

**40th European Congress
Barcelona 2000**

**40th Congress of the European Regional Science Association
26th Meeting of Regional Studies of the Spanish Association of Regional Science**

EMU AND REGIONAL DISPARITIES IN SPAIN

José Villaverde Castro*

**Department of Economics, University of Cantabria,
Avda de los Castros, s.n, 39005 Santander (Spain)**

Fax number: 34-987-201603

E-mail: villavej@ccaix3.unican.es

Abstract: Using the optimum currency areas (OCA) theory, this paper aims to operationalize some of its most conventional criteria in order to ascertain how EMU will affect regional disparities in Spain. Although there are no definitive conclusions regarding the regional distribution of potential EMU costs and benefits, the paper shows that gains may be a little more unevenly distributed than costs, mainly benefiting the most developed regions. If this indeed is the case, EMU will probably result in a slight increase in regional disparities in Spain.

I. - Introduction

Regional disparities in Spain are now much less important than they were forty years ago. Nevertheless, they remain today a central economic and political topic. The reason for this is threefold. First, Spain's most developed regions (Balearic Islands and Madrid) have a GDP per capita that, in 1997, nearly doubles that of the poorest region (Extremadura). Second, since the beginning of the eighties, regional convergence in Spain has been completely halted (or, according to some statistical sources, even slightly reversed). Third, there is wide concern that, being positive for Spain as a whole, the potential uneven distribution of costs and benefits of EMU across regions may contribute to exacerbate spatial inequalities in the country.

Following Bayoumi and Eichengreen (1996), the purpose of the paper is to deal with the third point and, through an attempt to operationalise the theory of optimum currency areas (OCA), to highlight some of the relevant aspects of potential EMU effects on regional convergence in Spain. As it is well known, OCA theory considers that the adoption of a common currency brings about both advantages and disadvantages. Advantages, or benefits, are positively related to the degree of openness of the integrated economies. Disadvantages, or costs, are not only related to the probability of suffering asymmetric shocks but are also a negative function of the existence, and relevance, of adjustment mechanisms other than nominal exchange rate changes.

From an empirical point of view, testing OCA criteria poses at least two problems. The first one is that, given the different nature of costs and benefits, it is not possible to provide a precise quantitative evaluation of the net effect of EMU for any given region. The second problem is linked to the well-known Lucas critique.

The first problem may be partially overcome by accepting, as Gros and Thygesen (1998) do, that the purpose of this paper is solely to provide some rough economic indicators showing the approximate strength of the main costs and benefits of EMU for

each Spanish region. The other problem, although not negligible, will probably be a secondary one, if we accept (as evidence shows) that sharp, discontinuous changes in the behaviour of economic agents are quite uncommon. Therefore, it is assumed that collecting evidence on how economic agents behaved in the past (before EMU) should provide some clues about how they will behave in the future (with EMU).

The rest of the paper is organised into three sections. The next one, Section II, deals with the potential benefits of EMU for Spanish regions. Section III examines the likelihood for these regions of being affected by asymmetric disturbances and the extent to which they can cope with these shocks by using adjustment mechanisms other than nominal exchange rate changes. Finally, Section IV offers some preliminary conclusions.

II. - EMU benefits and its regional distribution in Spain

Standard OCA theory and more recent approaches to monetary integration show that monetary unions may bring about benefits of both macro and microeconomic nature. Assuming that macroeconomics benefits will be more or less evenly distributed among countries (and/or regions)¹, we will focus on some of the microeconomics benefits. From this point of view, a single currency reduces exchange transaction costs, price discrimination possibilities and (exchange rate) uncertainty. And, although there is some debate about the appropriate relationship between them, it seems quite clear that all these benefits are positively related to the degree of openness of the integrated economies (Krugman, 1990).

The openness degree of an economy to international trade, measured by the share of its external trade in GDP, is the subject of some criticism because the ratio tends to be biased in favour of small and rich economies. Nevertheless, we have decided to use this indicator in the case of Spanish regions because, in our opinion, there is no clearer and better alternative². Then, we have computed the conventional openness degree ratio for

¹ .-Indeed, this assumption is very strict, because of the likelihood that economies of EMU countries (regions) may respond differently to common policy actions.

