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A note on European external imbalances and the euro adoption

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Abstract

In this note, we empirically investigate the effects of the euro adoption in the current account in the Eurozone (EA). As a whole, EA countries have presented a current account close to balance. However, at the individual level, EA countries have presented significant and persistent divergences in their current account balances. We implement a differences-in-differences approach using EU-27 and OECD high-income countries as control groups with robust estimation techniques. Our results show evidence of significant effects of the euro adoption in the current account for the EA-12 countries, especially for the GIIPS (Greece, Italy, Ireland, Portugal, and Spain) countries. Moreover, the current account balance in the euro period is positively related to the current account balance of the pre-euro era.

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1. Introduction

The global financial crisis and the European sovereign debt crisis have had a greater impact in those southern European countries presenting systematic current account deficits and other macroeconomic imbalances. This is, in aggregate terms, the European Union (EU) and the EA have presented a current account close to balance. However, member countries presented significant and persistent external imbalances. In addition, other macroeconomic variables have shown diverging trends such as productivity growth, inflation rates, labour costs or industrial production (Carrasco and Serrano, 2015). One of the main explanations focuses on the catching-up process of the relatively lesser-developed countries of the EA toward the relatively more-developed countries. (Blanchard and Giavazzi, 2002; Campa and Gavilan, 2011; Schmitz and von Hagen, 2011; Belke and Dreger, 2013). In one of the pioneer studies of European imbalances, Blanchard and Giavazzi (2002) highlight that the convergence hypothesis is the main explanation for current account imbalances within the EA. However, more recently, Belke and Dreger (2013), after analysing the catching-up hypothesis, note that catching-up explains only a small part of the imbalances while the main cause is found in the divergence in competitiveness and relative government debt, particularly in deficit countries.

The process of financial integration within the European Economic and Monetary Union (EMU) (Cingolani, 2013) helped in the gestation of the divergences (Schmitz and von Hagen, 2011). The positive impact of euro introduction (Lane and Milesi-Ferretti, 2007; Lane, 2013) encouraged capital flows towards the Southern European economies creating diverging imbalances in external positions of EMU countries.

This note aims to contribute in the debate about the role of the euro adoption in the origin of the external imbalances. We implement a differences-in-differences (D-D) approach to analyse the significance of the single currency adoption in the evolution of the current account. In addition, we investigate the relationship between the current accounts in the pre- and post-euro periods. Our results show evidence of significant effects of the euro adoption in the current account for the EA-12 countries, especially for GIIPS countries (Greece, Ireland, Italy, Portugal and Spain). Moreover, the current account in the euro period is positively related to the current account of the pre-euro era which gives evidence of the presence of a structural component in the current account divergences.

2. Methodology and Data

We applied the D-D approach implemented by Ball and Sheridan (2005) for the analysis of the effect of the euro adoption on the current account imbalances. In a two way fixed-effects panel model, the current account ($CA_{t,i}$) of country i in time t is given by:

$$CA_{t,i} = a_1 + a_2 D_{t,i} + \phi_i + \varphi_t + \varepsilon_{t,i} \qquad (1)$$

Where ϕ_i is the individual effect, φ_t is the time effect, $\varepsilon_{t,i}$ is an error term for country i in time t and $D_{t,i}$ is a dummy variable taking the value of 1 if the country i has adopted the euro in t and 0 otherwise. There are only two period, pre-euro and post-euro. Differentiating Equation 1, we have:

$$CA_{Post} - CA_{\mathrm{Pr}e} = (\varphi_{Post} - \varphi_{\mathrm{Pr}e}) + \alpha_2 (D_{Post,i} - D_{\mathrm{Pr}e,i}) + (\varepsilon_{Post,i} - \varepsilon_{\mathrm{Pr}e,i}) \qquad (2)$$

Being $E_i = (D_{Post,i} - D_{\mathrm{Pr}e,i})$ then, we have:

$$CA_{Post} - CA_{\mathrm{Pr}e} = (\varphi_{Post} - \varphi_{\mathrm{Pr}e}) + \alpha_2 E_{\mathrm{Pr}e,i} + (\varepsilon_{Post,i} - \varepsilon_{\mathrm{Pr}e,i}) \qquad (3)$$

