Transatlantic Austerity 2010–13. A Comparative Assessment

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Abstract Drawing on a large data collection, this paper offers a comprehensive assessment of fiscal austerity in twenty-nine major countries in the Transatlantic area in the aftermath of the Great Recession of 2008–09. Countries include the seventeen Euro members as of 2013, and twelve non-Euro countries, the ten other members of the European Union, United States and Canada. The paper is organized in two parts. First, an index of austerity is proposed based on the contraction of the public sector's net contribution to the economy. Then, there follows an assessment of austerity under the two dimensions of the improvement of public finances and interest rates, and of the collateral effects on economic activity and employment. The assessment is accompanied by reasoned discussion of the theoretical motivations and underpinnings of fiscal austerity and relevant criticisms. The main conclusion is that austerity in general has so far missed its promised goals, for (1) except budget deficits, public finances have further deteriorated, (2) countries under stronger austerity have achieved neither consolidation nor faster recovery but rather lower shock absorption, worse recovery performances, and higher unemployment. Claims that austerity failures are due to country-specific factors, such as mistakes in implementation and pre-crisis structural weaknesses, are not supported by robust evidence.

1 Introduction

'Austerity' was the 2010 word of the year according to the *Merriam-Webster Dictionary*, with more than 250,000 clicks on the online edition. Austerity is today a notorious word that stands for what economists call "fiscal consolidation policies", recommended, and largely activated, all across the developed countries after the remarkable deployment of various fiscal supports to countervail the global

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financial and economic crisis exploded in 2008–09.[1] Austerity thus encompasses fiscal policies variably intended to keep the public budget in balance, or abstain from excess expenditure, or actively pursue budget restrictions, even though the economy may be suffering from low production and high unemployment. In this sense, austerity stands in opposition to the so-called "Keynesian fiscal policies" which recommend deficit spending as a means to overcome economic depressions. "The boom, not the slump, is the right time for austerity at the Treasury" Keynes said in 1937 in one of his famous radio broadcasts.

The motivations put forward for austerity vary according to the circumstances. For countries on the brink of a sovereign debt crisis, as it has been the case in the Euro Zone (EZ), austerity may appear to be an obvious necessity. However, since all countries activated fiscal stimuli in 2008–09 leading to substantial budget deficits, the overarching motivation for austerity has been fiscal consolidation, with variable force and urgency from country to country.

If not dictated by immediate threats, austerity has also been prescribed as a requisite for reinstating sound growth conditions before prolonged fiscal stimuli to the economy become self-defeating as public debt grows too high.

> There should be little question that European economies share the need to reduce public deficits and debts from levels that, as confirmed by a growing strand of empirical literature […] are likely to be harmful for growth in the medium term […] (Buti and Pench 2012, p. 1)

In this perspective, the true issue at stake is whether austerity is a means to achieve fiscal consolidation with little or no output and employment losses, or as a means to restore growth, in the course of a recession.

> Some argue that budget consolidation and fostering growth appear contradictory to one another […] As consolidated public finances enhance the trust of financial markets in each respective country, budget discipline is a key prerequisite for economic success and should not be perceived as a hurdle to growth (OECD 2012, p. 5)

In the face of the persistence of slumps in the EZ, the policy strategy has been rephrased as a matter of trading off some economic losses immediately with more austerity and economic losses in the future, while the policy assessment has progressively been shifted from short to longer time horizons, albeit undetermined.

> It is undeniable that the front-loaded fiscal consolidation had a negative impact on Eurozone growth, and the factors that have aggravated the impact of consolidation on growth are well known […] The jury is still out on the relative merits of a more front loaded consolidation, allowing a smaller adjustment later on, and a delayed consolidation (US), requiring a more drastic effort when the recovery is still fragile (Buti and Padoan 2013, p. 1)

[1]Indeed, austerity is a word with a long history which, to remain within contemporary history, may be traced back to the inter-war years of the Great Depression. See Blyth (2013) for a thorough historical reconstruction.

As a matter of fact, today austerity not only is widely unpopular, but it is also highly controversial and increasingly criticized from various academic camps.[2] Inevitably, the debate has so far grown out of contingent events in a short-run perspective. Completing the fifth year after the crisis, and hence in a medium-run retrospective, this paper aims to offer a first systematic quantitative assessment of austerity since the outbreak of the crisis. The time span has been selected to encompass the first year of generalized recession, 2009,[3] up to 2013, the last year of available official data of public finances.

The first aim is to widen the view to a comparative spectrum of different countries across the Transatlantic area. Indeed, the crisis has invested the whole Western world, and austerity is not an exclusive policy of the EZ countries. On the other hand, it is well known that policy design as well as policy results are also dependent on country-specific characteristics and institutions; as will be seen, austerity is no exception. The choice of countries has been made using EZ membership as institutional criterion in the first place, and then along other dimensions. The EZ is regarded as the epicentre of austerity mainly in force of the fiscal rules contained in the constitutive treaties and subsequent modifications. Accordingly, some scholars find that the "Euro dummy" may explain (adverse) phenomena that are peculiar to EZ countries with respect to other similar "stand-alone" countries (e.g. De Grauwe 2011; De Grauwe and Ji 2012).[4] Therefore, the seventeen EZ members present in 2013 have been selected first. This group has been split in two: the twelve early members (EEZ),[5] and the five late members (LEZ).[6] The latter have a shorter track of membership and they overall represent a thin fraction of the aggregate economy of the EZ. Nonetheless this group may provide useful information as a control group with respect to the early members. Further, in consideration of the features of the sovereign debt crisis of 2010–12, EEZ has been disaggregated into two subgroups: EEZ5, the group of the most fiscally distressed

[2]As examples in the flood of materials available, especially via internet, see the interventions collected by Corsetti (ed., 2012) representative of perplexities from more orthodox scholars, the papers in the special issue of the *Cambridge Journal of Economics* reviewed by King et al. (2012) for more radical Keynesian views, and Blyth (2013) for a discussion of the various positions pro and against austerity.

[3]Only the following countries were in recession in 2008: France, Greece, Ireland, Italy, Estonia, Latvia, Denmark, Sweden, UK, US.

[4]De Grauwe highlights that EZ members have suffered higher risk premia than non-Euro countries with similar (deteriorating) public finance indicators. He argues that Euro-membership (lack of independent monetary policy) is an institutional variable that per se has been penalized by financial investors. More severe austerity can then be seen as the policy response emerged within the Euro Zone context.

[5]Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain.

[6]Slovenia, Cyprus, Malta, Slovakia, Estonia.

members (combining high public deficit, debt, and interest rate),[7] and the remaining EEZ7. Then, twelve non-EZ countries (NoEZ) have been added, namely ten other EU countries (OEU)[8]—which are comparable with EZ in terms of development, average size, and other institutional features except the common currency—and the two larger North-American (NA) countries, Canada and United States, dimensionally comparable with EZ as a whole. In total, twenty-nine countries highly representative of the Transatlantic area.

The second aim is to set the stage for reasoned assessment of austerity by means of a wide data set covering the most relevant phenomena. To this end, as far as possible data have been collected from a single official source, Eurostat (online database AMECO[9]) unless otherwise stated.

The paper is organized in two parts. The first (Sect. 2) introduces a measure of austerity. Various measures are available and used in the debate, depending on the specific aspect of interest. For reasons that will be seen, a suitable measure of austerity for our purposes is the year change in the public sector net contribution to income formation (i.e. the primary deficit) as a ratio to current GDP. Transatlantic austerity is then gauged under three dimensions that are regarded as relevant to achieve successful austerity: *timing and intensity* ("front-loaded"/large vs. "back-loaded"/progressive), and *composition* (cutting expenditure vs. raising taxes) (e.g. OECD 2012; Buti and Padoan 2012; Buti and Pench 2012; EU Commission 2013).

The second part (Sect. 3) is devoted to the assessment of the results of austerity. This is not an easy task, with several areas of controversy, because austerity is a multifaceted medium-run policy strategy, so that results may be better in some aspects and worse in others, and a sufficiently long gestation may be invoked. However, it seems fair to focus on two main areas, under the guidance of the austerity literature. One is obviously public finances, that is deficits, debts and interest rates, where results were expected to be tangible in the short run. The other is the real economy, namely economic activity, growth and employment, where the side effects of successful austerity ought to be transitory if negative, and conducive to faster recovery to growth in the medium run.

Given the objective intricacy of arguments and phenomena, and the relative scarcity of observations, it seems hard to provide a definite assessment of austerity in one single, integrated, all-encompassing empirical model. Rather, the paper will offer the reader a detailed analysis of country data and responses for each major issue of the austerity experience mostly by means of partial correlation analysis. The basic correlation indicators will be provided, together with, where useful, the best OLS interpolation function in terms of determination coefficient. Since correlation is not

[7]Greece, Ireland, Italy, Portugal and Spain. For statistical and econometric analyses identifying this cluster of countries as the eye of the debt storm see e.g. De Grauwe and Ji (2013a, b), Favero and Missale (2011).

[8]Bulgaria, Czech Republic, Denmark, Hungary, Latvia, Lithuania, Poland, Romania, Sweden, United Kingdom. Croatia is not included because it has joined the EU later.

[9]http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm.

causation, no strong causal inferences will be drawn,[10] and yet a statistically qualified characterization will emerge of the role of austerity *vis-à-vis* the above mentioned set of variables across the Transatlantic area.

It will be seen that austerity in general has so far missed its promised goals, in particular in the EZ, for (1) except budget deficits, public finances have further deteriorated, (2) countries under stronger austerity (e.g. EEZ5) have achieved neither consolidation nor faster recovery; rather, they present lower shock absorption, worse recovery performance, and higher unemployment. Claims that austerity failures are due to country-specific factors, such as mistakes in implementation and pre-crisis structural weaknesses, are not supported by robust evidence. Summary of results and conclusions will follow in Sect. 4.

2 Gauging Austerity

A basic problem in the empirical analysis of austerity is its correct and appropriate measurement. Indeed, a number of different measures are possible and available in the literature depending on the purpose of analysis. To begin with, four different actors are involved with different viewpoints and stakes: the government, the recipients of fiscal decisions, the investors in public debt, and external agencies. Each actor may assess, or perceive, whether or not fiscal policy is austere in different ways, and it is not difficult to imagine situations in which assessments are even of different sign. A simple example may clarify the issues involved and the rationale of the austerity indicator proposed here.

Suppose that the economy is in a downturn and the government cuts some current expenditure. This is intended to be an austerity policy "ex ante". But how this ex-ante austerity policy affects the economy depends on how the recipients of current expenditure are actually affected. Suppose that some automatic stabilizers are in place such that other components of current expenditure increase: overall, total expenditure indicates little or no change and, consequently, "ex-post" austerity results smaller than it is ex ante, probably with a negligible effect on the economy. At the same time, investors in public debt, possibly in line with external agencies like rating agencies, the IMF, or the EU Commission, are concerned with financial stability and focus on the evolution of indicators like the deficit/GDP ratio or the debt/GDP ratio. Since the economy is in a downturn, and the ex-ante austerity policy is ex-post-neutral on current public expenditure, the business cycle will probably follow its own course so that current GDP will be lower than the previous year, thus pulling tax revenues down: overall, the deficit/GDP ratio, and hence the debt/GDP ratio, will be worse than in the previous year, turning the ex-ante austere

[10]Hence the significance of coefficients of interpolation functions is not an issue.

government into an ex-post profligate one. The "denominator bias" due to the use of GDP ratios is usually corrected by taking the primary budget net of interest and with "cyclical adjustment" (CA) techniques (for a recent assessment of this issue see EU Commission 2013). Hence the CA primary budget can be regarded as a good approximation of the "true" ex-ante policy stance of the government. Yet, apart from various and unresolved technical problems, consider again the previous example. With a correct CA technique an observer might identify the ex-ante austerity policy of the government, but this fact is not particularly relevant to the economic impact of fiscal policy. What is relevant in this perspective is the actual evolution of fiscal balances for their terminals in the economy, which include the working of automatic stabilizers. Who is right, and what should the external observer look at?

2.1 An Austerity Indicator

The ideal indicator should be simple and transparent, and seek to comply with two criteria, at least for the purposes of the present study. (1) *Governments are responsible for what they can control directly*; hence the indicator should be "ex ante" as much as possible. (2) *The assessment of fiscal policy should necessarily go through its effects on the economy*, which largely depend on the actual evolution of relevant fiscal variables.

My proposed fiscal austerity indicator is the following. Let F_t be the public sector net contribution to income formation in year t, given by public expenditure net of interest payments and total fiscal revenue (i.e. the primary deficit), and let Y_t denote the nominal GDP. Then fiscal adjustment, as the change in the public sector net contribution in year t, is measured by $F_t - F_{t-1}$, and its impact on the economy by

$$FA_t \equiv (F_t - F_{t-1})/Y_t \tag{1}$$

where $FA_t < 0$ indicates austerity.

Overall, this austerity indicator seems to strike a reasonable balance between the two criteria mentioned above, and to provide a comparable measure of the impact of actual changes in the public sector net contribution while avoiding the bias inherent in taking GDP ratios as primitives.[11] Following the literature on austerity, three dimensions stand out as critical: timing, intensity and composition.

[11]Note that, generally, $(F_t - F_{t-1})/Y_t \neq F_t/Y_t - F_{t-1}/Y_{t-1}$ unless GDP is constant or $F_{t-1} = 0$. Otherwise, consider the case $F_{t-1} > 0$, $FA_t < 0$. If we use the GDP ratios instead, positive growth adds a negative bias (austerity is overvalued), whereas negative growth adds a positive bias (austerity is undervalued).

