



THE LONDON SCHOOL  
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LSE 'Europe in Question' Discussion Paper Series

# Income Inequality and Macroeconomic Imbalances under EMU

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LEQS Paper No. 110/2016

May 2016





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# Income Inequality and Macroeconomic Imbalances under EMU

Benedicta Marzinotto \*

## Abstract

This paper explains the build-up and reversal of euro area macroeconomic imbalances by considering the interaction between the underlying income distribution in each country and EMU-induced financial liberalization. The argument is that the sharp increase in money supply since the early 1990s had the effect of relaxing collateral constraints for illiquid lower-income groups, whilst having no specific impact on other households. The former started over-borrowing against optimistic expectations about their future income. It follows that unequal countries such as Greece, Ireland, Italy, Portugal and Spain - where the share of lower-income groups is relatively high - had greater private debt burdens and worse external positions than equal countries. Consequently, current account reversal was asymmetric because the crisis forced these indebted households to abruptly reduce consumption not least because they were the first to be pulled out of the labour market and hardly had financial buffers. The hypothesis is tested using a difference-in-difference approach to panel data.

**Keywords:** current account, income inequality, financial liberalization, debt leverage, difference-in-difference

**JEL Codes:** F32, F41, E2

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# Income Inequality and Macroeconomic Imbalances under EMU

## 1. Introduction

The period following the introduction of the Euro left the euro area divided into a periphery with uncontrolled fiscal deficit and debt dynamics, highly leveraged households and firms, fragile banking systems and strong wage and price growth; and on the other hand, a core with conservative public finances, modest private debt indebtedness, relatively stable banking systems and moderate wage and price growth. This dichotomy was well reflected in macroeconomic imbalances, which are sensitive to changes in quantities as well as in prices. Peripheral countries such as Greece, Ireland, Portugal, Spain, and to a lesser extent Italy have been suffering from current account deficits since the introduction of the single currency and up to around 2011, after which these started reversing. On the other hand, core countries especially Austria, Finland, Germany and the Netherlands benefited from sustained surpluses that but did not go through a symmetric adjustment.

This paper aims to identify a common explanation for both the build-up and the asymmetric reversal of macroeconomic imbalances. The focus is on factors driving credit demand and in turn household debt leverage. The immediate reference literature is the one according to which credit demand in the periphery was driven by a standard catching up story, with low-income countries getting indebted for inter-temporal consumption purposes (Blanchard and Giavazzi 2002; Fagan and Gaspar 2007, 2008). However,

compared with this literature, we depart from a representative-agent framework and account for the fact that household indebtedness is likely to vary along the income distribution, being concentrated at the bottom of the distribution especially in unequal countries, as supported by the empirical evidence (HFCN 2013; Lebartz 2014). We also relate to the literature that has found a positive association between inequality and current account deficits (Kumhof et al 2012).

The argument developed in this paper is that peripheral countries imported large amounts of capital from abroad, hence their current account deficits, because they were relatively unequal societies, with a large cohort of lower-income groups that experienced a sudden relaxation of their collateral constraints following financial integration in the early 1990s.<sup>1</sup> The same is not true for relatively equal countries where prior to EMU collateral constraints had not been as biting, and if, only for a smaller share of the population. The hypothesis is tested with a difference-in-difference approach to panel data so as to isolate a causal relation between EMU-induced financial liberalization from around 1995 and imbalances in unequal euro area countries compared with a group of similarly unequal countries that did not go through the same financial shock.

The debate on the origins of euro area imbalances and the mechanism through which they have been unwinding in the periphery and not in the core is not fully settled. There remains fundamental disagreement over their origins, which obviously affects the interpretation of their reversal. Some support the competitiveness hypothesis, according to which imbalances relate to differences in cost competitiveness between the core and the periphery that

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<sup>1</sup> We use the expression “lower-income” to indicate that the phenomenon concerns less wealthy groups, while not necessarily the bottom quintile of the income distribution.



push factors mostly looking at the triggers of credit supply by core countries such as the expected rate of return (Abiad et al 2009; Giavazzi and Spaventa 2010; Jaumotte and Sodsriwiboom 2010; Schmitz and Von Hagen 2011). Others are concerned with credit demand and support the idea that catching-up countries in the euro area periphery borrowed from abroad against optimistic expectations about their future growth (Blanchard and Giavazzi 2002; Fagan and Gaspar 2007, 2008; Schmitz and Von Hagen 2011; Lane and Pels 2012). Yet, these studies treat countries like homogenous blocks and fail to recognize the role of heterogeneity of households in each country. So, for example, there is evidence that the propensity to get indebted varies along the income distribution, with household debt leverage generally concentrated at the bottom of the income distribution, especially in unequal countries (HFCN 2013; Lebartz 2014).<sup>2</sup> This seems like an important dimension in light of the fact that the macroeconomic consequences of household indebtedness would fundamentally depend upon who holds debt (Eggertsson and Krugman 2012).

This paper builds on the credit-demand version of the capital-flow hypothesis but extends it by accounting for heterogeneity and, more precisely, for how the country-specific shape of the income distribution affected current account balances. It is argued that EMU is associated with the build-up of sizeable macroeconomic imbalances because financial liberalization taking place in the early 1990s had the effect of inducing a relaxation of collateral constraints for categories of households that had been until then excluded from credit, i.e. mostly lower-income groups. It follows that unequal countries - where the share of the lower-income credit-constrained group was high to start with - were bound to get more indebted to the outside than relatively equal

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<sup>2</sup> The Household Finance and Consumption Network (HFCN) provides comparable cross-country information on the distribution of debt-to-income or debt-to-asset for the year 2010.

countries. The same perspective is useful to understand the reversal of current account deficits, as the crisis and the ensuing credit constraints forced deleveraging onto the same portion of the population that got indebted in the first place and that had no alternative but to restrain consumption considering that lower-income/skill workers were the first to be pulled out of the labour market and hardly had financial buffers.

The rest of the paper is structured as follows. Section 2 discusses the literature on euro area macroeconomic imbalances. Section 3 presents suggestive empirical evidence. Section 4 discusses the empirical strategy and the results, while also looking at the dynamics of reversal. Section 5 concludes.

## 2. Review of the literature

There is a growing literature looking at the reasons behind the build-up of macroeconomic imbalances in Europe as well as globally. As divergences in Europe became both significant and persistent starting with the 1990s, the general consensus is that the monetary union itself played a role in this dynamics. In a nutshell, two alternative explanations are provided to account for the extraordinary accumulation of imbalances in coincidence with the beginning of EMU.<sup>3</sup> One of them associates the monetary union with the loss of the exchange rate and states that current account deficits in the periphery and current account surpluses in the core reflect differences in price and cost competitiveness. The other explanation focuses on capital mobility, with

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<sup>3</sup> We avoid providing a theoretical account of sources of macroeconomic imbalances that are likely to be unrelated to European monetary unification (e.g. twin-deficits hypothesis, demographics, etc.), but we include them as control variables in the econometric exercise that follows.

capital flowing out of the core in search for high returns and into the periphery where the expectation of higher future income created the perception that debts could be easily paid back.

