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How Important is the European Economic and Monetary Union in the Foreign Trade with the EU-27 Countries? Empirical Evidence from Spain

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Abstract:

This paper analyzes the effect of the European Economic and Monetary Union on export flows from a Spanish region (Castilla y León) to the EU-27 countries during the last years Applying static panel data estimation technique, this study finds that exporter and importer incomes, exporter population, distance, and a common land border are the main explanatory factors of exports from this Spanish region. Moreover, the EU membership of the importer country only caused positive and significant effects between 1994 and 1996, whereas the EMU membership reduced export flows from Castilla y León to the European countries during the whole period.

Key Words: *European Economic and Monetary Union, Exports, Panel Data Analysis*

JEL Classification*: F13, F14, F15*

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1. Introduction

The internationalisation process experienced by the Spanish economy during the last years represents one of the main structural changes that have enabled a very brief transition from a slow-growth model, with a very high level of protection and intervention, to a fast-growth model, open to international competition. Such internationalisation process has evolved in clear parallelism with the growing integration in the European Community, being trade activity its main growth factor for the whole of productive sectors.

A number of relevant events have occurred in the consolidation of the integration process from Spain's entry in the European Communities. The first one would be agreed and ratified between 1992 and 1993 with the entry into force of the Maastricht Treaty, by virtue of which not only the European Union (EU) is officially created, but also the free circulation of persons, services, goods and capitals is definitely fostered among the 12 states that formed part of the EU at the time (Germany, Belgium, Denmark, Spain, France, Greece, Holland, Ireland, Italy, Luxembourg, Portugal and United Kingdom). Therefore, this Treaty represents a crucial step in the economic integration process by creating a large internal market free from barriers, to which three new members are incorporated later (Austria, Finland and Sweden), in January 1995, forming together the so-called EU-15.

The second pillar in the integration process took place on January 1st 1999, with the creation of the European Monetary Union (EMU). That involved the institutionalisation of a central authority responsible for defining and implementing a common monetary and exchange policy, as well as managing the new community currency; the Euro, although the unification did not become effective until 2002, when the Euro started to circulate as single legal currency in 12 of the 15 EU member countries[3]. At present, four other countries are sharing the common currency, what forms a Monetary Union with 16 European countries[4]. With the definitive implementation of the Euro, the commercial relations among partners have been consolidated, apart from eliminating the transaction costs linked to the exchange rate fluctuations.

Until 2004, the strengthening of the European Community focused on the consolidation of the economic and monetary integration process among the 15 Western European member countries. But another essential event happens that year with the incorporation of new members to the EU. On May 1st 2004, 10 new countries enter the EU (Czech Republic, Cyprus, Slovakia, Slovenia, Estonia,

[3] From the fifteen countries that formed the EU, Denmark, United Kingdom and Sweden availed of a voluntary exclusion clause in the adoption of the Monetary Union, which still keeps them outside the Euro.

[4] On January 1st 2007 the Euro starts to circulate in Slovenia. Later, on January 1st 2008, Cyprus and Malta adopt it, while Slovakia does it on January 1st 2009.

Hungary, Latvia, Lithuania, Malta and Poland, the EU-10), which have different economic, politic and social roots, as well as a very heterogeneous profile compared to the traditional EU-15, forming together the EU-25. The enlargement process continues with the incorporation of Bulgaria and Rumania (EU-2) on January 1st 2007, framing the current EU of 27 member states (EU-27).

The chronology of these events linked to the European integration process offer an important potential as a driving force of the Community's bilateral trade. That explains the beginning of the period of study in 1993, with the Maastricht Treaty entry into force, and its end in 2007, the last year with public available data and when the joint effects of the above-mentioned events are already evidenced in commercial relations among member states[5]. In this context, our work aims to contribute to the literature by filling a gap in the study of the international trade of Spain during that period: the empirical modelling of the exports from the big Spanish region of Castilla y León to the rest of the EU-27 countries.

The three specific objectives of this paper are as follows: First, to analyze the factors that have influenced the volume of exports from this region to the rest of the Community countries during the last years. Second, to find out if the economic and monetary events linked to the European unification process have affected that export flow. Third, to detect if the impact of the economic and monetary integration has been constant (as it is implicitly assumed by most empirical studies), or it has varied over time. The so-called *"gravity equation"*, a widely used econometric tool in the estimation of the determinants of bilateral currents of trade, is used in order to reach these objectives.

This paper describes the Castilla y León export behaviour to the Community´s countries during the study period in the following section. Next, the theoretical support and the empirical background of the gravity equation are reviewed, specifying our econometric model for explaining export flows from this Spanish region to the rest of the EU-27 countries. The aspects related to the data base, variables and methodology are described subsequently. The fifth section summarises the results obtained, and finally, the main conclusions of the study are presented.

2. Export Behaviour in Castilla Y Leon (Spain) to the EU-27 Countries (1993-2007)

The Spanish region of Castilla y León has been object of important transformations during the last years, among which the gradual internationalisation of its economy stands out, with the commercial facet as main determinant.

[5] Baldwin (2006) indicates that when it comes to study the effects of the European integration process in the commercial flows, it is adequate to start the sampling period after 1992, since changes in the calculation process and the presentation of commerce statistics at EU level take place from that year.

Specifically, during the period between 1993 and 2007 this region's exports rate increased remarkably, tripling the total amount exported by companies (Chart 1). This export dynamism is marked by a high concentration around the EU-integrated countries. Specifically, during all the period the exports to the European countries have always involved more than 80% of international sales.

Table 1. Contemporary dynamic of export flows of Castilla y León (Spain) to the EU

Exports Volume (in million Euro)															
	1993	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
EU 15	2.361	3.251	3.944	4.219	4.750	5.936	6.583	7.147	7.110	6.753	7.438	7.809	7.366	7.351	7.653
EU 10	17	26	71	56	71	128	141	173	305	323	254	314	412	396	446
EU 2	0,32	1.04	0.60	1.31	1.53	4.69	3.74	17.70	24.45	15.06	16.99	39.27	89.99	157	201
EU 27	2.378	3.278	4.015	4.275	4.821	6.064	6.724	7.320	7.415	7.076	7.692	8.123	7.778	7.904	8.300
Castilla y León Total Exports	**2.912**	**3.601**	**4.114**	**4.736**	**5.370**	**6.623**	**7.427**	**8.239**	**8.254**	**7.920**	**8.653**	**9.212**	**8.949**	**9.090**	**9.769**
Representativeness (% on total exports)															
EU 15	81,08	90,28	95,87	89,08	88,45	89,63	88,64	86,75	86,14	85,27	85,96	84,77	82,31	80,87	78,34
EU 10	0,58	0,72	1,73	1,18	1,32	1,93	1,90	2,10	3,70	4,08	2,94	3,41	4,60	4,36	4,57
EU 10 + EU 2	0,59	0,75	1,73	1,18	1,32	1,93	1,90	2,10	3,70	4,08	2,94	3,41	4,60	6,08	6,62
EU 27	81,67	91,03	97,59	90,27	89,78	91,56	90,53	88,85	89,84	89,34	88,89	88,18	86,91	86,95	84,96

Source: Special Taxation and Customs Department of the Tax Administration Government Agency (AEAT). The 2007 data are provisional.