2.2 Timing and Intensity

The first key ingredient in the recipe for successful austerity is an "ambitious", front-loaded restoration of sustainable public finances that stops speculative attacks, regenerates investors' confidence, and regains access to the debt market at lower interest rates.[12] Table 1 provides the summary statistics of *FA* indicators for all countries from 2009 to 2013. Our data allow for the following considerations. As to timing, after the generalized anti-crisis fiscal stimuli of 2009, the large majority of countries (20/29) moved into austerity in 2010, reaching a global average of almost −1 % of national GDP. All countries, with no exceptions, were in the austerity regime by 2011, the peak austerity year with a global average of −1.4 %. Hence data identify a generalized "austerity period" spanning from 2010 to 2013. As quantitative hint, over this period 74 % of *FA* observations are negative (86/116).

Figure 1 provides a snapshot of the *FA*s since 2010 for the groups of countries. There is some evidence that on average all groups of countries followed the front-loading strategy prescribed by the austerity agencies: the bulk of restriction was realized in 2010–11. Notable exceptions to the front-loading strategy are UK, US and Italy, which postponed major restrictions until the debt attack of the second half of 2011. The time and intensity profile of austerity is similar for EZ and no-EZ as whole, so that the "euro dummy" does not seem important. However, the no-EZ is the result of two different patterns: OEU tracked EZ quite closely while NA followed a more moderate path: the "*Europe* dummy" seems more to the point.

It is also clear that in EZ the austerity turn was largely driven by the EEZ5 group of the most financially distressed countries (primarily Greece, Ireland, Spain) averaging around −3 % of GDP in 2010 and −2.4 % in 2011. The EEZ7 countries remained almost neutral or slightly expansionary in 2010 (except Belgium, which was in fact a high debt country), and yet they were also driven into austerity in 2011 (−1.4 % on average) led by Germany with a remarkable −3.4 %.

From this initial overview, austerity appears as a medium-term policy. Hence, whether front- or back-loaded it is informative to have a measure of its overall intensity. To this end, Table 1 displays two additional indicators (see Fig. 2 for the groups of countries) of the *cumulated fiscal adjustment* (*CFA*), that is the sum of *FA*s over time. One indicator measures the overall injection of austerity from 2010 to 2013. The other includes the fiscal stimulus of 2009; hence it tells us whether austerity has more or less than reversed the initial fiscal stimulus. This adds important information with regard to the "shock absorption" and "budget smoothing" functions of public finance. According to the budget smoothing principle, this second indicator should point to zero as GDP returns to normality.

[12]According to the evidence analysed by Buti and Pench (2012), gradual consolidations seem more likely to be successful, but gradualism may be harmful for countries starting with high debt levels and major financial distress.

Table 1 *FA* indicators, 2009–2013, (% of GDP)

	FA					CFA	
	2009	2010	2011	2012	2013	2009–13	2010–13
AUS	3.04	0.55	−1.72	−0.06	−0.99	0.82	−2.22
BEL	4.84	−1.43	−0.02	0.26	−1.22	2.43	−2.41
FIN	7.48	0.19	−1.94	1.29	0.39	7.41	−0.07
FRA	4.70	−0.34	−1.94	−0.25	−0.27	2.27	−2.80
GER	3.34	1.29	−3.36	−0.90	0.24	0.60	−2.74
LUX	3.94	0.04	−0.32	−0.60	−0.07	2.99	−0.95
NET	6.20	−0.19	−0.39	−0.47	−1.43	3.71	−2.48
EEZ7	**4.79**	**0.01**	**−1.38**	**−0.11**	**−0.48**	**2.84**	**−1.95**
GRE	5.58	−5.92	−2.79	−0.99[a]	−0.15[a]	−1.36	−9.86
IRE	5.29	−5.93[a]	−0.23[a]	−1.45	−1.96	2.83	−9.57
ITA	3.32	−0.74	−1.01	−1.50	0.28	1.21	−2.97
POR	6.69	−0.18	−6.65	−0.57[a]	0.83	0.12	−6.57
SPA	6.40	−1.95	−1.17	−2.91[a]	−0.22[a]	0.16	−6.24
EEZ5	**5.46**	**−2.94**	**−2.37**	**−1.48**	**−0.24**	**0.59**	**−7.04**
CYP	7.39	−0.40	0.99	−0.74	0.63	7.88	0.49
EST	−1.43	−2.03	−0.97	1.24	0.13	−3.05	−1.62
MAL	−0.84	0.04	−0.86	0.43	0.12	−1.11	−0.27
SLK	5.69	0.04	−2.53	−0.71	−1.47	1.01	−4.68
SLO	4.19	−0.76	0.26	−2.83	1.33	2.18	−2.00
LEZ	**2.45**	**3.00**	**−0.62**	**−0.62**	**−0.52**	**1.59**	**−1.62**
EZ	**1.92**	**4.46**	**−1.04**	**−1.45**	**−0.63**	**1.11**	**−3.35**
BUL	6.16	−1.06	−1.00	−1.31	1.26	4.04	−2.11
CZE	3.31	−1.16	−1.48	1.14	−1.60	0.22	−3.10
DEN	5.83	−0.02	−0.75	2.39	−2.36	5.09	−0.74
HUN	0.40	0.26	−1.28[a]	−1.28[a]	0.91	−1.00	−1.39
LAT	3.77	−1.71	−3.94	−1.94	−0.05	−3.87	−7.64
LIT	4.99	−2.45	−1.12	−2.07	−0.18	−0.84	−5.82
POL	3.44	0.62	−2.51	−1.14	1.13	1.55	−1.90
ROM	2.40	−1.92	−1.03	−2.52	−0.43	−3.50	−5.90
SWE	3.69	−0.88	−0.12	0.62	0.54	3.86	0.17
UK	7.34	−1.91	−0.90	−1.89	−2.26	0.39	−6.95
OEU	**1.59**	**4.13**	**−1.02**	**−1.41**	**−0.80**	**0.59**	**−3.54**
CAN	0.26	3.4	0.9	−0.7	−0.4	3.00	−0.39
USA	3.97	5.50	−0.70	−1.05	−1.14	1.39	−4.12
NA	**2.12**	**4.44**	**0.08**	**−0.86**	**−0.76**	**2.19**	**−2.25**
NoEZ	**1.68**	**4.18**	**−0.84**	**−1.32**	**−0.79**	**0.86**	**−3.32**
Global	**4.35**	**−0.96**	**−1.40**	**−0.70**	**−0.29**	**1.01**	**−3.34**

Group data are unweighed averages

[a]Data corrected for bank bailouts and other extraordinary operations with the private sector that these countries have recorded in the current budget

Source EUROSTAT, Database AMECO

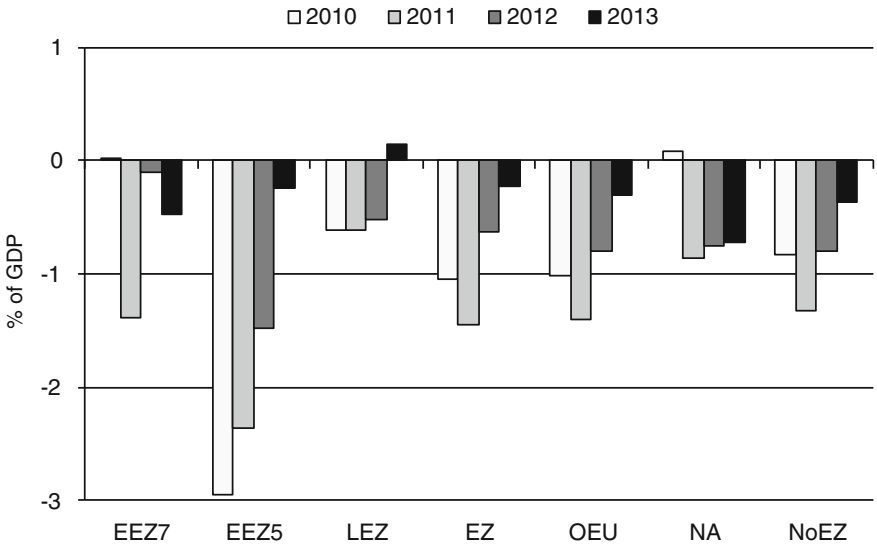

Fig. 1 *FA* indicators, groups of countries, 2010–13. *Source* see Table 1

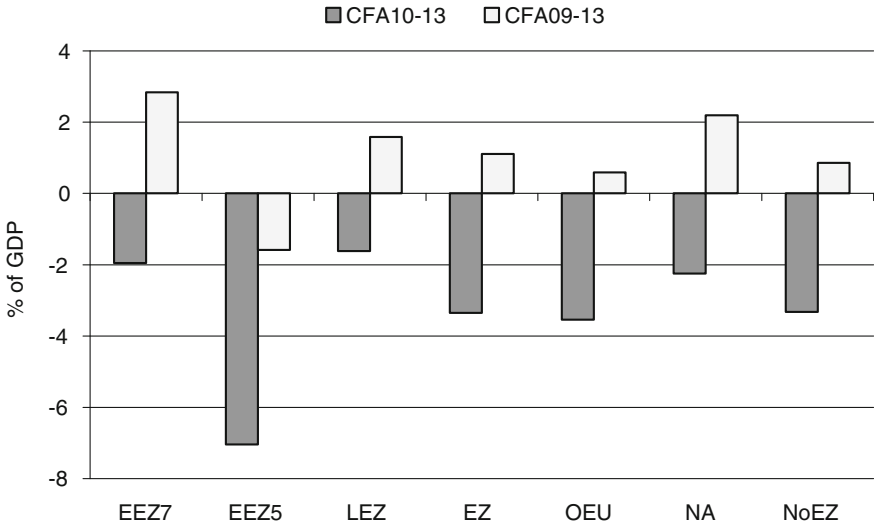

Fig. 2 *CFA* indicators, groups of countries. *Source* see Table 1

Since the first year of generalized austerity (2010) almost all countries (with the exceptions of Sweden and Cyprus) have cumulated sizeable restrictive *CFA*s, reaching a global average of −3.4 % of GDP. This is equivalent to say that the representative Transatlantic country has cut the public sector net contribution to the

economy at a year pace of about 0.8 % of GDP for four years. To confirm the comparative patterns of year-by-year austerity pointed out above, the overall austerity effort in EZ has been in line with NoEZ, but both EZ and OEU, that is *Europe as a whole*, are notably more severe than NA (−3.6 and −2.3 % respectively).

However, the disaggregation of EZ is quite instructive. The austerity effort of EEZ7 has been comparatively lower than elsewhere. By contrast, the EEZ5 countries stand out as those with the largest cumulated austerity (−7 % on average). The strongest dosage has been inflicted on Greece and Ireland (reaching almost −10 %), then Portugal and Spain (around −6 %), that is all countries embarked in bank bailouts, sovereign debt crisis and external conditional support. Italy (−3 %) lies between these countries and the EEZ7 group.

Table 1 also displays the *CFA*s from the fiscal stimulus of 2009–2013. In the majority of countries, and in the Transatlantic area as a whole, cumulated austerity fell short of the initial stimulus, leaving a net fiscal expansion of about 1 %. In this respect, EZ (1.1 %) results slightly more expansionary than NoEZ (0.9 %). From the point of view of budget smoothing, it may be argued that austerity has not (yet) been too much, but the critical point is that budget smoothing ought to take place in tandem with the return of economic activity to normality—we will address this point later.

There are however important differences within groups. NoEZ reveals a sharp difference between OEU (0.6 %) and NA (2.2).[13] EZ also hides quite different situations. EEZ7 realized the largest net expansion (2.8 %) whereas the "uniqueness" of EEZ5 re-emerges: except for Ireland's positive residual, this is the single group of countries where austerity completely nullified, or reversed, the initial fiscal stimulus.

In light of this first overview of the data, we may draw two conclusions. First, austerity has not been an exclusive policy imposed onto EZ countries; rather, it has been "freely" pursued across the whole Transatlantic area as the consensus mindset to manage the fiscal consequences of the financial crisis and the Great Recession. Second, austerity has however been implemented in different ways as to its timing and overall intensity. If a Transatlantic divide exists, it is not along the borders of EZ, but between NA and Europe as a whole. Under all dimensions, austerity has been most severely enacted in the EEZ5 countries under worst public finance conditions. It is the joint presence of *two* features, EZ membership *and* public finance distress, that makes the difference and identifies the real epicentre of austerity in the Transatlantic area. As argued by EU Commission officials, diversification and flexibility have in fact been actively pursued in application of the more recent modifications of the EZ fiscal rules (Buti and Carnot 2013, p. 3). On the other hand, the dosage of austerity cumulated in the rest of the EZ *and OEU* countries has been nontrivial, and it appears less justified on the grounds of public

[13]The fact is that four OEU countries ended up with a net *restriction* (Hungary, Latvia, Lithuania, Romania).

finance emergency in comparison with other No-EZ countries. Drawing on De Grauwe's (2011) argument, why should the overall post-crisis fiscal adjustment of the EZ, and Europe, as a whole be more severe than in NA? Thus, I would qualify the European experience as one of "uncoordinated austerity", which may have created unfavourable conditions for the countries facing stronger pressure for fiscal consolidation.[14]

2.3 Composition

The most common austerity prescription is that expenditure cuts have less negative impact (or even a positive one) on the economy and more lasting effect on public finances (see Carnot 2013, for an overview).[15] In this perspective, Table 2 provides the composition of the *CFA*s, respectively. Note that *CFA*s result from the difference between the cumulated (primary) expenditure adjustment (*CEA*) and the cumulated tax adjustment (*CTA*)[16]:

$$FA_t = (G_t - G_{t-1})/Y_t - (T_t - T_{t-1})/Y_t \tag{2}$$

$$CFA = \sum\nolimits_t \Delta G_t/Y_t - \sum\nolimits_t \Delta T_t/Y_t = CEA - CTA \tag{3}$$

Figure 3 shows the composition of *CFA*s for the groups of countries in the austerity period 2010–13. Positive histograms indicate increases. We can see that the recommended composition has not enjoyed large audience: the majority of countries, within and outside EZ have implemented cumulated austerity by *increasing tax revenue more than expenditure*. The larger increase in tax revenue may partly be due to the income effect, but some countries traditionally regarded as fiscally virtuous in the EEZ7 and NA groups have let expenditure grow to a remarkable extent over the austerity period. It may come as a surprise that the most aggressive restrictions on the expenditure side have been accomplished within the EEZ5 group, with an average cut of 4.2 %: in the case of Greece, Portugal and Ireland this may be the result of specific Troika interventions; yet Spain has managed a net cut by itself, while Italy has kept cumulated expenditure well below the average (1.4 %).

