The role of cost competitiveness in eurozone exports: Spain from a comparative sector perspective

This paper analyses manufacturing data from the eurozone's top six exporters in order to determine the relationship between export success and trends in unit labour costs. In line with previous studies, the results show that a decrease in production costs is not the only factor relevant to stimulating exports and that there are other factors which may also be influential in driving growth in Spanish manufacturing exports.

Ramon Xifré

Abstract: This paper analyses the relationship between the changes in unit labour costs (ULCs) and the changes in the export market shares of the six biggest exporters of manufactured goods in the eurozone (Germany, France, Italy, Netherlands, Belgium and Spain). First, we analyse the different trends in unit labour costs in 2005-2010 versus 2010-2015 and in the components of ULCs (employee compensation and apparent labour productivity). Spain stands out as the country where the change in the ULC trend has been the most pronounced. During the first period analysed, Spain was the country where ULCs increased the most. Conversely, Spain saw the largest decease in ULCs in the second period

analysed. Notably, Spain also experienced the largest decline in manufacturing jobs over both periods. As for the relationship between ULCs and export market shares, the figures analysed in this paper show that there is no clear correlation between the two variables at either the aggregate country level or at the product-country level for eight products within the manufacturing sector. Therefore, while ULCs are relevant to some key sectors in Spain, they are not the only factor that determines competitiveness. Consequently, it is important to move beyond the internal devaluation practices adopted to tackle the crisis, given that additional factors aside from cost competitiveness, such as R&D intensity and foreign demand, too have a significant impact on export success.

Introduction

As noted by Carlin, Glyn and Van Reenen (2001), the correlation between a country's production costs and export success is not clear-cut since there are two offsetting factors at play. On the one hand, globalisation and the intensification in competition between enterprises and countries suggests that exports should become more sensitive to costs, enabling the enterprises and countries that manage to export more cheaply to acquire a larger market share. On the other hand, product competition is increasingly focused around quality, variety, sophistication and technological/innovative content. From that vantage point, price or cost competitiveness does not necessarily yield better results for exporters.

This paper looks at this issue in the context of the manufacturing sector across the eurozone's top six exporters (Germany, France, Italy, Netherlands, Belgium and Spain) using the most up-to-date data available. More

specifically, it analyses to what extent it can be said that the trend in unit labour costs is associated with greater exporting success at the sector level. In this respect, the paper is a continuation and extension of prior pieces of work (Xifré, 2017a and 2017b). Unlike the Carlin, Glyn and Van Reenen (2001) paper, this analysis is only descriptive and far less technically sophisticated. Nevertheless, it includes a study of the Spanish case (absent in the above-mentioned paper) and covers the most recent figures available (2005-2015 compared to the 1970-1992 period covered in the previous paper).

The data are taken from the OECD's STAN Database for Structural Analysis. That database uses the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4. The appendix itemises the lines of activity included within the manufacturing industry, which is the subject of this paper.

Aggregate analysis

Table 1 and Exhibit 1 list the 20 OECD member countries that were the biggest exporters of manufacturing goods in 2016, the last year for which data across all the OECD countries are available. The following information is provided for each country: their shares of OECD exports (*i.e.*, a given country's exports as a percentage of total OECD exports) in 2005 and in 2016, as well as the percentage change between those two years.

The purpose of this preliminary analysis is to determine the key trends in manufacturing exports across the OECD member countries and to select the eurozone's top exporters. The figures reveal that the OECD's top exporter changed between 2005 and

> " Globalisation and the intensification in competition suggests that exports should become more sensitive to costs, enabling enterprises and countries that export more cheaply to acquire a larger market share; but, price and cost competitiveness does not necessarily yield better results. "

Table 1   **Share of OECD world exports in 2005, in 2016 and the percentage change in market share. Manufacturing sector**

(Percentage)