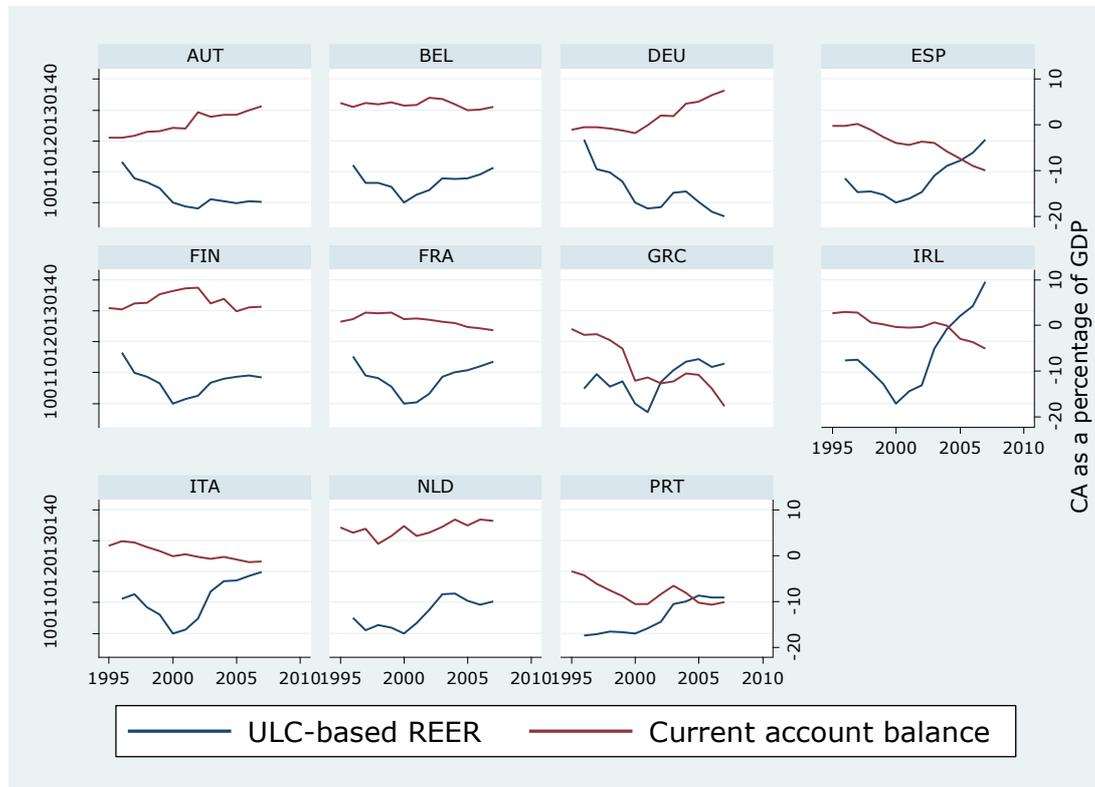
### 2.1. The competitiveness hypothesis

Supporters of the competitiveness hypothesis argue that the loss of the exchange rate as a policy instrument brought to light fundamental cross-country differences in price and cost competitiveness. Countries in the core were competitive already before the single currency was introduced: they had for example hard currency regimes, which reflected the fact that they did not need to use the exchange rate for external adjustment. On the other hand, countries in the periphery relied extensively on devaluation to recoup competitiveness and are found to have suffered from the loss of the exchange rate as a policy instrument. This is reflected in the strong statistical relationship that the literature finds between real exchange rates and current account balances (Zemanek, Belke and Schnabel 2009; Belke and Dreger 2011).

The competitiveness hypothesis has been criticised on a number of fronts. For example, Gros (2011) and Gaulier and Vicard (2012) suggests that unit labour costs (ULC) are in fact poor predictors of exports. Gabrisch and Staehr (2014) show convincingly that rising ULC follow from capital inflows rather than being the cause of current account deficits in peripheral member states. More specifically, the competitiveness hypothesis is unable to account for the Spanish and the Irish performance, whose cost competitiveness in the early 1990s improved on the back of a deteriorating current account balance (Figure 1). Finally, existing evidence shows that the reversal of current account deficits was mainly driven by a dramatic drop in domestic demand (Lane and Milesi-Ferretti 2011), rather than being preceded by a fall in relative prices

which fails to confirm that macroeconomic imbalances solely reflect, possibly with a lag, cross-country differences in cost competitiveness.

**Figure 1: Current accounts and ULC-based REER, 1995-2007, EA**



Source: Own elaboration based on AMECO Database. The sample includes all countries that participated in the first wave of EMU plus Greece.

## 2.2. The capital-flow hypothesis

An alternative way of looking at macroeconomic imbalances is to consider them as mirroring capital flows. Under this framework, deficit countries are importers of capital, while surplus countries are net exporters. The argument there is as follows: the opening up of the capital account together with the elimination of exchange rate risks made it possible for capital to move freely across the union, with the result that capital flew from high-income countries, where the return to investment is lowest because of decreasing returns to scale, to low-income countries, where return is instead highest. This is

described as a standard downhill flow of capital, a process that is fully driven by market dynamics and that would allow low-income countries to catch up with the rest of the union (Abiad et al 2009; Giavazzi and Spaventa 2010; Jaumotte and Sodsriwiboom 2010; Schmitz and Von Hagen 2012).

While the “downhill flow of capital” story focuses on credit supply, the symmetric argument on the credit demand side is that low-income countries that join an integrated economic area would borrow from outside to finance consumption in the expectation that they will be able to pay their debt in the future. Blanchard and Giavazzi (2002) and Fagan and Gaspar (2007, 2008) have explained private debt accumulation and current account deficits in the South of Europe by alluding to the fact that low-income countries would tend to engage in inter-temporal consumption. . Schmitz and Von Hagen (2012) confirm that differences in per capita income are the main drivers of the imbalances. Lane and Pels (2012) show that growth expectations of consumers in the periphery played a key role, whilst but being over-optimistic. The end-result is the same found in studies looking at credit supply: capital is flowing from the high-income core to the low-income periphery of the euro area.

Whether it is credit supply or demand that is at the centre of the analysis, the common point is nonetheless that macroeconomic imbalances originate in the capital account with the main shock coming from financial liberalization rather than from the loss of the exchange rate. This general hypothesis is but incomplete or not fully satisfactory in a number of respects. Firstly, the evidence indicates that low-income countries have been importing capital, arguably for inter-temporal consumption purposes, also before capital controls were fully in the early 1990s.<sup>4</sup> Secondly, the credit-demand version

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<sup>4</sup> For a discussion of the evidence see Section 3.

fails to explain why countries with similar relative income levels had different external positions. Thirdly, and most importantly given the angle of the present paper, the capital-flow hypothesis is not sufficiently concerned with the role of heterogeneity in each country, especially with the fact that the propensity to borrow tends to vary along the income distribution. The question of who holds the debt is important because it affects the macroeconomic effects of deleveraging. While building on the idea that financial liberalization is the main trigger of imbalances as in the capital-flow hypothesis, we look more closely into country-level structural features.

### 2.3. The capital-flow hypothesis revisited

The mere opening up of credit markets is insufficient to explain the entire debt cycle in the euro area periphery going from accumulation to abrupt deleveraging, being not apt, for example, to account for within-country heterogeneity. We argue, in line with the capital-flow hypothesis, that financial liberalization is a necessary condition for explaining divergence in the euro area but we add that it is per se not a sufficient explanation of imbalances. Our argument is that the country-specific distribution of income - which is the outcome of countries' institutional set-ups - does indeed play a role, with unequal countries of the euro area more likely to borrow from the outside than equal ones in the face of financial liberalization.

The link between income inequality and external positions has been explored before. Kumhof et al (2012) show that idiosyncratic shocks to income distribution induce affected groups to borrow from others both domestically and internationally in order to smooth consumption. The need for well-developed credit markets would thus arise endogenously. Against this

background, top earners are likely to act as intermediaries of foreign capital, which further increases their share of domestic income.<sup>5</sup> This generates the evidence that unequal countries tend to have relatively poor external positions.

