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COULD A NATIONAL WAGE RULE STABILIZE THE CURRENT ACCOUNT AND FUNCTIONAL INCOME DISTRIBUTION IN THE EURO AREA?

A study on wages, profits, and prices in peripheral countries

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ABSTRACT

Since the introduction of the euro, divergent nominal wage developments in member countries contributed to economic imbalances, prominently visible in the current account. Wages are factor costs and as such key determinants of the price competitiveness of the tradable sector and the domestic price level of the whole economy in a monetary union. As income, they are an important determinant of domestic demand and imports. Building on the work of Horn/Logeay (2004), Herr/Horn (2012), and Onaran/Stockhammer (2016), this paper discusses how the adoption of a wage rule in member countries can help address the problem of economic imbalances. Yet, in contrast to the debate about wage-led vs. profit-led countries, and the overall growth effect of wage developments, we focus on the relationship between wages and the current account as well as the one between wages, prices, and functional income distribution. While we recommend the wage rule for all member countries, this article focuses on selected crisis countries. We first assess two conditions which are necessary in order for the wage rule to be valid: 1) demand aspects (the increase in domestic demand resulting from increased wages) outweigh cost aspects (the decrease in price competitiveness resulting from higher wages), 2) distributional effects do not prevent the transmission from wages to prices. We conclude that the implementation of the wage rule in member countries would have dampened economic divergences in the euro area, including current account imbalances. To promote the inclusion of the wage rule in all member countries, we recommend including the wage rule as a relevant indicator for the MIP-scoreboard of the European Commission, alongside support for labour market institutions. Furthermore, in order to stabilize the functional income distribution, profits (and taxes) would have to follow a similar rule.

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Could a national wage rule stabilize the current account and functional income distribution in the euro area? A study on wages, profits, and prices in peripheral countries[1]

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Abstract: Since the introduction of the euro, divergent nominal wage developments in member countries contributed to economic imbalances, prominently visible in the current account. Wages are factor costs and as such key determinants of the price competitiveness of the tradable sector and the domestic price level of the whole economy in a monetary union. As income, they are an important determinant of domestic demand and imports. Building on the work of Horn/Logeay (2004), Herr/Horn (2012), and Onaran/Stockhammer (2016), this paper discusses how the adoption of a wage rule in member countries can help address the problem of economic imbalances. Yet, in contrast to the debate about wage-led vs. profit-led countries, and the overall growth effect of wage developments, we focus on the relationship between wages and the current account as well as the one between wages, prices, and functional income distribution. While we recommend the wage rule for all member countries, this article focuses on selected crisis countries. We first assess two conditions which are necessary in order for the wage rule to be valid: 1) demand aspects (the increase in domestic demand resulting from increased wages) outweigh cost aspects (the decrease in price competitiveness resulting from higher wages), 2) distributional effects do not prevent the transmission from wages to prices. We conclude that the implementation of the wage rule in member countries would have dampened economic divergences in the euro area, including current account imbalances. To promote the inclusion of the wage rule in all member countries, we recommend including the wage rule as a relevant indicator for the MIP-scoreboard of the European Commission, alongside support for labour market institutions. Furthermore, in order to stabilize the functional income distribution, profits (and taxes) would have to follow a similar rule.

[1] A first version of the paper has been published in German: Joebges Heike und Logeay Camille (2016): „Verhindern nationale Lohnformeln Leistungsbilanzdefizite? Die Rolle von Lohnstückkosten und Preisen in den Krisenländern des Euroraums“, in: Truger/Hein/Heine/Hoffer (eds): Monetäre Makroökonomie, Arbeitsmärkte und Entwicklung/Monetary Macroeconomics, Labour Markets and Development. Festschrift für Hans-Jörg Herr, Metropolis, Marburg, pp. 313-328.

Outline

1. Introduction

Since the introduction of the euro, divergent nominal wage developments in euro area countries have increasingly contributed to current account imbalances. Wages are factor costs for production. In a monetary union, they play a more important role in the determination of price competitiveness and therefore export success compared to countries with national currencies and flexible exchange rates, which can mask wage developments. At the same time, wage income is an important component for domestic demand that in turn drives import demand. As wage and price developments are highly correlated, deviations from euro area average prices and wages can become self-reinforcing in a monetary union, contributing to divergences in member countries current account balances.