² .- We have estimated a (log) linear regression between the openness degree (as the dependent variable) and population and per capita income (as explanatory variables), and have used the residuals to compute a new ranking of the openness degree of Spanish regions. The results show that there are no important

the seventeen Spanish regions between 1988 and 1998³. The results, shown in Table 1 (columns 1, 2, 4, 6, 7 and 9), indicate that –if we do not consider the special cases of the Balearic and Canary Islands- the average regional degree of openness in Spain with EMU countries ranges from a low of 4.5 per cent in Extremadura to a high of 44.2 per cent in Navarra⁴. Accordingly, it is expected that Navarra would benefit much more than Extremadura from the transaction costs savings and other indirect advantages of the single currency. Furthermore, these results tend to be corroborated when considering the increase that has occurred in the openness degree between 1988 and 1998: Navarra is the region with the highest increase and (excluding, once again, the Balearic and Canary Islands) Extremadura and Andalucía the regions that has registered the lowest increase⁵.

The openness degrees shown in Table 1 have only been computed with relation to visible trade, thus the values obtained for the Balearic and Canary Islands are very low. However, if we take into account trade in services (for which we have no reliable data at the regional level), it is quite clear that given the relevance of foreign tourism for these two archipelagos their potential benefits from the introduction of the euro will be much greater than those obtained in Table 1.

The use of the above openness indicator (either with or without invisible trade) provides a ranking of the regions according to the potential benefits they can obtain from EMU. However, this indicator does not offer a quantitative assessment of the benefits involved for each region. In order to get an approximate idea of these benefits, we have applied Hallet's approach (1998), that is, we have computed exchange costs savings as the product of the bid-offer spread in foreign exchange of a currency against the DM times

changes in the position of the different Spanish regions (most of them even remain in the same position), except in the cases of Cantabria and Madrid. According to these estimates, Cantabria ranks fourth (instead of ninth) and Madrid eleventh (instead of sixth).

³ .- The sources used in this paper are: Spanish Customs (Dirección General de Aduanas) for exports and imports; FUNCAS for regional GDP; and the Bank of Spain for exports, imports and GDP (national) deflators.

⁴ .- For the EU14 (excluding Greece) the openness degree ranges from 4.9 per cent in Extremadura to 50 percent in Navarra, with a national average of 22.1 percent of Spanish GDP. The average values of columns 4 and 9 have been computed in the following way: First, all exports, imports and GDP nominal values have been deflated to 1986 constant values. Second, all these values have been added for the eleven years for which we have data (from 1988 to 1998). Third, the average openness degree has been calculated using the traditional indicator “exports+imports” as a percentage of GDP.

⁵ .- We assume that EMU benefits are not only positively related to the intra-eurozone openness degree of each region but also to the rate of increase of this openness degree.

the openness degree⁶. The results obtained, shown in the fifth and tenth columns of Table 1, should be interpreted with caution. In any case, they lead to two main conclusions. First, they confirm the previous ranking showing which regions will benefit the most and the least. And, second, they also show that the relative amount of these benefits (as a percentage of GDP) is very low in all cases. Ranging from a maximum of 0.22 percent of GDP in Navarra to a minimum of 0.03 percent in Extremadura, the average exchange costs savings from participating in the present EMU is equal to 0.10 percent of the Spanish GDP⁷. Although not negligible, it must be recognised that these savings alone will barely affect the evolution of regional disparities in Spain.

III.- EMU costs and its potential regional distribution in Spain

The potential costs of EMU for Spain derive from giving up the exchange rate as an adjustment mechanism (that is, the country would not be able to adjust its nominal exchange rate to modify relative prices). From a regional perspective, this is not important because EMU will not bring any changes in policy regime for them (i.e., nominal exchange rate changes are not a stabilisation instrument at the regional level). Then, in order to consider the potential regional costs involved by EMU, two crucial points need to be analysed. First, it is necessary to know whether EMU will increase the likelihood of the regions being subject to asymmetric shocks and, second, the extent to which regions can deal with these shocks using instruments like wage flexibility, labour mobility and/or fiscal policy.