Differently from existing analyses, credit supply is here an exogenous shock associated with EMU rather than stemming endogenously from the fact that poor households demand insurance via credit markets. We argue that financial openness during the early 1990s led to strong consumption in unequal countries of the euro area because it was associated with a relaxation of collateral constraints for the large cohort of lower-income groups that populated these countries. The argument is supported by evidence according to which, in unequal countries, debt leverage tends to be concentrated at the bottom of the income distribution (HFCN 2013; Lebartz 2014). This perspective would, among others, explain a large current account deficit in a relatively competitive yet unequal country such as Ireland. The question of who holds debt is important because it can shed light on the macroeconomic effects of deleveraging, as shown in Eggertsson and Krugman (2012). Moreover, our framework helps interpreting the evidence that the correction of current account deficits was mainly achieved via abrupt demand compression. The tentative explanation is indeed that indebted lower-income/skill groups had no alternative but to compress consumption considering that they were first to be pulled out of the labour market and at the same time had no financial buffers. This generated a standard debt cycle going from boom to bust in the unequal periphery, yet not necessarily in the

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<sup>5</sup> It should be noted that this is more likely to happen if foreign capital takes the form of inter- or intra-bank loans as opposed to portfolio or foreign direct investment considering that the latter two may not necessarily require intermediaries.

core of the monetary union, where EMU did not come as a credit shock as much as it did in the former group of countries.

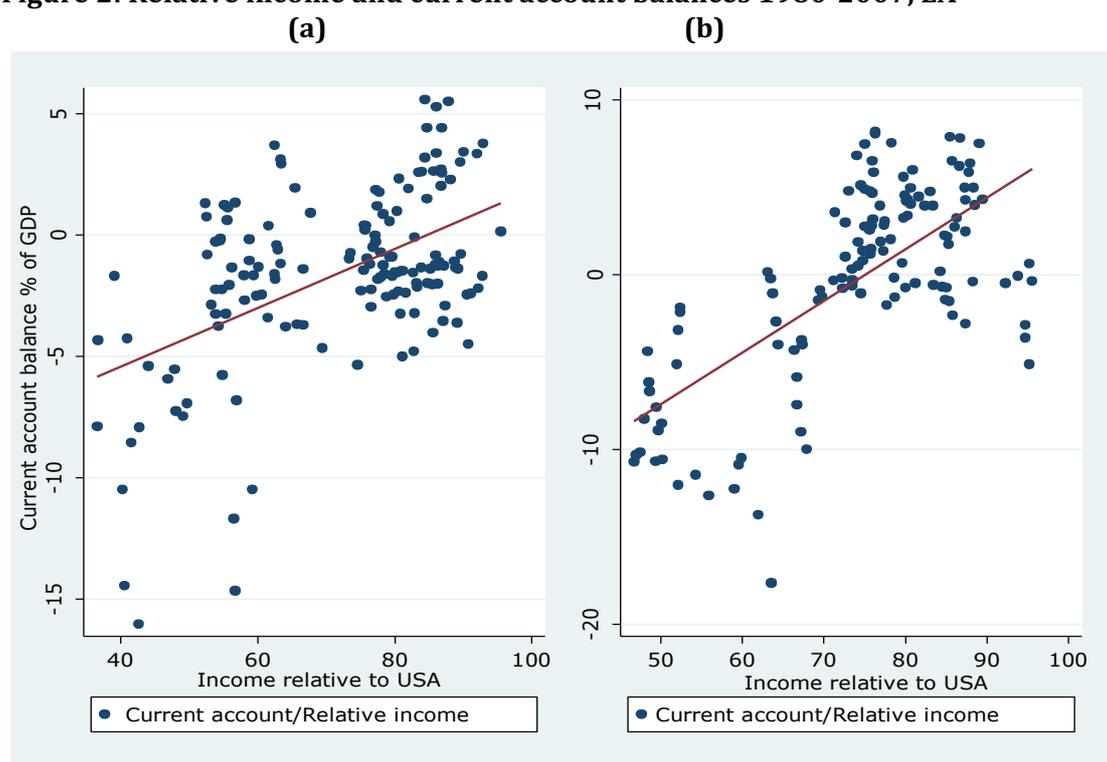
### 3. Empirical motivation

The argument that households in low-income countries get indebted to the outside in the expectation of higher income tomorrow is well supported by the empirical literature that finds that relative per capita income is an important medium-term explanatory variable of current account balances (Debelle and Faruqee 1996; Chinn and Prasad 2003; Abiad et al 2009; Jaumotte and Sodsriwiboom 2010; Schmitz and Von Hagen 2011). This line of reasoning is for example at the core of the capital-flow hypothesis described above.

However, per capita income is incapable of explaining, for example, why countries with comparable per capita income level have been importing different amounts of foreign capital. More to the point, the evidence shows that the catching up of the periphery has been a standing feature of the EU since the 1980s, hence including the period before full capital mobility. Figure 2 sketches the relationship between per capita income relative to the US expressed in purchasing power parity (PPP) and the current account balance as a proportion of GDP over 1980-2007. The sample includes all countries that entered EMU in the first wave plus Greece over 1980-2007 distinguishing between two sub-periods, 1980-1994 (Figure 2a) and 1995-2007 (Figure 2b). We choose the year 1995 to isolate the beginning of full capital mobility, as this is the average time around which the capital account is significantly liberalised for most prospective EMU members, as recorded by the so-called

Chinn-Ito index.<sup>6</sup> The data indicate that relatively low-income countries tend to have worse external positions than high-income countries, whether capital markets are partially liberalized as in the period 1980-1994 (Figure 2a) or fully liberalized as in 1995-2007 (Figure 2b). That low-income countries import capital possibly to engage in inter-temporal consumption thus predates EMU.

**Figure 2: Relative income and current account balances 1980-2007, EA**



Source: Own elaboration based on AMECO Database and Penn World Tables. The sample includes all countries that participated in the first wave of EMU (AT, BE, FI, FR, DE, IE, IT, LU, NL, PT, ES) plus Greece.

