

Eurozone Crisis: It's About Demand, not Competitiveness¹

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1. Introduction

Correctly interpreting the Eurozone sovereign debt crisis matters a great deal. It is an important historical natural experiment, one of those events that may eventually change our theories. In addition, solving the crisis requires having first reach a diagnosis. Surprisingly, perhaps, the diagnosis is not yet agreed upon. In fact, the official interpretation, backed by some academic research, is likely to be severely mistaken. This paper is an attempt at correcting the mistake.

The European Commission has drawn a long list of reasons for the Eurozone crisis but has sought to put competitiveness at or near the top of its analyses:

“While fiscal imbalances are at the forefront of the current policy debate, they are by no means the only area where policy action is needed. Recent developments have highlighted the urgent need for some euro-area Member States to restore their external balances and to improve their competitiveness.”

Quarterly Report on the Euro Area 10(3), P.21-22

Some academics have also developed this view:

“The competitiveness of these countries was severely eroded in the process, since their wages and prices rose excessively over the period. To come out of the crisis, the GIPS now need to depreciate in real terms, i.e. reduce wages and prices relative to their trading partners, a painful process that requires harsh austerity programs, straining the social fabric and causing significant political strife.”

Sinn (2011)

The present paper argues that this view is victim of a familiar trap: simultaneity does not imply causality. It is true that the crisis countries have undergone increasingly large current account deficits and that their inflation rates have exceeded those in the rest of the Eurozone. This does not imply, however, that higher inflation coupled with

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a common currency is the causal factor of the crisis or even of external deficits. It is not true, therefore, that wages must be reduced as a matter of priority to end the crisis. Nor is the Excessive Imbalance Procedure, created by the European Union in 2012 to monitor labor costs and current accounts, justified by the crisis. More crucially, the conclusion that the euro area is doomed because labor markets are inflexible and the source of lethal imbalances is not warranted either.

Even if inflation differentials caused the imbalances and the crisis, inflation can hardly be seen as exogenous. We need to identify what caused these differentials. This paper argues that domestic demand lies at the root of the divergent paths. In part, the demand boost was partly the consequence of the predicted manifestation of the Walters critique. In some countries, low real interest rates encouraged a credit boom, which boosted private spending and opened up current account deficits. As always, the credit boom was followed by a bust and the need to bail out banks, which led to large public debt increases. In other countries, unsustainable budget deficits pumped up domestic demand. This is why the European crisis is a public debt crisis.

The story line of this paper therefore brings together domestic demand, real exchange rates and current account imbalances. Establishing causality is essential to distinguish this interpretation from the popular competitiveness view. Unfortunately, formally establishing causality, always a difficult and often desperate undertaking, is impossible in the present case because we have too few observations. Budget figures are only meaningful at the annual frequency and inflation is a low frequency variable. In addition, the sudden jumps in public debts in response to bank bailouts are one-off events. For this reason, the paper builds up its case through circumstantial evidence.

Of course, the role of competitiveness and external imbalances in the crisis has been scrutinized, in fact even before the onslaught of the global and European crises. Many scholars (e.g. Obstfeld and Rogoff, 2005; Roubini and Setser, 2005) long forewarned that the observed current account imbalances were unsustainable, that some correction was unavoidable and that this correction could take the form of a crisis hitting the dollar and the US economy. The 2007-8 crisis was not a current account imbalance crisis, there was no financial flow reversal to the US and the US dollar has not faced any significant depreciation. This has led to a reappraisal. In particular, Obstfeld and Rogoff (2010) argue that the real exchange rate and the current accounts are endogenous to economic policies, which is one theme of the present paper as well.

A number of papers focus on the Euro Area and deal with the similar set of questions as here. Mongelli and Wyplosz (2009) note that the rising divergence of inflation and current accounts is unsustainable, but they interpret this as a self-equilibrating consequence of the Walters critique; the present paper will argue that the crisis is part of the return to equilibrium. Lebrun and Perez (2011) study the pattern of real unit labor costs and find that fluctuations tend to be reversed, with a five-year half life. They establish a link between rising real unit labor costs and increases in the capital-labor ratio, which leads them to emphasize the role of firms borrowing and investment. Mallariopoulos (2010) looks at various indicators of competitiveness and concludes that real effective exchange rates overstate the loss of competitiveness of Greece after it adopted the euro, which is also a conclusion of the present paper. Lane and Peels (2012) note that current account deficits can be justified by growth convergence but they also find that excessive enthusiasm about expected growth

played a role in boosting domestic demand. Lane and Milesi-Ferretti (2012) study post-crisis current accounts in a broad sample of countries; they find that the reversals have been stronger where pre-crisis deficits were deeper and, most related to the present paper, that exchange rates played no role where they were floating and a perverse role where they were pegged. Finally, Chen et al. (2013) offer a detailed analysis of the evolution of real exchange rates, with results quite similar to those presented here.

Section 2 shows how unit labor cost measures can be misleading. It argues that competitiveness losses in the periphery countries have been greatly exaggerated and are now fully reversed. Section 3 follows up by tracking the various components of the real exchange rate, defined as relative unit labor costs. The nominal appreciation of the euro is found to be a key driving force. There is also some evidence that the strength of the euro was partly the consequence of Germany's successful policy of wage moderation. Arguing that competitiveness – measured by the real effective exchange rate – is endogenous, Section 4 follows up with the causality question. Given the short period since the creation of the euro, formal causality tests are impossible. The paper therefore looks at indirect evidence to find that demand shocks were the causal factor. The conclusion draws some policy implications.

2. The facts

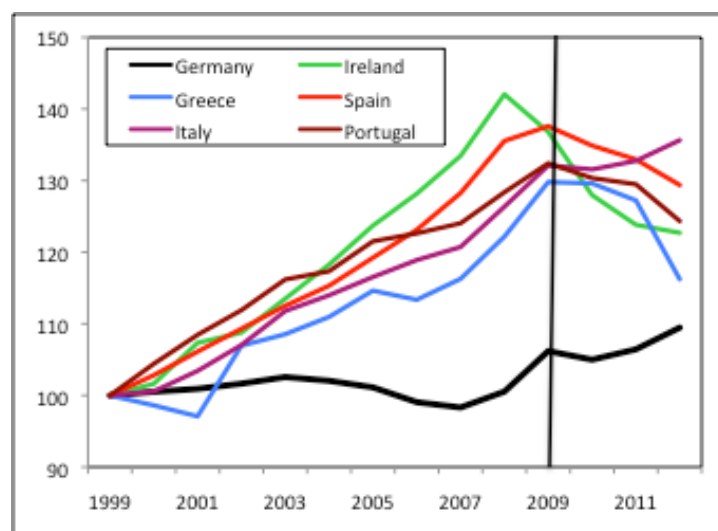
It is probably fair to assert that the prevailing view that the Euro Area crisis is the consequence of serious competitiveness losses in the affected countries is entirely and uniquely based on one version or another of Figure 1 below. The figure displays unit labor costs $U = WL/Y$, where W is nominal compensation per employee, L the number of employees and Y is real GDP. It shows a widening gap until 2009, the year when crisis pressure built up (indicated by the vertical line). This figure has led to an almost universal conclusion that the crisis has been caused by a loss of competitiveness in the Southern Euro Area countries, which remains wide by 2012. Is this diagnosis as compelling as it looks?