Following Ball and Sheridan (2005), we can interpret Equation 4 as the cross-country estimator of Equation 3 plus the added $CA_{pre,i}$ regressor in order to avoid a regression to the mean problem.

$$CA_{Post,i} - CA_{\Pr e,i} = \alpha_1 + \alpha_2 E_i + \alpha_3 CA_{\Pr e,i} + \mu_i \quad (4)$$

In addition to the D-D approach, we investigate the relationship between the pre-euro current account and the post-euro current account. Current account imbalances in the post-euro adoption could not uniquely be caused by the euro adoption or cyclical factors, but had to be caused by the presence of a structural component prevailing in the pre and in the post-euro periods.

$$CA_{Post,i} = \beta_1 + \beta_2 CA_{\Pr e,i} + \beta_3 E_i + \nu_i \quad (5)$$

We implement M-estimation (Huber, 1973) and MM-estimation (Yohai, 1987) robust least squares which are characterised by being less sensitive to outliers. We analyse the effects of the euro adoption in the current accounts of the Euro Area-12 member countries (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherlands, Portugal and Spain). We use two groups of countries as controls. First, we control by using the (other) EU-27 member countries (Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, Sweden and United Kingdom). However, the enlargement of the EU could bias the results due the heterogeneity of the new member countries and their particular characteristics. Therefore, we use a second control group composed of the OECD high-income member countries[1] before 2007 (Australia, Canada, Czech Republic, Denmark, Japan, New Zealand, Norway, Poland, Slovakia, Sweden, Switzerland, United Kingdom and United States), excluding Iceland and Korea due lack of data.

We obtained the data for the EU countries from Eurostat and for the non-EU countries from OECD statistics. In order to maximise the number of data observations and sample countries, we focus in the period 1995-2007. We restrict our analysis until 2007 in order to avoid the effects of the international financial crisis and the European sovereign debt crisis. Following the methodology above described, the beginning of the second period of the non-Eurozone countries is the average year of the euro adoption (see Table I).

[1] According to the World Development Indicators classification.

Table I. Net current account (% of GDP, full period 1995-2007)

Eurozone member countries before 2007				
Country	Entrance into the Eurozone	Initial Current Account	Final Current Account	Change in Current Account
Austria	1999	-2.48	1.32	3.80
Belgium	1999	5.28	3.27	-2.01
Finland	1999	4.63	5.88	1.25
France	1999	1.88	0.59	-1.29
Germany	1999	-0.75	2.71	3.46
Greece	2001	-4.15	-8.51	-4.36
Ireland	1999	2.13	-1.64	-3.77
Italy	1999	2.45	-0.46	-2.91
Luxemburg	1999	10.78	10.32	-0.45
Netherlands	1999	5.35	5.30	-0.05
Portugal	1999	-4.30	-9.26	-4.96
Spain	1999	-0.45	-5.47	-5.02
Mean	1999	1.70	0.34	-1.36
Eurozone member countries since 2007 and afterwards (in brackets the year of adoption) and other EU-27 countries				
Country	Euro adoption average	Initial Current Account	Final Current Account	Change in Current Account
Cyprus (2008)	1999	-2.25	-5.11	-2.86
Estonia (2011)	1999	-8.10	-9.92	-1.82
Latvia (2014)	1999	-5.00	-11.87	-6.87
Malta (2008)	1999	-7.80	-5.52	2.28
Slovakia (2009)	1999	-6.63	-6.72	-0.10
Slovenia (2007)	1999	-0.10	-1.76	-1.66
Bulgaria	1999	1.30	-9.34	-10.64
Czech Republic	1999	-4.23	-3.98	0.25
Denmark	1999	0.45	2.67	2.22
Hungary	1999	-4.05	-7.60	-3.55
Lithuania	1999	-9.75	-8.12	1.63
Poland	1999	-2.30	-4.39	-2.09
Romania	1999	-6.15	-7.02	-0.87
Sweden	1999	3.33	6.24	2.92
United Kingdom	1999	-0.63	-2.29	-1.66
Mean	1999	-3.46	-4.98	-1.52
High-income OECD member countries (before 2007)				
Country	Euro adoption average	Initial Current Account	Final Current Account	Change in Current Account
Australia	1999	-3.96	-5.00	-1.04
Canada	1999	-0.81	1.53	2.34
Czech Republic	1999	-4.23	-3.98	0.25
Denmark	1999	0.45	2.67	2.22
Japan	1999	2.20	3.26	1.06
New Zealand	1999	-4.18	-4.41	-0.23
Norway	1999	4.17	13.19	9.02
Poland	1999	-2.30	-4.39	-2.09
Slovakia	1999	-6.63	-6.72	-0.10
Sweden	1999	3.33	6.24	2.92
Switzerland	1999	7.82	11.31	3.50
United Kingdom	1999	-0.63	-2.29	-1.66
United States	1999	-1.75	-4.56	-2.81
Mean	1999	-0.50	0.53	1.03