III.1.- Asymmetric shocks in Spanish regions

According to Krugman (1991), EMU can bring about a change in the pattern of industry location and, in so doing, promote increased specialization among Spanish regions; if

⁶.- This procedure implies to assume that all exchange transactions with euro countries were carried out using the DM as a vehicle currency. Thus, the spread between the Spanish peseta and a foreign currency is given by the sum of the spread of the peseta to DM and the spread of the foreign currency to the DM. We have used the bid-offer spread for 1994 as an average of spreads between 1988 and 1998 because we do not have reliable data of spreads for all these years. The source for the bid-offer spread is the Bundesbank.

⁷.- These results are about 30 percent lower than the ones obtained by Hallet (1998). When the results are considered in relation to the EU14 (excluding Greece) the transaction costs savings range between 0.25 percent (Navarra) and 0.03 per cent (Extremadura), with an average of 0.12 per cent.

this happens, the probability of suffering asymmetric shocks will increase. On the contrary, according to the European Commission (1990), the single currency will tend to spur intra-industry trade. This will make it much more difficult for a specific region to be affected by an idiosyncratic shock⁸. Although it is hard to ascertain which one of these two effects will prevail in EMU, the common procedure for identifying potential asymmetric shocks is to look at the past as an experiment to predict the future.

The extent to which Spanish regions have been affected by different shocks can be assessed by comparing their economic behaviour over time⁹. By assuming that all regions are subject to the same national economic policy, differences in regional business cycles originate mainly in differences in their degrees of regional specialisation. Following Fatás (1997), we use employment growth rates to approximate business cycles¹⁰. Table 2 and Figs. 1 and 2 show contemporaneous correlations of employment growth for each Spanish region with both the EU15 aggregate and Spain, in the first case for the period 1977-97 and in the second for the period 1977-99. Our findings show that:

- 1.- For the whole sample, regional correlations with respect to Spain and EU15 are, without exception, positive. But, generally speaking, they are higher with Spain than with EU15, the (non-weighted) average correlation being 0.77 with the country and 0.56 with EU15.
- 2.- Although there is no clear pattern of regional correlation with Spain, this tends to be higher for the most developed regions of the country. This also happens, but to a lesser extent, in regional correlations with EU15.
- 3.- Breaking the sample in 1986, the year of the Spain's accession to the European Community, it is shown that for most regions, and certainly for the average, there has been an increase in their correlation with Spain and EU15. This means that both the Spanish and European components of the regional business cycles have increased their significance over time, the latter more significantly than the former. This conclusion partially contrasts with the findings of Fatás (1997) for the German, Italian, French and

⁸ .- Or by a common shock with asymmetric consequences.

⁹ .- Bayoumi and Eichengreen (1996) review different approaches used to estimate the size and correlation of underlying disturbances across different countries (and/or regions).

¹⁰ .- Data sources on the evolution of employment are from European Commission (DG II) and National Statistics Institute (INE) of Spain.

British regions: business cycles correlations of these regions increased with relation to the EU (as in Spain) but decreased with relation to their respective countries aggregates.

From the former analysis we conclude that the concerns raised about a potential increase of asymmetric shocks in Spanish regions as a result of EMU seem to be exaggerated. This conclusion is in accordance with the idea proposed by Frankel and Rose (1996) that closer trade links between two countries are strongly associated with more correlated economic activity between them, because, as we have seen before, all Spanish regions have consistently increased their trade relations with EMU countries.

Nevertheless, fear persists because, although increasingly unlikely, idiosyncratic disturbances are always possible. According to our results, Cantabria and the Balearic and Canary Islands are the Spanish regions with the most asymmetric business cycles in the second subsample (after the accession to the EU). It follows that the likelihood of being affected by shocks that tend to be asymmetric is potentially higher in these regions than in the rest of Spain.

