new job opportunities. But it can also undermine local firms through tougher competition leading to crowding out of local firms. Furthermore, it can threaten economic stability and undermine local governments.⁹⁸ However, as mentioned initially, to determine whether the effects of FDI has been positive or negative, one should keep in mind what the situation would be like without inward investments. A more thorough analysis of the possible effects of FDI on the host economy follows.

According to Barba Navaretti and Venables, the effects of FDI on host (receiving) and home (sending) countries are *transmitted through different channels that can be organized into three groups: 1) product market effects, 2) factor market effects, and 3) spillover effects*. Further, the importance of these effects depends on the type of investment (for example, if it is horizontal or vertical), and on the characteristics of the countries.

1) *Product market effects*

Product market effects relate to the consumers and the national firms sales and profit. A typical example is horizontal foreign direct investment, where the point is to replace imports by local production in order to better supply the host country market.⁹⁹ The effects could be a crowding out of local producers, competing away market shares or loss of a domestic firm through a merger and acquisition. The national firms may be forced to reduce their sales (or forced out of industry), and the consumers will be left no better off due to less varieties to choose between. On the other hand, there may appear a change in the price level (price reduction due to higher productivity). Also, entry of FDI/MNEs may increase the competition between

⁹⁷ Bjorvatn, Kind, Kyvik Nordås (2001)

⁹⁸ Barba Navaretti et al (2004)

⁹⁹ Ibid

the firms, with the effect of making local producers more effective. Then the consumers may face increased varieties of goods, and perhaps also with better quality; an overall *increase* in consumer welfare.

From a welfare point of view, due to increased competition, a more efficient MNE can fully replace inefficient national firms, which in turn will have a favourable effect on national welfare.

2) *Factor market effects*

Factor market effects can arise both in capital and in labour markets.¹⁰⁰ Capital inflows augment the local stock of supply, and may increase the GDP per capita in the capital importing country.¹⁰¹ What is more important is the impact for which foreign direct investment has on the labour market. The entry of MNEs may create new job opportunities due to a higher demand in labour (direct effect). Also, MNEs may link up with the local producers demanding intermediate goods and product services. This thus leads to an increase in the local production and may raise the labour demand (indirect effect). The following effects would be reduced unemployment and/or increased wages.¹⁰²

3) *Spillover effects*

Foreign direct investment and the entry of multinational enterprises could imply technology transfers. As mentioned earlier, most MNEs are involved in high-tech industries, and in order to be successful they need some advantages. Therefore it is likely that they are operating with very advanced technology. This may also be beneficial for the local producers through access to more advanced labour (higher labour skills achieved through the “education” from MNE) or, as suppliers of intermediates to MNEs, they have to offer a certain level of technologically advanced specifications or procedures used by the MNEs.

¹⁰⁰ Barba Navaretti et al (2004)

¹⁰¹ Bjorvatn, Kind, Kyvik Nordås (2001)

¹⁰² Ibid

From Romer/Rivera-Batiz and their model of endogenous growth and trade (a more detailed explanation can be found in appendix 7), we know that flows of goods and knowledge increase long term growth, rather than just flows of goods which will only have a positive level effect – a so-called one shot gain.¹⁰³ Hence, access to better technology is the only source of sustained growth.

¹⁰³ Romer and Rivera-Batiz (1991)

4 New Economic Geography

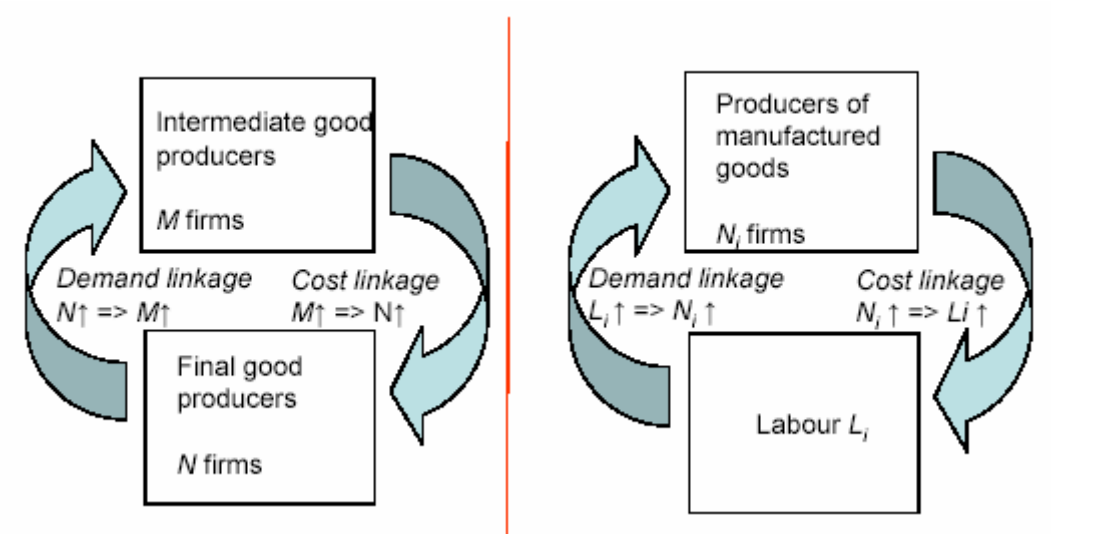
With reference to new economic geography and location theory, firms' location decisions very much rest upon the possibility to benefit from scale economies while minimizing transportation costs. Thus, for example, manufacturing firms typically locate in regions with larger demand; however, the location of the demand itself depends on the distribution of manufacturing (due to mobile workers/consumers). There are different "forces" affecting the geographical concentration of firms, and some can be classified as centripetal forces, such as market size, thick labour markets and pure external economies promoting clustering, others classified as centrifugal, such as immobile factors, land rents (clustering will typically lead to higher land rents) and pure external economies that has an opposing effect on concentration.

As a starting point for the analysis of localisation and clustering of firms, it can be natural to refer to Marshall's conception of external economies. This gives three reasons for localisation: 1) a concentration of several firms in a single location offers a pooled market for workers with industry-specific skills, ensuing both a lower probability of unemployment and a lower probability of labour shortage, 2) localized industries can support the production of non-tradable specialized input, and 3) informational spillovers can give clustered firms a better production function than isolated producers.¹⁰⁴

The effects of FDI are likely to take place through input-output linkages. The following two models illustrate such linkages. However, these two models differ in that Krugman and Venables's model from 1995 (KV) does not assume factor mobility and thus makes it more applicable to international and interregional economics.

¹⁰⁴ Krugman (1991)

Figure 4.1: Self-reinforcing cost and demand linkages



KV (1995): Vertical industry linkages

K (1991): Linkages between firms and mobile workers/consumers

Source: ECO426¹⁰⁵

These input-output effects are both backward and forward linkages. In the case of firms and mobile workers/producers, manufactured goods production will tend to concentrate in the region with the larger market (due to economies of scale), but the market will be large where the manufacture production is located, thus creating a backward linkage. This linkage may be reinforced by a forward linkage; because of the concentration of production of manufactured goods, people find it more desirable to live and produce near such a concentration due to the lower prices they might be facing (again economies of scale). Thus large urban population areas are attractive places to locate production because of the size of the local market and because of the availability of the goods and services produced there, and the ability to attract more people to such an area (creating a circular process).

With details in the geography that emerges (what sector will be the concentrated one), the initial position is crucial. For example, if there was to be only one financial centre, London or Frankfurt is more likely to become the one than say Oslo. The financial activities in Paris are already decreasing.¹⁰⁶

¹⁰⁵ Lecture ECO426 (15.04.2005): Kind, H.J. (NHH)
¹⁰⁶ Krugman (1998)

While Krugman's model from 1991 states that the mechanism creating the externalities is linkages between firms and workers/consumer, Krugman and Venable's model from 1995 states that it is the linkages between firms that create the externalities.

If one region has initially a larger manufacturing sector than the other, this region offers a large market for intermediate goods, and thus makes it more attractive for locating the production of such goods. This backward linkage (created by the demand for local intermediates) may further lead to a forward linkage. Because this region produces a greater variety of intermediate products (goods) than another, better access to these goods means lower costs of production of final goods. This gives the firms additional incentives to locate their production in this area (region) and leads to a further increase in manufacturing production in this area, and so on. These linkages create a self-reinforcing effect in that it drives up the demand for labour in the manufactured production. An industrial concentration supports a thick local labour market, especially for specialized skills, so that employees find it easier to trace qualified employers and the other way around.¹⁰⁷

These linkages and spillovers achieved through the entry and the presence of the MNE(s) may induce a self-reinforcing growth in the domestic industry as well.

¹⁰⁷ Krugman (1998)

5 FDI in Catalonia

Over the last ten years Catalonia has attracted around 20-25% of total FDI to Spain. Several of the multinational enterprises operating in Catalonia have been established in the region for more than ten years. According to CIDEM, 60% of the MNEs in Catalonia have been there for ten years, and about 40% of the foreign companies have been setting up in the area of Barcelona during the last ten years. None of the companies are showing any immediate future plans to resign their activities in the region. Rather, the contrary seems to be the case. Many companies are making Catalonia, and especially Barcelona, their focal point from which they serve entire markets (especially Spain and Europe). New companies also seem to choose Catalonia as a location for their activities when expanding their business. Recent investigations are ranking Barcelona as the most preferred city in Europe for foreign enterprises for locating their production.¹⁰⁸

It should be noticed that many of the following references and examples will be related to the Barcelona area. This is due to the fact that industry is heavily concentrated in the Barcelona area; 90% of the total number of companies operating in Catalonia are located in this area.¹⁰⁹

5.1 Sector overview

Catalonia has a diversified business structure, with a rather balanced combination of services and industry. The industrial sector is made up of small- and medium-sized firms, along with large (mostly foreign-owned) companies. The smaller companies function as complements to these international corporations operating in Catalonia.¹¹⁰

Catalonia is typically attracting chemical, pharmaceutical, packaging, automotive, and consumer electronics industries, among others. It also hosts several emerging industries, which is illustrated by the fact that many foreign companies have invested

¹⁰⁸http://www.fdimagazine.com/news/fullstory.php/aid/885/European_City_of_the_Future_2004_5:_Barcelona.html

¹⁰⁹ http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf

¹¹⁰ http://www.eurocities.org/_INDEX.php

in the biotechnology, aeronautics, renewable energy, and recycling industries which have required heavy foreign investment. In addition, Catalonia is known internationally for its R&D, design and engineering, logistics, and shared service centres activities.¹¹¹

Due to significant foreign investments in the high tech industry, Spain has been referred to as “the California of Europe”, with Barcelona being Spain’s Silicon Valley.¹¹²

Below follows a brief description of the key business sectors generating investments in Catalonia.