	Export market share, 2005	Export market share, 2016	Change in export market share, 2005-2016
United States	13.4	15.2	13.6
Germany	15.3	15.1	-1.3
Japan	9.3	7.1	-23.9
Korea	4.7	5.8	25.0
France	6.7	5.5	-19.0
Italy	5.9	5.3	-11.2
Netherlands	4.7	4.8	2.5
UK	5.3	4.3	-19.0
Belgium	5.0	4.3	-14.6
Mexico	2.9	4.0	35.6
Canada	4.4	3.3	-23.5
Spain	2.9	3.0	3.1
Poland	1.4	2.2	63.2
Austria	1.8	1.9	6.1
Czech Rep.	1.2	1.8	49.3
Turkey	1.2	1.6	38.1
Ireland	1.7	1.5	-10.2
Sweden	2.0	1.5	-26.8
Hungary	1.0	1.2	17.9
Denmark	1.2	1.0	-13.1

Source: OECD (STAN).

2016, namely from Germany to the US. In fact, Germany has seen its share of OECD manufacturing exports fall from 15.3% in 2005 to 15.1% in 2016. Other major eurozone economies such as Italy, France and Belgium have also seen their share of manufacturing exports decline. Note that because these export market shares are calculated in relation to OECD exports, the losses sustained by these economies are not related with the exporting buoyancy of emerging economies (*e.g.* China). In other words, these countries' loss of *global* manufacturing export market share will have been higher than the numbers presented here. Within the group of major eurozone economies, only the Netherlands and Spain have increased their share of OECD manufacturing exports.

Table 1 and Exhibit 1 provide the foundation for selecting the main eurozone economies in terms of world exports to be studied in this paper: Germany, France, Italy, Netherlands, Belgium and Spain (referred to as the EZ6 in this paper).

Next we analyse the trend in unit labour costs in the EZ6 for their economies as a whole. To this end, we rely on the approach used by

" Within the major eurozone economies, only the Netherlands and Spain have incrased their share of OECD manufacturing exports. "

Exhibit 1   **Share of OECD exports in 2005 and change in market share between 2005 and 2016. Manufacturing sector**

(Percentage)
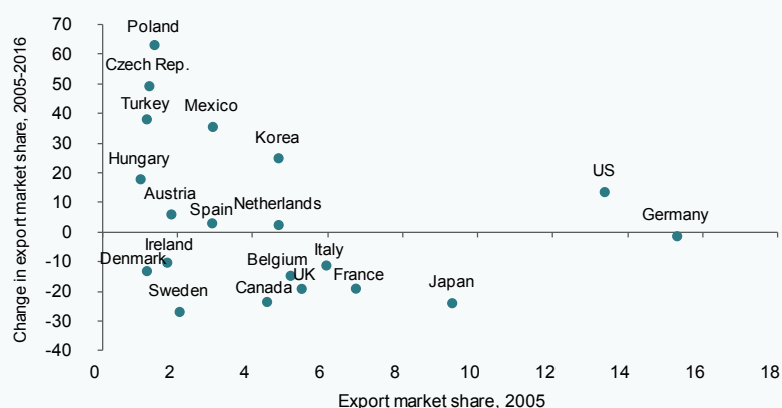
Source: OECD (STAN).

Carlin, Glyn and Van Reenen (2001). These authors take unit labour costs (ULCs) as the key proxy for cost competitiveness and define that metric as follows:

ULC = (W/E)/(eQ/N),

where W is employee compensation; E is the number of employees; e is the exchange rate; Q is the volume of output (proxy: value added at constant prices); and N is employment. In our case, the EZ6 countries share the same currency so that we do not need e in the above formula in order to make cross-country comparisons. As a result, ULCs depend on: (a) compensation per employee (W/E); and, (b) (apparent) labour productivity (Q/N).

Using the nomenclature given to these variables in the OECD's STAN Database, we calculate ULCs in this paper as follows:

ULC = (LABR/EMPE)/(VALK/EMPN).

2015 is the last year included in the following calculations and the last year for which these variables are available for all of the countries analysed. The monetary units are denominated in US dollars.