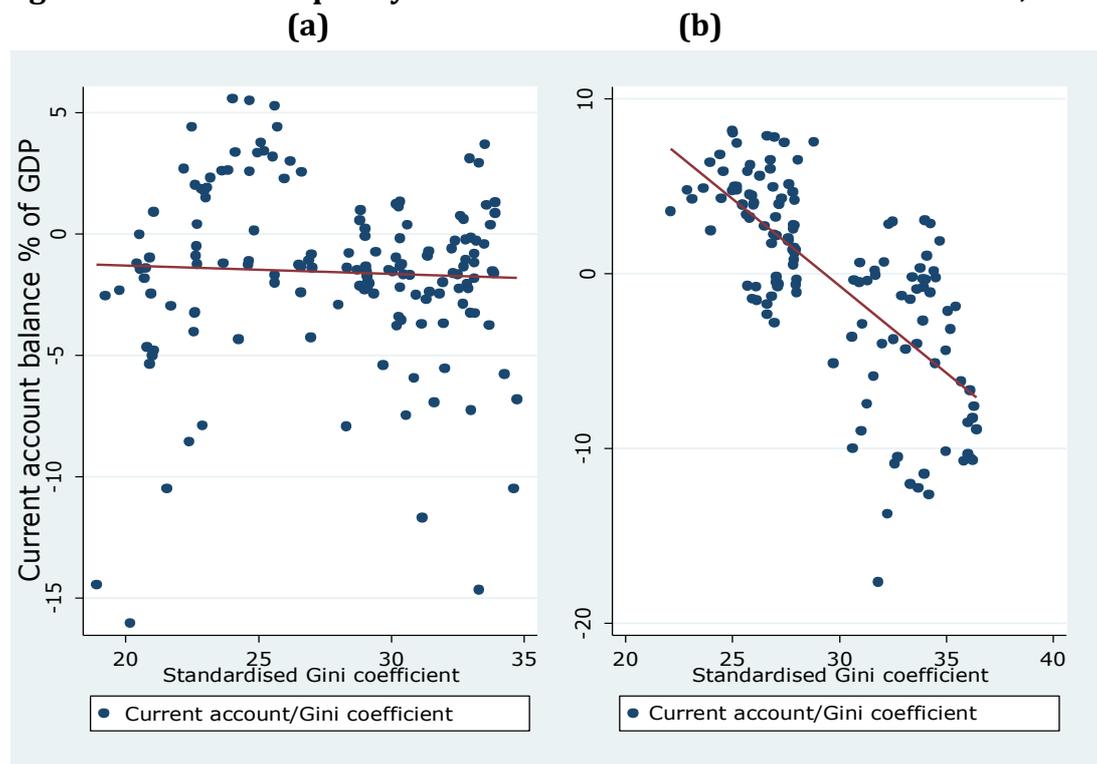
By contrast, a time break characterises the relationship between income inequality and current account positions. Figure 3 displays the link between the standardized Gini coefficient and the current account balance as a

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<sup>6</sup> The Chinn-Ito index is a *de jure* measure of financial openness as captured by the number of restrictions on cross-border financial transactions as reported in the IMF's Annual Report on Exchange Rate Arrangements and Exchange Restrictions. Greater values indicate that a country is more open to cross-border financial transactions (Chinn and Ito 2006).

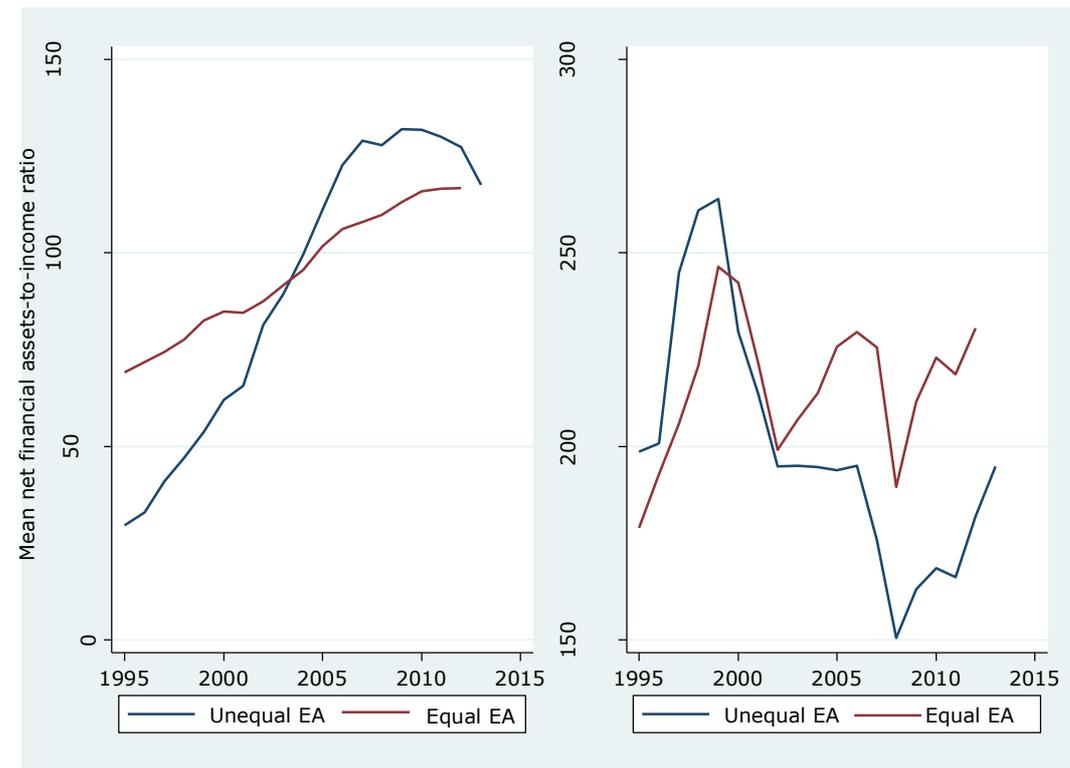
proportion of GDP over 1980-2007.<sup>7</sup> The sample is the same used in the previous figure and the beginning of financial liberalization is again set in 1995. In this case, it does matter whether capital markets are partially (Figure 3a) or fully liberalized (Figure 3b). Prior to full capital mobility, there is no relation between the distribution of income and the external balance. Yet, this becomes significant and negatively signed following the opening up of capital accounts as of 1995, with high inequality associated with worse current account balances. The evidence is suggestive of a “special” interaction between financial deregulation, the shape of the income distribution and current account balances.

**Figure 3: Income inequality and current account balances 1980-2007, EA**



Source: Own elaboration based on AMECO Database and Standardised World Income Inequality Database. The sample includes all countries that participated in the first wave of EMU (AT, BE, FI, FR, DE, IE, IT, LU, NL, PT, ES) plus Greece.

<sup>7</sup> The Gini coefficient is the most standard measure of income inequality. It captures the distance in income between two random income groups in the population. The indicator is standardised so as to allow cross-country comparability (Solt 2009).

**Figure 4: Debt and net financial assets to income ratios, 1995-2011**

Source: Own elaboration based on Eurostat. The sample includes all countries that participated in the first wave of EMU (AT, BE, FI, FR, DE, IE, IT, LU, NL, PT, ES) plus Greece.

Aggregate private indebtedness (and current account imbalances) is explained, in our framework, by the share of lower-income credit-constrained households. Moreover, to the extent that lower-income groups were more likely to lose their job in the crisis and hardly had financial buffers, the same perspective is useful to explain the abrupt deleveraging process in the periphery. Figure 4a compares the mean debt-to-income ratios in the periphery with that of the core.<sup>8</sup> While household indebtedness was on average higher in core countries for most part of the 1990s, with the Netherlands in particular driving the results, it rose significantly in Southern European countries starting from the early 1990s, eventually overshooting the mean debt leverage in the core as of 2003. The phenomenon went hand in

<sup>8</sup> The debt to income ratio is defined as debt arising from loans, recorded at the end of each calendar year, to the gross disposable income of the same year (Eurostat).

hand with an erosion of the net financial assets to income ratio in the periphery as opposed to the core, as shown in Figure 4b,<sup>9</sup> that explains why households were found unprepared to withstand the large crisis shock.

## 4. Empirical strategy and results

The hypothesis we put to the test is that EMU exercised a causal effect on macroeconomic imbalances, leading to a deterioration of the external balance of unequal countries as here a majority of the population had been credit-constrained prior to financial liberalization. The same would not be true for relatively equal countries.