Already on the eve of the euro introduction, several authors pointed to the potentially problematic consequences of divergent wage developments, even in Germany (Heine/Herr 1999, Horn et al. 1999). Even though there had been debates about optimal wage developments at a national level before the introduction of the euro, a wage rule for the euro area received little academic interest. This is surprising, as other rules – be they sensible or not –, receive a lot of attention: the Taylor rule for monetary policy, for example, is highly discussed, as are the Maastricht rules that replaced the old "Golden rule" for fiscal spending in Germany.[2]

Wage increases that are too high are seen as having a crucial role in the problems in euro area crisis countries, including Spain, Ireland, Italy, and Portugal. The dominant explanation for this argument is based on the losses in price competitiveness.[3] The resulting recommendation to overcome the crisis is to improve competitiveness by decreasing unit labour costs (IMF 2013, EC 2013). Yet, even the cited institutions observed that the decrease in unit labour costs since the financial crisis was not in line with final price developments. Instead, increases in capital gains partly offset decreasing wage costs. Onaran and Stockhammer thus describe this approach as being "counter-productive" (Onaran/Stockhammer 2016: 2), given that the mentioned economies[4] are not profit-, but wage-led, according to Onaran/Obst (2016), and Stockhammer/Wildauer (2016). In wage-led economies, the increase in investment and net exports, as a result of decreasing unit labour costs, cannot compensate for the loss in private consumption, leading to an overall decline in economic activity.

Given the relevance of wage developments, this paper tries to address the question: in how far could recommendations for a nominal wage rule at the national level based on Horn/Logeay (2004), Herr/Horn (2012), and Onaran/Stockhammer (2016) serve as a sensible recommendation for all euro-area member countries. The focus is to clarify if a wage rule could impede the formation of economic imbalances, especially unsustainable current account imbalances. While we deem the rule important for all member countries, we focus on those countries in the periphery that suffered most from increasing current account deficits in the lead up to the financial crisis: Greece, Ireland, Italy, Portugal, and Spain.

The wage rule that we are referring to recommends that nominal wages should follow the pace of productivity and target inflation (Horn/Logeay 2004 and Herr/Horn 2012). Several authors suggest additional correcting factors for addressing external trade that we will not discuss. Examples are deviations from the general rule, depending on the positive or negative balance of the current account,

[2] For a discussion on the Taylor rule see Gerlach/Schnabel (1999), Ulrich (2003); for the Golden rule see Truger (2016).

[3] While this is discussed as a contributing factor for Greece, fiscal profligacy seems to be the dominant explanation for the crisis in this country.

[4] Greece, Italy, Portugal, and Spain are wage-led, in contrast to Ireland that is profit-led, according to Onaran/Stockhammer (2016: 5).

(Hein/Mundt 2012: 47) or for deviations in national unit labour costs from the EU level (Onaran/Stockhammer 2016). In line with the above mentioned authors, we recommend that such a rule would have to become a policy aim that would need to be supported by adequate institutions in the labour market, as well as national and European economic policies. Onaran and Stockhammer (2016: 10ff) provide an overview of supporting institutions and complementing policies.[5] If all countries in the European Monetary Union (EMU) followed this rule, this would contribute to euro-area price stability, as prices and wages strongly correlate. In contrast to what has happened since the introduction of the euro, this should also prevent monetary policy from becoming pro-cyclical at national levels. Fearing pro-cyclical effects of monetary policy, the ECB had watched the divergent developments of wages and prices at the beginning of the EMU with great concern (ECB 2003).

The wage rule addresses two issues linked to developments within a monetary union: excessive wage developments harm external price competitiveness (cost aspect) and boost domestic demand (demand aspect) with unsustainable effects on imports as well as inflationary pressures that have distributional consequences. For Germany, those aspects are well analyzed (Feigl/Zuckerstätter 2013 and Horn et al. 2017). While in mainstream debates, the cost aspect is the main problem facing peripheral countries (IMF 2013, Draghi 2013, EC 2013), Post-Keynesians have, by contrast, stressed the relevance of the demand effect (Hein/Mundt 2012, Onaran/Obst 2016, Onaran/Stockhammer 2016, Stockhammer/Wildauer 2016). Our paper aims to shed more light on the distributional aspects of price developments in the peripheral countries. We analyze developments since the introduction of the euro in 1999 up to the year 2016, separating pre- and post-crisis developments.