[14]On the problem of uncoordinated fiscal adjustment plans in the EZ see Tamborini (2013), Berti et al. (2013), in't Veld (2013).

[15]It is sometimes added that the expenditure to be cut is the "unproductive" one. Yet this is a category difficult to identify, hence, in practice, expenditure at large is considered.

[16]Total revenue of the central government.

Table 2 *CFA* indicators and their composition, 2010–13

	CFA	CEA	CTA
AUS	−2.22	4.62	6.85
BEL	−2.41	5.24	7.65
FIN	−0.07	10.38	10.45
FRA	−2.80	4.79	7.59
GER	−2.74	2.29	5.02
LUX	−0.95	8.49	9.44
NET	−2.48	3.99	6.47
EEZ7	**−1.95**	**5.69**	**7.64**
GRE	−9.86	−9.46	0.40
IRE	−9.57	−8.24	1.33
ITA	−2.97	1.39	4.37
POR	−6.57	−3.47	3.10
SPA	−6.24	−2.35	3.89
EEZ5	**−7.04**	**−4.42**	**2.62**
CYP	0.49	2.30	1.81
EST	−1.62	3.58	5.20
MAL	−0.27	8.03	8.30
SLK	−4.68	3.62	8.30
SLO	−2.00	1.70	3.70
LEZ	**−1.62**	**3.85**	**5.46**
EZ	**−3.35**	**2.17**	**5.52**
BUL	−2.11	4.49	6.60
CZE	−3.10	1.77	4.87
DEN	−0.74	9.34	10.08
HUN	−1.39	4.91	6.30
LAT	−7.64	−4.44	3.20
LIT	−5.82	−1.72	4.10
POL	−1.90	7.67	9.57
ROM	−5.90	4.80	10.70
SWE	0.17	7.84	7.67
UK	−6.95	−0.47	6.49
OEU	**−3.54**	**3.42**	**6.96**
CAN	−0.39	6.81	7.20
USA	−4.12	4.65	8.76
NA	**−2.25**	**5.73**	**7.98**
NoEZ	**−3.32**	**3.80**	**7.13**
Global	**−3.34**	**2.85**	**6.19**

CEA Cumulated (primary) expenditure adjustment
CTA Cumulated tax revenue adjustment
CFA = CEA − CTA
Source EUROSTAT, Database AMECO

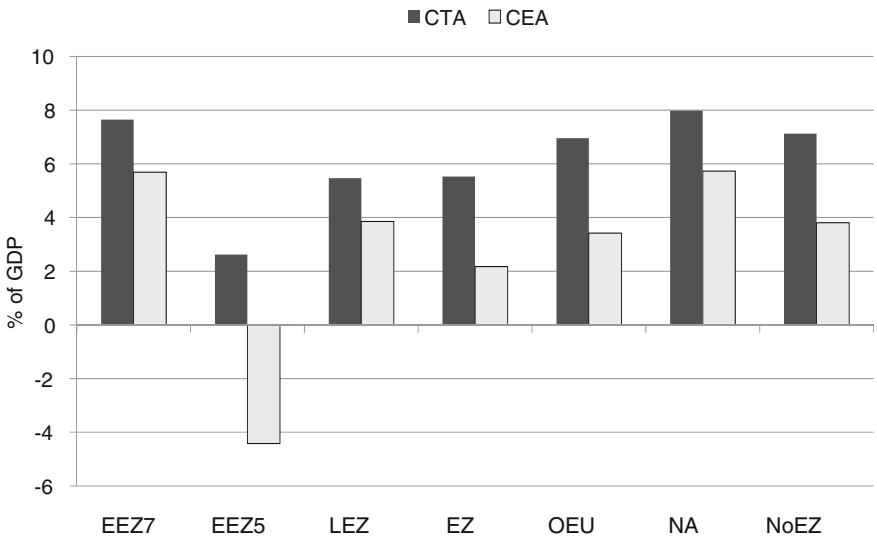

Fig. 3 Composition of *CFA* indicators 2010–13, groups of countries. *Source* see Table 2

3 Assessing Austerity

Assessing austerity is not an easy task. For two main reasons. The first is that austerity is a complex policy recipe with multidimensional implications; it may well happen that some results are negative while others are positive. The second reason relates more to the rhetoric of the economic discourse: pro-austerity arguments, even at the official levels, are remarkably devoid of any clear quantification of the expected results, including their time horizon, against which actual results can be assessed. Hence, we lack a clear and well identified framework for assessment in the first place.

3.1 An Assessment Framework

Strictly speaking, the purpose of austerity is to regain control over, and the sustainability of, public debt. As a matter of fact, however, implementation of orthodox sustainability analysis, based on fiscal fundamentals and the intertemporal budget constraint, encounters a number of non-trivial difficulties (e.g. the choice of the appropriate discount rate, time horizon, and budget items) paving the way to controversial if not inconclusive judgements (e.g. Bohn 1995; Kanda 2011; IMF 2012).

Bearing this premise in mind, public finance assessment in the Maastricht rule framework is mostly driven by two simple indicators: the total deficit/GDP ratio and the gross debt/GDP ratio. Therefore, let us think of austerity in the classical policy framework of *instruments*, *intermediate targets*, and *final targets*. Let the

debt/GDP ratio be the final target, whose quantification may vary from, say, stabilization to the reduction plans prescribed by the Fiscal Compact. Given this final target, the government has to choose an instrument. We have already examined this issue, opting for the *FA* indicator (of course, others may well be chosen). This instrument (and in general the instruments fully controllable by the government) have an indirect relationship with the final target. In this regard, we can rewrite the standard dynamic equation of public debt in terms of our *FA* indicator [see expression (1)], that is:

$$D_t = D_{t-1} + I_t + F_{t-1} + FA_t Y_t + X_t \tag{4}$$

where D is the nominal value of debt, I is interest payments, F is the primary deficit and X is other extraordinary operations and adjustments. Let $I_t = i_t D_{t-1}$, where i_t denotes the nominal interest rate on outstanding debt. Taking ratios to current GDP Y_t, and denoting them with small-case letters we obtain

$$\Delta d_t \equiv d_t - d_{t-1} \approx (i_t - n_t) d_{t-1} + f_{t-1} + FA_t + x_t \tag{5}$$

where n_t is the nominal growth rate of GDP, and the usual approximation $(1 + n_t) \approx 1$ is used.

This relationship provides a first benchmark for the *effectiveness* of austerity. If a government follows a consistent path of fiscal restrictions $FA_t < 0$, it may expect d to remain on a non-increasing path $\Delta d_t \leq 0$ (Bohn 1995). If this does not happen, the causes may be: (1) austerity is *insufficient*, given initial conditions and the paths of i and n, (2) adverse evolutions of i and n.

The most critical issue in austerity assessment, being a source of confusion and disagreement, is that the two sets of causes are in fact interconnected and cannot be easily disentangled. To put it in analytical terms, i and n are, in part at least, endogenous to *FA*. Moreover, these collateral effects of austerity are another area of large disagreement. In the pro-austerity view, its effectiveness hinges on driving i down and being neutral or positive on n (OECD 2012; Buti and Padoan 2012; Buti and Pench 2012; EU Commission 2013). The typical anti-austerity argument is that it can easily be *excessive*, driving n downwards and i upwards (e.g. De Grauwe and Ji 2013a; Tamborini 2013). If this happens, the pro-austerity counterargument is that the problem is not austerity in itself, but that it has probably been implemented in the wrong way (see above Sects. 2.2 and 2.3). Another line of defence is that low growth and high unemployment in some countries are unrelated to austerity since they come from long-lasting structural weaknesses (e.g. Bini Smaghi 2013; Manasse and Rota Baldini 2013). Also, there has been a recent reformulation of austerity assessment according to which possible economic losses of immediate austerity should be assessed against possibly larger losses due to delayed austerity when recovery comes (e.g. Buti and Padoan 2013). On the other hand, this style of reasoning leaves the time dimension of assessment undetermined, and it seems to presume that there is no connection between the present course of policy and how much time the recovery takes to come.

Therefore, public finances and interest rates will be examined in the first place, and subsequently the side effects on economic activity and employment.

3.2 Public Finances

In Sect. 2 we saw that between 2010 and 2013 almost all countries engaged in cumulated fiscal restrictions; those in the epicentre of the EZ sovereign debt crisis by and large followed orthodox recommendations as to timing and composition. Did austerity deliver the promised results in terms of financial consolidation? Let us first examine whether austerity has been effective on the basic indicators of "sound" public finances.

Table 3 provides the relevant data. As austerity has been a generalized policy, so all countries progressively brought their deficit/GDP ratio under control. In the EZ, the average ratio fell from 6.3 % in 2009 to 3.8 % in 2013. In 2009 all countries (except Finland and Luxembourg) were above the 3 % ceiling, in 2013 only seven (France, Greece, Ireland, Portugal, Spain, Cyprus, Slovenia), some of which by virtue of special arrangements with the EU Commission and other official agencies. Interestingly, also countries with no formal deficit/GDP target moved in tandem with the EZ: the average NoEZ deficit was cut from 6.8 % in 2009 to 2.6 % in 2013 (but note that UK and US still have deficits twice larger than the global average).

As regards public debt, the outcome of austerity has been much poorer. In Fig. 4, the time profile of the debt/GDP ratio from 2008 to 2013 has been quite similar across countries. The first spike occurred in 2009 as a consequence of the post-shock fiscal stimuli; thereafter, however, debt to GDP went on rising. All countries (except Sweden) ended 2013 with a ratio greater than in 2009: 22.9 points on average in EZ, 7.8 points in NoEZ. The EZ worse performance is due to the fact that the faster debt accumulators reside in the EEZ5 group (41.4 point on average). Yet the club of countries recording a two-digit increase in their debt/GDP ratio includes traditionally fiscally sound and strong economies like UK (20.9), Germany (14.3), US (14.2), France (13.5), Netherlands (12.7). Now the Transatlantic area is split *across* the ideal border of the EZ between a higher debt group above 90 % of GDP (Belgium, France, Greece, Ireland, Italy, Portugal, Spain, Cyprus, UK, Canada and US) and a lower debt group.

These data indicate that cumulated austerity subsequent to the 2009 debt creation generally failed to curb the growth of debt relative to GDP. As a matter of fact, if a relationship exists between *CFA*s and debt/GDP ratios, this is perverse, as shown by Fig. 5 where stronger cumulated austerity is associated with higher debt/GDP growth. The correlation coefficient is 0.66. Interestingly, the best interpolation function is quadratic, which captures *accelerating* debt-growth/*CFA* relationships. Paradoxically, the EEZ5 countries, which underwent the most severe austerity motivated by their debt emergency, are also the countries with the worst debt/GDP performance. According to the R^2 indicator, differences in *CFA*s account for 50 %