Note: Iceland and Korea are excluded for the OECD country analysis due unavailable data. Source: Eurostat for EU countries and OECD stats for non-EU countries

3. Results

In Table II we present results for different specifications of the D-D approach as in Equation 4. In the first part, Table II shows specifications for the EU-27 sample, while the second part shows the results for the OECD high-income sample. The results of the EU-27 sample show that the dummy variable for the euro adoption is not statistically significant and the null hypothesis of the Rn-squared, the robust version of the Wald test, is not rejected. However, when we introduce a GIIPS dummy (for Greece, Ireland, Italy, Portugal and Spain) composed of the countries presenting higher vulnerability in the recent crisis, or a core dummy (for Austria, Belgium, Finland, France, Germany, Luxembourg and Netherlands), the results change. GIIPS and core dummies are statistically significant and the null for the Rn-squared is rejected. The GIIPS dummy is statistically significant with a negative sign. In other words, those countries are characterised by a worse external position (-3.98). In the case of the core countries, the core dummy is statistically significant and the core countries present a better external position (4.56). However, the results should be taken with care due the characteristics of the EU enlargement process and those of the new EU countries which, to some extent, could bias the estimations. Therefore, in the second part of Table II we present estimates using the OECD high-income countries as a control group, where the structural heterogeneity is lower than in the case of the EU-27. In this case, the results show the individual and joint significance of the euro dummy and initial current account. The euro countries have a worse current account (-3.96) in terms of the control group. The initial current account is statistically significant and presents a positive sign. Thus, there is a positive relationship between the current account in the pre-euro period and the change in the current account. When estimating using a GIIPS dummy, that variable is statistically significant. That is, the GIIPS countries have a worse current account (-4.59) than the control group. Moreover, when using the core dummy, estimates reflect the lack of individual and joint significance.