However, there are important disparities among the 27 member countries when observing export flows during the analysed period. On the one hand, it is possible to point out the essential interpenetration of Castilla y León with the EU-15 countries, based on important exchanges volumes that have however progressively lost representativeness. The EU-15 area involved 78,84% of the region's total exports in 2007, which means a drop of almost 3 percentage points in comparison with 1993 and more than 17 points in comparison with 1995, when that area reached the highest representativeness. On the other hand, it can be observed an emerging link with the new adhesion countries from 2004 (EU-10 and EU-2), which has presented exponential growth during the reference period, even though it still carries low volumes (at the end of 2007 did not represent more than 6,62% of the total exports).

Firstly, in 1993, with the definitive implementation of the Common Internal Market, the basis for a continuous and sustained growth of the Castilla y León exports to the EU-15 countries is provided. The elimination of barriers and obstacles to the mobility of inputs and outputs increased the volumes negotiated towards these EU countries during the 1990s. Nevertheless, the volume of exports starts to stabilise from the year 2000. In 2002, the economic weakness of the main importer

countries for Castilla y León (France, Germany, Italy and Portugal) determined a reduction in the exports volume to the EU-15, that would slightly recover in the two following years as the crisis was overcome. Again in 2005 the exports volume decreased with the incorporation of the EU-10 and the emerging competitiveness loss of Spanish products, although it increased slightly in 2007. In terms of representativeness, there is a more noticeable participation of the EU-15 area in the total exports of Castilla y León between 1994 and 1998. But from 1999, with the official creation of the EMU, the growth observed in the exports volume to the EU-15 (although with certain corrections) starts to contrast with the constant reductions in their representativeness. Thus, the currency unification process does not seem to have proved very relevant in the export flows of Castilla y León to the EU-15 area.

Secondly, the announcement of the future incorporation of 10 Eastern European countries in 2001, and its effective association in 2004 determined the base years in which the Castilla y León exports were relaunched to the EU-10 area. Thereby, in the current decade the new enlarged countries have monopolised the most outstanding growth in the Castilla y León external trade with the EU, both in the exports volume and the representativeness of the total exported. As seen in Chart 1, the exporting interest of the Castilla y León economic agents did not focus in this area during most of the 1990s, since it did not enjoy trading profits. Nevertheless, the advantages of the quota and customs expenses elimination in trade were advanced, starting a growing export process with the EU-10 from 1998, and especially from 2001, coinciding with its officialisation. In particular, it is from 2004 when that process experienced a notable relaunch, coinciding with the effective incorporation of the 10 new countries to the EU.

Finally, in 2005, when the link of Rumania and Bulgaria to the EU starts to show, the basis of an surprising growth of Castilla y León exports to the EU-2 area is formed. Regarding its representativeness on the region total exports, Chart 1 shows that the participation of these two countries is much reduced until their incorporation into the Community is official. However, in 2006 and 2007, once their effective adhesion is known, these two new members attain more relevance in the total Castilla y León exports.

Chart 2 shows the progressive geographical diversification experienced during 1993-2007 by the exports from Castilla y León. In 1993, the prevalence of three bordering countries with similar cultures (France, Portugal and Italy) is noticed, which monopolised 81,82% of the Community exports in this year, representing 66,85% of the total Castilla y León exports. In particular, the attraction exercised by the French market stands out. Although this is an aspect shared at national level, it is more pronounced in Castilla y León, given the relevance of the Renault multinational settled in Valladolid, which generates an important intra-industrial trade with its parent company, located in France.

At the end of the 1990s, the exports to France are intensified, while Portugal and Italy lose representativeness in favour of other EU-15 countries, such as the

United Kingdom and Germany, more distant physically and "psychologically"4, but with high income levels and large demand markets.

During the current decade, the geographical diversification keeps consolidating, so in 2007 not only a redistribution of the exports volume to the EU-15 takes place (in which Portugal, Italy and specially France lose relevance versus to Germany, United Kingdom, the Netherlands, Denmark or Finland, for example), but also EU enlarged countries (EU-10 and EU-2) that stand out because of their productive and demographic dimension, such as Slovenia, Poland, Czech Republic, Hungary, as well as Romania, move on to demand 7,32% of the Community total.

