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# **The ‘relative competitiveness’ patterns of Spanish regions after the European Monetary Union (1999-2002)**

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## **Abstract**

Recent approaches to competitiveness acknowledge that regions compete for attracting business and economic activity. Geographical competition of regions within countries and among other European Union (EU) member states is a feature that arguably might encompass the set up of the European Monetary Union (EMU). Spain is a regionally heterogeneous country embracing significant differences in relative prices, production and trade, along with notable differences in the participation of non-tradable goods in total production. Because these differences might affect the exposition to a common currency, this paper aims at empirically examining the visible short run patterns of change on the relative competitiveness of Spanish regions between 1999-2002. Our results indicate that heterogeneity in the relative competitiveness of Spanish regions increases after the set up of EMU although displaying a weak influence in the overall regional economic performance. Policy implications point out that fiscal policy, as a toll to counterbalancing the 'relative competitiveness' improvements of some regions, might display perverse incentives for regions to be competitive in the longer role.

*Keywords:* exchange rate variability, competitiveness and Spanish regions.  
*JEL:* E63, F51, H23.

## 1. Introduction

As a result of the increasing integration of the European economy, the determinants of regional competitiveness has received noteworthy attention due to its influence in boosting investment and production flows to specific geographical areas. Typically, policy makers and decision makers both at the regional and at the country level are concerned on the actions to improve competitiveness of companies which are in a certain area, ultimately to improve economic activity. This feature has become more prominent as a result of decentralisation processes conferring sub-national entities increasing political relevance which leads geographical competitiveness to become a key policy goal (Porter, 1996)<sup>1</sup>. However, as far as the performance of one unit can be compared with the performance of another unit within a similar environment (e.g., all belong to the same state), the competitiveness of regional units withholds a ‘relative’ than ‘absolute’ interpretation. Following Siebert (2000), regions such as nations, compete against each other to attract investment, production factors and economic activity in the same way that firms compete to increase their market share.

One of the most remarkable features that might have affect the ‘relative competitiveness’ of European regions is the set up of a single currency. It is expected that the European Monetary Union (EMU) will promote price stability and eliminate prior barriers to trade and economic activity e.g., exchange rate variability (Alesina and Barro, 2002). As a result, the EMU has been catalogued as a trade encouraging arrangement (Rose, 2000). Arguably, the EMU might foster competition between regions as well as companies operating from certain regions. Still some barriers remain such as inter-country fiscal redistribution exerted through several economic policy tools which remain at the national level (e.g., public investment and taxation). Other barriers might come from previous agglomeration economies and other departing (dis)advantages such as human capital and technological barriers that are not expected to be removed in the short run.

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<sup>1</sup> We should acknowledge that in this point there is some controversy, Krugman (1997) argues that using the term competitiveness to regions might lead to protectionist policies and that it should refer to the competitiveness of firms within a regions. However, as far as regions compete to attract economic activity the ‘relative competitiveness’ does play a role in how economic activity is allocated with a state.

It is important to ascertain whether the effect of the removal of barriers to trade and economic activity is heterogeneously distributed within EMU member states as well as within regions among states (Costa and Tremosa, 2003). One of the research questions that the set up of a single currency sets out is whether the EMU is expected to change the distribution of the economic activity, and which are the instruments that economic policy disposes to smooth the effects of relative competitiveness of certain regions as compared to others. The EMU enlightens significant debates on the likely effects that might enhance on the regional distribution of economic activity. Therefore, a prior necessary exercise to evaluate the short term effects of the EMU relies on examining patterns of change in the relevant short term indicators such as trade, production and real exchange rate. Because empirical evidence is still small, it is important to examine descriptive empirical evidence on the short run trends of regions in their exposition to the EMU. Relevant variables to examine are the trade, price and production patterns. More precisely, we aim in this study at identifying whether regions share similar patterns in trade (e.g., exports), real exchange rate and production patterns in Spain, often cited in several studies undertaken in the pre-accession period as a likely country to suffer asymmetric shocks.

Spain is a country composed by seventeen regions, legally qualified as autonomous communities which exhibit sensible economic heterogeneity in the relevant patterns of trade, prices and production. Some studies have already examined the exposition of Spanish regions to the EMU (Costa and Tremosa, 2003; Raymond and Garcia, 1998). However, small is known on the effects after the set up of a single currency, and more precisely on the changes in the relative regional competitiveness differences after 1999, when formally the peseta exchange rate with was pegged once-for-ever to the euro. The aim of this paper is to empirically examine changes in the exposition of Spanish region to the EMU in trade, real exchange rate and production patterns. We ground our analysis on previous work undertaken and we provide more extensive outlook of this evidence we examine changes in the regional distribution of economic activity. Because there is scarce descriptive analysis, we believe that a descriptive study on the regional patterns of short terms competitiveness patterns might provide an intuition for further more sophisticated studies.

We divide our empirical analysis in the four following research questions:

*RQ1.* Have the EMU placed a neutral effect on the relative trade and production patterns of Spanish regions?

*RQ2.* Is there an effect on the regional real exchange rate? Are regions overall more internationally competitive than before?

*RQ3.* Has the EMU lead to relatively more intensive trade with EMU countries?

*RQ4.* Has the EMU enhance an effect on the real convergence of different regions?

The paper is organised as follows. Section two introduces a brief literature review, presenting some theoretical underpinnings. Section three reports preliminary empirical analysis and describes the data and empirical methodology. Section four sets out the empirical results and the paper conclude with final remarks and a concluding section reporting policy implications.

