

CRISIS MANAGEMENT AND ECONOMIC GROWTH IN THE EUROZONE

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Abstract:

The crisis management that was set up in the Eurozone after the eruption of the government debt crisis was characterized by two features. One was the asymmetric adjustment to the current account imbalances that forced the deficit countries into intense austerity without a compensating policy of stimulus in the surplus countries. This led to a deflationary bias that created strong collateral damage on investment, both private and public.

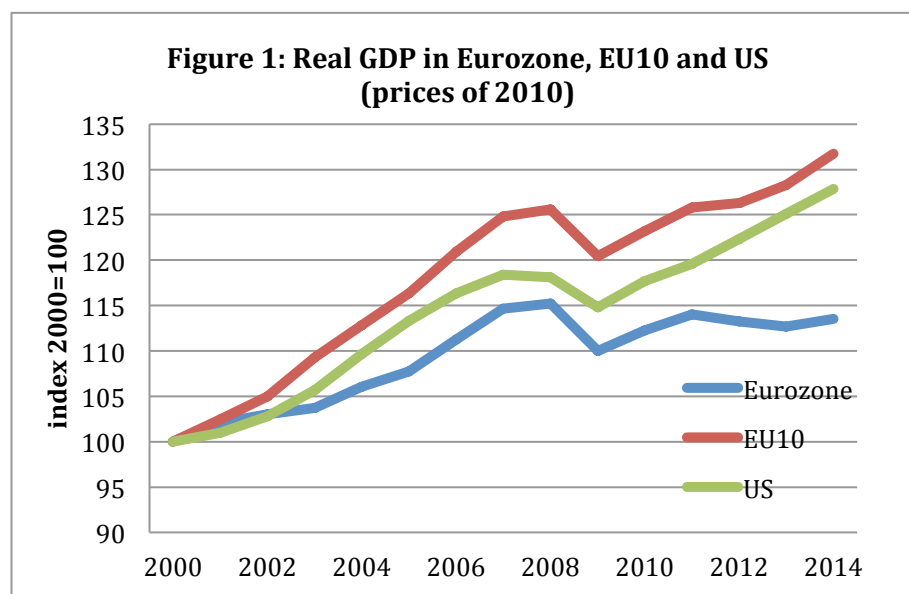
The second feature of crisis management was its focus on supply policies. The evidence we provide in this paper is that these supply side policies have insignificant effects, and sometimes even negative effects on long-term economic growth. As a result, together with the negative effects of austerity on investment, it can be concluded that the crisis management in the Eurozone not only exacerbated a demand problem, but also harmed the long-run growth potential of the Eurozone.

Keywords: demand and supply policies, structural reform, economic growth, asymmetric adjustment, public investment

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1. Introduction

Since the financial crisis of 2007-08 most developed countries have been unable to return to their pre-crisis growth path. Nowhere in the developed world is this more visible than in the Eurozone. We show this in Figure 1 where we compare the evolution of real GDP in the Eurozone with real GDP in the US and in the EU-countries not belonging to the Eurozone (EU10). The difference is striking. Prior to the financial crisis the Eurozone real GDP was on a slower growth path than in the US and in EU10. Since the financial crisis of 2008 the divergence has increased even further. Real GDP in the Eurozone stagnated and in 2014 was even lower than in 2008. In the US and EU-10 one observes (after the dip of 2009) a relatively strong recovery. Admittedly, this recovery is below the potential growth path of these countries (see Summers(2014)), but surely it has been much more pronounced than in the Eurozone where stagnation prevailed. Note also that there was a recovery in the Eurozone from 2009 to 2011 and that from 2012 to 2013 the Eurozone experienced a double-dip recession.



Source: European Commission, Ameco database

What is it that makes the Eurozone such a pronounced island of stagnation in the developed world? This is the question that we want to analyze in this paper.

2. Eurozone stagnation: supply or demand problem?

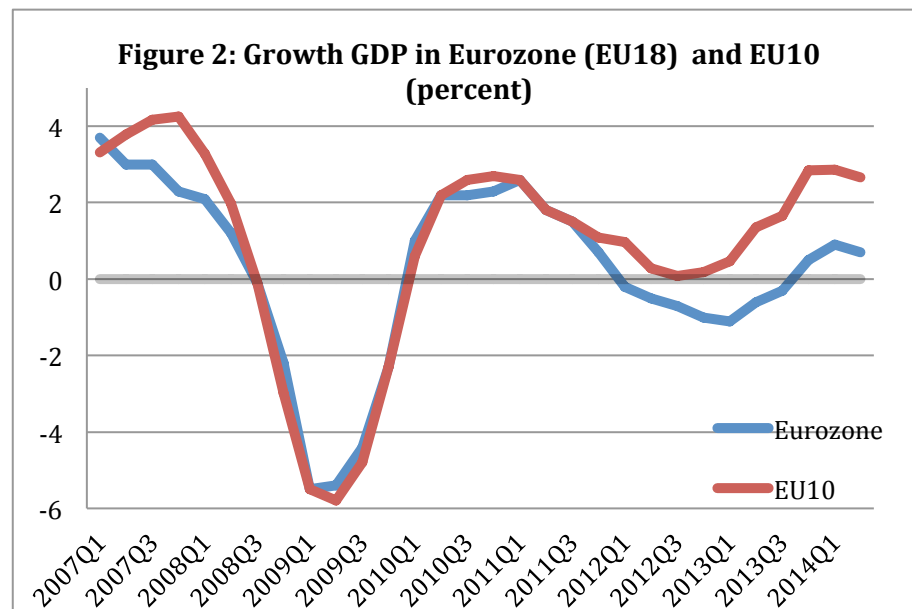
The policy response to the sovereign debt crisis has very much been influenced by a supply side story of the origins of the low growth in the Eurozone. In this view, low growth is the result of structural rigidities, i.e. of a lack of flexibility in the way the supply side of the economy works. Labour markets are rigid preventing demand and supply of labour from reaching equilibrium. As a result of these rigidities, production remains below its potential. Similarly, the goods markets are subject to price rigidities and other imperfections that also reduce potential output. Policies that eliminate these imperfections will increase potential output, so goes this story that has become the mainstream view among policymakers in Europe.

Implicit in this view is that the increase in potential output will automatically lead to an increase in realized output. Put differently, Say's Law, according to which supply creates its own demand, is implicitly assumed. Thus, policies that improve the supply side through structural reforms will automatically lead to more demand and thus to more production. The demand side of the economy adjusts automatically to the supply side.

From Brussels, Frankfurt and Berlin we have been hearing incessantly that structural reforms are the key to economic recovery and higher growth rates. Making labour and output markets more flexible is the only way to boost economic growth in the Eurozone in a sustainable way, so we are told by European policy makers. This view has been very influential and has led countries into programs of structural reforms of labour and product markets.

A quick look at Figure 2 makes one skeptical about this view. We observe that since 2010-11 the EU-10 has experienced a strong recovery while the Eurozone got caught in stagnation. Prior to that date the Eurozone and the EU-10 experienced similar movements of GDP-growth. If stagnation in the Eurozone since the start of the sovereign debt crisis is the result of structural rigidities it is difficult to understand

why the same structural rigidities did not prevent the Eurozone to engineer an equally quick recovery from the Great Recession of 2008-9 as the EU10.



Source: Eurostat

All this of course is only suggestive evidence. A more systematic empirical analysis is necessary to find out how important structural rigidities in the labour and product markets are for economic growth. In order to analyze this question we perform an econometric analysis of the factors that affect economic growth. We will rely on the theory and the econometrics of economic growth (see e.g. Barro and Sala-i-Martin(2003), Acemoglu(2009)).

3. Structural rigidities and growth: an econometric analysis

Since Robert Solow's seminal contribution, modern economic growth theory has identified a number of fundamental variables that drive the economic growth process. These variables are population growth, physical and human capital accumulation and technological progress (the residual in Solow's growth model). Recent theoretical contributions have highlighted the importance of institutions as deep variables that influence the process of capital accumulation and technological

progress (productivity growth). Influential contributions are Barro and Sala-i-Martin(2003), Acemoglu and Robinson(2012).