Table 3 Central government's total deficit and gross debt as % of GDP, 2009–13

	2009		2010		2011		2012		2013	
	DEF	DEB	DEF	DEB	DEF	DEB	DEF	DEB	DEF	DEB
AUS	4.1	69.5	4.5	71.9	2.6	72.2	2.6	74.2	1.5	74.5
BEL	5.7	95.8	3.9	96.0	3.9	98.0	4.1	100.5	2.6	101.5
FIN	2.7	43.5	2.8	48.4	0.9	48.6	1.8	50.5	2.1	57.0
FRA	7.6	79.2	7.1	82.3	5.2	85.8	4.9	90.5	4.3	93.5
GER	3.2	74.4	4.3	83.0	1.0	81.2	−0.1	82.2	0.0	78.4
LUX	0.8	14.8	0.9	19.1	0.6	18.2	0.0	20.3	−0.1	23.1
NET	5.6	60.8	5.0	62.9	4.6	65.2	4.1	70.1	2.5	73.5
EEZ7	**4.2**	**62.6**	**4.1**	**66.2**	**2.7**	**67.0**	**2.5**	**69.7**	**1.8**	**71.6**
GRE	15.6	129.4	10.5	145.0	9.2	165.3	8.9	160.6	12.7	175.1
IRE	14.0	65.1	9.5	92.5	9.7	108.2	8.2	116.1	7.2	123.7
ITA	5.4	116.0	4.5	119.3	3.8	120.8	3.0	127.0	3.0	132.6
POR	5.6	83.1	9.8	93.3	4.2	107.8	6.4	113.9	4.9	129.0
SPA	10.2	53.9	9.3	61.2	8.5	68.5	10.6	80.9	7.1	93.9
EEZ5	**10.1**	**89.5**	**8.7**	**102.2**	**7.1**	**114.1**	**7.4**	**119.7**	**7.0**	**130.9**
CYP	6.1	58.5	5.3	61.3	6.3	71.5	6.4	86.6	6.4	111.7
EST	2.0	7.1	−0.2	6.7	−1.1	6.1	0.2	9.8	0.2	10.0
MAL	3.7	66.5	3.5	66.8	2.8	69.5	3.3	71.3	3.3	73.0
SLK	8.0	35.6	7.7	41.0	5.1	43.4	4.5	52.4	4.5	55.4
SLO	6.3	35.2	5.9	38.7	6.3	47.1	4.0	54.4	4.0	71.7
LEZ	**5.2**	**40.6**	**4.4**	**42.9**	**3.9**	**47.5**	**3.7**	**54.9**	**3.7**	**64.4**
EZ	**6.3**	**62.7**	**5.5**	**68.5**	**4.3**	**73.6**	**4.3**	**78.7**	**4.3**	**85.7**
BUL	4.3	14.6	3.1	16.2	2.0	16.3	0.8	18.5	0.8	18.9
CZE	5.8	34.6	4.7	38.4	3.2	41.4	4.2	46.2	4.2	46.0
DEN	2.7	40.7	2.5	42.7	1.8	46.4	3.8	45.4	3.8	44.5
HUN	9.4	79.8	7.2	82.2	5.5	82.1	2.1	79.8	2.1	79.2
LAT	9.8	36.9	8.1	44.4	3.6	41.9	1.3	40.6	1.3	38.1
LIT	4.6	29.3	4.3	37.8	−4.3	38.3	3.2	40.5	3.2	39.4
POL	7.5	50.9	7.9	54.9	5.0	56.2	3.9	55.6	3.9	57.0
ROM	9.0	23.6	6.8	30.5	5.6	34.7	3.0	37.9	3.0	38.4
SWE	0.7	42.6	−0.3	39.4	−0.2	38.6	0.6	38.2	0.6	40.6
UK	11.4	69.6	10.1	79.6	7.7	85.7	6.1	89.1	6.1	90.6
OEU	**6.5**	**42.3**	**5.4**	**46.6**	**3.0**	**48.2**	**2.9**	**49.2**	**2.9**	**49.3**
CAN	4.5	87.4	4.9	89.5	3.7	93.6	3.4	96.1	3.4	97.0
USA	11.4	90.4	10.9	99.1	9.8	103.5	9.2	102.9	9.2	104.5
NA	**8.0**	**88.9**	**7.9**	**94.3**	**6.7**	**98.6**	**6.3**	**99.5**	**6.3**	**100.8**
NoEZ	**6.8**	**50.0**	**5.9**	**54.6**	**3.6**	**56.6**	**3.5**	**57.6**	**3.5**	**57.8**
Global	**6.5**	**58.24**	**5.7**	**63.6**	**4.0**	**67.5**	**3.9**	**70.8**	**3.9**	**74.9**

Source EUROSTAT, Database AMECO

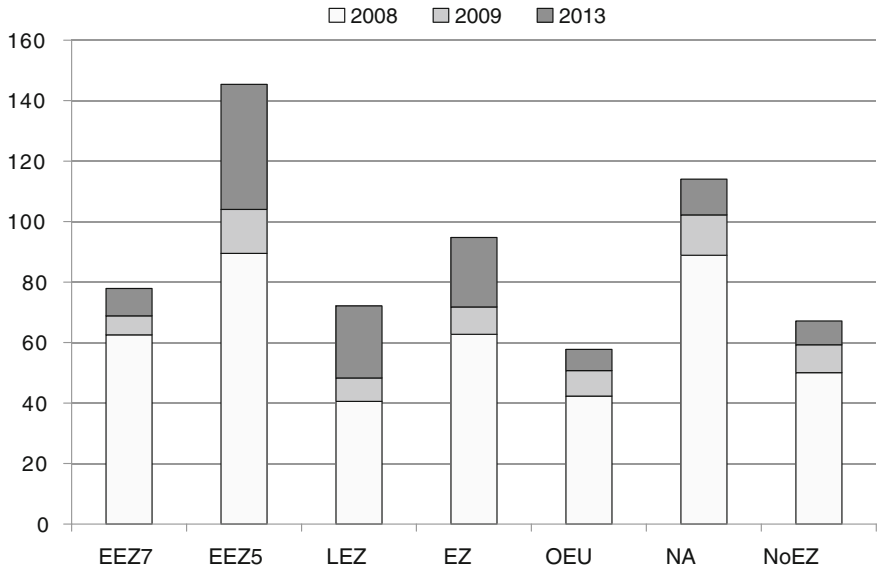

Fig. 4 Debt/GDP ratios from 2008 to 2013, groups of countries. *Source* see Table 3

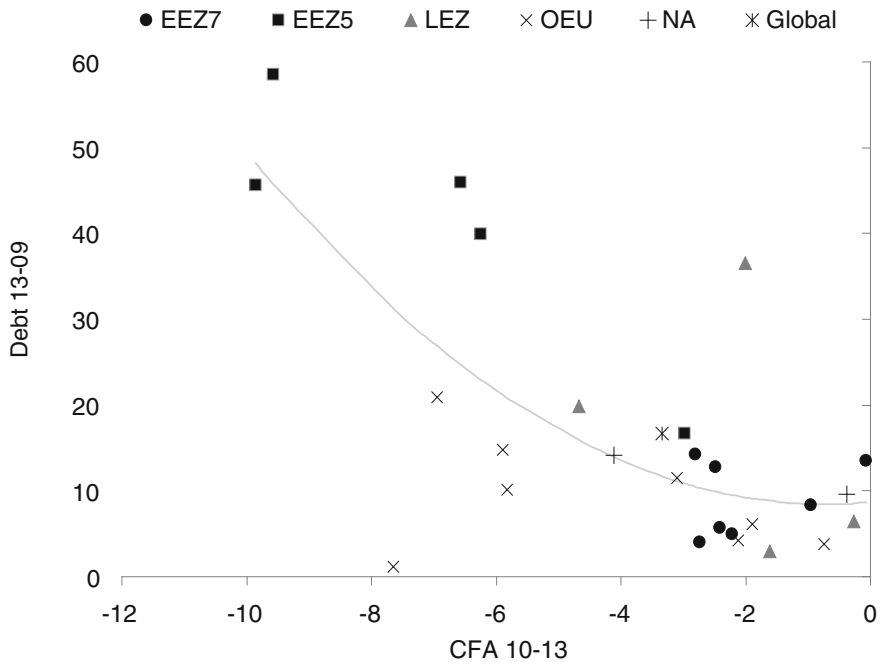

Fig. 5 Increase in the debt/GDP ratio 2009–13 and *CFA* 2010–13, all countries with *CFA* < 0. Correlation coefficient 0.66. OLS interpolation function: $y = 9.2 + 0.7x + 0.48x^2$, $R^2 = 0.50$. *Source* see Tables 2 and 3

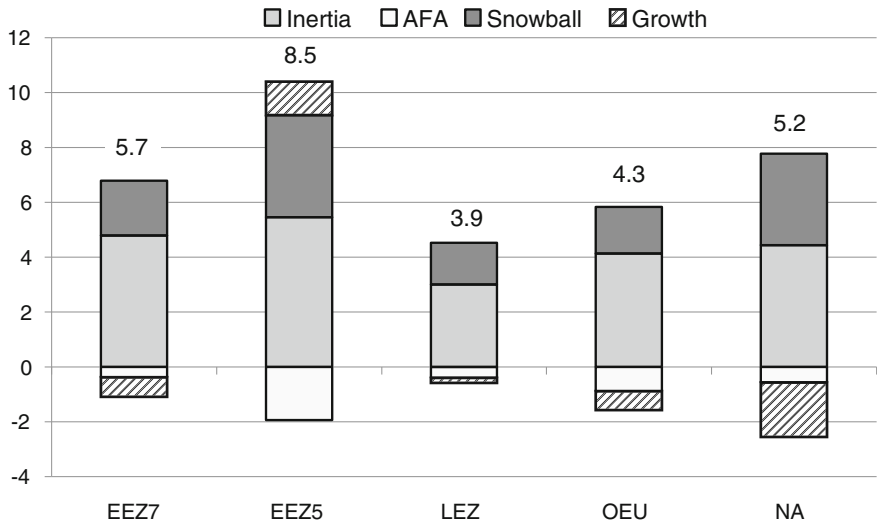

Fig. 6 Decomposition of the growth of the debt/GDP ratio 2009–13, groups of countries. *Source* Author's elaborations

of differences in debt growth. There are, in fact, some large outliers across the group. Considering the EEZ countries alone, the group most consistently exposed to austerity policy, we obtain an analogous accelerating interpolation function, but the explanatory power of *CFA*s rises to 85 %, which indicates that other country-specific factors (e.g. the initial debt level) have played a minor role.

Austerity defenders may argue that this is evidence that austerity has been *insufficient*, and that without austerity debt growth would have been much worse. Yet this argument is not so obvious as it appears. As is well known, the debt to GDP dynamics depends not only on the control of the primary budget but also on the gap between the interest rate paid on debt and on the growth rate of GDP. Equation (5) provides guidance in decomposing the drivers of the debt/GDP ratio. Apart from extraordinary operations and adjustments x_t, and given the government's fiscal impulse FA_t, three other factors can be identified: "fiscal inertia", given by the previous year's primary deficit/GDP ratio f_{t-1}, "growth effect" $-n_t d_{t-1}$, and "snowball effect" given by the evolution of interest payments $i_t d_{t-1}$. Figure 6 presents the decomposition of the growth of debt/GDP ratios for the groups of countries (figures above the histograms indicate the total impulse to debt/GDP growth). To capture the medium-term evolution of debt, $t - 1$ is 2009, and t is the "average year" 2010–13.[17] Differences, and hints about whence the ineffectiveness of austerity derives, appear quite clearly.

[17]Since "the" interest rate actually paid on the outstanding debt is in fact a complex composition of different rates and maturities, for these empirical calculations i_t has obtained as the ratio of actual interest payments on debt.

Let us compare the average EEZ7 country with the average EEZ5 country. The initial impulse in 2009 ("inertia") is quite similar, while the subsequent fiscal adjustment ("average *FA*") is consistently larger for EEZ5. Why does the latter end up with such a stronger impulse to debt/GDP growth? Clearly for two factors: the snowball effect, that is higher unit cost of debt, and the growth effect, such that *negative* growth pushes the debt/GDP ratio up for EEZ5 whereas *positive* growth pulls it down for EEZ7. Indeed, EEZ5 is the single group where high interest rates and low growth jointly plaid the most perverse effect on the debt/GDP ratio. As said, the critics of austerity point out that it may in itself be partly responsible for worsening debt/GDP ratios by depressing growth, and possibly increasing risk premia. But of course, it should be proved that austerity is responsible for both perverse effects. Hence, let us now turn to the evolution of interest rates.

3.3 Interest Rates

The interest rate on public debt is a key variable in the austerity strategy. Strong and fast fiscal consolidation is expected to reduce the interest rate quickly, which helps fiscal consolidation on the one hand, and fosters private expenditure on the other. Hence the evolution of interest rates after the outbreak of the crisis and throughout the austerity period has seized the greatest concern of governments and analysts. Especially so in the EZ, where a sequence of sovereign debt crises, mostly in the EEZ5 group, erupted from 2010 to 2012. Thus analyses have concentrated on the key symptom of the EZ sovereign debt crises, namely the spread between interest rates on long-term State bonds *vis-à-vis* Germany. In our Transatlantic perspective this approach is not entirely appropriate, because No-EZ countries have freely floating exchange rates against Germany (hence the relative interest-rate spread may reflect not only the pure default risk), and because outside Europe there exists another safe asset *par excellence*, namely the US Federal bonds. It is therefore more correct to look first at the *level* of interest rates, and indeed it is the level of the interest rate that matters for public finances.

Figure 7 highlights an important fact that is often disregarded: from 2008 onwards interest rates in the Transatlantic area have been on a *downward* trend, except for the EEZ5 escalation between 2010 and 2012 the bulk of which is due to Greece. The general trend was mainly due to the large and persistent easing of monetary policies by the major central banks. Higher spreads against Germany (or the US) arose owing to the faster fall of the interest rate on safe assets.[18] As a matter of fact, EEZ5 (in particular Greece, Ireland and Portugal) is the only group of countries which suffered from *both* high spread against Germany *and* high level of the interest rate.

[18]For Germany, the "flight to quality" effect has been documented by e.g. Favero and Missale (2011), Tamborini (2014b).

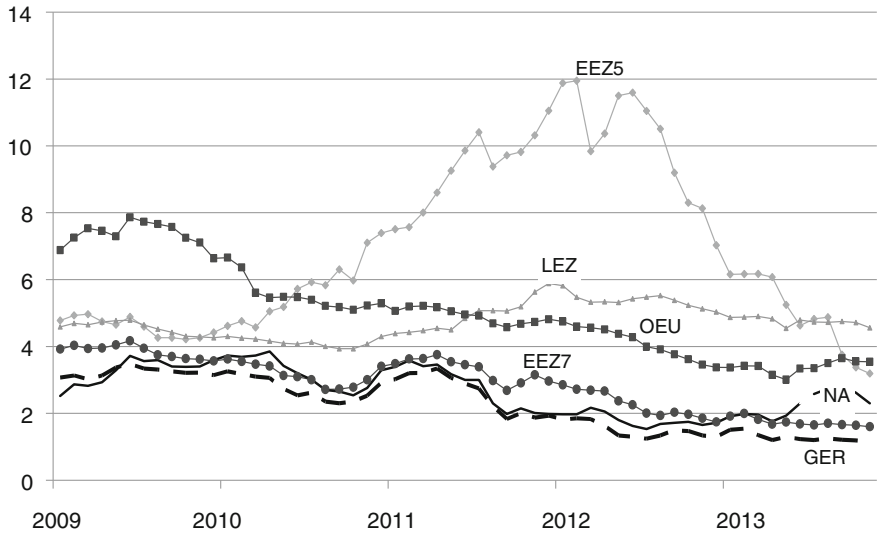

Fig. 7 Year average of montly values of interest rates on long-term State bonds, 2009–13. Groups of countries and Germany. *Source* ECB, Statistical Warehouse, Interest rates statistics

As said above, the relationship between austerity and the evolution of spreads against Germany as a measure of default risk is a specific EZ issue. Empirical research on risk premia in the EZ sovereign debt crises is burgeoning.[19] Challenging technical problems aside, some convergence in conclusions can be detected. Overall, the EZ turmoil has shaken the reliance on financial market efficiency in providing the right stick-and-carrot mix that should drive fiscal consolidation. However, the same studies widely agree that, among the fundamentals, the evolution of debt/GDP ratios maintains a significant influence on spreads. Hence, having seen austerity's scant success in harnessing debt/GDP growth, it is not so surprising that spreads have failed to fall as well. This can be seen by means of Fig. 8. Taking a medium-term perspective, it plots the year average of monthly values of spreads against the year *CFA*s, that is the sum of *FA*s year after year, over the austerity period.