## **2.- Brief literature review and the data**

### *2.1 The literature review*

The set up of a common currency, such as the EMU, may encompass a rise in the regional economic specialisation which might enhance a significant impact on the structure and the allocation of resources both among countries and regions within countries (Krugman 1993, 1991). A main effect of the EMU is on trade. Frankel and Rose (1997) predict an increase of trade intensity between regions involved the EMU process and Rose (2000) finds a stronger business cycle synchronisation among EU regions, resulting from the inability to use country specific instruments to overcome regional asymmetries. However, Nijkamp and Wang argued (1999) suggest a general concern resulting from the uneven distribution of the macroeconomic costs and benefits of the EMU may exacerbate regional inequalities both *between* and *within* European Union (EU) member states. Theoretical findings (Martin, 1999; Paluzie, 2001) and empirical evidence (Esteban and Vives, 1994) point out that, as a result of differences in

productivity, trade intensity and especially asymmetries in the distribution of transaction costs, regional inequalities probably will increase.

Although the building process of the EMU has remained at the country level, the expected regional effects within an EU country cannot be dismissed. Accordingly, some studies show that regions within some EU countries are not integrated areas. Iammarino and Santangelo (2000) find detectable heterogeneity between Italian regions in their capacity to attract foreign capital and in competitiveness. In Spain, Raymond and Garcia (1998) use an association analysis of the cyclical component of the regional GDP to show that Spanish regions appear to be “heterogeneously integrated”. As a result we would expect significant differences in the regional capacity to cope with the adjustment requirements of a common currency, albeit being part of the same country. This could translate into widespread differentials in relative prices and in turn in the real exchange rate between regions within a country. Indeed, Alberola and Marques (2001) using data on Spanish regions reveal that there are still persistent and important price variations across Spanish regions mainly due to dissimilarities in labour productivity and income between these regions.

It is also important to notice that monetary policy is expected to exert an important asymmetric territorial impact. Carlino and DeFina (1998) examine whether monetary policy has similar effects across regions in the United States; impulse response functions from an estimated structural vector auto-regression reveal that the Great Lake region (Illinois, Indiana, Michigan, Ohio and Wisconsin) is noticeably more sensitive to monetary policy changes of the Federal Reserve, while the Rocky Mountains region (Colorado, Idaho, Montana, Utah and Wyoming) is found to be much less sensitive. Tremosa and Pons (2001) find significant unequal impact of European monetary policy in the between 1960 and 1997. Results confirm that Germany and the North-Central European countries would be less sensitive to the European monetary policy changes, whereas the Mediterranean countries (and Belgium) would be more sensitive to the aforementioned variations. Furthermore, Costa and Tremosa (2003) confirmed at regional level most of these implications by extending an empirical application of the Optimum Currency Area (OCA) theory at the regional level following Bayoumi and Eichengreen (1997). Results confirmed that Spanish regions examined between 1992-1998 display significant differences in their capacity to cope with a

European common currency, although regional differences are lower than those observed between European countries in Bayoumi and Eichengreen (1997). The OCA index at regional level in Spain was strongly associated with the degree of synchronisation with the EU business cycle and with the economic regional size, and to a lesser extent associated with the degree of openness.

On the other hand, the set up of the EMU implies that the nominal exchange rate is no longer an available economic policy instrument for adjusting the real exchange rate. However, the compound consequences are the associated reductions in transaction costs and in the uncertainty associated with exchange rate risks, and other effects which follow from this such as a rise in bilateral intra-EU trade (Frankel and Rose, 1997). These authors argue that in the event of monetary union in Europe, the structure of these economies is likely to change: the elimination of nominal exchange rate variability will increase trade, which will in turn lead to a larger correlation between business cycles (as show the pattern of Spanish economy, which seemed to have changed in 1997-2003). Similar results were obtained in the famous European Commission study entitled “One Money, One Market” (1990). However, although larger trade integration might lead to a greater synchronisation of business cycles, simultaneously might influence specialisation, as Krugman (1993) points out. The observation that higher trade integration results in a higher business cycle synchronisation, might be the combined result of both specialisation and integration effects, showing a larger effect of the second. However, as far as regions differ in their capacity to take advantage of the greater trade intensity resulting from the economic integration, an increase in trade might enhance economic asymmetries between regions. Empirical evidence at the regional level in Spain (Esteban and Gual, 1999) shows that although trade links with the European Union are large in most Spanish regions the degree of synchronisation of them is still noticeably small for some of them.

## *2.2 The data*

The data from exports and imports referred to the period 1999-2002 has been obtained from Subdirección General de Comercio Exterior and ICEX. Regional GDP data has been obtained from Cuadernos de Información Económica and Instituto Nacional de Estadística. Regional public expenditure data has been obtained from

Cuadernos de Información Económica and European Regional GDP data has been obtained from Eurostat.

### *2.3 Estimating real exchange rates*

The effective exchange rate is an indicator to grasp a countries international competitiveness in terms of its foreign exchange rate. As nominal exchange rates do not differ regionally real exchange rate is virtually the sole indicator exhibiting some regional variability and thus capturing differences in prices among certain regions and a reference country (e.g., Germany or the Euro-zone). According to the strict PPP hypothesis, an equilibrium on the exchange rate market is attainable when the nominal exchange rate between the regions is equal to the ratio of prices of identical consumption baskets in the two regions. One can state this in logarithm terms as  $s = p - p^*$  where  $s$  is the nominal exchange rate expressed as an amount of the home currency per unit of the foreign currency,  $p$  and  $p^*$  denote the price level in the home and the foreign country, respectively.