There are many institutional features that can influence the economic growth process. The econometric literature has put a lot of emphasis on political institutions (nature of democracy, transparency of political system, rule of law, etc.) that affect the dynamics of physical and human capital accumulation and technological progress, and through this channel economic growth. The flexibility of labour and capital markets (or the lack thereof) is part of the institutional characteristics of countries that can affect economic growth. Surprisingly, relatively little importance has been given to these features in traditional econometric analyses of economic growth¹. In this section we present an econometric growth model using indicators of the degree of flexibility in labour and product markets as one of the institutions that can facilitate capital accumulation and productivity growth.

The study is limited in that it focuses on flexibility in labour and product markets and not the many other institutions that have been identified in the econometric growth literature (see Barro and Sala-i-Martin(2003) and Acemoglu(2009)). One institutional feature we introduce in the analysis is the quality of public governance. We use the World Bank's index of government effectiveness. We hope at a later stage to integrate more institutional variables in the analysis.

Our study is limited in another sense. We restrict our econometric analysis to OECD countries. The main reason is that the indices of labour and output market flexibility that we are interested in have been constructed by the OECD for the OECD-member countries. We are not aware of similar indicators of labour and product market flexibility for other countries.

The econometric model is specified as follows:

$$y_{i,t} = a_i + \beta I_{i,t} + \mu H_{i,t} + \theta EPL_{i,t} + \lambda Age_{i,t} + \rho PM_{i,t} + \sigma GE_{i,t} \\ + \gamma R_{i,t} + \delta G_{i,t} + \varepsilon_{i,t}$$

¹ There have been quite some empirical studies of the effect of structural reforms on economic growth. These have mainly been performed by official institutions such as the OECD, the European Commission and the ECB. We review these in the next section.

where

$y_{i,t}$ = growth rate of per capita GDP in year t in country i . This way of defining the growth rate is equivalent to explaining the growth rate of GDP by population growth while assuming that the effect of population growth on GDP growth has a unitary elasticity.

$I_{i,t}$ = the ratio of investment (private + public) to GDP in year t in country i . This measures the process of capital accumulation on economic growth.

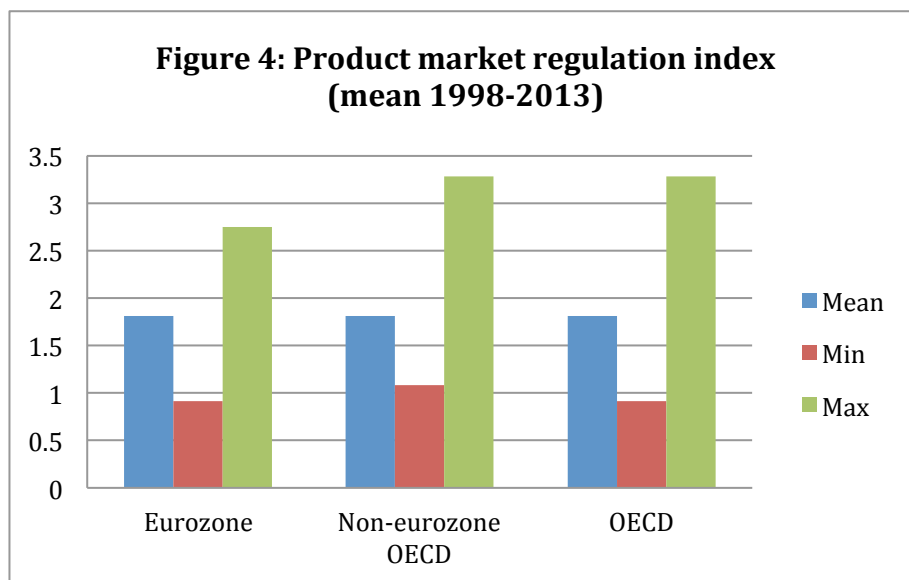
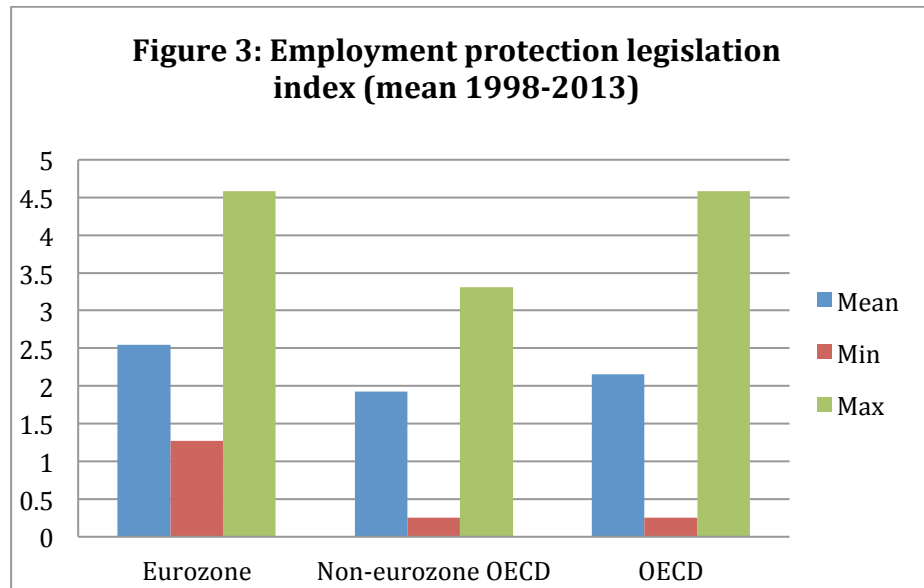
$H_{i,t}$ = the proportion of the population with a tertiary education. This variable represents human capital accumulation. We expect it to have a positive effect on economic growth.

$EPL_{i,t}$ = the employment protection legislation (EPL) index as measured by the OECD (in year t and country i). It is generally agreed that more intense employment protection legislation makes the labour market more rigid. By making firing more expensive it also makes firms more reluctant to hire. As a result, employment growth will be curtailed and so will economic growth. Thus one expects a negative effect of EPL on economic growth. We show the mean EPL index in the OECD countries in Figure 3.

$Age_{i,t}$ = This is the average effective retirement age in year t in country i . According to accepted wisdom a country that increases the retirement age of the working population should experience more economic growth.

$PM_{i,t}$ = the product market regulation (PMR) index as computed by the OECD. According to conventional wisdom more product market rigidities have a negative effect on economic growth. We show the mean PMR index in the OECD countries in Figure 4.

$GE_{i,t}$ = the government effectiveness index as computed by the World Bank. More effective government should boost economic growth.



We have added two other control variables that are often introduced in econometric growth equations, i.e. the real effective exchange rate², $R_{i,t}$, and government consumption as a percent of GDP. The former should have a negative effect on economic growth, i.e. an overvalued currency should reduce economic growth; the latter is often assumed to have a negative effect on GDP growth. a_i is the fixed country effect measuring time invariant idiosyncrasies of countries. An important one is the initial level of per capita income. Our empirical analysis relies on the fixed effect model.

² This is measured by the effective exchange rate of country i in year t corrected for the ratio of consumer prices in country i versus the trading partners of country i .

The model was estimated for the OECD countries. One problem we encountered is that the sample of member-countries of the OECD has changed over time. Prior to 1993 the central European countries were not members. Therefore we estimate the model first for the smaller group of OECD-countries (called advanced economies) that were members prior to 1993. This estimation is over the sample period 1985-2013. Then we estimate the model for the full sample of countries but over a shorter time period, i.e. 1998-2013. We also estimate one specification without a dummy for the financial crisis (starting in 2008) and one with such a dummy.

The results are presented in table 1. (The sources of the data are presented in appendix). These results lend themselves to the following interpretation.

First the investment ratio has the expected positive sign and is significant for the OECD countries as a whole. Second, our index of human capital (the proportion of the population with tertiary education) has a strong and significantly positive effect on economic growth. Thus the traditional fundamental variables of economic growth, physical and human capital accumulation are important in driving economic growth.

