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**THE IMPACT OF US FOREIGN DIRECT
INVESTMENT IN SPAIN**

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Summary: What are the advantages of foreign direct investment for the country that receives it? This question has generated intense debate in recent decades, since flows of foreign capital began to have a significant influence on western economies. The debate continues today and is particularly focused on the impact of foreign direct investment (FDI) on the economic and social life of developing countries

1. INTRODUCTION

Some initial considerations

What are the advantages of foreign direct investment for the country that receives it? This question has generated intense debate in recent decades, since flows of foreign capital began to have a significant influence on western economies. The debate continues today and is particularly focused on the impact of foreign direct investment (FDI) on the economic and social life of developing countries. A recent article put it this way: “Is foreign direct investment good or bad cholesterol?”¹

Academic research concludes that, on balance, FDI is ‘good cholesterol’ for the economies that receive it. The advantages are immediately clear. In countries with a scarcity of capital, FDI helps provide the financing needed for productive investment. Generally, FDI is more stable than other more speculative flows of capital found in the financial markets, and almost always mean long-term investment projects. In general, more investment means more economic growth, more exports, more employment and higher per capita income in the recipient country.

The FDI that flows from more developed countries to less developed ones has very specific advantages. One of these is that it facilitates the transfer of technology. If a foreign subsidiary introduces new products or processes into the market receiving the FDI, that company’s workers acquire know-how that increases the human capital of the country. At the same time, companies that are suppliers, clients or even competitors of the foreign companies indirectly benefit from the effects of the spread of technology. Although there are cases in which this does not occur, empirical research has shown that

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¹ Ricardo Haussman and Eduardo Fernández-Arias, “Foreign Direct Investment: Good Cholesterol?”, IADB, March 26, 2000.

the effects of technological spillovers are beneficial for recipient economies.² Furthermore, increased foreign capital in the economy not only improves the performance of the company that receives the investment; it also improves the performance of other companies that benefit from the spread of know-how or new technologies associated with the flow of capital.

In addition to providing new technologies, there is evidence that FDI generally raises the productivity of the economy that receives it. The argument is that these companies, which have more experience, better technology and more sophisticated capital, are more productive than their local competitors, and their presence forces other companies in the sector to raise their own productivity. This argument is complex and the results are not conclusive, due to the bias resulting from the fact that multinationals tend, a priori, to invest in the most productive sectors. It is also possible that this effect will occur only in the sector where the investment is made or in the sectors where related suppliers and clients operate.³

It is also logical to suggest that increased productivity on the part of domestic companies is the result of increased competition: when these companies feel ‘threatened’ by the newcomers, they have to become more efficient and productive to keep competing.

Finally, despite the many current stereotypes, there is abundant data that proves that multinationals generally pay higher wages than local companies, thereby raising the income of the general population. Since FDI clearly tends to flow toward countries with more open, more transparent and less corrupt markets, it may also be a very beneficial factor in the process of economic reform and liberalization. In this regard, FDI can put healthy ‘pressure’ on governments to undertake reforms that will benefit the country and its citizens.⁴

All these effects are more clearly visible in poorer countries with lower levels of development, because the contrast between the foreign investor and the local economy is more obvious. However, there are also beneficial effects in countries where there is less economic and political difference between the investor country and the recipient country, as is the case of US foreign direct investment in Spain. On the basis of theory and empirical evidence, we can predict that US direct investment in Spain will prove to have contributed to the country’s economic growth, raised its technological level and possibly its productivity, increased its exports and provided its workforce with better-paid, higher-skilled jobs than those offered by local companies. This study sets out precisely to determine whether the macroeconomic statistics bear out our prediction that these effects have occurred in Spain.

² See, for example, Beata Smarzynska Javorcik, “Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers through Backward Linkages”, World Bank, June 23, 2003.

³ See the debate in Brian J. Aitken and Ann E. Harrison, “Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela”, *The American Economic Review*, June 1999.

⁴ These arguments have frequently been summarized in *The Economist*; see, for example, “The World’s View of Multinationals”, January 27, 2000.

General overview of US FDI in Spain

An increase in flows of foreign direct investment to Spain has been a feature of the country's economy since the mid-eighties. According to the latest UNCTAD report –“*World Investment Report 2004*”–, Spain is one of the main recipients of foreign direct investment, ranking eighth in the world and third in the European Union in terms of the number of foreign companies installed.

Since before Spain's entry into the European Union, the EU has led the infusion of FDI into Spain.⁵ However, in a country by country analysis, the main investor has often been the United States. Based on data from the Ministry of the Economy for 2003, the US invested 5.176 billion euros in Spain, representing 31.1% of total FDI entering the country that year. The weight of this investment is reflected in Spain's business structure: an estimated 600 companies in the Spanish market are subsidiaries or branches of US companies.

Economic and trade relations between the United States and Spain have improved in recent years. This can be seen, for example, in the fact that the United States is Spain's sixth biggest trade partner or that since the mid-1990s trade with the US has held steady at around 5% of Spain's total trade. But the connection between the two countries has been strongest in terms of flows of investment. US foreign direct investment in Spain rose from 1.012 billion euros in 1998 (10% of total investment) to more than 14.408 billion in 2002 (50.5% of the total). US investment is now a considerable part of the overall Spanish economy.

Furthermore, the United States has a long commercial history in Spain. American FDI began to arrive in the 1950s, when diplomatic relations between the two countries were reestablished after having been interrupted during the civil war, and Spain began to receive official US aid. But FDI did not peak until the seventies, with the transition to democracy and the negotiations to join the former European Economic Community.

Spain ranks quite high on the list of countries that receive US foreign direct investment. In terms of annual flows since 1999, Spain has ranked between fourth and eighth in the European Union, always behind Great Britain and Holland, but usually ahead of France. At the world level, Spain ranks lower, generally between 14th and 20th place (ahead of China every year except 2001). Cumulatively over time, the country has risen to 20th place and its higher rate of growth has enabled it to approach the level of France (see Figure 1 below).⁶

⁵ Mainly via the Netherlands.

⁶ The following figure shows only the eight main world destinations of US FDI, then compares these to China and India, which appear lower on the list. For a complete list of the flows and historical value of American FDI to the 23 most important countries, see Appendix 2, Table 10, at the end of this report.

Figure 1. (Selected) recipient countries of US FDI, 1999-2003

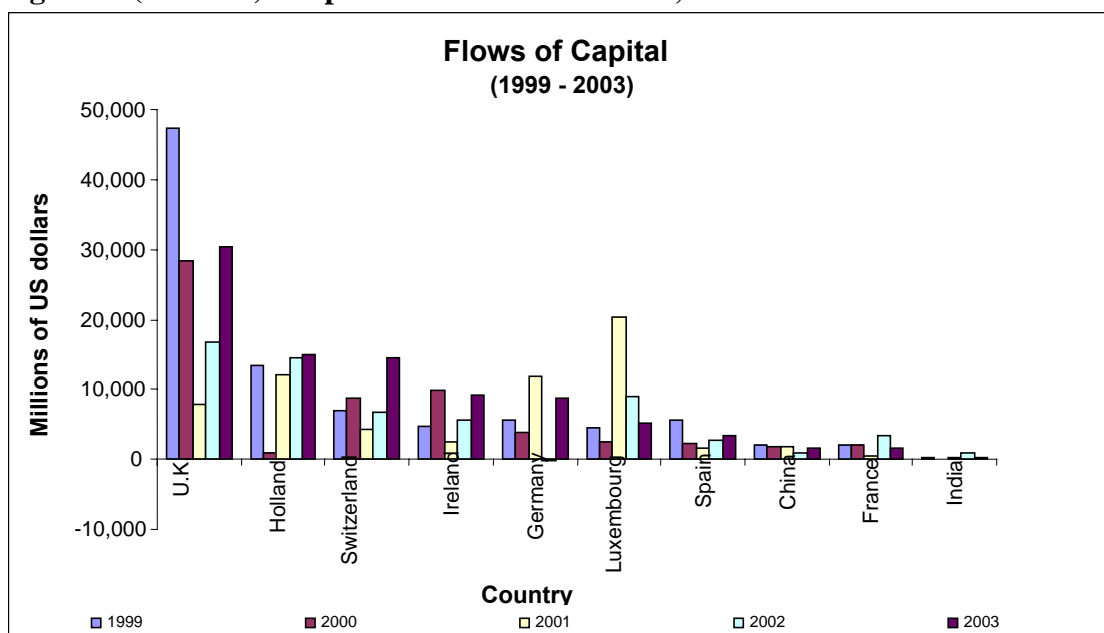


Figure 1

Note: the main European countries, plus China and India, have been selected. The countries are ordered according to the total cumulative value of US FDI to 2003. For more data, see Appendix II.

Source: Bureau of Economic Analysis. Website: <http://www.bea.doc.gov/bea/di/home/directinv.htm>.

At present, American multinationals in Spain have spread themselves out among quite a wide range of sectors. In general, they are best represented in the industrial sector, especially auto parts, pharmaceuticals and chemical products, and industrial equipment and supplies. However, in recent years their presence in the service sector has been increasing steadily, mainly in information technology and consulting services.

Methodology and data sources

When analyzing FDI data, we must keep in mind that many companies make their investments through subsidiaries in third countries, whether due to more favorable tax treatment or for other reasons. US companies are no exception. This is why, if we take into account main macroeconomic statistics for FDI in Spain, US investment is undervalued. Very often, US companies established in other EU countries are the ones making the investment in Spain⁷.

Another methodological consideration when working with FDI figures is that a large part of foreign investment is made through companies that manage domestic or foreign holdings⁸. As a result, the final destination of the investments they channel is not known, partly distorting sector-based analysis. Many US groups that are present in different European countries are establishing holding companies (called ETVEs) for their European operations in Spain. In fact, American investment is mainly destined to this kind of companies (94% of total US investment in 2003)⁹. This is because Spain

⁷ Investment is more frequently channelled through the Netherlands or the United Kingdom.

⁸ These are intermediaries between the company and the final recipient of the investment. The main difference between the two is that the former hold shares in Spanish companies, while the latter hold shares in foreign companies.

⁹ Figures obtained from the database of the Spanish General Trade and Investment Office (Dirección General de Comercio e Inversiones en España).

has one of the most favorable regimes among developed countries for the treatment of foreign holdings.

All this could bias part of our analysis. For this reason, we have decided to use other sources of data for Spain besides the General Office for Trade and Investment (Dirección General de Comercio e Inversiones), in order to determine exactly how US investment is channeled into the Spanish economy.

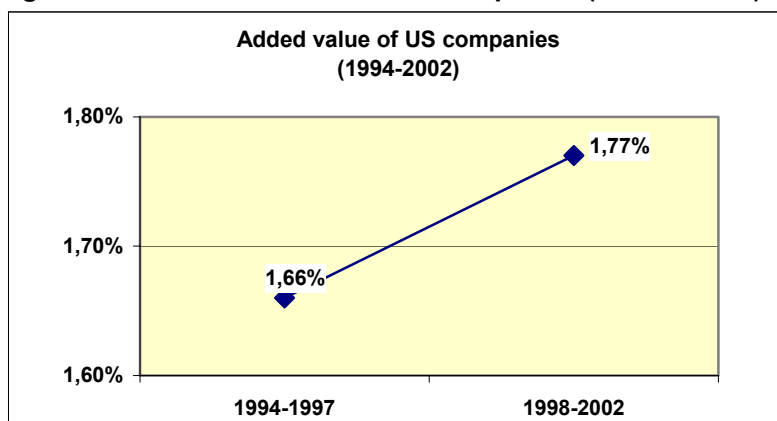
The following are the main sources of information used:

- Data reported by the US Bureau of Economic Analysis (BEA) in its *US Direct Investment Abroad* section, which provides an annual list of all operations made by US subsidiaries.
- National accounting data from the National Statistics Institute (INE) and the Bank of Spain, as well as statistics from the General Office for Trade and Investment (Ministry of the Economy), which offers information on foreign investment in Spain, based on entries in the Register of Investments.

2. MACROECONOMIC ANALYSIS OF US FDI IN SPAIN

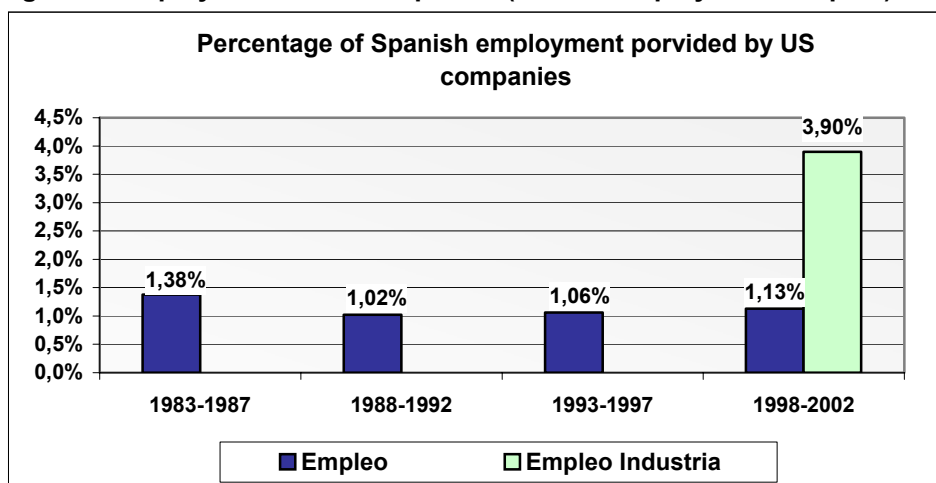
The relative weight of US companies in Spain has lessened with the development of the Spanish economy and with the increasing importance of investment from other European countries –a trend that began to gather speed in the eighties, when Spain entered the European Union (EU)–. However, American multinationals continue to have a significant presence in Spain today. The following Figure shows that the gross added value (GAV) of companies of American origin averaged about 1.72% of Spanish GDP between 1994 and 2002. The same figure for the Spanish industrial sector is much higher, with American GAV representing an average of 8.2% from 1999 to 2002.