III.2.- Wage flexibility, labour mobility and fiscal policy in the Spanish regions

OCA theory states that, when a region is affected by an asymmetric shock, there are three main mechanisms that it can rely on to try to adjust its economy¹¹. The first one is based on wage (price) flexibility, the second on geographical labour mobility and the third on fiscal policy (or the extent of automatic stabilisers).

When a region is affected by an idiosyncratic disturbance, real wage flexibility becomes a key element to facilitate the adjustment process. Then, what is the potential role of this adjustment instrument in the Spanish regions?

Wages in Spain are set by collective bargaining at the provincial level but in accordance with national guidelines, with the result that there is very low dispersion in regional wage growth. Following the approach proposed by Abraham and Van Rompuy (1995),

¹¹ .- There are, of course, other adjustment mechanisms, mainly from the supply-side, such as market liberalisation processes, welfare reforms, investment in infrastructure and education, and so on.

we have estimated (Villaverde, 1999) different specifications of wage equations for the Spanish regions. The results obtained can be summarised as follows:

- 1.- Regional unemployment growth, national unemployment growth and regional productivity growth rates have only a minor influence on the evolution of wages at regional level;
- 2.- The main influence on regional wage growth is national wage growth; and
- 3.- National productivity growth affects regional wage growth mainly through its effect on national wage growth.

In conclusion, these estimates point to high real wage rigidity at the regional level in Spain. Thus, it is not logical to expect that real wage flexibility to act as an adjustment instrument against asymmetric shocks in the Spanish regions. In any case, it must be recognised that it is not unlikely that EMU, through labour market reform and increased competition, will bring about greater real wage flexibility among the Spanish regions. Whether this happens or not in the near future is, nevertheless, difficult to predict.

Since empirical evidence shows wage flexibility in the Spanish regions is very low, a region affected by an idiosyncratic disturbance must try to count on geographical labour mobility as a shock absorber mechanism. As a result of economic, social and political factors (the generalised rise of unemployment, the difficulties dealing with the availability of housing, the social costs of migration, the level of political decentralisation, the existence of income redistribution schemes, etc.), regional migration in Spain has fallen significantly since the 1970's (Bentolila, 1997)¹². Indeed, regional migration was, in the mid-late nineties, at its lowest level in Spain. Moreover, although EMU might also help to promote geographical labour mobility slightly, it is difficult to imagine a situation in which migration across Spanish (and other European) regions could be considered as a suitable adjustment mechanism to compensate for the negative effects of asymmetric shocks.

Taking into account that there is neither sufficient regional wage flexibility nor labour mobility in Spain, an alternative adjustment mechanism is related to fiscal policy and

¹².- Persistent unemployment differentials among Spanish regions are, in part, the result of both low wage flexibility and low labour mobility at the regional level.

the existence of implicit regional redistribution schemes. Fortunately, this instrument has played an important role in Spain as a shock absorber from a regional point of view, because a large part of the Spanish government budget is centralised. Castells (1998) has found that, on average, for every 10 per cent increase (decrease) in GDP per capita in a given region, its fiscal balance deteriorates (improves) by 4.2 per cent; that is, Spain's central government budget has provided an important cushion against region-specific shocks. Whether these automatic stabilisers will continue to operate in the future is, once again, difficult to ascertain. Unfortunately, both the guidelines of the *Stability and Growth Pact* (limiting the size of the central budget deficit) and the process of regional fiscal decentralisation in Spain (reducing the fiscal autonomy of the central government) may work in the opposite direction. The alternative of establishing a truly European "fiscal federalism system" has not political support at present and is difficult to expect it in the foreseeable future.

IV.- Comparing costs and benefits: preliminary conclusions

The comparison of benefits and costs is complex because they are of different natures; i.e., as Gros and Thygesen (1998) point out in relation to European countries, it is impossible to get a precise quantitative idea of the net benefit (or cost) of EMU for any Spanish region. However, the previous analysis offers some interesting, although preliminary, conclusions.

First, according to their openness degree, EMU will produce differentiated effects among Spanish regions. Since, as a general rule, the most advanced regions are also the most open, these regions will potentially reap the largest benefits from EMU. However, the total amount of these benefits (as a percentage of GDP) will be fairly low. Thus, we conclude that although the uneven distribution of EMU benefits may increase regional disparities in Spain, the final effect will be of a very low magnitude.