5.1.1 Automotive

Spain is one of the fastest-growing vehicle-production centres in the world, and is the third most important car producer in Europe, ahead of the United Kingdom and Italy.¹¹³ Catalonia, with its capital Barcelona as the main location, is responsible for producing 32% of Spanish automotive parts and is also the home of 38% of the Spanish automotive companies, thus making it the most important site in terms of this industry. Three major assembly plants are located in Barcelona, namely Nissan, Seat, and Irisbus (Iveco). 80% of the automotive production and 60% of the components production is exported. Also, Catalonia has one of the strongest motorcycle-clusters in Europe: 75% of the total Spanish motorcycle production takes place in Catalonia, and eight out of ten motorcycling manufacturers that produce in Spain are located in this region.¹¹⁴

Determining factors for the localization of the automotive industry in Catalonia have been a combination of geographical location and size, quality of labour, high productivity and cost-competitiveness typical for the region. In this regard, there has been an extensive growth in networks of R&D and technology centres for the automotive industry, with high priority being accorded to research, development,

¹¹¹ http://www.eurocities.org/_INDEX.php

¹¹² Heard (1999)

¹¹³ www.catalonia.com

¹¹⁴ <http://www.cidem.com/catalonia/en/catbcn/automotive/index.jsp>

innovation, application and transfer of new technologies, as well as specialized training. All these factors have been decisive for the leading multinational companies in this industry to locate their production operations as well as technological and research centres in Catalonia.¹¹⁵

As the automotive industry has been gaining more and more importance in the Catalan industry, so has the automotive design industry – thus taking advantage of these factors. In recent years, Catalonia has become one of the major design centres in Southern Europe. Also, it is ranked second after California in terms of the number of automotive design centres.¹¹⁶

5.1.2 Design

Barcelona is famous throughout the world for its design. However over all of Catalonia all types of design are carried out: graphic design, environmental design, product design, interior design, digital, and textile and fashion design.¹¹⁷ Especially the industrial design sector has been getting a lot of attention. This includes the automotive industry, consumer electronics, railways, the aerospace industry, machine tools, urban furniture, office equipment, household appliances, lighting and furniture.

The high number of design projects carried out in the region has attracted many foreign companies, and today companies such as Volvo, Audi, Renault, SEAT, Sony, Epson and Hewlett-Packard, among others, have established their design centres in Catalonia.

SEAT's Director of Design and Head of Design of the Audi Brand Group, Walter de'Silva, declared: *"Catalonia offers a perfect environment; a synthesis between Latin joviality and Central European efficiency, I take a great deal of pleasure in the atmosphere, the light, the weather, the landscape and the visual richness of Barcelona. It is a city full of life and emotion and it is open to many other cultures."*

¹¹⁵ <http://www.cidem.com/catalonia/en/catbcn/automotive/index.jsp>

¹¹⁶ <http://www.cidem.com/catalonia/en/catbcn/design/index.jsp>

¹¹⁷ Ibid

*Thus, it has attracted companies from the creative world and in particular from the automotive sector.*¹¹⁸

Design activities inject € 600 million into the Catalan economy each year.¹¹⁹

5.1.3 Chemicals

Spain is the fifth largest chemical producer in Europe and the seventh largest in the world. It is the second largest export sector behind the automotive industry. Catalonia accounts for 47% of Spain's total chemical industry production.¹²⁰ Catalonia is also the region that attracts the most foreign direct investment in this industry. In 2002, 44.84% of FDI to Spain in the chemical industry was invested in Catalonia.¹²¹ As a result of this, the chemical sector is dominated by foreign companies, like BASF, Bayer, Repsol YPF, ICI, Dow Chemical, and more, and is concentrated in the provinces of Barcelona and Tarragona, the latter being the main location for the petrochemical industry in Spain.

5.1.4 Life science

Catalonia has become one of the leading regions in Europe when it comes to research activities, and Barcelona is the most important city in Spain in this field. 30% of the spending of technological- and innovation activities is carried out in Catalonia.

Special emphasis needs to be put on the biotechnology and pharmaceutical industry, in which Catalonia accounts for 60% of all Spanish pharmaceutical production and concentrate 50% of all Spanish laboratories. Major foreign biotech companies like Amgen, Invitrogen, Innogenetics, Cytoc and Actelion are located in Catalonia. It is also the home and birthplace of the four biggest pharma companies in Spain (Esteve, Almirall Prodesfarma, Uriach and Ferrer).¹²²

¹¹⁸ <http://www.cidem.com/catalonia/en/why/testimonials/design/index.jsp>

¹¹⁹ http://www.eurocities.org/_INDEX.php

¹²⁰ Ibid

¹²¹ <http://www.cidem.com/catalonia/en/catbcn/chemical/index.jsp>

¹²² <http://www.cidem.com/catalonia/en/catbcn/life/index.jsp>

The Government of Catalonia has put great emphasis on this field, and today Catalonia has a great science base with science parks, close relations between universities, research centres and hospitals, and significant governmental funding related to R&D, export outreach programs and entrepreneurial activities.¹²³

5.1.5 Logistics

Due to its geographical location, Catalonia has become the “logistic hub of Southern Europe”. Many international companies use Catalonia as a platform for accessing Spanish, Southern European, North African and Middle Eastern markets, as well as the new economic core that has developed in Southern Europe (Spain and Portugal), taking advantage of an extended transportation network.

Many multinational companies have their regional distribution centres in Catalonia, like Ikea, Sony, Samsung, among others. Furthermore, several of the automotive companies carry out their value-added logistics activities in Catalonia and then distribute their products throughout Europe.¹²⁴

The transport and communication industries in Catalonia together account for 8% of the Catalan GDP and employ 6% of the Catalan population.¹²⁵

5.1.6 R&D

Catalonia is the Spanish region that invests the most in industrial innovation. It was the first Spanish region in patent applications to the EPO in 2003.¹²⁶

R&D expenditure grew at an annual rate of more than 12% between 1987 and 2001, and today Catalonia is the third European region in terms of employees in high-tech and medium tech manufacturing.¹²⁷

¹²³ <http://www.cidem.com/catalonia/en/catbcn/life/index.jsp>

¹²⁴ <http://www.cidem.com/catalonia/en/catbcn/logistics/index.jsp>

¹²⁵ http://www.cidem.com/catalonia/binaris/logistica_tcm51-7587.pdf

¹²⁶ <http://www.cidem.com/catalonia/en/catbcn/rd/index.jsp>

¹²⁷ Ibid

Barcelona Science Park, the Biomedical Research Park, the Supercomputing Centre and the Mediterranean Technology Park are some examples of the initiatives of the Government to promote R&D.

5.2 Types of FDI in Catalonia

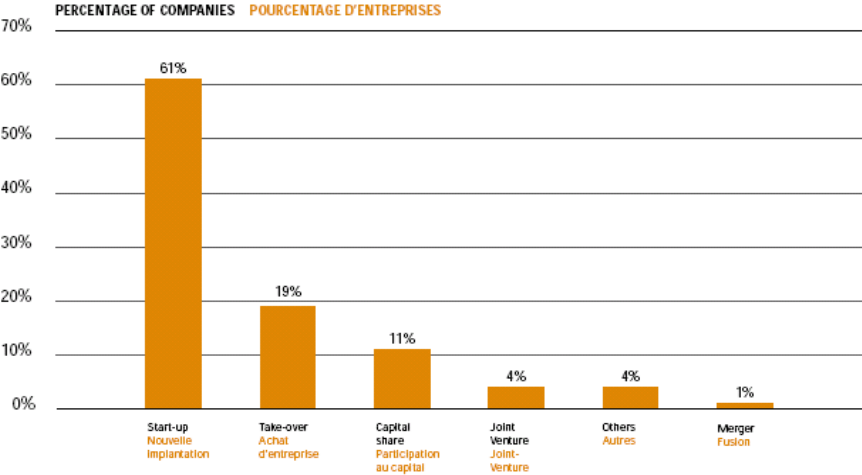
Consistent with the diversified business structure, FDI in Catalonia takes form both as HFDI (especially in the automotive industry) and VFDI (SSC activities), thus enabling the investing companies to take advantage of good market access and differences in factor costs. Trade liberalization and the EU membership can explain much of the FDI in the region. However, in this regard one should notice the nationality and origin in relation to the type of investment undertaken in the region. For example, Japanese and US firms (countries that are geographically removed from the EU market) are mostly engaged in horizontal FDI whereas German, French and Dutch firms are for the most part engaged in vertical FDI.¹²⁸ This reflects the influence of geographical proximity on the investment decision.

5.2.1 Horizontal foreign direct investment

According to a report released by KPMG with the collaboration of CIDEM and Barcelona Activa in 2002, most foreign enterprises make an entry into the Catalan market through *start-ups* or *greenfield investments*, corresponding to 61% of foreign investment, followed by take-overs and buying shares in local companies. Other methods, such as joint venture and mergers and acquisitions, are less used when establishing a company in the Barcelona area (see figure 5.1).

¹²⁸ Dunning (1993a)

Figure 5.1: Type of investment carried out



Source: KPMG, CIDEM, Barcelona Activa (2002)¹²⁹

Barcelona Activa, KPMG and CIDEM consider greenfield investment to generate more wealth and stress its tendency to be longer and of a less speculative nature; thus favourable to both MNE and region.¹³⁰

Much of the FDI to Catalonia is of a market seeking character (although combined with efficiency seeking/low cost reasons – which I will come back to later), driven by the area’s geographical location which gives market access to the EU Single Market of more than 459 million people– including a large and growing domestic market.¹³¹ For example Barcelona’s gross domestic product and GDP per capita is above the Euro-15 average.¹³² A large consumer market and reduced costs of trading in the region overcome the additional costs of operating an extra plant. As is the case for the automotive industry, Spain is the most important market. Due to the current low vehicle ownership (404 vehicles per 1000 people)and the relatively old age of vehicles currently registered in Spain (34.1% of all cars dates back to 1989),¹³³ Spain is a promising market for this type of industry. As mentioned earlier, Catalonia

¹²⁹ http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf
¹³⁰ Ibid
¹³¹ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf
¹³² http://www.fdimagazine.com/news/fullstory.php/aid/885/European_City_of_the_Future_2004_5:_Barcelona.html
¹³³ http://www.cidem.com/catalonia/binaris/pub04_autom_tcm51-4389.pdf

hosts a large share of the production which is taking place, and is therefore a natural choice of location for such industry.