Table 2. Exports from Castilla y León to the EU-27 countries

Exports Volume (in million Euro) and Representativeness (% in Community exports)								
COUNTRIES	**1993**		**1999**		**2007**		**Variation index 1993-2007**	
	Million Euro	%	Million Euro	%	Million Euro	%	Million Euro	%
France	1.329,35	55,88	3.981,91	59,17	3.208,26	38,65	141,34	-30,83
Netherlands	43,92	1,85	133,34	1,98	216,85	2,61	393,74	41,51
Germany	127,36	5,35	417,54	6,20	944,32	11,38	641,46	112,51
Italy	305,24	12,83	691,36	10,27	804,61	9,69	163,60	-24,45
United Kingdom	91,49	3,85	230,11	3,42	826,93	9,96	803,85	159,05
Ireland	2,09	0,09	10,46	0,16	37,57	0,45	1.697,61	415,22
Denmark	5,67	0,24	15,88	0,24	76,64	0,92	1.251,68	287,41
Greece	6,50	0,27	111,92	1,66	97,80	1,18	1.404,62	331,24
Portugal	311,81	13,11	769,44	11,43	939,21	11,32	201,21	-13,67
Belgium Luxembourg	115,42	4,85	150,89	2,24	349,44	4,21	202,76	-13,23
Sweden	12,36	0,52	37,04	0,55	64,95	0,78	425,49	50,61
Finland	3,05	0,13	11,09	0,16	38,96	0,47	1.177,38	266,11
Austria	6,87	0,29	22,94	0,34	47,60	0,57	592,87	98,58
EU-15	**2.361,13**	**99,25**	**6.583,92**	**97,84**	**7.653,14**	**92,20**	**224,13**	**-7,10**
Malta	0,36	0,02	1,02	0,02	5,14	0,06	1.327,78	309,22
Estonia	0,00	0,00	0,34	0,01	2,68	0,03	26.700,00	7.581,20
Latvia	0,00	0,00	1,85	0,03	3,18	0,04	31.700,00	9.014,26
Lithuania	0,01	0,00	0,76	0,01	6,19	0,07	61.800,00	17.641,27
Poland	5,11	0,21	15,97	0,24	124,27	1,50	2.331,90	597,01
Czech Republic	0,26	0,01	8,39	0,12	56,88	0,69	21.776,92	6.170,18
Slovakia	0,15	0,01	3,44	0,05	30,98	0,37	20.553,33	5.819,49
Hungary	0,69	0,03	6,18	0,09	46,20	0,56	6.595,65	1.819,05
Slovenia	8,58	0,36	100,96	1,50	154,74	1,86	1.703,50	416,90
Cyprus	2,40	0,10	2,95	0,04	16,14	0,19	572,50	92,75
EU-10	**17,56**	**0,74**	**141,86**	**2,10**	**446,4**	**5,38**	**2.442,14**	**628,61**
Romania	0,28	0,01	2,05	0,03	194,30	2,34	69.292,86	19.788,81
Bulgaria	0,036	0,00	1,69	0,03	6,62	0,08	18.288,89	5.170,47
EU-2	**0,316**	**0,01**	**3,74**	**0,06**	**200,92**	**2,42**	**63.482,28**	**18.123,43**
EU-27	**2.379,01**	**100**	**6.729,52**	**100**	**8.300,46**	**100**	**248,90**	**0,00**

Source: Special Taxation and Customs Department of the Tax Administration Government Agency (AEAT). The 2007 data are provisional.

3. The Gravity Equation: Background Review and Specification

The gravity equation is one of the most widely used and successful tools for the study of determining for international trade flows (Evenett y Keller, 2002; Baldwin, 2006). The main idea consists of applying to bilateral trade relations an analogue concept to the Newton Law, which links the gravity attraction between two objects to their mass size and relative distance. In particular, this equation was originally posed by Tinbergen (1962) and Pöyhönen (1963), who independently suggest that the bilateral trade flow between two countries is positively associated to their income levels, and inversely proportional to their distance. Later, Linnemann (1966) adds the demographic variables (population of both countries) to reflect the role of economies of scale. Thereby, the most basic and commonly employed gravity equation can be presented as follows:

$$X_{ijt} = \beta_1 (Y_{it} * Y_{jt}) + \beta_2 (N_{it} * N_{jt}) + \beta_3 (D_{ij}) + \varepsilon_{ijt} \qquad (1)$$

Xijt is the total bilateral trade volume between countries i and j in the year *t*; *(Yit * Yjt)* is the product of the income of countries i and j in the year *t*; *(Nit * Njt)* is the product of the population of countries *i* and *j* in the year *t*; *Dij* is the distance between countries *i* and *j*; and, *εijt* is the error term.

The income levels of countries i and j normally represent the potential demand of tradeable products from country i and the potential offer of country j, respectively. Therefore, their coefficients are expected to be positive. The distance between countries i and j intends to evaluate the transport and time costs, as well as the market information access and the markets themselves. These costs increase with distance, so a negative coefficient for this variable is predictable. Regarding populations, several interpretations have been offered, generating an ambiguity in the expected signs of their coefficients.

The specification of the gravity equation (1) justifies the opportunity of applying natural logarithms to obtain a lineal relation between the trade flows logarithm and the logarithm of the different explanatory variables, which involves that the estimated coefficients have to be interpreted in terms of elasticity. After applying this transformation, the gravity equation is defined as follows:

$$L_n(X_{ijt}) = \beta_1 L_n(Y_{it}) + \beta_2 L_n(Y_{jt}) + \beta_3 L_n(N_{it}) + \beta_4 L_n(N_{jt}) + \beta_5 L_n(D_{ij}) + \varepsilon_{ijt} \qquad (2)$$

The equation (2) allows to explain the bilateral trade flows among a group of countries during a certain period of time ("*multi-country approach*"). However, the gravity equation can also be used to estimate the unilateral trade flows of a certain country with the rest ("*single-country approach*"). The main differences between both approaches are the following (Földvári, 2006): (1) with the "*multi-country approach*" the total bilateral trade flows between two countries are usually

estimated –exports plus imports[6]-, while with the "*single-country approach*" it is necessary to estimate two different models; one for exports (EXP) and another one for imports (IMP); (2) with the "*multi-country approach*" year *dummys* can be included to control for time-variant unobserved effects, while with the "*single-country approach*" it is necessary to omit such variables in order to interpret properly the impact of exclusively time-variant explanatory variables, such as income and population of the reference country (*Yt y Nt*). Since the objective of our work is coherent with the "*single-country approach*", the referent gravity equation to modelize the exports flow is the following:

$$L_n(EXP_{it}) = \beta_1 L_n(Y_{it}) + \beta_2 L_n(Y_t) + \beta_3 L_n(N_{it}) + \beta_4 L_n(N_t) + \beta_5 L_n(D_i) + \varepsilon_{it} \quad (3)$$

EXPit is the exports volume from the reference country to the country *i* in the year *t*; *Yt* is the income of the reference country in the year *t*; Nt is the population of the reference country in the year *t*; Di is the distance between the reference country and the country *i*; and *εit* is the error term.

Despite the explanatory power of the gravity equation (Minondo, 2007), several authors have added new variables that may affect the transaction costs and the easiness of the trade relations between two countries. Certain dummy variables stand out among them, such as the belonging to a regional trade agreement, the use of a common language, the border effect, and the insular character of the countries, among others.