It is also possible to define the real exchange rate as:

$$q_t \equiv s_t - p_t + p_t^* \quad (1)$$

where  $s$  refers to the nominal exchange rate being constant and equal to 100 for the period 1999-2002.  $p$  refers to prices and the  $*$  denotes the foreign  $g$  country. Therefore, an increase in the index would denote that prices in certain regions (once adjusted by the share of non-tradable goods) has increase more than in the reference country as opposed to a decline in the index.

There are numerous definitions employed of exchange rates. Essentially, economic theory developments have proposed a variety of weights to be placed on exchange rates depending on the relevant trade partner. In this section, we deal with the issue of building up a measure that accounts for regional variability on prices. It has been widely observed empirically that poorer or less developed countries have lower prices of various goods, mostly those of non-tradable goods, in relation with their more developed counterparts and their general price level is lower. To account for this feature we have adjusted regional prices by their share of non-tradable goods, measured as the

share of public sector expenditure in total GDP. To simplify we have taken Germany as a benchmark although alternative adjustments could be undertaken, such as weighting prices by the share of their trade.

The methodology used in this study assumes that the purchasing power parity law (PPP) plays a role at the regional level. This is consistent with Parsley and Wei (1996) who finds evidence of the robustness of the PPP law at the regional level despite the finding that most factors explaining prices variation at the country level (e.g. nominal exchange rate and tariffs) play a very limited role now, while other determinants might be relevant instead. Real exchange rates were computed for each region as the relevant variable from which to measure currency union integration. The reasons for using these variables are several. First, since a common currency mainly leads to price stability, a convergence index should include real rather than nominal exchange rates. Second, following Bayoumi and Eichengreen (1997), the variability of nominal and real exchange rates is the result of the choice of the exchange rate regime. Therefore if a monetary union implies freezing exchange rate between countries (and hence regions) involved, the historical exchange rate variability would be the appropriate endogenous variable to use in the models for to calculate OCA index estimations.

The real exchange rate was computed at the regional level, considering that prices are a linear function from tradable and non-tradable goods of each region (j) and Germany (A)

$$\begin{aligned} P_{t,j} &= P_{nc,j}^{\theta_j} \cdot P_{c,j}^{1-\theta_j} \\ P_{t,A} &= P_{nc,A}^{\theta_a} \cdot P_{c,A}^{1-\theta_a} \end{aligned} \quad (2)$$

where  $\theta^j, \theta^A$  is the share of non-tradable goods in Spanish regions and in Germany. Thus, real exchange rate at regional level is:

$$ER = 1 / \alpha \sum_{i=2}^n (\hat{P}_i + \hat{E}_{i1} - \hat{P}_1) \quad (3)$$

where ER refers to real exchange rate,  $\hat{P}_i$  are the perceptual changes in the price level between regions  $i=1,2,\dots,17$  with German changes in the price level  $\hat{P}_1$ ,  $E_i$  refers to the change in the bilateral nominal exchange rate and finally  $\alpha$  is an adjustment term referring to the share of non tradable goods in the economy for each region. Differences in price variation levels between regions might respond to several biases. In this paper we control for demand pressure differentials between regions by looking at differentials between the Spanish average inflation.

### 3. Empirical evidence

This section reports the empirical evidence collected on the issues announced before in the hypothesis. Therefore, we first examine whether between 1999 and 2002 there is an appreciable change in relative trade (openness) and relative production, real exchange rate and relative real convergence.

#### *3.1 EMU and the regional economic activity*

Table 1 shows the evolution of GDP, exports and population of the Spanish regions between 1999 and 2002. Overall the most important change in the time span analysed is the one of Catalan (relative) exports. Indeed, the share of Catalan export in the total Spanish exports has risen from 23% to 28% followed by least appreciable but significant rise in Cantabria, Galicia, Navarra and Castilla y Leon. It can be said that from the set up of the EMU Catalonia has seized more intensively its export intensity as already predicted some previous studies (Costa and Tremosa, 2003). A plausible explanation might rely on the interest rate convergence with the EMU and the peseta's depreciation benefiting more intensively the industrial and exporter Spanish regions<sup>2</sup>. On the other hand the growing economic diversification of certain regions in that period might be responsible of exports rise. Interestingly, Table 1 highlights that differences in the share of exports among regions do not explain differences in production. Indeed,

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<sup>2</sup> The Catalan industry is a clear example of the relationship between openness and productive specialization. Today the Catalan manufacturing play a leading role in only four sectors: chemical, automobile, machinery and food, which represented in 2001 a 60% of total Catalan industrial production

with the exception of Navarra, the rest of Spanish regions experiencing an increase in their relative exports did not experience a relative production increase. Furthermore, these effects do not seem to be explained by changes in the population structure of different regions.

### **INSERT TABLE 1 ABOUT HERE**

#### *3.2. "Creation vs deviation" effects over trade derived from EMU*

Economic and monetary integration origins a conflict between two extremes. Firstly, there is a creation of economic relationship which should generate a larger volume of relative trade towards EU countries. Thus, it is expected that EMU creation stimulate more than proportionally internal trade. And secondly, it is possible than other factors that determine trade, as the economic complementarities with other European regions, may be more important than the reduction of exchange rate.

Table 2 reports the appreciable changes in percentages of Spanish regions exports to EU and EMU countries. Interestingly, we find unexpected effects since after 1999 there regional exports to the EU experience no remarkable changes with the exception of Asturias, Cantabria and Galicia. Therefore, descriptive empirical evidence points out that the short run deviation effect dominates over creation effects. It is important to notice that Catalonia and Valencia C., alone capturing the largest share of the Spanish trade, experience respective null and a negative growth in their percentage of exports to the EU and to the EMU. Moreover, it confirms that there's not a concentration of Spanish foreign trade with the EMU.

