LSE THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

LSE Europe in Question Discussion Paper Series

LSE 'Europe in Question' Discussion Paper Series

Regional Single Currency Effects on Bilateral Trade with the European Union

Joan Costa-i-Font

LEQS Paper No. 26/2010

October 2010

Regional Single Currency Effects on Bilateral Trade with the European Union

Joan Costa-i-Font*

Abstract

The regional effects of sharing a single currency on bilateral trade with other European Union member states are a contentious question. This paper examines the regional effects on trade of the set up of the euro as a common currency. It takes advantage of a gravity specification of bilateral trade between the seventeen Spanish regions and EU-13 countries over the period 1997-2004 and accounts for two distinct effects depending on the temporal set up of the euro. That is, the "exchange rate volatility effect" (from exchange rate fixing of national currencies in 1999) is distinguished from the so-called "common currency effect" (resulting from the issuing of a new currency in 2002). Findings are suggestive of a regional concentration of currency union effects in a few regions, namely those relatively more open to trade, though such effects are found to fade away over time. Trade expansion for the set up of the euro ranges between 45 to 16% depending on the specification, but only the "exchange rate volatility effect" of a common currency was found significant, pure currency union effects were instead found to be almost negligible.

Keywords: gravity models, trade flows, regional heterogeneity, monetary union
JEL: 04, F4, F11, F33

*** London School of Economics and Political Science**
European Institute, Houghton St, London WC2A 2AE, UKEmail: j.costa-font@lse.ac.uk

Table of Contents

Regional Single Currency Effects on Bilateral Trade with the European Union

1. Introduction

Currency unions can be thought of as 'cooperative arrangements' whereby a set of countries freeze (or peg) their exchange rates at a constant rate irrevocably, so as to reduce the uncertainty associated with volatile exchange rates. To make such an arrangement stable, some countries go an extra mile and issue a single currency, as it was the case for the European Monetary Union (EMU). Besides social effects, a common currency can be argued to play a key role in completing the single market; and as such can be expected to boost trade among monetary union member states.

The intuition behind a hypothetical common currency boosting on trade is that agents operating within monetary unions benefit from lower costs of economic exchange disruptions related to fluctuations in real bilateral exchange rates, higher price transparency and other micro-efficiency advantages[1], and hence a larger number of transactions take place as a result. A seminal study by Andrew Rose found monetary unions to boost trade by almost 300% (Rose, 2000). Similarly, a study by HM Treasury (2003) reported that the entry into the Euro-zone would bring the UK a total increase in trade of 50%. However, a number of subsequent contributions (Persson 2001, Melitz 2001, and others) have questioned the magnitude of such effect. For instance, Thom and Walsh (2001) found no great decline in Anglo-Irish trade when the Republic of Ireland joined the Eurozone and evidence from the

[1] Currency unions go beyond reducing the variability of bilateral exchange rates by eliminating altogether the risk of future changes in the exchange rate, as well as the transaction costs incurred by converting one currency into another. Therefore, decisions based on prices can be taken in a more transparent way than before.

Irish Currency Board's experience with the sterling pound displayed no significant effects on bilateral trade (Thom and Walsh, 2002). On a methodological note, Rose has been criticised for drawing conclusions on a limited number of years as well as for using a very loose definition of "monetary union". More recently, some critics (Artis, 2006) have insisted in that the EMU itself is endogenous to the process of integration, especially among the core economies of Europe. Nonetheless, more recent work by Frankel (2009) has found limited empirical evidence to support the endogeneity claim.

The first and perhaps the central question of this paper lies in accounting for one of the important unexplored dimensions in this debate, namely trade effects resulting from a common currency adoption when units of analysis are not states, but regions within states. The latter allows controlling for within country variation, namely both the institutional dimension and the economic geography of trade which Frankel and Rose (2000) find to be critical to the make up of common-currency areas[2]. The important of regional dimension is made clear in studies showing that trade data between Canadian regions is about 10-20 times greater than trade volume between Canada and the US (McCallum, 1995).[3] Hence, it is not obvious, and questionable to assume that the EMU exerts regionally homogenous effects on trade as most studies assume.

Baldwin *et al* (2005) shows that the effect of EMU on trade is non-linear and dependent on the econometric strategy followed. They found that trade creating effects range between 108 and 140% in a pooled regression, but that such estimates range between 54 to 88% when sector specific data is used. Arguably, some explanation of this phenomenon lies in the existing within country variability resulting from heterogeneous regional common currency effects. If this is the case, this paper might provide additional insights into this question.

[2] For instance in Spain, regions with large neighbours (Catalonia or the Basque Country and Navarre) exhibited a higher volume of trade with their existing trade partners after the onset of monetary union

[3] Hence, arguably a common currency would lead to trade creation as well as deviation to other EMU member states. Micco, Stein and Ordenez, 2003, and Faruqee, 2004) showed that the trade effects of the EMU are different between the individual countries

Baldwin (2006) finds that the trade effects of a common currency are found to be the highest for Spain and more generally, some studies show that the impact of exchange-rate variability on trade appears to be generally higher in Southern-European countries (De Grawve and Skudelny, 2000). Hence, a regional analysis of Spanish data seems particularly appropriate to test of the regional effect of a common currency. This study draws upon data from Spanish regional trade flows with European countries to provide empirical insights into the trade effects resulting from sharing a common currency.

A second question that this paper addresses is the following. In measuring the effects of a common currency one can differentiate the pure effects of reducing exchange rate volatility that could have been attained through a currency board or an equivalent mechanism, form the stability and credibility effects resulting setting up a tangible single currency[4]. Some studies find that exchange-rate volatility is only one of several barriers to trade and not necessarily the most important one (De Nardis and Vicarelli, 2003, Berger and Nitsh, 2005). Hence, hypothetically credibility effects from the tangible issuing of a common currency can be argued to boost trade.

Consistent with evidence suggesting that money illusion may after all be a real phenomenon (Fehr and Tyran, 2001), this paper estimates the effect of two different effects of a common currency, namely the effects that results form the reduction of exchange rate variability of national currencies participation in the single currency arrangement, which effectively was in place from 1999, and the effects of the tangible issue of a single currency for individual use, which eliminated transaction costs of economic activity (from 2002)[5].

The empirical analysis carried out provides estimates of a set of standard and augmented gravity equations for total trade flows measured as the logarithm of exports and imports (as in Baldwin and Taglioni, 2006), as well as imports and

[4] The seminal contributions in this area (Mundell, 1961, McKinnon, 1963 and Kenen, 1969) constitute what is known as the optimum-currency-area approach and help to determine when a currency union is desirable.