3.1. Theoretical justification of the gravity equation

Although the first application of the gravity equation dates back to 1962, a theoretical justification according to the conjectures about international trade has been searched for more than forty years. In this regard, the most notable attempts were those of Anderson (1979) and Bergstrand (1985, 1989). On the one hand, Anderson infers a functional form similar to the gravity equation on the basis of an expenditure system in which all countries have the same utility function and there is product differentiation by country of origin. Therefore, except for this last consideration, the rest of the assumptions are compatible with the Heckscher-Ohlin theory. On the other hand, Bergstrand determines that the gravity equation is a reduced form of a partial balance subsystem emanating from a general balance model of world trade, involving in this case the differentiation among firms rather that countries. It is therefore a hybrid between the Heckscher-Ohlin model, that involves perfect competition and goods homogeneity, and the Monopolistic Competition model.

[6] A criticism to the "*multi-country approach*" is that the use of the total bilateral trade as a dependent variable can be inappropriate, since it does not enable the discrimination between imports and exports (Dhar and Panagariya, 1999).

Besides, there are other theoretical justifications of the gravity equation more ad-hoc than the ones above-mentioned. So, Helpman and Krugman (1985) and Krugman (1995) prove that the gravity equation can proceed from the Monopolistic Competence model under the assumption of increasing returns to scale in production. Deardorff (1998) evaluates the utility of the gravity equation in the test of alternative trade models and proves that it can be compatible with both the Ricardian and the Heckscher-Ohlin models. Later, Evenet y Keller (2002) derive the gravity equation from both the Heckscher-Ohlin theory and increasing returns to scale hypothesis, under perfect and imperfect product specialization, while Eaton and Kortum (2002) develop a Ricardian trade model of homogeneous goods that fits the equation. This large theoretic support explains the recent assertion that the gravity equation is coherent with the most relevant international trade theories (Feenstra, 2004; Anderson and Wincoop, 2004 and Baldwin, 2006, among others). As a result, it can be considered "*one of the equations with higher explanatory power of the economic science*" (Minondo, 2007), which has increased the trust in its utility to predict the bilateral trade patterns.

3.2 Empirical background of the gravity equation

An important number of empirical works has led to the suitability of the gravity equation as a tool to explain the international trade flows. While some of them have improved the econometric specification of the equation (Mátyás, 1997; Egger, 2000, 2002; Anderson and Wincoop, 2004; Chen and Wall, 2005; De Nardis *et al*., 2008), others have contributed to the refinement of the explanatory variables or the addition of new variables (Bougheas *et al.,* 1999; Limao and Venables, 2007; Voicu and Horsewood, 2007).

Furthermore, recently the use of the gravity equation has become very popular as an instrument for developing empirical studies about the effect of several economic integration processes on the bilateral trade flows (e.g. Baldwin, 1997; Nilsoon, 2000; Rose, 2000; Glick and Rose, 2002; Micco *et al.,* 2003; Bun and Klaasen, 2007; De Nardis *et al*., 2008). Several of these studies have been carried out in the EU. While some of them prove that the member states of the EU trade more inside than outside their borders (Nitsch, 2000; Evans, 2003; Chen, 2004; Minondo, 2007), others try to consider the EMU effects (De Souza, 2002; Flam and Nordstrom, 2003; De Nardis and Vicarelli, 2003).

In the Spanish case, the gravity equation has also been used in some works. The study by Sanso et al. (1989) tries to analyse if the gravity equation is compatible with the Heckscher-Ohlin theory when explaining the international trade bilateral flows. Also, the study by Sanso et al. (1990) determines the functional form of the equation when studying the Spanish international trade between 1960 and 1985. More recently, Martínez et al. (2003) focus their study on the determinants of the international trade bilateral flows among 34 countries during 1980-1999. On his part, the study by Gil et al (2003) tries to quantify with a 1988-2001 panel data, the impact of the Euro on the Spanish international trade with the EU-15 countries,

while Gil et al. (2005) use the gravity equation to estimate the border effect for the whole of the Spanish economy.

3.3. Specification of our gravity equation

Our first tool to analyse the exports volume from Castilla y León to the EU-27 countries is the gravity equation (3). Two dummy variables (EUit and EMUit) are added to this basic equation, which reveals if the economic and monetary integration process associated to the EU has influenced that export flow during the analysed period. Also, an additional dummy variable is introduced to observe the effect of sharing a common border with the importer country (Fronti). Therefore, the extended gravity equation can be presented as follows:

$$Ln(EXP_{it}) = \beta_1 Ln(Y_{it}) + \beta_2 Ln(Y_t) + \beta_3 Ln(N_{it}) + \beta_4 Ln(N_t) + \beta_5 Ln(D_i) + \beta_6 UE_{it} + \beta_7 UME_{it} + \beta_8 Front_i + \varepsilon_{it} \quad (4)$$

where:

EXPit is the exports volume from Castilla y León to the country *"i"* in the year *t*
Yit is the income level of the country *"i"* in the year *t*
Yt is the income level of Castilla y León in the year *t*
Nit is the population of the country *"i"* in the year *t*
Nt is the population of Castilla y León in the year *t*
Di is the distance between the capital of Castilla y León (Valladolid) and the capital of the country *"i"*
EUit is a dummy variable that shows if the country *"i"* belongs to the EU in the year *t*
EMUit is a dummy variable that shows if the country *"i"* belongs to the EMU in the year t
Fronti is a dummy variable that shows if the Spain and the country *"i"* share a common border
εit is the error term

The extended gravity equation (4) involves that the effect of EUit and EMUit dummy variables remains constant over time. In order to analyse if their impact changes over time, the EUyearit or EMUyearit variables will be alternatively included in that equation, eliminating the original dummy variable in each case. These new variables are calculated as the product of the original dummies multiplied by the different year dummy (*Yeart*), as follows: *EUyearit = EUit * Yeart*, where *t* covers the period from 1993 until 2007, and *EMUyearit = EMUit* Yeart,* where *t* covers the period from 1999 until 2007. The coefficients of both variables can be respectively interpreted as the impact of the European economic integration (EU) and the European monetary union (EMU) on the Castilla y León exports volume in the year t. Accordingly, the two new gravity equation specifications would be:

$$Ln(EXP_{it}) = \beta_1 Ln(Y_{it}) + \beta_2 Ln(Y_t) + \beta_3 Ln(N_{it}) + \beta_4 Ln(N_t) + \beta_5 Ln(D_i) + \beta_6 UEañoit + \beta_7 UME_{it} + \beta_8 Front_i + \varepsilon_{it} \quad (5a)$$

$$Ln(EXP_{it}) = \beta_1 Ln(Y_{it}) + \beta_2 Ln(Y_t) + \beta_3 Ln(N_{it}) + \beta_4 Ln(N_t) + \beta_5 Ln(D_i) + \beta_6 UE_{it} + \beta_7 UMEañoit + \beta_8 Front_i + \varepsilon_{it} \quad (5b)$$

4. Methodology

4.1. Data base

The sample includes the other 26 countries of the EU-27 (all, except for Spain) that can act as goods importers of Castilla y León (Spain). These countries are Germany, Austria, Belgium, Bulgaria, Cyprus, Denmark, Slovakia, Slovenia, Estonia, Finland, France, Greece, Holland, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, United Kingdom, Czech Republic, Rumania and Sweden. The period of study goes from 1993 until 2007. Therefore, there are a total of 390 observations[7].