The most striking aspect of our results is the finding that the structural measures of the labour and product market rigidities do not seem to have any influence on the growth rate of GDP per capita. The OECD employment protection legislation index even appears to have a systematically positive effect on growth in the full sample of the advanced economies. This is not found in the shorter sample of all OECD-countries, where this effect is not significantly different from zero.

There is a possibility that labour market protection and product market regulations affect economic growth *indirectly* through their effect on investment. One should not exclude the possibility that rigidities in labour and product markets have a negative effect on investment, and through this channel reduce economic growth. In order to test for this hypothesis we regressed investment (as a percent of GDP) on our indices of labour and product market rigidities, together with a number of control variables. We show the results in appendix 2. It appears that we can reject the hypothesis that labour market and product market rigidities are associated with lower investment. In fact, in the case of labour market protection we find a positive

association, i.e. higher labour market protection is associated with higher investment.

Table 1: Estimation results (OLS)

	(1)	(2)	(3)	(4)
	Advanced economies 1985-2013	Advanced economies 1985-2013	OECD economies 1998-2013	OECD economies 1998- 2013
Investment/ GDP	0.131 (0.081)	0.083 (0.076)	0.337*** (0.119)	0.346*** (0.120)
Proportion of tertiary education	1.739*** (0.139)	1.802*** (0.174)	1.400*** (0.157)	1.472*** (0.174)
Real effective exchange rate	-0.040*** (0.014)	-0.034** (0.012)	-0.044*** (0.015)	-0.046*** (0.014)
Working population growth	-0.259 (0.391)	-0.357 (0.335)	-0.640** (0.302)	-0.939*** (0.317)
Government consumption/ GDP	-0.870*** (0.134)	-0.633*** (0.130)	-0.759*** (0.155)	-0.500*** (0.156)
Effective retirement age	-0.135 (0.152)	0.107 (0.155)	-0.122 (0.197)	0.103 (0.179)
Government effectiveness	2.002** (0.911)	1.414 (0.984)	2.513** (0.962)	1.952** (0.878)
Crisis period		-1.526*** (0.272)		-2.142*** (0.391)
Employment protection	3.140*** (0.779)	2.383*** (0.748)	-0.470 (2.932)	-0.853 (2.884)
Product market protection			0.484 (0.546)	-0.989 (0.605)
Observations	409	409	457	457
R-squared	0.396	0.430	0.297	0.344
Number of countries	24	24	32	32

Robust standard errors in parentheses

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

Advanced economy: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, South Korea, Luxemburg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK, US

Regression: fixed effect module

Our conclusion is that employment protection is of no visible importance for economic growth. This may seem surprising. The Brussels-Frankfurt consensus has stressed that employment protection has a negative effect on hiring and in so doing reduces prospects for growth. This may be true but there is another phenomenon that may more than compensate the positive effect of flexibility. In economies

where employment protection is weak the incentives for firms to invest in its labour force is weak. When turnover is high firms are unlikely to invest in personnel that are likely to quit early. In addition, employees that can be fired quickly have equally weak incentives to invest in firm-specific skills. As a result, labour productivity is negatively affected. More generally, the quality of human capital will be low.

One must also take into account that *reverse causality* may be at work and bias the results. This reverse causality runs as follows. In countries with high growth, there is a high demand for labour protection. Workers and their representatives are strong and are pushing for legislation to provide strong employment protection. As a result, we will observe that high growth is correlated with employment protection.

In order to correct for this reverse causality, we used an instrumental variable method. We selected two instruments. One is the lagged EPL index, the other is the ideological composition of the government along the scale right to left (for a description, see appendix). This takes the view that employment protection is positively correlated with the ideological composition of governments, i.e. more leftist governments push for more employment protection. The results are presented in in table 2. We observe that the strongly positive effect of employment protection on growth disappears. We now find that employment protection has no significant effects on economic growth..

The same conclusion holds for product market regulations. The coefficients of this variable are never significant. Thus product market regulations do not seem to matter in the process of economic growth. Again this goes against current mainstream thinking, which has been much influenced by among others, Aghion, et al. (2001) and which stresses that the model of perfect competition with free entry and price flexibility boosts economic growth innovation among firms that are close to the technological frontier. There is an older literature, however, going back to Joseph Schumpeter stressing that innovation, investment and growth are better promoted in an environment of market imperfections and market power. The empirical evidence suggests that both opposing views may be at work, thereby offsetting each other.

Table 2: Estimation results: Instrumental Variables

	(1) Advanced economies 1985-2013	(2) OECD economies 1998-2013	(3) OECD economies 1998-2013	(5) Advanced economies 1998-2013	(6) Advanced economies 1998-2013
Second Stage:					
Investment GDP ratio	0.111 (0.091)	0.270** (0.129)	0.339** (0.140)	0.192** (0.095)	0.257** (0.118)
Tertiary education/total population	1.798*** (0.148)	1.492*** (0.160)	1.464*** (0.138)	1.456*** (0.147)	1.429*** (0.127)
Real effective exchange rate	-0.041*** (0.011)	-0.039*** (0.013)	-0.050*** (0.015)	-0.040*** (0.012)	-0.052*** (0.015)
Working population growth	-0.425 (0.331)	-0.776*** (0.299)	-0.901*** (0.311)	-0.658** (0.274)	-0.792*** (0.290)
Government consumption GDP ratio	-0.670*** (0.148)	-0.597*** (0.180)	-0.535*** (0.165)	-0.733*** (0.174)	-0.666*** (0.154)
Real retirement age	0.170 (0.148)	0.080 (0.192)	0.085 (0.189)	0.192 (0.175)	0.189 (0.173)
Government effectiveness	0.737 (1.019)	1.016 (0.961)	0.766 (0.932)	0.829 (0.991)	0.528 (0.946)
Crisis	-1.595*** (0.286)	-1.771*** (0.320)	-2.142*** (0.406)	-1.415*** (0.315)	-1.740*** (0.378)
Employment protection	1.936* (1.069)	-1.267 (2.484)	-0.784 (2.509)	1.101 (1.066)	1.608 (1.138)
Product market protection			-0.775 (0.590)		-0.647 (0.455)
First Stage					
Excluded instruments:					
Lagged employment protection	0.877*** (0.085)	0.7893*** (0.0864)	0.7728*** (0.0872)	0.8660*** (0.0908)	0.8365*** (0.093)
Government (left) composition	0.0004* (0.002)	0.0004** (0.002)	0.0004* (0.002)	0.0004* (0.002)	0.0003 (0.002)
Partial R-squared of excluded instruments	0.6065	0.5387	0.5217	0.5720	0.5432
Weak Identification F test	0.0064	0.0068	0.0061	0.0064	0.0075
Hansen J statistic	0.7150	0.8469	0.8589	0.6875	0.7408
Observations	389	405	399	347	341
R-squared	0.464	0.387	0.404	0.452	0.473
Number of countries	23	28	28	23	23

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Among our control variables, first, the effect of investment and tertiary education are significant in most cases. Second, it appears that the real effective exchange rate matters. Countries with overvalued currencies experience below average growth rates of GDP per capita. Third, government consumption (excluding investment spending or spending on social transfers for instance) has a significant negative effect on growth. This is consistent with the findings in the literature: government consumption not including social security spending is considered to be unproductive and thus is negatively associated with real growth.

Finally, we also estimated the model using 5-year averages (column (1) in Table 3) and a cross-section (column (2) in Table 3). The results shown in Table 3 confirm the previous one. Investments in physical and human capital are significant driving forces of economic growth in the medium and long run. In contrast, no significant effect can be detected of rigidities in labour and product markets on long-term economic growth.