Figure 2. Gross added value of US companies (as % of GDP)



Its contribution to employment was somewhat lower: around 1.15% between 1983 and 2002. Its total net assets as a percentage of the Spanish economy was similar, averaging 0.9% between 1983 and 2000 (Figures 4 and 5). The difference between these figures (added value and employment) suggests higher productivity among workers in companies with US capital.

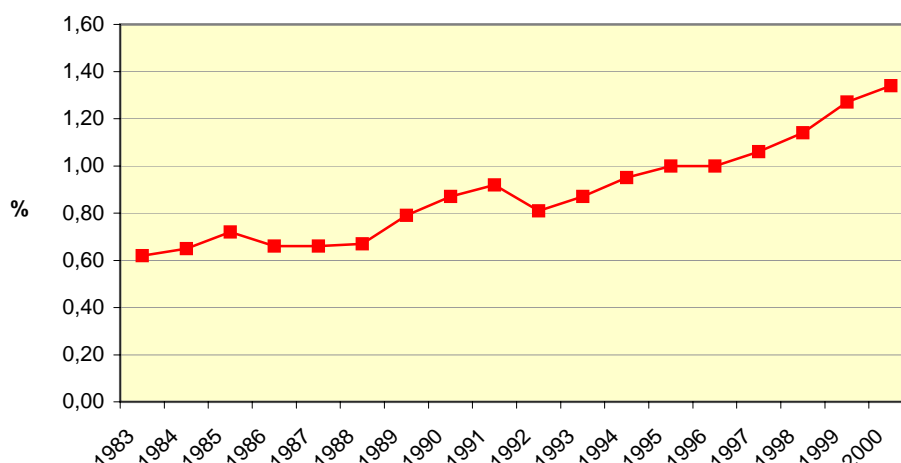
Figure 4. Employment in US companies (as % of employment in Spain)



Employment Industrial Employment

Figure 5. Net assets of US companies as % of Spanish net capital stock

Net assets (1983-2000)

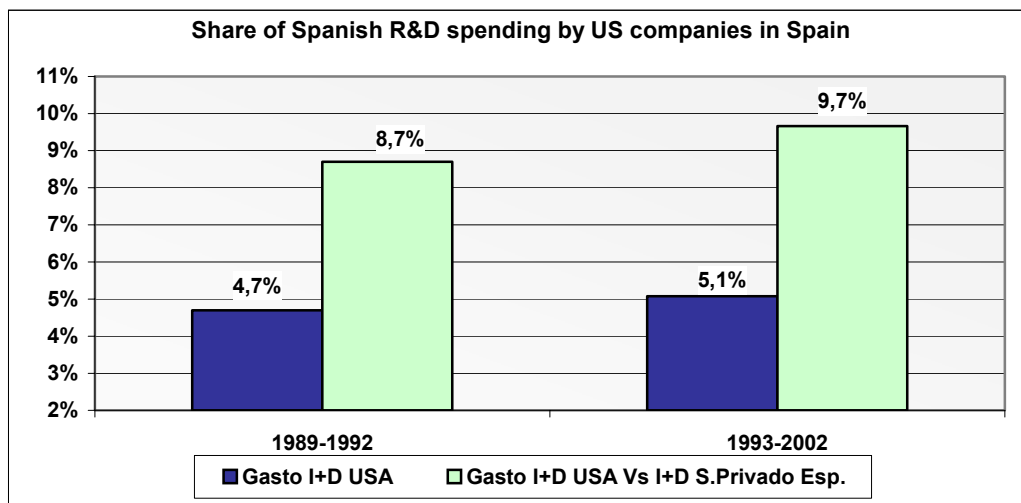


However, if we look only at production and employment in American industrial companies in the Spanish industrial sector –a calculation that makes sense, given the scarcity of US investors in the agricultural sector and even in certain branches of the service sector– US companies are much more important. On average, American industrial organizations accounted for more than 8% of sales in the Spanish industrial sector between 1999 and 2002, as well as for 3.9% of employment in this sector. These figures highlight the importance of US companies in Spanish production. They also highlight the high productivity that characterizes these companies, since participation in industrial sales doubles their participation in industrial employment.

The dissemination of technology throughout the Spanish industrial structure has been a key contribution made by companies of US origin. This can be seen at the macroeconomic level in the figures on research and development (R&D) spending by American companies compared to the average spending in Spain as a whole, and in the figures on the employment of research staff.

Production and sales data reveal that the importance of American investment is much greater in the industrial sector than in the economy as a whole. Between 1989 and 2002, R&D spending by US companies represented 4.8% of the Spanish total –four times more than these companies contributed to the country’s total production–. This means that American R&D activity in Spain was much more intense than the Spanish average. If we compare R&D spending by American companies with R&D spending in the Spanish private sector, this trend is much clearer: On average between 1989 and 2002, US companies accounted for more than 9.3% of all R&D spending in the Spanish private sector. In other words, American multinationals represented nearly 10% of all corporate spending on R&D during a long time in Spain (Figure 6).

Figure 6. R&D spending by US companies (as % of R&D spending in Spain)



US R&D spending US R&D spending vs. Spanish private sector R&D spending

As for the research personnel employed, the data indicate the same thing: R&D workers in companies of American origin in Spain account for only 1.8% of all employment in this sector; however, these workers represent 4.7% of research employment in the Spanish private sector. In other words, companies of American origin offer about 5% of all jobs in research and technological development that now exist in the Spanish private sector.

Finally, foreign subsidiaries often contribute more to the internationalization of an economy, due to their greater international experience and their more sophisticated marketing chains and global distribution. This trend can be seen in the US companies that operate in Spain. Between 1983 and 2002, US subsidiaries made an average of 9% of the total exports of goods in the Spanish economy. In some years this figure rose to 12%. American companies clearly focus on exporting and this is even clearer when compared with exports by the other companies in the Spanish industrial sector. It is evident that through this greater propensity to export, US multinationals contribute significantly to the Spanish economy (see Figure 7).

Figure 7. Percentage of exports of goods and services by US companies as a percentage of total Spanish exports

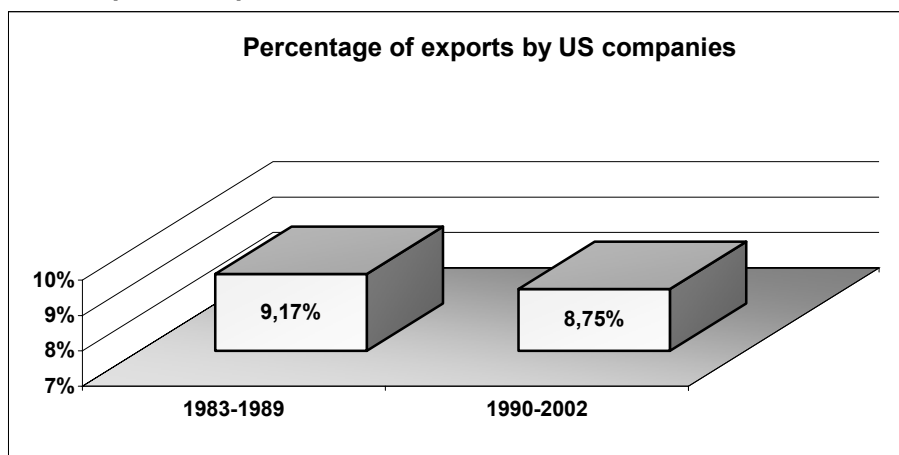
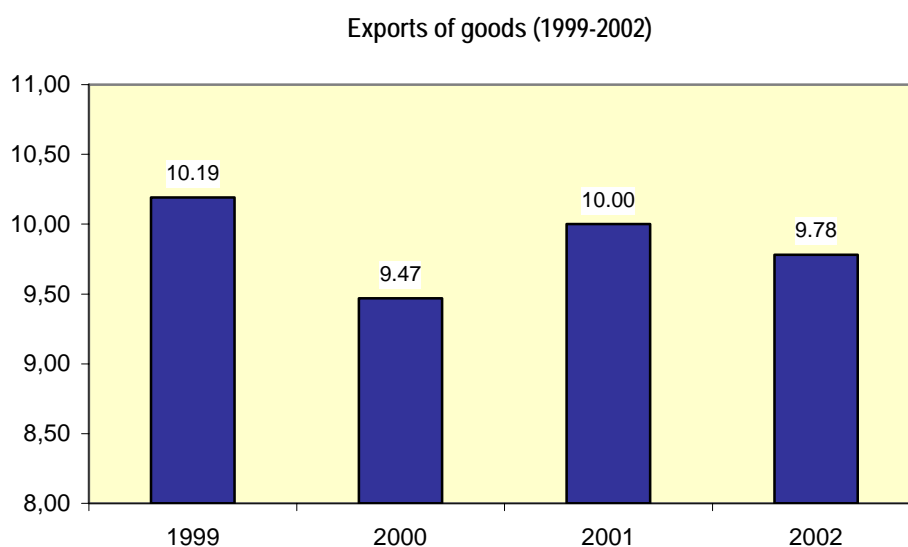


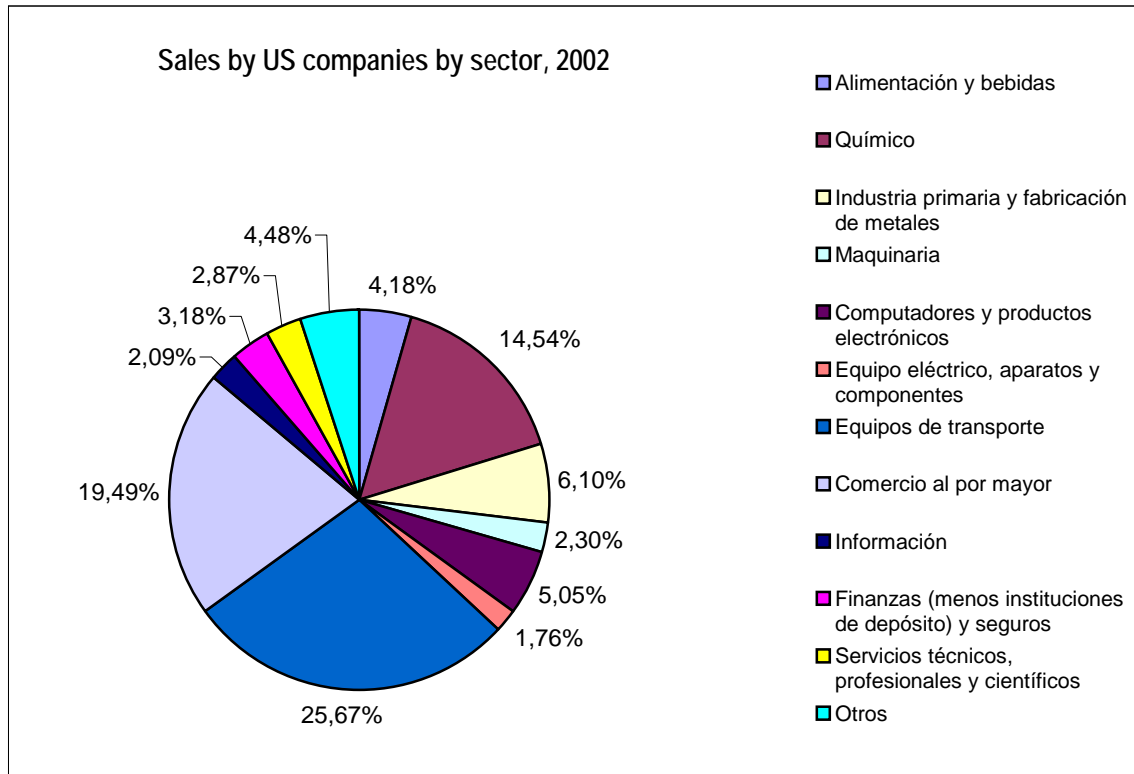
Figure 8. Percentage of exports of goods and services by US companies as a percentage of total Spanish exports



Breaking this down by the branches of activity in which US foreign direct investment is involved in Spain, we see that one of the most important sectors is transport equipment, both in terms of business volume and the employment created. Exports by these subsidiaries accounted for 50% of the total in the sector in 2002. The chemical-pharmaceutical sector and other related sectors are also very important, representing 14.5% of total sales. But it is essentially in R&D spending where this sector has the greatest relative weight (40% of the total for 2001). Finally, the machinery sector is also important, with 16% of US-generated employment in Spain.