[5] Examination of the first years of the monetary union is relevant given that some scepticism has arisen from the fact that the EMU does not seem to have succeeded in creating business-cycle convergence.

exports separately in order to disentangle the specific effects of a common currency in boosting regional trade[6]. Gravity models are commonly used to account for the influence of transaction costs and distance on economic transactions[7] after ensuring that results are robust by including a battery of checks (Evenett and Keller, 2002)[8], which include augmenting the standard gravity model, to control for regional specific covariates. Similarly, drawing upon panel-data it controls for some unobserved heterogeneity and, some specifications correct for different sources of endogeneity so as to establish the extent to which the results are robust.

The outline of the paper is as follows. The basic theoretical underpinnings are introduced in Section 2. Section 3 is devoted to examining prior empirical evidence and describing the database employed. Section 4 reports the results obtained and Section 5 explores the trade-policy implications.

2. Background

2.1 Common currency and Trade

The main goal of a currency union is to promote economic activity by increasing exchanges within a common currency area. However, regardless of the vast empirical literature in the issue, there is still no general consensus on this question. Frankel and Rose (1998) find clear evidence that a reduction in exchange-rate variability increases trade. This result was later confirmed by Frankel and Rose 2002, Rose and van Wincoop (2001), and Glick and Rose (2002), andthe effect of excluding observations from the sample i=s addressed in Persson (2001).

[6] Interest in gravity models increased considerably after some models suggested the "death of distance" resulting from the decline of transaction and transport costs due to globalisation (Brun et al, 2005).

[7] It is common to find that the elasticity of trade to distance ranges from -0.8 to -1.3. Some studies indicate that globalisation does not necessarily make distance irrelevant (Leamer and Levinsohn, 1995).

[8] Examples of this are corrections for endogeneity (Egger, 2002) and selection biases, and the inclusion of a time trend, which is argued to influence the effect of the distance variable.

Some evidence against the common view that a currency union is a trade-enhancing phenomenon is found in Fitzsimons *et al*. (1999), and more sceptical literature includes authors who suggest that before the introduction of the euro, there was a trial period called *Ecco L'Euro* (Artis, 2006) that could have influenced Rose's seminal results. Similarly, Alesina and Barro (2002) argues that the effect of a currency union on trade might have been overestimated due to different forms of endogeneity. Tenreyro and Barro (2003), who address the problem of endogeneity by developing a new instrumental variable, found that the effects of currency union were much less significant that those of previous results. However, this is less of an issue in the case of European countries given that the vast majority of countries that formed the EMU did so at the same time (except for Greece, which joined a year later) and the decision to join was based on compliance to a set of well defined "convergence criteria". Furthermore, as abovemtnioned, Frankel (2009) provides suggestive evidence against endoegenity concerns[9]. The use of regional data can additionally ameliorate endogeneity constraints as it explore only within country variation, and because regions have lesser specific power to influence monetary policy, especially after the implementation of under independent central banking mechanisms in the nineties.

2.2 The gravity model formulation

Gravity models of trade flows have been widely used as baseline models for estimating the impact of a variety of policies related to regional trading groups, currency unions and various trade distortions (Bougheas, Demetriades and Morgenroth 1999, De Grauwe and Skudelny 2000, Glink and Rose 2002), and more generally have been used to select among competing trade theories (Feenstra, Markusen and Rose, 2001).

[9] The debate on whether a currency union influences economic exchange parallels the debate on the determinants of economic development which suggests that changes in institutions are likely to impact economic exchange (Rodirk, 2003) and that income may be explained by institutions rather than by geography or by trade itself. If this is the case, then one might expect an institutional change in the monetary section to determine the intensity of trade.

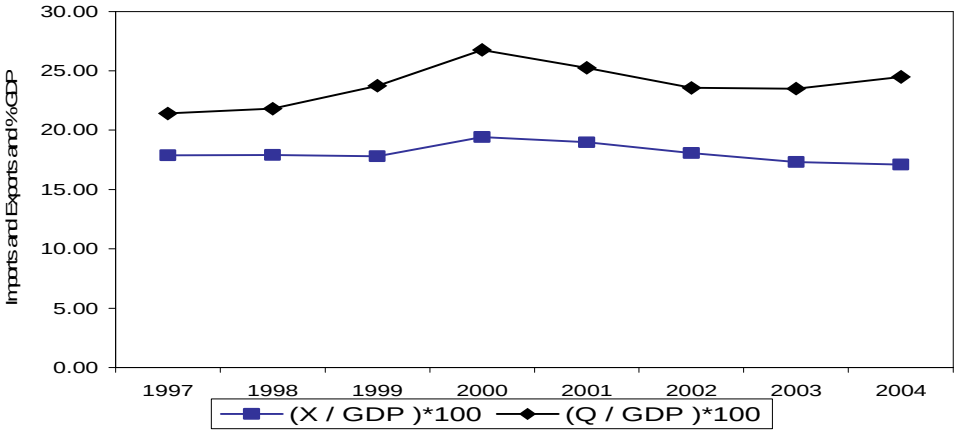
The formulation that lies behind the gravity equation is that the economic value of an exchange between a pair of countries is a positive function of their combined size and a negative function of their distance (a physical barrier to trade associated with transportation and delivery costs). The reasoning behind the objectives of economic (and monetary) integration is in tune with the variables included in a gravity model: to expand the market dimension and simultaneously reduce – or utterly eliminate – distance (Frankel, 1997). However, the determinants of bilateral trade flows include can be extended (augmented) to include additional determinants, which act as trade barriers or trade-enhancing effects, such as exchange-rate variability (Frankel and Wei, 1995). Belonging to a common currency seems to have an independent effect, which is not explained by higher price stability but by a "credibility enhancing effect" and the elimination of transaction costs (Rose, 2000).

3. Empirical analysis

3.1 The data

Data was collected from a variety of official sources in order to obtain reliable estimates with a large time and cross-section range. Much of the data came from the Spanish Chamber of Commerce Council (CCC, 2005), which publishes annual data on the origin and destination of regional trade. Trade was measured using data on bilateral trade flows with other European Union member states. It was measured both separately as imports (M) and exports (X), and as a combined figure (M+X). Data on regional gross domestic products (GDP) was retrieved from the regional accounts section of the Spanish National Statistics Institute (INE). The time frame ranged from 1997, 2 years before the common currency became operative, to 2004, 3 years after it became a tangible currency. Aggregate data from Spain is displayed in Figure 1, and reveals that even though imports and exports (especially imports) experienced overall growth after 1999, the effect did not last very long and the percentage of trade with European Union countries did not increase significantly.