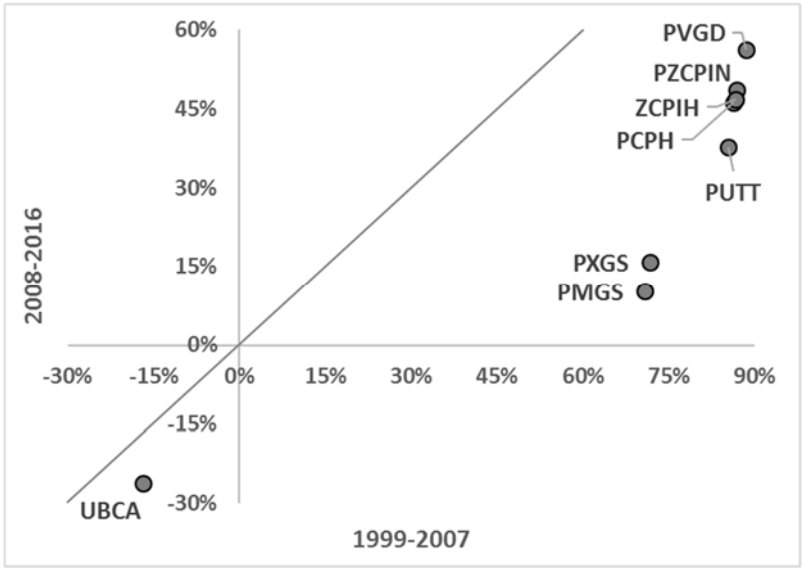
The structure of the paper is as follows: Following the introduction in section 1, section 2 provides an overview of the determinants of current account imbalances. This section highlights the relevance of wages for net export developments, and at the same time acknowledges the role that other factors may have had in this respect. One limitation of an explanation based on wage developments is that wage developments do not fully translate into final prices. This leads to changes in the functional income distribution, which is the focus of this article. Section 3 therefore concentrates on wage-price relations, especially analyzing the link between unit labour costs and prices, and the resulting changes in distribution. The last section concludes.

2. Determinants of current account imbalances

National wages are highly correlated with national price developments, as can be seen in Figure 1: The correlation between unit labour costs and changes in growth rates of selected price indicators is very high (above 0.9) for the GDP deflator, the deflator of domestic demand, and consumer prices. The correlations are much weaker for the export and import deflators. The correlations have weakened after the financial crisis. Both observations confirm the findings of the Bundesbank (2016a, p. 19), who, however, look at bivariate correlations between competitiveness indicators based on prices which are dominated by nominal exchange rates.

[5] Hein/Mundt (2012) provide even farer reaching policy recommendations, as they aim at correcting the past increase of functional and personal income inequality.

Fig. 1: Bivariate correlations between selected price aggregates and unit labour costs (33 European countries), before and after crisis



Calculated on the year on year growth rates for: PXGS=Defl. Exports, PMGS=Defl. Imports, PVGD=Defl. GDP, PUTT=Defl. Final Demand, PCPH=Defl. Priv. Consumption, PZCPIN=nat. Consumer Price Index, ZCPIH=har. Consumer Price Index, PLCD=nom. Unit labour costs. Calculated on absolute yearly differences for UBCA=Current Account Balance in % of GDP. Source: AMECO (variables named after the AMECO code); data download: May 2017.

Due to the common monetary policy, the ECB can only focus on the average price level. If national wages and prices deviate from the average, monetary policy becomes pro-cyclical, supporting self-reinforcing divergent economic developments that contribute to increasing current account imbalances between euro area countries.

Wage increases above productivity lead to increasing unit labour costs. If national unit labour costs increase by more than the ones of foreign competitors (which are mainly from the euro area and the rest of the European Union), they can affect net exports (and thereby the current account) via three different channels:

1. Higher than average unit labour cost increases induce higher than average price rises that decrease real interest rates, incentivising c.p. investment,[6] a component of aggregate demand, thereby increasing imports;
2. Higher than average unit labour cost increases induced by higher wage rises promote c.p. aggregate demand, thereby stimulating imports; and
3. As unit labour costs are an important indicator for price competitiveness of exports, higher than average unit labour cost increases c.p. dampen exports.