### 4.1. The impact of EMU on imbalances

We adopt a difference-in-difference (*DiD*) approach with the aim of showing that EMU had a causal effect on macroeconomic imbalances given initial conditions pertaining to the income distribution. The sample brings together all OECD countries whose inequality record over 1980-2007 was above the median of the overall OECD sample, whether inequality is measured by the standardised Gini coefficient or the income share of the top 1 percent. The group of unequal countries selected in this way comprises 12 OECD countries, namely Australia, Greece, Ireland, Italy, Korea, Mexico, New Zealand, Portugal, Spain, Turkey, UK and USA. The treatment group is represented by countries that join the single currency and the year of treatment is identified as being 1995, which is the average time around which

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<sup>9</sup> The net financial assets to income ratio is defined as total financial assets minus liabilities at the end of each calendar year to the gross disposable income of the same year (Eurostat).

the capital account is significantly liberalised for most prospective EMU members, as recorded by the Chinn and Ito index. Hence, one group is exposed to treatment in the second period, from 1995 to 2007, but not in the first period from 1980 to 1994. The second group is not exposed to the treatment during either period.<sup>10</sup>

The specification is as follows:

$$CA_{it} = \alpha_0 + \gamma E_s + \varphi d_t + \delta(E_s * d_t) + \beta X_{it} + \mu(E_s * d_t * W_{it}) + \varepsilon_{it} \quad (1)$$

where  $CA$  is the current account balance as a share of GDP in country  $i$  and period  $t$ ;  $E$  and  $d$  capture the treatment group and the second period respectively;  $E*d$  is the difference-in-difference estimator;  $X$  is the current account norm, which consists of the current account level that should prevail on the basis of fundamentals;<sup>11</sup>  $E*d*W$  is a triple interaction term that includes the difference-in-difference estimator and a continuous measure of inequality, whether it is the standardised Gini coefficient or the income share of the top 1 percent;  $\varepsilon$  is the error term. The panel is estimated using feasible generalized least squares (GLS) with heteroskedastic error structure, which is confirmed by the diagnostics, and no cross-sectional correlation.

The inclusion of the current account norm comes with some advantages. First, it allows us to opt for a static specification circumventing the fact that current

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<sup>10</sup> Figure A in the Appendix shows that the early 1990s come with a significant increase in financial liberalization for the euro area, but not necessarily for the countries of the world we use as control group, where financial deregulation is mostly a phenomenon of the 1980s.

<sup>11</sup> The current account norm is extracted from a panel regression of current account balances on factors including the oil balance, the fiscal policy stance relative to trading partners, the old-age dependency ratio, real GDP per capita growth, the relative income per capital level and net foreign assets as a percentage of GDP, with all variables calculated as 4-year non-overlapping averages. The methodology is taken from Salto and Turrini (2010). See also list of variables in the appendix.

accounts tend to be exposed to mean reversion. Second, it contributes to controlling for cross-country heterogeneity and to reduce variance in the data. On the other hand, the triple interaction term is there to capture whether high inequality levels are associated with a deterioration of the current account away from equilibrium that is more severe than in the case of low inequality levels.

**Table 1: The impact of EMU on current account balances, OECD, 1980-2007**

| VARIABLES                       | (1)<br>Model 1        | (2)<br>Model 2        | (3)<br>Model 3        | (4)<br>Model 4        |
|---------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Treat                           | -0.317<br>[-0.651]    | 3.057***<br>[6.165]   | -19.13***<br>[-4.709] | -6.972**<br>[-2.560]  |
| Post                            | -1.085***<br>[-3.660] | 0.637*<br>[1.866]     | -5.261***<br>[-2.811] | 2.381**<br>[2.235]    |
| Diff-in-diff                    | -1.254*<br>[-1.818]   | -3.044***<br>[-4.860] | 15.20*<br>[1.808]     | 16.00***<br>[3.103]   |
| Gini coefficient                |                       |                       | -0.0739*<br>[-1.948]  |                       |
| Treat × Gini coefficient        |                       |                       | 0.707***<br>[5.481]   |                       |
| Post × Gini coefficient         |                       |                       | 0.171***<br>[3.257]   |                       |
| Diff-in-diff × Gini coefficient |                       |                       | -0.582**<br>[-2.276]  |                       |
| CA Norm                         |                       | 1.100***<br>[11.03]   | 1.144***<br>[11.60]   | 1.128***<br>[11.58]   |
| Top 1 percent                   |                       |                       |                       | 0.0121<br>[0.165]     |
| Treat × Top 1 per cent          |                       |                       |                       | 1.294***<br>[3.764]   |
| Post × Top 1 per cent           |                       |                       |                       | -0.169*<br>[-1.807]   |
| Diff-in-diff × Top 1 per cent   |                       |                       |                       | -2.327***<br>[-3.953] |
| Constant                        | -1.823***<br>[-8.700] | -2.197***<br>[-8.754] | 0.214<br>[0.166]      | -2.231***<br>[-3.006] |
| Observations                    | 384                   | 344                   | 341                   | 341                   |
| Number of countries             | 12                    | 12                    | 12                    | 12                    |

z-statistics in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Estimation method: feasible generalised least squares (GLS) allowing for heteroskedastic error structure with no cross-sectional correlation. Sample: Australia, Greece, Ireland, Italy, Korea, Mexico, New Zealand, Portugal, Spain, Turkey, UK and USA.

Table 1 presents the results. Model (1) simply tests whether EMU had any impact on current accounts, while Model (2) adds the current account norm,

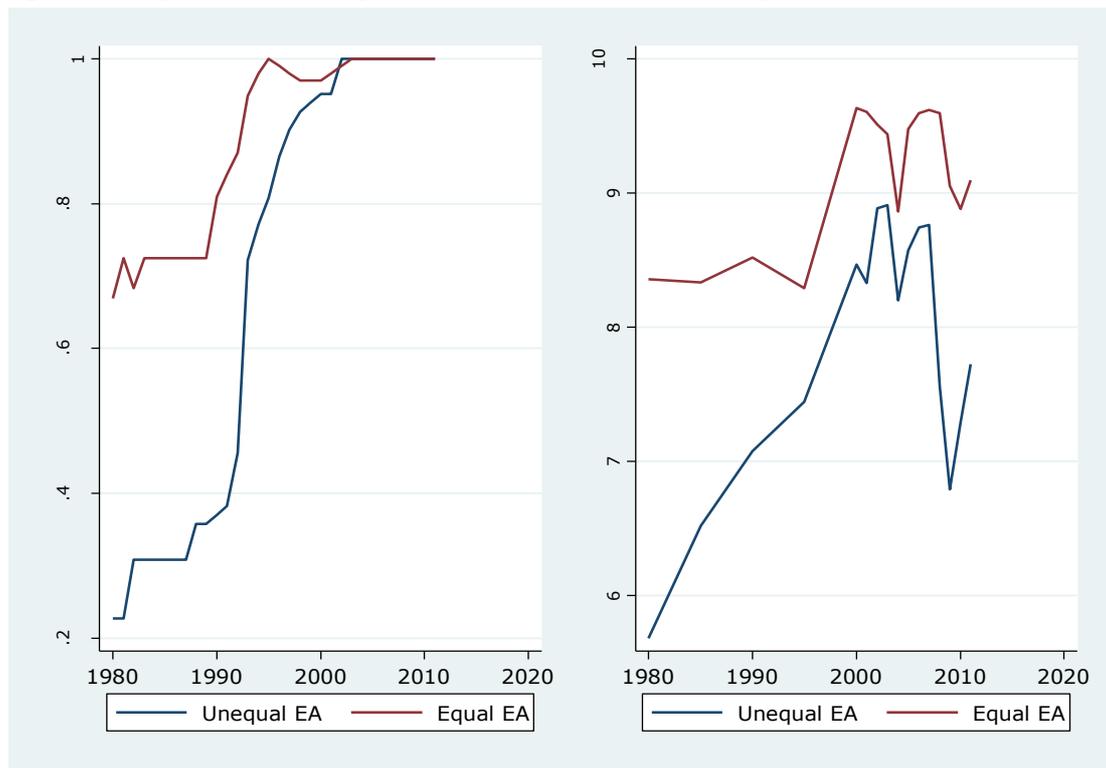
allowing for a better goodness of fit. The difference-in-difference estimator is significant across both models, thereby confirming that EMU-induced financial liberalization deteriorated current account positions in unequal countries that joined the monetary union relatively to unequal countries that did not join. In Model (3) we interact the difference-in-difference estimator with the standardised Gini coefficient and obtain that EMU caused current account deterioration in rising levels of inequality. Model (4) substitutes the Gini coefficient with an alternative measure of inequality, namely the share of the top 1 per cent of the income distribution. The results confirm that, following financial liberalization in Europe, unequal euro area countries suffered from current account deterioration more than they would have if financial liberalization had not taken place, independently of how inequality is being measured.