Table 3: Estimation results (OLS): 5-year averages and cross-section

	(1) 5-year average Fixed effect model	(2) Cross-section model
Initial GDP per capita level	--	-0.0001** (0.000)
Investment GDP ratio	0.343** (0.135)	0.1471** (0.068)
Tertiary education/total population	3.639*** (0.882)	0.2345 (0.908)
Real effective exchange rate	-0.035*** (0.012)	0.0210 (0.019)
Working population growth	-0.652 (0.500)	0.2870 (0.367)
Government consumption GDP ratio	-0.410* (0.233)	-0.0770 (0.062)
Real retirement age	-0.040 (0.268)	-0.1159** (0.045)
Government effectiveness	1.663 (1.062)	0.1226 (0.560)
Employment protection	0.941 (1.634)	-0.1032 (0.251)
Product market protection	-0.602 (0.570)	-0.6953 (0.714)
Crisis	-1.503*** (0.424)	
Observations	91	32
Number of countries	32	32
R-squared	0.754	0.427

Robust standard errors in parentheses

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

4. Survey of the literature

Many econometric studies have been performed measuring the impact of labour and output market rigidities on economic growth (and on productivity growth). In general, econometric studies involving developed countries (mainly OECD countries) find weak and often insignificant effects of measures of rigidity on economic growth.

This is especially the case with measures of labour market regulation for which little evidence exists of any impact on economic growth in the OECD countries. This is confirmed by a recent study of the IMF(2015) that could not find a significant effect of employment protection on productivity growth in a sample of industrialized

countries. Older studies find mixed evidence. Nickell and Layard (1999) find a positive association between employment protection and productivity per capita, using cross-country variation only. Belot et al. (2007) uses a richer data-set, including time-varying indicators of employment protection and legislation, and find that there is an inverse U-shaped relationship between employment protection and growth.

While the previous studies look at the macroeconomic effects of labour market regulation on economic growth (or productivity growth) Bassanini, Nunziata and Venn (2009) use industry level data to analyze the relation between employment protection and productivity growth. These authors find that employment protection legislations have a depressing impact on productivity growth in industries where layoff restrictions are more likely to be binding. It is unclear, however, how large these sectoral effects are when we aggregate them to the economy as a whole.

The empirical evidence of the effect of product market regulation on economic growth confirms the theoretical uncertainty about this effect that we noted in the previous section (see Aghion, et al. (2009)). Some econometric evidence has been found that lower product market regulations increase economic growth (Nicoletti and Scarpetta(2003), OECD(2015)). What is striking in these studies however is that these estimates are not very robust. Typically researchers present a large number of different specifications and definitions and produce only a few significant results. In Nicoletti and Scarpetta(2003) out of 17 estimated coefficients of product market regulation variables only 3 are significant (see also IMF(2015)).

The previous studies were econometric analyses. The OECD has performed other empirical studies that simulate the effects of labour and product market deregulations on economic growth. Two approaches have been used. The first one consists in using some of the significant estimated coefficients of market regulation found in the literature and to apply these to many countries (see e.g. De Mello and Padoan(2010), Barnes, et al.(2011), Bouis and Duval(2011). Sometimes not even estimated coefficients are used but “calibrations by assumption” (Barnes et al(2011)). This typically produces fancy graphs showing how deregulation increases economic growth. It should be borne in mind that these simulations use only a small

number of estimated coefficients that come from regression exercises where most estimated coefficients of market regulation variables are insignificant.

A second approach has been popular. This is to use a macroeconomic model of the DSGE type and to simulate the effect of deregulation on output (ECB(2015), Eggertson, et al. (2014), Cacciatore, et al.(2012). Invariably these simulations find that deregulation of labour and output markets lead to increases in output³. The problem with this approach is that the simulations just confirm a-priori beliefs. To give an example, in most DSGE models unemployment is voluntary, i.e. results from a decision of individual agents to take more leisure time. Structural reforms are then interpreted as an intervention that changes the relative price of leisure versus labour, i.e. makes the former more expensive (e.g. by reducing unemployment benefits). As a result, agents will take less leisure time and decide to work longer. Lo and behold, output will increase.

In addition, most DSGE models used in the simulations are based on calibrations. They are not to be interpreted as empirical evidence. Unfortunately, quite often these simulations are interpreted as providing empirical evidence of how structural reform boosts economic growth.

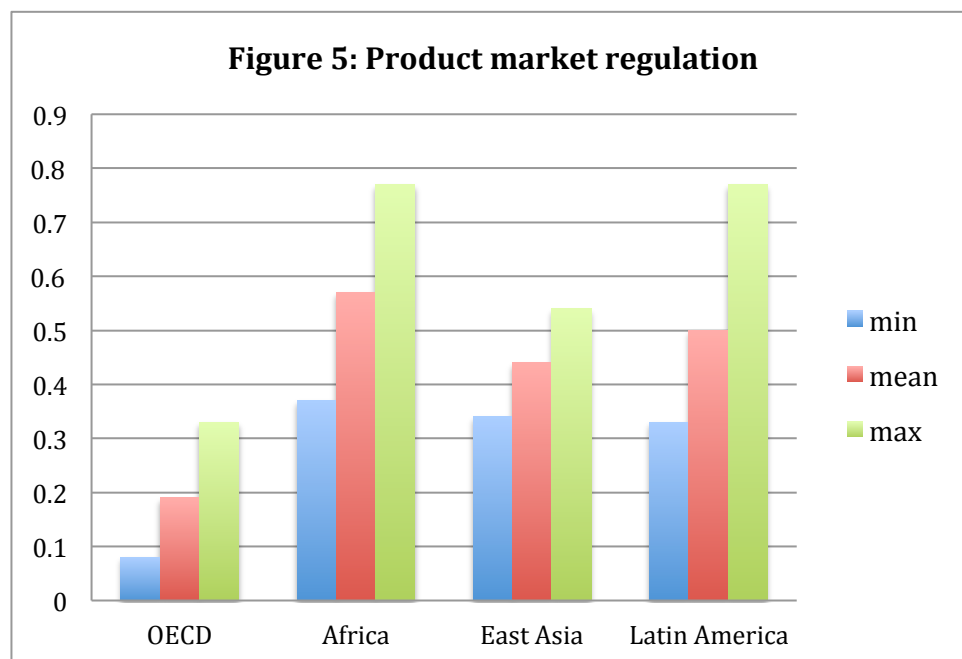
A striking observation one can make is that econometric studies encompassing both developed and developing countries tend to find significant effects of labour and output market regulations on economic growth. A typical example is a study of the World Bank (Loayza, et al. (2004)). This study finds that a deregulation of output markets in the developing countries to the mean level achieved in the OECD countries would increase economic growth by up to 1.4% per year.

One may ask the question of why the econometric evidence involving both developing and developed countries tends to be stronger than the evidence about developed (OECD) countries alone? The main reason probably is that the developed

³ It should be noted that the Eggerston et al. study finds that this is the case in normal times, but not during recessions. Structural reforms during recessions make the recession worse. These authors conclude that during recessions and “in the absence of the appropriate monetary stimulus, reforms fuel expectations of prolonged deflation, increase the real interest rate, and depress aggregate demand”

countries have relatively low levels of regulation of product markets compared to developing countries. This is made clear in Figure 5 that shows a measure of product market regulation as computed by the World Bank. It can be seen that within the OECD countries the level and the variation of product market regulation is very low as compared to developing countries.

This implies that once countries have reached the level of regulation achieved in OECD-countries few additional gains can be reaped in terms of increased productivity and growth. Put differently, moving from the very high levels of regulation observed in developing countries towards the low levels reached in the OECD countries produces important and significant gains. These gains, however, tend to disappear when the levels of regulation have reached those observed in the OECD-countries. There is then also very little point in trying to reduce these levels even further.