Figure 1. Spanish imports and exports to the European Union as a percentage of GDP



3.2 Methods

Consistently with the idea of a gravity model, measures of combined income $(Y_{it}Y_{ij})$ for each pair of region and country of destination were included as explanatory variables. The measure of distance used was based on Euclidean distance between the longitude and latitude of the capitals of each Spanish region and the capitals of the countries with which they traded. The study used the GDP of the exporting country to measure productive capacity, while that of the importing country was used to measure absorptive capacity. These two variables were expected to be positively related to trade. Physical-distance and country-adjacency dummies served as proxies for transportation costs. Population was used as a measure of country size. It is usually expected to be negatively related to trade, since larger countries have more diversified production and tend to be more self-sufficient. However, as pointed out by Prewo (1978) and Bergstrand (1986), there is an inconsistency in this argument, as larger populations allow for economies of scale which result in higher exports; therefore, the sign of the coefficient of the exporting country should be indeterminate. In its basic formulation the gravity equation can be obtained from making logarithms of the following equation:

$$(1) \quad T_{ij} = e^{\beta_1}(Y_i Y_j)^{\beta_2} D_{ij}^{\beta_3}$$

where T_{ij} refers to bilateral trade measured as log of imports and exports between the region *i* and the country of origin *j*, and D_{ij} refers to the distance between i and j.

Table 1 provides the variable definitions. The data contains all the of origin/destination pair observations from 17 autonomous regions in Spain to all the EU countries at the time of the study from 1997 to 2005. This is precisely the period of development of the European Monetary Union, especially from 1999 onwards when the *de facto* common currency was introduced and in 2002 when the Euro was launched. The years previous to 1997 have not been included in order to isolate the effects of a currency union from other regional and institutional effects that might have influenced regional income, such as decentralization processes, changes in national governments and trade-integration effects resulting from the creation of a single European market.

Table 1. Summary of Statistics

	Definition	Mean	S.E	Source	Expected Effect
Dependent variables					
T_{ij}	Total regional trade (imports and exports) between region *i* and destination countries *j* (in logs)	12.11	0.04	A	-
M_{ij}	Regional imports between region *i* and destination countries *j* (in logs)	11.28	0.05	A	-
X_{ij}	Regional exports between region *i* and destination countries *j* (in logs)	11.27	0.05	A	-
Explanatory variables					
Treatment Variables					
CU_{99}	Effective union currency dummy from 1999 between region *i* and destination countries *j*	0.56		-	+
CU_{2002}	Material union currency dummy from 2002 between region *i* and destination countries *j*	0.38		-	+
Geographical Controls					
$Y_i Y_j$	Regional gross domestic product in logs	12.75	0.025	B	+
$N_i N_j$	Regional population size (in logs)	9.63	0.024	B	+
D_{ij}	Log Euclidean distance between longitude of capital of region *i* and capitals of destination countries *j*	2.93	0.014	C	-
border	Dummy variable indicating a border between region *i* and destination countries *j*	0.04	0.004	C	+
Island	Dummy variable indicating a border between region *i* and destination countries *j*	0.12	0.008	C	-
Latitude	Log of latitude of each region	11.3	0.312	C	+

Sources: A. Subdirección General de Aduandas, Camara de Comerç de Catalunya, 2006 (Chamber of Commerce of Catalonia); B. Contabilidad Regional de España, INE, 2006 (Regional accounts, Spanish National Statistics Institute); C. Geographical information toolkit, INE (Spanish National Statistics Institute).

3.3. The empirical model: an augmented gravity model

There is open debate as to how to estimate the gravity model based on "individual" country-pair effects. Matyas (1997) argues that the correct econometric specification should be the "triple-way model", where time, exporter and importer effects are specified as fixed and unobservable. However, Egger and Pfaffermayr (2002) demonstrate that, when Matyas' triple-way model is extended to include bilateral-trade interaction effects, this 3-way specification reduces to a conventional 2-way model including time and bilateral effects only. Unfortunately, the fixed-effects approach does not allow for estimating coefficients for time-invariant variables such as distance or common-language dummies, though the consistent estimation of such effects is equally important in many situations. Therefore, in order to address this issue properly it is necessary to employ the Hausman and Taylor instrumental variable estimation technique (HT, 1981) – see Brun, Carrere, Guillaumont and de Melo (2002), and others.

Given that other factors such as border effects, institutional effects (such as a currency union) and economic size also influence the decision to trade, the model specified was the following one presented below (logs are missing for simplicity):

$$(2)\ T_{ij} = \beta_1 + \beta_2(Y_i Y_j) + \beta_3 D_{ij} + \beta_4(N_i N_j) + \beta_r B_{ij} + \sum_k \beta_k Z_{ijk} + \sum \delta_t Time_t + \gamma CU_{ij} + \mu_{ij}$$

$N_i N_j$ referred to the joint population; B_{ij} measured the extent to which each region bordered on Europe; Z_{ijk} measured other controls of bilateral trade; $Time_t$ referred to a time trend; and CU_{ij} referred to the existence of currency-union arrangements between the area and the country of origin. This was an attempt at estimating a battery of different empirical specifications for a common-currency effect on trade. Trade was measured in logs in Equation 2 and subscripts for time were eliminated for simplicity. Furthermore, the study distinguished between exports (X_{ij}) and imports (M_{ij}) given that the effects associated with the establishment and expansion of a monetary union were likely to be heterogeneous for these variables, especially at the regional level.

Two differently indexed versions of the gravity equation were estimated. In the first, the logarithm of real exports was used as the dependent variable. In the second, the logarithm of total trade was employed. The baseline specification was used to consider the impacts of core explanatory variables such as GDP, population, and Euclidean distance (the distance between vectors of latitude and longitude squared). Furthermore, following recent theoretical developments (Egger, 2002) the gravity models were expanded so as to include variables measuring similarity-in-size of trading countries and differences in relative factor endowments. Given that trade across countries that do not have a common currency implies some transaction costs, the effect of a monetary union was included as a dummy representing exchange-rate variability to reflect the specific effect of exchange-rate risk reduction. In the light of the previous literature, the following research questions were explored:

> *The Currency-Union Effect.* This question refers to whether the exposure to a common currency gives rise to an increase of bilateral regional trade, and whether such trade effects were regionally homogenous. The value of the currency union was measured using the two definition outlined in the second research question below. Its value was adequately log normalised so as to obtain the value of the elasticity effect in the gravity equations. The elasticity value was informative of the extent to which exposure to a common currency in each separate autonomous region enhanced bilateral trade with a set of European markets. Evidence from previous work suggested estimates of 300% (Rose, 2000). Later Glick and Rose (2002) found that trade approximately doubled using aggregate data. Given that this empirical result has been subject to discussion, the empirical magnitude estimated here will be of great interest to researchers and policy-makers.
>
> *Volatility and Time Effects.* We have distinguished the effect of the CU-99, which refers to the wiping out of exchange rate volatility purely from the CU-2002 which captures the stability effects of the set up of a common currency. The tendency in the literature is to believe that the impact of the euro grows over time, so if instead it does not then this

would be suggestive of the common currency having mainly short term effects.