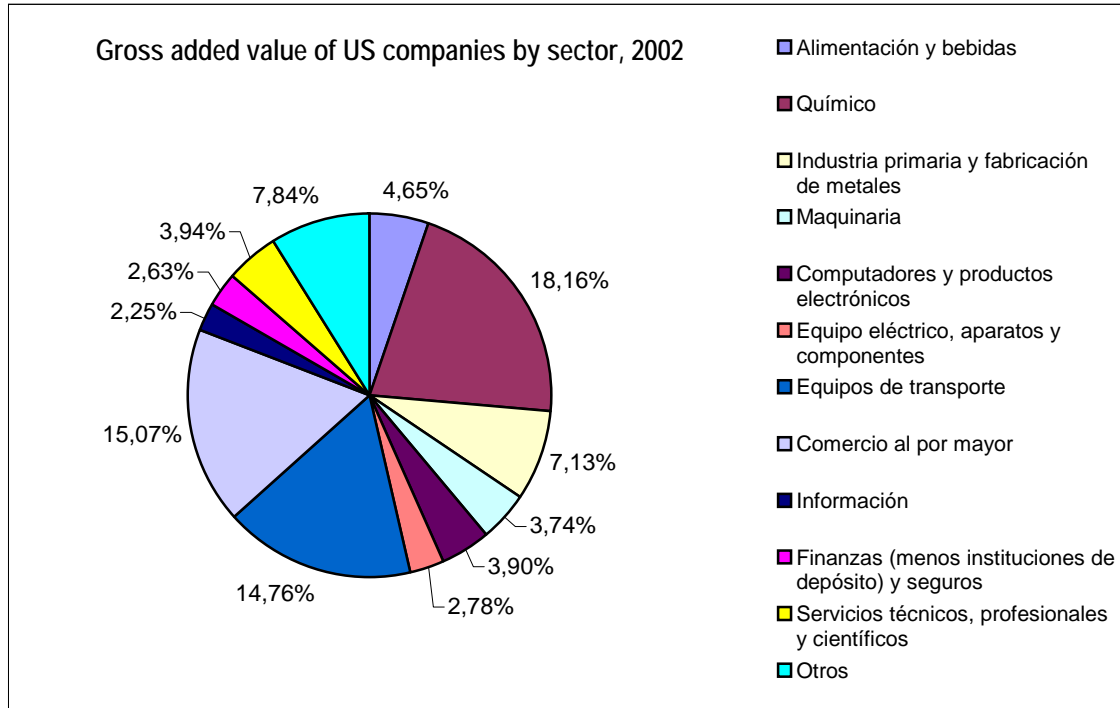
This is shown in Figures 9 to 12:

Figure 9.



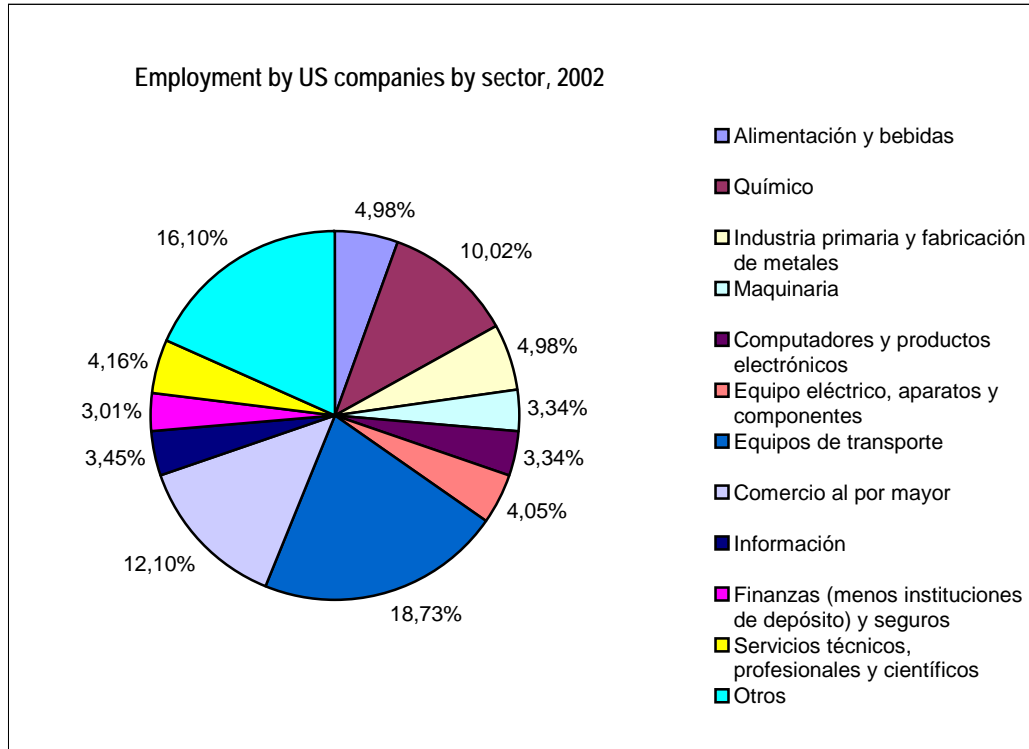
- Food and drink
- Chemicals
- Primary industry and metal manufacture
- Machinery
- Computers and electronic products
- Electrical equipment, apparatus and components
- Transport equipment
- Wholesale commerce
- Information
- Finances (except deposit institutions) and insurance
- Technical, professional and scientific services
- Others

Figure 10.



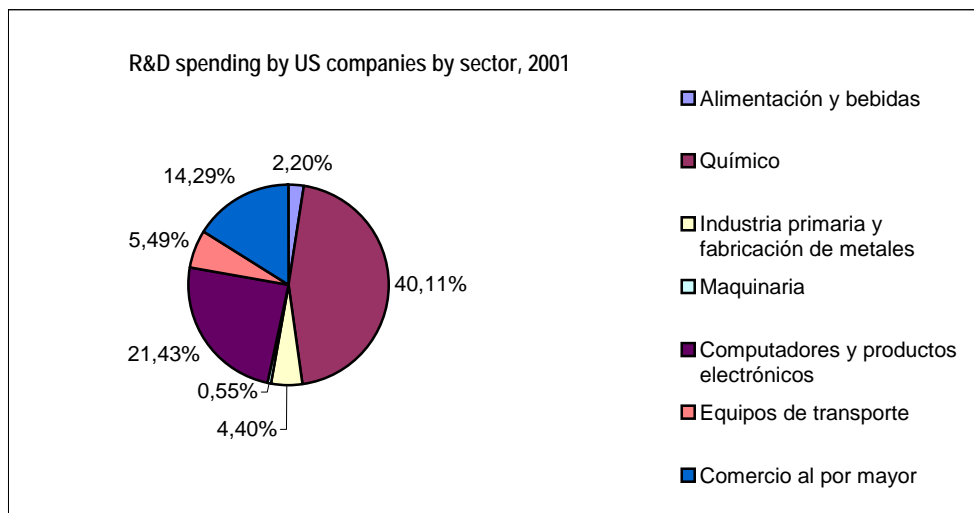
Food and drink
Chemicals
Primary industry and metal manufacture
Machinery
Computers and electronic products
Electrical equipment, apparatus and components
Transport equipment
Wholesale commerce
Information
Finances (except deposit institutions) and insurance
Technical, professional and scientific services
Others

Figure 11.



Food and drink
Chemicals
Primary industry and metal manufacture
Machinery
Computers and electronic products
Electrical equipment, apparatus and components
Transport equipment
Wholesale commerce
Information
Finances (except deposit institutions) and insurance
Technical, professional and scientific services
Others

Figure 12.

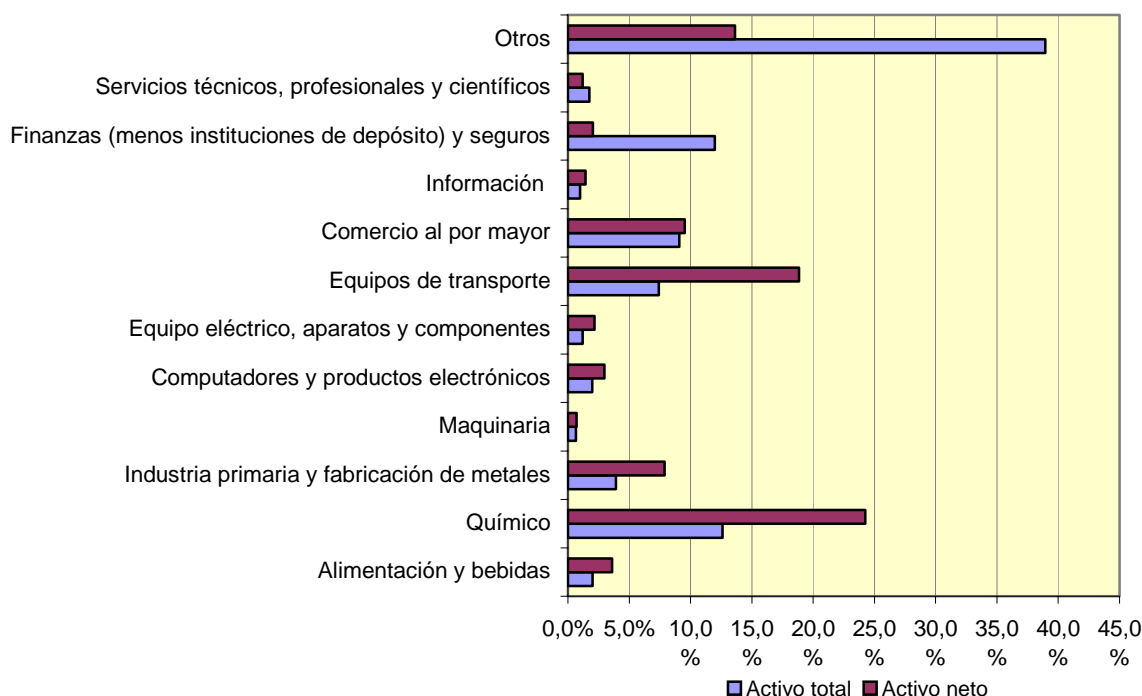


Food and drink
Chemicals
Primary industry and metal manufacture
Machinery
Computers and electronic products
Electrical equipment, apparatus and components
Transport equipment

Wholesale commerce

Figure 13.

Assets held by US companies by sector, 2002



- Others
- Technical, professional and scientific services
- Finances (except deposit institutions) and insurance
- Information
- Wholesale commerce
- Transport equipment
- Electrical equipment, apparatus and components
- Computers and electronic products
- Machinery
- Primary industry and metal manufacture
- Chemicals
- Food and drink

Total Assets Net Assets

Finally, to conclude, Figure 13 shows the weight of the assets held by American companies in Spain. The situation is practically the same for the rest of the variables analyzed. The chemical and transport equipment sectors stand out from the others both in terms of total assets and net assets.

In summary, the macroeconomic data lead to the conclusion that for a long time US foreign direct investment has been having the positive effects mentioned in the introduction to this study. They not only represent a very important part of Spanish R&D activity and of Spanish exports on the whole; they also reveal greater productivity, leading to the conclusion that these companies also pay higher wages. Although their presence in the Spanish economy as a whole may seem relatively small, especially in recent years with the country's entry into the European Union and then the euro, their impact on the modernization and globalization of the Spanish industrial structure has been very significant.

3. ANALYSIS OF THE COMPARATIVE PRODUCTIVITY OF COMPANIES OF US AND OF SPANISH ORIGIN

Low growth, not to say stagnancy, in the productivity of the Spanish workforce in recent years has become one of the main issues of concern to economic policy makers.

In this section, we will focus our analysis on:

- On one hand, comparing the trends in the productivity of US companies in Spain with that of Spanish companies from 1996 to 2002.
- On the other, we will also compare the growth in productivity of US companies during this period with the headway made by Spanish companies.

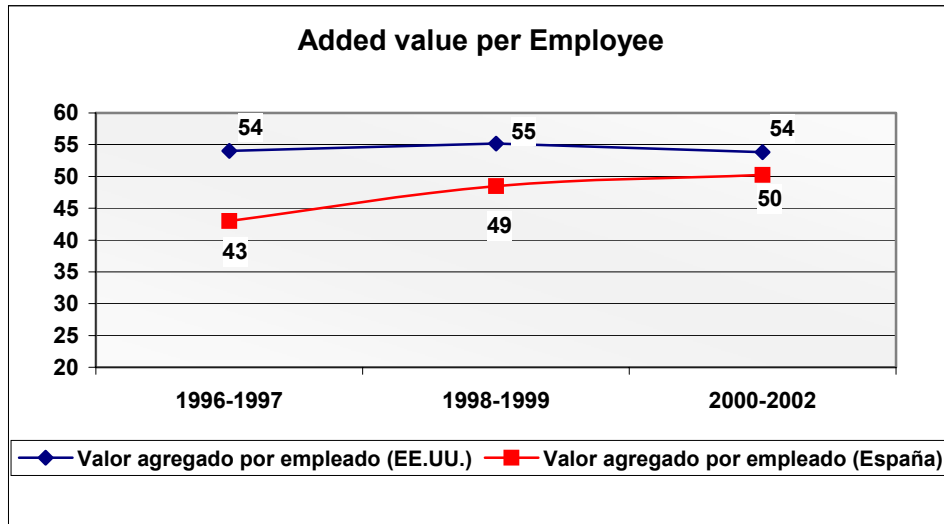
Changes in productivity over a relatively short period of time (in this case, about five years, from 1997 to 2002) are generally determined by passing, cyclical forces, and to a much lesser extent by institutional factors rooted in the past. In the study we have carried out, American companies showed better results than Spanish companies on the whole in: capital per worker, profit per employee, net sales per employee, added value per employee and personnel costs per employee. Rates of growth in these variables were also faster among the American companies than among Spanish companies in general.

One exception is profit per employee between 1998 and 2000: Spanish companies performed better, perhaps due to the differences in the accounting standards applied in each country. However, this trend began to reverse in 2000.

We could try to explain the results on the basis of different hypotheses, but it seems reasonable to assume that the differences in the size of companies, the fact that the US companies are more industrial, their management teams, the capital invested both in material and human resources, and the investment technology and training all satisfactorily explain the advantage that the US companies hold in productivity.

Figure 14 shows average productivity as added value per employee. American superiority is clear. However, in 1999 Spanish companies reversed the trend with more than 30% growth over the previous year, while the US companies registered a slowdown of about 10% (the only one in the period studied).