Exhibit 2a represents the trend in ULCs and components of ULCs —employee compensation and apparent labour productivity— for the EZ6 from 2005 to 2015, ordering the countries from smallest to largest change in ULCs. Exhibit 2b shows the same variables, this time distinguishing between two sub-periods: 2005 to 2010 (pre-crisis) and 2010 to 2015 (post-crisis).

As shown in Exhibit 2a, manufacturing ULCs increased by 5.7% in Germany between 2005 and 2015, with the Netherlands and Italy experiencing even larger increases of 11.3%

" The OECD's top exporters changed between 2005 and 2016, with Germany seeing its share of OECD manufacturing exports fall from 15.3% in 2005 to 15.1% in 2016. "

Exhibit 2a   **Change in ULCs and components of ULCs (employee compensation and apparent productivity), 2005 - 2015. Manufacturing sector**

(Percentage)
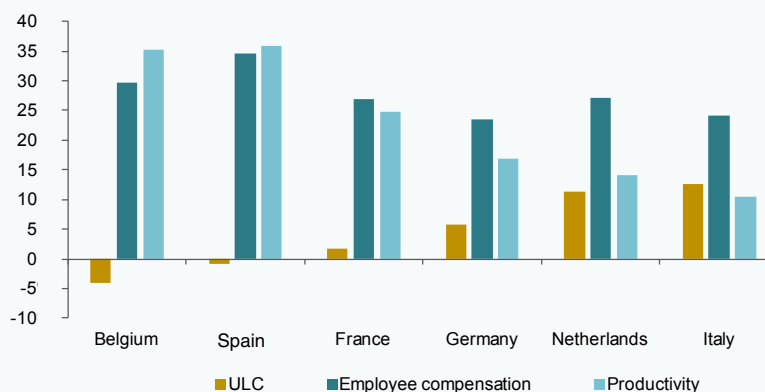
Source: OECD (STAN).

and 12.5%, respectively. In France, ULCs expanded by just 1.8%, whereas there was a small decline of 0.9% in Spain. Conversely, Belgium saw a pronounced contraction of 4.1%. Logically, a decrease in ULCs must stem from growth in apparent productivity in excess of employee compensation, while an increase in ULCs derives from the opposite situation, as is evident in Exhibits 2a and 2b.

Exhibit 2b distinguishes between the ULC trend in two sub-periods (2005-10 and 2010-15) and it reports data on total employment (variable EMPN in the STAN database) variation in each period. The trend in this variable is inversely proportionate to the trend in apparent labour productivity. This exhibit shows that the pattern in ULCs and ULCs components over time is similar during the two sub periods in Germany, the Netherlands and Italy. Actually, in all three countries, ULCs increased during both periods. However, in the other three countries, ULCs increased during the first sub-period and contracted during the second. Spain is the country where the change in the ULC trend before and after the crisis is most pronounced. Specifically, this metric goes from growth of 10.8% in the first sub-period (the highest rate of growth in the EZ6) to a contraction of 10.6% in the second (the biggest contraction).

Another point worth noting from Exhibit 2b is the fact that although manufacturing

" Spain is the country where the change in the ULC trend before and after the crisis is most pronounced; specifically, this metric goes from growth of 10.8% in the first sub-period (the highest rate of growth in the EZ6) to a contraction of 10.6% in the second (the biggest contraction). "
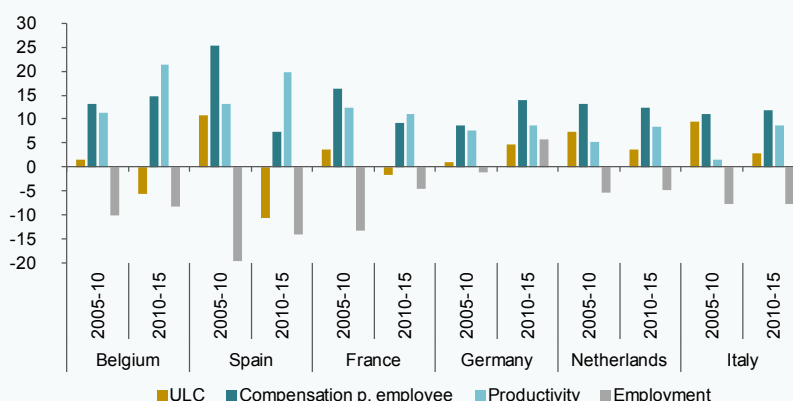
Exhibit 2b **Change in ULCs and components of ULCs (employee compensation and apparent productivity), 2005 - 2015 and change in employment, distinguishing between two sub-periods: 2005-2010 and 2010-2015. Manufacturing sector**