Table II. Differences-in-differences estimations

Dependent variable: change in current account								
Control groups:	EU-27				OECD High Income countries			
Constant (*z-statistic*) [Prob.]	-1.0606 (-1.2392) [0.2153]	-0.4789 (-0.4692) [0.6390]	-0.2026 (-0.3671) [0.7135]	-2.8942 (-3.7753) [0.0002]	0.6844 (0.8007) [0.4233]	0.8097 (1.3517) [0.1765]	0.4652 (0.9036) [0.3662]	-0.5168 (-0.6672) [0.5046]
Euro dummy (*z-statistic*) [Prob.]	-0.4184 (-0.3259) [0.7445]	-1.3373 (-0.8752) [0.3815]			-2.1766 (-1.7642) [0.0777]	-3.9644 (-4.4438) [0.0000]		
Initial CA (*z-statistic*) [Prob.]		0.1102 (0.6841) [0.4939]	0.0222 (0.2163) [0.8288]	-0.2719 (-1.8594) [0.0630]		0.3515 (3.3150) [0.0009]	0.0918 (0.8419) [0.3999]	0.1539 (0.8916) [0.3726]
GIIPS dummy (*z-statistic*) [Prob.]			-3.9867 (-3.1935) [0.0014]				-4.5894 (-4.004) [0.0001]	
Core dummy (*z-statistic*) [Prob.]				4.5659 (2.9032) [0.0037]				0.5618 (0.3477) [0.7281]
Robust R-squared	0.0029	0.0158	0.2720	0.1961	0.1084	0.2989	0.4122	0.0649
Rw-squared	0.0044	0.0341	0.4155	0.3082	0.1447	0.6095	0.5256	0.0753
Rn-squared statistic	0.1062	0.8276	10.2123	8.4625	3.1123	24.7298	18.4043	1.4758
Prob. (Rn-squared)	0.7445	0.6611	0.0061	0.0145	0.0777	0.0000	0.0001	0.4781
Method:	MM-Est	MM-Est	M-Est	MM-Est	MM-Est	MM-Est	M-Est	M-Est

Estimates show a statistically significant positive relationship between the initial current account and the change in the current account. In addition to those estimations, in Table III

we present the results of estimating Equation 5. What is the relevance of estimating the relationship between the current account balances in the post-euro period as a function of the current account in the period before the euro adoption? The answer is that if the above relationship (Equation 5) is individually and jointly significant, there would be evidence of a structural component in the current account beyond cyclical factors which has remained in the post-euro period. According to Table III, an increase of 1 in the initial current account leads to an increase of close to 1 in the current account of the euro period. This relationship is statistically significant and is maintained in the different specifications. The euro dummy is statistically significant when we take the OECD high-income countries as a control group. Finally, in the last part of Table III we present the estimation results for the EA-12. In this case, the GIIPS dummy variable is significant and shows that this group of countries has a worse current account than that of the core countries and has maintained the significance of the initial current account.

Table III. Final-Initial Current Account

Dependent Variable: Final CA						
Control groups:	EU-27		OECD high income countries		Euro Area-12	
Constant (*z-statistic*) [Prob.]	-1.2591 (-1.9025) [0.0571]	-0.4789 (-0.4692) [0.6390]	-0.3735 (-0.5762) [0.5645]	0.7749 (1.4890) [0.1365]	-2.8762 (-3.2838) [0.0010]	1.3939 (1.6026) [0.1090]
Initial CA (*z-statistic*) [Prob.]	1.0173 (7.4644) [0.0000]	1.1102 (6.8920) [0.0000]	1.1801 (7.7206) [0.0000]	1.3449 (14.5987) [0.0000]	1.3168 (6.8697) [0.0000]	0.8026 (5.4797) [0.0000]
Euro dummy (*z-statistic*) [Prob.]		-1.3373 (-0.8752) [0.3815]		-4.0299 (-5.1991) [0.0000]		
GIIPS dummy (*z-statistic*) [Prob.]						-5.7943 (-4.5963) [0.0000]
Robust R-squared	0.6281	0.6125	0.6724	0.6604	0.5632	0.8519
Rw-squared	0.7379	0.7771	0.7610	0.9437	0.8875	0.9325
Rn-squared statistic	55.7167	59.1958	59.6071	215.1883	47.1931	103.8659
Prob. (Rn-squared)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Method:	MM-Est	MM-Est	MM-Est	M-Est	MM-Est	MM-Est

4. Concluding remarks

In this article we analyse the effects of the single currency introduction in the current account of the EA-12. Our results show evidence of significant effects of the euro adoption in the current account for the EA-12 countries, especially for GIIPS countries. In addition, the current account in the post-euro period is positively related to the current account of the pre-euro period. Those results give evidence of the presence of a structural component in the current account divergences which has prevailed in the pre- and post-euro periods. The main implication is that the policy implemented to address these imbalances must contemplate the structural origin of the external disparities. However, future research must focus on clarifying the structural source of the intra-European imbalances to successfully cope with them.

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