Figure 14. Comparison of the productivity of U.S. and Spanish companies in Spain, 1997-2002 (data in thousands of euros)



Added value per Employee (US)
Added value per Employee (Spain)

Starting in 1996, Spain managed to narrow the great gap (that initially stood at nearly 40%) to about 9% in 2002. However, if we consider the average figure for the whole period, American productivity is 15% higher than the productivity of Spanish companies, except in 1998-99.

Finally, it must be noted that although both curves are turning downward, due to heavy investment in R&D and the other variables analyzed in this study, it is reasonable to assume that in the future, the productivity of both American and Spanish companies will rise.

4. MICROECONOMIC ANALYSIS ESTIMATING US FDI IN SPAIN

Initial technical comment on the data used

The main purpose of this part of the study is to make a statistical comparison of the American companies established in Spain with all the companies located in this country. We have attempted to select the variables that best reflect the information necessary for this study, though we have encountered certain practical restrictions due to the highly specific nature of the data.

The data attached to this report was taken directly from the database of SABI (Iberian Balance Sheets Analysis System).¹⁰ To obtain the sample of US companies we considered only companies more than 50% of whose shares were held in the United States.

In line with these criteria, for methodological reasons and in many due to lack of information, we decided to select only companies of US and Spanish origin with more than 60 employees, this being a reasonably objective criterion for identifying them as

¹⁰ SABI is a database that carries out a financial analysis of more than 500,000 companies in Spain and 40,000 in Portugal. Its information is obtained from several official sources: Trade Register, BORME, and through some of the national news media.

medium-large companies.

To analyze the data, we have used sample means, given their value as a good estimator of mean population values. The samples are more than representative since they include the total number of values in the SABI database which, according to SABI itself, represents about 95% of all companies in Spain. Therefore, the results expressed in this case by the arithmetic means are perfectly comparable to each other.

Table 1. Mean values of the variables

US companies in Spain (*) (60 employees or more)	2002	2001	2000	1999	1998	1997	1996
Fixed assets	87,085	66,235	63,645	55,079	40,650	47,305	47,785
Tangible fixed assets	59,440	44,710	41,843	36,540	29,436	33,901	38,507
Intangible fixed assets	6,151	5,369	5,695	6,116	4,437	3,925	3,069
Employees	922	789	722	742	723	769	633
Total assets	199,160	150,845	147,859	135,201	113,920	114,252	107,959
Personnel expenses	30,086	29,435	26,719	24,255	23,495	23,561	22,703
Net sales	238,569	181,825	164,548	152,475	152,736	148,585	141,109
Added value	45,973	43,808	40,424	38,685	42,059	36,735	38,149

Companies in Spain (60 employees or more)	2002	2001	2000	1999	1998	1997	1996
Fixed assets	64,222	63,642	59,415	50,683	32,231	29,408	27,202
Tangible fixed assets	31,962	32,775	31,713	30,603	20,087	20,313	20,368
Intangible fixed assets	4,891	5,438	5,020	3,042	2,414	1,699	1,473
Employees	405	393	377	354	331	305	291
Total assets	104,818	103,379	96,249	83,295	56,202	50,267	46,660
Personnel expenses	11,725	11,081	10,448	10,278	7,837	7,277	7,012
Net sales	80,859	77,473	74,387	65,727	52,809	48,437	44,734
Added value	18,462	20,533	19,941	19,030	14,315	13,222	12,397

Note: figures in thousands of euros; sample includes 124 US companies and 13,961 Spanish companies.

(*) US companies established in Spain with more than 50% U.S capital.

The data is expressed in thousands of euros per year (except for the number of employees, expressed in number of persons), using normal arithmetic means.

Analysis of data from the tables

In general, we see that the arithmetic means for the US companies are higher than for the Spanish companies.

The current state of each of the variables in question, as well as its recent trends, is shown below.

Fixed assets

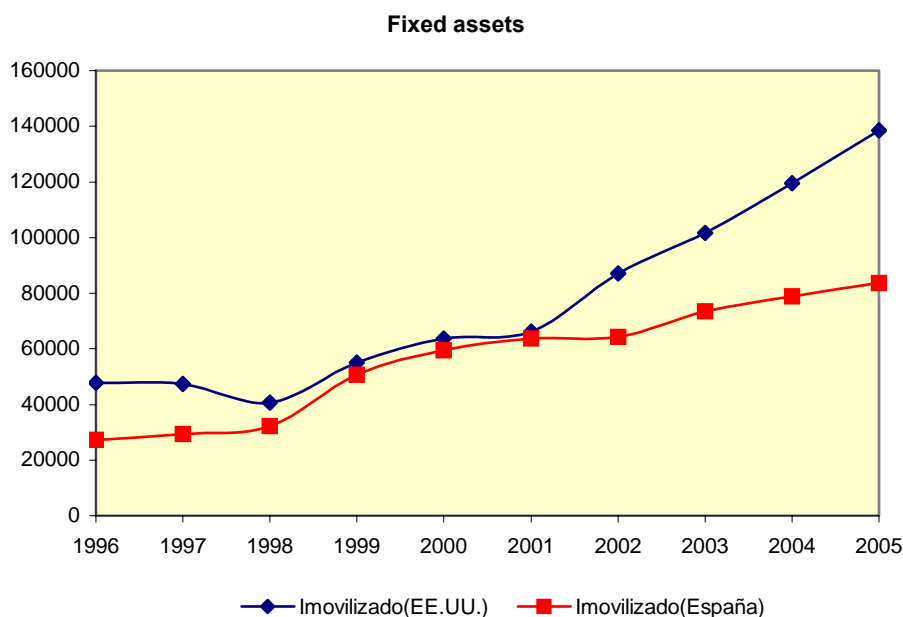
The sample mean for fixed assets held by US companies in Spain has changed as follows:

Table 2. Trends in fixed assets

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Fixed assets (US)		47,785	47,305	40,650	55,079	63,645	66,235	87,085	101,757	119,515	138,460
Fixed assets (Spain)		27,202	29,408	32,231	50,683	59,415	63,642	64,222	73,560	78,807	83,559

Note: figures in thousands of euros.

Figure 15. Fixed assets



Fixed assets (US)
Fixed assets (Spain)

Figure 15 shows that in terms of the value of fixed assets corresponding to each company, the US companies come out ahead of the Spanish companies. This trend appears to even out by 2001, but starting in 2002 the gap widens even further. This result must be taken with certain reserves, since relatively few US subsidiaries in Spain were included in the 2002 sample, due to the particular form and configuration of the source for the database.

In the future, this parameter may be expected to increase and also diverge.

Tangible and intangible fixed assets

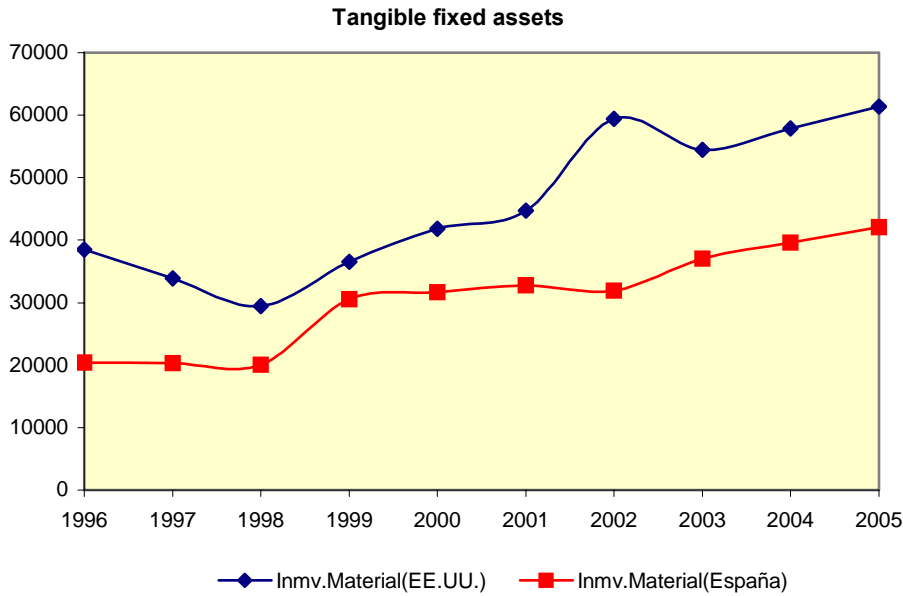
For the composition of fixed assets, and their breakdown into tangible and intangible fixed assets, we have made the following comparative analysis.

Table 3. Trends in tangible and intangible fixed assets

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Tangible fixed assets (US)	38,507	33,901	29,436	36,540	41,843	44,710	59,440	54,459	57,918	61,376
Tangible fixed assets (Spain)	20,368	20,313	20,087	30,603	31,713	32,775	31,962	37,024	39,572	42,120
Intangible fixed assets (US)	3,069	3,925	4,437	6,116	5,695	5,369	6,151	6,008	6,118	6,336
Intangible fixed assets (Spain)	1,473	1,699	2,414	3,042	5,020	5,428	4,891	5,950	6,393	6,772

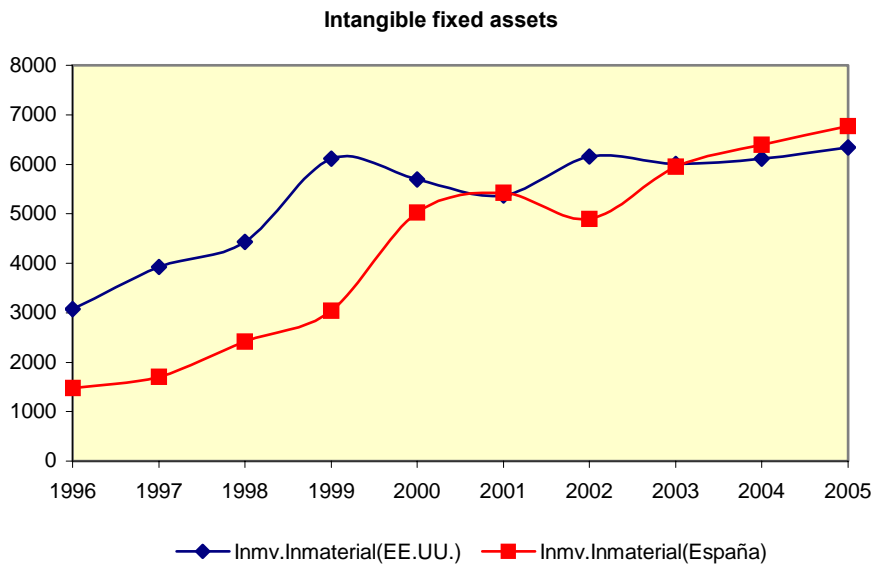
Note: figures in thousands of euros.

Figure 16. Tangible fixed assets



Tangible fixed assets (US)
Tangible fixed assets (Spain)

Figure 17. Intangible fixed assets



Intangible fixed assets
Intangible fixed assets (US)
Intangible fixed assets (Spain)

Figures 16 and 17 show that the trends in tangible fixed assets are more or less homogeneous. The US companies have higher values than the Spanish companies, with a slight narrowing of the gap in 1998. It is worth looking at intangible fixed assets more closely, since to a large extent they represent what is known as a company's technological assets. We can see that the trend here is more heterogeneous and narrows curiously in 2001. Even more curiously, this change corresponds both to an increase in the mean value of intangible fixed assets held by companies in Spain and a decrease in mean intangible fixed assets held by US companies. That is, the patents, trademark

rights, intellectual property, and so on, corresponding to each US subsidiary have been diminishing on average since 1999. However, we should also mention certain technical considerations concerning the data on the American companies. Some of these companies show values directly equal to “0” in their respective accounts; this is often followed by an absence of data for the following year, suggesting that these companies may have abandoned the Spanish market to some extent. In any case, caution should be used when drawing conclusions from this. Furthermore, as was discussed above, the values for 2002 are based on somewhat smaller samples, as a result of a certain unavailability of data.

The trend observed in both tangible and intangible assets is increasing. We predict increasing divergence in tangible assets over time. The same is true of intangible assets, although in this case the mean values for Spanish companies are higher than for US companies.

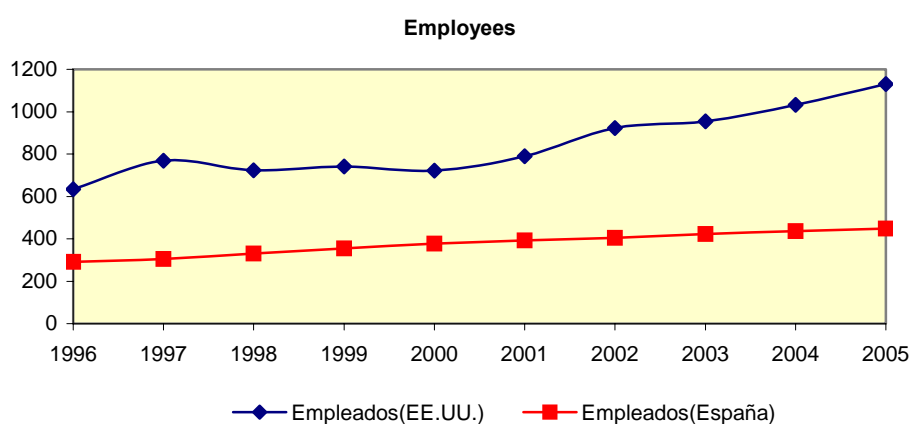
Number of employees

Table 4. Trends in number of employees

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Employees (US)	633	769	723	742	722	789	922	954	1,032	1,131
Employees (Spain)	291	305	331	354	377	393	405	422	436	449

Note: in number of persons

Figure 18. Number of employees



Employees (US)
Employees (Spain)

As for number of employees per company, the numbers for the US companies are generally significantly higher.