(Percentage)

■ ULC ■ Compensation p. employee ■ Productivity ■ Employment

Source: OECD (STAN).

employment declines in nearly all instances (except for Germany in 2010-15), the magnitudes of change vary significantly. In the three countries in which the ULC trend was constant throughout (Germany, the Netherlands and Italy), employment declined by 3.5% on average. In the other three countries (Belgium, Spain and France), it is clear that the growth in apparent labour productivity in the manufacturing sector is attributable to significant declines in the number of employees. Manufacturing employment fell by 11.6% on average in these three countries, which is nearly four times the reduction in the other group. Once again, Spain is the outlier with employment in the manufacturing sector decreasing by 19.5% in the first sub-period and by 14% in the second.

Next, we make our first attempt at exploring the relationship between the aggregate change in ULCs and the aggregate change in export market shares in the manufacturing sector for the six countries within the EZ6. In the following section we conduct a similar analysis broken down by area of activity.

Exhibits 3a, 3b and 3c present the change in export market share and change in ULCs during 2005-15 and in the two sub-periods, 2005-10 and 2010-15, respectively.

" Once again, Spain is the outlier with employment in the manufacturing sector decreasing by 19.5% in the first sub-period and by 14% in the second. "

Exhibit 3a

Change in share of OECD world exports and change in ULCs, 2005-2015. Manufacturing sector
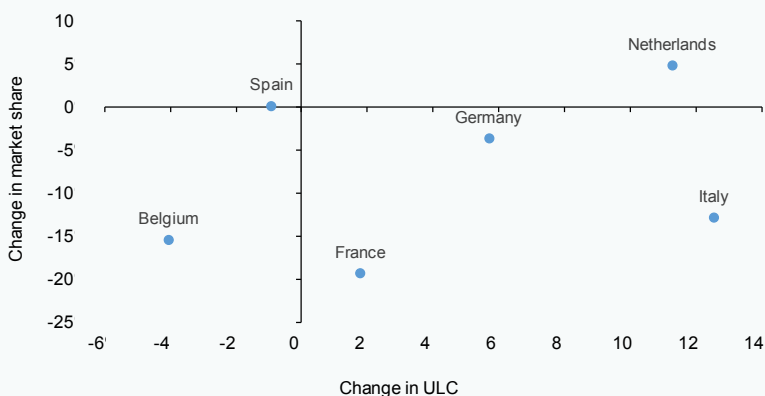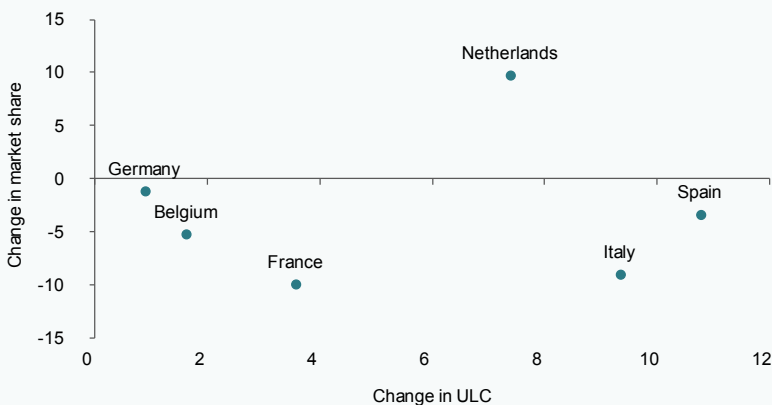
(Percentage)

Source: OECD (STAN).