Jumping trade barriers explain much of the horizontal FDI to Catalonia. For example Japanese and US firms located in the region (and Europe in general), are attracted by the possibility to jump the EU's external trade barriers to gain access to the European market. Also, high trade costs on the firm's final output is encouraging Japanese and US firms to undertake HFDI in the downstream activities, like the construction of assembly plants to meet the local demand in each market.

This leads us to the importance of being present in the a market to meet local demand (overcome possible cultural barriers and differences that can stem from a geographical distance such as Japan and the US), but also to take advantage of the positive externalities stemming from the clustering of companies in the region.

As presence in the market may influence the competitors, undertaking HFDI also has a strategic purpose. Although perhaps not seeking monopoly, they want to strategically increase their market power in order to keep potential newcomers out of the market. Again, to use the automotive industry as an example, presence in the market is important to meet local demand, thus making it possible to differentiate the product in accordance with the customers needs, and further capture a larger market share.

Although plant scale economies will be lost, most of the MNEs in Catalonia are in possession of large amounts of firm specific assets, enabling them to take advantage of these and gain economies of scale. The characteristics of the activities carried out in the region thus reflect the high level of knowledge capital, reputation and brand names – factors that are all possible to exploit through economies of scale.

5.2.2 Vertical foreign direct investment

Since the mid-1990s, more and more MNEs have been establishing their shared service-centres world-wide (in accordance with the world-wide FDI trend).¹³⁴ Financial, human resources, administrative and IT activities, as well as those directly related to external clients, like call centres, contact centres, etc., are all considered to be shared services.¹³⁵ In this context, Barcelona has turned out to be a very attractive location for this type of vertical foreign direct investment; with many MNEs establishing especially their call centres in this area. AVIS, Agilent technologies, General Motor group, Citigroup, Euroservice Bayer, are some of the large multinational companies that have moved their shared service-centres to Catalonia.¹³⁶ Although these SSC mostly undertake operations within Europe, an increasing number of companies is expanding these centres to include the Middle East and North Africa as well (Agilent Technologies Spain, S.L. (former part of Hewlett Packard) also includes South America).

Shared service centres allow companies to eliminate repeated work and transfer this transaction to one central unit, thus reducing costs and improving service quality.¹³⁷

The need to ensure service effectiveness is the driving force behind shared-services centres. The MNEs have chosen to centralize these activities in Catalonia (Barcelona) based on cost reducing factors (efficiency reasons) such as low labour costs, high productivity, extensive infrastructure (telecommunication network), multilingual workforce (people from all over the world are attracted to Catalonia because of the high quality of life), cheapness and availability of land, and therefore also taking advantage of economies of scale (less administration and management).

Much of the automotive production in Europe (which is particularly relevant for this case) is split between countries as well. For example, there are a lot of component production taking place in Catalonia and being shipped back to assembly (as is the case for European investors). Trade liberalization and EU membership have

¹³⁴ UNCTAD (2004)

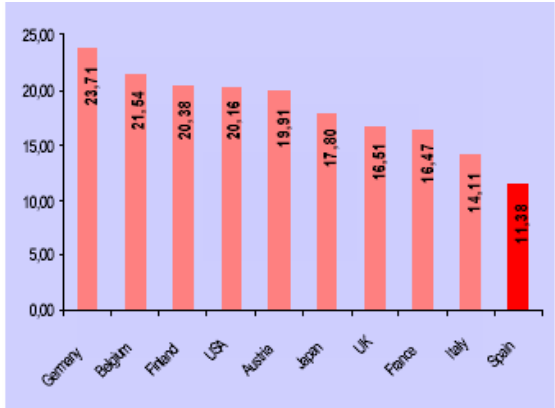
¹³⁵ BISER (2003)

¹³⁶ http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf

¹³⁷ <http://www.cidem.com/catalonia/en/catbcn/ssc/index.jsp>

contributed to making it profitable to split up the production processes between different countries (free trade allowing goods to cross borders several times), and enabling the firms to take advantages of differences in factor inputs. Catalonia has both low labour costs relative to many other European countries and has attracted large inflows of VFDI because of this, as well as the low real estate costs relative to other large and important European cities.¹³⁸ This corresponds to figure 2.4 (page 35) where we see that low trade costs both in component and assembly will induce a fragmentation of the production with all component taking place in Catalonia and assembly in home country. Low trade costs thus allow the firms to take advantage of differences in factor inputs.

Figure 5.2: Labour costs



Cost per hour in euros for industry (labour taxed included). 2002 data.

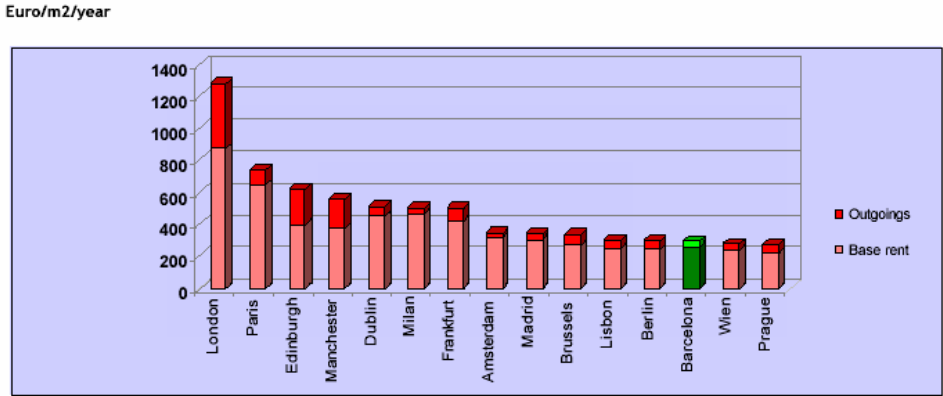
Source: CIDEM (2005)¹³⁹, based on data provided by the US Department of Labour, 2003.

From figure 5.3 we see that Catalonia has competitive real estate costs – with one of the lowest European office costs.

¹³⁸ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

¹³⁹ Ibid

Figure 5.3: Real estate costs



Note: Occupancy costs are defined as the average total costs of leasing approx. 1000m² of net usable office space in a modern, well-specified office building within a prime Central Business District Location. They include rent and outgoings (such as maintenance costs) and exclude rent-free periods or fitting-out costs.

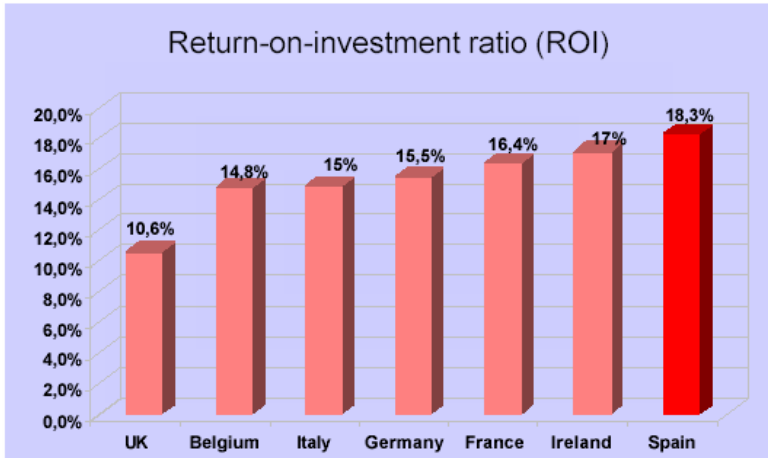
Source: CIDEM (2005)¹⁴⁰, data from “Global Office Occupancy Costs Survey 2004”, by DTZ Research

Competitive cost performance allows for high profitability; according to CIDEM companies investing in Catalonia can recover their total investments within five years (see figure 5.4). The return-on-capital ratios for Catalonia and Spain are among the highest in Europe. This is partly the result of high quality service standards and the competitive costs of utilities in Catalonia.¹⁴¹

¹⁴⁰ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

¹⁴¹ Ibid

Figure 5.4: Return-on-investment ratio in Catalonia



Figures in % of returned capital to the company worked out over an annual investment period.

Source: CIDEM (2005), based on data provided by the OECD. Perspectives Economiques 1999.

Nowadays, however, the low labour costs seem to be of decreasing importance as the region is attracting more and more high-value added activities like design, R&D intensive activities, pharmaceutical industry, and so forth. Also, it can be seen from the fact that for example SEAT has decided to move their production plant *from* Catalonia *to* Slovakia; a result of the EU enlargement (decreasing trade costs to East European countries) and possibilities to exploit differences in factor inputs (note: this might be the start of a further relocation of such activities). Rather, it is the difference in the *abundance* of labour (the resources available) that attracts MNEs to Catalonia. The region has a highly qualified labour force, especially in research intensive activities. A further effect of this is the agglomeration of R&D activities that enables the companies to benefit from access to technology, information and specialized management.

Note that with the fragmentation of a production process, it always follows trade costs independent of the degree of integration of the market. These are, as already mentioned, trade costs related to packaging and freight, time in transit, import tariffs on goods that cross borders, and a whole package of penalties associated with having to manage geographically separate operations. Therefore, locations with good transportation and trade links, as well as geographical closeness to home country,

are important factors and are thus relevant for Catalonia's success in attracting vertical FDI; especially from neighbouring countries. For example, in this regard Catalonia serves as a strategic location from which assembly plants in France, Portugal, Italy and Spain can be reached in one day.

5.3 The OLI framework

As the main objective of this paper is to identify and discuss the factors that have been particularly important in terms of attracting FDI inflows to Catalonia, the focus will be on locational determinants. However, in line with the OLI framework, below follows a brief discussion of some of the O and I advantages of firms investing in Catalonia as well, along with a more extensive analysis of the L advantage of the region.

5.3.1 Ownership advantages

Many of the companies operating in Catalonia are large and well-known multinationals, in possession of advanced technology and other significant firm specific assets (see appendix 8 for UNCTAD's list over the world's 50 largest MNEs).

These are, for example, Philips, Royal Dutch-Shell Group and Unilever (the Netherlands), Epson, Kao Corporation, Nissan, Montesa-Honda, Sharp and Yamaha (Japan), General Electric, General Motors-Andersen, IBM, Citibank, Compaq, and Procter & Gamble (the US), BASF, Behr, Bosch, Deutsche Bank, Volkswagen-Seat and Mercedes Benz (Germany), Danone, Schlumberger, Carrefour and Global One (France), Nestlé (Switzerland), Sony, IKEA (Sweden), to name some.