4.2. Variables

i) Exports volume of Castilla y León (EXPit)

The dependent variable was quantified from the value of total exports (FOB) from Castilla y León to the respective European countries in each studied year, at constant million Euros (base year 2000). The initial information to measure this variable was taken from the Foreign Trade Statistics elaborated by the Junta de Castilla y León, deflating the resulting series with the EU-27 CPI, obtained from the OECD data bases.

ii) Income level (Yit , Yt)

The Gross Domestic Product (GDP) per capita at constant prices (base year 2000) was used to measure the income level. The EUROSTAT yearbooks were used in the case of the European countries, and the Spanish Regional Accounting yearbooks elaborated by the National Statistics Institute (INE), in the case of Castilla y León. The original series at current market prices were deflated using the EU-27 and the national CPI respectively; both obtained from the OECD data bases.

iii) Population (Nit , Nt)

The number of inhabitants, in thousands, on January 1st was used to quantify the population. This data was obtained from the EUROSTAT yearbooks for

[7] In the cases of Belgium and Luxembourg, there are only individual data regarding their foreign trade from 1999. Therefore, this is an incomplete panel data.

the different Europan countries and from the Spanish Regional Accounting yearbooks elaborated by INE for Castilla y León.

iv) Distance (Di)

The distance between the capital of Castilla y León (Valladolid) and those of the European countries was calculated in kilometres, based on the latitude and longitude of the respective geographical centres (geodesic distance). The data was obtained from the Geodesic Utilities Service (IGN), offered by the National Geographic Institute of Spain.

v) European Union Membership (EUit)

This dummy variable measures the incentive for the Castilla y León exporters of belonging to a single market of goods, services, persons and capitals, in which also participates the export destination country. This variable takes value 1 if Castilla y León exports to an EU country in the year t, and 0 otherwise. Therefore, in 1993 and 1994 this variable only equals 1 for the 12 EU countries that approved the Maastricht Treaty in 1992. From 1995 until 2003 the variable takes value 1 in the 12 above-mentioned countries, as well as in the exports to Austria, Finland and Sweden, which join the EU in 1995. Between 2004 and 2006 the variable equals 1 for the 15 aforementioned countries, as well as for the 10 new countries that joined the EU in 2004. Finally, in 2007 it takes value 1 for the 26 EU countries of the sample.

vi) European Monetary Union Membership (EMUit)

This dummy variable measures the stimulating effect that the use of a common currency with the export destination country can have on the Castilla y León exports. This variable takes value 1 if Castilla y León exports to an EMU country in the year t, and 0 otherwise. Therefore, since the EMU took place in 1999, this variable is 0 for all trade flows before that year. From 1999 until 2006, the variable takes value 1 for the exports from Castilla y León to the countries that adopted the single currency from the beginning (from 2001 in the case of Greece). Finally, in 2007 this dummy variable takes value 1 for the 12 aforementioned countries, as well as Slovenia, that joined the Eurozone at the beginning of the year 2007.

vii)Border (Fronti)

This dummy variable considers if the export destination country shares a border with Spain. So it shows if the existence of a common border facilitates the trade between two market areas, by reason of geographic proximity or the potential existence of cultural or historic links. This variable takes value 1 if this is the case and 0 otherwise.

vii) Year (Añot)

These year dummy variables allow to control for time-variant unobserved effects (*t = 1993,…2007*). Since in this study the gravity equation is contemplated under the "single-country approach", these variables are not directly included in the analysis. In fact, they are only used for the construction of the UEyearit and UMEyearit variables, which allow to detect if the impact of the economic integration (EU) and the monetary union (EMU) on the exports from Castilla y León varies over time.

4.3 Estimation method

The gravity equation was initially developed to carry out cross-sectional analysis. Nevertheless, these analysis have an essential problem, since they do not take into consideration any heterogeneous characteristic associated with the bilateral trade relation; that is, a region can export to two countries in a different way, even though they are equal in size and distance, due to certain unobserved characteristics linked to cultural, historic, politic or geographic factors. For this reason, it is said that the cross-sectional analysis suffer a heterogeneity bias.

At present, in order to solve this bias, the gravity equation estimations are normally made through panel data analysis techniques. It is generally accepted that these estimations are a lot more precise than those obtained through other techniques, reducing as well the problems related to the model identification. In this respect, static and dynamic panel data analyses may be applied depending on their specifications include or not variables belonging to different time periods[8].

If static analyses are used, the unobserved heterogeneity may be studied including fixed or random effects in the model. With the fixed effects estimator (FE), the *"country"* and *"time"* effects are assumed as fixed parameters since they are estimated and correlated with regressors. In this case, for econometric reasons, all the explanatory variables that remain constant over time (distance and border, for example) have to be excluded from the specification, and the individual differences will be captured by the constant term. In contrast, with the random effects estimator (RE), the *"country"* and *"time"* effects are stochastic assumptions, non-correlated with the regressors. Therefore, the inclusion of time-invariant explanatory variables is allowed in the specification of these models. The Hausman test allows determining which of the two estimators is more appropriate in each case[9].

Dynamic analyses are employed when the variables present an autoregressive character; that is, when the retarded dependent variable is among the

[8] A static panel data analysis has been applied to estimate the gravity equation in the studies by Mátyás (1997), Glick and Rose (2002), Martínez *et al*. (2003), Cheng and Wall (2005) and Bun and Klaassen (2007), among others. On the other side, the studies by Bun and Klaassen (2002), De Nardis and Vicarelli (2003) and De Nardis *et al.* (2008) have used with this purpose a dynamic panel data analysis.

