Macroeconomic Imbalances in the Euro Area and Policy Intervention:
the Role of Trade with Emerging Economies

by

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Abstract

The aim of this paper is to evidence the benefits of a coordinated and symmetrical policy approach in the reduction of macroeconomic imbalances among Eurozone countries by analysing the exploitation of the trade potential with emerging economies as an instrument to reduce such imbalances. To this end we estimate potential trade flows with the group of BRICs and calculate the effect on both trade and current account balances. The results indicate that for the main economies, such as France, Italy and Spain, a coordinated and symmetrical policy intervention in order to increase competitiveness and exploit the trade potential with BRICs will cause substantial improvements in their trade balances. In addition, by means of panel estimates we find a direct effect of net trade increases on public debt reductions in Italy and France. Hence, we conclude that coordinated and symmetrical measures to improve the competitiveness of deficit countries can be a substitute for austerity policies to reduce the debt to GDP ratio in Southern Europe.

1. Introduction

Since late 1990s, macroeconomic imbalances in the Eurozone constantly increased and became a critical factor in causing the current debt crisis. Throughout these years, Southern European countries experienced large losses in competitiveness and persistent accumulation of current account deficits against Northern Europe. In addition to this, during the global crisis, the financing of the stimulus measures caused huge budget deficits, leading public debt to unsustainable levels, especially in Greece in 2009 after the truth about the real conditions of public finances were found out by the newly elected government of Papandreou. The prevailing view among the main European authorities and governments was that the crisis was not one of the Eurozone system itself, but of individual countries' (peripheral deficit countries) behaviour within it, and imposed the adjustment to be entirely centred on the highly indebted countries. Fiscal austerity measures, therefore, have been introduced and diffused everywhere in the Eurozone, from Greece's unique fiscal problems to countries such as Spain and Ireland - which have banking and not fiscal crises - and to Italy because of the credibility crisis of the government in charge and the delay in structural reforms.

This view leaves the burden of economic policy, including the necessary reforms aimed at increasing competitiveness in deficit countries, to the sole initiative of the member states. At the same time, no symmetrical adjustment is required for countries in surplus like Germany or The Netherlands. But if most governments cut spending without a compensation from surplus countries the deflationary effect on GDP is magnified and slowdowns in one country reduce the demand for export in others with a negative effect on growth for the whole area, pushed down by the recession in all peripheral countries. This is what happened in the last two years, with Southern European countries experiencing GDP losses until the end of 2013 while other Eurozone countries were barely starting to recover. Economic data for the first part of 2014 do not show signs of improvements and even the core countries like Germany, France and The Netherlands do not show sings of stable recovery.

In our view, the development of trade and current account imbalances and the explosion of public debts after the crisis are strongly related. How such imbalances had

been generated is under discussion among academics and policy makers. Initially, they were seen as the result of the proper functioning of the monetary union and re-equilibrating mechanisms were expected to work in order to avoid the excessive divergence of current account positions (Blanchard and Giavazzi 2002).

Since the global financial crisis, it is clear that the re-equilibrating mechanisms did not work, stimulating a body of literature on the causes of such imbalances. A macroeconomic explanation, which looks at the peculiar functioning of the EMU, was proposed by Krugman (2012), Allsopp and Vines (2010). According to them, the creation of a common money reduced risk premia in the peripheral European countries (Spain, Portugal, Italy), leading to an expansion of expenditure for both consumption and investment, without adequate monetary and fiscal restraints. The higher expenditure and output led to inflation and deterioration of competitiveness (unit labor costs) in the periphery, together with the accumulation of current account deficits. Given the fact that the Euro area as a whole had on average a balanced current account, surplus and deficit euro member countries were mirror images of each other. This explanation stresses the role of financial integration in reinforcing imbalances instead of preventing them (Croci-Angelini and Farina 2012). In this process, excessive lending from Northern to Southern countries in search for higher yields has increased imbalances as peripheral countries were not able to sterilize the huge capital inflows (Schnabl and Freitag, 2012).

A complementary explanation that has a microeconomic content (Guerrieri and Esposito 2012, 2013) suggests the role of the international reorganization of the German production system. In particular, outsourcing to Eastern Europe, together with wage restraints and labour market reforms (Hansen 2010, Marin 2010), succeeded in enhancing the competitiveness of the German firms and economy, and contributed to increase its trade surplus with the peripheral European countries, unable to achieve similar gains in comparative advantages. In connection with this result, Guerrieri and Esposito (2013) and Chen et al. (2013) find that competitive differences resulted also in a different degree of competition from emerging economies, with Southern Europe and above all Italy, suffering more from the competition of Chinese products in the intra and extra European Markets. Other authors stressed the role of competitive differences (Dullien and Fritsche 2009, Giavazzi and Spaventa 2011, Brancaccio 2012, Onharan and Stockhammer 2013, Collingon 2012), in particular evidencing the loss of competitiveness in peripheral

countries. Most contributions point to the German competitiveness reforms, especially in terms of wage restraints, as the main cause for ULC divergences.

All in all, the evidence suggests that imbalances are the result of the behaviour of all countries in the Euro area so that a solution is more likely to come from a coordinated approach.

For many years, little attention was paid to imbalances – not only by national authorities, but also by the new European economic governance, which only insufficiently addressed policies capable of favouring economic adjustments. Policy coordination of some kind is needed (Holinski et al. 2012) in many areas of economic and industrial policy. In other words, convergence and adjustment do not happen automatically in the EMU but need to be policy-driven. Gains in competitiveness and convergence must be the result of a cooperative game, which should change the natural divergences among countries arising when economic policy is asymmetric and of a "beggar-thy-neighbour" character (Guerrieri and Esposito 2012).