Very characteristic of the industry in Catalonia, as well as these companies, is the large extent to which they are involved in innovation activities, thus possessing high levels of R&D capacity. Furthermore, these companies can easily take advantage of the benefits associated with being large, such as advantages of common governance and diversification of assets and risks. Along with the monopolistic advantages that follow from the possession of a strong brand name, these are advantages that are specific to the firm and can be enjoyed independent of location and generate profit

“everywhere” (thus overcome additional costs of operating in a foreign market). Therefore, it enables the enterprises to expand across borders.

Also, these companies have typically been in business for many years, thus benefiting from experience and competencies, ownership (I) advantages that they can bring with them when opening up a new plant or expand their business.

5.3.2 Location advantages

Apart from the lower labour and land costs relative to other European countries, good market access and the benefits from trade liberalization and an integrated EU market (factors already explained with regard to VFDI), there are other location specific factors that have made Catalonia very attractive to foreign investors. Although the importance of *geographical* location cannot be underestimated.

Catalonia serves as a strategic location for logistics and distribution activities (see above). This can be seen from the trend of MNEs in Catalonia to move such activities to this region, and has led to continuous improvements with regard to transportation infrastructure. For example, the transportation links with the Asian markets are partly to meet the needs of one of the largest concentrations of Japanese manufacturing companies in Europe.¹⁴²

Such government actions by the Generalitat can furthermore be exemplified by what has been called *the Delta Plan of the Llobregat*, a project – with an expected investment of € 2.9B¹⁴³ - which involves a massive upgrading of the capacity of the port, airport and logistic zones, and connecting the high-speed train to these. Also, Barcelona will be part of the European high-speed rail network connecting the city to Paris and Madrid.

In addition, Catalonia invests large proportions of its GDP in IT (estimated to be approximately 6% of GDP).¹⁴⁴ The infrastructure transformation process was initiated

¹⁴² <http://www.cidem.com/catalonia/en/catbcn/logistics/index.jsp>

¹⁴³ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

¹⁴⁴ Ibid

with the Olympic Games in 1992 (the importance of political actions in this process should be stressed, especially the role of Maragall – now President of the Generalitat – who led the transformation process¹⁴⁵). Catalonia has continued the upgrading, and today it has a state-of-the-art telecom infrastructure. Such extensive communication networks (among other reasons), has transformed Catalonia into an attractive “spot” for locating European, Middle Eastern and African (EMEA) shared service centres. There are now more than 20 foreign-owned shared service centres currently operating in Barcelona.¹⁴⁶

Although the Catalan economy is mainly service-led, the geographical location and the infrastructure (especially the ports) have been important in terms of attracting petrochemical industry as well. Due to the lack of oil and gas reserves in Spain, and as a solid consumer country, it must therefore import most of the oil consumed domestically.¹⁴⁷ There are four refineries in Spain, including Tarragona on the Mediterranean coast. Large companies like Repsol YPF are thus located here, and serves their main markets (Europe and Latin America) from Tarragona.¹⁴⁸

EU membership

With regard to EU membership, it is not only market access that is important. Additional advantages come from the perception of economic (as well as political) stability that is a condition for EU membership. Spain’s EU membership in 1986 and later the EMU membership (European Monetary Union) in 1992, have enabled Catalonia to benefit from some of the advantages of the euro. For example, the euro complements the free movement of people, goods, services and capital. It also eliminates the uncertainty that is associated with exchange rate variations, as well as transaction costs like currency exchange, charges, and bank fees, with foreign countries. For example, a standardized distribution agreement between 35 EU countries facilitates trade.¹⁴⁹ Also, the euro creates macroeconomic stability, contributes to price stability, and favours national debt financing. These are all factors that foreign investors value highly when undertaking FDI. NIFCO (a world-

¹⁴⁵ ProEx International/ <http://www10.gencat.net/president/AppJava/en/president/biografia.jsp>

¹⁴⁶ http://www.fdimagazine.com/news/fullstory.php/aid/1354/Diversity_and_dynamism.html

¹⁴⁷ <http://www.19wpc.com/oil.php>

¹⁴⁸ <http://www.repsolypf.com/eng/todosobrerepsolypf/conozcarepsolypf/repsolypfenelmundo/quimica/introduccion/introduccion.asp?PaginaID=56287&Nivel=22>

¹⁴⁹ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

leading Japanese company in automotive components) for instance, acquired Acriplas (a Catalan automotive component company) when it decided to build a new plant. This company left the UK due to the high exchange rate of the British pound, and chose Catalonia over of East European countries.¹⁵⁰

Not only EU membership establish a stable economic climate; the local government (the Generalitat) also plays a major role in this respect. For example, Catalonia has had the same government for 23 years, led by Jordi Pujol (1980-2003). This shows a continuity and stability, in this case for the business environment, thus contributing to a degree of predictability regarding the policies made by the local government.¹⁵¹ In December 2003 Maragall took office as President of The Generalitat – another important Catalan politician over the years.

Policies

More specifically, Catalonia has a government that is actively seeking FDI. The creation of CIDEM (the Investment Promotion Agency of Catalonia), which was itself a pioneer project¹⁵², in 1985 serves as a good example. CIDEM provides information and advice about the incentives that are available to companies that wish to or already have located their operations in Catalonia, covering all administrative levels as well as national and European, regional and local funds. In addition, they offer practical assistance at all stages of the foreign investment project. Furthermore, reports have been released the past years in co-operation with foreign companies set up in Catalonia. This opening up for dialogue between the MNEs and the government gives the companies opportunity to give advice and respond to as how they perceive the general business climate, and enables the government to make important improvements.

Catalonia also has a beneficial tax system, including significant deductions on corporate tax for R&D activities and technological innovation, training, ICTs, offshore

¹⁵⁰http://www.cidem.com/catalonia/binaris/pub04_autom_tcm51-4389.pdf

¹⁵¹ Øyvind Kyvik, ProEx International (21.12.2005)

¹⁵² BISER (2003)

activities and environmental investments, among others. These are activities considered to be in the country's interest.¹⁵³

Such public innovation policies have been important for the business environment in Catalonia, and has made Barcelona a preferable location for many site selectors especially in the R&D sector. In 2004, Catalonia attracted more than half of FDI in Spain related to R&D activities¹⁵⁴ (see appendix 9 for further information on R&D in Catalonia relative to Spain and EU).

For instance, the chemical industry, which is research intensive, thus has a high level of expenditure in R&D. The government has helped finance a wide range of chemical technological centres, infrastructure and logistics to respond to the needs of the chemical industry.¹⁵⁵ In addition, this requires a network of high quality public and private laboratories and R&D centres collaborating with private companies and universities. Because of this there are several science parks, like Parc Científic de Barcelona, which is in collaboration with Universidad de Barcelona, and Parc Tecnològic del Vallés, to mention some, in Catalonia.

Other projects carried out by the Generalitat related to the knowledge society are for example *22 @bcn* (Barcelona's long-term investment potential); a project that is transforming an industrial district (once called "Catalonia's Manchester") in the inner-city part of Barcelona, Poblenou, into resembling Silicon Valley, as it is regenerating distinct industrial zones for media, marketing and other service-related activities such as SSCs. It is the first project in Europe of its kind.¹⁵⁶ *22 @bcn* is to become a space where non-polluting industries will live side by side with offices, a new university, housing, shops and hotels (a so-called "lifestyle-cum-technology zone"¹⁵⁷). The activities which are planned are those related to information and communication technologies of ICT, and other sectors related to research, knowledge, publishing,

¹⁵³ <http://www.cidem.com/catalonia/en/business/taxation/direct/corporate/index.jsp>

¹⁵⁴ http://www.fdimagazine.com/news/fullstory.php/aid/1354/Diversity_and_dynamism.html

¹⁵⁵ BISER (2003)

¹⁵⁶ www.fdimagazine.com/news/fullstory.php/aid/1354/Diversity_and_dynamism.html

¹⁵⁷ Ibid

culture and design.¹⁵⁸ It has already attracted over 120 businesses of all kinds; Microsoft, McDonalds, Calvin Klein, City Group, to name a few.¹⁵⁹

As part of a larger effort to increase the rate of FDI to the region, the Generalitat has also established trade offices, called COPCA, in a number of locations around the world. In addition to encourage FDI inflows, COPCA attempts to increase the export from the region with the aim of attracting even more investment from foreign MNEs. CIDEM is also represented and providing services around the world, with offices in New York and Tokyo.

The organization of trade fairs (Fira de Barcelona) is another governmental action that allow Catalonia to demonstrate its dynamic business environment. Fira de Barcelona has consolidated itself as the most important organizer of professional and industrial trade fairs in Spain and Europe.¹⁶⁰ Fira de Barcelona holds 80 trade fairs a year, with 30 000 exhibiting companies and 3.5 million visitors.¹⁶¹ Some of the most prominent trade fairs that Fira organizes are *Construmat* (European construction fair), *Salón Internacional del Automóvil y Vehículo Comercial* (recognized as a “Major International Motor Show”), *Moda Barcelona* (gathering of international fashion), *Salón Náutico Internacional* (one of the most prestigious in its category). The Generalitat has also succeeded in arranging other big congresses in Barcelona (as part of Fira’s Strategic Plan), and has thereby succeeded in bringing further big events to the region.¹⁶² For example, *Universal Forum of Cultures in 2004* took place in Barcelona, and turned the city into an international meeting point with the focus on cultural diversity, peace and sustainability. A complete urban regeneration of the sea-front as well as installation of new infrastructure and amenities were some of the governmental actions taking place ahead of the event.¹⁶³

¹⁵⁸ http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf

¹⁵⁹ www.fdimagazine.com/news/fullstory.php/aid/1354/Diversity_and_dynamism.html

¹⁶⁰ http://www.cambrabcn.es/Ingles/Business_in_barcelona/frameset_business_in_barcelona.htm

¹⁶¹ http://www.firabcn.es/portal/fol/institucional/institucional?paf_pageId=74300003&paf_communityId=700001&paf_dm=shared&paf_portalId=default&CurrentWebCategory=2900007

¹⁶² Marta Eugenia Ruiz, ProEx International (21.12.2005)

¹⁶³ http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf

Creative atmosphere

As mentioned previously, Catalonia, and especially Barcelona, has emerged as a new major design centre in Europe. This is a sector that not only seeks to take advantage of proximity to its customers, but is also seeking and stressing the need for a creative environment in which the employees can explore their competencies but also make use of other creative input. Many MNEs emphasize the innovative atmosphere found in Catalonia.¹⁶⁴ For example, the life style, in which people go out and meet and exchange ideas in a relaxed and comfortable environment, is considered a very important and inspiring factor. According to Ruiz, commercial manager of ProEx International, this has been crucial in attracting innovative (high value added) activities to Catalonia.