Figure 8 in fact highlights a positive correlation between increasing doses of austerity and spreads (correlation coefficient 0.74). Also in this case, the best interpolation function is quadratic and denotes an *accelerating* relationship between austerity doses and spreads. Differences in the former account for 64 % of differences in spreads.

[19]To mention only a few recent comprehensive contributions: Attinasi et al. (2009), Caceres et al. (2010), Favero and Missale (2011), De Grauwe and Ji (2012).

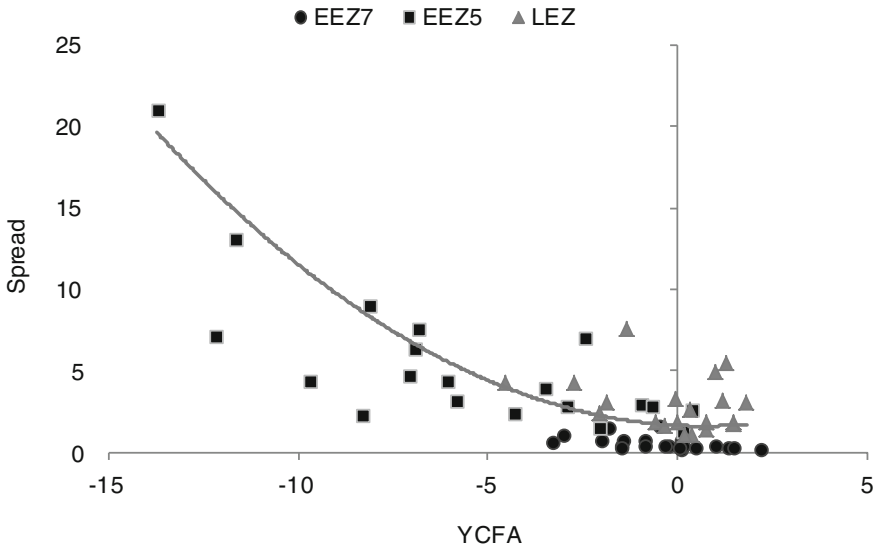

Fig. 8 Year average of monthly values of spreads of long-term interest rates over German bonds and year *CFA*s, EZ countries, 2010–2013.Correlation coefficient 0.74. OLS interpolation function: $y = 1.6 + 0.01x + 0.08x^2$, $R^2 = 0.64$

This evidence can be interpreted in two ways, however. The first is that in financially distressed countries, spreads have been strong drivers of austerity, as they should be, to the point that governments have been chasing their spreads with repeated doses of austerity. However, reverse causality is also possible. Reverse causality, or the "positive feedback" mechanism going from austerity to higher spreads to more austerity and so on, is embedded in the growing literature on "self-fulfilling expectations" of sovereign-debt crises, which challenges both the efficient market hypothesis and the austerity doctrine (e.g. Corsetti and Dedola 2011; De Grauwe 2011; Gros 2012; Cooper 2012; Ghosh et al. 2013; Tamborini 2014a). In this literature, the dimension and timing of consolidation plans is a double-edged blade: if small and progressive, the plan may strain *credibility*, if large and immediate it may be judged *unsustainable*. As stressed in particular by Gros (2012) and Tamborini (2014a), an essential factor from the investors' viewpoint is the difficulty of assessing unsustainability due to the large and blurred set of factors, many of which extra-economic, that may impinge on the government's decision. This adds a source of peculiar uncertainty not amenable to "objective" analysis of the so-called "fundamentals". Unsustainability of consolidation plans is thus embodied in sovereign risk premia. Contrary to the credibility approach, sustainability indeed predicts that governments engaged in larger and larger fiscal adjustments will pay a *higher* interest rate. This happens because, as the fiscal adjustment increases, the probability attributed to the government's option for default increases, and so does the risk premium.

Causality is an issue that can hardly be settled once and for all by pure statistics, especially in a context of limited availability of data and in times of exceptional events. De Grauwe and Ji (2013b) provide an econometric test that supports the reverse causality hypothesis. At any rate, what seems indisputable in the data is that, over time, austerity has failed to deliver lower spreads. At the beginning of 2012 the spreads of all EEZ5 countries were still high or rising. The true turning point occurred in the second half of 2012, and to many observers it was only due to the credible launch of the ECB Outright Monetary Transactions programme (the safety net for sovereign debt prices and spreads) and to President Draghi's celebrated commitment that "the ECB will do whatever it takes" (for pleas to adopt this new approach, and predictions of its outcome, see e.g. De Grauwe 2010; Wyplosz 2011). Thereafter, spreads fell though debt/GDP ratios went on rising as seen above. It may be argued that austerity paved the way, both financially and politically, to the ECB intervention (Buti and Carnot 2013). However, the ECB intervention mechanism is heterodox, not complementary, with respect to the austerity doctrine, and it was in fact fiercely opposed by integral supporters of the doctrine. So in the end the question remains: Why was austerity by itself ineffective on spreads? Was austerity too little, or too much?

3.4 Output and Growth: Where Do We Stand, and Why?

The impact of austerity on economic activity is ostensibly the most controversial issue. It revolves around the time-honoured issue of "crowding out" and "crowding in": that is, the relationship between changes in fiscal variables and in private expenditures (e.g. Bernheim 1989). The counterparty, at the aggregate level, is the never settled issue of the extent of "fiscal multipliers", that is, the relationship between a unit change in a fiscal variable and the change in GDP. Net of differences in the specific treatments, the essential pro-austerity argument remains that, if not immediately, in the medium term the "crowding out" effect of fiscal expansions and the "crowding in" effect of fiscal restrictions are both large and symmetric (or fiscal multipliers are small). Which means that fiscal restrictions may be neutral (as in the Barro-Ricardo framework; Barro 1974, 1989), negative in the short run but positive in the long run (which is more typical of New Keynesian models; e.g. Corsetti et al. 2010, 2012; Roeger and in't Veld 2013) or altogether positive according to the so-called "non-Keynesian effects of fiscal policy" or "expansionary fiscal restrictions" (popularized by Giavazzi and Pagano 1996; Alesina and Perotti 1997; Alesina and Ardagna 2010) for which the right timing and composition are critical (see Sects. 2.2 and 2.3).

In the course of the crisis, a marked shift of consensus has occurred from small, non-Keynesian, back to large, Keynesian, fiscal multipliers. These now seem prevalent, though their magnitude varies considerably, according to systematic studies especially at the IMF (e.g. Coenen et al. 2010). Particularly remarkable has sounded the *mea culpa* of IMF chief economists Blanchard and Leigh (2013) with regard to

underestimation of the recessionary effects of austerity. Perotti (2011) has revised critically the evidence supporting the chances of "expansionary fiscal restrictions". Here I will not enter into this controversy in detail. In light of the previous data about fiscal consolidation, I will examine the evolution of output, growth and unemployment in the four years of austerity.

To begin with output and growth, Table 4 displays the relevant data for all countries. Looking at post-shock data, the first patent fact is their high correlation. Evidence collected prior to the crisis showed increasing synchronization of business cycles in the EZ—an expected result of integration (e.g. De Haan 2008). As already observed, all countries fell into recession in the same year, 2009. Over the whole period under consideration, the correlation coefficient of each EZ country's GDP with that of EZ as a whole exceeds 0.9, with three interesting exception: Ireland (0.73), Portugal (0.69) and Greece (−0.47), the only country with a full sequence of negative growth rates. This statistical evidence should call into question the entrenched belief that low cyclical correlation is one of the reasons for the EZ not being an optimal currency area, and that asymmetric shocks should be the overarching concern. Not only. Post-shock GDP correlation is also above 0.9 across EZ, OEU and NA. Therefore, if anything the Great Recession has been a *macro symmetric shock*, with GDP fluctuations being largely driven by common factors across the whole Transatlantic area.

This of course does not mean that the *magnitude* of fluctuations has been the same in all countries (see Fig. 9a). Indeed, the EEZ5 group stands out for being unable to recover positive growth in the austerity period (mainly owing to Greece and Portugal, but also to anaemic and intermittent growth in the other three). Note that after the short-lived 2010 recovery, the other EZ groups too have lost contact with the No-EZ groups, with the EZ as a whole falling back into negative territory in 2013.

Regaining the pre-crisis growth rate would be important, but the *level* of GDP is equally so. Hence a better gauge of the overall post-recession performance is the compound growth rate (*CGR*) reported in Table 4 and Fig. 9b from the first year of recession to 2013: if negative, it indicates a net output loss, if positive a net output gain, with respect to the last year of positive growth.[20] Almost two thirds of countries in the Transatlantic area ended 2013 still suffering a net output loss. They are all European: 12 in the EZ, of which all the EEZ5 with the dramatic −22.9 % of Greece, and 6 in OEU. The remaining 6 EZ countries belong to the group which have gained a net output growth, which is however of relatively modest entity if distributed over five-six years. We can clearly see a cleavage between European and Non-European countries, making of Europe as a whole the income-loss area of the Western world. Declaration of the end of the Recession War seems premature.

[20]A more severe, and perhaps correct, measure of output loss would take into account that, in the absence of the crisis, GDP would have probably grown. Here the problem is the choice of the trend growth rate, which is obviously arbitrary.

Table 4 GDP growth rates at constant 2005 prices (% values)

	2008	2009	2010	2011	2012	2013	CGR 08 (09)–13	CGR 10–13
AUS	1.4	−3.8	2.3	3.1	0.2	0.3	2.0	7.7
BEL	1.0	−2.8	2.3	1.9	−0.1	0.1	1.2	5.4
FIN	0.3	−8.4	3.7	2.9	−0.6	−1.5	−4.3	5.0
FRA	−0.1	−2.7	1.5	1.7	0.0	0.4	0.7	4.5
GER	1.1	−5.1	3.7	3.0	1.3	0.5	3.1	10.6
LUX	0.8	−5.3	2.7	0.6	1.3	0.2	−0.7	6.7
NET	1.8	−3.5	1.7	1.2	−0.7	−2.1	−3.5	0.3
EEZ7	**0.9**	**−4.5**	**2.5**	**2.0**	**0.2**	**−0.3**	**−0.2**	**5.8**
GRE	−0.2	−3.3	−3.5	−6.9	−7.1	−4.3	−22.9	−19.7
IRE	−3.0	−7.0	−0.4	0.7	3.5	−1.0	−7.3	4.4
ITA	−1.2	−5.5	1.7	0.3	−2.3	−1.9	−8.6	−1.5
POR	0.0	−2.9	1.4	−1.6	−3.0	−1.1	−7.1	−3.6
SPA	0.9	−3.7	−0.1	0.7	−2.0	−1.8	−6.8	−2.6
EEZ5	**−0.7**	**−4.5**	**−0.2**	**−1.4**	**−2.2**	**−2.0**	**−10.6**	**−4.6**
CYP	3.6	−1.9	1.3	0.4	−2.4	−8.7	−11.1	−9.4
EST	−4.2	−14.1	2.6	9.6	3.9	1.3	−2.6	18.3
MAL	3.9	−2.8	4.0	1.6	0.8	1.8	5.4	8.4
SLK	5.8	−4.9	4.4	3.0	1.8	0.9	5.0	10.5
SLO	3.4	−7.9	1.3	0.7	−2.5	−2.7	−11.0	−3.3
LEZ	**2.5**	**−6.3**	**2.7**	**3.1**	**0.3**	**−1.5**	**−2.9**	**4.9**
EZ	**0.9**	**−5.0**	**1.8**	**1.3**	**−0.5**	**−1.2**	**−4.0**	**1.7**
BUL	6.2	−5.5	0.4	1.8	0.8	0.5	−2.1	3.5
CZE	3.1	−4.5	2.5	1.8	−1.0	−1.0	−2.4	2.2
DEN	−0.8	−5.7	1.6	1.1	−0.4	0.3	−4.0	2.6
HUN	0.9	−6.8	1.1	1.6	−1.7	0.7	−5.2	1.7
LAT	−2.8	−17.7	−1.3	5.3	5.0	4.0	−9.2	13.5
LIT	2.9	−14.8	1.6	6.0	3.7	3.4	−1.6	15.5
POL	5.1	1.6	3.9	4.5	1.9	1.3	13.9	12.1
ROM	7.3	−6.6	−1.1	2.2	0.7	2.2	−2.9	3.9
SWE	−0.6	−5.0	6.6	2.9	1.0	1.1	5.7	12.0
UK	−0.8	−5.2	1.7	1.1	0.1	1.3	−1.8	4.3
OEU	**2.1**	**−7.0**	**1.7**	**2.8**	**1.0**	**1.4**	**−1.0**	**7.1**
CAN	0.7	−2.8	3.2	2.4	1.8	1.8	6.5	9.5
USA	−0.3	−2.8	2.5	1.8	2.8	1.6	5.6	9.0
NA	**0.2**	**−2.8**	**2.9**	**2.1**	**2.3**	**1.7**	**6.0**	**9.2**
NoEZ	**1.8**	**−6.3**	**1.9**	**2.7**	**1.2**	**1.4**	**0.2**	**7.5**
Global	**1.3**	**−5.6**	**1.8**	**1.9**	**0.2**	**−0.1**	**−2.3**	**4.1**