One of the areas where a coordinated approach is needed to increase competitiveness and reduce imbalances is external trade. The trade channel for many economies has seen its importance as engine of growth strongly deteriorating because of the competition of products coming from emerging countries (Esposito and Guerrieri 2012, Chen et al. 2013), both domestically (import displacement) and internationally (market share losses). Although emerging markets are a source of export earnings as their production processes rely strongly on equipment goods imported from advanced economies, for most of the European countries the balance is negative due to the massive import of low tech/low quality consumption products. This pattern could be reversed in the medium-long run as the demand for high quality consumption goods will raise in fast growing economies, and in the next years is assumed to become predominant in the import composition of emerging countries. The full exploitation of the export potential into such markets will then prove to be particularly beneficial to restore growth, but in countries having a strong export orientation and consequently a high share of manufacturing, an increase in high value added exports could also have a direct effect on the debt reduction by increasing tax revenues more than proportionally. If this link is present, then measures aiming at increasing competitiveness can be a substitute for austerity in order to reduce the debt to GDP ratio. Again, this requires that policy efforts should be taken more intensively at the

European level by not only allowing different policy mixes for different countries, but also by keeping in mind that symmetric rules should be applied to the countries in surplus, as otherwise macroeconomic indicators will never converge. In countries with trade surpluses, symmetric policies imply that the composition of growth should be rebalanced from exporting to domestic demand.

The aim of this paper is to evidence the benefits of a coordinated and symmetrical policy approach in fostering competitiveness through the increase of the surplus vis-à-vis emerging economies. More specifically, we estimate the potential trade flows of European countries against the group of BRICs and simulate trade balances of Eurozone countries when this potential is reached. With this result, the possible outcome is discussed when coordinated and uncoordinated policies are implemented. Furthermore, the direct impact of changes in trade balance on the debt to GDP ratio is estimated to test whether a direct connection exists between the two main sources of imbalances within the Eurozone. Such a link may not be present everywhere, though a coordinated but country specific policy would be better suited and should be applied at least jointly with (lower) austerity measures in fostering growth and financial stability.

The structure of the paper is as follows: In section 2 the evolution of imbalances within the Eurozone and a summary of trade relations with emerging economies is presented. In section 3 an estimation of potential trade flows of European countries with the four main emerging economies (BRICs) is undertaken through an analysis of the implications of the results. Section 4 is dedicated to the estimation of the relation between trade balance and public debt and section 5 offers several conclusions.

2. Public debt and trade with emerging markets: some descriptive evidence

Loss of competitiveness is often believed to be the main factor behind high deficits. To reduce imbalances then requires improving competitiveness. Yet, competitiveness is a dubious concept, as national performances always reflect the aggregation of individual firms and entrepreneurial skills, which interact with institutional efficiency. Measuring these factors can be difficult as they are multi-dimensional, where cause and effect are often intermingled;[I] trade imbalances are considered to be the mirror image of competitive

differences among the Eurozone states since the other current transactions are only loosely related to competitiveness.

Some countries, like Portugal, Greece and Estonia, were exhibiting huge trade deficits already in 1999, but other southern countries, for several reasons, have seen the contribution of trade to their GDP decline constantly since the end of the 1990s. This is the case of Italy that, similar to Germany, has a strong manufacturing sector and an export-led growth model since the 1950s. At the same time, after the collapse of the construction bubble, the Spanish economy cannot sustain its growth model - based on massive imports - anymore, and needs to increase exports to counterbalance the effect of the collapse of capital inflows from abroad. The deterioration of the trade balance took place for the whole Eurozone and struck not only the countries mentioned before, but also countries not experiencing a debt crisis, such as France, Belgium and Finland, while an increasing surplus accumulated in Germany and The Netherlands.

How does the external performance relates to the debt dynamics? Between 1999 and 2007 most of Euro Area countries had gone through a period of consolidation, the main exceptions being Greece and Portugal. After the global financial crisis public debt increased everywhere, due on the one hand to the stimulus measures allowed by the European authorities to counterbalance the effects of the crisis and, on the other hand, to the recessionary effect induced by the early withdrawal of such policies and by the austerity measured implemented to bring down the debt level.

In figure 1 we show that pre-crisis changes in trade and current account balances are negatively associated with the post crisis debt increases and this relation is stronger for trade balances as they better reflect the evolution of competitive differences. This is true in particular for Greece, Spain and Ireland, but all countries are fairly close to the correlation line. This evidence suggests a causality chain between competitiveness and public debt: competitive losses increased the external imbalances of Euro Area by reducing the trade performance of peripheral countries and increasing the need for external financing; the structural weaknesses of these countries implied higher debt increases between 2008 and 2011 as result of the global financial crisis; austerity measures brought peripheral countries into recession, further increasing the level of public debt between 2011 and 2013. In this scenario, contractionary policies aimed at stabilising the level of debt cannot be the only

instrument, as they alone do not generate the expected competitive gain and put additional pressures on the weakest countries. Economic policies aiming at rebalancing competitive differences between countries of the Eurozone, instead, will make public finances more resilient to negative shocks. While a rationalisation of government expenditure is surely important, structural reforms in disadvantaged countries in order to improve their external competitiveness must come alongside cuts in inefficient expenditure. This can be done successfully only with additional support from European community, by loosening the requirements of the Maastricht Treaty so as to counterbalance the natural "beggar thy neighbour" competition between member states.

Figure 1 Relation between pre-crisis external imbalances and post crisis debt increases
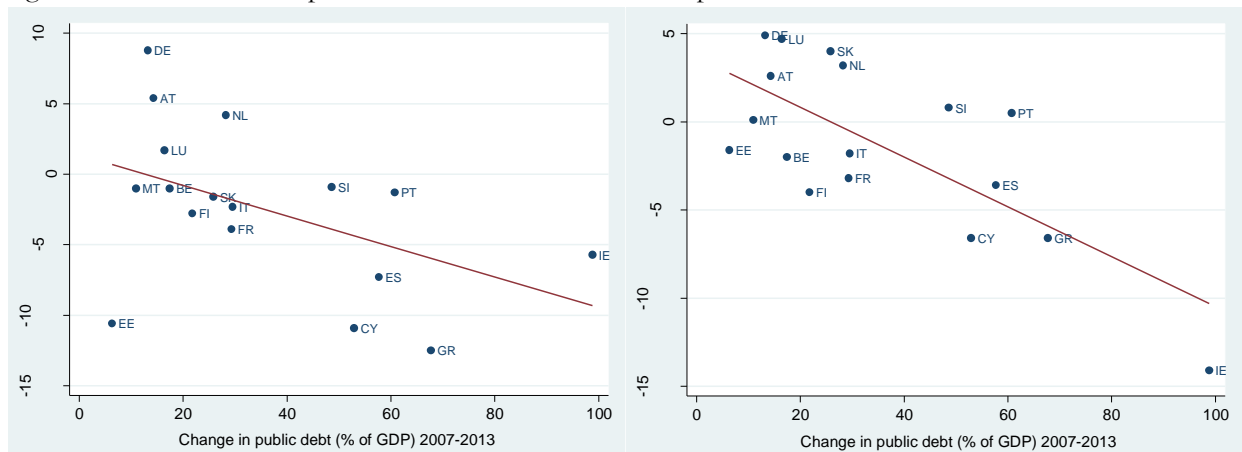
Source: own elaboration on AMECO