Labor costs are directly comparable and offer a clear picture of the evolution of national competitiveness under two assumptions. The first one is that we have a single good market and separate labor markets. The other implicit assumption is that we do not need to be concerned with exchange rates because all wages and GDPs are in euros in these countries.

The first assumption is only superficially reasonable. It is true that labor market institutions are deeply national, involving domestic trade unions and wage bargaining processes driven by domestic factors, both economic and political. Yet, wage bargaining is known to be deeply related to economic conditions in general (see, e.g. Mortensen and Pissarides, 1994). This has been shown to imply, among many other things, that goods market integration has effects on labor markets, even if the overall impact depends on a myriad of factors, as surveyed in Bertola (2009), which also looks at the various effects of adopting a common currency. The effects may also change over time as national labor market institutions endogenously respond to changing conditions, see e.g. Calmfors (2001). These considerations suggest that the co-movements apparent in Figure 1 are not necessarily exogenous and need to be explained. I return to this issue below in **Section xx (maybe link to CA)**, surely to

Walters critique). They also provide some clues to the rapid reversal observed after 2009.

Figure 1. Unit labor costs in Germany and in the crisis countries 1999-2012 (Index: 1999 =100)



Source: AMECO on line, January 2013. European Commission

Note: Variable PLCD is the ratio of the nominal wage bill to real GDP for the total economy, where the wage bill is inclusive of overhead costs.

The second assumption is clearly unacceptable, as argued by Lebrun and Perez (2011) and Mallariopoulos (2010). It implicitly amounts to claiming that the Euro Area countries only compete with each other. While intra-Euro Area trade often represents the largest part of overall trade, individual countries have different specializations and trade with different parts of the world. It also ignores the fact that the evolution of the nontraded good sector, where much of wage slippages have occurred, has little to say about external competitiveness. These two arguments suggest that nominal labor costs tells us very little about external competitiveness. Ideally, we would like to look at each country real effective exchange rate (REER) measured by comparing the domestic traded good price index and an index of average traded good prices in the partners countries converted in domestic currency when these countries are not part of the Euro Area.

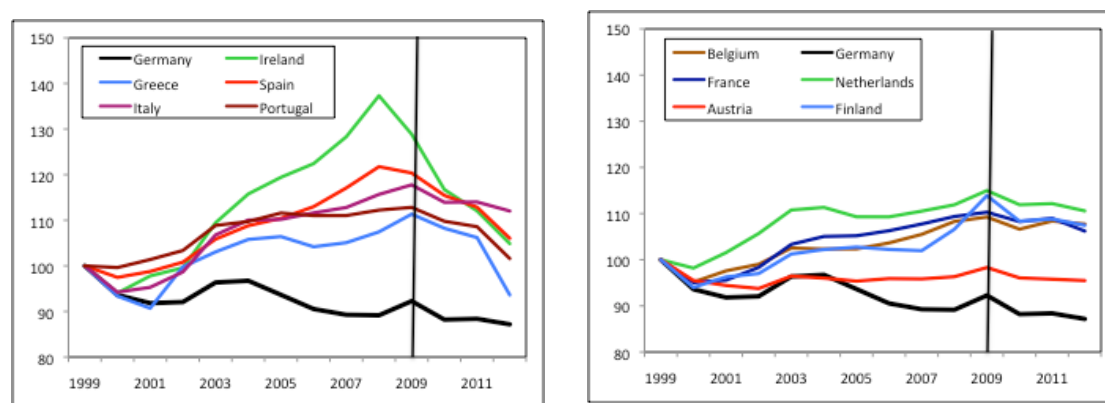
Lack of internationally comparable traded good price data precludes the use of such a REER, unfortunately. This paper therefore sticks with nominal labor costs but relies on a REER that compares each country's costs to average costs in its partner countries, including those outside of the Euro Area. Figure 2 accordingly presents for each country the REER based on nominal unit labor costs EU/U^* where E is the effective exchange rate of a country, U its nominal labor costs (shown in Figure 1) and U^* the average unit labor costs in partner countries, using the same geometric weighting schemes for E and U^* .² The leftmost chart presents REERs of the crisis

² The partner countries are the 35 other industrialized countries in a sample that includes the 27 EU

countries while the rightmost chart presents those from the largest remaining countries using the same scale for comparison purposes.

Figure 2 confirms that sizeable gaps between the crisis countries and Germany open up after 1999. However, except of Ireland, they are much smaller – about half – than suggested by Figure 1. This is not surprising; Chen et al. (2013) show that most Euro Area countries trade in different good categories and that trade outside the Euro Area is far from negligible, especially for the periphery countries. Figure 2 also shows that the crisis countries' REERs have depreciated considerably after 2009 and are almost back to where they were in 1999. This is a very important observation since the observed reversals suggest that labor markets are considerably more responsive than hitherto believed. Of course, this newfound flexibility has been achieved under considerable duress as unemployment rates have massively increased. At least, these costs are now sunk so that exit from the Euro Area is hardly warranted any more. The figure also suggests that Germany is an outlier, relative to both crisis and non-crisis countries, perhaps with the exception of Austria.

Figure 2. Relative Unit Labor Costs (Index: 1999 = 100)



Source: AMECO on line. European Commission.

Note: Variable XUNRQ is the ratio of domestic nominal unit labor costs used in Figure 1 relative to those in 35 other developed countries using double export weights and converted in the same currency. Note that the exchange rates are those that prevail in the corresponding years, euros from 1999 onward and national currencies before. The 36 countries in a sample are the 27 EU countries and Australia, Canada, Japan, Mexico, New Zealand, Norway, Switzerland, Turkey and the US.