Furthermore, as was the case for Volvo when establishing in Catalonia, is the strategic effect of being present in what has been referred to as 'the emerging design capital in Southern Europe', thus the strategic effect of being located in an internationally renowned market. But Volvo also emphasizes the creative effect of having the design centre in a Mediterranean location; *"we have given a Mediterranean twist to Scandinavian style and it appears to be quite successful"* (David Ancona, Chief Designer Volvo Strategic Design Barcelona).¹⁶⁵

High quality of life

In recent years the importance of quality of life has taken on greater weight in company decision making.¹⁶⁶ To be able to attract qualified employees economic incentives are no longer enough. Professionals need to feel well integrated in the city where they live, and for this reason, elements referring to quality of life are considered more and more important, and is one of the factors MNEs take into account when investing in Barcelona. A welcome by the local population and the ease of integration, the variety of leisure activities, as well as the level of medical and healthcare cover influence companies when deciding to come to the area of

¹⁶⁴ www.catalonia.com

¹⁶⁵ <http://www.cidem.com/catalonia/en/why/testimonials/design/index.jsp>

¹⁶⁶ http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf

Barcelona; thus being factors rated positively by foreign companies.¹⁶⁷ Due to its openness, Catalonia is considered the most European region in Spain.¹⁶⁸

With regard to the labour force, it is not necessarily the labour costs that are considered important for locating the industry in Catalonia. According to CIDEM, Barcelona Activa and KPMG's survey from 2002, MNEs consider the most the various aspects related to human resources when investing in Barcelona. The most important ones are productivity and efficiency, quality of labour, as well as the labour climate and the knowledge of languages. These factors complement the type of activities that are being carried out in Catalonia in general. The high percentage of the population with a university degree has been central in this respect. Furthermore, the availability of a workforce with knowledge of languages is very important for the companies that move their shared service centres to one location. Recently, Barcelona has become the favourite Spanish destination for young foreigners; in 2002 there were around 8000 foreign students in Catalonia – 24% of total foreign students in Spain. Also, in 2003 there were almost 384 000 foreign residents in Catalonia – 23% of whom were European.¹⁶⁹ This has much to do with well-known and high quality universities, combined with the Mediterranean climate and the strategic location in terms of easy access to beaches and mountains. Furthermore, Barcelona is a cosmopolitan city that offers a cultural diversity, and takes culture very seriously (this can be seen by the number of different festivals taking place throughout the year). This not only attracts people from all over the world, but it also keeps them staying in the region – another important factor for SSC activities as these are typically characterized by high turnovers.¹⁷⁰

Taking into account that most MNEs are relatively footloose and prefer to keep the labour contracts on a relatively short-term basis, the flexible labour contracts found in Catalonia (and Spain), further favours the region. Foreign companies established in Catalonia consider labour stability as another determining factor upon deciding to invest in this area (and is also the factor with which they are the most satisfied).¹⁷¹

¹⁶⁷ http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf

¹⁶⁸ Rasmussen (2005)

¹⁶⁹ http://www.cidem.com/catalonia/binaris/About%20catalonia_tcm51-54933.pdf

¹⁷⁰ http://www.cidem.com/catalonia/binaris/Assetangles_tcm51-4387.pdf

¹⁷¹ http://www.cidem.com/catalonia/binaris/Inversionesangfran_tcm51-4391.pdf

The young population in Catalonia is positively contributing to a promising future labour market.

Barcelona is further known for its entrepreneurial spirit with regard to business. According to a case study of Catalonia carried out by Rheinisch-Westfälisches Institut für Wirtschaftsforschung in co-operation with European Policies research Centre (University of Strathclyde Glasgow)¹⁷², Catalonia is the most dynamic region in Spain in terms of firm creation, with 20% of total new firms created in Spain (1998 numbers). Nokia, for example, has recently established a modern R&D centre in Catalonia to develop new products and services. According to Miquel Teixidor, business development manager of Nokia for Catalonia, states that *“for us, one of the most appealing reasons... was the possibility of working with small- and medium sized companies as well as with well-regarded universities. It is a cost competitive region due to its location in one of the most industrialized areas in Europe and it also offers highly qualified professionals in technology.”*¹⁷³ All these factors have led to a further clustering of companies.

In this respect, it is important to mention the EU membership and its funding of small- and medium sized firms in Catalonia (the Objective 2 fund), which has contributed to growth and sustainability of the SMEs in the region.

As is clear, many of the MNEs are located in Catalonia due to the resources found there. For example land, labour, technology and skills. The automotive, chemical and pharmaceutical industries are concentrated as a cluster, and specifically concerned with the technological capability available in Catalonia. There are great spillover gains from such clustering, and the small- and medium sized companies are important as complements/suppliers to the larger MNEs (especially with manufacturing activities). Catalonia has a diversified business structure, which attracts several companies who want to take advantage of the spillover effects that this might imply.

¹⁷² Rheinisch-Westfälisches Institut für Wirtschaftsforschung and EPRC (University of Strathclyde Glasgow) (2000)

¹⁷³ <http://www.cidem.com/catalonia/en/why/testimonials/new/index.jsp>

“Aside from the geographic advantages of Catalonia, the chief reason to invest here is the cluster synergy of different industries and the strong services sector it has generated. Structural costs are low and so is the tax burden” (Business Week, January 12, 2000).¹⁷⁴

According to a paper by Pelegrín from 2003, a possible explanation for the concentration of FDI in manufacturing in Catalonia is that, unlike domestic investors, foreign investors face substantial asymmetry of information. A rational response to this is to locate in specific areas where the cost of information can be minimized. This means that the assets of foreign firms tend to be more concentrated than those of the local firms. Information has become increasingly important in the decisions of multinationals when choosing a location in a host economy. Regions in which information costs are low, are economic centres where communication infrastructure, administrative institutions and business services are readily accessible to FDI, coastal regions that are open to international markets, areas with previous foreign investment, where information can be transmitted to new foreign investors through business relationships, and cities implementing policies that encourage foreign investment.¹⁷⁵

5.3.3 Internalization advantages

As is typical for the industrial activities carried out in Catalonia, the multinational enterprises located in the region possess very strong ownership advantages. These are taking form as firm-specific assets, especially knowledge capital. With reference to the theory in part 2, the stronger the O advantages of the firm, the more likely it is to internalize its activities.

This is the case for the companies in Catalonia. For example with the design and automotive industry, independent suppliers must adapt quickly to the changing needs of designers and engineers and strictly follow their specifications. This requires investments that are specific to very particular products or product lines. Although the companies provide technical and financial assistance to help the suppliers to cope

¹⁷⁴ http://www.cidem.com/catalonia/binaris/pub04_autom_tcm51-4389.pdf

¹⁷⁵ Pelegrín (2003)

with its requests and their activities are strictly monitored, *hold-up problems* can easily arise¹⁷⁶ and cause significant problems, and costs, for the parenting company.

The size of the companies enables them to take advantage of economies of large size; incentives for keeping the activities within the firm. This allows them to maintain control over the types of products produced, export markets served and the outsourcing of intermediate products – all of which are important in today’s globalized and competitive world. Also, Catalonia is a dynamic location and by being present, it is likely that the firm will capture the benefits of integrating their production in the location through spillovers.

Further incentives for keeping the activities within the firms are the need to gain control of selling outlets, to ensure that the products exported are efficiently marketed and a proper standard of after-sales servicing is maintained; factors that are hard to control from a far distance – the case for Japanese companies who internalize their activities to monitor quality and price¹⁷⁷.

Because of the level of *firm-specific assets* (especially R&D capacity and knowledge capital) that these MNEs in Catalonia possess, the costs of transferring these assets to third parties may be too high. For example, the knowledge capital of the MNEs is embodied in the human capital of their employees, as in the case of skill-intensive service sectors, as well as in design and innovation/R&D. Therefore, to protect proprietary knowledge, they prefer to keep the knowledge capital internal and operate through a subsidiary. The uncertainty associated with selling (giving access to) core competencies such as the knowledge capital of many of the MNEs in Catalonia, is important, due to the fact that the licensee might end up becoming a competitor.

Although it is difficult to present empirical evidence of exactly why the multinational enterprises located in Catalonia choose to internalize their activities rather than choosing a licensing arrangement (using the term “licence” to include all forms of non-equity participation), it is possible to draw upon former evidence of a more

¹⁷⁶ Barba Navaretti et al (2004)

¹⁷⁷ Dunning (1993a)

general character to make assumptions as to why this is the case in Catalonia. For example, Dunning has found that Japanese companies located in Europe have favoured FDI because of the “difficulty of guaranteeing quality control” in such arrangements, which may be linked to the realization that it would not be possible “to ensure Japanese work style/management philosophy” in the licensees’ operations.¹⁷⁸ Other important factors were related to the difficulty of achieving an adequate licensing agreement; including the “difficulty of locating an appropriate licensee”, “inability to negotiate a satisfactory price for the ownership advantage”, and the “difficulty of enforcing patent or trademark rights”.¹⁷⁹

¹⁷⁸ Dunning (1993a), page 145

¹⁷⁹ Ibid

6 FDI and Catalonia

6.1 Effects of FDI

With reference to the previous parts, it is clear that the FDI inflows to Catalonia has had (and still has) great effects on the region, and has contributed to the economic growth that Catalonia has been experiencing.¹⁸⁰ Partly due to the governmental actions, the region has succeeded in taking advantage of the inflows of technology and the clustering of activities, thus positioning themselves as a major technological centre in Europe. Below follows an overview of some of the effects of FDI in Catalonia.

6.1.1 Product market effects

The local companies in Catalonia are generally defined as small- and medium sized enterprises, and have established themselves as suppliers to the larger foreign MNEs in the region. That is, rather than a crowding out of local firms, the local firms work as complements to these large corporations, thus benefiting from the technology available. This has enabled them to expand their own businesses. There is an increasing trend of Catalan firms undertaking FDI.¹⁸¹ This makes it more likely that the more inefficient firms have been forced out of the industry, whereas the ones left face increased competition.