In order to improve the external performance, industrial policy must stimulate the penetration of emerging markets where demand is growing much faster than in advanced economies. It must be noted, in any case, that the reduction of trade balances in the Euro Area is not only the result of a slower export growth but also of a faster increase of imports, especially from emerging markets. The latter, with China above all, have gained comparative advantages in the production of consumption goods - mainly in the segment of low price/low quality varieties (Schott 2008) - and increased their market share in advanced economies at a fast pace. Conversely, the performance of European countries in those markets so far has been modest, and the evolution of shares depicts a clear distinction between vicious (Portugal, Italy, Ireland, Greece, and Spain; France, Finland, and Belgium) and virtuous (Germany, The Netherlands, and Austria).

If we look at Brazil, Russia, India, and China (BRICs), representing the four strongest emerging economies, all the European countries have been experiencing a negative and deteriorating trade balance between 1999 and 2007 (table 1). Subsequently, deficits shrank almost everywhere, especially in the years 2001-2013, but this is due mainly to the overall import contraction. The higher cumulative losses where experienced by Greece, Belgium, The Netherlands and Finland, while France, Italy and Spain lost approximately 1.5% of GDP each. As it can be seen in table 2, the loss mainly came about because of a much faster growth of imports compared to exports. The share of imports from the BRICs in European markets almost tripled in Italy (from 5.3% to 14.2%) and Germany (5.6% to 13.3%), slightly smaller increases have been recorded for Portugal (from 2.6% to 6.3%), France and Spain (from 4.9% to around 12% for both). Finally, Greece accounts for the stronger increase (from 4.2% to 20%) together with Ireland, although the latter's initial share was below 2%.

The relative poor performance of Euro Area countries in the BRICs markets can be also seen from the dynamics of export market share. In 1999 only Germany, France, Italy, Belgium and Finland had a share above 1% and over time most of the countries experienced strong losses, up to a percentage point in France and Italy and slightly below for Belgium and Finland. On the contrary, Austria, Germany and The Netherlands have been able to keep their share stable.

The evidence in figure 1 and table 1 suggests that successful countries like Germany performed better not only because of the increasing surplus from the EU, but also because they did better in emerging markets, where their export kept pace with the BRICs' growth. In Italy, and to a lower extent in France and Spain, losses against this area account for the bulk of the reduction in total trade balance. For Greece and Portugal, absolute losses are not indifferent, although most of their huge deficit comes from advanced countries. All in all, this means that a policy aimed at improving the balance with emerging markets can do much in terms of the reduction of overall trade imbalances. But what are the margins for further improvements? An answer to this question can be given by assessing whether trade between the Euro area and the BRICs has already reached its full potential or not. In order to answer that, the next section deals with the estimation of potential bilateral trade flows between Euro area countries and the BRICs. If exports are below their potential or imports are above, there will be room to rebalance trade relations in favour of the Eurozone.

Nevertheless, the effect on imbalances will depend on the policies implemented both by single states and European authorities.

Table 1 Trade balance (in % of GDP) and market share with BRICs

	Trade Balance				Export Market share				Import Market share			
	1999	2007	2011	2013	1999	2007	2011	2013	1999	2007	2011	2013
Austria	-0.2	-0.7	-1.1	-0.3	0.4	0.4	0.4	0.4	2.3	6.3	8.3	6.6
Belgium	-0.6	-3.1	-2.4	-2.2	1.8	1.0	1.0	1.2	4.2	7.8	9.4	8.8
Cyprus	-2.5	-3.5	-2.0	-2.1	0.0	0.0	0.0	0.0	6.8	9.1	6.3	6.6
Estonia	-5.6	-6.8	-1.8	0.4	0.0	0.0	0.1	0.1	15.0	18.2	19.5	17.4
Finland	-0.1	-2.1	-2.8	-4.3	1.1	0.7	0.5	0.4	10.3	23.0	23.7	26.1
France	-0.5	-1.3	-1.8	-1.9	2.5	1.9	1.6	1.4	4.9	10.3	12.7	11.8
Germany	-0.4	-1.0	-0.3	0.3	6.3	6.3	6.1	5.9	5.7	12.5	14.3	13.3
Greece	-0.7	-2.7	-3.2	-6.0	0.1	0.0	0.0	0.0	4.2	11.9	17.1	20.0
Ireland	-0.3	-1.8	-0.4	-1.0	0.2	0.2	0.2	0.1	2.0	8.5	6.8	7.7
Italy	-0.4	-1.1	-1.8	-1.9	2.4	1.8	1.6	1.3	5.3	10.2	14.0	14.2
Luxembourg	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	2.0	2.3
Netherlands	-1.3	-5.2	-6.5	-9.6	0.9	0.8	0.7	0.9	4.7	13.9	15.8	16.2
Portugal	-0.7	-1.6	-1.6	-1.4	0.1	0.1	0.1	0.1	2.6	5.8	6.9	6.3
Slovak Republic	-6.0	-14.5	-17.2	-12.2	0.0	0.2	0.3	0.2	13.6	14.8	17.9	17.9
Slovenia	-0.7	-1.2	-1.5	-2.5	0.1	0.1	0.1	0.1	3.5	7.2	8.9	8.7
Spain	-0.8	-2.5	-2.2	-2.6	0.7	0.7	0.6	0.5	4.9	11.1	12.9	12.5