Second, in contrast to the conclusions obtained in other papers (see, for instance, De Grauwe and Vanhaverbeke, 1993), it has been found that asymmetric shocks will probably play a decreasing role across the Spanish regions. This does not imply that they may not happen at all. According to our estimates, the likelihood for these shocks

to happen is greater in Cantabria and the Balearic and Canary Islands than in the other Spanish regions.

Third, although the probability of suffering asymmetric shocks is low and decreasing for most of the Spanish regions, it must not be ruled out. If this occurs, the Spanish regions are not well suited to accommodate the negative effects of these shocks. Indeed, wage flexibility and labour mobility are very low at the regional level and, although it can not be discarded that EMU will contribute to reduce wage rigidity and to (slightly) increase labour mobility, the prospects for the future are not very good. The same (pessimistic?) view applies, generally speaking, to the potential role of fiscal policy as an automatic stabiliser at the regional level; this mechanism operated in the past but it is far from clear it will continue to do so in the future.

Fourth, as a result of the three previous findings, our preliminary conclusion, that partially corroborates the one obtained in Villaverde and Sánchez-Robles (1999), is that it is likely that EMU will contribute moderately to amplify regional disparities in Spain. In any case, this conclusion should be taken very cautiously given the methodologies applied to the estimates of both costs and benefits and (mainly) to the existence of some other important benefits (both macro and microeconomic in nature) that have not been considered in this paper. This is on the agenda for future research.

(*) I gratefully acknowledge the help provided by Martin Hallet, from the European Commission.

References

- Abraham, F. and Van Rompuy, P.(1995), "Regional convergence in the European Union", *Papers in Regional Science*, nº 2, 125-142.
- Bayoumi, T. and Eichengreen, B. (1996), "Operationalizing the Theory of Optimum Currency Areas", NBER Discussion Paper, nº 1484.
- Bentolila, S. (1997), "Sticky labour in Spanish regions", *European Economic Review*, 41, 591-598.
- Castells, A. (1998), "Integració monetària i desequilibris territorials a la Unió Europea", *Banca Catalana, Revista Econòmica*, nº 114, 19-45.

- De Grauwe, P. and Vanhaverbeke, W. (1993) "Is Europe an optimum currency area?: evidence from regional data", in P. Masson and M. Taylor (eds.) *Policy issues in the operation of currency unions*, CUP.
- European Commission (1990), "One Market, One Money", *European Economy*, 44.
- Fatás, A. (1997), "EMU: Countries or regions? Lessons from the EMS experience", *European Economic Review*, 41, 743-751.
- Frankel, J. and Rose, A. (1996), "Economic structure and the decision to adopt a common currency", IIES Seminar Paper, nº 611.
- Gross, D. and Thygesen, N. (1998), *European Monetary Integration. From the European Monetary System to Economic and Monetary Union*, London: Longman.
- Hallet, M. (1998), "The Regional Impact of the Single Currency", Paper presented to the 38th ERSO Congress.
- Krugman, P. (1990), "Policy Problems of a Monetary Union", in P. De Grauwe and L. Papademos (eds.), *The European Monetary System in the 1990s*, London: Longman.
- Krugman, P. (1991), *Geography and Trade*, Cambridge, Mass, : MIT Press.
- Villaverde, J. (1999), *Diferencias regionales en España y Unión Monetaria Europea*, Madrid: Pirámide.
- Villaverde, J. and Sanchez-Robles, B. (1999), "The European Union and Regional Convergence in Spain: a New Approach", in W. Meeusen (ed.), *Economic Policy in the European Union*, Cheltenham, UK: Edward Elgar.