Yet, this presentation of REERs is potentially misleading too. By normalizing all REERs to be 100 in 1999, the year when the euro was created, it implicitly assumes that all exchange rates were then in equilibrium. Casual evidence is that some countries (Portugal is a case in point, as is Greece when it joined in 2001) adopted

countries, Australia, Canada, Japan, Mexico, New Zealand, Norway, Switzerland, Turkey and the US. Double export weights. (AMECO code: XUNRQ.) A similar

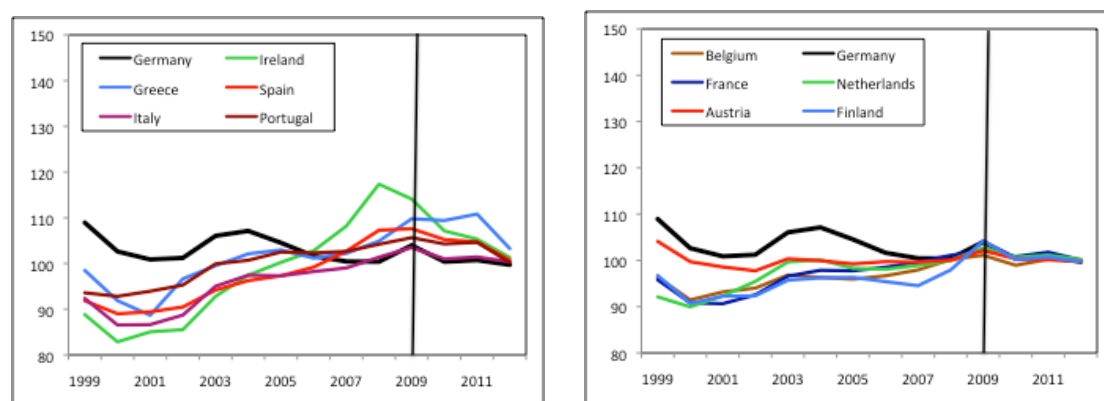
undervalued conversion rates while Germany accepted an overvalued exchange rate. If that assessment is correct, we should expect real appreciation for the former countries and a real depreciation in Germany.

This is exactly what happened as seen in Figure 3, which uses the same data as Figure 2, but normalizes the REERs by setting the index to be 100 on average over the whole period 1995-2012 for which the data is available. Under the purchasing power parity (PPP) assumption, real exchange rates fluctuate around a long-run equilibrium level. The evidence is that real exchange rate deviations from equilibrium are slowly eliminated with a half-life of about 4-5 years (Frankel and Rose, 1996). Under this assumption, the average value of 100 computed over 18 years should be a reasonable estimate of the equilibrium level.

Note that the scale is the same as in previous figures. Generally, the fluctuations are less pronounced because the average is usually significantly larger than the 1999 level. Indeed, all crisis countries are found to have converted in 1999 their currencies into euros at an undervalued rate, with the opposite situation for Germany, and, to a much smaller extent, Austria. Crucially, the figure shows that by 2012 the REERs of all member countries are well within one standard deviation of the presumed equilibrium level 100.

The assumptions that underlie the interpretation of the data are not necessarily warranted. For instance, some countries may have had overvalued exchange rates during the whole period. For this reason, the impression conveyed by Figure 3 may be misleading but, in this respect, Figure 1 is much more so since it implicitly makes the stronger assumption that all exchange rates were in equilibrium in the year 1999.

Figure 3. Relative Unit Labor Costs (Index: 1995-2012 = 100)



Source: Same data as Figure 2.

Obviously, just looking at data cannot provide firm conclusions. Any attempt at deciding whether a country has an over or undervalued currency inevitably requires estimating the equilibrium exchange rate and testing for PPP. PPP is a controversial concept but massive research efforts have led to the consensus view that, while that, while PPP does not hold in the short run, PPP cannot be rejected in the long run,

at least for countries at similar stages of development (Taylor and Taylor, 2004). If the Southern Euro Area countries have continued to catch-up with the core countries after joining the euro, PPP may not hold and there would be even less of a case for overvaluation, an issue to which I return in Section 4.

The 18 year-long sample period used to normalize the REERs in Figure 3 may be seen as somewhat short. An alternative dataset provides REERs for Euro Area countries dating back to 1960, but they compare each country to a narrower sample of countries, namely the 15 first EU member countries. The longer period potentially offers a more precise estimate of the equilibrium exchange rate under the PPP assumption, but the narrower definition of partner countries can introduce a serious bias.

Figure 4 displays the difference between the corresponding REER and its average over 1960-2012 under the narrow definition of trading partners and over 1995-2012 for the wider definition. The PPP-implied overvaluation is presented for three years: 1999, when the euro was launched, in 2009 when the crisis built up and in 2012, the latest data available, using the same scale for each chart. The difference between the two measures is striking. In general, misalignments are much larger under the narrow definition, especially in the crisis year 2009 where the narrow definition suggests considerable overvaluation for all the crisis countries. This is in line with the difference between Figure 1, which implicitly encourages comparison with Germany, the narrowest possible list of partner countries, and Figure 2, which uses the wide list of partner countries.

Figure 4 confirms that the conversion rates adopted as the euro was started implied an overvaluation for Germany and Austria, and sizeable undervaluations for other countries, with limited differences between the two REER measures, the exceptions being Portugal and Spain. Finally, according to the narrow definition, except Ireland all the crisis countries are found to still suffer from overvaluation in 2012 while this is not the case under the wide definition (see also Figure 3, which stands behind the wide definition deviations displayed in Figure 4).

It may be that the narrower definition is more acceptable because it relies on 63 years of observation. One reason to be suspicious about the narrow definition is provided by Chen et al. (2013), who show the importance for the Euro Area countries of trade with countries outside Europe in understanding the evolution of current accounts and how trade shocks have had important asymmetric effects in the monetary union.