Robustness and Income Effects. One of the aspects examined in the literature is whether these results are robust to different specifications and to the inclusion of fixed effects that control for potential unobserved heterogeneity. It is also important to establish whether the gravity equation is correctly specified, especially when it is augmented.

3.4 The Econometric Strategy

The empirical strategy used in this study was first to begin with the simplest specification possible, a model that estimated the determinants of trade using OLS and including robust standard errors (to cluster heterogeneity) and that included (although did not report) year controls. It distinguishes between the two definitions of a common currency mentioned in previous sections. We report the trade elasticity by transforming the estimated coefficient $[\exp(\beta_{CU\ 1999})\text{-}1]$ if the currency union dummy variable on trade flows. Once OLS results were estimated, both an augmented and simple gravity equations were also estimated using generalised least squares (GLS), which took into account the panel nature of the sample. The intuition behind this strategy lies in that unobserved heterogeneity may have biased the results as they only reflected part of the heterogeneity of country pairs and could therefore be prone to omitted-variable bias. The estimated coefficients are then reported at the autonomous-region level using random-effects models. Furthermore, following some previous studies, an additional check was made for robustness. Finally, the set of estimates included fixed effects and the underlying estimates for the reported fixed effects. However, random effects were also used to examine the effect of distance on trade, which were drop out when fixed-effects model is specified due to coliniearity. Finally, given that distance measures 'trade barriers'; by using a logarithmic specification the coefficient of each variable should be adequately exponentially transformed.

4. Results

4.1 OLS Estimates

The estimates from OLS models were reported first using the two different definitions of a currency union mentioned (see Table 2a and Table 2b). Importantly, and consistently with work by Rose (2000) it was found that *the positive and significant effect exerted by the currency union variable prevailed*, suggesting that establishing a currency union had effectively boosted trade, although this result does not mean much given the problems of OLS estimates . The coefficient was larger for imports in comparison to exports, suggesting that, *ceteris paribus*, establishing a common currency was responsible for a larger growth in Spanish imports than in exports. Importantly, controls suggest the expected parameters, namely that trade decreased with distance, which compares to other estimates in the literature, suggesting that this coefficient tends to fall between 0.6 and 0.8 (Frankel, 1997). The opposite was true for combined economic mass; bilateral trade increased with economic mass and this was especially true for imports, as, on average, economic mass was higher for European countries than for Spanish regions.

4.2 Augmented Gravity Model

The coefficients of the gravity model did not change much when an augmented-gravity model was estimated. In the latter case, bordering regions exhibited higher trade consistently with border effects being significant, whilst the Island effect inhibiting trade did not arise. Finally, the endogeneity test from Hausman Tests results did not reject the full hypothesis of exogeneity of the combined economic mass, with the exception of the effect on imports. Interestingly, the coefficients of both the traditional and augmented models did not differ significantly. Regional income was found to significantly boost trade with an elasticity exceeding 1. This result suggests that the more affluent a region becomes, the more likely it is to embark on trade activities. Importantly, the income elasticity of bilateral trade was

larger in the augmented model as compared to the baseline, and it was higher for imports than for exports.

Paradoxically, we find somehow counterintuitive results when we look at the first definition of a common currency. Indeed, in Table 2b, where a 2002 definition of the currency union was used, it was found that the effect on trade declined noticeably but remained significant compared to the results of Table 2a. This result is suggestive the main effects come from adopting a fixed exchange rate, than a common currency as such. Regarding controls, it is found that the coefficients for economic mass and distance remained unchanged. That is, the coefficient for total size indicated that trade increased with size but that, once other variables were accounted for, the increase was less than proportionate (0.93/0.84), meaning that the ratio of trade to output (openness) fell by 1-0.93/0.84 for every 1 per cent increase in size.

Table 2a. Gravity Trade Equations of Spanish Regions (Total, Imports, and Exports) (OLS) N=1768

	T_{ij} (Total Trade)				X_{ij} (Exports)				M_{ij} (Imports)			
	Traditional		Augmented		Augmented		Traditional		Augmented		Traditional	
	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value
CU_{99}	0.45[a]	5.65	0.43[a]	5.69	0.41[a]	5.43	0.42[a]	4.97	0.50[a]	5.87	0.52[a]	6.00
Y_iY_j	0.93[a]	6.84	1.01[a]	7.73	0.48[a]	3.76	0.46[a]	3.16	1.78[a]	12.35	1.67[a]	11.41
N_iN_j	-0.17	-1.23	-0.27	-2.04	0.29[b]	2.19	0.35[b]	2.34	-1.03[a]	-6.97	-0.90[a]	-5.98
D_{ij}	-0.81[a]	-11.11	-0.66[a]	-9.46	-0.76[a]	-10.91	-0.97[a]	-12.55	-0.71[a]	-9.14	-0.83[a]	-10.52
Border			1.69[a]	8.15	1.73[a]	8.39			1.77[a]	7.69		
Island			-1.25[a]	-10.63	-2.29[a]	-19.72			-0.74[a]	-5.68		
Latitude			0.01[a]	2.88	0.01[a]	3.96			0.01[b]	2.11		
Intercept	4.04[a]	7.24	3.64[a]	6.82	4.37[a]	8.27	4.73[a]	7.95	0.33	0.56	0.78	1.29
Adj. R^2	0.24		0.3111		0.41		0.2459		0.274		0.232	
F-Test	135.78		114.95		176.5		143.62		95.05		133.16	
Hausman-Hu Endogeneity Test	0.262		0.846		0.07		0.41		8.63[a]		7.84[a]	

Notes: Several specifications were made adding a trend variable, but none proved significant. [a]Significant at 1% Level, [b]Significant at 5% Level.