Table 1
Openness degree and transactions cost savings

	1	2	3	4	5	6	7	8	9	10
Spain	17,89	29,13	11,24	22,14	0,12	14,93	25,70	10,77	19,02	0,10
Andalucía	8,68	12,04	3,35	9,86	0,05	6,92	9,15	2,23	7,91	0,04
Aragón	28,05	46,16	18,11	36,10	0,19	22,80	42,28	19,47	31,24	0,16
Asturias	7,41	12,80	5,39	9,55	0,05	6,03	11,39	5,35	7,84	0,04
Baleares	4,29	3,97	-0,33	3,70	0,02	2,15	2,32	0,17	2,43	0,01
Canarias	11,55	7,55	-4,00	8,49	0,04	8,79	5,46	-3,33	6,36	0,03
Cantabria	12,72	24,84	12,12	18,30	0,09	10,29	19,55	9,26	15,11	0,07
Castilla-La Mancha	8,71	18,09	9,37	11,74	0,06	7,80	16,17	8,37	10,56	0,05
Castilla y León	14,46	42,08	27,62	26,25	0,14	13,55	39,72	26,18	24,76	0,14
Cataluña	25,94	42,85	16,91	32,72	0,17	22,76	38,91	16,15	28,65	0,15
Comunidad Valenciana	20,81	27,70	6,89	23,39	0,12	16,58	23,37	6,80	19,78	0,10
Extremadura	3,37	7,30	3,94	4,94	0,03	2,94	6,43	3,48	4,51	0,03
Galicia	12,20	27,87	15,67	18,53	0,10	10,37	26,13	15,76	16,44	0,09
Madrid	20,61	32,98	12,37	24,67	0,14	16,56	30,11	13,55	20,99	0,11
Murcia	13,42	22,85	9,42	16,01	0,08	10,63	17,57	6,93	12,68	0,06
Navarra	31,44	70,13	38,69	50,13	0,25	27,87	65,54	37,67	44,23	0,22
Pais Vasco	26,24	34,60	8,36	28,36	0,15	21,59	26,30	4,71	23,13	0,12

La Rioja	10,66	25,77	15,11	16,31	0,09	8,69	22,88	14,20	13,71	0,07
----------	-------	-------	-------	-------	------	------	-------	-------	-------	------

Notes. 1.= Openness degrees in 1988 with respect to EU14; 2 = Openness degrees in 1998 with respect to EU14; 3 = 2 -1; 4 = Average openness degree between 1988 and 1998; 5 = Average transactions costs savings in relation to EU14. From 6 to10 the meaning is exactly the same than from 1 to 5, but only in relation to EMU countries.

Table 2
Regional correlations: Employment growth rates

Regions	1977-99	1977-97	1977-86	1977-86	1986-99	1986-97
	Spain	EU15	Spain	EU15	Spain	EU15
Andalucía (An)	0,873	0,623	0,513	0,025	0,936	0,891
Aragón (Ar)	0,885	0,648	0,901	0,269	0,831	0,819
Asturias (As)	0,790	0,747	0,092	0,353	0,871	0,830
Baleares (B)	0,649	0,528	0,216	0,294	0,563	0,540
Canarias (Can)	0,730	0,491	0,486	0,337	0,654	0,502
Cantabria (Cnt)	0,352	0,464	-0,240	0,478	0,330	0,387
Castilla y León (CL)	0,859	0,655	0,563	0,128	0,868	0,816
Castilla-La Mancha (CM)	0,780	0,444	0,779	-0,137	0,740	0,634
Cataluña (Ctl)	0,886	0,745	0,630	0,409	0,880	0,910
Com. Valenciana (CV)	0,915	0,745	0,746	0,484	0,915	0,882
Extremadura (E)	0,684	0,324	0,274	-0,308	0,726	0,654
Galicia (G)	0,648	0,369	-0,024	-0,572	0,727	0,686
Madrid (M)	0,772	0,438	0,608	-0,037	0,722	0,629
Murcia (Mu)	0,698	0,506	0,224	0,032	0,667	0,615
Navarra (N)	0,807	0,607	0,771	0,411	0,713	0,674
País Vasco (PV)	0,911	0,697	0,795	0,309	0,877	0,888

La Rioja (R)	0,789	0,531	0,768	0,275	0,728	0,649
Non-weighted average	0,766	0,562	0,477	0,162	0,750	0,706