6.1.2 Factor market effects

With regard to the factor market, and especially in terms of labour, the presence of the MNEs has contributed positively to the employment rate.¹⁸² The growth in the demand for staff in foreign companies has been very characteristic of the economy over the years. The 22 @bcn, for instance, is to create between 100,000 and 130,000 new jobs.¹⁸³

¹⁸⁰ BISER (2003)

¹⁸¹ ProEx International (21.12.2005)

¹⁸² www.europa.org

¹⁸³ http://www.fdimagazine.com/news/fullstory.php/aid/11110/Mega_projects.html

Overall, there has been an increase in jobs available in the region; not only in foreign companies (direct effect), but also through linkages with local companies due to increased output (indirect effect). This has raised the productivity level in the region. However, and as mentioned initially, the consequent effects of employment related to MNEs are not only positive. Rather, it has made Catalonia vulnerable to the effects of shocks in particular industries.

Also, a significant growth in space occupied by foreign companies has had a positive effect on the real estate market (premises, offices, industrial spaces) through increasing prices on rent.¹⁸⁴

6.1.3 *Spillover effects*

The industrial activities carried out in Catalonia are typically technology intensive and the region has a high level of high-tech companies and a significant level of R&D and innovation activities. This is the most important competitive advantage of the region. Foreign firms are clustering in the region in order to benefit from each other. Through collaboration between company and research centres and with the universities in the region, the MNEs also function as “promoters” of education. For example, due to the automotive industry, Catalonia is the only region that has a university degree in car design.¹⁸⁵

CIDEM has acknowledged (and specifically pursues cluster-based policies) that global competition can be fostered with local elements of competitive advantage. CIDEM values a clustering, or proximity to a cluster, in terms of bringing easy access to specialized suppliers, services and human resources, and information spillovers, as well as flexibility and fast changes due to extreme specialization.¹⁸⁶

¹⁸⁴ <http://www.cidem.com/catalonia/en/news/publications/Catalonia/index.jsp>

¹⁸⁵ Ibid

¹⁸⁶ Competitiveness (2002)

7 New economic geography and Catalonia

In the case of Catalonia, the advantage of a relative low wage (in EU context) is enriched by complementary elements which increase the productivity of investments and create external economies of agglomeration economies. Among these are the availability of a large pool of highly qualified and well-trained workers, a long industrial tradition and expertise, a good access to main markets, an extensive network of specialized suppliers, a strong endowment of transport and communication infrastructure, and a favourable environment in which the spillovers of technological knowledge are prominent.¹⁸⁷ This has enabled SMEs located in the proximity to the clustering of chemical, automotive and pharmaceutical industries in Catalonia, to benefit more intensively from the external support to innovative activities.

The high concentration of enterprises from the same industry found in Catalonia is beneficial as specialized inputs of labour, raw material and intermediate goods are more readily available. This increases the efficiency of production and generates strong forward and backward linkages in the area. Also, agglomeration economies related to technological activities (R&D) are important. As intellectual capital is becoming a key strategic asset, there has been a shift in the location needs of enterprises. Traditional requirements (access to markets and natural resources) are no longer as important as the need to have access to knowledge-intensive assets in order to improve the ownership advantages. Because geographical proximity is significant in transmitting knowledge, location in an area with significant levels of scientific and technological assets ensures access to spillovers of economic knowledge.¹⁸⁸ This is determining in explaining the agglomeration of industries in Catalonia.

With the automotive industry and within the context of steadily increasing competitiveness, major assembly plants are creating designated industrial parks near

¹⁸⁷ Rheinisch-Westfalishes Institut für Wirtschaftsforschung in co-operation with European Policy Research centre, University of Strathclyde Glasgow (2000)

¹⁸⁸ Pelegrín (2003)

their own plants to supply components on a just-in-time basis, thus improving the efficiency of their own global production systems.¹⁸⁹

Catalonia's long-standing industrial traditions were initially important in attracting manufacturing activities to the region. In this regard, the effects of FDI in Catalonia seem to have self-reinforcing costs- and demand linkages – leading to a self-reinforcing growth in the domestic industry. It should be noted that the Catalans are famous throughout Spain along with the saying: “The Catalans always think about money”.¹⁹⁰

¹⁸⁹ http://www.cidem.com/catalonia/binaris/pub04_autom_tcm51-4389.pdf

¹⁹⁰ Rasmussen (2005)

8 Discussion and conclusion

In recent years, Catalonia has been one of the main recipients of FDI in Europe. EU nations represent the greatest amount of investments – led by the Netherlands, Germany, France and the UK – followed by the US and Japan. Today, more than 3000 multinationals are currently operating in the region.

Catalonia's Generalitat very early considered FDI to be a source of economic growth and to stimulate economic activity. This has led to the development of specific actions and policies by the government to attract new foreign investment to the region – especially upon the EU membership. However, Catalonia has long standing traditions in attracting FDI, with leading foreign firms setting up their business in this region for decades. Over a hundred years ago, the first companies took advantage of the incipient industrialization of Catalonia and set up operations in the area around Barcelona. This is what the foreign companies continue to do today.

Spain's entrance into the European Union in 1986 has been very important for Catalonia's economic growth. Due to its strategic location, it has served, and still does, as a link and a platform to the growing Spanish market, the single European Market and the new economic core that has developed in Southern Europe. Not only does Catalonia benefit from its location; the region has also enjoyed great flows of money from the EU structural funds. This has enabled Catalonia to expand and improve the infrastructure in terms of traffic and communication, making itself an even more so attractive destination for foreign investors.

Of immense importance for the development of the region – though especially for the Barcelona area – has been the effects of hosting the Olympic Games in 1992. This initiated an intense process of transformation which Barcelona has continued to pursue.

What makes Catalonia an attractive destination for FDI is the region's location and its natural gateway into the European Union member-countries, the incentives offered by the local government for locating business in the region, the labour-skills and the

technology in the region, as well as the large and growing domestic market. FDI in Catalonia takes form both as horizontal and vertical. There has been an increase in VFDI, especially with regard to the shared services industry.

In recent years, foreign spending in Catalonia has been channelled through investments in highly qualified areas such as R&D centres, design centres, projects associated with new technologies, industrial projects designed to develop state-of-the-art product and centres for technology transfer from universities to companies.

The result of this innovative potential and actions is that Catalonia has attracted services companies from many different fields, as well as automotive design centres. Also, the Generalitat's sizeable investments in transport and logistics infrastructure have made Catalonia the logistic centre of Southern Europe.

The experience of FDI so far has been very positive. It has enabled the region to benefit from the advanced technology that many of the larger MNEs bring with them, economic benefits from the clustering of companies such as better access to suppliers and other complementary activities, creation of jobs, among other effects. The on-going government actions to encourage further FDI is indicative of the regions satisfaction with FDI.

A major challenge, and what is an increasing problem and obstacle to foreign direct investment in Catalonia, is that of the language issue. The use of Catalan is increasing and becoming more and more predominant in all activities. This situation, along with the fact that most companies find that the level of English knowledge among the native people in the region is low, makes MNEs (especially companies with relatively short term interests/investments) reluctant to invest in Catalonia and prefer to invest in Madrid (Catalonia's major competitor in terms of FDI) to avoid the language barriers.

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Appendix 1: Catalonia (the provinces)¹⁹¹



Source: Catalonia On-line (2005)

¹⁹¹<http://www.catalonia-online.com/eng/about.php>

Appendix 2: Occupation year 2003¹⁹²

| Population 16 or over (thousands of people) | Catalonia 03 | Spain 03 | EU 03(1) |
|--|-----------------|----------|----------|
| Rate⁽²⁾ of employment (%) | 53.8 | 48.8 | 52.2 |
| Rate⁽²⁾ of unemployment (%) | 9.3 | 11.3 | 8.0 |
| Rate⁽²⁾ of activity (%) | 59.3 | 55.0 | 56.7 |

(1) The rates for the EU is calculated on the basis of the total population aged 15 and over

(2) Catalonia and Spain: the rates have been calculated on the basis of the total population aged 16 and over; EU: of the population aged 15 and over.

Source: Cambra de comerç (2005) (scrap from table)

¹⁹² http://www.cambrabcn.es/Ingles/Business_in_barcelona/frameset_business_in_barcelona.htm

Appendix 3: Population (2002) and population structure (2001)

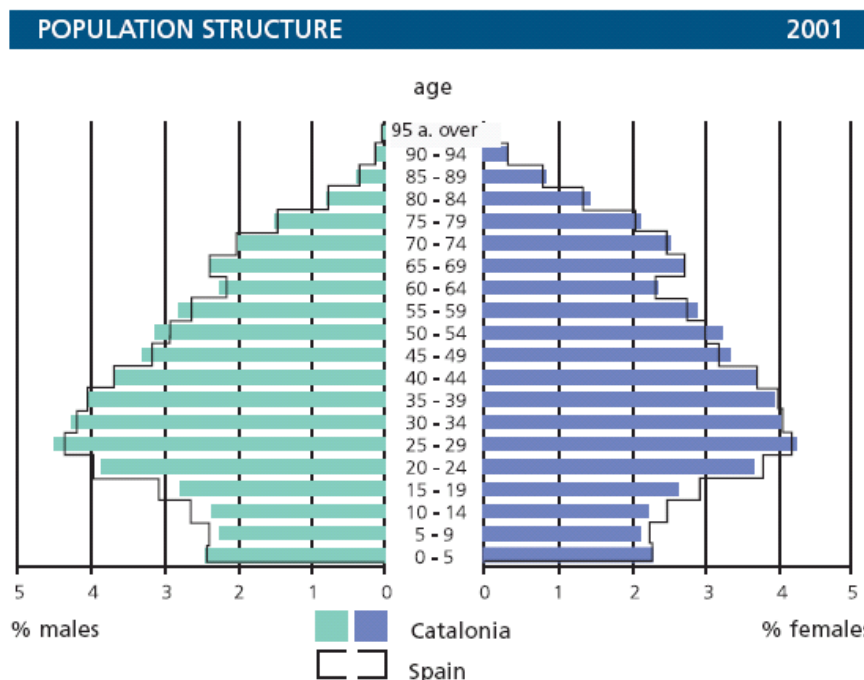
| POPULATION | | 2002 | | |
|--|---------------------|--------|---------|--|
| | Catalonia | Spain | EU-15 | |
| Density (inh/km ²) | 210 | 84 | 121 | |
| Population (1.000) ⁽¹⁾ | 6 704 | 42 717 | 379 483 | |
| males (%) | 49,4 | 49,2 | 48,9 | |
| females (%) | 50,6 | 50,8 | 51,1 | |
| Structure | | | | |
| <20 years (%) | 19,2 | 20,5 | 22,9 | |
| 20-39 years (%) | 32,6 | 32,7 | 29,5 | |
| 40-59 years (%) | 26,1 | 25,2 | 25,9 | |
| 60-79 years (%) | 18,0 | 17,7 | 18,0 | |
| ≥80 years (%) | 4,1 | 3,9 | 3,7 | |
| Net migration ⁽²⁾ | 19,0 ⁽³⁾ | 5,6 | 2,6 | |
| Natural increase ⁽²⁾ | 1,7 | 1,2 | 0,8 | |
| Total increase ⁽²⁾ | 20,7 | 6,8 | 3,4 | |
| Birth rate ⁽²⁾ | 10,6 | 10,1 | 10,6 | |
| Children per woman | 1,33 | 1,26 | 1,47 | |
| Marriage rate ⁽²⁾ | 4,8 | 5,1 | 4,8 | |
| Divorce rate ^{(2) (4)} | 1,3 | 0,9 | 1,9 | |
| Death rate ⁽²⁾ | 8,9 | 8,9 | 9,8 | |
| Life expectancy (years) | | | | |
| males | 76,9 | 75,7 | 75,5 | |
| females | 83,4 | 83,1 | 81,6 | |

⁽¹⁾ 1/01/2003.