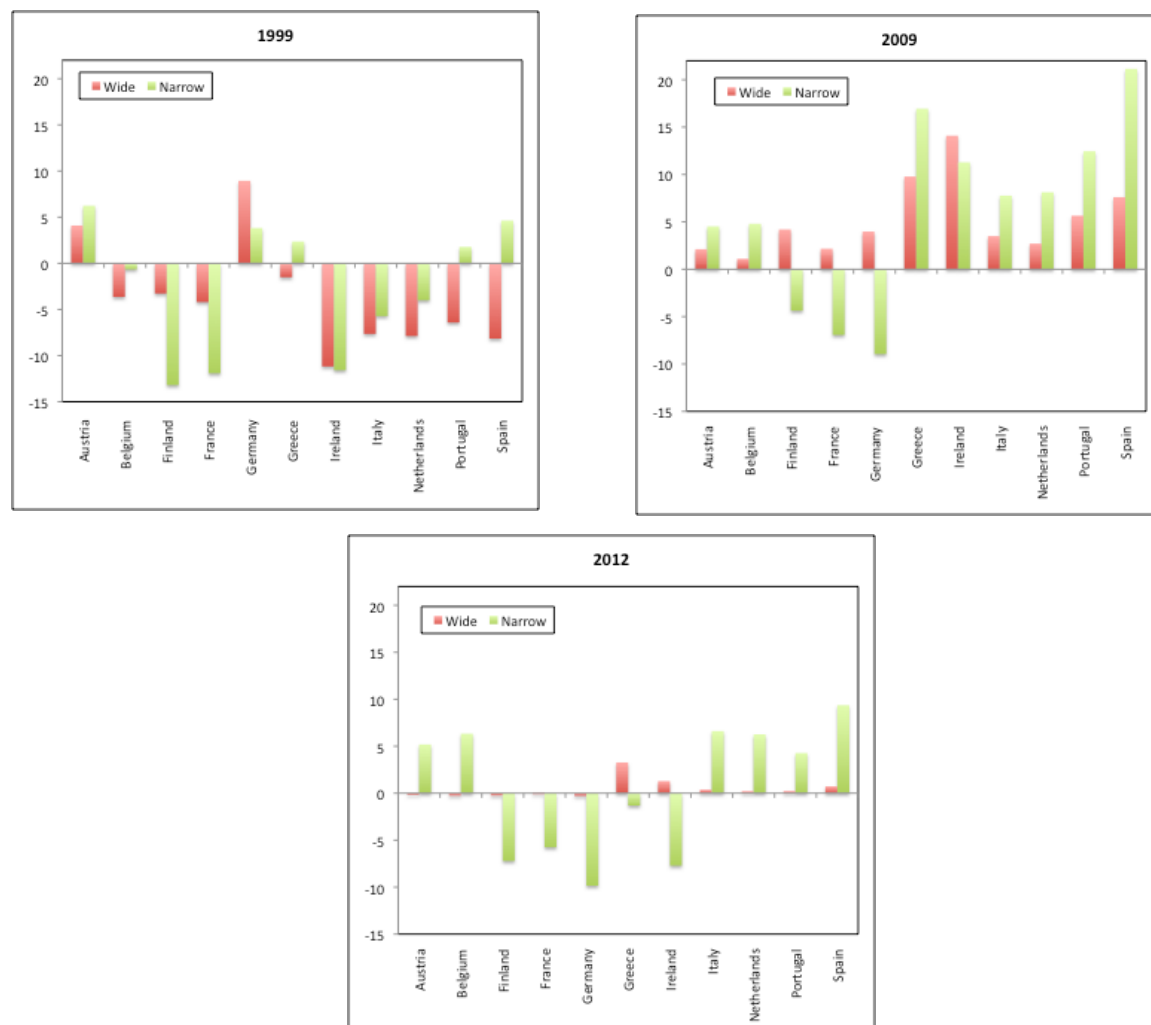
3. Sources of misalignments

Even though the view, that massive loss of external competitiveness is what characterizes the crisis countries, does not stand up to a proper treatment of the data, it remains true that these countries have seen their real exchange rate appreciate during the first ten years of the euro. Why? Four explanations are possible:³ 1) a correction

³ Another interpretation considers that exogenous capital flows triggered domestic borrowing and spending, hence excessive demand (Sinn, 2012). This is again a causality issue: is it not domestic demand that has attracted foreign financing? Why, for example, would capital have flowed *exogenously* to Spain and not to Germany?

of earlier misalignments; 2) the euro's strength; 3) asymmetric shocks; 4) the Balassa-Samuelson effect.

Figure 4. Deviations of REER from average



Note: The wide REER is the same as in Figure 2 and the average is computed over 1995-2012; the narrow REER compares a country's nominal unit labor costs to those in the other 15 EU member countries before enlargement to Central and Eastern Europe, the average being computed over 1960-2012.

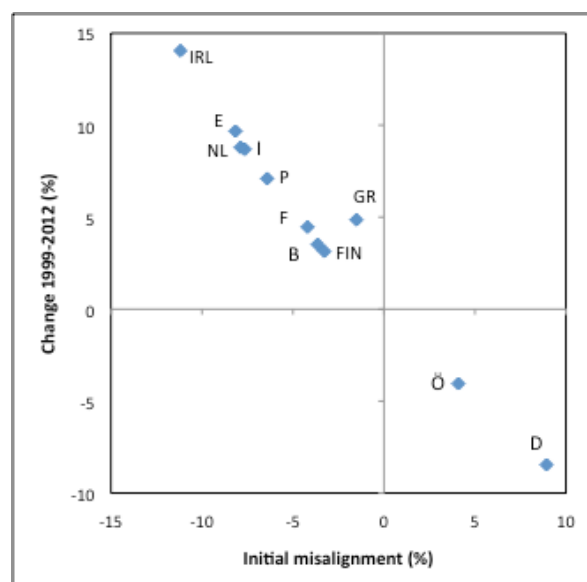
Source: AMECO on line. European Commission

3.1. Correction of earlier misalignments

The previous section has already looked at the first interpretation. Using the wide definition of real exchange rates, the evidence is summarized in Figure 5. The figure shows a near-perfect relationship between the initial misalignment, as shown in

Figure 4, and the subsequent change in the rate, as displayed in Figure 3.⁴ The question is then: is there anything more to it? The answer will be largely negative but the next question will be to ask how this correction came about.

Figure 5. Real exchange rates: initial deviation and change over 1999-2012



Note: Wide definition
Source: Figures 3 and 4.

3.2. Exchange rate decomposition

The REER combines the effective nominal exchange rate and nominal labor costs, which in turn are related to inflation and labor productivity. This section briefly looks at a decomposition of the change in REERs between 1999 and 2009.⁵ The REER used so far is EU/U^* the ratio of domestic nominal unit labor costs U to the average of foreign labor costs U^* converted into the same currency via the nominal effective exchange rate E . Using the GDP deflator to measure the price level and denoting $u = U/P$ and $u^* = U^*/P^*$, respectively, the real domestic and foreign real labor costs, the REER can be written as:

$$\frac{EU}{U^*} = \frac{u}{u^*} \frac{EP}{P^*}$$

Table 1 provides the corresponding decomposition of the change in the REER (Column 1) into changes of u/u^* (Column 2) and of EP/P^* (Column 3) during the first ten years of the euro. Then the change of relative prices EP/P^* – another popular

⁴ Looking at a large sample of developed and emerging market countries, Lane and Milesi-Ferretti (2012) show that, in the post global crisis period, the current account adjustment is proportional to the size of the initial imbalance.

⁵ Chan et al. (2013) perform a similar decomposition, but with a different angle. They too conclude the euro's nominal strength has played an important role, but they focus on a different asymmetry: national specialization in trade at a time of fast growth in the emerging market countries.

REER measure – is decomposed into changes in the effective nominal exchange rate E (Column 4) and in the cumulated inflation differential P/P^* (Column 5). Domestic cumulated inflation is shown in the last column. With the exception of Ireland and Finland, and in a smaller way Italy, relative *real* unit labor costs have not drifted very significantly and do not explain much of the REER appreciation where it has occurred. Since u represents the labor share of income, the view that labor costs have been allowed to mushroom after adoption of the euro in countries like Greece or Portugal is simply not borne out by the data. Except for Ireland, wherever competitiveness has been hurt, the main cause of increase in the REER is an appreciation of the GDP deflator based real effective exchange rate EP/P^* .