While several authors point to the (inverse) correlation of euro area current account imbalances and unit labour cost developments up to the financial crisis (see IMF 2013, EC 2013, Gaulier/Vicard 2012, and Fig. 4), the relevance of wage developments in explaining imbalances, as well as the main channel through which wages affect net exports, remain controversial. In addition, the current account does not only comprise the net exports balance, but also the income and transfer balance. Nevertheless, as net exports dominate the development of current account balances for most euro area countries,[7] the

[6] At least, as long as the profit rate does not decrease.

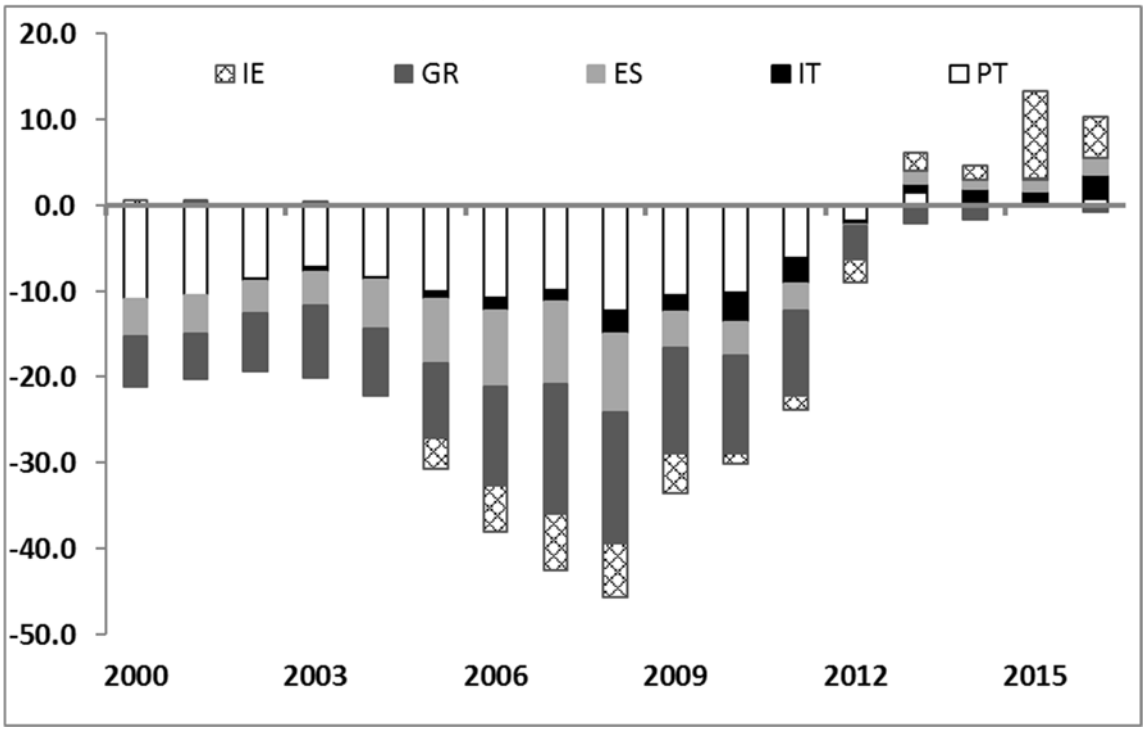
[7] Net exports dominate current account balances for all countries selected in this paper, except for Ireland, where net exports and net income balances are of same magnitude, but have opposite signs (see Figure A3 in appendix).

article does not differentiate between current account balances and net exports in its argumentation. We will briefly discuss the debate on the determinants of current account imbalances, in order to stress the role of wage developments and potentially positive effect of a wage rule, without neglecting other determinants. Our main aim, however, is to stress the changes in the functional income distribution once nominal wages divert from the recommended wage rule. We will discuss the distributional effects in the next section.

2.1 Net exports and unit labour costs since 1999

Figure 2 shows the developments of current account balances of selected peripheral euro area countries that have been characterised by increasing current account deficits in the lead up to the financial crisis and the resulting worldwide recession in 2009. Since 2009, deficits decreased in all peripheral countries presented (Greece, Ireland, Italy, Portugal, and Spain) and turned positive from 2013 onwards, with the exception of Greece. Yet, even Greece has since then managed to meet the threshold of -4% of GDP, as specified in the scoreboard of the Macroeconomic Imbalance Procedure of the EU (EU 2016, p. 40).