Table 2b. Gravity Equations for Trade of Spanish Regions (Total, Imports, and Exports) (OLS) N=1768

	T_{ij} (Total Trade)				X_{ij} (Exports)				M_{ij} (Imports)			
	Traditional		Augmented		Traditional		Augmented		Traditional		Augmented	
	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value
CU_{2002}	0.32[a]	3.92	0.30[a]	3.81	0.30[a]	3.42	0.28[a]	3.59	0.34[a]	3.87	0.31[a]	3.640
Y_iY_j	0.84[a]	6.16	0.92[a]	7.06	0.37	2.58	0.41[a]	3.15	1.57[a]	10.68	1.68[a]	11.650
N_iN_j	-0.08	-0.58	-0.19	-1.42	0.43[a]	2.90	0.37[a]	2.76	-0.80[a]	-5.29	-0.94[a]	-6.320
D_{ij}	-0.80[a]	-10.89	-0.65[a]	-9.23	-0.96[a]	-12.35	-0.75[a]	-10.69	-0.82[a]	-10.30	-0.69[a]	-8.920
Border			1.72[a]	8.24			1.76[a]	8.49			1.80	7.800
Island			-1.25[a]	-10.59			-2.29[a]	-19.63			-0.73	-5.650
Latitude			0.01	2.52			0.01[a]	3.62			0.006	1.750
Intercept	4.41[a]	7.90	3.99[a]	7.49	5.07[a]	8.55	4.70[a]	8.91	1.19[b]	1.97	0.723	1.220
Adj. R^2	0.23		0.30		0.24		0.40		0.22		0.26	
F-Test	130.40		111.29		1439.20		172.50		126.44		90.96	
Hausman-Hu Endogeneity Test	0.55		1.23		0.26		1.17		8.67[a]		7.04[a]	

Notes: Several specifications were made adding a trend variable but none proved significant.
[a]Significant at 1% Level, [b]Significant at 5% Level.

4.3 Regional Heterogeneity

Next, we proceed with reporting elasticity estimates per region. Importantly, we find unexpectedly large regional differences on the elasticity of the effect of a common currency on regional trade. However, estimates do change when further controls are introduced, and only a few regions exhibits consistent and robustness estimates.

In clustering elasticity estimates it was possible to group a first set of regions including Andalusia, Murcia and Navarre where the common currency only affected exports when the 1999 definition of a currency union was used, namely through wiping out exchange rate volatility rather than by the establishment of a currency union. On the other hand, in another group of regions including Catalonia and la Rioja, the common currency affected both imports and exports with elasticity ranging between 0.62 and 0.77. Finally, there was another group that only showed an increase in exports and this was the case for relatively small regions such as the Basque Country, Extremadura, Cantabria and Valencia. However, again some of these effects faded away when the 2002 version of the monetary union was adopted, which suggests that the overall effect of a currency union has to do with the elimination of exchange rate volatility mainly. When both definition of a currency union were estimated together, the second definition measuring pure currency union effects was not significant. Namely, the effect of a common currency is primarily due to exchange rate variability effects.

Table 3. Currency Union Effects on Total Regional Trade, Imports, and Exports by Autonomous Region (coefficients and total-effect estimates) OLS

	$[\exp(\beta_{CU_{1999}})-1]$ (*)			$[\exp(\beta_{CU_{2002}})-1]$ (*)		
	T_{ij}	X_{ij}	M_{ij}	T_{ij}	X_{ij}	M_{ij}
Andalusia	0.38	0.28	0.49[a]	0.28	0.12	0.44[b]
Aragon	0.90[a]	0.52	1.32[a]	0.57[b]	0.46	0.71[b]
Asturias	0.59[b]	0.62	0.48	0.53	0.41	0.50
Balearic Islands	0.18	0.22	0.14	0.12	0.11	0.06
Canary Islands	0.00	0.01	0.03	-0.24	-0.31	-0.21
Cantabria	0.67[b]	0.91[a]	0.43	0.50	0.72[b]	0.30
Castile-La Mancha	0.97[a]	0.37	1.38[a]	0.74[a]	0.37	0.76[b]
Castile and Leon	0.90[b]	1.04[b]	0.76	0.64	0.80[b]	0.35
Catalonia	0.83[a]	0.73[a]	1.12[a]	0.63[a]	0.62[b]	0.69[b]
Valencia	0.50[b]	0.40	0.60[b]	0.33	0.27	0.36
Extremadura	0.89[b]	0.52	1.84[a]	0.60	0.40	1.03[b]
Galicia	0.61[b]	1.18[a]	0.33	0.55	0.91[a]	0.34
Madrid	0.38[b]	0.52	0.30	0.18	0.36	0.07
Murcia	0.41	0.19	1.23[a]	0.28	0.14[b]	0.76[b]
Navarre	0.37	0.27	1.23[b]	0.18	0.11	0.48
The Basque Country	0.34	0.48[b]	1.23	0.21	0.31	0.11
La Rioja	1.26[b]	1.26[a]	1.23[a]	0.77[b]	0.77[b]	0.77[b]

[a]Significant at 1% Level, [b]Significant at 5% Level.
Note: (*) The effect estimates indicate the % change in bilateral trade resulting from the fact that a trade pair (Spanish region + EU-13member state) entered a common currency zone.

4.4 Unobserved Heterogeneity

Next, the study report estimates controlling for unobserved heterogeneity and endogeneity (see Tables 4 to 6). Importantly, when a cross-section time series was controlled for, using panel data, the coefficient for the trade effect resulting from the establishment of a common currency dropped significantly. The coefficient shrank to 0.18 (0.15 for exports and 0.25 for imports). When the 2002 version of monetary union was used, the coefficient fell to 0.1. However, the coefficient for economic size was greater than 1. Hence the ratio of trade to output (openness) increased by more than 1% with a 1 per cent increase in size. Importantly, panel estimates suggest that the effect of distance became positive. However, the poor goodness of the fit and the clumsy robustness call for some caution here, in the light of the criticism of the so called 'death of distance' hypothesis (see Disdier and Head, 2008). Border regions and islands were likely to exhibit bilateral trade, possibly due to the effect of the

EMU on touristy activities of the two main Spanish archipelagos. When. Finally, when fixed effects were computed, it was found that the coefficient for trade only remained for imports and dropped significantly to close to 10% for export expansion (see Table 7). This is consistent with previous findings by Baldwin *et al* (2005) showing that specification matters.

Finally, and possibly the most important contribution of the paper is the estimate obtained after controlling for fixed effects namely within regional variation. Importantly, only estimates for a few regions showed a significant common currency effect of on regional trade (see Table 7). These were Catalonia and the Basque Country (exports), and Madrid, Valencia, Murcia, Castile and la Rioja (imports). In many ways, this result is not totally unexpected given that when fixed effects are introduced the variably of existing estimates reflects temporal variation in the data only (Glick and Rose 2002). Furthermore, the regions that exhibit significant estimates are the most trade oriented regions in Spain, which suggest that a common currency tends to improve bilateral EU trade of more open regions. Hence, on this basis it does exert an important impact on the economic geography of European countries. Although the specific effect on growth and economic activity are beyond the scope of this paper.