### **INSERT TABLE 2 ABOUT HERE**

Overall, these results suggest that that trade integration might come out in the longer run or, other factors might have placed a significant effect over regional trade with the EMU countries. These results also suggest that, considering EMU as an

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(while in 1990 it was only a 32%). In the same period, Catalan ratio exports/GDP has grown from 17.5% to 43% between 1990 and 2001, which is higher than the German or the Italian one.

economic unity, its set-up might have promoted international trade along with internal trade.

Table 3 reports the changes in imports of Spanish regions to EU and EMU. Results point out that the effects are substantially different from the ones observed for exports. Evidence suggests some idiosyncratic effects of EMU over imports. Another noteworthy pattern is the increase of imports to Madrid.

### **INSERT TABLE 3 ABOUT HERE**

#### *3.2 Effects on openness rate*

Table 4 exhibits the evolution of the openness rate between 1999 and 2002, taking into account the total external trade balance (exports plus imports) related to GDP. It is observed that in the last two years the Spanish openness degree has declined (measured in current €, GDP has grown more than exports and imports), due to the stagnation of international trade and the recession of the main countries in the world. In 2002 the most opened region was Navarra, followed by Catalonia, Basque Country, Galicia and Madrid and less opened region were Extremadura, Balearic Islands and Canaries, presenting Galicia the main progression during this period. However, it is important to notice that openness rate patterns tend to be represented in little countries or little regions (measured by GDP and surface) which might suggest that possibly both Catalonia and Madrid might be experience a small relative improvement.

### **INSERT TABLE 4 ABOUT HERE**

Table 5 shows the result of a cluster analysis of two main variables employed for to estimate the determinants of exchange rate variability, the degree of openness and the degree of diversification. The first degree has been computed on the basis of exports and imports as a share of total regional GDP and the second degree has been measured by the Herfindahl index of specialization using employment data (see Costa and Tremosa, 2003). This empirical feature can be viewed as prior evidence of how heterogeneous the benefits of the EMU might be. Therefore, perceptible relative heterogeneity is highlighted across Spanish regions: considering the two main regions in

size, Catalan GDP is formed by manufacturing industry and there are thousands of medium and little enterprises which compete in opened and not regulated markets, whereas Madrid GDP is defined by the public sector, the financial sector (two Spanish largest banks) and by very few monopolistic tertiary enterprises (some of them were old public monopolies).

Thus, it is difficult for Spanish fiscal policy to achieve efficiency in attending heterogeneous and different necessities of the different regions, as Nicodème argued (2001, 2002): This author uses microeconomic backward-looking approach and computes effective corporate tax rates for eleven EU Member States, for different sizes of companies and different sectors of the economy<sup>3</sup>. The results from the pooled cross-section regressions show differences in tax burden, not only across countries as already identified by the report of the European Commission on company taxation, but also within countries for different types of companies. Broadly speaking, the results suggest that a) Large companies bear a smaller tax burden compared to small enterprises: it is suggested that “large companies are more successful in avoiding taxes, possibly through tax planning and fiscal engineering; and b) Similarly, the sectors of “energy and water”, “building and engineering” and “services” have smaller effective taxation than the manufacturing sector and the sector of “trade”.

According to this argue and considering the high territorial productive specialization, it can be said that in Spain there is an asymmetric territorial fiscal pressure which punishes specially competitiveness of the Mediterranean Arch (Catalonia, Valencian C. and Balearic Islands) and the Ebro Valley (Basque Country, Navarra and Aragon) in front of Madrid. Successful competitiveness of Spanish in the enlarged EU should correct or reform this unequal territorial fiscal pressure in the next future, as complicity of public sector is a necessary condition of success for the manufacturing industry to increase its size in the new context of globalization (Trigo, J.; Tremosa, R. and Guillermo, S., 2003).

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<sup>3</sup> These measures are based on individual accounts of companies harmonized in a standard format provided by the BACH project.

## **INSERT TABLE 5 ABOUT HERE**

### *3.3 The effect on real regional exchange rate*

In this section we examine whether there are significant differences in the way in which regions within a country will be able to support stable real exchange rates. The set up of a common currency entails that nominal exchange rate cannot be used as a policy instrument to improve regional competitiveness artificially.

Table 6 reports the estimates of the real exchange rate of Spanish AC with Germany (which is regarded as a proxy of the EMU core), in which the lower the real exchange rate is, the more competitive the region is. This period has been disaggregated in two periods (1992-1994 and 1995-1998), according to the intensive appreciation and to the following depreciation of the nominal exchange rate of peseta versus Deutsche Mark.

## **INSERT TABLE 6 ABOUT HERE**

According to these results of real exchange rate adjusted with Germany, Catalonia, the Basque Country and the Valencian C. would have been the most competitive AC in the period 1992-1998. As Trigo argued (1991), Spanish monetary policy between 1998 and 1993 (characterized by high interest rate and an artificial appreciated exchange rate) would specially damaged the most industrialised and opened AC, whereas Spanish monetary policy between 1994 and 1998 would specially benefited this kind of regions. Tremosa (2002) estimated a “double effect” of monetary policy in Spain (considering the variations of interest rate and exchange rate), by which Catalan manufacturing industry benefits would have fallen down the double than the rest of Spain ones’ between 1988 and 1993, whereas Catalan manufacturing industry benefits would have grown the double than the rest of Spain ones’ between 1994 and 1998<sup>4</sup>.