Exhibit 3b

Change in share of OECD world exports and change in ULCs, 2005-2010. Manufacturing sector

(Percentage)

Source: OECD (STAN).

The most basic explanation of the relationship between cost competitiveness and export success maintains that the deterioration of the former translates into loss of the latter. [1] If this hypothesis were correct, we should be able to observe in our analysis an inverse correlation between the two variables. However, in none of the three exhibits do we see a clear-cut negative correlation between the two variables. However, given the high

Change in share of OECD world exports and change in ULCs, 2010-2015. Manufacturing sector

(Percentage)
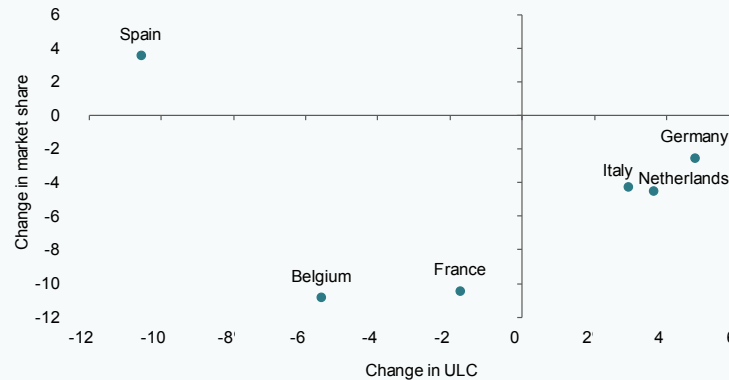
Source: OECD (STAN).

level of aggregation of the observations, it is hard to draw inferences within a reasonable confidence interval.

Product analysis

Continuing with the approach taken by Carlin, Glyn and Van Reenen (2001) and with the aim of refining our analysis of the correlation between ULCs and export market shares, this section examines product-specific changes within the manufacturing industry for each country. To this end, we calculate variables for the eight product categories, which comprise the manufacturing industry.

Exhibit 4a

Change in share of OECD world exports and change in ULCs, by product, 2005-2015. Manufacturing sector

(Percentage)
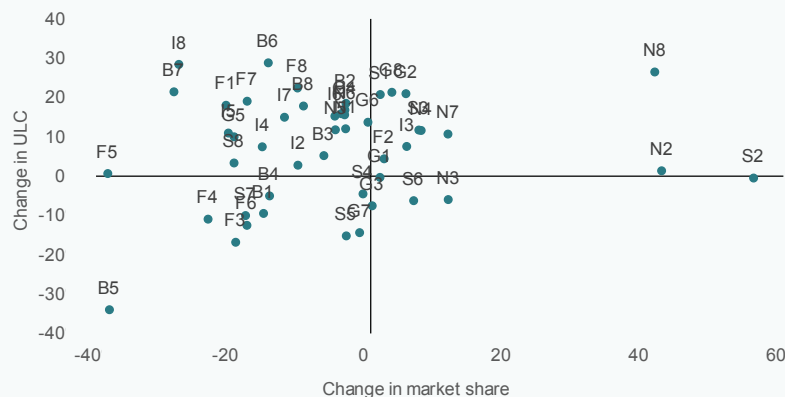
Notes: Each point corresponds to a country and product. The countries are identified by G: Germany; B: Belgium; S: Spain; F: France; N: Netherlands; I: Italy. The legend for the product categories is: 1: food; 2: textiles; 3: paper and wood; 4: chemicals and fuels; 5: metals and metallic products; 6: machinery and equipment; 7: motor vehicles and transport; 8: furniture and other (refer to the appendix for additional details about the sector classification).