Source: own elaboration on UN-COMTRADE data (accessed through WITS)

3. Estimation of Eurozone trade potential with BRICs

The different level of success of European countries in penetrating emerging markets sees basically Germany on the winning side while the other main European economies (France and Italy) as well as the rest of southern Europe belong to the losers. This is because the leading economy of the Euro area dedicated higher efforts to investing in Asia and other emerging areas, benefitting from its advantage as the main supplier of equipment goods required for their production processes. Thus, Germany is an example of the exploitation of potential trade in fast growing markets. As for the remaining European countries, given their size and economic development, they are still underperforming, so that policies aimed at fostering the exploitation of such potential can be effective in reducing trade imbalances. As to the import potential, no clear assessment seems possible a priori. The BRICs' market shares are particularly high, but together with the strong price competition of Chinese product we can include only the dependence on energy and

commodities from Russia, and to a lower extent from Brazil, as reasons to assume that we import more than we should.

The next sub-section describes the econometric strategy and methodology to calculate potential trade flows; the results are then discussed in sub-section 3.2.

3.1. Methodology

Typically, the estimation of trade potential is based on gravity models, which are the best predictors of bilateral trade flows. The gravity equation - first introduced by Tinbergen (1962) and theoretically founded by Anderson (1976) - relates trade flows to the economic mass of the two countries and to measures of geographical distance. Export potential is calculated by, firstly, estimating the gravity equation for a sample of countries among which trade relations are already developed and, secondly, by applying an out-of-sample forecast to the partner countries whose potential trade needs calculation. The main condition for this procedure to work properly is that the two groups of countries should not differ too much in their level of development. For this reason a benchmark group of 34 OECD countries is used while calculating the potential trade flows between 1999 and 2010 with the group of BRIC countries only, excluding other, less advanced markets.

A common problem occurring when dealing with gravity models is the presence of zero trade flows, caused mainly by the existence of barriers to trade. Factors affecting trade volumes, in particular the fixed costs of exporting, may also affect the decision of a firm to export (Shepotylo, 2009), thereby introducing a selection bias. In order to control for this bias, a two stage procedure is required, whereas in the first stage the probability to observe a non-zero trade flow is estimated for each country. Estimated probabilities are then introduced into the gravity equation as additional regressors to correct the inherent selection bias. The selection equation includes all variables considered in the gravity equation with the addition of other variables affecting the probability to export, but not trade volumes. It spells out as follows:

$$Pr_{i,j,t}^k = \delta_0 + \delta_1 \log(GDP_{i,t}) + \delta_2 log(GDP_{j,t}) + \delta_3 \log(POP_{i,t}) + \delta_4 \log(POP_{j,t}) +$$
$$\delta_4 \log(ER_{i,j,t}) + \delta_5 \log(TAR_{i,j,t}) + \delta_6 \log(Dist_{i,j}) + \delta_7 CT + \delta_8 CL + \delta_9 LL_i + \delta_{10} LL_j + \delta_{11} RQ_{i,t} +$$
$$\delta_{12} RQ_{j,t} + \delta_{13} RL_{i,t} + \delta_{14} RL_{j,t} + \delta_{15} GE_{i,t} + \delta_{16} GE_{j,t} + \delta_{17} \log(IntDist)_i + \delta_{18} \log(IntDist_j) +$$
$$\sum \gamma_t + \varepsilon_{i,j,t}$$

$$(1)$$

where Pr^k represents the probability of having a non-zero trade flow (k=import,

export), expressed as a function of the demographical (*POP*) and economic size (*GDP*) of the trading countries, the bilateral exchange rate (*ER*), and the average import tariff (*TAR*). In addition, geographical variables such as bilateral distance (*Dist*) are included, as well as dummies accounting for contiguity (CT) and for the presence of a common language (CL). As to the variables specific to the selection equation, the internal distances of the trading countries (*IntDist*) are considered, a dummy indicating whether a country is landlocked (LL), and a series of indicators accounting for the quality of governance. More specifically, for both trading countries, indexes of regulatory quality (RQ) are included, along with rule of law (RL) and government effectiveness (GE). These geographical as well as governance indicators are introduced to account for country- and pair-specific fixed costs of exporting/importing.

Having estimated equation (1) for both import and export, we calculate the predicted probabilities of positive flows and introduce them into the gravity equations (2) and (3) as a polynomial term of degree 3 (the θ terms). As shown by Helpmann et al. (2008), the cubic form is a flexible representation that should closely match the shape of the unknown distribution of the probability to trade:

$$\log(Exp_{i,j,t}) = \alpha + \beta_1 \log(GDP_{i,t}) + \beta_2 logGDP_{j,t} + \beta_3 \log(POP_{i,t}) + \beta_4 \log(POP_{j,t}) + \beta_4 \log(ER_{i,j,t}) + \beta_5 logTAR_{i,j,t} + \beta_6 \log(Dist) + \beta_7 CT + \beta_8 CL + \sum \gamma_t + \beta_{10} \vartheta_{i,j,t} + \beta_{11} \vartheta_{i,j,t}^2 + \beta_{12} \vartheta_{i,j,t}^3 + \varepsilon_{i,j,t}$$

(2)

$$\log(Exp_{i,j,t}) = \alpha + \beta_1 \log(GDP_{i,t}) + \beta_2 logGDP_{j,t} + \beta_3 \log(POP_{i,t}) + \beta_4 \log(POP_{j,t}) + \beta_4 \log(ER_{i,j,t}) + \beta_5 logTAR_{i,j,t} + \beta_6 \log(Dist) + \beta_7 CT + \beta_8 CL + \sum \gamma_t + \beta_{10} \vartheta_{i,j,t} + \beta_{11} \vartheta_{i,j,t}^2 + \beta_{12} \vartheta_{i,j,t}^3 + \varepsilon_{i,j,t}$$

(3)

The coefficients of both equations are obtained by using the Hausmann-Taylor (Egger 2004, Péridy 2005, 2009) estimator, which has several advantages compared to the standard random and fixed effects (RE and FE) estimators. First, unlike the FE, it allows for the introduction of time invariant coefficients; second, it has the further advantage to control for potential endogeneity of the regressors by relying on an IV type approach and using within-group deviations as instruments. Trade, GDP and exchange rates data are from the CEPII-Chelem database, data for population are collected from the World Development

Indicators and tariffs data are generated from the World Integrated Trade Solution (WITS); geographical data are obtained from the CEPII-Geodist database (Mayer and Zignago, 2005), while governance indicators are from Kaufmann, Kraay and Mastruzzi (2010) as updated by the authors for the World Bank.