Table 1. Decomposition of increases in REER, 1999-2009 (percent)

	Total REER = EU/U^* (1)	u/u^* (2)	EP/P^* (3)	E (4)	P/P^* (5)	P (6)
Crisis countries						
Greece	14.4	2.6	11.5	11.7	-0.1	38.6
Ireland	34.1	13.0	18.6	15.6	2.6	26.4
Italy	17.7	5.6	11.5	12.3	-0.8	26.8
Portugal	13.0	1.9	10.8	6.9	3.7	30.1
Spain	19.0	-2.7	22.3	10.3	10.9	40.1
Non-crisis countries						
Austria	-1.9	-2.2	0.3	7.1	-6.3	16.7
Belgium	8.8	0.6	8.2	9.1	-0.9	22.5
Finland	13.5	9.6	3.5	11.9	-7.5	16.3
France	9.5	2.9	6.4	10.7	-3.9	20.8
Germany	-8.0	-2.5	-5.7	11.4	-15.3	8.9
Netherlands	14.8	2.4	12.0	8.8	3.0	26.3

Notes: u/u^* is the ratio of domestic and foreign real unit labor costs WL/PY (code QLCDQ); E is the nominal effective exchange rate (code XUNNQ); P/P^* is the ratio of domestic and foreign GDP deflators (code: PVGDQ); P is the domestic GDP deflator (code PVGD).

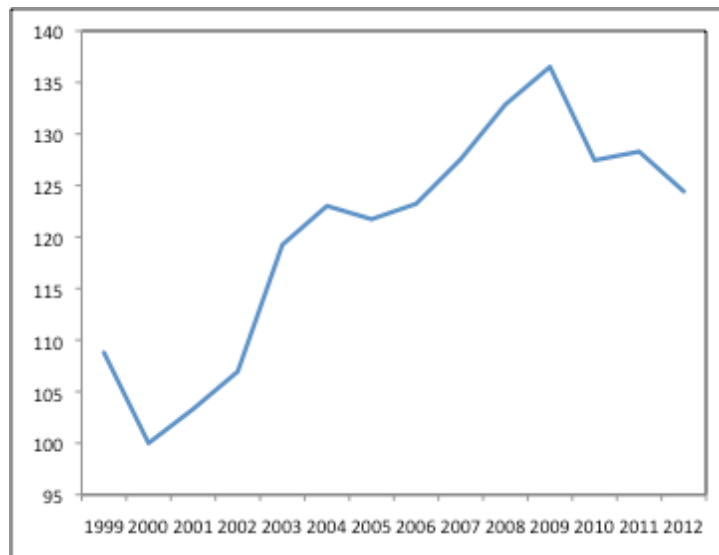
Source: AMECO on line. European Commission

Decomposing further EP/P^* , it appears that the main cause of real appreciation is not inflation differentials but a nominal appreciation. Since its creation, after an early depreciation, the euro has appreciated, peaking in 2009 as shown in Figure 6.⁶ The evolution of national nominal effective exchange rates varies from one country to another because of different geographical trade patterns. This explains that some countries, chiefly Ireland that trades heavily with the UK, underwent stronger appreciation than others like Portugal more integrated into the EU. Among the crisis countries, inflation differentials have been negligible except for Spain. Yet inflation differentials set apart the non-crisis from the crisis countries, which may seem

⁶ The 25.5% euro's effective appreciation between 1999 and 2009 exceeds that of the countries shown in Table 1 because national effective rates use trade weights that include the other Euro Area countries while the Euro Area as a whole only trades with the rest of the world.

inconsistent. A plausible interpretation is that the trade partners of the crisis countries on average displayed higher inflation than those of the non-crisis countries. This interpretation is compatible with GDP deflator inflation, as shown in the last column, which shows that the crisis countries generally exhibit significantly higher rates than the non-crisis countries, especially Spain and Greece.

Figure 6. Nominal effective exchange rate of the euro (index: 2000 = 100)



Note: The exchange rate is computed as a trade-weighted index relative to 35 industrialized countries (code XUNNQ).

Source: AMECO on line. European Commission

Finally, Table 1 shows that Germany – and Austria to a smaller extent – is a clear outlier on every single dimension of this decomposition. This is one additional reason behind the popular view that the crisis countries have suffered massive competitiveness loss. The fact is that Germany achieved large competitiveness gains since the euro creation. Its GDP deflator has risen by 15% less than among its trading partner. That its real unit labor costs also declined in relative terms implies that relative nominal labor costs declined much more.⁷ With a common monetary policy, the source of this performance most probably lies with an active policy of wage moderation that led to low inflation.

3.3. An asymmetry

Based on its price and labor cost behavior, according to PPP Germany’s nominal exchange rate should appreciate. Given the size of its economy, Germany’s performance probably played an important role in the euro appreciation, which in turn was a key contributing factor to the real appreciation of the crisis countries. Does it mean that the Euro Area has a “German problem”? One benefit of economic

⁷ Using Columns (1) and (4) or Columns (2) and (5), relative nominal unit labor costs (U/U^*) declined by 18 to 19%.

integration is that it enhances competition, not just in the goods and financial markets but more broadly, including wage and price setting institutions.⁸ In that sense, the fact that the largest economy is virtuous is a positive development. It puts pressure on all other countries to follow suite, contain their own costs and raise productivity. In the long run, inflation, and therefore, the exchange rate are determined by the common monetary policy.

At the same time, the situation is asymmetric in the short run, and the short run can be unstable. Consider a two-country monetary union with similarly sized economies, where one country is reducing its labor costs, but not the other one. This is a classic asymmetric shock as discussed in the Optimum Currency Area literature. If each country had its currency, the virtuous country would see its exchange rate appreciate, so that its efforts would accrue in the form of improved terms of trade (and other domestic effects like low real interest rates and higher employment), with no effect on the other country, at least to a first degree of approximation. If they share the same currency, the common exchange rate appreciates, but less. This means that the non-virtuous country's external competitiveness is eroded while the virtuous country enjoys a competitiveness advantage. Strong demand for the virtuous country production translates into a current account surplus and eventually inflation. Over time inflation will produce the same real exchange appreciation as in the absence of the common currency. If this country is willing to tolerate a higher inflation rate, it has nothing to do, just wait and rip the benefits from its virtuous behavior. The other country sees its current account worsen and faces low demand, hence a contractionary effect. If the situation lasts, i.e. if inflation rises slowly in the virtuous country, the other country's external debt keep rising and its public finances deteriorate as growth slows down. This can become a crisis. The asymmetry means that the onus of action is on the country that has not reduced its production costs. This country has not done anything wrong, simply it shares its currency with a highly virtuous country. This non-cooperative outcome is undesirable for both countries: inflation in the virtuous country, a risk of crisis in the other country.