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<sup>4</sup> The database of Central de Balances del Banco de España is also elaborated for the Catalan economy, as the 25% of the Spanish enterprises which cooperate with the Banco de España are Catalan. Since 1983

#### **4.- REAL EXCHANGE RATE AND COMPETITIVENESS (1999-2002).**

##### *4.1 The Spanish regions real effective exchange rate*

Table 7 present for the period 1999-2002 the share of public expenditure in regional GDP, as estimate of the regional share of non-tradable goods. There are significant differences across regions in what regards the share of public expenditure in their regional GDP. Historically Spanish central government has invested mainly according to interterritorial solidarity criteria: this is the cause by less developed regions present higher share of public expenditure in their GDP (Andalusia, Extremadura, Castilla-La Mancha, Castilla-Leon), in front of most productive ones (Catalonia, Valencian C. and Madrid). It should be noticed that efficiency criteria should be also taken into account, so that multiplicative effects over activity are greater when governments invest in those regions in which the ratio public capital/private capital is lower (Sala-i-Martin, 1997).

#### **INSERT TABLE 7 ABOUT HERE**

Table 8 and Table 9 exhibits the real exchange rate adjusted with Germany and the Euro-zone respectively. Results from Table 6 suggest that there is a considerable and increasing heterogeneity resulting from the set up of a monetary union in what regards the competitiveness of each Spanish region with Germany. Although all regions seem to have gained competitiveness in front of Germany, the coefficient of variation was only of 0.006 in 2000 and has increased to 0.02 in 2002. At regional level, remarkable is the evolution of Navarra, Catalonia and Balearic Islands, standing as the most competitive regions as opposed to Asturias, Cantabria and Valencian C., which although improving their position they rank the lowest. It is important to notice that the share of public expenditure in regional GDP plays a key role in the estimation of real exchange rate as effective competitiveness, as two of the three most competitive regions in the period 1999-2002 are the same which present the lowest percentage of public expenditure in their regional GDP (Catalonia and Balearic Islands).

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the Economics Department of Catalan government and the UAB publish the annual report of Catalan enterprise.

### **INSERT TABLE 8 ABOUT HERE**

We undertook the same methodology to estimate the evolution of the real exchange rate with the Euro-zone in Table 8. The results suggest that, unlike previous results, all Spanish regions present less effective competitiveness with the Euro-zone than with Germany in these four years. Thus, even three regions (Asturias, Cantabria and Murcia) have declined its competitiveness in front of the Euro-zone, whereas Navarra, Catalonia and Balearic Islands continue standing as the most competitive regions: the share of public expenditure in regional GDP (which was the lowest in Catalonia and Balearic Islands) also plays a key role in the estimation of real exchange rate as effective competitiveness in front the eleven euro countries. Finally, it is also observed that substantial regional heterogeneity remains among the rest of the regions with considerable differences even between neighbours regions, although the previous results seem to confirm now.

### **INSERT TABLE 9 ABOUT HERE**

Future competitiveness of Spanish economy is threatened by persistent inflation differences with the EU and by the future strength, in the long term, of euro. Referred to the first menace, it is important to notice that Spanish degree of liberalization, in spite of the important process of privatization and deregulation in different areas of last years, is lower than most of the European countries that conforms Euro-zone: in 2002, for instance, Telefónica still has the 80% of the market share and Repsol the 62%, while Endesa controls the electricity Catalan market as a monopoly (only on the supply side). Thus, little and medium industrial Spanish enterprise current and future dynamism is narrowed for a higher increase of the basic inputs prices they need. Moreover, as it is observed in the separated Spanish inflation evolution, industrial prices between 1996 and 2001 has only raised yearly between 0.5% and 1.2%, whereas services prices in Spain in this period has grown yearly between 3.5% and 4.8%.

Forecasting future euro evolution, it is important to notice that Spain is the unique big country of the Euro-zone with persistent deficit on its current account, which has oscillated in last years between 4% and 7% of Spanish GDP. In his first years, euro

has been depreciated with US dollar but, in absence of interest rate differentials, it was expected a rising strength of European currency, especially against emergent currencies of all over the world. This means that all European countries except Spain are exporting capitals out of the Euro-zone and increasing their net position assets with the rest of the world (while Spain is increasing its debt position), so these countries are interested in a future strength of euro (up to a certain point), because it makes more easy foreign assets purchasing. Moreover, European countries are trained to absorb, by through of important productivity increases, the appreciation of their own currency, as German trade balance surplus demonstrates while during decades DM was appreciating against the rest of currencies and the German trade balance presented persistent surplus. Considering future Spanish competitiveness (industrial and tourist ones) it has to be taken into account that Spanish trade balance has presented, during the last fifteen years, a very high elasticity with the exchange rate evolution of peseta. To belong to the “selected club” of euro countries implies that there will have to be done a great effort to gain productivity and to reduce distances with the most developed European countries, with the risk to loose manufacturing industry in the enlarged European Union in the next future if these gains don't achieve European levels (in the last ten years Spanish productivity per capita has presented the lowest increases of the OECD countries, also because of bigger increases of new jobs).

#### *4.2 Competitiveness and convergence with the EU*

In measuring relative competitiveness a primary issue that remains is the effects on the convergence in terms of regional economic performance. Because prices differ regionally, as real exchange rate estimates reveal, even if there were similar growth rates across regions they might some heterogeneity in how regions perform over time. Interestingly, Table 10 reveals that although some regions, and most notably Catalonia has become relatively more competitive, Catalan convergence with Europe has collapsed since 1997, as Eurostat official regional data shows (see Table 10). In this period, Spanish convergence with Europe is still very slow: among 1997 to 2000, even though very important European funds impact, Spanish GDP per capita has only progressed from 82% to 84% of EU GDP per capita, when Ireland has gained 16 points in these expansive period (and 45 points from 1993). This slow convergence is

explained because only Madrid and the two regions complete fiscal autonomy (Basque Country and Navarra) are leading regional Spanish convergence with the EU. Moreover, looking at Italian convergence process, we think that Spanish economy won't reach EU GDP per capita average till regions of Mediterranean Arch (Catalonia, Valencia C. and Balearic Islands, which generated in 2002 the 42% of Spanish exports) achieve the level of northern Italian regions, especially with Lombardy, Piemont and Toscana, very close in productive structure to the three Spanish regions mentioned before respectively (which have a GDP per capita level between 135 and 120 of EU average).