Ave. 2000–07(08): average growth rate from 2000 to the last year of positive growth
CGR 08(09)–13: compound growth rate from the first year of recession to 2013
Source EUROSTAT, Database AMECO

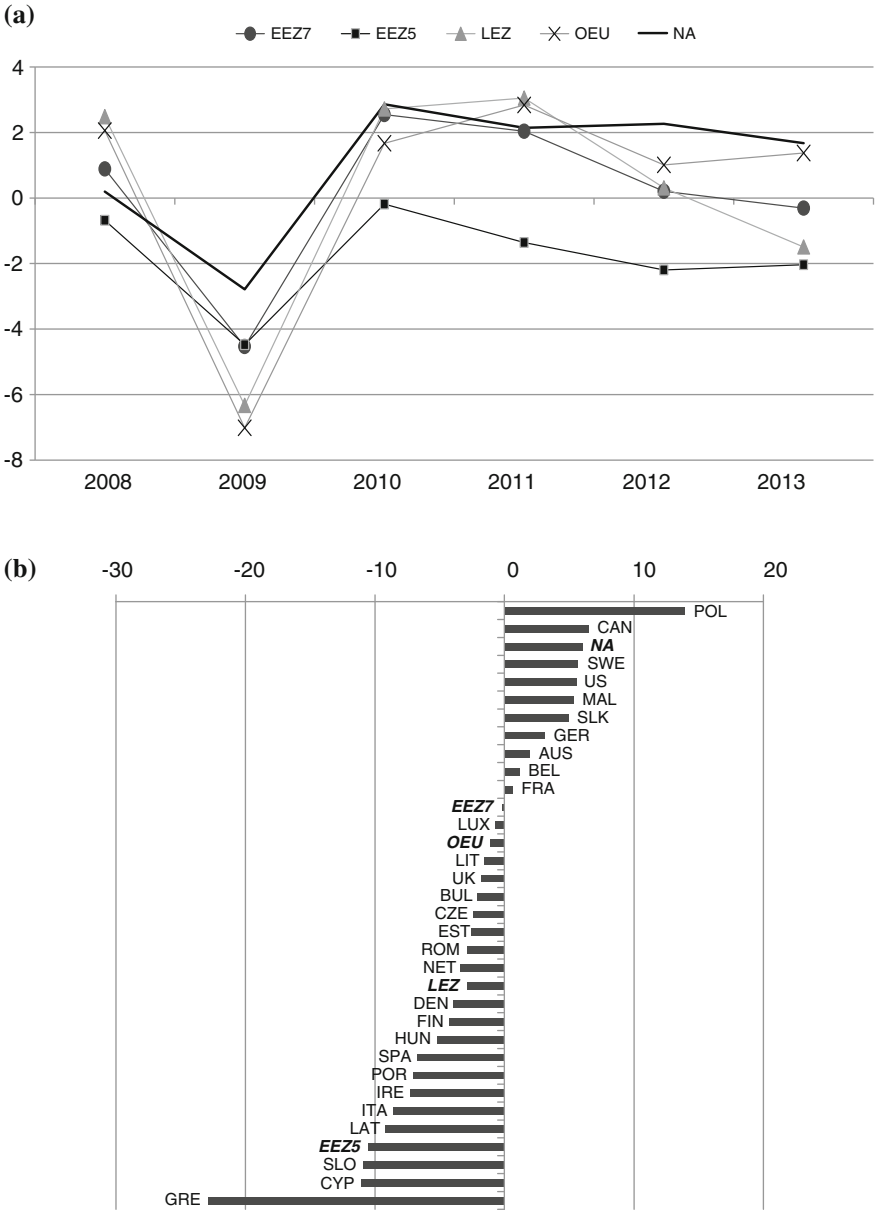

Fig. 9 **a** GDP growth rate 2008–13, groups of countries. **b** Compound growth rate, 2008 (09)–13, all countries. *Source* see Table 4

These figures vividly depict the unprecedented width and depth of the crisis, as well as the slow and scant recovery of most countries. Indeed, this gloomy picture is in line with recent research on the abnormal effects of "financial cycles" with respect to more "usual" business cycles, which focuses on the peculiar role of the financial sector in modern economies (Borio 2012; Hall 2010). How do fiscal policies, and their differences, relate to these facts? And, does the "euro dummy" matter?

These questions can be approached from two sides. The first is the cyclical timing of austerity. The second is the effect of austerity on the economy's performance over the whole period under consideration.

The cyclical position of the economy can be measured in different ways none of which is free from drawbacks. For our purposes, it is convenient to accept one of the measures elaborated by official agencies, namely the *output gap*, that is the percent difference between actual and potential output at constant prices[21]: see Table 5. A negative output gap indicates a cyclical downturn and, concomitantly, a lack of aggregate demand driving actual output below potential aggregate supply. According to the New Keynesian brand of orthodoxy, output gaps also indicate the room for demand stimulus, once account is taken for the concomitant inflation trend. There is clear evidence that the 2009 recession was associated with a large output gap of almost the same magnitude in all countries. The subsequent evolution has been diversified, with EEZ5 countries lagging behind in closing their output gaps, but it is striking how large and persistent output gaps have remained all across the Transatlantic area, while prices have nowhere shown upward tensions, if not signs of deflation.

I now simply wish to give a quantitative representation of the cyclical timing of austerity. To this end, Fig. 10 plots all the 116 joint observations of output gaps and *FA*s for the 29 countries from 2010 to 2013. Recall that austerity episodes ($FA < 0$) account for 74 % (86/116) of total observations. Anticyclical austerity falls into the first (north–west) quadrant; procyclical austerity falls into the fourth quadrant. It can be seen that 92 % of austerity episodes (81/86) have been procyclical, with a tendency for large *FA*s to be associated with large output gaps. This mostly occurred in EEZ5 and LEZ. These data indicate that austerity has been activated procyclically in the large majority of cases and countries beyond those under worst public finance conditions.

Considering now the relationship between austerity and GDP, in order to avoid short-run noise factors, reverse causality effects, etc., it seems sensible to maintain a medium-term perspective whereby *CGR*s are better compared against *CFA*s over the whole austerity period: see Fig. 11.

The correlation between *CGR*s and *CFA*s is positive (0.25), with a nonlinear interpolation suggesting that the effect of austerity on growth in this set of countries has accelerated beyond −4 % of *CFA*. However the relationship is rather loose,

[21]The source is Eurostat for all countries except Canada and United States for which the source is OECD.

Table 5 Output gap between actual GDP and potential GDP at constant 2005 prices, 2008–13 (% values)

	2008	2009	2010	2011	2012	2013
AUS	1.9	−2.9	−1.8	−0.1	−0.6	−0.3
BEL	1.6	−2.3	−1.2	−0.4	−1.4	−1.0
FIN	3.2	−6.3	−3.8	−2.1	−2.1	−1.6
FRA	1.1	−2.8	−2.5	−2.1	−2.8	−2.4
GER	2.1	−3.8	−1.4	0.0	−0.9	−0.7
LUX	2.6	−4.2	−2.7	−2.2	−2.4	−1.4
NET	2.2	−2.7	−2.1	−2.1	−3.7	−2.2
EEZ7	**2.1**	**−3.6**	**−2.2**	**−1.3**	**−2.0**	**−1.4**
GRE	2.0	−1.4	−3.7	−8.4	−10.7	−7.9
IRE	−0.1	−5.9	−4.9	−2.7	0.6	−1.2
ITA	1.1	−4.3	−2.5	−2.0	−2.9	−1.6
POR	0.0	−2.8	−1.5	−2.7	−4.6	−1.4
SPA	0.2	−4.4	−4.6	−3.8	−4.4	−2.5
EEZ5	**0.6**	**−3.8**	**−3.4**	**−3.9**	**−4.4**	**−2.9**
CYP	3.9	0.7	0.8	1.0	0.0	−5.8
EST	4.4	−9.4	−6.5	1.0	2.9	1.2
MAL	3.0	−1.7	0.1	−0.1	−0.9	−0.5
SLK	7.0	−1.9	−0.7	−1.3	−2.1	−3.3
SLO	5.7	−3.9	−2.5	−0.8	−2.3	−3.1
LEZ	**4.8**	**−3.2**	**−1.7**	**−0.1**	**−0.5**	**−2.3**
EZ	**1.4**	**−3.6**	**−2.4**	**−1.7**	**−2.6**	**−2.2**
BUL	6.2	−2.2	−2.4	−0.9	−1.0	−1.7
CZE	5.3	−1.8	−1.0	−0.2	−1.8	−3.4
DEN	2.2	−4.4	−3.6	−3.1	−4.1	−4.7
HUN	2.8	−4.5	−3.6	−2.2	−3.9	−3.5
LAT	4.9	−12.3	−11.6	−6.2	−1.9	0.2
LIT	6.9	−10.5	−8.1	−2.1	−0.7	0.0
POL	3.2	1.0	0.8	0.8	−0.7	−2.1
ROM	7.8	−0.2	−2.2	−1.4	−2.3	−1.8
SWE	0.6	−5.7	−1.4	−0.5	−1.6	−2.3
UK	1.5	−4.1	−2.9	−2.4	−2.8	−2.2
OEU	**4.1**	**−4.5**	**−3.6**	**−1.8**	**−2.1**	**−2.2**
CAN	1.3	−2.9	−1.2	−0.4	−0.5	−0.8
USA	0.4	−3.4	−2.1	−1.7	−0.7	−1.2
NA	**0.8**	**−3.2**	**−1.7**	**−1.0**	**−0.6**	**−1.0**
NoEZ	**3.4**	**−4.4**	**−3.3**	**−1.8**	**−1.9**	**−2.0**

Source EUROSTAT, Database AMECO

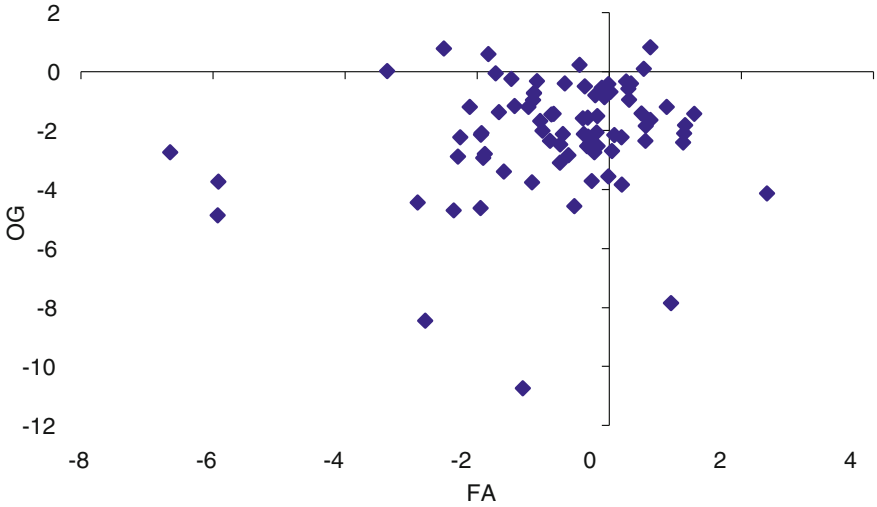

Fig. 10 Output gaps and *FA* 2010–13, all countries. *Source* see Table 5

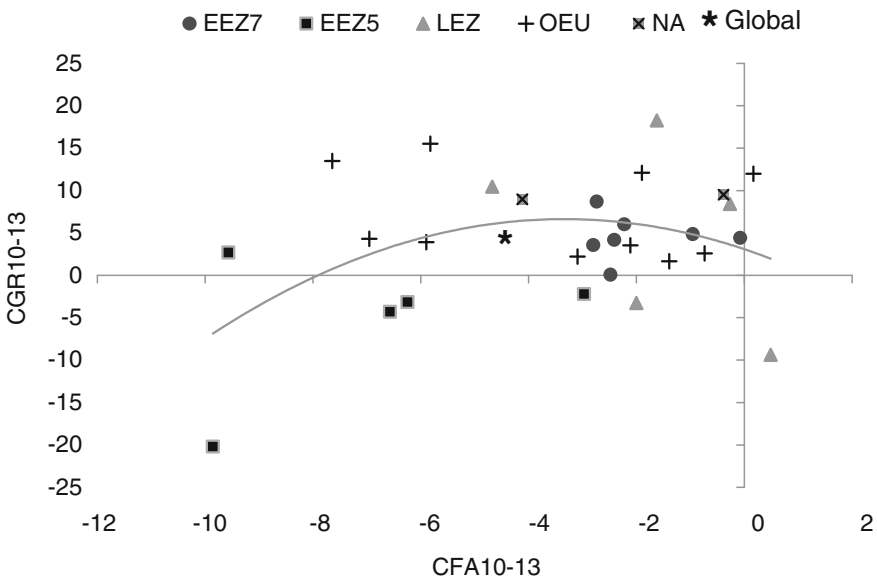

Fig. 11 *CGR* and *CFA* 2010–13, all countries Correlation coefficient 0.25. OLS interpolation function: $y = 3.1 - 2.1x - 0.3x^2$, $R^2 = 0.18$. *Source* Author's elaboration

pointing to the presence of other factors than austerity at work. If the "euro dummy" matters, that is if independent monetary and fiscal policies and flexible exchange rate matter, we may expect *CFA*s to be more informative about *CGR*s as we restrict