Certain aspects of these figures should be mentioned. Since only companies with more than 60 employees (full-time equivalent and permanent) were considered in the sample, the figure for the mean number of employees in each company is perhaps somewhat artificial and less representative than the other variables considered. In any case, this great difference between the mean values for the American and Spanish companies may be due to the fact that the bulk of the US companies, being big multinationals, have more employees, thus “inflating” the mean figure. That is, the number of US-owned

SMEs is quite small, while the great majority are large companies with many more employees.

By contrast, the mean figure for all companies in Spain is more representative, since there are relatively more companies with about 60 employees than is the case of the US companies.

Table 3 shows the predicted future trend for this variable.

Total assets

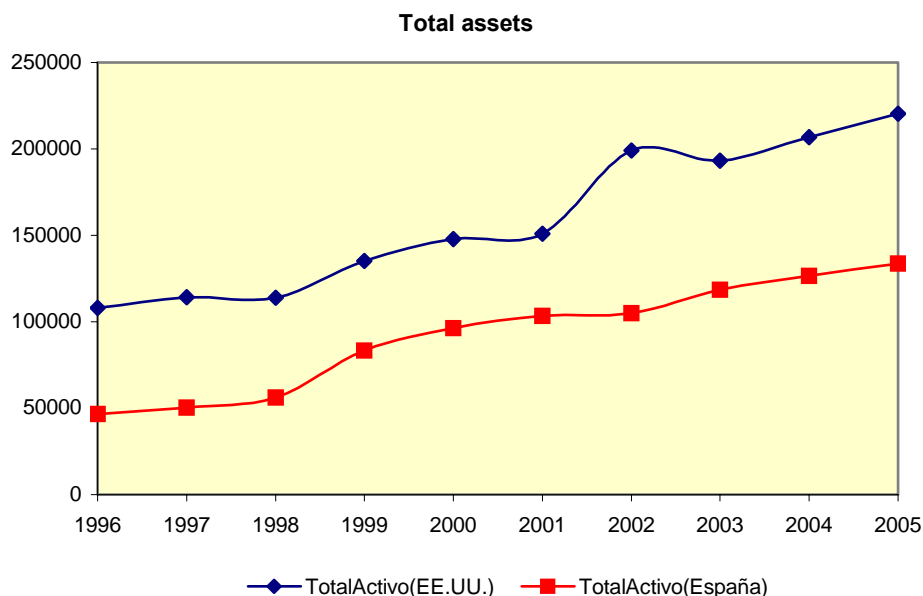
Table 5. Trends in assets

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total assets (US)	107,959	114,252	113,920	135,201	147,859	150,845	199,160	193,072	206,732	220,397
Total assets (Spain)	46,660	50,267	56,202	83,295	96,249	103,379	104,818	118,620	126,586	133,757

Note: figures in thousands of euros.

Figure 19 shows that this variable is following a trend more or less similar to those studied above.

Figure 19.



Total assets (US)
Total assets (Spain)

It is interesting that the distance separating the two mean values remains nearly constant. From 2002 on, we predict a continuation of past trends, but with increasing divergence between the value of total assets held by US companies and by Spanish companies.

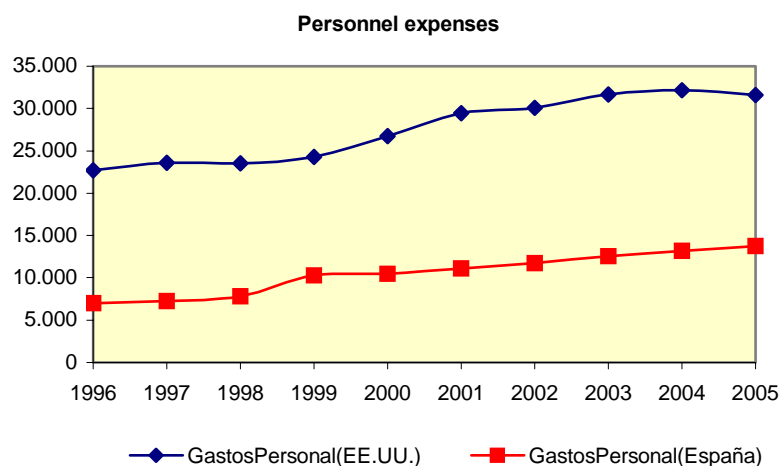
Personnel expenses

Table 6. Trends in personnel expenses

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Personnel expenses (US)	22,703	23,561	23,495	24,255	26,719	29,435	30,086	31,666	32,164	31,620
Personnel expenses (Spain)	7,012	7,277	7,837	10,278	10,448	11,081	11,725	12,535	13,161	13,733

Note: figures in thousands of euros.

Figure 20. Personnel expenses



Personnel expenses (US)
Personnel expenses (Spain)

The observed trend in personnel expenses is predictable, given the figures we have already seen for the mean number of employees per company. This trend could also be explained by the comparatively higher wages and benefits paid on average by the US companies. Higher spending on personnel training by US companies may also be a contributing factor. It is difficult to precisely explain the cause of this effect, since data is not available to assign a weight to each sector, both for the American companies and the Spanish ones.

For the immediate future, we predict that the existing differences shown in Figure 20 will continue.

Net sales

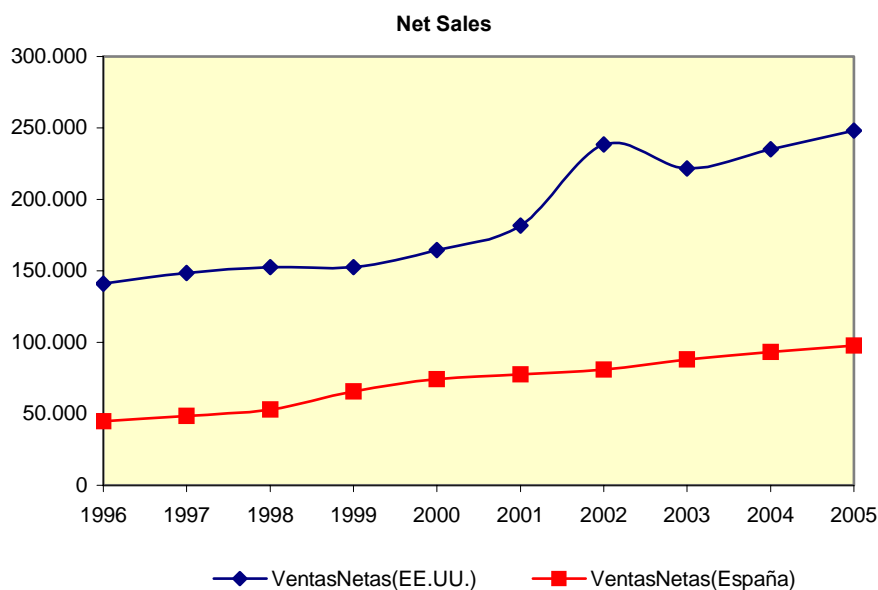
Table 7. Trends in net sales

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Net sales (US)	141,109	148,585	152,736	152,475	164,548	181,825	238,559	221,685	234,973	248,261
Net sales (Spain)	44,734	48,437	52,809	65,727	74,387	77,473	80,859	88,205	93,198	97,794

Note: figures in thousands of euros.

There is a very significant difference between the net sales of US and Spanish companies. This seems to confirm that American subsidiaries have a clearly more productive and commercial focus than companies in Spain on the whole.

Figure 21. Net sales



Net Sales (US)
Net Sales (Spain)

This suggests that the presence of companies of US origin directly benefits the Spanish economy, since they are relatively more productive than the Spanish companies in general.

As for future trends, we predict an increasing divergence between the values corresponding to each sample group of companies.

Added value

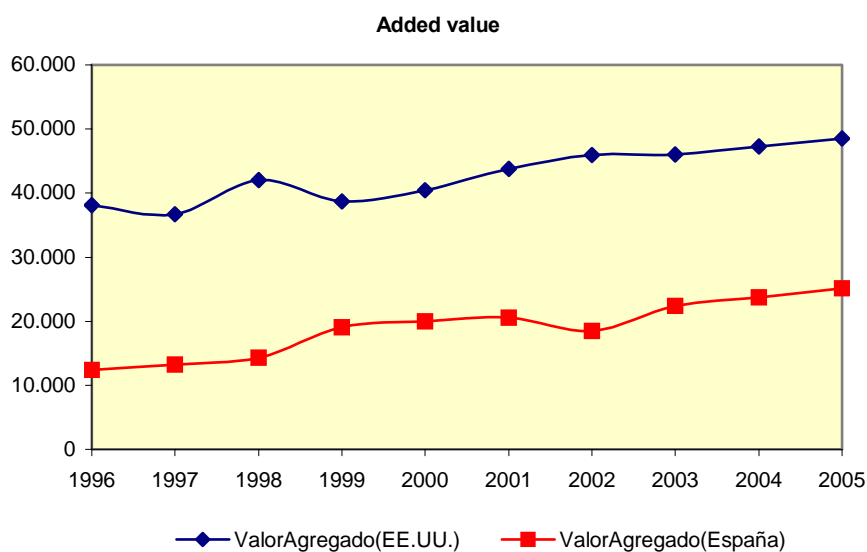
The above is confirmed when we look at the data for added value.

Table 8. Trends in added value

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Added value (US)	38,149	36,735	42,059	38,685	40,424	43,808	45,973	45,982	47,269	48,556
Added value (Spain)	12,397	13,222	14,315	19,030	19,941	20,533	18,462	22,354	23,732	25,111

Note: figures in thousands of euros.

Figure 22. Added value



Added value (US)
Added value (Spain)

Trends in added value, both for US companies in Spain and for companies in Spain in general, essentially suggest (taking into account that we are working with arithmetic mean value) that American companies are once again ahead of Spanish companies as a whole. We predict that this difference will become more accentuated and the values will tend to progressively diverge, at least in the immediate future.

Analysis of the ratios

Main ratios

For a somewhat more economic study, we have examined a set of ratios calculated on the basis of figures from the SABI database for capital, profits and sales per employees, expressed in thousands of euros per worker.

Table 9. Ratios

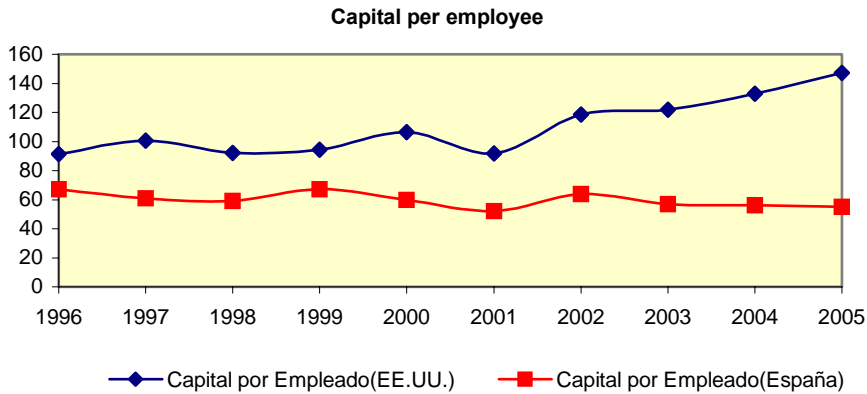
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Capital per employee (US)	91	101	92	94	106	92	119	122	133	147
Capital per employee (Spain)	67	61	59	67	60	52	64	57	56	55
Profit per employee (US)	14	13	15	11	14	12	20	16	17	17
Profit per employee (Spain)	9	10	12	14	10	9	4	7	6	6
Net sales per employee (US)	223	193	211	206	228	230	259	249	257	264
Net sales per employee (Spain)	154	159	160	186	197	197	200	209	213	216

Note: figures in thousands of euros per worker.

Capital per employee. Once again, we see that the values corresponding to the US companies are significantly higher than those for Spanish companies as a whole.

The ratio of effective capital per worker is always in favor of the American companies and the general trend, at least for the immediate future, is toward progressive divergence.

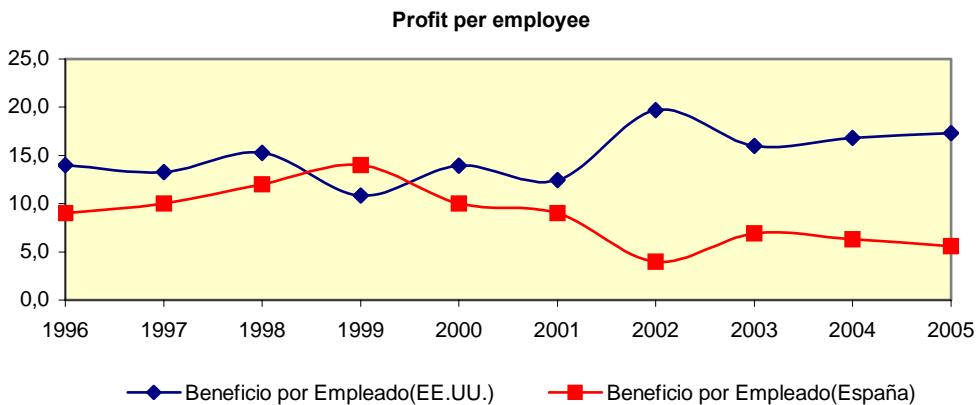
Figure 23. Capital per employee



Capital per employee (US)
Capital per employee (Spain)

Profit per employee The trend in profit per employee is quite different than the general trends presented above. In general, US subsidiaries are above Spanish companies until 1998, but in 1999 productivity per worker in the US companies dropped dramatically, then slowly recovered. Starting in 2002, the difference between the two samples became increasingly pronounced. We predict that this trend will continue in the future.