### **INSERT TABLE 10 ABOUT HERE**

In the European context, it is interesting to consider Desment and Ortuño (2001) analyse, in which they examine the convergence process between Italian regions in the last fifty years. The conclusion suggests that, even considerable Italian Government funds and European cohesion funds, differences have grown between the regions of the North and the South of the country, because of the concentration of new technological sectors in the northern Italian regions. The authors deal about the failure of internal and European funds redistribution process to promote an effective economic growth, concluding that South Italian regions don't have incentives to grow while these funds flows still continue, till they talk of "rational underdevelopment".

## **5. CONCLUDING REMARKS**

This study has provided evidence on the heterogeneous effects on relative competitiveness of Spanish regions in their short run exposition to the EMU. We have find that the EMU places a non neutral effect on the trade composition of Spanish regions, which does not necessarily proceed with an increase in the economic performance of more competitive regions (e.g., as the Catalan example exhibits). Although most regions seem to be slightly more competitive in 2002 compared to 1999, there are substantial differences in the real exchange rate. The EMU does not seem to have increased the relative trade to the EU and only has resulted in an improvement of

the performance of Madrid and the two regions withholding fiscal autonomy, namely Navarra and the Basque Country.

Our results suggest that the economic heterogeneity of Spanish regions after the EMU seems to increase substantially however the fiscal re-distribution effects in place in Spain do not lead to competitiveness gains to reward relative competitiveness by increasing economic performance (also in the context of growth in immigration and in new jobs). Having computed real exchange rate as a competitiveness indicator for Spanish regions after the set-up of European Monetary Union (1999-2002), it is observed that there are significant differences at regional level, which are higher if the regional real exchange rate is adjusted with the Euro-zone than with Germany. Future manufacturing and tourist industries of Spanish regions competitiveness in the enlarged-EU is threatened by persistent Spanish inflation differentials with European countries, which could seem to be structural according the lower degree of liberalization of most Spanish services markets, but it is also threatened by the bigger monetary expansions of ECB. Besides, competitiveness is also menaced by the possible future strength of euro against the US dollar and the emerging countries currencies -in absence of future significant interest rate differentials-, based in the big expected future surpluses in the Euro-zone current account (in contrast with the persistent Spanish deficit in this account, the unique of the bigger countries of the EU-11, which menaces to be systematically the only country with a debt position in terms of purchasing assets in the rest of the world).

However, when examining the trends in economic performance, improvements in the regional competitiveness not always translate into improvements in economic performance. This might suggest that fiscal mechanisms might place a counterbalancing effect on the outcomes resulting from the EMU on the Spanish regions. Thus, it is difficult for Spanish fiscal policy to achieve efficiency in attending heterogeneous needs of the different regions, as there are important differences in tax burden, not only across countries in the EU but also within countries: first, for different types of companies, as large companies bear a smaller tax burden compared to small enterprises (it is suggested that large companies are more successful in avoiding taxes, possibly through tax planning and fiscal engineering); and second, for different sectors, as “energy and water”, “building and engineering” and “services” have smaller effective taxation than

the manufacturing sector and the sector of “trade”. According to this argue and considering the high territorial productive specialization, it can be said that in Spain there is an asymmetric territorial fiscal pressure which punishes specially competitiveness of the Mediterranean Arch and the Ebro Valley. Successful competitiveness of Spanish in the enlarged EU should correct or reform this unequal territorial fiscal pressure in the next future. Moreover, in the Spanish front runner regions the share of public capital stock, as a result of cumulative flows of public investment, is moving away from the European shares (in Catalonia it was only an 11% of total capital stock in 1997, in front of a 21% as Spanish average and in front of 19% as the EU average). Thus, infrastructures of physical, human and technological capital in these regions haven’t grown at the same intensity than GDP or exports in last years, which is the basis if this situation continues of future divergence with the EU.

Public policy implications of these results are large. If European monetary policy tends to favour the most opened and integrated European regions, and if it still remains the rigidities of European labour markets, then fiscal policy at country level gets a higher importance in the public policy redistribution processes. In the next future, the rise of regional inequalities is expected to bring political issues to the fore in addition to economic considerations, so that front runner Spanish regions show significant fiscal imbalances with the central Spanish State. Furthermore, if this increasing solidarity-effort of Spanish front runner regions continues in the next future at country level, it is possible to become in Spain a “convergence in the poverty”, as Eurostat official regional data shows for Catalonia and Balearic Islands since 1997. The objective to overcome differences between countries must not affect the competitiveness and real convergence with Europe of the Spanish front runner nationalities and regions.

Results from this study however should be interpreted cautiously as they are simply patterns on the competitiveness of regions rather than absolute results which take into account possible counter effects arising in this period. Moreover, the short time span examined might not be sufficient to highlight appreciable results. Altogether the patterns we identify than need to be complemented by an extensive empirical study in future research.