Source: OECD (STAN).

Exhibit 4b

Change in share of OECD world exports and change in ULCs, by product, 2005-2010. Manufacturing sector

(Percentage)

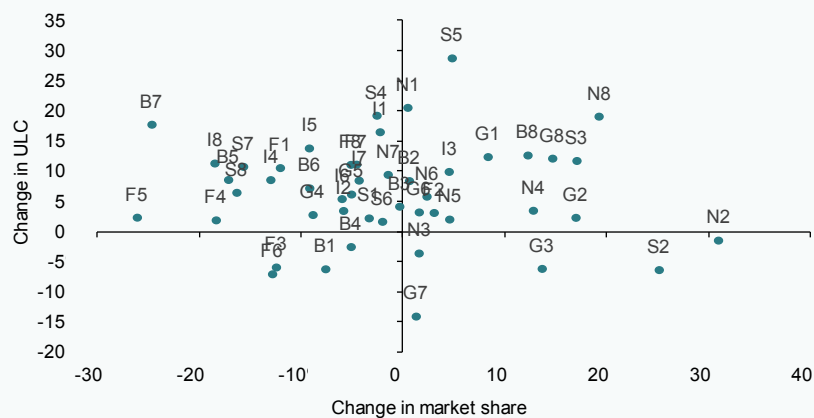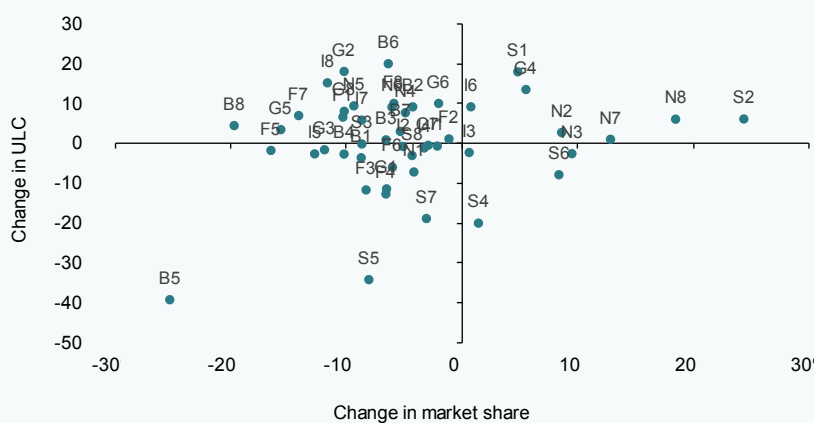*Notes: See notes for Exhibit 4a.*
Source: OECD (STAN).

Exhibit 4c

Change in share of OECD world exports and change in ULCs, by product, 2010-2015. Manufacturing sector

(Percentage)

Notes: See notes for Exhibit 4a.
Source: OECD (STAN).

Exhibits 4a, 4b and 4c are analogous to Exhibits 3a, 3b, and 3c, respectively, the only difference being that they present the data broken down into these eight product categories. This means that each point represents the observation for a given country and product and shows both the change in the corresponding share of OECD exports and related ULCs.

As shown in these exhibits, there is no clear inverse correlation between the two variables at the product level in the full period (2005-2015) or in either of the two sub-periods analysed. Table 2 presents the correlation coefficients and the corresponding p-values for the three cases represented in Exhibits 4a – 4c. None of the correlations observed ranks as statistically significant.

In fact, the highest correlation observed, which corresponds to the second sub-period (Exhibit 4c), is positive. This suggests that the increase in ULCs was associated with market share gains, in contrast to the most basic assumptions regarding the correlation between the two variables posited above.

It is important to note, however, that most of the EZ6 countries lost market share between 2005 and 2015 and that this loss of market share is also observed at the sub-sector level. As shown in Exhibits 4a – 4c, the only sub-sectors to have gained substantial market share during this period are found in the Netherlands and Spain, which is consistent with the pattern observed in Exhibit 3a.