Table 4. Gravity Equations for Trade of Spanish Regions (Total, Imports, and Exports) (GLS-RE) N=1768

	T_{ij}		X_{ij}		M_{ij}		T_{ij}		X_{ij}		M_{ij}	
	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value
CU_{99}	0.180[a]	7.300	0.149[a]	5.140	0.249[a]	6.700						
CU_{2002}							0.101[a]	4.4	0.054[b]	2.020	0.149[a]	4.300
Y_iY_j	1.134[a]	12.990	0.995[a]	9.810	1.270[a]	9.800	1.266[a]	13.58	1.184[a]	10.970	1.422	10.300
N_iN_j	-0.404[a]	-2.870	-0.206	-1.400	-0.534[a]	-3.030	-0.54[a]	-3.75	-0.395[a]	-2.610	-0.688[a]	-3.770
D_{ij}	0.075[b]	2.100	0.104[b]	2.490	0.025	0.460	0.071[b]	1.96	0.098[b]	2.33	0.019	0.350
Border	2.224[a]	3.950	2.457[a]	4.480	2.088[a]	3.390	2.291[a]	4.05	2.540[a]	4.61	2.168[a]	3.490
Island	-1.362[a]	-4.200	-2.422[a]	-7.680	-0.860[b]	-2.430	-1.36[a]	-4.16	-2.418[a]	-7.63	-0.856[a]	-2.400
Latitude	0.001	1.020	0.001	1.270	0.000	0.440	7.E-05	0.13	0.0004	0.63	0.000	-0.350
Intercept	1.316	1.320	0.373	0.380	0.052	0.050	1.032	1.02	-0.1372	-0.14	-0.299	-0.260
Adj. R^2												
Within	0.31		0.21		0.21		30.00		9.31		0.20	
Between	0.250		0.330		0.230		24.000		0.330		0.220	
Overall	0.250		0.320		0.230		0.240		0.320		0.220	
Wald χ^2_7	785.6		574.210		486.160		785.6		505.580		453.200	

Note: Several specifications were made adding a trend variable, but none proved significant.
[a]Significant at 1% Level, [b]Significant at 5% Level.

Table 5. Gravity Equations for Trade of Spanish Regions (Total, Imports, and Exports) (Hausman-Taylor Estimation) N=1768

	T_{ij}		X_{ij}		M_{ij} (IV)		T_{ij}		X_{ij}		M_{ij} (IV)	
	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value
CU_{99}	0.173 [a]	7.210	0.138 [a]	4.790	0.257 [a]	6.910						
CU_{2002}							0.090 [a]	4.070	0.033 [a]	1.250	0.144 [a]	4.230
Y_iY_j	0.446 [b]	2.340	0.262 [b]	1.620	0.482 [b]	2.390	0.698 [b]	2.520	0.522 [b]	2.690	0.752 [b]	2.380
N_iN_j	0.093 [a]	2.680	0.118 [a]	2.840	0.047	0.880	0.096 [a]	2.780	0.129 [a]	3.160	0.063	1.190
D_{ij}	0.001	0.970	0.001	1.200	0.0004	0.440	0.00002	0.030	0.0003	0.530	-0.0004	-0.470
Border	1.163 [a]	13.360	1.045 [a]	10.140	1.221 [a]	9.180	1.332 [a]	14.290	1.298 [a]	11.980	1.442 [a]	10.240
Island	2.252 [b]	2.620	2.487 [b]	3.940	2.081 [b]	2.690	2.376 [b]	1.780	2.605 [a]	3.170	2.223 [b]	1.540
Latitude	-1.364 [a]	-2.750	-2.423 [a]	-6.670	-0.865	-1.940	-1.359	-1.760	-2.421 [a]	-5.110	-0.862	-1.040
Intercept	1.309	0.890	0.233	0.210	0.108	0.080	1.638	0.720	-0.444	-0.310	-0.064	-0.030
Wald χ^2_7	800.70		519.50		571.500		761./8		449.50		442.600	

Notes: Several specifications were made adding a trend variable, but none proved significant.
[a]Significant at 1% Level, [b]Significant at 5% Level.

Table 6. Gravity Equations for Trade of Spanish Regions (Total, Imports, and Exports) (GLS-FE) N=1768

	T_{ij}		X_{ij}		M_{ij} (IV)		T_{ij}		X_{ij}		M_{ij} (IV)	
	coeff	t-value	Coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value	coeff	t-value
CU_{99}	0.163 [a]	6.450	0.12 [a]	4.01	0.239 [a]	6.150						
CU_{2002}							0.090 [a]	3.89	0.024 [a]	0.9	0.143 [a]	3.980
$Y_i Y_j$	1.373 [a]	7.870	1.17 [a]	5.73	1.411 [a]	5.250	1.66 [a]	9.96	1.49 [a]	7.65	1.814 [a]	7.060
$N_i N_j$	-2.424	-1.540	-0.88	-0.48	-1.925	-0.790	-4.35	-2.79	-2.26	-1.24	-4.779	-1.990
D_{ij}	0.099	2.750	0.16	3.68	0.072	1.300	0.092	2.52	0.15	3.50	0.062	1.110
Intercept	17.589	1.330	4.28	0.28	11.494	0.560	1.032	1.02	13.58	0.88	33.963	1.670
Adj. R^2												
Within	0.31		0.21		0.21		30.00		0.20		0.20	
Between	0.140		0.010		0.050		0.160		0.170		0.120	
Overall	0.120		0.010		0.030		0.150		0.150		0.110	
F-Test (all u=0)	249.0		202.360		118.980		247.4		202.100		118.800	

Note: Several specifications were made adding a trend variable but none proved significant.
[a]Significant at 1% Level, [b]Significant at 5% Level.

Table 7. Currency union effects on total regional trade, imports, and exports by autonomous region (coefficients and total-effect estimates) GLS -FE

	$[\exp(\beta_{CU_{1999}})-1]$ (*)			$[\exp(\beta_{CU_{2002}})-1]$ (*)		
	T_{ij}	X_{ij}	M_{ij}	T_{ij}	X_{ij}	M_{ij}
Andalusia	0.116	0.116	0.073	0.073	0.041	0.083
Aragon	-0.008	-0.068	0.062	-0.030	-0.020	-0.058
Asturias	0.150	0.041	0.297	0.209[b]	-0.086	0.584[a]
Balearic Islands	0.185	-0.077	0.477	-0.020	-0.323	0.197
Canary Islands	0.152[b]	0.448	0.162	-0.086	-0.052	-0.086
Cantabria	0.082	0.162	-0.020	0.130	0.154	0.162
Castile-La Mancha	0.378[a]	0.020	0.699[a]	0.361[a]	0.123	0.405[a]
Castile and Leon	0.092	0.105	0.010	0.006	0.009	-0.039
Catalonia	0.179[a]	0.083[b]	0.553	0.121[b]	0.098[a]	0.246
Valencia	0.136[a]	0.150	0.197[a]	0.093	0.022	0.197[a]
Extremadura	0.285[b]	0.150	0.632[b]	0.236[b]	0.272[a]	0.174[b]
Galicia	0.283	0.094	0.363	0.450	-0.618	0.323
Madrid	0.166[a]	0.105	0.197[a]	0.046	-0.014	0.062
Murcia	0.091	0.041	0.221[a]	0.011	0.042	-0.068
Navarre	0.105	0.020	0.310[b]	-0.055	-0.146[b]	0.116
The Basque Country	0.078[b]	0.234[a]	-0.077	0.067	0.104[b]	0.062
La Rioja	0.538[a]	0.537[a]	0.537[b]	0.456[a]	0.456[a]	0.448[a]

[a]Significant at 1% Level, [b]Significant at 5% Level.
Note: (*) The effect estimates indicate the % change in bilateral trade resulting from the fact that a trade pair (Spanish region + EU-15 member state) entered a common currency zone.