The asymmetry problem has been well known for a long time. During the Bretton Woods conference, Keynes famously wanted the fixed exchange rate system's rules to be symmetric. He lost. The IMF developed assistance programs that impose restrictive conditions on the non-virtuous countries, none on the virtuous countries. At least, the Bretton Woods agreement allowed the non-virtuous countries to depreciate. The current situation in the Euro Area bears more than a resemblance to the Bretton Woods agreements, including conditional loans from the European Financial Stability Facility (EFSF) and its successor the European Stability Mechanism (ESM), but with important differences. One obvious difference is that depreciations are not possible within the Euro Area, so the non-virtuous countries face a much steeper hurdle. Another difference is that the link between private and public debts is now much tighter than in Keynes' times, and both debts have grown considerably. This makes the situation considerably more crisis-prone and the costs of the asymmetry much larger. The third major difference is that Euro Area countries do not have access to a lender of last resort. Even though the ECB will be drawn eventually into playing this role, the delay is costly. Finally, most Euro Area countries have no room left for fiscal

⁸ Bertola (2008) shows the deep link between direct goods market competition and indirect labor market competition.

policy actions.

At the cost of oversimplification, this section has shown that competitiveness losses occur when the euro appreciation is not offset by a reduction in labor costs. Put differently, countries that did not cut relative labor costs in the face of a strong appreciation of the euro – or in the case of Spain, did not cut enough labor costs in the face of a very strong effective appreciation – are those that suffered competitive losses. Since 2009, the combination of relative labor cost reductions and a weaker euro explain why competitiveness is nearly reestablished. The adjustment process, however, has been highly asymmetric, involving large increases in unemployment in the crisis countries while Germany enjoys some of its best years.

3.4. The Balassa-Samuelson effect

The reasoning so far rests heavily on the assumption that PPP is valid in the long run. The most common reason why long run PPP fails is the Balassa-Samuelson effect, which predicts that the real exchange rate appreciates when an economy catches up. The phenomenon involves large productivity gains in the traded good sector, which allows for higher real wages in that sector while keeping labor costs and competitiveness intact. In the nontraded sector real wages grow too for various reasons,⁹ so labor costs increase in that sector and hence in the aggregate.

The Balassa-Samuelson hypothesis might explain why labor cost increases have occurred in Southern Europe, which is often seen as economically lagging Northern Europe. An important implication of the hypothesis is that rising aggregate labor cost increases represent an equilibrium phenomenon, not a loss of international competitiveness. It must also be noted that the Balassa-Samuelson hypothesis has nothing to say about current account imbalances. Indeed, as a microeconomic phenomenon, it cannot help understand current account balances, the difference between domestic production of and spending on traded goods.

The Balassa-Samuelson hypothesis could provide an interpretation for labor cost increases until the start of the crisis, see Figure 3. Under this interpretation, however, the post-crisis decline in labor costs would not be seen as a return to equilibrium but as a temporary phenomenon – the impact of a growing recession – that will be reversed once the crisis is over.

Many papers have tested the presence of a Balassa-Samuelson effect. The starting point is to build the measure that identifies the Balassa-Samuelson effect. As shown by De Gregorio et al. (1994), this is ratio $\frac{\pi^T / \pi^N}{\pi^{*T} / \pi^{*N}}$ of a country's productivities in the traded (π^T) and nontraded (π^N) good sectors relative to the same ratio in trading partner countries. The foreign productivity measures are built as geometrically weighted averages of individual countries, using trade weights. The data are from the OECD STAN database. Productivity is measured as value added per hour of work. The traded good sector includes xxx

The changes in the national traded to nontraded sector productivity ratios since the

⁹ Labor market equilibrium, trade union pressure and equity considerations.

creation of the euro are reported in Table 2. Greece, Ireland and Portugal are indeed among the Euro Area countries where relative productivity has increased fastest. On the other hand, Spain and Italy are among the countries with the lowest changes. This either suggests that the Balassa-Samuelson effect is not relevant for this group of Euro Area countries or that it is only relevant for a subset of countries. In that latter case, it is disquieting that the first group of countries that were affected by the crisis – Greece, Ireland and Portugal – are precisely those where productivity changes have been supportive of a Balassa-Samuelson effect.

An indication is provided by the correlation between the changes in the ratios and their initial levels. Over the long period 1970-2007, among the countries shown in Table 2, the correlation is -0.91, which indicated that changes have been largest where the initial ratios were lowest, precisely what is expected under the Balassa-Samuelson hypothesis. However, over the period 1998-2007, the ratio is only -0.19. This suggests that, in some countries at least, changes in the productivity ratio may be related to other reasons than catch-up in the traded good sector.

Table 2. Change in Relative productivities (π^T/π^N)

	1999-2007
Italy	11.2%
Germany	12.9%
Spain	13.2%
Belgium	15.6%
Netherlands	23.2%
France	24.4%
Austria	25.6%
Greece	28.7%
Finland	37.4%
Portugal	43.0%
Ireland	60.2%

Source: STAN database, OECD.

We test formally for the presence of a Balassa-Samuelson effect, following the approach proposed by Ricci et al. (2008). Available data cover 18 developed countries over the period 1977-2007.¹⁰ The (log of the) real exchange rate, defined as relative labor costs – as shown in Figure 2 – is regressed on the log of the ratio of

domestic to foreign relative productivities and a number of control

variables proposed by Ricci et al. (2008). The results are presented in Table 3. The two first column show OLS estimates while the last two columns show results obtained with DOLS (Dynamic OLS). The Balassa-Samuelson term is never significant, neither for the whole sample nor for the Euro Area countries alone.

¹⁰ Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Netherlands, Portugal, Spain, Sweden, UK and the US.

Table 3. Estimation of the real effective exchange rate

(1977-2007, 17 OECD countries)

	(1) OLS pooled	(2) OLS emu	(3) DOLS pooled	(4) DOLS emu
Log real effective exchange rate				
Log terms of trade	0.558*** [0.125]	0.091 [0.428]	0.482 [7.308]	0.235 [9.679]
Net foreign assets /(exports + imports)	0.002 [0.020]	-0.011 [0.023]	-0.018 [1.065]	0.000 [0.321]
Governemnt spending/GDP	-0.000 [0.004]	0.009 [0.005]	0.003 [0.136]	0.002 [0.129]
Log relative productivity	-0.063 [0.136]	0.122 [0.170]	0.081 [4.857]	0.006 [2.832]
EMU dummy	-0.005 [0.017]		-0.001 [2.063]	
Constant	1.966*** [0.629]	3.714* [1.834]		
Observations	592	105	341	90
R-squared	0.183	0.104	0.524	0.787

Note: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1

Source: OECD and AMECO on line.