### 4.2. The impact of EMU on imbalances depending on financial regime

To the extent that lower-income groups finally get access to credit, the early 1990s should be associated with a significant rise in credit demand in unequal countries and much less so in relatively equal countries. Access to credit is typically proxied by private credit to GDP. The measure is but endogenous and any estimation that includes private debt as a simple covariate would produce biased results. To overcome this problem, we use a measure of access to credit that is likely to be exogenous, namely a *de jure* measure of financial liberalization. In fact, we use two: the so-called Chinn-Ito index, which is a *de jure* measure of financial openness as captured by the number of restrictions on cross-border financial transactions as reported in the IMF's Annual Report on Exchange Rate Arrangements and Exchange Restrictions (Chinn and Ito

2006) and an indicator for credit market regulation compiled by the Fraser Institute. Accounting for differences in de jure financial openness and credit regulation would allow to capture the relevance of EMU's supply shock across groups of countries.

**Figure 5: Capital account openness and credit market regulations 1980-2011**



Source: Own elaboration based on Chinn and Ito (2006) and Fraser Institute. Unequal euro area countries = Greece, Ireland, Italy, Portugal and Spain. Equal euro area countries = Austria, Belgium, Finland, France, Germany, Netherlands.

Figure 5(a) shows average capital account openness in unequal (Greece, Ireland, Italy, Spain and Portugal) versus equal countries (Austria, Belgium, Finland, France, Germany, Netherlands) over 1980-2011. Greater values indicate that a country is more open to cross-border financial transactions. In the early 1990s, when phase I of EMU kicked in, equal countries were relatively open financial systems so that in fact the regime change of the early 1990s was less significant for them than for unequal countries. Figure 5(b) displays differences in credit market regulations over the same period. The indicator accounts for private versus government ownership of banks,

government borrowing compared with private borrowing, interest rate controls and the magnitude of negative real interest rates if present. Greater values signify less regulation. As in the case of capital account openness, equal countries had on average looser credit market regulation than countries of the periphery. The evidence on trends in credit market regulation underpins the argument that, when financial liberalization took place in the early 1990s, some countries enjoyed easier access to credit not only through foreign markets but also through a less regulated domestic market, with domestic banking systems contributing to credit bubbles by providing additional credit to the private sector (see for example Lane and McQuade 2014.)

In order to test whether renewed access to credit played indeed an important role in explaining why unequal euro area countries got indebted and relatively equal ones much less so, we estimate the equation below on the sample of all countries that accessed the euro area in the first wave plus Greece over the period 1980-2007:

$$CA_{it} = \beta_0 + \beta_1 Cn_{it} + \beta_2 KA_{it} * Unequal_i + \beta_3 KA_{it} * Equal_i + \beta_4 KA_{it} * Unequal_i * EMU + \beta_5 KA_{it} * Equal_i * EMU + \varepsilon_{it} \quad (2)$$

where  $CA$  is the current account balance as a share of GDP;  $Cn$  is the current account norm described as above;  $KA$  is an index for capital account openness (Chinn and Ito 2008);  $KA * Unequal$  and  $KA * Equal$  are interactions between capital account openness and a dummy for unequal and one for equal countries respectively;  $KA * Unequal * EMU$  and  $KA * Equal * EMU$  interact capital account openness, a dummy for each country grouping and a time dummy for the EMU period so as to capture whether EMU or rather EMU-induced financial deregulation made a difference. The same estimation is run

substituting capital account openness with a measure for credit market regulation for a comprehensive assessment of credit conditions in each country.<sup>12</sup> The model is estimated using random effects to allow us focusing on cross-country variation. The Hausman test confirms the superiority of random over fixed effects.

**Table 2: The impact of EMU on current account balances depending on financial regime, EA, 1980-2007**

| VARIABLES           | (1)<br>Model 1        | (2)<br>Model 2        | (3)<br>Model 3      | (4)<br>Model 4       |
|---------------------|-----------------------|-----------------------|---------------------|----------------------|
| CA norm             | 0.474***<br>[4.214]   | 0.543***<br>[4.984]   | 0.416***<br>[2.685] | 0.530***<br>[3.642]  |
| KA × Unequal        | -2.342***<br>[-3.188] | 0.00103<br>[0.000600] |                     |                      |
| KA × Equal          | 5.050***<br>[5.547]   | 2.084*<br>[1.657]     |                     |                      |
| KA × Unequal × EMU  |                       | -2.239*<br>[-1.912]   |                     |                      |
| KA × Equal × EMU    |                       | 2.971***<br>[5.044]   |                     |                      |
| CMR × Unequal       |                       |                       | -0.275<br>[-1.080]  | -0.0350<br>[-0.103]  |
| CMR × Equal         |                       |                       | 0.624**<br>[2.549]  | 0.110<br>[0.382]     |
| CMR × Unequal × EMU |                       |                       |                     | -0.267**<br>[-1.979] |
| CMR × Equal × EMU   |                       |                       |                     | 0.466***<br>[4.773]  |
| Constant            | -1.882**<br>[-2.461]  | -1.481*<br>[-1.649]   | -2.483<br>[-1.156]  | -1.765<br>[-0.786]   |
| Observations        | 340                   | 340                   | 173                 | 173                  |
| Number of countries | 11                    | 11                    | 11                  | 11                   |
| Hausman test        |                       | 10.26<br>[0.0681]     |                     |                      |

z-statistics in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Panel estimated using random effects. The sample includes all countries that participated in the first wave of EMU (AT, BE, FI, FR, DE, IE, IT, LU, NL, PT, ES) plus Greece over 1980-2007.

Table 2 reports the results. Model (1) confirms that capital account openness means a different thing for different countries. In unequal countries, namely countries of the periphery that had been characterized by soft-currency

<sup>12</sup> For a definition of variables and sources, see Appendix.

regimes, relative capital account openness is associated with a worse current account balance. Yet, in equal countries of the core, mostly belonging to the former DM-zone, openness goes hand in hand with an improved external position. That is to say that financial openness is a liability for the periphery, but an asset for countries of the core, where greater openness comes with an improved trade balance. More to the point, results from model (2) indicate that this outcome is driven by developments occurring in the 1990s when the EMU process started.