⁽²⁾ Per 1.000 inhabitants.

⁽³⁾ Estimation.

⁽⁴⁾ 2001



Source. COPCA (2005)¹⁹³

¹⁹³ http://www.copca.com/armari/calaix1/000/00/00/911/xifres_ang04.pdf

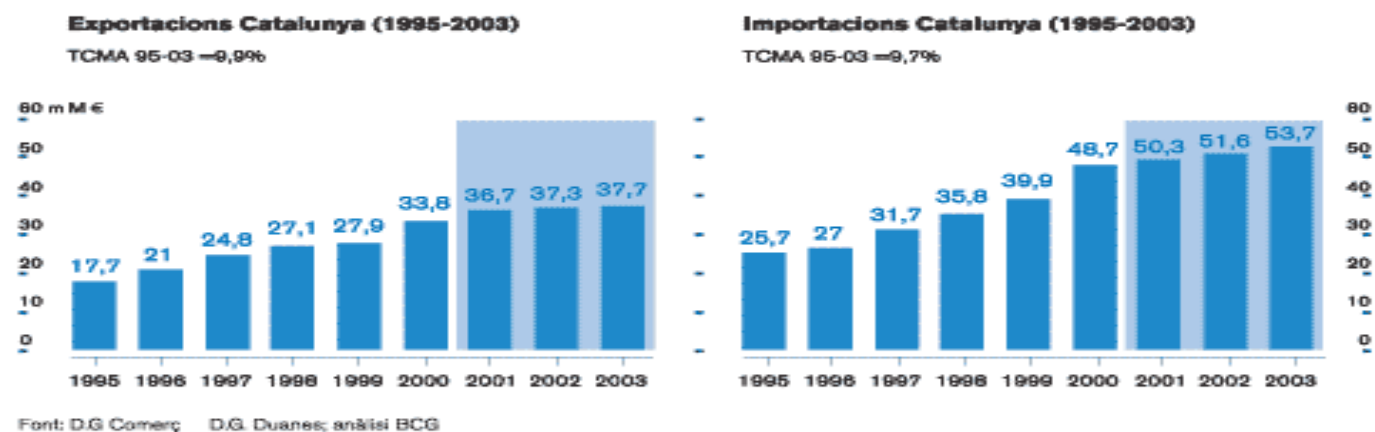
Appendix 4: Foreign trade, Catalonia 2004¹⁹⁴

| | Exports Millions of Euros | (%) 2004/2003 | Imports Millions of Euros | (%) 2004/2003 | Balance | Coverage (Exp/Imp) | % over Spain* |
|----------------------------|---------------------------------|------------------|---------------------------------|------------------|----------------|-----------------------|------------------|
| France | 7,665.2 | +2.33 | 7,178.4 | +7.91 | +468.8 | 106.78 | 26.99 |
| Germany | 4,811.5 | +1.65 | 11,393.4 | +6.54 | -6,581.9 | 42.23 | 28.15 |
| Italy | 4,142.7 | +5.59 | 6,899 | +12.13 | -2,756.3 | 60.04 | 31.32 |
| Portugal | 3,469.7 | +4.52 | 1,124.9 | +7.55 | +2,344.8 | 308.45 | 24.32 |
| United Kingdom | 2,973.9 | -0.9 | 2,869.7 | +4.43 | +104.2 | 103.63 | 22.49 |
| TOTAL EU | 39,303.4 | +4.3 | 38,866 | +13.56 | -9,483 | 75.60 | 27.14 |
| United States | 1,231.3 | -3.71 | 1,579.4 | -1.02 | -348.1 | 77.96 | 21.23 |
| Central & South America | 1,999.6 | +6.06 | 1,636.6 | +8.13 | +363 | 122.18 | 28.13 |
| Japan | 351.2 | +27.57 | 3,477.8 | +22.98 | -3,126.6 | 10.10 | 29.58 |
| TOTAL | 39,303.4 | +4.3 | 60,241.6 | +11.54 | -20,938 | 65.24 | 26.84 |

* Percentage of Catalan exports to each country or area, compared with Spanish exports.

Source: CIDEM (2005), based on data by Idescat 2005

Appendix 5: Evolution of import and export, Catalonia



Source: COPCA (2005)¹⁹⁵

¹⁹⁴ <http://www.cidem.com/catalonia/en/why/catalonia/figures/ftrade/index.jsp>

¹⁹⁵ <http://www.copca.com/plainternacional/index.htm>

Appendix 6: Ranking of foreign investing countries in Catalonia, 2004

| Countries | Investment Volume** | % of total FDI* |
|-----------------|---------------------|-----------------|
| The Netherlands | 366.88 | 23.61% |
| U.S.A | 216.17 | 13.91% |
| France | 161.45 | 10.39% |
| Luxembourg | 150.57 | 9.69% |
| Germany | 149.73 | 9.63% |
| Italy | 109.82 | 7.07% |
| United Kingdom | 50.79 | 3.27% |
| Portugal | 14.46 | 0.93% |
| Belgium | 12.95 | 0.83% |
| Japan | 7.10 | 0.46% |
| Subtotal | 1,239.92 | 79.79% |
| Others | 314.1 | 20.21% |
| TOTAL | 1,554.02 | 100.00% |

Notes: (*) FDI: Foreign Direct Investment. (**) Data expressed in thousand of euros.

Data expressed in millions of euros.

Source: CIDEM (2005)¹⁹⁶, based on data provided by the Spanish Ministry of Industry, Tourism and Trade.

¹⁹⁶ Ibid

Appendix 7: Endogenous growth and trade¹⁹⁷

Rivera-Batiz and Romer's (1991) model of economic integration and endogenous growth makes it possible to distinguish between a one-shot gain (a level effect) and a permanent change in the growth rate (a growth effect).

The purpose of this model is to provide some intuition that trade between the advanced countries may foster growth, the focus thus being on the pure scale effects of integration and not "comparative advantage" effects of trade between countries with different endowments and technologies. In this respect, FDI is presumably important in the transmission of ideas.

There are two sectors: manufacturing and R&D.

Manufacturing output is a function of human capital H (skilled labour), labour L (unskilled), and a set $x(i)$ of capital goods (stock of capital of type i). Technological progress is represented by the invention of new types of capital goods. A is the index of the most recently developed good.

There are two types of manufacturing activities: production of consumption goods and production of capital goods. Also, there is a third activity, R&D, that creates design for new types of capital goods .

The production function both for final goods (output Y) and existing capital goods is:

$$Y = H_Y^\alpha L^\beta \int_0^A x(i)^{1-\alpha-\beta} di$$

where α is share of human capital (skilled labour) used in production, and β is share of unskilled labour used in the production.

¹⁹⁷ Rivera-Batiz and Romer (1991): "Economic Integration and Endogenous Growth"

In equilibrium we have:

$$Y = AH_Y^\alpha L^\beta x^{1-\alpha-\beta}$$

With innovation technology, innovation of 1 machine creates 1 unit of knowledge for the society (knowledge A). Human capital and knowledge are the only inputs that influence the output of designs (that is, innovation of a new machine requires both human capital and knowledge):

$$\dot{A} = \delta H_A A$$

H denotes the stock of human capital used in research (skilled labour), A denotes knowledge available in the society (measure of general scientific and engineering knowledge as well as practical know-how that accumulated as precious design problems were resolved). New design build on this knowledge, thus it is the knowledge-driven specification of R&D. This imposes a sharp factor intensity difference between R&D and manufacturing: neither unskilled labour nor physical capital has any value in R&D (knowledge (A) is a non-rival input in R&D¹⁹⁸).

The balanced growth rate (equilibrium growth rate) for a *closed economy* under the knowledge-driven model of research is:

$$g = \frac{\dot{A}}{A} = \delta H_A \qquad g = \frac{\delta H - \rho \Lambda}{\sigma \Lambda + 1}$$

where Λ , ρ , σ are positive constants.

Researchers are more productive the larger the public knowledge stock, thus the growth rate is proportional to the numbers of researchers. \dot{A}/A indicates the growth rate in steady-state. From this we see that demand for unskilled labour does not affect growth rate; only skilled labour matter.

¹⁹⁸ ECO426

In balanced growth rate (growth rate in steady state), the growth rate of output is equal to the growth rate of A , $\dot{A}/A = \sigma H_A$, which is determined by the split of human capital $H = H_y + H_A$ between manufacturing and research sector.

If two identical economies are integrated into a single economy, there will be a change from H and L stocks to $2H$ and $2L$ (open up for integration means double access to labour and capital; $2H$, $2L$).

If we look at a case where there are flows of goods but no flows of ideas, opening up for trade means that capital goods produced in one country is exchanged for capital goods produced in the other. There will be no permanent effect on the growth rate. After trade is opened, the number of machines available for production doubles. Because the researchers are seeking monopoly rents they will specialize in the production of designs, so the effect will be a world-wide stock of designs twice as large as the stock that had been produced in either country. Now domestic manufacturers can take advantage of foreign design and vice versa. This increases the marginal productivity of skilled labour in production and raises the wages. For the research sector, trade implies that the market for any newly designed good is twice as large. This doubles the price of the patents of new design and raises the returns to investing human capital in research.