[9] The Hausman test (1978) analyses the possible correlation between the error term and regressors in order to decide between a fixed effects or random effects estimation.

explanatory variables. Thus, they can be applied to estimate the gravity equation to the extent that the external trade operations of a certain period can be related to those of previous periods. However, this circumstance generates inconsistent estimations when working with panel data. Different estimation methods can be applied in order to solve these inconsistencies: the Anderson and Hsiao (1981) model, the GMM estimator (Arellano and Bond, 1991), the GMM-System estimator (Blundell and Bond, 1998) and the LSDV correction method (Bun and Kiviet, 2003).

The academic community has recognised that when the *"single-country approach"* is used and hence there exists a small sample to estimate the gravity equation, it proves more convenient from the econometric point of view to apply a static panel data analysis versus a dynamic one (Egger, 2000, 2002; Martínez *et al.,* 2003; Chen and Wall, 2005). For this reason, the static panel data analysis has been employed in this work[10], so the error term of the different models is defined as $\mu it = \alpha i + \varepsilon it$, where αi reflects the unobserved heterogeneity and εit is a white-noise variable that fits the following properties:

$$E[\varepsilon it] = 0 \qquad i = 1, \ldots, N; \quad t = 1, \ldots, T$$
$$E[\varepsilon it\ 2] = \alpha\varepsilon\ 2 \quad i = 1, \ldots, N; \quad t = 1, \ldots, T$$
$$E[\varepsilon it\ \varepsilon js] = 0 \quad i, j = 1, \ldots, N; \quad t, s = 1, \ldots, T \text{ such that } i \neq j \text{ ó } t \neq s$$

5. Results

Table 3 presents the main descriptive statistics of the data panel. It particularly shows information about the mean, median, standard deviation, maximum and minimum value of the variables of the basic gravity equation, expressed in the original measurement unit. On the other side, Table 4 shows the frequencies of the three dummy variables introduced in the extended gravity equation.

[10] Apart from applying a static panel data analysis, the different specifications of the gravity equation were estimated from a dynamic model – *the GMM-System estimator* –, implanted in the STATA program with the *xtabond2* command. After the estimation, the results obtained reveal that the retarded dependent variable does not result statistically significant in any specification, proving the inconvenience of applying a dynamic panel data analysis. Regarding the rest of equation variables, results generally agree with those obtained in the static analysis.

Table 3. Descriptive Statistics

Variables	N	Mean	Median	S.D.	Minimum	Maximum
EXP_{it}	378	184,182	17,998	494,572	0,009	3.240,430
Y_{it}	385	12.724,832	10.558,008	9.238,584	235,185	46.598,530
Y_t	390	11.323,090	11.264,341	1.752,098	8.537,863	14.308,450
N_{it}	390	17.057,738	8.595,500	22.188,893	371,000	82.520,000
N_t	390	2.517,560	2.493,918	40,496	2.479,118	2.584,407
D_i	390	2.440,153	2.419,500	800,677	588,000	3.978,000

Table 4. Table of Frequencies

	EU_{it}	EMU_{it}	$Border_i$
NO (0)	144 (36,9%)	293 (75,1%)	360 (92,3%)
YES (1)	246 (63,1%)	97 (24,9%)	30 (7,7%)
N	390	390	390

Table 3 presents the results of the estimation of our gravity equation. Their different specifications are estimated through the FE and RE estimators, among which the respective Hausman tests are carried out. The Models [1] and [1´] refer to the *FE y RE* estimators for the basic gravity equation (3). The Models [2] and [2´] collect the results of both estimators for the extended gravity equation (4). The Models [3] and [3´] are for the FE and RE estimators of the extended gravity equation with the evolution of the EU impact over time (5a) and, finally, the Models [4] y [4´] reflect the results of both estimators for the extended equation with the evolution of the EMU effect (5b). Before making estimations, it is confirmed that the different models do not have autocorrelation or heteroscedasticity problems. Besides, after applying the *F test* it is possible to observe that in all cases the *"destination county"* unobserved effects are jointly significant, indicating that there is unobserved heterogeneity and thereby the adequacy of the panel data analysis.

Regarding the basic gravity equation (Models [1] and [1´]), the Hausman test indicates that it is correct to consider the individual effects as fixed effects, and therefore to interpret the coefficient of the variables that vary over time from the FE

estimator (Model [1])[11]. In this regard, results reveal that the income level of the importer country contributes to explain a higher exports flow from Castilla y León to the EU countries. The wealth of a country has a direct impact on the exports volume to that country, which proves the importance of the buying capacity of the importer country. In fact, Western European countries with high per capita income levels and advanced infrastructures, such as France, Italy, Germany and the United Kingdom, have traditionally been the main destination of the exports from Castilla y León. Even within this group of countries, a reduction in the representativeness of the exports to France and Italy occurred during 1993-2007, possibly as a consequence of their slowed economic growth, while the volumes dispatched to Germany and the United Kingdom – countries with a high living standard – has increased significantly. Besides, other Western European countries, such as Finland, Sweden, Austria, and Denmark, as well as Eastern countries, like Poland, Czech Republic, Slovakia and Hungary, have reached a growing importance as importers during the last years, and all of them have higher wealth levels and faster economic growths and purchasing power than the rest of countries of their area.

The positive influence of the income level of Castilla y León proves the importance of the productive capacity of this region to foster its exports. A high income level of the exporter shows a high production and thereby more goods to be exported. The importance of the income level on the own exports rests on the modern theories that link the exports volume to offer factors. According to these theories, those regions able to generate competitive advantages in an exogenous way will be more successful in their openness to the external markets. Thus, the higher export figures will concentrate on the regions where those advantages are more easily developed due to the relative dimension of the market, the capacity of investment in new technologies, and the availability of more human capital stock.

About the population variables, the results show that only the number of inhabitants in Castilla y León significantly affects the exports volume to the EU-27 countries. In particular, this variable seems to exert an important negative influence to the extent that a smaller number of inhabitants results in a smaller self-sufficiency tendency and therefore a higher foreign trade commitment. In this sense, since Castilla y León is characterised by a constant reduction in the number of inhabitants, it is consistent to deduce its growing openness to international markets.