Figure 24. Profit per employee

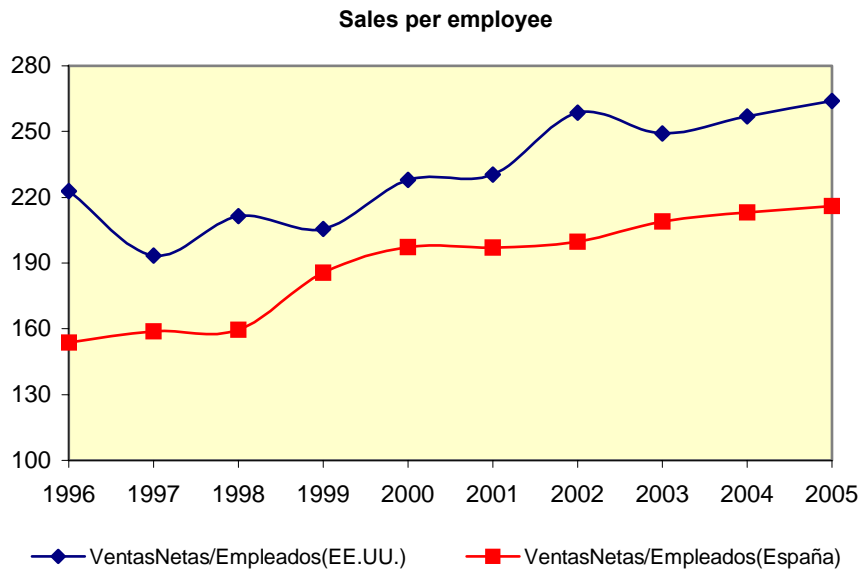


Profit per employee (US)
Profit per employee (Spain)

Net sales per employee. Finally, the ratio of average sales per employee for US multinationals rose to its highest point in 2002. In 2003, 2004 and 2005, this ratio been climbing, remaining above the figures for Spanish companies as a whole.

In conclusion, the general trend observed in the data we have analyzed suggests greater effectiveness on the part of US companies in Spain than among Spanish companies in general. In the short term, US companies also appear set for truly favorable conditions, both in terms of greater effective productivity and greater efficiency in the distribution of resources.

Figure 25. Sales per employee



Net sales per employee (US)
Net sales per employee (Spain)

Appendix I: Spanish economic data

Spanish macroeconomic data used in the study:

Table 1. General data on Spain's economic balance sheet (1993-2002)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sales (millions of euros)										
Business volume (<i>industrial sector</i>)	218,254.9	246,748.0	276,817.3	295,146.2	324,295.5	345,192.0	373,774.3	420,012.0	440,574.1	447,234.1
Business volume (<i>service sector</i>)	–	–	–	–	–	–	169,109.4	269,815.9	295,231.5	331,549.3
Total business volume	–	–	–	–	–	–	542,883.7	689,827.9	735,805.6	778,783.4
Personnel expenses (millions of euros)										
Personnel expenses (<i>industrial sector</i>)	46,724.7	47,072.2	48,401.8	51,198.2	53,087.1	56,278.1	59,024.7	63,376.7	68,240.2	69,309.9
Personnel expenses (<i>service sector</i>)	–	–	–	–	–	–	32,362.4	55,880.6	62,892.8	73,078.7
Total personnel expenses	–	–	–	–	–	–	91,387.1	119,257.3	131,133.0	142,388.6
R&D expenses (millions of euros)										
R&D expenses	3,350.1	3,294.5	3,550.1	3,852.6	4,038.9	4,715.0	4,995.4	5,718.9	6,227.2	7,193.5
R&D expenses (<i>private sector</i>)	1,599.7	1,540.5	1,712.2	1,862.6	1,970.9	2,457.2	2,597.1	3,069.0	3,529.4	3,926.3
Assets (millions of euros)										
Net assets	576,211.9	586,186.1	600,593.5	615,024.6	631,430.8	650,003.1	672,899.0	698,757.9	–	–
Exports (millions of euros)										
Exports of goods	46,606	58,578	68,152	78,212	93,419	99,850	104,789	124,118	129,771	133,267
Exports of goods and services	70,010	85,401	98,957	110,912	132,169	143,850	155,477	183,646	194,952	197,676
Production (millions of euros)										
Gross domestic product	381,748	406,015	437,787	464,251	494,140	527,975	565,419	609,734	653,289	696,208
Gross domestic product (<i>industrial branch</i>)	–	–	76,631	80,469	86,265	90,743	94,532	100,184	104,193	106,708
Employment (thousands of persons)										
Total employment	12,293.8	12,207.8	12,512.3	12,835.3	13,259.5	13,807.8	14,568.0	15,369.8	15,945.8	16,257.5
Employment in research	75.3	80.4	79.9	87.3	87.2	97.1	102.2	120.6	125.6	134.3
Employment in research (<i>business sector</i>)	27.8	27.3	27.6	29.4	30.0	34.7	38.3	47.1	46.5	56.3

Source: Based on INE (National Statistics Institute) and BBVA Foundation data.

US DIA impact in Spain

Appendix II: Bureau of Economic Analysis (BEA) data

The following tables reflect the data reported by the BEA and used in this study.

Table 1a. General data on US companies in Spain (1983-92)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
<i>Millions of dollars</i>										
Volume of sales	8,241	8,614	9,846	13,389	17,258	21,233	23,712	28,349	30,983	32,287
Gross added value	-	-	-	-	-	-	-	-	-	-
Personnel expenses	2,054	2,024	2,125	2,882	3,504	3,901	3,349	4,342	4,777	5,091
R&D expenses	-	-	-	-	-	-	115.0	103.0	100.0	323.0
Exports	2,024	2,528	2,852	3,479	4,018	5,047	5,034	6,705	8,256	8,417
Total assets	6,715	6,758	8,188	10,534	14,444	15,703	18,103	23,269	25,245	24,495
Net assets	2,477	2,318	2,501	3,029	3,661	3,898	4,514	5,878	6,267	5,932
<i>Millions of euros</i>										
Volume of sales	9,271	10,957	13,007	13,643	14,980	18,006	21,459	22,339	25,065	24,958
Gross added value	-	-	-	-	-	-	-	-	-	-
Personnel expenses	2,311	2,575	2,807	2,937	3,041	3,308	3,031	3,421	3,865	3,935
R&D expenses	-	-	-	-	-	-	104.1	81.2	80.9	249.7
Exports	2,277	3,216	3,767	3,545	3,488	4,280	4,556	5,284	6,679	6,506
Total assets	7,554	8,596	10,816	10,734	12,537	13,316	16,383	18,336	20,423	18,935
Net assets	2,787	2,948	3,304	3,087	3,178	3,306	4,085	4,632	5,070	4,585
<i>Thousands of persons</i>										
Employment (active workforce)	154.9	151.0	152.7	157.6	162.5	155.2	120.0	124.0	126.6	124.2

Source: US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).

US DIA impact in Spain

Table 1b. General data on US companies in Spain (1983-92)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<i>Millions of dollars</i>										
Volume of sales	27,886	31,626	38,545	41,688	40,778	43,362	47,682	45,978	46,890	48,989
Gross added value (GAV)	–	8,062	9,465	9,448	9,664	10,563	10,786	10,461	10,619	10,654
Personnel expenses	4,725	4,806	5,422	5,588	5,420	5,518	5,913	6,080	6,127	6,547
R&D expenses	320.0	(D)	288.0	327.0	181.0	184.0	(D)	213.0	182.0	199.0
Exports	7,062	9,523	11,510	12,568	11,800	12,356	12,492	12,074	13,010	13,676
Total assets	22,692	24,584	29,286	29,903	30,680	37,896	48,642	56,779	60,256	88,487
Net assets	5,848	6,637	7,837	7,821	7,572	8,289	9,109	8,622	8,527	10,076
<i>Millions of euros</i>										
Volume of sales	23,815	26,661	29,487	32,850	35,966	38,722	44,773	49,886	52,376	52,026
Gross added value (GAV)	–	6,796	7,241	7,445	8,524	9,433	10,128	11,350	11,861	11,315
Personnel expenses	4,035	4,051	4,148	4,403	4,780	4,928	5,552	6,597	6,844	6,953
R&D expenses	273.3	(D)	220.3	257.7	159.6	164.3	(D)	231.1	203.3	211
Exports	6,031	8,028	8,805	9,904	10,408	11,034	11,730	13,100	14,532	14,524
Total assets	19,379	20,724	22,404	23,564	27,060	33,841	45,675	61,605	67,306	93,973
Net assets	4,994	5,595	5,995	6,163	6,679	7,402	8,553	9,355	9,525	10,701
<i>Thousands of persons</i>										
Employment (active workforce)	128.8	128.4	134.8	134.4	143.1	144.4	166.5	182.1	183.9	182.6

Source: US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).

US DIA impact in Spain

Table 2. Volume of sales of US companies in Spain (by sector)

Sales	1999		2000		2001		2002	
	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn
Total sectors	47,682	44,773	45,978	49,886	46,890	52,376	48,989	52,026
Extractive industry	(D)	(D)	21	23	22	25	23	24
Energy and water	(D)	(D)	66	72	73	82	76	81
Total industry	33,554	31,507	31,160	33,809	31,269	34,927	33,152	35,207
Food and drink	(D)	(D)	2,265	2,458	2,193	2,450	2,048	2,175
Chemicals	(D)	(D)	6,331	6,869	6,293	7,029	7,123	7,565
Primary industry and manufacture of metals	3,140	2,948	2,602	2,823	3,111	3,475	2,988	3,173
Machinery	(D)	(D)	1,145	1,242	954	1,066	1,125	1,195
Computers and electronic products	(D)	(D)	2,802	3,040	2,494	2,786	2,472	2,625
Electrical equipment, apparatus and components	875	822	812	881	723	808	862	915
Transport equipment	12,772	11,993	11,561	12,544	11,651	13,014	12,577	13,357
Wholesale commerce	9,650	9,061	9,849	10,686	9,772	10,915	9,550	10,142
Information	(D)	(D)	1,074	1,165	970	1,083	1,025	1,089
Finances (except deposit institutions) and insurance	865	812	1,034	1,122	1,382	1,544	1,558	1,655
Technical, professional and scientific services	1,258	1,181	1,198	1,300	1,411	1,576	1,408	1,495
Others	(D)	(D)	1,578	1,712	1,990	2,223	2,197	2,333

Source: *US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).*

US DIA impact in Spain

Table 3. Gross added value of US companies in Spain, by sector (1999-2002).

Gross added value	1999		2000		2001		2002	
	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn
Total sectors	10,786	10,128	10,461	11,350	10,619	11,861	10,654	11,315
Extractive industry	9	8	22	24	23	26	25	27
Energy and water	28	26	28	30	(D)	(D)	32	34
Total industry	7,611	7,147	6,945	7,535	6,566	7,334	7,217	7,664
Food and drink	606	569	591	641	563	629	495	526
Chemicals	1,753	1,646	1,650	1,790	1,812	2,024	1,935	2,055
Primary industry and manufacture of metals	706	663	747	810	726	811	760	807
Machinery	464	436	432	469	368	411	398	423
Computers and electronic products	477	448	426	462	339	379	416	442
Electrical equipment, apparatus and components	312	293	295	320	260	290	296	314
Transport equipment	1,910	1,793	1,595	1,731	1,133	1,266	1,573	1,671
Wholesale commerce	1,706	1,602	1,842	1,999	1,936	2,163	1,606	1,706
Information	286	269	336	365	(D)	(D)	240	255
Finances (except deposit institutions) and insurance	272	255	-28	-30	305	341	280	297
Technical, professional and scientific services	485	455	489	531	552	617	420	446
Others	388	364	826	896	916	1,023	835	887

Source: *US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).*

US DIA impact in Spain

Table 4. Personnel expenses of US companies in Spain, by sector (1999-2002)

Personnel expenses	1999		2000		2001		2002	
	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn
Total sectors	5,913	5,552	6,080	6,597	6,127	6,844	6,547	6,953
Extractive industry	2	2	3	3	3	3	3	3
Energy and water	2	2	4	4	(D)	(D)	5	5
Total industry	3,974	3,732	3,773	4,094	3,613	4,036	4,167	4,425
Food and drink	403	378	400	434	396	442	311	330
Chemicals	776	729	742	805	783	875	868	922
Primary industry and manufacture of metals	303	285	234	254	311	347	318	338
Machinery	289	271	227	246	190	212	213	226
Computers and electronic products	233	219	218	237	238	266	334	355
Electrical equipment, apparatus and components	202	190	184	200	178	199	195	207
Transport equipment	1,009	947	1,006	1,092	759	848	1,168	1,240
Wholesale commerce	828	777	956	1,037	1,029	1,149	843	895
Information	211	198	231	251	(D)	(D)	217	230
Finances (except deposit institutions) and insurance	175	164	193	209	234	261	253	269
Technical, professional and scientific services	364	342	367	398	416	465	417	443
Others	357	335	553	600	617	689	642	682

Source: *US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).*

US DIA impact in Spain

Table 5. Spending on research and development by US companies in Spain, by sector (1999-2002)

R&D expenses	1999		2000		2001		2002	
	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn
Total sectors	(D)	(D)	213	231	182	203	199	211
Extractive industry	0	0	0	0	0	0	0	0
Energy and water	(*)	(*)	(*)	(*)	(*)	(*)	0	0
Total industry	(D)	(D)	188	204	155	173	(D)	(D)
Food and drink	5	5	3	3	4	4	6	6
Chemicals	(D)	(D)	63	68	73	82	92	98
Primary industry and manufacture of metals	3	3	6	7	8	9	8	8
Machinery	6	6	2	2	1	1	(*)	(*)
Computers and electronic products	(D)	(D)	45	49	39	44	28	30
Electrical equipment, apparatus and components	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Transport equipment	55	52	47	51	10	11	(D)	(D)
Wholesale commerce	3	3	24	26	26	29	(D)	(D)
Information	0	0	(*)	(*)	0	0	0	0
Finances (except deposit institutions) and insurance	0	0	0	0	0	0	0	0
Technical, professional and scientific services	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Others	0	0	0	0	0	0	0	0

Source: US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).