Since the return to human capital *doubles in both* of the competing sectors (wages doubles in both manufacturing and research), free trade in goods does not affect the split of human capital between manufacturing and research, and therefore does not change the balanced rate of economic growth.

However, free trade in goods can affect the level of output: immediately after trade is opened output in each country jumps by a factor $2^{\alpha+\beta}$ – implying a positive jump in the growth rate – doubling the shares used in manufacturing and research (a one-shot gain). Growth will remain high for some time, but in the long run nothing will happen. It can therefore affect welfare, but because there will be no change in the allocation of labour, it does not affect long-run growth rates.

Flows of ideas, however, may permanently increase the rate of growth.

From above, trade in goods has already been allowed and researchers have thus been given incentives to specialize in different designs. Allowing for flows of ideas implies that research in one country now depends on the world-wide stock of ideas (a union of domestic knowledge \mathbf{A} and knowledge available from abroad \mathbf{A}^*). The effective stock of knowledge that could be used in research after communication opens doubles:

$$\dot{\mathbf{A}} = \dot{\mathbf{A}}^* = \sigma H_A (\mathbf{A} + \mathbf{A}^*) = 2 \sigma H_A \mathbf{A}.$$

With complete integration, we have:

$$g^{\text{int}} = (\sigma 2H - \rho\Lambda) / (G\Lambda + 1) > g^{\text{aut}} = 2 ((\sigma H - \rho\Lambda) / (G\Lambda + 1))$$

where $2H$ indicates the effect of opening up for trade, and $(G\Lambda + 1)$ is the growth rate in autarky.

We see that a change in new machines, $\dot{\mathbf{A}}$, makes researchers more productive. Opening up for trade (allowing flows of goods *and* ideas) implies that the researchers can now use technology from both countries, enabling them to work with twice as much knowledge as before. This induces a reallocation of labour: $\dot{\mathbf{A}}/\mathbf{A} = 2\sigma H_A$ – a shift of human capital out of manufacturing and into research. There will be a permanent effect on the growth rate.

Appendix 8

Largest transnational corporations worldwide 3.1 A

World's top 50 non-financial TNCs in 2001 [1]

Million US\$ and number of employees

| Corporation (home economy) | industry | Foreign assets | Total | | |
|--------------------------------------|-------------------------------------|----------------|---------|---------|-----------|
| | | | assets | sales | employees |
| 1 Vodafone (UK) | Telecommunications | 187 792 | 207 458 | 32 744 | 67 178 |
| 2 General Electric (US) | Electrical and electronic equipment | 180 031 | 495 210 | 125 913 | 310 000 |
| 3 BP (UK) | Petroleum expl./ref./distr. | 111 207 | 141 158 | 175 389 | 110 150 |
| 4 Vivendi Universal (FR) | Diversified | 91 120 | 123 156 | 51 423 | 381 504 |
| 5 Deutsche Telekom AG (GE) | Telecommunications | 90 657 | 145 802 | 43 309 | 257 058 |
| 6 Exxonmobil Corporation (US) | Petroleum expl./ref./distr. | 89 426 | 143 174 | 209 417 | 97 900 |
| 7 Ford Motor Company (US) | Motor vehicles | 81 169 | 276 543 | 162 412 | 354 431 |
| 8 General Motors (US) | Motor vehicles | 75 379 | 323 969 | 177 260 | 365 000 |
| 9 Royal Dutch/Shell Group (UK/NL) | Petroleum expl./ref./distr. | 73 492 | 111 543 | 135 211 | 89 939 |
| 10 Total Fina Elf (FR) | Petroleum expl./ref./distr. | 70 030 | 78 500 | 94 418 | 122 025 |
| 11 Suez (FR) | Electricity, gas and water | 69 345 | 79 280 | 37 975 | 188 050 |
| 12 Toyota Motor Corporation (JP) | Motor vehicles | 68 400 | 144 793 | 108 808 | 246 702 |
| 13 Fiat Spa (ITA) | Motor vehicles | 48 749 | 89 264 | 52 002 | 198 764 |
| 14 Telefonica SA (SP) | Telecommunications | 48 122 | 77 011 | 27 775 | 161 527 |
| 15 Volkswagen Group (GE) | Motor vehicles | 47 480 | 92 520 | 79 376 | 324 413 |
| 16 ChevronTexaco Corp. (US) | Petroleum expl./ref./distr. | 44 943 | 77 572 | 104 409 | 67 569 |
| 17 Hutchison Whampoa Ltd. (HK) | Diversified | 40 989 | 55 281 | 11 415 | 77 253 |
| 18 News Corporation (AUS) | Media | 35 650 | 40 007 | 15 087 | 33 800 |
| 19 Honda Motor Co., Ltd. (JP) | Motor vehicles | 35 257 | 52 056 | 55 955 | 120 600 |
| 20 E.On (GE) | Electricity, gas and water | 33 990 | 87 755 | 71 419 | 151 953 |
| 21 Nestlé SA (CH) | Food and beverages | 33 065 | 55 821 | 50 717 | 229 765 |
| 22 RWE Group (GE) | Electricity, gas and water | 32 809 | 81 024 | 58 039 | 155 634 |
| 23 IBM (US) | Electrical and electronic equipment | 32 800 | 88 313 | 85 866 | 319 876 |
| 24 ABB (CH) | Machinery and equipment | 30 586 | 32 305 | 19 382 | 156 865 |
| 25 Unilever (UK/NL) | Diversified | 30 529 | 46 922 | 46 803 | 279 000 |
| 26 ENI Group (ITA) | Petroleum expl./ref./distr. | 29 935 | 55 584 | 43 861 | 80 178 |
| 27 BMW AG (GE) | Motor vehicles | 29 901 | 45 415 | 34 482 | 97 275 |
| 28 Philips Electronics (NL) | Electrical and electronic equipment | 29 416 | 34 070 | 28 992 | 188 643 |
| 29 Carrefour SA (FR) | Retail | 29 342 | 41 172 | 62 294 | 358 501 |
| 30 Electricité de France (FR) | Electricity, gas and water | 28 141 | 120 124 | 36 502 | 162 491 |
| 31 Repsol YPF SA (SP) | Petroleum expl./ref./distr. | 27 028 | 45 575 | 39 135 | 35 452 |
| 32 Sony Corporation (JP) | Electrical and electronic equipment | 26 930 | 61 393 | 57 595 | 168 000 |
| 33 Aventis SA (FR) | Pharmaceuticals | 26 368 | 34 761 | 20 567 | 91 729 |
| 34 Wal-Mart Stores (US) | Retail | 26 324 | 83 451 | 217 799 | 1 383 000 |
| 35 DaimlerChrysler AG (GE/US) | Motor vehicles | 25 795 | 183 765 | 137 051 | 372 470 |
| 36 Lafarge SA (FR) | Construction materials | 24 906 | 26 493 | 12 280 | 82 892 |
| 37 Nissan Motor Co., Ltd. (JP) | Motor vehicles | 24 382 | 54 113 | 47 091 | 125 099 |
| 38 AES Corporation (US) | Electricity, gas and water | 23 902 | 36 736 | 9 327 | 38 000 |
| 39 Roche Group (CH) | Pharmaceuticals | 22 794 | 25 289 | 17 463 | 63 717 |
| 40 BASF AG (GE) | Chemicals | 20 872 | 32 671 | 29 136 | 92 545 |
| 41 Deutsche Post AG (GE) | Transport and storage | 20 840 | 138 837 | 29 924 | 276 235 |
| 42 Bayer AG (GE) | Pharmaceuticals/chemicals | 20 297 | 32 817 | 27 142 | 116 900 |
| 43 GlaxoSmithkline Plc (UK) | Pharmaceuticals | 20 295 | 31 758 | 29 689 | 107 470 |
| 44 Royal Ahold NV (NL) | Retail | 19 967 | 28 562 | 59 701 | 270 739 |
| 45 Compagnie de Saint-Gobain SA (FR) | Construction materials | 19 961 | 28 478 | 27 245 | 173 329 |
| 46 BHP Billiton Group (AUS) | Mining and quarrying | 19 898 | 29 552 | 17 778 | 51 037 |
| 47 Diageo Plc (UK) | Food and beverages | 19 731 | 26 260 | 16 020 | 62 124 |
| 48 Conoco Inc. (US) | Petroleum expl./ref./distr. | 19 383 | 27 904 | 38 737 | 20 033 |
| 49 Philip Morris Companies Inc. (US) | Diversified | 19 339 | 84 968 | 89 924 | 175 000 |
| 50 National Grid Transco (UK) | Electricity, gas and water | 19 080 | 24 839 | 6 308 | 13 236 |

Appendix 9: R&D in Catalonia, relative to Spain and EU-15¹⁹⁹

| | Units | Catalonia | Spain | EU-15 | Period |
|---|---|-----------|---------|---------|--------|
| R&D expenditure | M euros | 1,900.9 | 6,431.0 | 175,000 | 2004 |
| R&D expenditure as % of GDP | % GDP | 1.14 | 1.10 | 2.0 | 2004 |
| High-tech manufacturing exports | % total exports | 11.60 | 7.30 | 20 | 2003 |
| Business R&D expenditure as a % of GDP ¹ | % GDP | 0.71 | 0.47 | 1.19 | 2003 |
| R&D personnel in full-time equivalent | Thousands of full-time equivalent personnel | 26.04 | 120.62 | 1,423.1 | 2003 |
| Researchers as % of labour force ² | o/o | 1.3 | 1.2 | 1.39 | 2003 |
| Employed in med/high-tech manuf. ³ | % of active population | 14.12 | 5.5 | 7.4 | 2003 |
| Population with tertiary education | % of 25-64 age bracket | 31.65 | 29.50 | 25 | 2003 |
| Company Innovation ³ | M euros | 2.751 | 10.174 | n/a | 2003 |

1 - Catalonia: 2002.

2 - EU-15:2002.

3 - Catalonia: 2002

n.a.: data not available

Source: CIDEM (2005), from Ministry of Science and Technology (Ministerio de Ciencias y Tecnología), CIDEM for the Generalitat de Catalunya, Catalan Statistical Institute (Idescat), Eurostat, National Statistical Institute (INE).

¹⁹⁹ <http://www.cidem.com/catalonia/en/catbcn/rd/index.jsp>