5. Conclusions

This paper has attempted to examine whether the set up of a common currency triggered bilateral trade between regional of a country and other European Union member states from 1997-2004. The main contribution lies in considering the regional dimension of trade flows as well as distinguishing the effect of a common currency resulting from the reduction of exchange rate volatility from purely common currency effects resulting from transaction costs and credibility. The contribution of this paper can be summarised as follows:

First, the effects of a currency union in promoting trade are found to be significant and widely heterogeneous across regions. Particularly, it is found that the set up of a common currency produces regionally concentrated trade effects in more opened regions which implies, that the set up of the euros can potentially change the

geographical of economic activity within Spain by influencing bilateral trade. 70% of Spain's external trade now takes place within the EU but it is distributed very unevenly between autonomous regions.

Second, the magnitude of the effect of a common currency on trade reflects volatility effects primarily. Indeed, although a tangible common currency is hypothetically lending additional credibility effects, they were not found to be large and they even come out insignificant when jointly estimated together with the effect of the introduction of the euro in 1999.

Third, results were sensitive to differences in the model specification. Differences between cross-section and panel-data results confirm the existence of a significant omitted variable or unobserved heterogeneity. This result is consistent with previous work by Baldwin et al (2005). The effects of a common currency on trade are sensitive to alternative specifications, and trade-enhancing effects appear range from 45% to 16%.

Two relevant policy implications can be claimed from this study. First, the EMU has managed to boost the regional trade of the traditional Spanish exporting regions primarily but does not appear to have influenced other regions. This result is suggestive of a further widening of regional disparities in trade related economic activity, which is an important question for further research. Second, the effect of a common currency on trade is driven primarily from the reduction of exchange rate variability, which suggest that a credible arrangement of exchange rate fixing would have produced similar results on trade as those of a common currency. Important extensions for further research include the examination of underlying changes in the destination composition of economic exchange across countries as well as the effect of EMU on non-EMU countries as discussed in Baldwin (2006).

Appendix

Table A1. List of destination countries included in the study

Destination		Spanish autonomous region		Year	
Germany	1.00	Andalusia	1.00	1997.00	1.00
Austria	2.00	Aragon	2.00	1998.00	2.00
Belgium	3.00	Asturias	3.00	1999.00	3.00
Denmark	4.00	Balearic Islands	4.00	2000.00	4.00
Finland	5.00	Canary Islands	5.00	2001.00	5.00
France	6.00	Cantabria	6.00	2002.00	5.00
Greece	7.00	Castile-La Mancha	7.00	2003.00	6.00
Ireland	8.00	Castile and Leon	8.00	2004.00	7.00
Italy	9.00	Catalonia	9.00		
The Netherlands	10.00	Valencia	10.00		
Portugal	11.00	Extremadura	11.00		
UK	12.00	Galicia	12.00		
Sweden	13.00	Madrid	13.00		
		Murcia	14.00		
		Navarre	15.00		
		The Basque Country	16.00		
		La Rioja	17.00		

References

Amuedo-Dorantes, C and Wheeler, M (2001). An empirical analysis of the European Union's impact on Spanish economic performance. *Applied Economics*, 33:1001-1008.

Alesina, Alberto, and Barro, Robert (2002), "Currency Unions," *Quarterly Journal of Economics*, May, 409-436.

Artis, M (2006). *What Do We Now Know About Currency Unions?* CEPR Discussion Paper No. 5677

Baldwin, R, Skudelny, F and Taglioni, D (2005). Trade effects of the euro. Evidence from sectoral data. European Central Bank, Working Paper Series 446.

Baldwin, R. (2006) The euro's trade effects. Working Paper No. 594, ECB, Frankfurt.

Baldwin, R. and D. Taglioni (2006) Gravity for Dummies and Dummies for Gravity Equations. Working Paper No. 12516, NBER, Cambridge.

Berger, H. and Nitsch, V (2005) "Zooming Out: The Trade Effect of the Euro in Historical Perspective", *Ces-ifo Working Paper* 1435, March.

Bougheas, S, Demetriades P O and Morgenroth E L W (1999), "Infrastructure, Transport Costs and Trade," *Journal of International Economics*, 47, 169-189.

Brun, J F, Càrrere C, Guillaumont, P and Jaume de Melo (2005). Has Distance Died? Evidence from a Panel Gravity Model. The World Bank Economic Review, 19(1): 99-120.

Bun, M.J.G. and F.J.G.M. Klaassen (2007) 'The Euro Effect on Trade is not as Large as Commonly Thought.' Oxford Bulletin of Economics and Statistics, 69(4), 473-496.

De Grauwe P. and F. Skudelny (2000), "The Impact of EMU on Trade Flows," *Weltwirtschaftliches Archiv*, 136, 381-397.

Decressin, J and Fatas, A (1995). Regional labor market dynamism in Europe. *European Economic Review*, 39: 1627-55.

De Nardis, S. and Vicarelli C (2003) "The impact of the Euro on Trade: The (early) effect is not so large", *Working Paper* 31/03, ISAE, Rome.

Disdier, A.-C. and K. Head (2008) 'The Puzzling Persistence of the Distance Effect on Bilateral Trade.' Review of Economics and Statistics 90(1), 37-48.

Egger, P and Pfaffermayr, M (2002), "The Proper Econometric Specification of the Gravity Equation: A Three-way Model with Bilateral Interaction," Working Paper, Austrian Institute of Economic Research.

Eichengreen, B G, Masson, P, Bredenkamp, B, Johnston, J, Hamann, E Jadresic, E and Otker, I (1998). Exit Strategies: policy options for countries seeking greater exchange rate flexibility, IMF Occasional Paper No 168.

Evenett, S.J and Keller, W (2002). On Theories Explaining the Success of the Gravity Equation. *Journal of Political Economy*, 110 (2): 218-316.