3.2. Discussion of the results[II]

In general, trade relations between the BRICs and the Euro area indicate a higher penetration of imports from emerging economies than expected by the model, while the export potential appears to be underexploited in all countries with the exception of Russia. This is shown in table 2, where the ratios of potential to actual trade flows for the Euro Area are presented. Imports from China are particularly high, with ratios ranging from 0.09 for Slovakia to 0.48 for Portugal. The main economies of the area all show ratios between 0.21 and 0.27, which means that in these countries China's manufacturing export is four to five times higher than expected by our estimates. Nevertheless, together with Brazil, the export potential into China is relatively high, especially for Spain (4.11), Greece (5.56), Portugal (5.58) and Slovenia (4.57). Similarly, Italy would experience a substantial increase in exports (2.34). On the other hand, Germany is already at full potential in China while Slovakia is even above. This evidence suggests that the exploitation of the Chinese market can be more beneficial to countries experiencing higher difficulties in terms of public debt sustainability and current account imbalances. As for Ireland, another country in financial distress, the gain from export comes more from the other three countries, especially Brazil and India. For the former, the main economies of the Eurozone exhibit a potential increase of around 80% while higher increases might be obtained by smaller countries like The Netherlands, Greece and Slovakia. Turning to India, both import and export gains are modest – except for Ireland, Portugal and Slovakia – while trade with Russia is above its potential practically everywhere.

Table 3 shows the potential change in terms of GDP ratios due to the full exploitation of trade relations with the BRICs. With both import and export at their predicted value, all Euro area countries will experience improvements in their trade balances. Estonia, Belgium/Luxembourg and the Netherlands gain between 5 and 7 points of their GDP and important gains can also be obtained by Italy (2.38), Ireland (2.96%), Finland (2.9%), and Spain (2.27%). The German potential increase is below 2% while an

even lower gain, approximately 1.4% of GDP, befalls Greece and Portugal.

Most of the increase in trade balances is the result of the reduction of imports, since on average all BRICs have been exporting more than their potential suggests. The contribution of exports is higher for Ireland and Belgium but never exceeds 2% of GDP, while it is even negative for Germany, although this is entirely due to the strong reduction German exports would experience in Russia. The gain for Italian exports is 0.75, slightly below that of Spain (0.86%) and Portugal (0.80%), while France's increase is around half a percentage point; there is practically zero benefit for Greece.

Looking at the results with respect to current account imbalances in the Euro area we can conclude that, although the area as a whole becomes a net exporter into the BRICS markets, with a positive balance above 2%, the full exploitation of potential trade is not beneficial and will actually increase the gap between Northern and Southern Europe. Only Italy would turn its trade balance into positive figures, while for Ireland a further improvement of its already high trade surplus would compensate for the huge deficit in services. For both countries, such an improvement could have reduced the pressures imposed by the European authorities on their public finances. Given these results, some gains in terms of the reduction of current account imbalances in the euro area can be obtained only if the reduction of imports from emerging economies and the contemporaneous boost in exports are pursued more intensively by Italy and Spain, Ireland, and to some extent also France. For Greece and Portugal, instead, this strategy returns practically no gain. In these countries it will take time for the GDP to recover from the last crises, given the structural reforms implemented in the last years and required for the next ones.

These conclusions suggest that a policy intervention to stimulate the penetration of emerging markets should not be left to the sole initiative of the individual governments. As it can be extrapolated from figure 2, if all countries reach their potential trade balance, imbalances in the Euro area will actually increase. In addition to this, in the most likely outcome, surplus countries are expected to do better as they do not need to deal with the stabilisation of public finances, with the result of further widening the gap between them and deficit countries. This is actually what happened in the recent years, with Germany reacting to the slowdown in the Euro Area by increasing its surplus in emerging extra EU markets. This situation does not differ much from what we have experienced in the first

years of the Euro area. The introduction of the common currency has exacerbated the differences in competitiveness of the member states, mainly favouring the German economy, not least because of the strong restructuring process undertaken during the last decade, which together with wage restraints kept its unit labour costs practically unchanged over the last years (Hansen 2010, Marin 2010a/b).

Table 2 Ratio of potential to actual trade of Eurozone countries by partner

|	Brazil		China		India		Russia	
	Export	Import	Export	Import	Export	Import	Export	Import
Austria	1.91	0.73	1.66	0.20	1.35	0.73	0.30	0.92
Belgium-Lux	1.80	0.84	2.38	0.31	1.00	0.33	0.51	0.23
Germany	1.76	1.20	1.02	0.25	1.03	1.00	0.33	0.60
Spain	1.84	1.96	4.11	0.27	1.31	0.64	0.68	0.23
Estonia	2.40	0.77	1.84	0.20	1.69	1.42	0.16	0.18
Finland	2.40	0.44	2.03	0.35	1.38	1.15	0.44	0.44
France	1.98	1.28	1.90	0.21	1.13	0.57	0.43	0.21
Greece	9.87	0.83	5.56	0.35	1.62	0.90	0.30	0.14
Ireland	4.05	3.97	1.94	0.27	3.79	0.81	1.37	0.75
Italy	1.83	0.86	2.34	0.21	1.13	0.56	0.36	0.28
Netherlands	2.81	1.03	2.04	0.18	1.30	0.56	0.41	0.28
Portugal	2.64	1.29	5.58	0.48	2.78	0.57	1.17	0.32
Slovakia	2.29	1.42	0.87	0.09	2.76	0.61	0.09	0.20
Slovenia	3.43	1.43	4.57	0.18	1.54	0.35	0.11	0.31

Source: own elaboration.