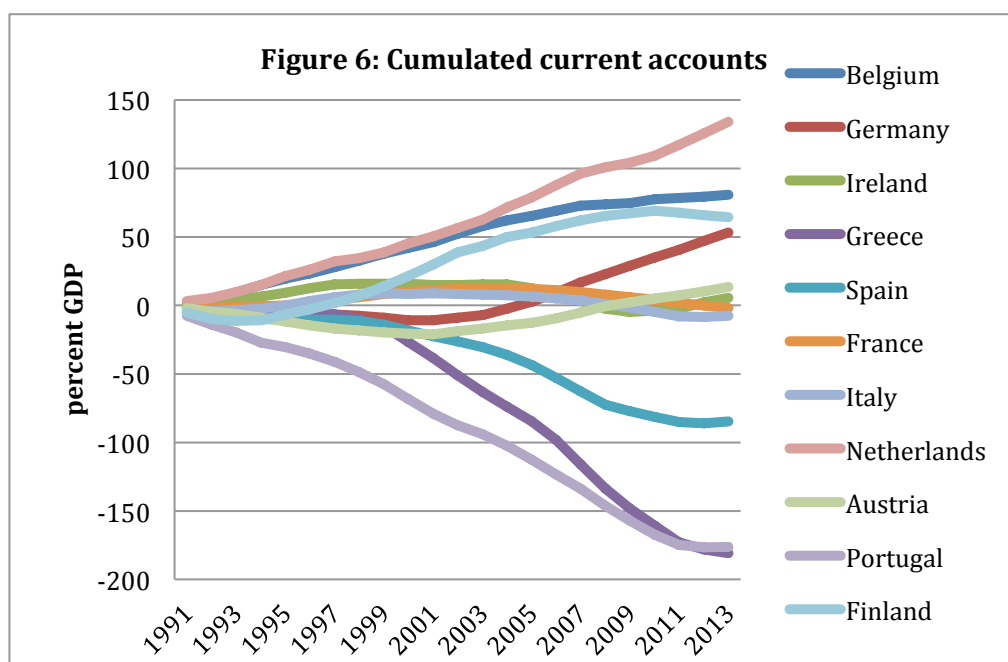
Source: Loayza, et al. (2004)

5. Growth and macroeconomic imbalances

In the previous sections we have argued that the stagnation in the GDP of the Eurozone since 2008 has little to do with structural rigidities. In other words it is

mostly unrelated to the supply side of the Eurozone countries. In this section we argue that the stagnation of the Eurozone during 2008-14 is related to the asymmetry in the macroeconomic adjustment to the external imbalances that has been pursued in the Eurozone since the start of the sovereign debt crisis.

Prior to the crisis, the Southern European countries (including Ireland) accumulated current account deficits, while the Northern Eurozone countries⁴ built up current account surpluses. As a result, the Southern countries became the debtors and the Northern countries the creditors in the system (see Figure 6). This forced the Southern countries hit by sudden liquidity stops to beg the Northern ones for financial support. The latter reluctantly did so but only after imposing tough austerity programs pushing these countries into quick and deep spending cuts and intense recessions.



Source: European Commission, Ameco

As a result, the creditor nations in the Eurozone ruled and pushed austerity as the instrument to safeguard the interest of these nations. Another approach would have been possible and could have guided the conduct of macroeconomic policies in the Eurozone. This alternative approach is based on the view that the responsibilities

⁴ We define Northern Eurozone countries to be Austria, Belgium, Finland, Germany, and the Netherlands.

for the current account imbalances are shared between the creditor and debtor nations. The debtor nations took on too much debt and are responsible for that. The creditor nations extended too much credit and are thus equally responsible for the imbalances. For every reckless debtor there must be a reckless creditor. This symmetric view, however, has not prevailed in the relations between the creditor and debtor nations of the Eurozone. The former have been viewed as having followed virtuous policies and the latter as having followed foolish ones. As a result, the debtor nations have been forced to bear the full brunt of the adjustment.

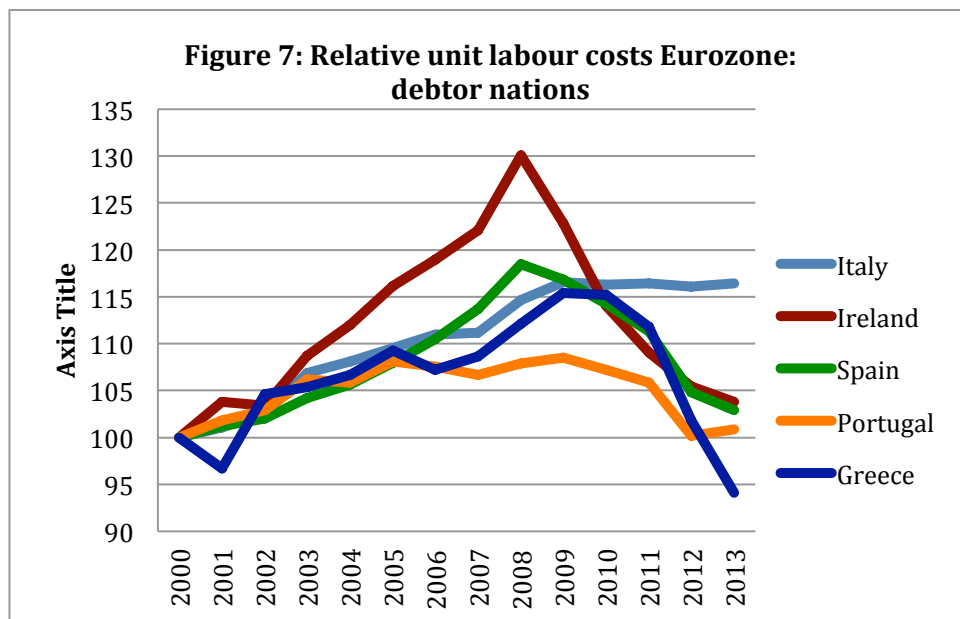
This led to an asymmetric process where most of the adjustment has been done by the debtor nations. In the absence of the option to devalue, the latter countries have been forced to reduce wages and prices relative to the creditor countries (an “internal devaluation”) without compensating wage and price increases in the creditor countries (“internal revaluations”). This has been achieved by intense austerity programs in the South, while in the North no compensating stimulus was imposed.

In Figure 7, we show some evidence about the nature of this asymmetry. The figure shows the evolution of the relative unit labor costs⁵ of the debtor countries (where we use the average over the 1970-2010 period as the base period). Two features stand out. First, from 1999 until 2008/09, one observes the strong increase of these countries’ relative unit labor costs. Second, since 2008/09 quite dramatic turnarounds of the relative unit labor costs have occurred (internal devaluations) in Ireland, Spain and Greece, and to a lesser extent in Portugal and Italy.

These internal devaluations have come at a great cost in terms of lost output and employment in the debtor countries mainly because the expenditure reducing

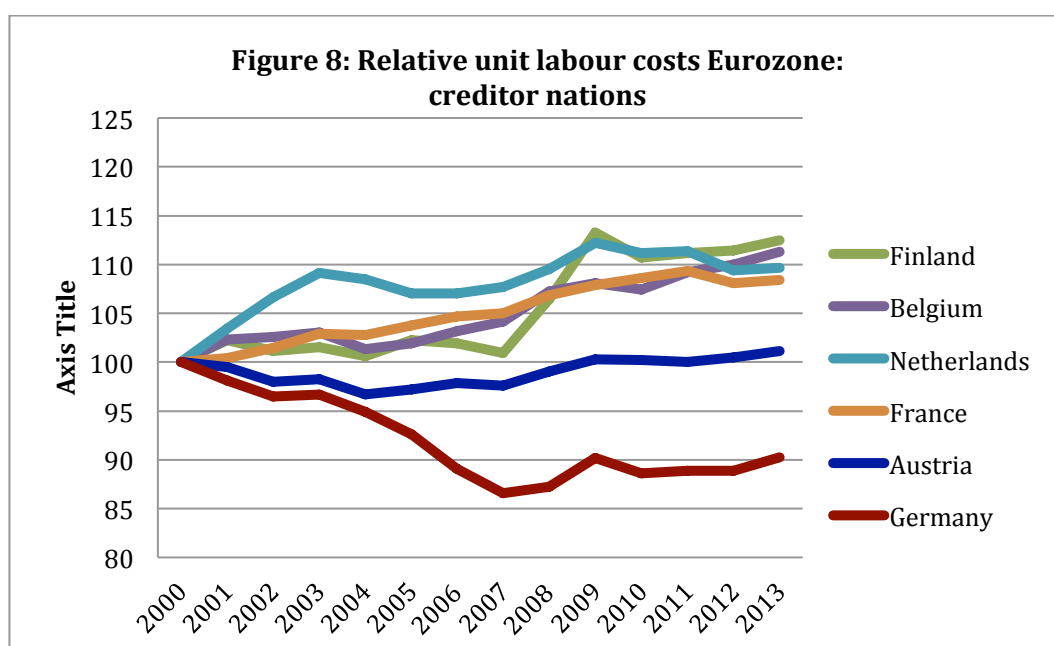
⁵ The relative unit labour cost of a country is defined as the ratio of the unit labour costs of that country and the average unit labour costs in the rest of the Eurozone. An increase in this ratio indicates that the country in question has seen its unit labour costs increase faster than in the rest of the Eurozone, and vice versa. The relative unit labour costs are computed using the average of the other Eurozone countries. The weights to compute this average however are specific to each country as they depend on the shares of trade flows. For example, in the Dutch relative unit labour cost Germany has a share that is larger than the share of Germany in the Spanish relative unit labour costs. Thus these indices do not have to be symmetrical.

effects of these internal devaluations were more intense than the expenditure switching (competitiveness) effects.