Regarding the extended gravity equation (Models [2] y [2´]), the Hausman test also shows that it is convenient to interpret the coefficients obtained with the FE estimator (Model [2])[12]. As it can be observed, the wealth levels of the importer country and Castilla y León, as well as the population level of this Spanish region,

[11] The FE estimation of *Model* [*1*] does not present any coefficient for the "distance" variable because its va*lue remains constant over time.*

[12] The FE estimation of *Model* [*2*] does not present any coefficient for the "*distance*" and "*border"* variables because their values remain constant over time.

still have a significant statistical effect. Besides, regarding the new dummy variables introduced in this specification, results show that the EU membership of the importer country has positively but not significantly influenced the Castilla y León exports during the analysed period. In particular, the fact that the importer country belongs to the EU has increased on average by 13.4 percent the export flow of this region between 1993 and 2007[13]. This means that if the economic integration process has had any favourable impact on the Castilla y León exports, this has been unimportant. Two reasons may explain this fact: (1) the growing exports volume to the EU-15 only kept a high rate of growth until the end of the 1990s. From then, apart from the fact that the main competitive advantages were already deducted, an economic slow-down occurs in some of the main target markets of the Castilla y León exports, beginning a progressive loss of representativeness in the volumes dispatched to the EU-15; and (2) the exports flow that from 2001 directs towards the countries of Eastern Europe, despite its fast growth and its larger importance in the total exports of Castilla y León, still constitutes reduced export volumes. Therefore, despite that the international sales of firms of Castilla y León have benefited from the process of European economic integration, the results seem to have been limited, having been unable to take advantage of the total potential derived from the larger size of the European internal market and, above all, the free circulation of goods within it.

Table 5. Results of the gravity equation estimation

Dependent variable: Exports volume from Castilla y Leon to the Country i in the year t (at constant prices)

	Basic gravity equation		Extended gravity equation		Extended equation with EU evolution		Extended equation with EMU evolution	
Variable	Model 1 FE	Model 1´ RE	Model 2 FE	Model 2´ RE	Model 3 FE	Model 3´ RE	Model 4 FE	Model 4´ RE
Constant	65,008***	53,089**	70,459***	59,941**	62,487	48,005	37,447	17,061
	(25,059)	(24,042)	(25,481)	(24,524)	(51,905)	(49,042)	(32,555)	(31,541)
$Ln(Y_{it})$	2.094***	1,808***	1,910***	1,701***	1,780***	1,547***	1,877***	1,482***
	(0,196)	(0,132)	(0,197)	(0,135)	(0,203)	(0,142)	(0,198)	(0,107)
$Ln(Y_t)$	1,797***	1,973***	2,279***	2,608***	3,187***	3,866***	2,828***	3,703***
	(0,411)	(0,332)	(0,483)	(0,394)	(0,859)	(0,817)	(0,576)	(0,475)
$Ln(N_{it})$	-2,147	0,897***	-1,051	0,882***	-0,208	0,874***	-0,542	0,915***
	(1,564)	(0,136)	(1,556)	(0,132)	(1,612)	(0,132)	(1,591)	(0,076)
$Ln(N_t)$	-10,047***	-10,679***	-12,348***	-12,974***	-13,225**	-12,669**	-9,322***	-8,185**
	(2,746)	(2,815)	(2,818)	(2,808)	(5,454)	(5,457)	(3,379)	(3,609)

[13] The interpretation of the coefficient for the UE_{it} variable has to be carried out on the basis of the following expression: $(e^{0,126}-1)*100 = 13,4\%$.

Table 5. Results of the gravity equation estimation (cont'd)								
	Basic gravity equation		Extended gravity equation		Extended equation with EU evolution		Extended equation with EMU evolution	
Variable	Model 1 FE	Model 1´ RE	Model 2 FE	Model 2´ RE	Model 3 FE	Model 3´ RE	Model 4 FE	Model 4´ RE
$Ln(D_i)$	–	-1,216*** (0,498)	–	-0,410 (0,690)	–	-0,504* (0,689)	–	-0,796** (0,401)
EU_{it}			0,126 (0,140)	0,964 (0,139)			0,027 (0,151)	0,073 (0,156)
EMU_{it}			-0,554*** (0,147)	-0,703*** (0,137)	-0,469** (0,188)	-0,580*** (0,177)		
$Border_i$			–	2,423** (1,003)	–	2,283** (1,001)	–	2,157** (0,570)
UE_{yearit} [a]					EU_{94}+*** EU_{95}+** EU_{96}+**	EU_{94}+*** EU_{95}+** EU_{96}+**		
EMU_{yearit} [a]							EMU_{99}-* EMU_{00}-* EMU_{01}-* EMU_{02}-** EMU_{03}-** EMU_{04}-*** EMU_{05}-** EMU_{06}- ** EMU_{07}-***	EMU_{99}-* EMU_{00}-** EMU_{01}-* EMU_{02}-*** EMU_{03}-*** EMU_{04}-*** EMU_{05}-*** EMU_{06}-*** EMU_{07}-***
Hausman	$\chi^2(4) = 30,28$***		$\chi^2(6) = 11,72$*		$\chi^2(20) = 7,83$		$\chi^2(14) = 9,62$	
R^2	0,66		0,68		0,83		0,84	
N	373		373		373		373	

Notes: a. The significant variables are shown with the respective signs and signification levels.
Values are the unstandardized coefficients, with standard errors in parentheses.
* p < 0.1; ** p < 0.05; *** p < 0.01

About the EMU membership of the importer country, the results reveal that the process of monetary unification has not had the hoped effect in encouraging the exports from Castilla y León. In contrast to what was expected, the fact of sharing a

common currency with the importer country has produced a significant negative effect on the foreign sales of this region towards the European countries in the reference period. In particular, this process has led to an average reduction of 42 percent in the export flow. Effectively, since 2002 reductions have been observed in export figures towards countries such as France, Italy, Portugal and Greece. Faced with this fact, there have been increases in the volume of exports towards the Western European countries that have not voluntarily joined the Euro-zone (United Kingdom, Denmark and Sweden) as well as the Eastern European countries that have not reached the required convergence criteria. Without considering other factors with potential to influence this unexpected result (for example, the de-acceleration of fundamental economies of the EU), our findings permit to infer that Castilla y León has had growing difficulties to obtain advantages of the monetary integration, probably caused by the progressive loss of the competitiveness of Spanish products. Therefore, once the advantages of the exchange rates are eliminated, the penalty on the exportable products that has generated a high and rising inflation, together with higher labour costs, has been revealed. In this line of argument, Berger and Nitsch (2005) point out regarding the single currency, that the abolition of national currencies may promote intra-Community trade flows, but also demand that the export decisions within the Euro-zone are taken in function of the products competitiveness and quality. That is, with a single currency, the relative-prices factor becomes the only determinant in the real exchange rate and hence the competitiveness of external trade.