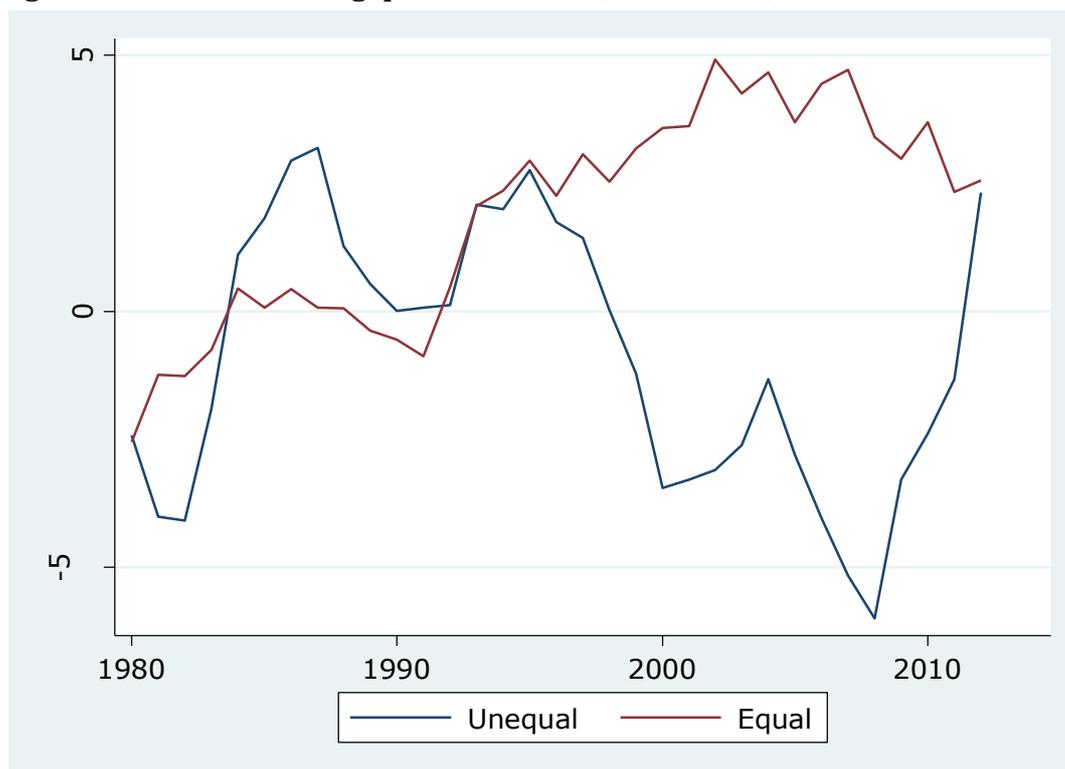
As anticipated above, it is not only about access to foreign capital but also about the extent to which access to domestic credit is facilitated. Deregulation of domestic credit markets lead to worse current account balances under EMU only in the case of unequal countries. On the other hand, in equal countries, it is associated with strong external positions across all times, which also indicates that EMU did not represent necessarily a regime change for core countries as much as it was for those in the periphery.

### 4.3. Current account reversal during the crisis

The crisis was associated with a dramatic reversal of current account deficits in the periphery, but only a timid correction of surpluses in the core. Figure 6 plots the evolution of the current account gap across peripheral and core countries over 1980-2014. The current account gap is given by the deviation of the actual current account balance from the current account norm, where the latter isolates the balance that should prevail on the basis of medium-term fundamentals and is calculated as earlier indicated. The current account gap allows us to appreciate the extent to which current accounts simply reflect structural features of an economic system such that they should be considered

“normal” or rather an exceptional and temporary deviation from equilibrium levels. The evidence is that the current account deficits of the euro area periphery after 1995 have been indeed excessive, possibly because growth expectations in these countries ahead of monetary integration have been over-optimistic (see also Lane and Pels 2012). The same applies to current account surpluses, though the size of the deviation is much more modest. The figure equally shows that the periphery’s external adjustment during the crisis came as a correction of the excessive deficits of the pre-crisis period, but also included a component of greater-than-required correction after 2011. By contrast, surpluses went through only modest adjustment.

**Figure 6: Current account gaps and reversals, 1980-2014, EA**

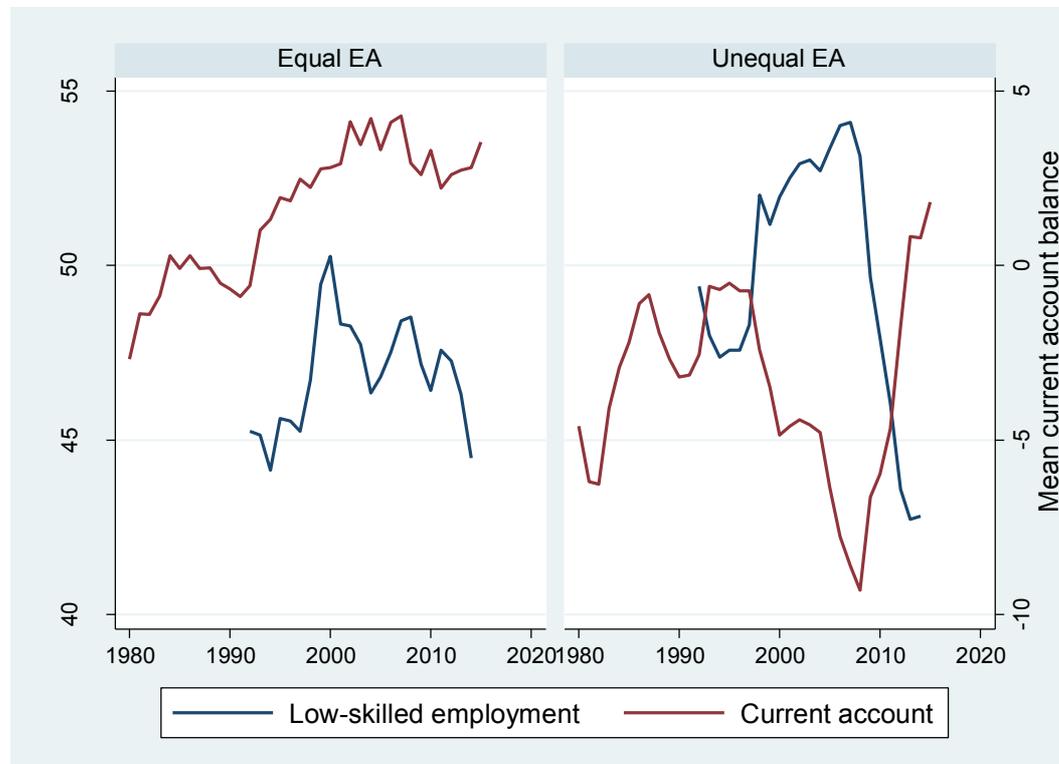


Key: The current account gap is calculated as the difference between the current account balance and the “normal” current account stemming from a current account norm. Source: Own elaboration. Unequal countries = Greece, Ireland, Italy, Portugal and Spain. Equal countries = Austria, Belgium, Finland, France, Germany, Netherlands.

Asymmetric current account reversal is here explained by the fact that the crisis reverted the large credit supply shock initially associated with EMU.

Financial distress meant that credit constraints were back in place, thereby putting pressure especially on poorer indebted households, which have been the ones that contracted debt in the first place. The evidence from the Household Finance and Consumption Network is indeed that the debt burden measured by the median debt to income ratio was highest for the bottom 20 per cent of the population specifically in the case of peripheral countries, whilst more evenly distributed across income groups in the case of core countries (HFCN 2013).

**Figure 7: Current account balances and low skilled employment 1995-2014, EA**



Key: The low-skilled employment rate is given by the employment rate of those with pre-primary and primary education. Source: Own elaboration. Unequal countries = Greece, Ireland, Italy, Portugal and Spain. Equal countries = Austria, Belgium, Finland, France, Germany, Netherlands.