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**Table 1. Evolution of GDP, Exports and population (1990-2002)**

	<b>GDP (% of Spanish total)</b>		<b>Exports (% of Spanish total)</b>		<b>Population (% of Spanish total)</b>	
	<b>1990</b>	<b>2002</b>	<b>1990</b>	<b>2002</b>	<b>1990</b>	<b>2002</b>
Andalusia	12,9	13,2	9,8	7,9	17,9	17,9
Aragon	3,3	3,1	5,2	4,3	3,0	2,9
Asturias	2,5	2,2	2,2	1,4	2,8	2,6
Balearic Islands	2,6	2,7	1,2	0,9	1,9	2,2
Canary Islands	3,6	3,8	1,5	0,6	4,0	4,4
Cantabria	1,3	1,2	1,1	1,2	1,3	1,3
Castilla-León	5,9	5,6	5,0	6,2	6,6	5,9
Castilla-La Mancha	3,5	3,4	1,4	1,7	4,3	4,3
Catalonia	19,5	19,0	23,8	28,1	15,5	15,6
Valencian C.	10,3	10,5	16	12,9	9,9	10,4
Extremadura	1,8	1,8	0,4	0,6	2,8	2,6
Galicia	5,9	5,6	5,0	7,4	7,3	6,6
Madrid	16,0	16,8	9,6	11,1	12,6	13,3
Murcia	2,2	2,3	2,7	3,0	2,7	2,9
Navarra	1,5	1,7	3,3	3,4	1,3	1,4
Basque Country	6,1	6,0	10,9	8,8	5,4	5,1
La Rioja	0,7	0,8	0,5	0,7	0,7	0,7
TOTAL	100	100	100	100	100	100

Source: Papeles de Economía Española, 80 (1999), Informe Mensual, 258 (2003), Cuadernos de Información Económica, 173 (2003), Cámaras de Comercio and INE.

**Table 2. Percentage of exports of Spanish regions to the EU and to EMU**

	X to UE			X to EMU		
	2001	growth 1999-2001	growth 1997-2001	2001	growth 1999-2001	growth 1997-2001
Andalusia	65.3	-1%	-5%	54.6	0%	4%
Aragon	80.5	-3%	1%	62.5	-6%	-3%
Asturias	71.9	6%	11%	62.7	10%	12%
Balearic Isl.	38.7	-36%	-24%	29.3	-35%	-17%
Canaries	40.8	-24%	-28%	29.9	-17%	-23%
Cantabria	75.1	1%	-2%	59.8	-6%	-8%
Castilla-La Mancha	75.4	-4%	-2%	66.9	-3%	-1%
Castilla-Leon	84.6	-5%	-5%	79.6	-6%	-5%
Catalonia	71.3	0%	3%	62.6	0%	3%
Valencian C.	101.00	-3%	-2%	52.4	-2%	-4%
Extremadura	88.8	-2%	-1%	82.3	0%	0%
Galicia	82.4	5%	9%	69.3	-2%	1%
Madrid	65.7	0%	5%	55.7	-3%	-1%
Murcia	68.8	-4%	-10%	48.7	-5%	-14%
Navarra	78.7	-5%	-7%	64.0	-6%	-7%
Basque Country	69.0	-1%	5%	59.29	-1%	8%
La Rioja	77.9	-2%	-4%	65.0	-2%	-5%

**Table 3. Percentage of imports of Spanish regions to the EU and to EMU**

	Q to EU			Q to EMU		
	2001	growth 1999-2001	gowth 1997-2001	2001	growth 1999-2001	growth 1997-2001
Andalusia	32.2	-7%	10%	26.6	-9%	12%
Aragon	82.6	-1%	2%	74.2	0%	0%
Asturias	42.9	3%	1%	34.2	5%	3%
Balearic	43.2	14%	18%	33.2	41%	40%
Canaries	42.2	-7%	1%	32.6	-10%	0%
Cantabria	62.0	22%	14%	51.8	23%	12%
Castilla-La Mancha	89.0	0%	1%	78.1	1%	5%
Castilla-Leon	91.9	-1%	-2%	84.5	-3%	-3%
Catalonia	63.3	-5%	-6%	56.0	-5%	-5%
Valencian C.	58.6	-10%	-7%	49.6	-5%	-5%
Extremadura	86.7	-3%	1%	83.3	2%	3%
Galicia	62.3	-5%	-3%	54.9	-7%	-1%
Madrid	72.8	-1%	-1%	60.5	3%	3%
Murcia	21.5	-41%	-37%	19.2	-46%	-34%
Navarra	84.8	3%	4%	78.9	4%	6%
Basque Country	60.8	-8%	-8%	47.8	-9%	-7%
La Rioja	78.5	1%	12%	69.4	-2%	16%

**Table 4. Openness rate for Spanish regions 1999-2002**

	1999	2000	2001	2002

Andalusia	22,94	26,03	23,56	21,08
Aragon	49,98	49,05	48,52	46,40
Asturias	21,26	24,94	23,52	23,67
Balearic Islands	12,66	14,94	13,78	14,27
Canary Islands	15,76	17,85	16,26	13,82
Cantabria	36,05	36,56	36,77	33,30
Castilla-León	45,14	44,92	41,40	37,41
Castilla-La Mancha	21,10	22,44	21,22	22,72
Catalonia	58,67	67,00	64,98	60,59
Valencian C.	39,05	41,25	39,91	38,80
Extremadura	8,92	8,67	9,02	9,17
Galicia	37,12	47,39	47,79	44,41
Madrid	45,54	49,86	46,90	44,30
Murcia	34,72	48,50	49,20	48,61
Navarra	76,25	78,09	70,02	66,70
Basque Country	49,89	57,01	50,99	47,53
La Rioja	28,94	28,68	28,04	26,88
TOTAL	40,38	43,45	41,54	39,23

Source: Own calculation being the openness rate =  $[(X+Q)/GDP]*100$

**Table 5. Cluster analysis of Spanish AC according to diversification and openness ratios with the EU (1998)**

	<b>STRONGLY OPEN</b>	<b>MODERATELY OPEN</b>	<b>WEAKLY OPEN</b>
<b>SPECIALIZED</b>	Extremadura	Madrid	Balearic Islands Canary Islands
<b>OTHER</b>	Andalusia Murcia Castilla-La Mancha	Valencian C. Castilla-León	Cantabria Asturias
<b>DIVERSIFIED</b>	Catalonia Navarra Aragon	Basque Country Rioja Galicia	

Source: Costa and Tremosa (2003)

Remark: Extremadura, Andalusia and Castilla-La Mancha present a low-medium openness degree, but a great part of their foreign trade is done with the EU.