Regarding the extended gravity equations that consider that the impact of membership of the EU (Models [3] and [3']) and the EMU (Models [4] and [4']) is not constant and can vary over time, the Hausman tests lead to the acceptance of the null hypothesis and, therefore, the results of the RE estimator must be interpreted in both cases (Models [3'] and [4']). In these two specifications, the basic variables of the gravity equation continue to show the previously detected effects on the basis of the EF estimator, with the exception of the population of the export destination country, whose coefficient is now positive and significant. This result would suggest the growing importance of the "market size" effect in international trade, with a general increase of the foreign trade openness.

In addition, the results of both models indicate that, just as expected, the distance affects significantly and negatively the export flow from Castilla y León. Thus, the larger the route to cover between the capitals of two geographical areas, the lower the trade attraction will be between them, due to, among other aspects, the larger time and transport costs. With countries like France, Portugal and Italy, this variable may have been essential to explain the export flow from Castilla y León. As regards the border variable, the estimation of both models shows the importance of sharing a common border with the importer country; that is, the EU-27 countries tend to trade more intensely with the firms of Castilla y León as a result of their

geographic location and/or the existence of possible cultural and historic links. In fact, of all the EU countries, France and Portugal have always been the principal destination markets of the Castilla y León exports. The sign and significance of this variable is important in that it can explain, at least partially, the lack of statistical significance of the variable that reflects the EU membership of the importer country.

Finally, when the Model [3'] introduces the different variables that reflect the evolution of the impact of the European integration between the years 1993-2007, it is possible to point out that, in the large part of the studied period, the EU membership of the importer country has no significant effect on the exports of Castilla y León, so that only in 1994, 1995 and 1996 the influence appears to be positive and significant. Thus, this Spanish region only benefited significantly from the advantages derived from the creation of a common market during the three years that followed the EU creation. About the variables that reflect if the effect of the UME membership changes over time, the results of the Model [4'] indicate that the fact that the importer country shares a common currency with Castilla y León has a negative and significant impact on the export flow of this region from 1993 to 2007; that is, during all that period the EMU produces an inhibiting effect on the Castilla y León exports to the EU-27 countries. This finding suggests that this Spanish region has suffered difficulties to adapt to the challenges of the monetary unification process, which has hampered the exploitation of the comparative advantages of a European market that negotiated with a single currency.

6. Conclusions

The most relevant change that the economy of Spain in general and Castilla y León in particular has experienced in the past years has been its progressive opening to international markets, especially to the EU countries. For this reason, the main purpose of this study has been to try to explain the impact of the European integration process on the export volume from Castilla y León to the rest of the EU-27 countries during the period of 1993-2007. Specifically, there have been three objectives to reach. First, to determine what factors have influenced the foreign sales of this region to the EU countries during the study period. Second, to determine if the events linked to the European economic and monetary integration process have served as a true incentive for the Castilla y León exports. Third, to find out if the impact of the integration process has been constant or it has varied over time. In order to reach these objectives it was specified a gravity equation, which was estimated on the basis of panel data analysis.

With respect to the first objective, our findings indicate that most of the basic variables of the gravity equation are relevant and their estimated coefficients show the expected signs. Thus, taking into account the type of goods exported from Castilla y León, elaborated with medium-high technology and medium quality

standards, a factor such as the standard of living of the importer countries becomes fundamental when it comes to explain the exports volume from this region to the EU-27 countries. Indeed, besides Western European countries with high income per capita, such as France, Italy, Germany, United Kingdom, Finland and Denmark, the exports originating in Castilla y León have also gone towards other Eastern importers, such as Poland, the Czech Republic, Slovakia and Hungary, characterized by growing purchasing power and important economic growth. The richest countries tend to import more goods, not only because of their income volume, but also because their wealth allows them more and better infrastructure.

In reference to the characteristics of Castilla y León, both its income level and its fall in the size of its population appear to augment the export flow from this region to European countries. These results show the relevance of the supply factors related with the level of development in Castilla y León, as well as the number of inhabitants of this Spanish region, when it comes to determine the magnitude of its commercial relations in the European market.

On the other hand, in accordance with economic intuition, exterior sales from this region to the remainder of the European countries appear to increase when the distance is less between them. Furthermore, it can be qualified that among the nearest countries, Castilla y León tends to export more intensely towards those geographically adjacent, confirming in this manner the positive impact of the so called "border effect" (Minondo, 2007). In fact, France and Portugal have always monopolized a large portion of the total exports of Castilla y León towards European countries.

The results obtained regarding the second and third objectives indicate that, in general, the creation of the EU only stimulated in a limited form the growth of the exports volume from Castilla y León to the rest of the countries belonging to this regional block during the period of 1993-2007, except for the three years immediately following its officialisation, when the EU membership of the importer country had an important favourable impact. This allows to point out that the companies located in Castilla y León rapidly deduced the commercial advantages derived from the creation of a single market. In addition, even though in the new decade the internal market grew with the incorporation of 12 new commercial partners towards which Castilla y León redirected a growing volume of exports, the trade figures reached very little representativeness within the European and total exports dispatched from this region.

In regard to the monetary unification process (EMU), contrary to expectations, the fact of sharing a common currency – the Euro – with the importer country significantly and negatively affected the external sales of Castilla y León towards the European countries during the period of 1993-2007. Besides, this adverse effect has remained constant over time, manifesting itself in all the years during the analyzed period. The initial introduction of the Euro became effective only among business partners that belonged to the traditional EU-15 (leaving the Eastern European countries out), corresponding with mature markets where the

commercial advantages had already been exploited. Therefore, the introduction of a common currency may have become an obstacle for the exports of this Spanish region, due to the heightened loss of competitiveness of the products from Castilla y León, as the relative factor price (penalised by a growing and elevated inflation, together with high labour costs compared to those of the European environment) becoming the only determinant of the competitiveness of external trade.

Overall, these findings may prove of vital importance in the identification of the countries with a higher tendency to import products from Castilla y León; that is, of the potential markets for the exports of goods produced by the companies of this Spanish region. As a result, they can provide a valuable guide for the development of the internationalisation policy of this region. In addition, it is important to note that the conclusions obtained are only acceptable as measures of the initial impact, not of the long-term effects of the European integration process. In fact, it has been pointed out that in general, it takes several years before a regional integration process produces a significant amplifier effect on bilateral trade between the countries involved (De Nardis et al., 2008).

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