Table 3 Changes in trade flows (in % of GDP) due to the full exploitation of trade potential with the BRICs

	Export			Import			Balance		
	2000	2005	2010	2000	2005	2010	2000	2005	2010
Estonia	-1.02	-0.67	-2.29	-14.21	-10.50	-9.38	13.19	9.83	7.09
Netherlands	1.16	0.89	1.35	-2.11	-3.40	-4.77	3.28	4.28	6.12
Belgium-Lux	1.79	1.68	1.95	-2.02	-2.97	-3.07	3.81	4.64	5.02
Ireland	1.25	1.51	1.89	-1.35	-2.08	-1.06	2.61	3.59	2.96
Finland	-0.15	-1.04	0.77	-1.10	-2.29	-2.13	0.95	1.25	2.90
Slovenia	-0.35	-0.42	-0.06	-0.93	-1.18	-2.90	0.58	0.75	2.85
Italy	0.60	0.59	0.75	-0.67	-0.84	-1.63	1.27	1.43	2.38
Spain	0.54	0.64	0.86	-0.69	-1.12	-1.41	1.24	1.76	2.27
France	0.40	0.39	0.54	-0.72	-1.06	-1.72	1.11	1.46	2.26
Germany	1.03	0.42	-0.28	-0.71	-1.25	-2.24	1.73	1.67	1.96
Austria	0.85	0.51	0.43	-0.65	-0.90	-1.41	1.50	1.41	1.84
Slovakia	0.50	0.12	-2.34	-1.08	-2.02	-4.08	1.58	2.14	1.73
Greece	0.02	0.10	0.22	-0.82	-1.15	-1.22	0.84	1.25	1.44
Portugal	0.52	0.59	0.80	-0.34	-0.35	-0.59	0.86	0.93	1.38

Source: own elaboration

Figure 2 Actual and potential trade balance in 2010
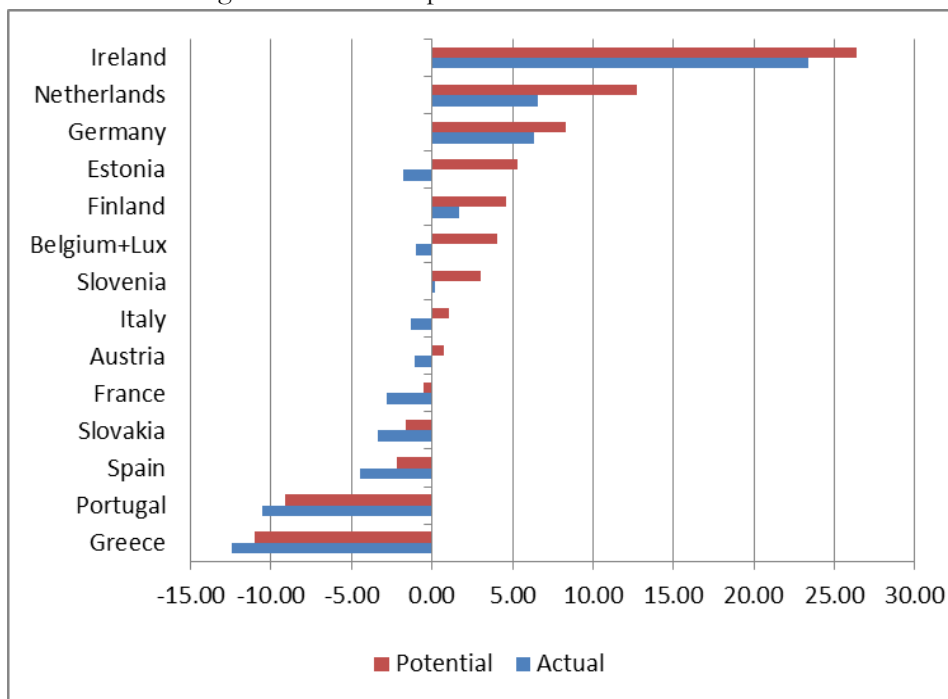
Source: AMECO and own elaboration based on CEPII-Chelem data

In the case of European institutions giving specific support to measures aimed at increasing the competitiveness of deficit countries whilst, at the same time, requiring a slowdown in surplus countries, imbalances will actually reduce and put out of the danger zone countries France and, to a lower extent, Spain and Ireland and give additional boost to the Italian trade balance. Imbalances would still be a serious problem for Portugal and Greece, countries accounting jointly for less than 5% of the Eurozone GDP and for which the export channel has never been a driver of GDP growth.

In conclusion, if imbalances and competitive differences are not corrected with the support of a centralised and symmetric intervention, the "beggar thy neighbour" character of competition between member states as has been the case so far will not put Europe out of the crisis, thereby posing a risk to the overall stability of the single currency area. Hence, the instruments of European industrial policy should be reinforced in terms of resources, and more power of intervention must be given to the European institutions in this field.

4. Public debt and trade balance

Having estimated potential gains from trade with emerging economies, we now assess whether increases in net exports have a direct effect on the level of public debt. An increase in trade balance can affect the debt to GDP ratio in two ways: first, by fostering growth, since tax revenues are closely linked to the level of income while government expenditure is relatively independent of economic activity. This means that in case of recessions, as in the current period, public finances deteriorate because tax revenues decline with GDP while expenditure remains relatively stable. Nevertheless, there can be a different reaction of tax revenues to the sources of GDP growth, depending on the structures of both value added taxation, meaning that improvements in the trade balance can increase revenues more (or less) than expected by its direct contribution to overall growth. This introduces a direct effect of trade balance on the level of public debt. If improvements in trade balances reduce the burden of public debt then, in terms of economic policy, the stimulation of domestic production and exports will be a better strategy than austerity in order to reduce macroeconomic imbalances in the Eurozone.