Faruqee, H. (2004) Measuring the Trade Effects of EMU. Working Papers No. 04/154, International Monetary Fund, Washington.

Fehr, E. and Tyran, J. (2001). Does money illusion matter? *American Economic Review* 91, pp. 1239-1262.

Fitzsimons, E, Hogan, V and Neary, P J (1999), 'Explaining the volume of North-South trade in Ireland: A gravity model approach', *Economic and Social Review* 30(4): 381–401.

Frankel, J(2009). 'The Estimated Trade Effects of the Euro: Why Are They Below Those From Historical Monetary Unions Among Smaller Countries?'. LEQS Paper No. 7, June 2009

Frankel, J (2003) "Experience of and Lessons from Exchange Rate Regimes inEmerging Economies", *NBER Working Paper* 10032.

Frankel, J. and A. Rose (1997) "Is EMU more justifiable ex-post than ex-ante?", *European Economic Review*, 41, 753-60.

Frankel, J. and Rose A (1998) "The Endogeneity of the Optimum Currency Area Criteria", *Economic Journal*, 108, 1009-25.

Frankel, J and Rose A (2002). "Estimating the effect of currency unions on trade and output," *Quarterly Journal of Economics* 117 : 437-466.

Glink, R. and Rose A K (2002), "Does a Currency Union Affect Trade? The Time Series Evidence," *European Economic Review*, 46, 1125-51.

Helliwell, J. F. (1996), 'Do national borders matter for Quebec's trade?', *Canadian Journal of Economics* 29(3), 507–22.

Helliwell, J. (1998). How Much Do National Borders Matter? Washington, D.C.: Brookings Institution Press.

HM Treasury (2003) *UK Membership of the Single Currency – An Assessment of the Five Economic Tests*, CM 5776 London: HMSO, June.

Leamer, E and Levinsohn, J (1995). International Trade: The Evidence. In Grossman, G.M and Rogoff, K (eds). Handbook of International Economics, 3, New York, Elsevier, North Holland.

Matyas, L (1997), "Proper Econometric Specification of the Gravity Model," The World Economy, 20, 363-68.

Melitz, J (2005). North, South And Distance In The Gravity Model, CEPR Discussion Paper Series, 5136

Micco A, Stein, E and Ordoñez, G (2003) "The Currency Union Effect on Trade: Early Evidence from EMU", *Economic Policy*, 37, 317-56.

Mundell, R (1997). Currency Areas, Common Currencies and the EMU. *American Economic Review*, 87: 214-216

Parsley, D and Wei, S (2001). Limiting currency volatility to stimulate goods market integration: a price based approach. NBER Working Paper No. 8468. Cambridge, MA.

Persson, T (2001). Currency unions and trade: how large is the treatment effect? *Economic Policy* 33: 434-448.

Rodrik, D, Subramanian A and Trebbi F(2004). Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development. *Journal of Economic Growth*, 9(2): 131-165

Rose, A (2000). One money, one market: the effect of common currencies on trade. *Economic Policy* 30: 7-45.

Rose, Andrew and van Wincoop, Eric(2001), "National Money as a Barrier to International Trade: The Real Case for Currency Union," *American Economic Review*, 386-90.

Sanz, F (2000) Kalman, A Filter Gravity Equation Approach to Assess the Trade Impact of Economic Integration: The Case of Spain, 1986-1992.

Tenreyro, S and Barro, R (2003), "Economic Effects of Currency Unions", NBER Working Paper 9435.

Thom, R and Walsh, B (2002). effect of a Common Currency on Trade: Lessons from the Irish Experience, 46: 1111-1123.

Viñals, J and Jimeno, J (1996). Monetary union and European unemployment. Discussion Paper 1485, Centre of Economic Policy Research, London.

Recent LEQS papers

Erkan, Ozgur. 'Spain's Referendum on the European Constitutional Treaty: A Quantitative Analysis Within the Conceptual Framework of First and Second Order Elections.' LEQS Paper No. 25, June 2010

White, Jonathan. 'Left, Right and Beyond: The Pragmatics of Political Mapping.' LEQS Paper No. 24, June 2010

Monastiriotis, Vassilis & **Zartaloudis**, Sotirios. 'Beyond the crisis: EMU and labour market reform pressures in good and bad times.' LEQS Paper No. 23, June 2010

Lütz, Susanne & **Kranke**, Matthias. 'The European Rescue of the Washington Consensus? EU and IMF Lending to Central and Eastern European Countries.' LEQS Paper No. 22, May 2010

Hartlapp, Miriam; **Metz**, Julia & **Rauh**, Christian. 'The agenda set by the EU Commission: the result of balanced or biased aggregation of positions?' LEQS Paper No. 21, April 2010

Costa-i-Font, Joan. 'Unveiling Vertical State Downscaling: Identity and/or the Economy?' LEQS Paper No. 20, March 2010

Delanty, Gerard. 'The European Heritage from a Critical Cosmopolitan Perspective. LEQS Paper No. 19, February 2010

Outhwaite, William. 'Europe at 21: Transitions and Transformations since 1989'. LEQS Paper No. 18, January 2010

Lavdas, Kostas A..'Normative Evolution in Europe: Small States and Republican Peace'. LEQS Paper No. 17, January 2010

Schelkle, Waltraud. 'Good governance in crisis or a good crisis for governance? A comparison of the EU and the US'. LEQS Paper No. 16, December 2009

Keating, Michael. 'Second Round Reform. Devolution and constitutional reform in the United Kingdom, Spain and Italy'. LEQS Paper No. 15, December 2009

Hyman, Richard. 'Trade Unions and 'Europe': Are the Members out of Step?'. LEQS Paper No. 14, November 2009

Dani, Marco. 'Economic and social conflicts, integration and constitutionalism in contemporary Europe'. LEQS Paper No. 13, November 2009

Rodríguez-Pose, Andrés & **Krøijer**, Anne. 'Fiscal Decentralization and Economic Growth in Central and Eastern Europe'. LEQS Paper No. 12, October 2009

Cheshire, Paul C. & **Magrini**, Stefano. 'Urban Growth Drivers and Spatial Inequalities: Europe - a Case with Geographically Sticky People. LEQS Paper No. 11, October 2009

McCrea, Ronan. 'The Recognition of Religion within the Constitutional and Political Order of the European Union'. LEQS Paper No. 10, September 2009

Bertola, Guiseppe & **Mola**, Lorenza. 'Services Provision and Temporary Mobility: Freedoms and Regulation in the EU' LEQS Paper No. 9, September 2009

LEQS
European Institute
London School of Economics
Houghton Street
WC2A 2AE London
Email: euroinst.LEQS@lse.ac.uk

http://www2.lse.ac.uk/europeanInstitute/LEQS/Home.aspx