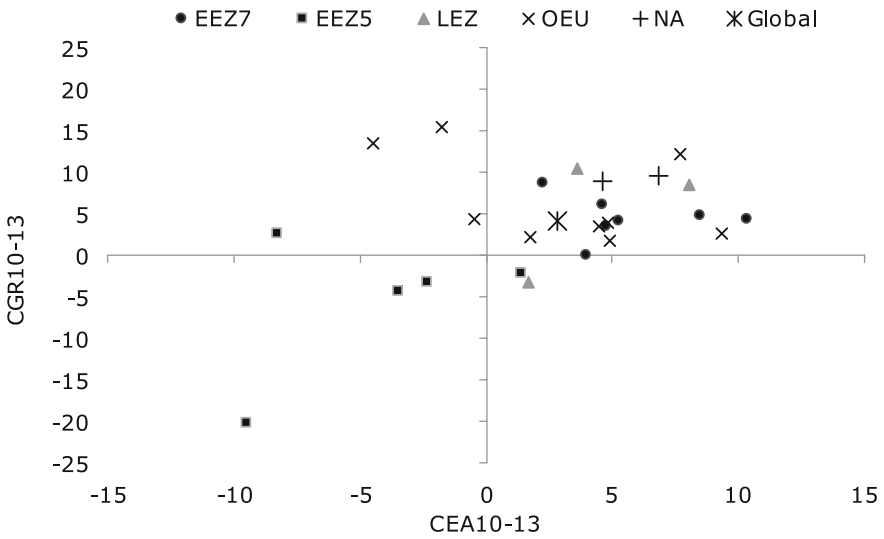

Fig. 12 *CGR* and *CEA* 2010–11, all countries with *CFA* < 0 *Source* Author's elaboration

to the more similar, integrated and long-run members of the EEZ group. This is indeed the case. The plot reveals a cluster of milder-*CFA*/better-*CGR* (EEZ7) against a cluster of stronger-*CFA*/worse-*CGR* (EEZ5), so that correlation is tighter (coefficient 0.69), and the nonlinear interpolation function has an explanatory power of 48 %. In other words, about a half of the differences in post-crisis growth across these countries may be accounted for by differences in cumulated austerity.

As said in Sect. 2.3, in the pro-austerity literature "composition matters" in order to account for other factors. Accordingly, the recessionary effects of austerity are attributed to a composition unbalanced towards higher taxation instead of lower expenditure. Lower expenditure is instrumental to cut tax rates, which eventually generate larger tax revenue via income effect. Correlation analysis of *CGR*s and composition of *CFA*s in the austerity period does not lend support to this view. Table 2 reported the decomposition of *CFA*s between tax (*CTA*) and expenditure (*CEA*) adjustment. We saw that most countries engineered austerity by getting the tax revenue grow more than expenditure. Figure 12 shows the correlation between *CEA* and *CGR* of each country with *CFA* < 0.

The composition of austerity is little informative about differences in growth performance, both statistically and economically. The majority of countries lies in the north-east quadrant: better *CGR* is associated with *higher CEA* with correlation coefficient of 0.41. These countries also obtained larger *CTA* exceeding *CEA*. This may partly be due to a positive income effect, but the concomitant increase in expenditure indicates that the income effect cannot be due to the "expansionary fiscal contraction" recipe, which should manifest itself in the north-west quadrant. There we see only three No-EZ cases (UK, Latvia and Lithuania) and one EZ case (Ireland). These cases are however quite different: Latvia and Ireland had more expenditure cut

than tax increase, UK and Lithuania more tax increase than expenditure cut. On the other hand, Latvia and Lithuania had much better growth than UK and Ireland, which were also outperformed by most of the countries in the north-east quadrant. As already stressed, the most aggressive austerity on the expenditure side was realized in the EEZ5 group, which has however suffered the largest output losses.

3.5 Unemployment

Since 2007 unemployment has soared significantly in all countries apart from Germany and few others. Table 6 and Fig. 13 highlight that the crisis has created a clear break in the previous trends, which were either stable at relatively low levels or gradually decreasing.

However there are significant differences across groups. At first sight EZ did worse than NoEZ, with unemployment increasing 5.6 points *vis-à-vis* 2.8. Yet this is the result of three sharply different groups. The most dramatic unemployment peaks have occurred in EEZ5, where average unemployment in 2013 was 12.4 points higher than in 2007 (mostly concentrated in Greece and Spain). By contrast, EEZ7 has obtained the least increase (less than 1 %, and 1.5 % net of the unique German performance, the single country will less unemployment than in 2007). LEZ lies in the middle. Hence the "euro dummy" does not seem uniformly critical in this case. However, note that, as in the case of GDP growth (see Fig. 9), since 2011 unemployment in *all* three EZ groups has started to diverge upwards with respect to the two NoEZ groups.

What does seem critical fro unemployment performance is medium-term growth. Figure 14a presents the change in unemployment from 2007 to 2013 against the *CGR* over the same period for all countries. A negative correlation appears fairly tight (coefficient −0.72). Along the best fitting function, differences in *CGR*s account for almost 60 % of differences in unemployment performance. The curvature of the function suggests that the growth component of unemployment displays an increasing marginal impact.

Since we found above a non-trivial statistical correlation between *CGR*s and *CFA*s, it may be expected that differences in *CFA*s, too, have some bearing upon unemployment performances. The effects of austerity on the labour market are a contentious and intricate issue that cannot be fully developed here, but our data do offer some evidence for further consideration. In the first place (see Fig. 14b) in the austerity period 2010–13 the substantial majority of countries had unemployment further deteriorating or unchanged. At group level, NA is the single one which (slightly) improved. The correlation between changes in unemployment and *CFA* is negative (coefficient −0.24) but not very tight. Yet the countries with largest rise in unemployment (EEZ5) have also the worst *CFA*s while better performers have more moderate *CFA*s (less than 4 %). Note, also, that the countries whose labour market better absorbed more than 4 % of cumulated austerity are all small countries outside the EZ (Latvia, Lithuania, Czech Republic, Romania), except Ireland.

Table 6 Unemployment rate 2000–13, all countries

	Ave. 2000–07	2008	2009	2010	2011	2012	2013
AUS	4.4	3.8	4.8	4.4	4.2	4.3	4.7
BEL	7.7	7.0	7.9	8.3	7.2	7.6	8.0
FIN	8.6	6.4	8.2	8.4	7.8	7.7	8.1
FRA	8.8	7.8	9.5	9.7	9.6	10.2	10.6
GER	9.4	7.5	7.8	7.1	5.9	5.5	5.4
LUX	3.6	4.9	5.1	4.6	4.8	5.1	5.5
NET	3.9	3.1	3.7	4.5	4.4	5.3	6.9
EEZ7	**6.6**	**5.8**	**6.7**	**6.7**	**6.3**	**6.5**	**7.0**
GRE	9.9	7.7	9.5	12.6	17.7	24.3	27.0
IRE	4.4	6.4	12	13.9	14.7	14.7	14.2
ITA	8.1	6.7	7.8	8.4	8.4	10.7	11.8
POR	6.9	8.5	10.6	12	12.9	15.9	18.2
SPA	10.2	11.3	18	20.1	21.7	25	27.0
EEZ5	**7.9**	**8.1**	**11.6**	**13.4**	**15.1**	**18.1**	**19.6**
CYP	4.3	3.7	5.4	6.3	7.9	11.9	16.7
EST	9.3	5.5	13.8	16.9	12.5	10.2	9.3
MAL	7.2	6.0	6.9	6.9	6.5	6.4	6.4
SLK	16.8	9.6	12.1	14.5	13.7	14.0	13.9
SLO	6.2	4.4	5.9	7.3	8.2	8.9	11.1
LEZ	**8.8**	**5.8**	**8.8**	**10.4**	**9.8**	**10.3**	**11.5**
EZ	**7.6**	**6.5**	**8.8**	**9.8**	**9.9**	**11.0**	**12.0**
BUL	13.2	5.6	6.8	10.3	11.3	12.3	12.9
CZE	7.6	4.4	6.7	7.3	6.7	7.0	7.1
DEN	4.6	3.4	6.0	7.5	7.6	7.5	7.3
HUN	6.4	7.8	10.0	11.2	10.9	10.9	11.0
LAT	10.7	8.0	18.2	19.8	16.2	15.0	11.7
LIT	11.0	5.3	13.6	18.0	15.4	13.4	11.7
POL	16.8	7.1	8.1	9.7	9.7	10.1	10.7
ROM	7.1	5.8	6.9	7.3	7.4	7.0	7.3
SWE	6.5	6.2	8.3	8.6	7.8	8.0	8.1
UK	5.1	5.6	7.6	7.8	8	7.9	8.0
OEU	**8.9**	**5.9**	**9.2**	**10.8**	**10.1**	**9.9**	**9.6**
CAN	7.0	6.1	8.3	8.0	7.4	7.3	7.2
USA	5.1	5.8	9.3	9.6	8.9	8.1	7.7
NA	**6.0**	**6.0**	**8.8**	**8.8**	**8.2**	**7.7**	**7.4**
NoEZ	**8.0**	**6.0**	**9.4**	**10.4**	**9.6**	**9.3**	**8.9**
Global	**7.6**	**6.4**	**9.0**	**9.9**	**9.8**	**10.4**	**10.7**

Source EUROSTAT, Database AMECO

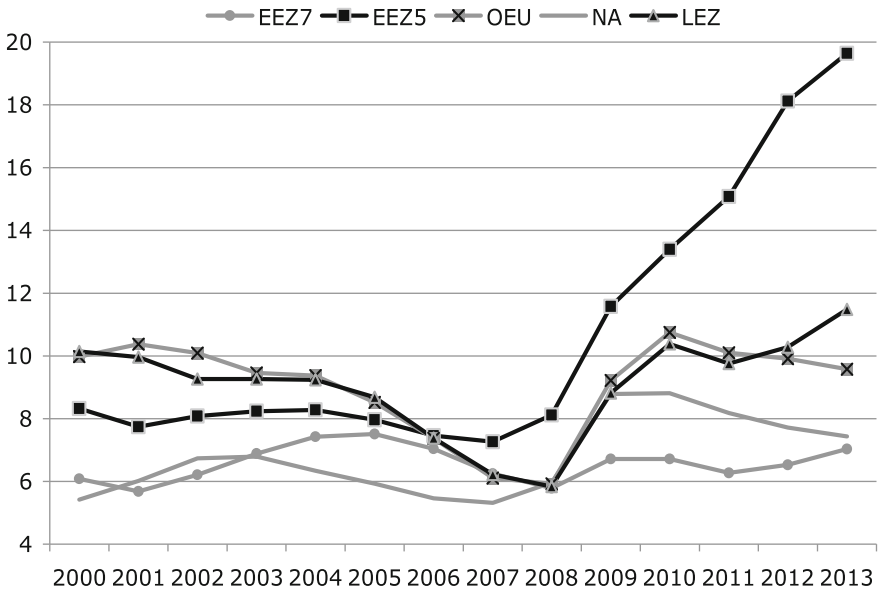

Fig. 13 Unemployment rate 2000–13, groups of countries. *Source* see Table 6

Hence, if we concentrate on the more homogeneous EEZ group, once again we find a stricter correlation, with differences in *CFA* explaining 54 % of differences in the unemployment performance.

It is well-known that orthodox macroeconomic schools share the view that large cyclical effects of GDP on unemployment should be traced back to labour-market rigidities, whether "nominal" or "real". Parallelly, one standard ingredient in the recipe for growth-friendly austerity is that there should be concomitant "structural"—i.e. labour market—reforms injecting more flexibility into wage changes as well as job relocations. This conveys the idea that austerity may have undesirable effects on unemployment owing to labour market rigidity, and also the idea that if large losses of employment are observed, these are more the result of rigidities than of austerity per se. These propositions, which are very popular in the pro-austerity narratives, are hard to test because they usually come with no indication about what the ideal response of unemployment should be for the given rate of austerity (perhaps zero, or less than zero?).

Inspection of standard labour market statistics does not lend much support to these narratives in two respects. The first is that there is not much evidence that labour markets have remained rigid in the face of falling output and rising unemployment. The second is that differences in rigidity across countries amount to a thin explanation of differences in unemployment performances.