Source: European Commission, Ameco

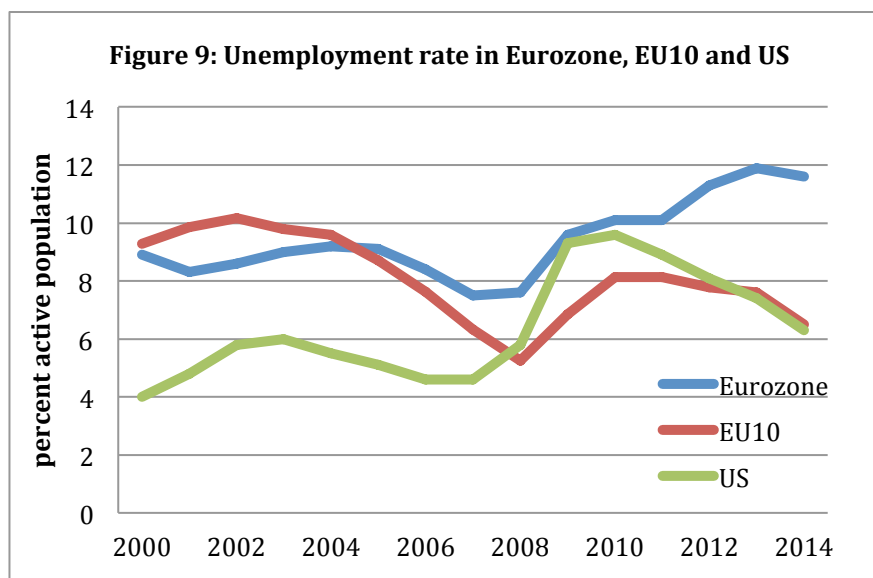
Is there evidence that such a process of internal revaluations has been going on in the surplus countries? The answer is given in Figure 8 that presents the evolution of the relative unit labour costs in the creditor countries. One observes that since 2008/09 there is very little movement in these relative unit labour costs in these countries.



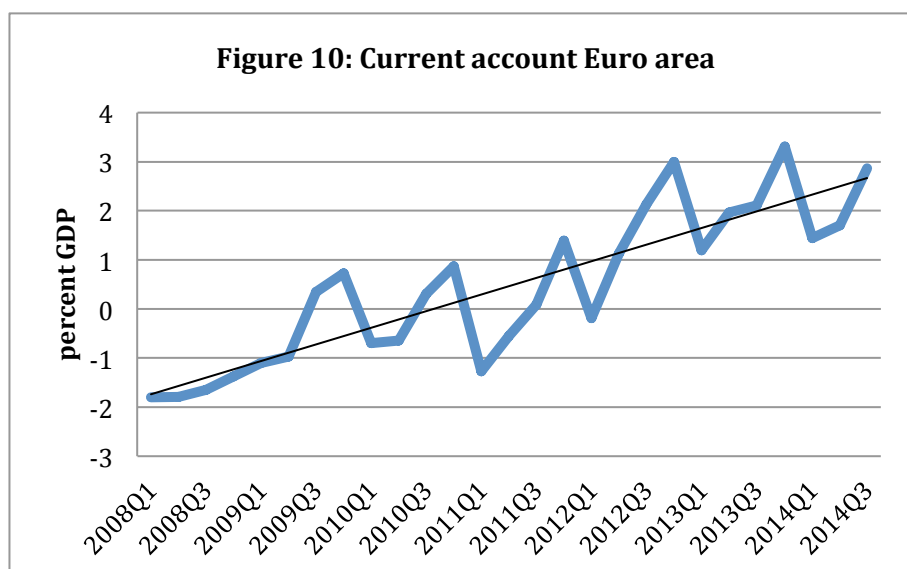
Source: European Commission, Ameco

Thus, one can conclude that at the insistence of the creditor nations, the burden of the adjustments to the imbalances in the Eurozone has been borne almost exclusively by the debtor countries in the periphery. This has created a deflationary bias that explains why the Eurozone has been pulled into a double-dip recession in 2012-13, and why real GDP has stagnated since 2008, in contrast with what happened in the non-Euro EU-countries and in the US. It also helps to explain why the unemployment rate increased from 8% in 2008 to close to 12% in 2014, while in the EU-10 and in the US the unemployment rate started to decline significantly since 2010 (see Figure 9).

The deflationary forces to which the Eurozone was subjected as a result of the asymmetric adjustment policies led to two other effects. The first one was to turn the current account deficit that existed in 2008 into a surplus of close to 3% of GDP in 2014. This is shown in Figure 10. As the debtor nations were forced into austerity, spending declined. The latter was not offset by increased spending in the creditor nations as these nations aimed at maintaining current account surpluses. Thus, the Eurozone adjustment process consisted in all countries saving more, pushing the current account into a significant surplus.

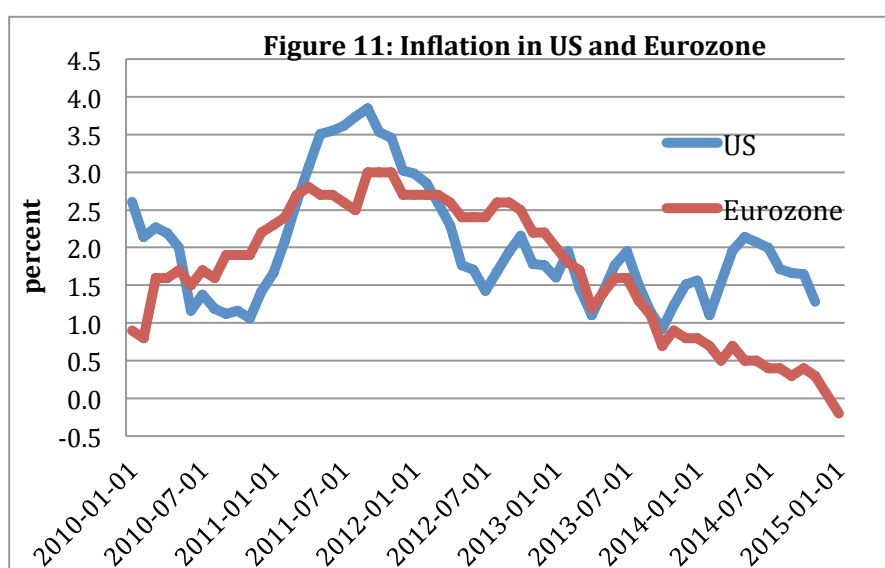


Source: European Commission, Ameco databank



Source: European Commission, Ameco databank

The second effect of the deflationary dynamics produced by an asymmetric adjustment process was a sharp decline in inflation, which at the end of 2014 became negative in the Eurozone as a whole. We show this in Figure 11 where we compare the rate of inflation in the Eurozone and the US. It is striking to find that while the US seems to have stabilized its inflation rate around a value of 1.5%, this is not the case in the Eurozone where we observe a continuous decline of inflation since 2011, until it became negative in December 2014.