These results confirm that the Balassa-Samuelson effect has not been a statistically significant driver of real exchange rates. This implies that the real appreciations that preceded the Eurozone crisis were not, in general, equilibrium changes. Under this view, the rapid post-crisis depreciations are not temporary. Importantly, it means that labor adjustments are possible within the Eurozone, at least under crisis conditions.

3.5. Appraisal

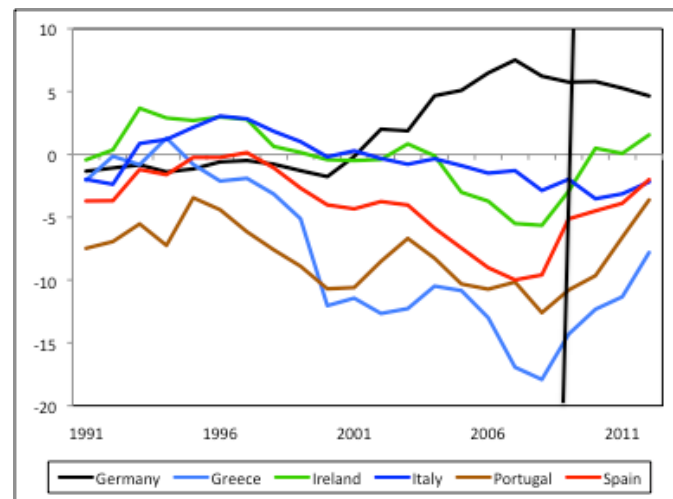
Of the four possible interpretations of the path of real exchange rates since the launch of the euro, one – the Balassa-Samuelson effect – is unlikely and one –the correction of initial misalignments – is strongly supported by the data. However, this only explains the relative paths of real exchange rates within the Euro Area, not their absolute levels. To a large degree, the latter is explained by the nominal appreciation of the euro. This appreciation, in turn, can be partly related to the powerful wage moderation policy successfully pursued by Germany, although other factors, including from outside the Euro Area, no doubt also played a role.

4. Simultaneity and causality

The analysis so far has looked at competitiveness from the viewpoint of relative unit labor costs. Proponents of the overvaluation view bring to bear some additional evidence, however. They note the simultaneity of REER appreciation and deepening

current account deficits in the years leading to the crisis, which is visible from Figure 2 and Figure 7. The partial correlation between these two variables is highly significantly negative.¹¹

Figure 7. Current accounts (% OF GDP)



Source: AMECO on line. European Commission

The simultaneity of current account imbalances and changes in competitiveness in Euro Area countries cannot be declared causal, as is well known. Both developments could be caused a common third factor or could be occurring simultaneously for unrelated reasons. The issue must be treated explicitly. Unfortunately, causality tests are generally weak and, in the case at hand, the horizon – the first eight years of the euro – is far too short. We simply cannot hope to be able to formally study the causal link between current accounts and competitiveness since the creation of the euro. The only possible approach must be indirect, testing implications of possible causality assumptions.

The deterioration of current account positions in the crisis countries is undeniable. Then issue is whether this is the outcome of an exogenous competitiveness loss or whether other exogenous disturbances have both hurt competitiveness and worsened the current account. A roundabout approach to causality is to bring in more information to bear. In particular, the evolution of output may help to identify the nature of the shock. Large general equilibrium models may provide indications of how shocks are transmitted to output, the current account and the real exchange rate. An intuitive shortcut is to use the elegant graphical analysis from Dornbush (1980). It emphasizes the two-way link between the current account and output and their joint determination as shown in Figure 8.

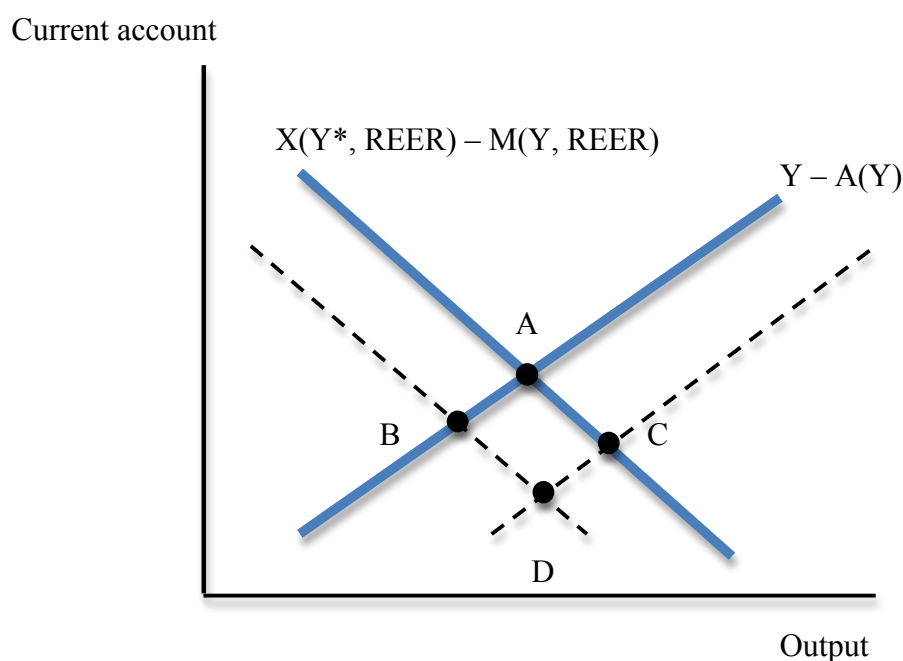
¹¹ Although highly significant, in a panel estimate over 1995-2012 for the eleven Euro Area countries displayed in previous figures the partial $\partial(CA/GDP)/(\partial REER/REER) = -3.62$ is small; it implies that a 10% real appreciation is associated with a deterioration of the ratio of current account to GDP of less than 0.4 percentage points.

The upward schedule shows a first relationship between aggregate income Y and total national spending $A(Y)$. Under the assumption that the propensity to spend is less than unity, an increase in income leads to higher national net saving, i.e. the current account. The identifying assumption is that net saving is independent of the real exchange rate. The downward sloping schedule also represents the current account, now defined as net exports, the difference between exports X and imports M broadly defined. An increase in income raises spending and therefore imports, hence the negative slope of the schedule. Importantly, both exports and imports depend on the real exchange rate; under generally accepted assumptions – for example, the Marshall-Lerner condition – a real appreciation reduces exports and increases imports.