Rigidity is a difficult concept to render operational. It combines institutional factors with other factors that condition the functioning of the labour market in specific economic circumstances. From the former point of view, the OECD offers a

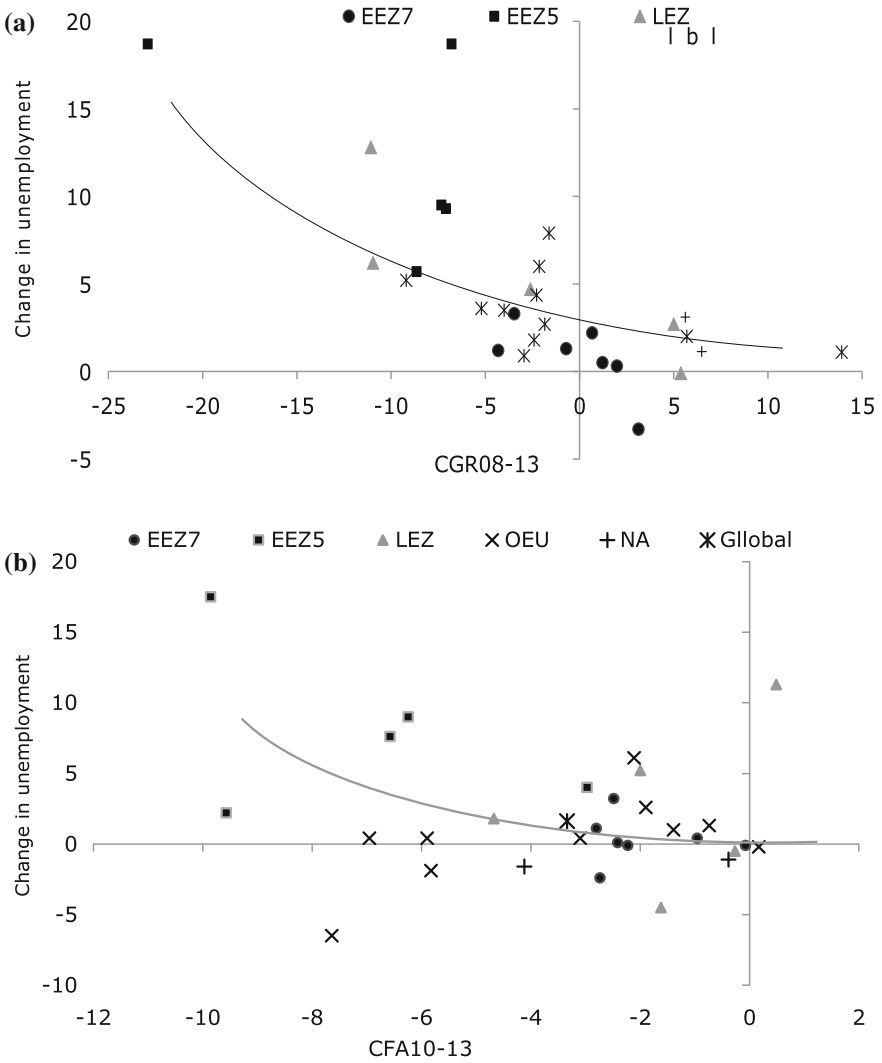

Fig. 14 **a** Change in the unemployment rate 2007–13 and *CGR* 2008 (09)–13, all countries. Correlation coefficient −0.72. OLS interpolation function: $y = 2.8 - 0.4x + 0.1x^2$, $R^2 = 0.58$. **b** Change in the unemployment rate 2009–13 and *CFA* 2010–13, all countries. Correlation coefficient −0.22. OLS interpolation function: $y = 2.7 - 1.4x + 0.2x^2$, $R^2 = 0.18$. *Source* Elaborations on Tables 1 and 6

well-known set of indicators, the Employment Protection Indicators (EPI),[22] which are widely used by labour researchers for comparative analyses. A high value of the indicator provides a measure of rigidity in terms of legislations and regulations that may hamper wage changes and/or workers mobility across jobs and sectors.

[22]http://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection.htm.

To gauge how this dimension of labour market rigidity may relate to differences in unemployment performance across countries during the crisis, I have elaborated a synthetic index for each applicable country based on two EPI: "Strictness of employment protection; Individual and collective dismissal (regular contracts)" (version 3), and "Temporary employment" (version 3).[23] My index is the average of the average value of the two EPI from 2008 to 2013 (actually, EPI have remained constant or have changed very little in this period of time). The relationship between this rigidity index and the change of unemployment is shown in Fig. 15.

If *some* countries with higher index display a greater increase in unemployment than do *some* countries with lower index, this pattern is far from providing an exhaustive explanation of the differences in unemployment performance. True, the more flexible NA economies have suffered relatively smaller increases in unemployment, but the majority of the European economies, with much higher indices, have done no worse, or even better. Germany's celebrated Hartz reforms have changed little its mid-EPI ranking, and yet its employment resilience has been extraordinary. The much worse unemployment performance of the EEZ5 countries seems unrelated to significant differences in rigidity with respect to the other Euro partners.

The EPI provides a "static snapshot" of the institutional arrangements governing labour relations. However, the actual response of labour markets to economy-wide shocks may be more or less rigid also depending on specific circumstances that cannot be accounted for *ex ante*. It is therefore useful to extend our analysis to some economic indicators. I propose here the most classic labour market indicator, the Phillips Curve, or better the "real" Phillips curve, that is the relationship between the change in unemployment and in the real unit labour cost (RULC). The latter results from two components: the real compensation per employee and the productivity per employee. As recalled above, one traditional explanation of unemployment is that *real* wage deflation, if any, may be insufficient relative to productivity, so that the RULC actually rises triggering layoffs—the so-called "real rigidity" problem. Figure 16 summarizes the dynamics of the RULC before and after the crisis taking 2007 as base year (a positive value indicates increase or efficiency loss). As is well known, the groups with larger efficiency gains before the crisis were EEZ7 (first and foremost Germany) and OEU (especially the emerging Eastern Europe), while EEZ5 lagged behind. However, as seen above, those were also year of *convergence* in unemployment rates. By contrast, the sharpest RULC adjustment after the crisis took place in EEZ5 (except Italy), while EEZ7 let real wages recover above productivity, but the result was *divergence* in unemployment rates.

Overall, a Transatlantic Phillips Curve emerges which is downward sloping as it should be (correlation coefficient −0.58), with larger increases in unemployment associated with larger cuts in the RULC. This is particularly evident for EEZ5

[23]Considering both segments of the labour market is important since temporary jobs are becoming increasingly common and typically less regulated than open-ended contracts. Both versions 3 encompass a larger number of indicators, and are available from 2008 to 2013.

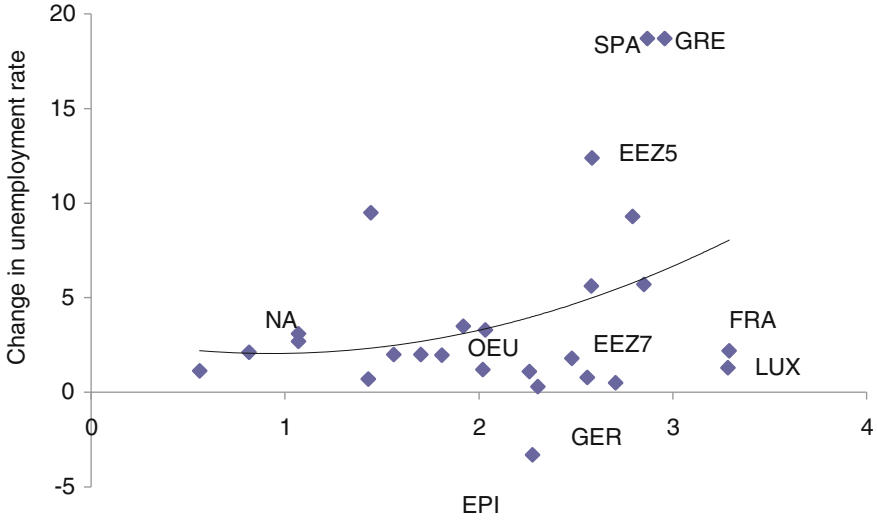

Fig. 15 Employment protection index and unemployment change 2007–13, selected countries. Correlation coefficient 0.27. OLS interpolation function: $y = 3.5 + 2.2x + 1.1x^2$, $R^2 = 0.08$. *Source* Elaborations on OECD Employment Protection Indicators

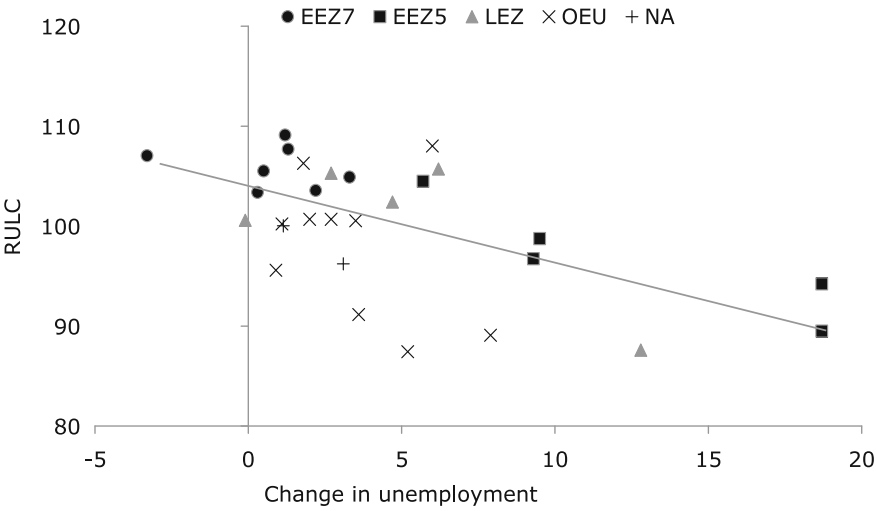

Fig. 16 Change in RULC from 2007 = 100 and change in the unemployment rate 2007–13. Correlation coefficient −0.58. OLS interpolation function: $y = 103.4 - 0.7x$, $R^2 = 0.34$. *Source* Elaborations on Table 6 and Eurostat, Database AMECO

countries and the small Eastern European countries. In conclusion, there is no overwhelming evidence of "real rigidity" in the labour market of high unemployment countries. Labour market flexibility may be a precondition for achieving

"smart" austerity, but there is little support for the argument that the "nasty" austerity now being experienced in some EZ countries can be entirely traced back to labour market institutions.

4 Conclusions

Assessment of austerity is matter of lively and unresolved dispute. As stressed in this chapter, an additional difficulty is that the advocates of austerity usually fail to clearly specify the criteria against which this policy should be assessed. This enhances, rather than dispelling, the suspicion that austerity is a *must* without alternatives also for extra-economic reasons.

In this paper I have sought to present the reader with a wide set of data and "stylized facts", in order to assess and characterize the 2010–13 four years of austerity on both sides of the Atlantic. The first fact to be stressed is that austerity has not been confined within the EZ; rather, it appears a generalized "consensus policy" throughout the Transatlantic area to manage the fiscal consequences of the global crisis. However, austerity has been enacted with different timing and intensity. From this point of view, the perception of the EZ as being particularly austere is correct, but this is true of *Europe as a whole* with respect to North America. Also, the epicentre of austerity has not been Europe in its entirety, but the group of five EZ countries under worst public finance conditions and sovereign debt attack. On the other hand, the intensity of austerity in the rest of Europe has been nontrivial and, in most cases, procyclical, though less justified on the grounds of fiscal emergency. Hence, a picture of "uncoordinated austerity" emerges, which may have impinged upon the chances of success of the countries under necessity of stronger fiscal adjustment.

Data analysis has been organized around two assessment criteria: the primary goal of improving public finances and lowering interest rates, and the collateral effects on economic activity and unemployment. The results provide a first comprehensive view of the role of austerity *vis-à-vis* the criteria of interest, and pave the way for further and deeper statistical analyses.

According, for instance, to Buti and Carnot (2013), austerity has been on the main target, since "on average the euro area structural balance has been cut from 4.5 to 1.25 % between 2009 and 13 (…). There has also been visible progress in improving external and relative competitiveness positions" (p. 2). These are indeed two facts that we have found in the data. However, that strong fiscal adjustments coupled with domestic deflation can eventually produce such results is not surprising. The key test of the ex-ante austerity prescriptions and narratives is that *such results should come at low or negligible real and welfare costs followed by fast recovery*, since front-loaded fiscal consolidation produces an immediate fall in interest rates and a rise in confidence that foster long-term private expenditure. The main accusation brought against austerity is that this prediction, or promise, has not materialized, particularly in the group of countries under the most severe austerity

therapy. Debts have increased further, spreads have remained high until the ECB has stepped in, recessionary effects have been much longer and deeper than expected, and the political and social costs have been impressive.

While respecting the principle that correlation is not causation, partial correlation analyses presented in this chapter indicate that differences in cumulated austerity 2010–13 in the EZ account for 73 % of differences in debt/GDP growth, and for 65 % of higher spreads. As to the excess austerity hypothesis (austerity is itself responsible for higher debt/GDP ratios by depressing the denominator), we saw that cumulated austerity is positively correlated with worse post-shock growth, and that it accounts for 31 % of differences in the latter. If we restrict analysis to the more homogenous group of the early twelve EZ members, correlation results tighter and the explanatory power of austerity climbs to 48 %. Since the rise of unemployment across countries results highly correlated with compound growth rates, and the latter have a larger explanatory power (58 %) than labour market rigidity variables, the excess austerity hypothesis may also be extended to the labour market.

Against these "collateral damages", the usual line of defence consists of a number of side-arguments that methodologists call the "protective belt". Arguments of this sort usually exploit the fact that articulated theories, or policy prescriptions in our case, do depend on a number of side-conditions. Hence, if some facts do not fit the theory, the core is preserved, while the problem is shifted onto the side conditions. Here we have examined those which are more frequently invoked: too little, too late, too much taxes, too much labour rigidity. Again, assessment is questionable as long as we are not given a benchmark. At any rate, the data lend little support to the argument that austerity failures are essentially due to these concomitant factors. Quite the contrary: the countries which have benefited the least and suffered the most from austerity—in particular Greece, Ireland, Spain and Portugal—are also those where the right precepts have been followed, or imposed, more faithfully.

Elusive deadlines for policy assessment are another typical protective strategy. As the Euro-crisis progressed, delivery of promised austerity rewards has been shifted into a farther future. This style of argumentation is purely rhetorical since there is no clear ex-ante commitment stating (1) *how much* recession is compatible with the given policy, (2) *how long* the long run is.

> In the long run we are all dead. Economists set themselves too easy, too useless a task if in a tempestuous season they can only tell us that when the storm is long past the ocean is flat again (Keynes 1923).

Appendix

See Tables 1, 2, 3, 4, 5 and 6.

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