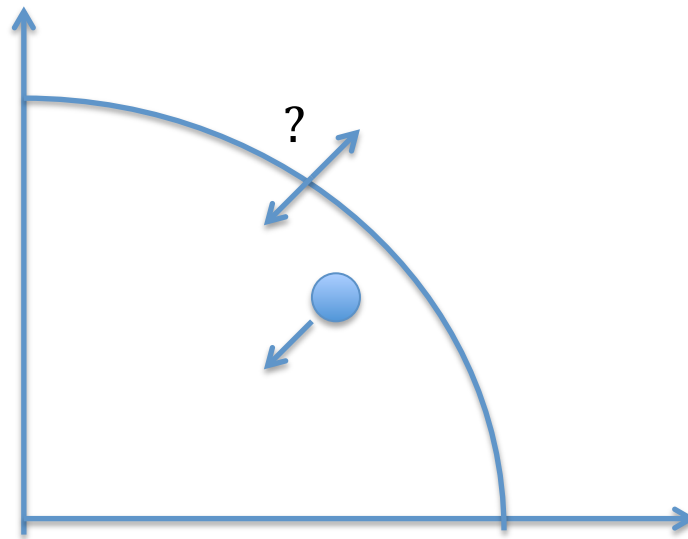
Source: ECB

From the preceding analysis one can conclude that all the phenomena associated with the secular stagnation hypothesis are present in the Eurozone in a significantly more intense manner than they are in the US and the other EU-countries. Increased attempts to save triggered by external imbalances (and debt accumulation) and the lack of the exchange rate instrument to rebalance the economies of the debtor nations, drove inflation into negative territory. This in turn prevented the real interest rate from declining further so as to equilibrate savings and investments. As a result, the Eurozone seems to be stuck into a low-growth high-unemployment equilibrium.

It may be interesting to make an historic parallel here. During the 1930s a number of European countries decided to stay on gold and to keep their exchange rates fixed. This forced these countries into deflationary demand policies aimed at restoring balance of payments equilibrium. As a result, they failed to recover and performed significantly worse than the countries that went off gold and devalued their currencies (see Eichengreen(1992)). Something very similar happened in the Eurozone since the Great Recession.

The nature of macroeconomic policies in the Eurozone can be illustrated by the figure 12. It shows the production possibility frontier. These policies focused on structural reform (supply side policies) aimed at shifting the production possibility frontier of the Eurozone outward. Our empirical analysis suggests that it is unclear whether these policies actually worked to generate such a positive shift. At the same time the austerity policies that were applied throughout the Eurozone reduced aggregate demand. As a result, effective production (shown by the dot inside the production possibility frontier) declined. At the same time these austerity policies had the effect of reducing public investment and spending for education. As a result, the two main drivers of economic growth, physical and human capital accumulation were affected negatively. Thus it is more likely that the macroeconomic policies pursued in the Eurozone had the effect of shifting the production possibilities frontier downwards together with a decline in effective production.

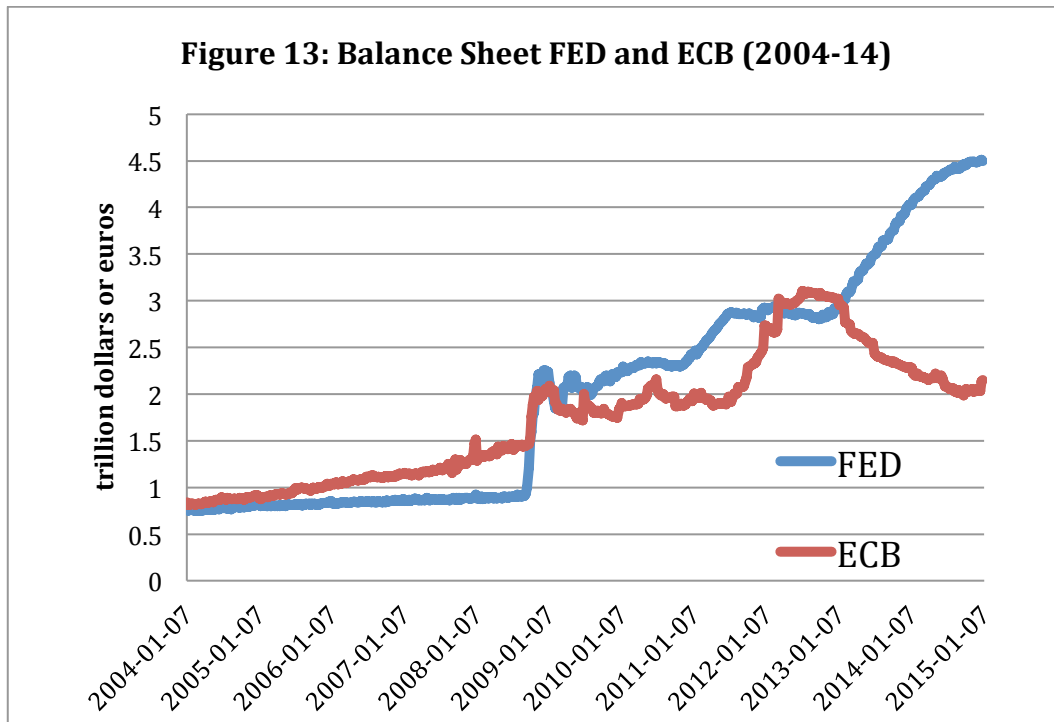
Figure 12: Production possibility frontier and macroeconomic policies in Eurozone



6. What should be done?

All this leads to the question of what to do today, in 2015? As stressed by many participants in the debate concerning secular stagnation (see Teulings and Baldwin(2014), Summers(2014)), the policy mix to lift countries from the low growth and high unemployment equilibrium consists in a mix of monetary and fiscal expansion.

The ECB has decided to do its part, albeit rather late, when it decided to start its QE program in January 2015. Although this program looks quite spectacular it should not be forgotten that the ECB will be restoring the money base to its pre-crisis growth path. This is made clear in Figure 13 which contrasts the balance sheets of the ECB with that of the US Fed. The contrast since 2012 is spectacular. In order to stimulate the US economy the Fed engaged in a dramatic increase of its balance sheet. During the same time, when the Eurozone turned back in a double-dip recession, the ECB allowed its balance sheet to contract by €1 trillion. Quite a surprising policy choice. The announced QE-program of €1 trillion will bring the money base back on track, not more.



Source: ECB and Federal Reserve

It is now generally recognized that when the economy is in a liquidity trap, monetary policy is insufficient to stimulate aggregate demand, and that fiscal policies have to take the brunt of demand stimulus.

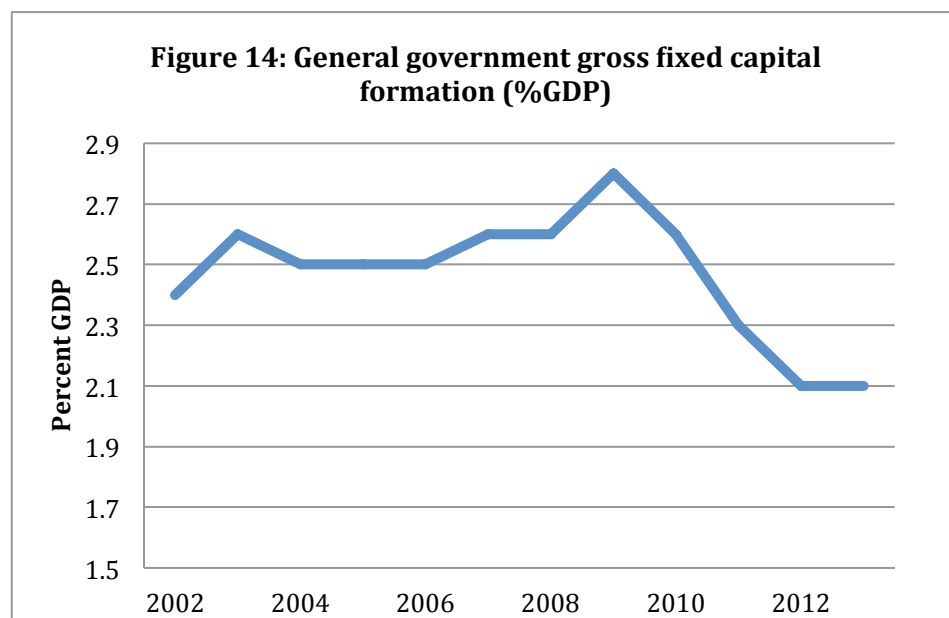
Governments of the Eurozone, in particular in the Northern member countries now face historically low long-term interest rates. The German government, for example, can borrow at less than 1% at a maturity of 10 years. These historically low interest rates create a window of opportunities for these governments to start a major investment program. Money can be borrowed almost for free while in all these countries there are great needs to invest in the energy sector, the public transportation systems and the environment.