US DIA impact in Spain

Table 6. Exports by US companies in Spain, by sector (1999-2002)

Exports	1999		2000		2001		2002	
	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn
Total sectors	12,492	11,730	12,074	13,100	13,010	14,532	13,676	14,524
Extractive industry	0	0	(*)	(*)	(*)	(*)	0	0
Energy and water	0	0	0	0	0	0	0	0
Total industry	11,377	10,683	10,833	11,754	11,615	12,974	12,275	13,036
Food and drink	86	81	168	182	100	112	83	88
Chemicals	1,089	1,023	1,425	1,546	1,703	1,902	1,853	1,968
Primary industry and manufacture of metals	910	854	(D)	(D)	(D)	(D)	(D)	(D)
Machinery	244	229	207	225	(D)	(D)	(D)	(D)
Computers and electronic products	965	906	1,024	1,111	1,027	1,147	377	400
Electrical equipment, apparatus and components	537	504	482	523	450	503	495	526
Transport equipment	6,999	6,572	6,392	6,935	6,180	6,903	6,850	7,275
Wholesale commerce	794	746	909	986	1,039	1,161	1,039	1,103
Information	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Finances (except deposit institutions) and insurance	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Technical, professional and scientific services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Others	52	49	(D)	(D)	95	106	121	129

Source: US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).

US DIA impact in Spain

Table 7. Assets held by US companies in Spain, by sector (1999-2002)

Total assets	1999		2000		2001		2002	
	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn
Total sectors	48,642	45,675	56,779	61,605	60,256	67,306	88,487	93,973
Extractive industry	81	76	87	94	94	105	107	114
Energy and water	219	206	202	219	187	209	217	230
Total industry	22,628	21,248	21,852	23,709	22,387	25,006	32,648	34,672
Food and drink	2,160	2,028	1,876	2,035	1,642	1,834	1,776	1,886
Chemicals	5,531	5,194	5,888	6,388	6,363	7,107	11,166	11,858
Primary industry and manufacture of metals	3,268	3,069	2,856	3,099	3,317	3,705	3,459	3,673
Machinery	738	693	696	755	452	505	580	616
Computers and electronic products	1,278	1,200	1,336	1,450	1,344	1,501	1,755	1,864
Electrical equipment, apparatus and components	686	644	672	729	566	632	1,070	1,136
Transport equipment	5,069	4,760	5,018	5,445	4,650	5,194	6,556	6,962
Wholesale commerce	6,146	5,771	6,408	6,953	7,362	8,223	8,028	8,526
Information	901	846	786	853	712	795	873	927
Finances (except deposit institutions) and insurance	5,460	5,127	6,364	6,905	7,949	8,879	10,611	11,269
Technical, professional and scientific services	1,214	1,140	1,432	1,554	1,488	1,662	1,538	1,633
Others	11,994	11,262	19,649	21,319	20,079	22,428	34,465	36,602

Source: *US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).*

US DIA impact in Spain

Table 8. Net assets held by US companies in Spain, by sector (1999-2002)

Net assets	1999		2000		2001		2002	
	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn	US\$ mn	€ mn
Total sectors	9,109	8,553	8,622	9,355	8,527	9,525	10,076	10,701
Extractive industry	42	39	47	51	50	56	59	63
Energy and water	149	140	134	145	125	140	150	159
Total industry	6,642	6,237	6,109	6,628	5,835	6,518	7,064	7,502
Food and drink	433	407	363	394	362	404	362	384
Chemicals	2,063	1,937	1,983	2,152	2,081	2,324	2,444	2,596
Primary industry and manufacture of metals	705	662	715	776	753	841	795	844
Machinery	120	113	90	98	57	64	72	76
Computers and electronic products	350	329	274	297	250	279	300	319
Electrical equipment, apparatus and components	164	154	153	166	127	142	219	233
Transport equipment	1,871	1,757	1,723	1,869	1,382	1,544	1,898	2,016
Wholesale commerce	987	927	896	972	817	913	961	1,021
Information	151	142	73	79	137	153	145	154
Finances (except deposit institutions) and insurance	116	109	134	145	163	182	204	217
Technical, professional and scientific services	63	59	96	104	118	132	120	127
Others	960	901	1,132	1,228	1,283	1,433	1,372	1,457

Source: *US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).*

US DIA impact in Spain

Table 9. Employment by US companies in Spain, by sector (1999-2002)

Active workforce	1999	2000	2001	2002
	thousands of persons			
Total sectors	166.5	182.1	183.9	182.6
Extractive industry	0.1	0.1	0.1	0.1
Energy and water	0.1	0.2	A	0.2
Total industry	114.4	115.4	113.7	111.5
Food and drink	11.5	11.8	11.8	9.1
Chemicals	16.3	17.8	17.5	18.3
Primary industry and manufacture of metals	9.4	7.7	9.4	9.1
Machinery	7.4	7.3	5.9	6.1
Computers and electronic products	5.5	6.3	5.6	6.1
Electrical equipment, apparatus and components	7.9	7.4	6.6	7.4
Transport equipment	34.6	35.7	34.9	34.2
Wholesale commerce	16.5	19.7	21.0	22.1
Information	8.2	8.5	7.1	6.3
Finances (except deposit institutions) and insurance	3.3	3.7	5.3	5.5
Technical, professional and scientific services	6.8	7.7	8.0	7.6
Others	17.2	26.9	29.4	29.4

Source: *US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).*

Comments:

(*) indicates that figures less than 500,000 dollars have not been included.

(D) indicates that no figure is given due to lack of information or a break in the continuity of reporting by companies.

The exchange rate used for converting dollars to euros was the average for each year, published by the Bank of Spain.

US DIA impact in Spain

Table 10a. The historical recorded value of US foreign direct investment, in millions of \$US (1999-2003)

	Posición de la inversión directa en base al coste histórico				
	1999	2000	2001	2002	2003
United Kingdom	16,638	230,762	228,230	239,219	272,640
Canada	119,590	132,472	152,601	170,169	192,409
Holland	121,315	115,429	147,687	164,217	178,933
Switzerland	40,532	55,377	63,768	71,454	86,435
Bermuda	50,847	60,114	84,969	80,048	84,609
Germany	53,399	55,508	63,396	67,404	80,163
Japan	55,120	57,091	55,651	65,939	73,435
Luxembourg	22,148	27,849	50,771	59,496	66,919
Mexico	37,151	39,352	52,544	55,724	61,526
Singapore	20,665	24,133	40,764	52,449	57,589
Ireland	25,157	35,903	39,541	46,617	55,463
United Kingdom Islands, The Caribbean	29,762	33,451	36,443	49,806	54,507
France	43,120	42,628	40,125	42,999	47,914
Hong Kong	22,759	27,447	32,494	41,571	44,323
Australia	35,386	34,838	27,778	34,409	40,985
Spain	19,970	21,236	28,174	33,735	38,215
Italy	17,889	23,484	22,883	24,886	30,417
Brazil	37,184	36,717	32,027	27,615	29,915
Sweden	10,624	25,959	26,374	29,359	28,905
Belgium	21,756	17,973	22,589	24,868	25,804
Others	12,083	11,665	17,317	20,180	20,832
Republic of Korea	7,474	8,968	9,977	12,178	13,318
China	9,401	11,140	12,081	10,499	11,877
India	2,390	2,379	2,496	3,283	3,609

Source: US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA).

US DIA impact in Spain

Table 10b. The historical recorded value of US direct investment abroad, in millions of \$US (1999-2003)

	Salidas de capital (afluencias (-))				
	1999	2000	2001	2002	2003
Reino Unido	47.265	28.317	7.890	16.852	30.455
Canadá	22.824	16.899	16.841	11.534	13.826
Holanda	13.320	961	12.025	14.633	14.968
Suiza	6.929	8.687	4.170	6.683	14.444
Bermuda	6.871	9.363	7.007	-1.991	1.832
Alemania	5.658	3.811	11.823	-216	8.676
Japón	10.602	4.295	-4.731	7.877	5.800
Luxemburgo	4.535	2.474	20.402	8.879	5.241
México	8.164	4.203	14.226	5.171	5.667
Singapur	3.863	3.688	5.593	4.377	5.699
Irlanda	4.741	9.823	2.437	5.663	9.093
Islas del Reino Unido, Caribe	11.264	989	-1.129	2.157	3.057
Francia	2.111	1.967	476	3.324	1.504
Hong Kong	4.447	4.922	4.787	1.687	1.725
Australia	4.868	890	-751	5.139	3.881
España	5.689	2.249	1.642	2.694	3.375
Italia	3.729	6.404	1.767	1.807	3.485
Brasil	5.672	3.350	113	339	-266
Suecia	6.710	14.504	-6.883	1.877	3.000
Bélgica	1.431	-1.508	4.126	2.127	759
Otros	2.100	-754	1.452	2.240	417
República de Corea	2.557	2.338	1.206	1.755	954
China	1.947	1.817	1.912	924	1.540
India	269	92	214	887	243

Note: In this table, unlike on balance sheets for international transactions, income and capital outflow are shown without adjustments to current costs.

Source: *US Direct Investment Abroad, Financial and Operating Data, Bureau of Economic Analysis (BEA)*.

Appendix III: Survey

The survey was aimed at US companies associated with the *American Business Council*.

This survey was sent out by e-mail to a total population of 50 US-owned companies established in Spain. Of the 50, by October 8, 2004, 11 companies¹¹ had correctly completed the questionnaire, making this a rather limited sample on which to base this study.

Summary of the responses received for a sample of 8 companies:

1. Basic data and company activity	Responded or response ≠ 0	Did not respond or response = 0
1.1. Main activity of the company	11	0
1.2. Year of establishment or founding in Spain	11	0
1.3. Annual sales by the company	10	1
1.4. Annual exports	4	7
1.5. Number of employees	11	0
1.6. GAV of the company's production	4	7
1.7. Origin of the company's capital	11	0

2. Technological activities, employment and foreign trade	Responded or response ≠ 0	Did not respond or response = 0
2.1. Internal R&D spending (by the R&D dept.)	6	5
2.2. External R&D spending (outside the company)	4	7
2.3. Exports of technological products	2	9
2.4. Number of patents applied for by the company	0	11
2.5. Payments for royalties (patents)	0	11
2.6. Payments for royalties (trademarks)	2	9
2.7. Corporate setup expenses	9	2
2.8. Personnel assigned to R&D activities	6	5

Summary of the qualitative data received and answered positively for a sample of 11 companies:

- **Main activity of the company** higher education, computers (3), soft drinks, financial services (2), technology and communications, consulting and real estate services, aeronautics, manufacture and sale of automobiles, and sale of photographic products.

TOTAL ► Service sector: 8 companies. Industrial sector: 3 companies.

- **Year of establishment or founding of the company in Spain** 1913, 1953, 1957, 1972, 1973, 1975, 1979, 1982, 1986, 1998, and 1999.
- **Place of establishment in Spain:** Alcobendas, Madrid (6), Villaviciosa de Odón, Las Rozas (2), Zaragoza.

TOTAL ► Community of Madrid: 10 companies. Aragón: 1 company.

- **Origin of capital entering the company:**

¹¹ These companies are: Citigroup, General Electric Ibérica, CB Richard Ellis, Universidad Europea de Madrid, Coca Cola España, Boeing España, Oracle Ibérica S.L., Sun Microsystems Ibérica, General Motors España S.L, Kodak S.A. and EMC.

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- * Directly from the mother company: 8
- * Via another country: 2 countries: Luxembourg and the United Kingdom.
- * Both: 1 country: United Kingdom.

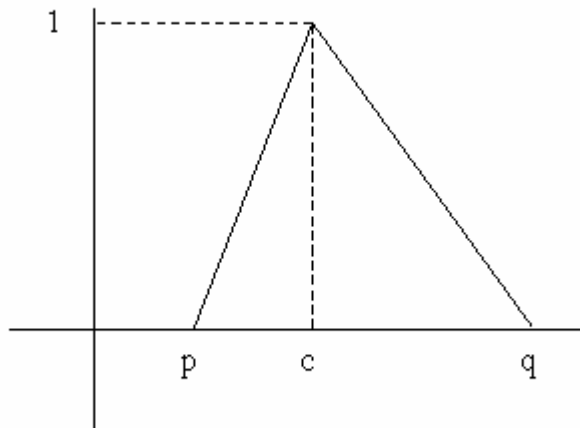
Appendix IV: Methodology for future estimates

Since the database is very small size and the premises for carrying out any kind of statistical analysis based on statistical inference are very insufficient, we have chosen to use an approach based on “fuzzy recognition”. The conclusions reached on this basis are more defensible.

We have decided to use the method suggested by P. D’Urso and T. Gastaldi, in which their model is adapted to include time as a variable, thus making it possible to characterize it as distinct variable without any risk of error.