Lastly, Exhibit 5 provides the breakdown of export value by sub-sector in 2005 and 2015 for the EZ6 countries. These figures show that in the two countries that have seen their export market shares increase, there are similarities as to the product categories that have increased in importance

Table 2   **Correlation coefficients and p-values for the country / product change in ULCs and export market shares, by period.**

(Percentage)

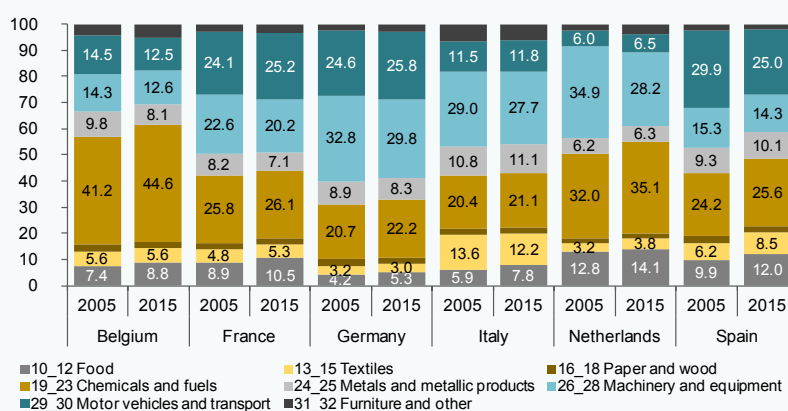| Period	Correlation coefficient	p-value
2005 - 2015	0.13	0.37
2005 - 2010	-0.05	0.71
2010 - 2015	0.19	0.19

Note: n = 48 observations.
Source: OECD (STAN) and authors' own elaboration.

" In the two countries that have seen their export market shares increase, Spain and the Netherlands, there are similarities as to the product categories that have increased in importance within their manufacturing mixes. "

Exhibit 5 **Breakdown of export value by area of activity within the manufacturing sector, 2005 and 2015**

(Percentage)

	Belgium		France		Germany		Italy		Netherlands		Spain	
	2005	2015	2005	2015	2005	2015	2005	2015	2005	2015	2005	2015
31_32 Furniture and other									6.0	6.5		
29_30 Motor vehicles and transport	14.5	12.5	24.1	25.2	24.6	25.8	11.5	11.8			29.9	25.0
26_28 Machinery and equipment	14.3	12.6	22.6	20.2	32.8	29.8	29.0	27.7	34.9	28.2	15.3	14.3
24_25 Metals and metallic products	9.8	8.1	8.2	7.1	8.9	8.3	10.8	11.1	6.2	6.3	9.3	10.1
19_23 Chemicals and fuels	41.2	44.6	25.8	26.1	20.7	22.2	20.4	21.1	32.0	35.1	24.2	25.6
16_18 Paper and wood					3.2	3.0	13.6	12.2	3.2	3.8	6.2	8.5
13_15 Textiles	5.6	5.6	4.8	5.3			5.9	7.8				
10_12 Food	7.4	8.8	8.9	10.5	4.2	5.3			12.8	14.1	9.9	12.0

- ■ 10_12 Food
- ■ 13_15 Textiles
- ■ 16_18 Paper and wood
- ■ 19_23 Chemicals and fuels
- ■ 24_25 Metals and metallic products
- ■ 26_28 Machinery and equipment
- ■ 29_30 Motor vehicles and transport
- ■ 31_32 Furniture and other

Source: OECD (STAN).

within their manufacturing mixes. More specifically, the food and chemicals and fuels sectors have increased their weight in the mix of manufacturing goods exported from the Netherlands and Spain. In Spain, it is also worth highlighting the increase in the importance of the textile sector.

Conclusions

Having analysed the data broken down by product category, the findings suggest that cost competitiveness (measured using unit labour costs or ULCs) alone does not explain export success (measured as a given country's share of world OECD exports).