As the ensuing recession hit lower-income/skilled workers more than others, their debts became unsustainable, forcing some to default, others to start a painful deleveraging process. Figure 7 plots the evolution of the current balance and of the employment rate of the lowest-skilled across the core and

the periphery. In the periphery, with the massive collapse of employment for the least skilled, which in fact represent 66 per cent of all the employed, came a drop in consumption that led to a significant correction in current account deficits. By contrast, the data do not suggest any significant correlation between low-skilled employment and external positions in the core.

## 5. Conclusion

The first decade of EMU was associated with an unprecedented rise in macroeconomic imbalances. Moreover, the crisis led to a correction of current account deficits but not to a symmetric adjustment of excessive surpluses. We suggested that, amongst the explanations for the build-up of imbalances, the so-called competitiveness hypothesis has weak support in the data. On the other hand, the capital-flow hypothesis is a rather more convincing analytical framework because it privileges capital account openness over the loss of the exchange rate as the main driver of the imbalances. We indeed built on the capital-flow hypothesis but extended it by looking at credit demand along the income distribution. The argument is that capital account openness relaxed collateral constraints especially for lower-income groups that had limited access to credit prior to EMU, with the result that external debt was greatest in unequal countries because here the share of lower-income groups is relatively high. In turn, the crisis forced deleveraging onto the same portion of the population, not least because it was the first to be pulled out of the labour market, which contributed to the abrupt fall in demand and to current account deficit correction.

There are of course some caveats. This paper has been mostly concerned with the demand side of current account imbalances. This is not to deny that imbalances may be driven by supply-side factors, being the reflection of a country's export performance and of the relative resilience of world market shares.<sup>13</sup> While further investigation is necessary, some of our results would suggest that supply-side factors might be more relevant in the case of current account surpluses than of deficits, as evident from the fact that for example, in core countries, there is a positive association between financial openness and external positions.

One other point is that in factual terms there is not necessarily a contradiction between the competitiveness hypothesis and ours. Relative income equality in the core of Europe might be just one dimension of a more competitive economy. So, for example, Carlin (2013) argues that the competitive advantage of surplus countries is that they all enjoy wage-setting regimes that are able to automatically deliver wage moderation because wage setters are large enough to internalise the consequences of their wage demands and because there is coordination in wage bargaining, with the export sector acting as a pattern-setter for all the others. At the same time, high centralization and coordination of wage bargaining come with greater wage compression and thus with more income equality (e.g. Rueda and Pontusson 2000). In this respect, the two explanations – the one based on competitiveness and the one looking at income inequality – would be complementary rather than substitutes. Along these lines, one could think of imbalances as the outcome of a fundamental institutional asymmetry resting on national varieties of capitalism, with EMU bringing under the same monetary

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<sup>13</sup> It should be however noted that, empirically, having introduced in the estimations a current account norm, has allowed us to do without key determinants on the supply side such as relative prices considering that deviations of the current account balance from equilibrium levels would imply by definition that real effective exchange rates are either over- or under-valued.

straightjacket systems designed to deliver export-led growth with systems designed for demand-led growth (Hall 2012; Stockhammer 2015). Still, even if the insistence on the role of inequality versus competitiveness might be a bit stretched here, this paper's added value remains as that of having sketched an analytical framework that contributes to improving understanding of the demand-side drivers of imbalances.

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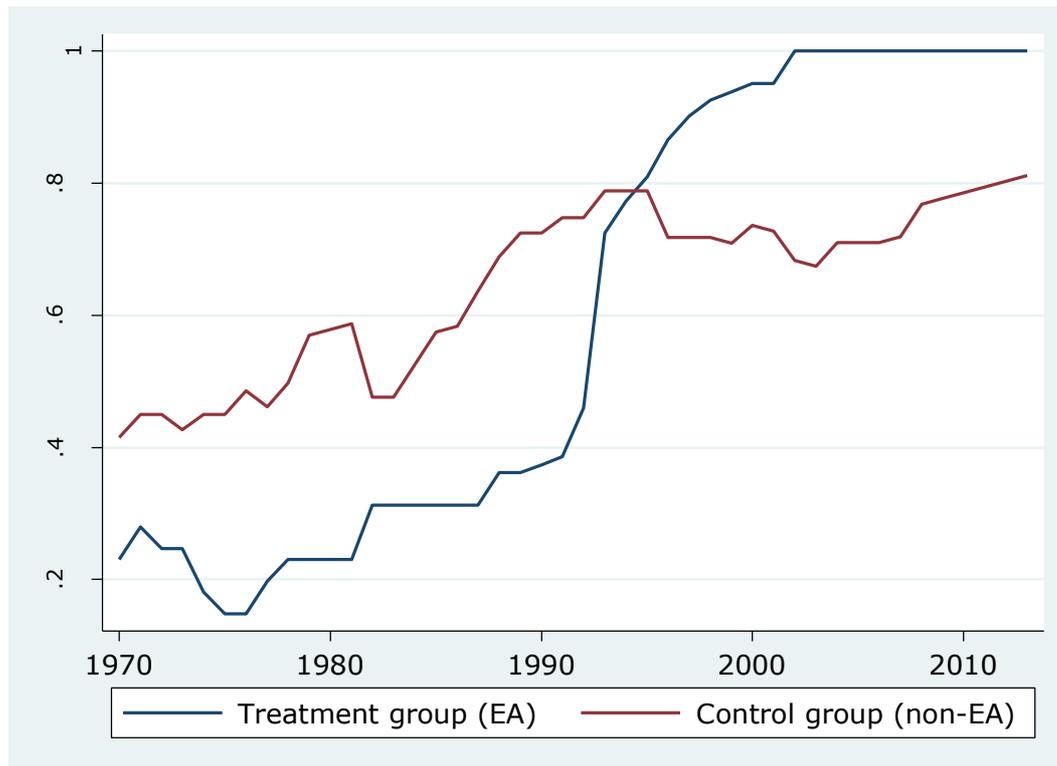
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## Appendix

| <b>Variable</b>          | <b>Definition</b>   | <b>Source</b>   |
|--------------------------|---|---|
| Current account          | Current account balance (% of GDP)  | AMECO   |
| Net foreign assets       | Net foreign assets (% of GDP)   | AMECO   |
| Credit market regulation | The indicators included in the index for credit market freedom are:<br>(1) private versus government ownership of banks;<br>(2) government borrowing compared to private borrowing; and<br>(3) interest rate controls and the magnitude of negative real interest rates if present. | Fraser Institute                                      |
| Capital account openness | It is a <i>de jure</i> measure of financial openness and is measured by the number of restrictions on cross-border financial transactions as reported in the IMF's Annual Report on Exchange Rate Arrangements and Exchange Restrictions  | Chinn and Ito index                                   |
| Gini coefficient         | Gini coefficient  | Standardized World Income Inequality Database (SWIID) |
| Top 1 per cent           | Share of top 1 per cent of income distribution  | Standardized World Income Inequality Database (SWIID) |
| Relative income          | Per capita income relative to the US (=100) at current prices (PPP)   | Penn World Tables                                     |
| Real GDP growth          | Real GDP growth rate  | OECD  |
| Old dependency ratio     | Ratio of people older than 64 to the working-age population   | WDI   |
| Fiscal policy stance     | Cyclically adjusted net lending/borrowing of general government (% of GDP)  | AMECO   |

**Figure A: Capital account openness in EA vs the world 1980-2011**



Source: Own elaboration based on Chinn and Ito (2006). Treatment group = Greece, Ireland, Italy, Portugal and Spain. Control group = Australia, Korea, Mexico, New Zealand, Turkey, United States, United Kingdom.

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