We have used a procedure for automatically adjusting a regressive polynomial model to fuzzy data. The input data are represented by a distinct variable. In this way, we have searched for a set of interpolating functions that fit best with the data.

We have thus employed a distinct independent variable and a fuzzy, dependent, triangular variable. $Y = (c, p, q)$



The fuzzy polynomial regression model takes the following form:

$$c_i = a_0 + \sum_{j=1}^m a_j x_i^j + \varepsilon_i$$

$$p_i = d + b \sum_{j=1}^m a_j x_i^j + \lambda_i$$

$$q_i = h + g \sum_{j=1}^m a_j x_i^j + \rho_i$$

where m is the order of the polynomial model and x_i , $\forall i = 1, \dots, n$ are observations of the independent variable and the others are parameters of the model.

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The following matrix is obtained:

$$C = C^* + \varepsilon \text{ where } C^* = VA$$

$$P = P^* + \lambda \text{ where } P^* = C^* b + Id$$

$$Q = Q^* + \rho \text{ where } Q^* = C^* g + Ih$$

and V is a matrix of $n \times (m + 1)$ defined as follows:

$$V = \begin{pmatrix} 1 & x_1 & x_1^2 & \cdots & x_1^m \\ 1 & x_2 & x_2^2 & \cdots & x_2^m \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ 1 & x_n & x_n^2 & \cdots & x_n^m \end{pmatrix}$$

$A = (a_0, a_1, \dots, a_m)$ is the vector of $((m + 1) \times 1)$ which represents the parameters of the regressive model.

C, C^* are the vectors of $(n \times 1)$ which represent the observed centers and the interpolated centers, respectively.

P, P^* are the vectors of $(n \times 1)$ representing the left-hand limits of the fuzzy numbers observed and interpolated, respectively.

Q, Q^* represents the same as P, P^* but for the right-hand limits.

I is the vector of $(n \times 1)$ whose elements are represented by the numbers 1.

$\varepsilon, \lambda, \rho$ are the vectors of $(n \times 1)$ which represent the remainders of the model, and finally, b, d, g, h are the parameters of the model.

For the model, we propose the following measure of dissimilarity between two triangular fuzzy vectors:

$$\Delta(A, b, d, g, h) \stackrel{def}{=} \left[(C - C^*)^t (C - C^*)_{w_C} + (P - P^*)^t (P - P^*)_{w_P} + (Q - Q^*)^t (Q - Q^*)_{w_Q} \right]$$

As can be seen, the model described above is based on three sub-models, the first of which is valid for the polynomial interpolation of the centers of the fuzzy numbers. The two other models are linear and are built on the previous model; they serve to reconstruct the left-hand and right-hand interpolated limits.

This formulation palliates the possible effects between the size of the distance from the centers to the limits and the magnitude of the estimates of the centers.

The system's recursive solution is found by making the partial derivatives equal "0". The pertinent calculations result in:

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$$A = \frac{1}{(w_C + b^2 w_P + g^2 w_Q)} \left[(V'V)^{-1} V' (C w_C + (P - Id) b w_P + (Q - Ih) g w_Q) \right]$$

$$b = (A'V'VA)^{-1} (A'V'P - A'V'Id)$$

$$d = \frac{1}{n} (P'I - A'V'Ib)$$

$$g = (A'V'VA)^{-1} (A'V'Q - A'V'Ih)$$

$$h = \frac{1}{n} (Q'I - A'V'Ig)$$

The automatic adjustment procedure is based on a degree of t_0 and, if necessary, this is raised to adjust better to the polynomial.

Obviously, in cases of this kind, some kind of test stopping rule is needed. Among the various options that could be chosen, a reasonable one is a test based on the following *adjusted determination coefficient*.

$$\bar{R}^2 = R^2 - \frac{m}{n-m-1} (1 - R^2)$$

where, in this case:

$$R^2 = \frac{(C^* - \bar{C})'(C^* - \bar{C}) + (P^* - \bar{P})'(P^* - \bar{P}) + (Q^* - \bar{Q})'(Q^* - \bar{Q})}{(C - \bar{C})'(C - \bar{C}) + (P - \bar{P})'(P - \bar{P}) + (Q - \bar{Q})'(Q - \bar{Q})}$$

and where:

$\bar{C}, \bar{P}, \bar{Q}$ are the averages of C, P, Q .

It can be determined that:

$$\bar{C} = \bar{C}^*$$

$$\bar{P} = \bar{P}^*$$

$$\bar{Q} = \bar{Q}^*$$

Thus, the procedure would be to begin with $t=1$, and increase the order until:
 $R^2(t+1) - R^2(t) < \varepsilon$

Or else, the following criteria could be considered:

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$$\frac{R^2(t+1) - R^2(t)}{R^2(t)} < \varepsilon$$

where ε is a low, arbitrarily chosen threshold.

When this condition is met, the procedure will stop and the result will be the best adjustment made by the polynomial of degree t .

The threshold ε may be interpreted as the cost of the precision of the adjustment to the complexity of the polynomial model.

In practice, one of the possible ways to repeatedly inspect the model (in order to establish the moment of stopping) would be to visually check the adjustment of the interpolation function to the data (which is nearly impossible for larger dimensions).

Appendix V: List of US-owned companies included in the SABI database

3M ESPANA S.A.

A.P. AMORTIGUADORES SA

ABBOTT LABORATORIES SA

AEP INDUSTRIES PACKAGING ESPANA SA

AGERE SYSTEMS MANAGEMENT S.L.

ALCOA INESPAL SA

ALCOA INVERSIONES ESPANA SL.

ALCON CUSI SA

ALD AUTOMOTIVE SERVICES SA

ALLERGAN SA

AMC ENTERTAINMENT ESPANA S.A.

AMERICAN NIKE SA

AMI DODUCO ESPANA SL

AMWAY DE ESPANA SA

APPLERA HISPANIA S.A.

ARVINMERITOR A&ET SA

ASCENTIAL SOFTWARE IBERICA S.A.

ASHLAND CHEMICAL HISPANIA S.L.

AT & T GLOBAL NETWORK SERVICES ESPANA S.L.

ATLANTIC COPPER HOLDING S.A. (EXTINGUIDA)

BAXTER S.L.

BBDO ESPANA SA

BECTON DICKINSON SA

BELGICAST INTERNACIONAL S.L.

BELTONE ESPANA SA

BESTFOODS ESPANA SA (EXTINGUIDA)

BHA PURFILTER S.L.

BICC CABLES ENERGIA Y COMUNICACIONES SA

BIMBO SA

BMC SOFTWARE SA

BRAUN ESPANOLA SA

BRISTOL MYERS SQUIBB S.L.

BURGER KING ESPANA SA

CA COMPUTER ASSOCIATES SA

CABOT SA

CARGILL ESPANA SA

CARTONAJES INTERNATIONAL SA

CARTONAJES UNION SA

CENTRO DE ASISTENCIA TELEFONICA SA

CERAMICAS SANITARIAS REUNIDAS SA

CISCO SYSTEMS (SPAIN) S.L.

COMPANIA DE BEBIDAS PEPSICO SA

CONTROL TECHNIQUES IBERIA SA

COORS BREWING IBERICA SA

D ARCY MASIUS BENTON AND BOWLES SA

DELL COMPUTER SA

DELPHI AUTOMOTIVE SYSTEMS ESPANA S.L.

DELPHI DIESEL SYSTEMS S.L.

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DELPHI PACKARD ESPANA S.L.
DHL INTERNACIONAL ESPANA SA
DOW CHEMICAL IBERICA SL
DU PONT IBERICA S.L.
DUNKIN ESPANOLA SA
DUO FAST DE ESPANA SA
ECOLAB HISPANO-PORTUGUESA SA
ELECTRONIC DATA SYSTEMS ESPANA SA
EMERSON ENERGY SYSTEMS IBERIA S.A.
EQUIFAX IBERICA SL
ESSELTE SA
ESSO ESPANOLA S.L.
EUREST COLECTIVIDADES SA
EUREST SA
FERRO SPAIN S.A.
FMC AIRLINE EQUIPMENT EUROPE S.L.
FMC AIRLINE EQUIPMENT EUROPE S.L. (EXTINGUIDA)
FMC FOODTECH S.L.
FMC FORET SA
FORMICA ESPANOLA SA
FOSTER WHEELER IBERIA SA
GATES VULCA SA
GE POWER CONTROLS IBERICA S.L.
GE POWER MANAGEMENT SOCIEDAD ANONIMA.
GENERAL ELECTRIC PLASTICS S.L. (EXTINGUIDA)
GENERAL MOTORS HOLDING ESPANA SL
GRUPO GILLETTE ESPANA S.L.
HALLMARK CARDS IBERICA SA
HENRY SCHEIN ESPANA SA
HERRAMIENTAS EUROTOOLS SA
HERTZ DE ESPANA SA
INGRAM MICRO S.A.
INSTALACIONES Y TENDIDOS TELEFONICOS SA
INTERGRAPH ESPANA SA
INTERNATIONAL BUSINESS MACHINES SA
INVERSIONES CASPIO S.L.
IONICS IBERICA SA
ITW ESPANA S A
J P MORGAN ESPANA SA
J WALTER THOMPSON SA
JANSSEN CILAG SA
JOHN DEERE IBERICA SA
JOHNSON CONTROLS ESPANA S.L.
KIMBERLY CLARK SL
KODAK SA
KRAFT FOODS ESPANA SA
LABORATORIOS BELMAC S. A.
LANDIS A GYR S.A.
LEAR CORPORATION HOLDING SPAIN S.L.

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LEAR CORPORATION SPAIN SOCIEDAD LIMITADA.
LEVI STRAUSS DE ESPANA SA
LEVITT BOSCH AYMERICH SA
LILLY SA
LINCOLN KD SA
LINK EXTERNALIZACION DE SERVICIOS S.L.
LUCENT TECHNOLOGIES PARSIPANIS S.L.
MAC DERMID ESPANOLA SA
MALLINCKRODT MEDICAL S. A.
MANPOWER TEAM EMPRESA DE TRABAJO TEMPORAL SAU
MATTEL ESPANA S.A.
MCDONALD S SISTEMAS DE ESPANA INC SUCURSAL EN ESPANA
MCLANE ESPANA S.A.
MEAD EMBALAJE SL
MERCK FARMA Y QUIMICA SA
MERCK SHARP & DOHME DE ESPANA SOCIEDAD ANONIMA
META4 SPAIN SA
MICROSOFT INTERNATIONAL HOLDINGS SPAIN S R L.
MISCO IBERIA COMPUTER SUPPLIES SA
MOBLES BELLMUNT S. L.
MOTOROLA ESPANA SA
NAIPES HERACLIO FOURNIER SA
NCH ESPANOLA SA
NCR ESPANA SA
NEW TEKNON S.A.
OPEL ESPANA DE AUTOMOVILES SOCIEDAD LIMITADA
ORFI FARMA S.L.
PBG HOLDING DE ESPANA ETVE S.A.
PEOPLESOFT IBERICA S.L.
PERFILES Y TECHOS S.L.
PFIZER CONSUMER HEALTHCARE S COM P A.
PHARMACIA SPAIN SA
PHILIP MORRIS SPAIN SA
POLAROID ESPANA SA
PPG IBERICA SA
PRAXAIR ESPANA SL
PROCTER & GAMBLE MATARO S.L.
PROYECTOS MED FORD S.L.
R-C SPAIN SL
REFRESCOS ENVASADOS SA
RIVERWOOD ESPANA SA
ROVEMA IBERICA SA
RSI ROSS SYSTEMS IBERICA SL
SAINT LOUIS UNIVERSITY IN SPAIN SA
SANTA BARBARA SISTEMAS SA
SARA LEE BAKERY IBERIAN INVESTMENTS SL
SCHERING ESPANA SA
SENSIENT FRAGRANCES SA
SENSORMATIC ELECTRONICS CORPORATION SA

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SIEBEL SYSTEMS ESPANA S.L.

SITEL IBERICA TELESERVICIOS SA

SOCIEDAD ESPANOLA CHRYSLER JEEP IBERIA SOCIEDAD ANONIMA.

SOCIEDAD ESPANOLA DE CARBUROS METALICOS SA

SUN MICROSYSTEMS IBERICA SA

TECNICAS Y SERVICIOS DE AUTOMOCION SA

TELECONNECT COMUNICACIONES S.A.

TENNECO AUTOMOTIVE IBERICA SA

TEXACO PETROLIFERA SA

THE MCGRAW HILL COMPANIES INC

THE WALT DISNEY COMPANY IBERIA S.L.

TI GROUP AUTOMOTIVE SYSTEMS (PAMPLONA) SA

TIMKEN IRB SA

TOYS R US IBERIA SA

TRAGOS BONNANGE WIESENDANGER AJROLDI DE ESPANA SA

TRW AUTOMOTIVE ESPANA SL.

TYCO ELECTRONICS AMP ESPANA SA

UNION ESPANOLA DE EXPLOSIVOS S.A.

UNITED PARCEL SERVICE ESPANA LTD Y COMPANIA SRC

UNIVERSAL MCCANN SA

UNIVERSAL MUSIC SPAIN S.L.

VORIDIAN ESPANA S.A.

WARNACO INTIMO SA

WARNER HOME VIDEO ESPANOLA SA

WARNER MUSIC SPAIN SA

WRIGLEY CO SA

WYETH FARMA S.A.

XEROX ENGINEERING SYSTEMS ESPANOLA SA (EN LIQUIDACION)

XEROX ESPANA THE DOCUMENT COMPANY SA

YELMO CINEPLEX S.L.

YOUNG & RUBICAM S.L.

ZARDOYA OTIS SA