This is therefore the time to reverse the ill-advised decisions made since 2010 to reduce public investments that is illustrated in Figure 14. This can be done at very little cost. The country that should lead this public investment program is Germany. There are two reasons for this. First, as we have argued earlier the asymmetric nature of the macroeconomic adjustment programs within the Eurozone unnecessarily magnified the cost of these programs in the debtor nations, and is

responsible for the stagnation of the Eurozone since 2008. Second, public investments as a percent of GDP in Germany are among the lowest of all Eurozone countries. In 2013 public investment in German amounted to a bare 1.6% of GDP versus 2.3% in the rest of the Eurozone (see also Fratzscher(2014) on this).

Such a public investment program would do two things. First, it would stimulate aggregate demand in the short run and help to pull the Eurozone out of its stagnation. Second, in the long run it would help to lift the long-term growth potential in the Eurozone.

The prevailing view in many countries is that governments should not increase their debt levels lest they put a burden on future generations. The truth is that future generations inherit not only the liabilities but also the assets that have been created by the government. Future generations will not understand why these governments did not invest in productive assets that improve these generations' welfare, while present day governments could do so at historically low financing costs.



Source: Eurostat

There is a second factor that prevents European policy-makers from using a large government investment program in order to lift the Eurozone from its stagnation.

These policy-makers continue to believe that the stagnation since 2008 is a result of structural rigidities in the Eurozone. Thus the problem of stagnation is seen as originating exclusively from the supply-side. In this view structural reforms (together with austerity) are the answer.

We have shown evidence that structural rigidities in the labour and product markets have insignificant effect on economic growth. As a result these rigidities cannot be seen as the primary cause of the Eurozone stagnation since 2008. It is time policymakers face this truth and start following policies that work. This will have to come mainly from fiscal programs aimed at boosting investment.

7. Conclusion

Macroeconomic policies pursued since the financial crisis in the Eurozone have not been evidence-based. Supply side policies (“structural reforms”) have been at the center of policy-thinking in the Eurozone and member-countries have been forced to implement such supply-side policies. In this paper we provided evidence against the view that supply side policies boost economic growth. In some cases the evidence even suggests that these policies might reduce economic growth. This is particularly the case with the forced breakdown of employment protection, which is likely to reduce investment in human capital.

Thus it appears that macroeconomic policies rather than being evidence-based have been ideology-based. This ideology claims that flexibility in labour and product markets should be pursued under all circumstances. The evidence that this will lead to more growth is extremely thin.

In contrast, the strong empirical evidence that investment in physical and human capital is key to economic growth has not been used. On the contrary, in the name of austerity and a phobia vis-à-vis government debt, a decline in public investment was set in motion endangering the long-term potential of the Eurozone. In addition, austerity had the effect of reducing spending for education, thereby reducing the potential for long-term economic growth.

The results of this paper do not imply that no structural reforms are necessary. Some are, even if their implications for economic growth are uncertain. The main structural reform in the labour market consists in eliminating its dual nature. This has been a serious problem in countries like Italy and Spain where older workers are fully protected and the newcomers, the young are not. As a result, the latter face extremely flexible labour contracts with little protection. This duality in labour contracts has the effect of reducing human capital of the young as both the firms and the young have little incentives to invest in better skills. In addition, this duality leads to important negative social and political effects as a new generation feels it is not really integrated in society. Some steps have been taken in a number of countries (Italy, Spain) with new legislation that promises to do away with this duality. This is done by introducing a unified labour contract for young and old, whereby employment protection is gradually built up for the young that enter the labour market (see Boeri, et al(2013)).

The crisis management that was set up in the Eurozone after the eruption of the government debt crisis can be said to be responsible for the economic stagnation experienced by the Eurozone. This crisis management was characterized by two features. One was the asymmetric adjustment to the current account imbalances that forced the deficit countries into intense austerity without a compensating policy of stimulus in the surplus countries. This led to a deflationary bias that created strong collateral damage on investment, both private and public.

The second feature of crisis management was its focus on supply policies. While the overriding macroeconomic problem was an insufficiency of demand, policymakers insisted on fixing the supply side of the economy in the hope that this would spur long-term economic growth. The evidence we have provided in this paper is that these supply side policies have insignificant, and sometimes even negative effects on long-term economic growth. As a result, together with the negative effects of austerity on investment, it can be concluded that the crisis management in the Eurozone not only exacerbated a demand problem, but also harmed the long-run growth potential of the Eurozone.

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Appendix 1

A1. Description of the variables

Variable	Sources	Note
Real growth rate	OECD	
Investment/GDP	World Bank WDI	
Real effective exchange rate	OECD	It measures the competitiveness-weighted relative consumer prices and unit labour costs for a country.
Working population growth	OECD	
Government consumption/GDP	Oxford Economics	The value of government spending on goods and services expressed as a share of nominal GDP. This includes things like the public sector's payroll and procurement. It does not include investment spending or spending on social transfers for instance.
Effective retirement age	OECD	
Government effectiveness	Worldwide governance indicator	
Proportion of tertiary education	World Bank education IIASA/VID Projection	Proportion of population by educational attainment, age 15-64, total, tertiary
Employment protection legislation (EPL)	OECD	Strictness of employment protection – individual and collective dismissals (regular contracts)
Product market protection index	OECD	A comprehensive and internationally-comparable set of indicators that measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable. They measure the economy-wide regulatory and market environments; The indicators cover formal regulations in the following areas: state control of business enterprises; legal and administrative barriers to entrepreneurship; barriers to international trade and investment.
Government cabinet composition (left) %	Comparative political data	Government composition: cabinet posts of social democratic and other left parties as a percentage of total cabinet posts. Weighted by the number of days in office in a given year

Appendix 2: Investment GDP ratio regression (fixed effects model)

	(1) Advanced economies 1985-2013	(2) OECD economies 1998-2013	(3) Advanced economies 1998-2013	(4) Advanced economies 1998-2013
Growth	0.087 (0.063)	0.137*** (0.045)	0.107* (0.052)	0.106* (0.054)
Real effective exchange rate	0.028 (0.021)	0.041*** (0.013)	0.032 (0.019)	0.047*** (0.016)
Working population growth	2.330*** (0.532)	2.072*** (0.486)	2.405*** (0.551)	2.269*** (0.515)
Government consumption GDP ratio	-0.235 (0.175)	-0.212* (0.123)	-0.187 (0.168)	-0.167 (0.162)
Real retirement age	0.211 (0.178)	0.193 (0.193)	0.153 (0.175)	0.227 (0.168)
Government effectiveness	-0.152 (1.083)	0.417 (0.936)	-0.178 (1.061)	-0.039 (0.951)
Tertiary education/total population	-0.415* (0.206)	-0.244* (0.129)	-0.242 (0.162)	-0.166 (0.144)
Employment protection	5.707*** (1.312)	4.220*** (1.187)	5.952*** (1.369)	4.382*** (1.342)
Product market protection		0.734 (0.582)		1.109 (0.719)
Observations	409	457	365	359
R-squared	0.543	0.525	0.579	0.611
Number of iid	24	32	24	24

Robust standard errors in parentheses

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