In this section, this assumption is tested by estimating the following equation, augmenting the standard domestic determinants of the debt level with two variables related to the external performance of a country:

$$\frac{Debt_{i,t}}{GDP_{i,t}} = \mu + \beta \frac{GovExp_{i,t}}{GDP_{i,t}} + \gamma RINT_{i,t} + \delta \frac{TrabeBal_{i,t}}{GDP_{i,t}} + \varphi REER_{i,t} + \varepsilon_{i,t}$$

(4)

where the debt to GDP ratio of country i (i=AT,…,SK) is a linear function of the share of government expenditure, the real long-term interest rate, the trade balance to GDP ratio and the real effective exchange rate. Equation (4) is estimated for the panel of 17 Eurozone members over the period 1999–2011. All variables are obtained from the EC-AMECO database. Previous evidence from panel estimates on the effect of net exports on public debt is from Kotsiois and Kalimeris (2012) but their results are not univocal. On aggregate, they find a negative but insignificant effect in the long run and a positive and significant impact in the short run. As it will be shown below, the long run effect can be explained by countries' heterogeneity in the relation of trade balance and debt level.

As regards the estimation technique, the Common Correlated Coefficients Mean Group estimator (henceforth, CCEMG) introduced by Pesaran (2006) is used, able to estimate long run relationships when regressors are non-stationary (Kapetanios et al. 2011) and when cross-sectional dependence is present, without the need to further test unit roots and cointegration. In addition, a typical feature of the Mean Group type estimators is to control for the endogeneity of the regressors (Pesaran and Smith 1995) as in the case of both real interest rate and government expenditure. For the latter, the endogeneity problem comes from the debt service payments. Finally, the use of the CCEMG estimator allows for calculating country specific coefficients, which are particularly important in order to understand which countries are experiencing the direct positive effect of trade balance to their debt burden.

In table 4 we report the country specific coefficients for the 17 Euro area members. Several countries show no significant coefficients: Germany, Greece, Netherlands, Portugal and Slovakia. On the other hand, all variables are significant for France, Cyprus and Estonia. An increase in the trade balance thus reduces the debt to GDP ratio more intensively in Italy (3.22) and France (2.46), but also in Malta and Estonia. The effect is

reverted only in Cyprus, although the small size of the country makes that comparison less meaningful.

Table 4 Country specific coefficients for internal and external determinants of public debt

	Government	Real 10y	Trade balance	REER
Austria	-0.125	0.260	-0.318	-0.767**
	[0.178]	[0.372]	[0.478]	[0.367]
Belgium	-0.314	1.870	-2.440	-0.012
	[0.675]	[1.898]	[2.172]	[0.091]
Cyprus	-1.238***	1.729***	1.068***	1.354***
	[0.261]	[0.122]	[0.074]	[0.122]
Estonia	0.210***	0.056***	-0.095***	-0.038***
	[0.009]	[0.009]	[0.006]	[0.003]
Finland	2.264**	2.643**	0.124	-1.101
	[1.072]	[1.243]	[1.907]	[0.915]
France	4.220***	-1.897***	-2.467***	-0.876***
	[0.618]	[0.420]	[0.839]	[0.280]
Germany	1.053	2.146	-1.511	-0.217
	[2.620]	[4.766]	[3.191]	[0.856]
Greece	1.937	-0.812	1.161	-0.907
	[5.376]	[1.517]	[3.382]	[0.725]
Ireland	0.838***	-2.818***	0.237	0.388
	[0.293]	[0.963]	[0.489]	[0.700]
Italy	1.524*	0.336	-3.222**	-0.931**
	[0.854]	[2.186]	[1.313]	[0.413]
Luxembourg	0.254	1.784**	0.331	0.371
	[0.417]	[0.714]	[0.569]	[0.558]
Malta	1.016	-1.998***	-1.231***	-0.168
	[0.760]	[0.436]	[0.334]	[0.629]
Netherlands	-3.871	1.566	-6.239	0.225
	[4.115]	[2.265]	[6.034]	[0.786]
Portugal	0.171	-1.406	-0.081	-0.687
	[1.725]	[4.761]	[1.758]	[1.547]
Slovenia	4.904	1.642*	-3.676	-3.548
	[5.863]	[0.925]	[4.258]	[5.546]
Slovakia	-0.300	-1.362	-1.803	2.462
	[1.572]	[4.881]	[5.221]	[5.418]
Spain	1.734***	0.714	-0.270	0.166
	[0.401]	[0.914]	[0.680]	[0.446]

Standard errors in brackets. *significant at 10% level, **significant at 5% level, ***significant at 1% level.

According to these estimates, only Italy and France would experience a direct beneficial effect of improvements in the trade balance on their debt burden. Considering the results of the previous section, if Italy reaches its potential trade balance with the BRICs, its public debt will experience a reduction of 7.7 percentage points, thereby absorbing more than one third of the increase experienced since the onset of the global financial crisis. A similar effect could be observed in France, although here debt reduction is lower (5.6%). It can thus be concluded that a policy approach focused on the reduction of trade imbalances by improving competitiveness and the penetration of emerging markets is beneficial also for reducing the burden of public debt in two of the main Euro-countries. Given the evident recessionary effect of austerity policies, their substitution with competitiveness enhancing measures appears to be advantageous for higher growth and lower imbalances.

5. Conclusions

The solution to the current debt crisis in the Euro area must pass through a correction of macroeconomic imbalances. In this paper, we have argued that such a correction is possible only if policy measures aimed at increasing the competitiveness of deficit countries are taken with a consistent effort, and with much more vigour than has been done so far. The proper policy intervention should have two features in order to succeed in rebalancing the economy: first, it should be coordinated, which means that European authorities should support national governments in implementing the necessary reforms to improve competitiveness and not only demand tougher austerity measures; second, the policy actions and rules should be symmetrical, i.e. a rebalance toward domestic demand should be pursued by countries with a trade surplus.

The aim of this paper was to provide evidence in favour of the benefits of coordinated and symmetrical policy interventions by using trade relations between the Eurozone and the group of BRICs. More specifically, the role of trade with emerging economies as an instrument to reduce macroeconomic imbalances in the Eurozone was analysed by answering two questions: can the full exploitation of the trade potential with the BRICs reduce trade and current account imbalances among member states? And is there a direct effect of trade balance improvements on the burden of debt?