**Table 6. Real exchange rate adjusted with Germany 1992-1998**

	Total Period 1992-1998	1992-1994	1995-1998
Andalusia	98.57	91.17	104.13
Aragon	100.84	93.19	106.58
Asturias	97.44	90.10	102.95
Balearic Islands	93.94	86.49	99.52
Canaries	99.78	92.17	105.48
Cantabria	96.42	88.93	102.03
Castilla-León	100.95	93.25	106.73
Castilla-La Mancha	97.01	89.66	102.53
Catalonia	91.30	84.57	96.35
Valencian C.	92.95	85.72	98.37
Extremadura	104.77	96.97	110.63
Galicia	97.46	90.11	102.97
Madrid	98.32	91.14	103.71
Murcia	97.44	89.65	103.28
Navarra	115.77	106.89	122.43
Basque Country	91.67	84.49	97.05
La Rioja	93.76	86.45	99.25

Source: Costa and Tremosa (2003)

**Table 7. Share of public expenditure in regional GDP 1999-2002**

	1999	2000	2001	2002
Andalusia	20,68	20,53	20,40	20,98
Aragon	16,46	16,48	16,55	15,87
Asturias	18,76	18,77	18,98	20,32
Balearic Islands	10,74	10,57	10,61	11,08
Canary Islands	20,64	20,54	20,77	20,02
Cantabria	17,34	17,22	17,35	18,33
Castilla-León	20,75	20,73	20,99	21,27
Castilla-La Mancha	18,51	18,93	19,24	20,13
Catalonia	12,90	12,72	12,82	12,29
Valencian C.	13,40	13,23	13,14	14,40
Extremadura	24,08	23,63	23,91	25,04
Galicia	17,51	17,37	17,67	18,51
Madrid	13,21	13,24	13,30	12,56
Murcia	18,31	18,20	18,27	21,44
Navarra	14,28	14,05	14,12	14,25
Basque Country	16,27	16,22	16,17	16,08
La Rioja	13,95	13,95	14,35	14,12
TOTAL	16,04	15,94	16,01	16,17

Source: "Cuadernos de Información Económica" 173, 2003, tables 15 and 18

**Table 8. Real exchange rate adjusted with Germany 1999-2002**

	1999	2000	2001	2002
Andalusia	100	98.2	96.6	96.2
Aragon	100	98.4	96.8	93.4
Asturias	100	98.2	96.7	95.3
Balearic Islands	100	98.2	96.2	91.5
Canaries	100	98.5	96.8	94.1
Cantabria	100	98.4	96.8	96.4
Castilla-León	100	98.5	97.0	93.4
Castilla-La Mancha	100	97.9	95.5	92.6
Catalonia	100	97.4	95.3	91.5
Valencian C.	100	98.2	96.8	95.2
Extremadura	100	98.5	97.3	93.7
Galicia	100	99.4	96.8	92.3
Madrid	100	98.4	96.6	92.7
Murcia	100	98.3	96.9	95.6
Navarra	100	97.6	95.3	88.1
Basque Country	100	98.5	96.9	94.3
La Rioja	100	98.1	96.3	94.0

Source: Own calculations

**Table 9. Real exchange rate adjusted with Euro-zone 1999-2002**

	1999	2000	2001	2002
Andalusia	100	99.5	98.4	97.6
Aragon	100	100.1	99.9	98.5
Asturias	100	99.8	99.7	100.1
Balearic Islands	100	99.8	99.3	96.5
Canaries	100	100.0	99.6	98.6
Cantabria	100	100.0	99.9	101.5
Castilla-León	100	100.1	100.0	98.3
Castilla-La Mancha	100	99.6	98.7	97.6
Catalonia	100	99.0	98.4	96.4
Valencian C.	100	99.7	99.7	99.9
Extremadura	100	100.1	100.2	98.4
Galicia	100	101.2	100.1	97.7
Madrid	100	100.0	99.6	97.6
Murcia	100	99.8	99.8	100.3
Navarra	100	99.3	98.4	93.0
Basque Country	100	100.0	99.8	99.0
La Rioja	100	99.7	99.3	98.8

Source: Own calculation

**Table 10. EU-15 regional GDP per capita in PPS (Purchasing Power Standard)**

	1997	2000	Variation
1.- Madrid	101	110	+9
2.- Navarra	97	105	+8
3.- Basque Country	94	101	+7
4.- Catalonia	100	99	-1
5.- Balearic Islands	101	98	-3
6.- La Rioja	90	91	+1
7.- Aragon	90	88	-2
8.- Cantabria	77	80	+3
9.- Valencian Country	76	79	+3
10.- Canaries	76	78	+2
11.- Castilla-León	77	76	-1
12.- Asturias	76	71	-5
13.- Murcia	68	69	+1
14.- Castilla-La Mancha	67	67	=
15.- Galicia	64	65	+1
16.- Andalusia	58	61	+3
17.- Extremadura	55	53	-2

Source: Eurostat (2003) news release, n. 10 and (2000) news release, n. 18.