The paper by Carlin, Glyn and Van Reenen's (2001) addressed the same issue –although relying on sophisticated econometric models and not analysing Spain– and it arrived at similar conclusions. Thus, while ULCs may explain some of the variation in export results, a significant part of that variation remains unexplained. In their analysis, the explanatory power of the investment intensity of a given sector (capital formation divided by value added) is notably high.

In a more recent piece of work, Crespo and García Rodríguez (2016) focus on quantifying the importance of price adjustments in explaining the trend in Spanish exports, concluding that the elasticity of Spanish exports to foreign demand is higher than their price elasticity.

In line with the above studies, the data presented in this paper suggest that decreases in production costs are not the only factor behind stimulating exports and that there are other factors (such as the sector in question's R&D intensity or foreign demand) which may also be significant to driving growth in Spanish manufacturing exports. From that standpoint, the argument can be made that it is important to move beyond the internal devaluation practices adopted to tackle the crisis (via improvement of the current account) towards measures aimed at recapitalising the Spanish economy in all its facets including physical capital, technological capital and, above all, human capital.

Notes

[1] Refer to Thiman (2015) for a good explanation of this theory in general and, in particular, for its application to the eurozone.

References

CARLIN, W.; GLYN, A., and J. VAN REENEN (2001), "Export performance of OECD countries: an empirical examination of the role of cost competitiveness," *The Economic Journal*, 111: 128-162.

CRESPO, A., y A. GARCÍA RODRÍGUEZ (2016), "¿Ha mejorado la competitividad exterior gracias a la devaluación interna? [Has internal devaluation boosted external competitiveness?]," *Papeles de Economía Española*, 150: 114-126.

THIMAN, C. (2015), "The Microeconomic Dimensions of the Eurozone Crisis and Why European Politics Cannot Solve Them," *Journal of Economic Perspectives*, 29.3: 141–164.

XIFRÉ, R. (2017a), "The relationship between the recovery in Spain's current account and labour productivity," *Spanish Economic and Financial Outlook*, Volume 6, No. 2: 67-80.

— (2017b), "Non-price competitiveness factors and export performance: The case of Spain in the context of the Euro area," *Spanish Economic and Financial Outlook,* Volume 6, No. 3: 55-66.

Ramon Xifré. Associate Professor at ESCI-UPF School of International Studies and Policy Research Fellow at the Public-Private Sector Centre at IESE Business School

Appendix. Economic activities included in the manufacturing sector for ISIC Rev. 4 classification purposes

Section C. Manufacturing

10-12 Food

- 10 Manufacture of food products

- 11 Manufacture of beverages

- 12 Manufacture of tobacco products

13-15 Textiles

- 13 Manufacture of textiles

- 14 Manufacture of wearing apparel

- 15 Manufacture of leather and related products

16-18 Paper and wood

- 16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

- 17 Manufacture of paper and paper products

- 18 Printing and reproduction of recorded media

19-23 Chemicals and fuels

- 19 Manufacture of coke and refined petroleum products

- 20 Manufacture of chemicals and chemical products

- 21 Manufacture of basic pharmaceutical products and pharmaceutical preparations

- 22 Manufacture of rubber and plastics products

- 23 Manufacture of other non-metallic mineral products

24-25 Metals and metallic products

- 24 Manufacture of basic metals

- 25 Manufacture of fabricated metal products, except machinery and equipment

26-28 Machinery and equipment

- 26 Manufacture of computer, electronic and optical products

- 27 Manufacture of electrical equipment

- 28 Manufacture of machinery and equipment n.e.c.

29-30 Motor vehicles and transport equipment

- 29 Manufacture of motor vehicles, trailers and semi-trailers

- 30 Manufacture of other transport equipment

31-32 Furniture and other

- 31 Manufacture of furniture

- 32 Other manufacturing

For additional details, refer to the ISIC Rev. 4 classification of activities at the following link (https://unstats.un.org/unsd/publication/SeriesM/seriesm_4rev4e.pdf).