In order to answer the first question we calculated the potential bilateral trade flows between Euro area countries and the BRICs by estimating a gravity equation for a panel of 34 OECD countries. Although, according to our results, all countries would potentially improve their trade balance, the effect on imbalances depends on whether that policy intervention is left to the individual states only or whether there is a coordinated intervention with a certain degree of symmetry. In the former case, our findings shows that the initiative of single governments alone will most likely increase trade imbalances as Northern countries, above all Germany, have a clear advantage in exploiting their trade potential, as shown also by the most recent data. On the other hand, if only some countries, specifically Italy, France, Ireland and Spain, increase their degree of penetration of emerging economies, the pressure on trade balances will be reduced. But this result can be obtained only if coordinated and symmetrical policy actions are taken to favour these deficit countries.

The answer to the second question reinforces the above conclusions, as according to our estimates there is a negative effect of trade balance on public debt – but this effect is significant only for a small group of countries. The most salient case is Italy, which could reduce its debt to GDP ratio by 7.7 percentage points in case of the full exploitation of its trade potential with the BRICs. This reduction would absorb more than one third of the increase accumulated since the global financial crisis; to a smaller extent, France would benefit in terms of debt reduction, too. Given the size of these two countries, the beneficial consequences for the entire Euro area public debt become clear.

Policy makers at the European level should thus work in the direction of having more power in order to enact targeted interventions to rebalance the competitive structure of the Euro area. Additional resources for investment from the EU budget to Southern countries are fundamental to rebalance trade flows. Developments in this direction would reduce the public debt exposure for the second and third biggest countries of the area, with clear benefits of the whole Euro area in terms of the resilience to external and internal shocks. However, the question remains as to how to obtain such policy changes. Given the reluctance of surplus countries, chiefly Germany, to provide additional resources to finance investment in peripheral Europe, steps in this direction must be taken gradually. A feasible policy could be to amend the corrective arm of the Macroeconomic Imbalances Procedure (EC 2011) by imposing contributions to the EU budget proportional to the surplus/deficit

(i.e., contributions increase with the surplus to GDP ratio) and use that money to stimulate investment in deficit countries. Furthermore, if investment incentives are available also to foreign investors in deficit countries, surplus ones will be less reluctant to accept such a policy. Additionally, a by-product of this measure is to strengthen European productive linkages.

Appendix: estimates of the gravity equation

Table A.1 Estimation results for the selection equation (1)

	K=export	K=import
Log(GDP$_{i,t}$)	0.813***	0.629***
	[0.042]	[0.038]
Log(GDP$_{j,t}$)	0.585***	0.831***
	[0.036]	[0.044]
Log(TAR$_{i,j,t}$)	-0.297*	-0.188
	[0.174]	[0.189]
Log(ER$_{i,j,t}$)	-0.034***	0.032***
	[0.009]	[0.009]
	[0.088]	[0.088]
Log(Dist$_{i,j}$)	-0.704***	-0.686***
	[0.053]	[0.055]
CT$_{i,j}$	7.076	7.264
	[1541.651]	[1744.345]
CL$_{i,j}$	0.807***	1.178***
	[0.224]	[0.281]
DistInt$_i$	-0.001***	0
	[0.000]	[0.000]
LL$_i$	0.248**	0.169
	[0.099]	[0.103]
DistInt$_j$	0	-0.001***
	[0.000]	[0.000]
LL$_j$	0.194*	0.156
	[0.100]	[0.104]
RQ$_{i,t}$	-0.035	0.067
	[0.074]	[0.079]
RQ$_{j,t}$	0.328***	0.148**
	[0.075]	[0.075]
GE$_{i,t}$	0.372***	0.115
	[0.099]	[0.104]
GE$_{j,t}$	0.011	0.287**
	[0.100]	[0.101]
RL$_{i,t}$	0.089	-0.016
	[0.094]	[0.100]
RL$_{j,t}$	-0.121	-0.04
	[0.096]	[0.097]
N	74044	74044
Rho	0.562	0.592
Test rho=0	2150.6	2429.3
Log likelihood	-5141	-5090

Standard errors in brackets. *significant at 10% level, **significant at 5% level, ***significant at 1% level.

Table A.2 Estimation results of the gravity equations (2) and (3)

	Export		Import	
	1	2	1	2
Log(GDP$_{i,t}$)	1.026***	1.494***	1.018***	1.636***
	[0.122]	[0.126]	[0.104]	[0.109]
Log(GDP$_{j,t}$)	1.120***	1.629***	1.016***	2.506***
	[0.061]	[0.076]	[0.087]	[0.130]
Log(POP$_{i,t}$)		-2.740***		-1.709***
		[0.228]		[0.220]
Log(POP$_{j,t}$)		-0.653***		-1.453***
		[0.073]		[0.109]
Log(ER$_{i,j,t}$)	-0.316***	-0.363***	-0.099***	-0.102***
	[0.021]	[0.022]	[0.021]	[0.022]
TAR$_{i,j,t}$	-0.828***	-0.997***	-0.774***	-0.921***
	[0.146]	[0.147]	[0.138]	[0.136]
Log(DIST$_{i,j}$)	-0.553***	-0.888***	-0.901***	-1.657***
	[0.137]	[0.121]	[0.119]	[0.207]
CT$_{i,j}$	-0.101	2.162***	-1.176*	3.046***
	[0.661]	[0.646]	[0.713]	[0.901]
CL$_{i,j}$	0.072	0.153	-0.143	0.086
	[0.336]	[0.288]	[0.283]	[0.502]
$\theta_{i,j,t}$	0.316**	-0.046	0.709***	-0.081
	[0.122]	[0.124]	[0.130]	[0.138]
$\theta^2_{i,j,t}$	-0.019	-0.011	-0.040***	-0.023**
	[0.012]	[0.011]	[0.011]	[0.011]
$\theta^3_{i,j,t}$	0.001	0.000	0.001**	0.001
	[0.000]	[0.000]	[0.000]	[0.000]
N	9373	9373	9373	9373

Standard errors in brackets. *significant at 10% level, **significant at 5% level, ***significant at 1% level.

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[I] See Collignon and Esposito (2014) for a discussion of the different approaches to the measurement of countries' competitiveness.

[II] Estimation results are shown in table A1 and A2 in the appendix.

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