Start from point A , representing the situation before adoption of the euro, the question is what could have provoked the subsequent divergence in current accounts. This framework suggests three possible exogenous shocks. The first one is that labor costs have been allowed to rise, for instance through generous pay increases in the public sector. The identifying assumption implies that the Net Export schedule is the only one to move down. An adverse competitiveness shock takes the economy to point B .

The second shock of interest is an exogenous increase in domestic demand $A(Y)$, for instance because cheap credit becomes abundant and demand for credit is next fueled by an asset bubble. If competitiveness is unchanged, the net export schedule remains unchanged and it is the Net Saving schedule that shifts downward; the economy moves from point A to point C . The analysis can be enriched by assuming a Phillips curve mechanism, so that the positive output gap produced by the exogenous demand shock results into rising labor costs and a competitiveness loss. In that case the Net Export schedule shifts downward, bringing the economy from A to D .

Figure 8 .The Dornbusch model



The third shock is an exogenous decline in foreign demand. This is captured by a downward shift in the Net Export schedule and the economy moves to point *B*. Graphically this resembles the first case, that of a competitiveness loss. A Phillips curve effect would result in an improvement in competitiveness, with a partially offsetting upward shift of the Net Export schedule.

This analysis provides a way to (informally) test which shock occurred. The test consists in checking which correlation occurs, if any:

Competitiveness shock: $\text{cov}(CA, REER) < 0$, $\text{cov}(CA, Y) > 0$, $\text{cov}(REER, Y) < 0$.
 Domestic demand shock: $\text{cov}(CA, REER) < 0$, $\text{cov}(CA, Y) \leq 0$, $\text{cov}(REER, Y) \geq 0$.
 Foreign demand shock: $\text{cov}(CA, REER) > 0$, $\text{cov}(CA, Y) > 0$, $\text{cov}(REER, Y) > 0$.

Table 4 shows how these variables have changed over the period 1999-2009, from the creation of the euro to the dawn of the crisis. For each country, the table displays the average current account balance, the average output gap (deviation from trend GDP) and the total change in relative unit labor costs as displayed in Figure 2. The countries are listed in order of declining average output gap. The last row shows sample correlations among the three variables.¹² Overall, the Dornbusch “test” suggests that exogenous demand shocks prevailed.

Table 4. The Dornbusch test (1999-2009)

	Average current account (% of GDP)	Average output gap (%)	Total REER change (%)
Ireland	-1.9	3.3	34.1
Greece	-12.5	2.1	14.4
Finland	5.5	1.6	13.5
Spain	-6.0	1.5	19.0
Portugal	-9.8	1.0	13.0
Netherlands	6.3	0.9	14.8
France	0.0	0.7	9.5
Italy	-0.8	0.7	17.7
Austria	1.9	0.5	-1.9
Belgium	3.8	0.5	8.8
Germany	3.3	0.1	-8.0
Correlation	CA and output -0.4	CA and REER -0.3	REER and output 0.8

Source: AMECO on line. European Commission

¹² A longer sample period would have allowed a VAR investigation.

Focusing on the crisis countries, the case of a domestic demand shock is strong: we observe large current deficits, sizeable positive output gaps and REER appreciation. The exception is Italy where the average output gap is positive but small and the current account deficit is small as well while competitiveness has been seriously eroded; this can be the result of various combinations of shocks, for example an adverse competitiveness shock and a positive foreign demand shock.

As for the non-crisis countries, the situation is varied. Germany's sharp competitiveness gains are associated with large current surpluses but GDP has been mostly on trend. One possible interpretation is that Germany faced a combination of favorable competitiveness (the effect of labor market reforms and of explicit wage moderation in the early 2000s) and adverse demand shocks (e.g. fiscal retrenchment). Austria displays a similar pattern. The pattern observed in Belgium, Finland and the Netherlands corresponds to a positive external demand shock.

5. Conclusion: which demand shocks?

This paper has argued that the popular view about the Euro Area crisis is a myth unsubstantiated by the available evidence. The crisis was driven by excessive domestic demand, not by exogenous losses in competitiveness and current account deficits. Limited competitiveness losses and current account deficits did occur but they were the consequence of excessive demand. Demand, in turn, was supported by a variety of factors. This implies that bringing demand down will eliminate most of the factors associated with the crisis. In fact, demand has been brought down and competitiveness has been about restored (Figure 1) and the current deficits are fast disappearing (Figure 7).

Having established the role of demand, there remains the task of explaining why domestic demand shocks occurred in some countries and not in others. They may have different causes. In Greece and Portugal fiscal policy has been mostly easy during this period, but this does not apply to Ireland and Spain. In all these countries, private demand has also been strong. Is there a common interpretation or are these episodes unrelated?

Mongelli and Wyplosz (2009) argue that, indeed, a modified version of the Walters critique can explain the growing divergence in current account balances. Walters (1990) argued that all countries would not join the monetary union with the same inflation rate but that nominal interest rates would converge. This implies that in countries where inflation is initially higher, the real interest rate is lower than in countries with initially low inflation rates. The demand effects of these different real interest rates would push inflation higher, respectively lower, where it was initially high, respectively low. Walters envisaged an increasingly unstable process of growing inflation divergence.

The revised version of the Walters critique note that, indeed, inflation inertia implied initially different inflation and real interest rates, but inflation rates did not go on diverging further, probably because of competition pressure within the Single Market. Divergence operated via domestic demand, including housing booms in Ireland and Spain, and the current account, as shown in Table 4. The process was indeed unsustainable.

However, the Walters critique is not the only possible interpretation of demand divergences within the Euro Area. As already noted, Chen et al. (2013) document trade asymmetries. Lane and Pels (2012) provide evidence that excessive optimism in the periphery countries has a measurable impact on demand and the current account. Obstfeld (2012) reviews these and other interpretations, including large public and private deficits easily financed at low interest rates following a deepening of financial integration and the extraordinary period of the Great Moderation. Of these interpretations, some are circumstantial (excessive optimism, the Great Moderation), others are inherent to the monetary union (the Walters critique, financial integration) while trade specialization may remain a recurrent source of shocks. This distinction matters when drawing policy implications.

Those factors that drove demand up but are an accident of history are unlikely to occur again. Still, abundant financing has revealed deep problems in banking that need and receive attention, so the issue is not pursued here. But other aspects seem inherent to a monetary union. The Walters critique, in particular, deserves considerably more attention than it is receiving. The battery of indicators to be produced as part of the Excessive Imbalance Procedure could help identify some divergences, but the policy response may be wrong if it focuses on incorrectly measured labor costs. The proper response consists in using fiscal policy to prevent demand from being excessive, which is hard to identify and to respond to given the unavoidable policy lags.¹³

¹³ Macrosupervision is the proper approach to excessive credit growth.

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