Fig. 2: Current account balance, in % of respective GDP (2000-2016)



Source: IMF (WEO, Apr. 2017)

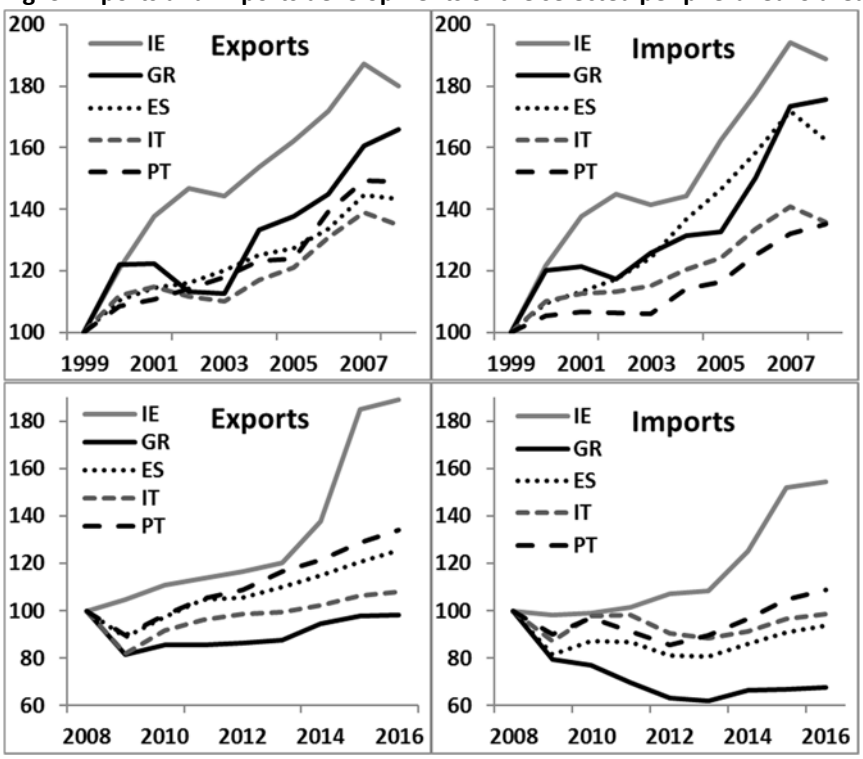
The dominant explanation for the increase in current account deficits (and the euro crisis) in Spain, Ireland, Italy, and Portugal has been channel 3, the loss in price competitiveness, associated with increasing unit labour costs that promoted the deterioration of net exports. The annual rise in unit labour costs in peripheral countries from 2000 to 2007 was well above the euro area average of 1.7%, especially for Greece and Ireland, with 3.7 %, as well as for Spain, with 3.4%. Italy experienced an increase by 2.9 % and Portugal by 2.3 % (AMECO, own calculations).

The resulting recommendation to overcome the crisis has been to improve competitiveness by decreasing unit labour costs (IMF 2013, EC 2013). Even the cited institutions observe that the decreases in unit labour costs since the financial crisis have not been in line with final price developments. Instead, increasing capital gains have offset decreasing wage costs. Gaulier/Vicard (2012) criticize this

implication and stress that in these countries, the imbalances are rather a result of asymmetrical demand shocks than of competitiveness losses. They argue that export performances in peripheral countries have been in line with other more successful euro area countries. According to these authors, total unit labour costs at the national level may show a low correlation with exports, and are not an adequate indicator for judging competitiveness of exports. Instead, sectoral developments within the countries are more important (a finding supported by Altomonte et al. 2013 for Spain). Similarly, Felipe/Kumar (2014) criticize the misleading role of unit labour costs as an indicator of competitiveness. They instead discuss the distributional effects associated with changes in this indicator (see section 3 below).

Figure 3 shows export and import developments of the selected peripheral euro area countries. As can be seen, export growth was strong in the lead up to the financial crisis. Ireland even surpassed euro area growth by about 60% between 1999 and 2007, while developments in Greece corresponded to the euro area average performance. Spain's, Italy's, and Portugal's exports grew at lower rates. Yet, in the lead up to the financial crisis, with the exemption of Italy, peripheral countries mostly managed to keep their export market shares stable relative to world exports of goods and services (see Eurostat: tipsex20). This challenges the importance of the price-competitiveness in determining imbalances in the peripheral countries.

Fig. 3: Exports and imports developments of the selected peripheral euro area countries



Source: AMECO (OXGS, OMGS; data download: May 2017)

2.2 Net exports and demand since 1999

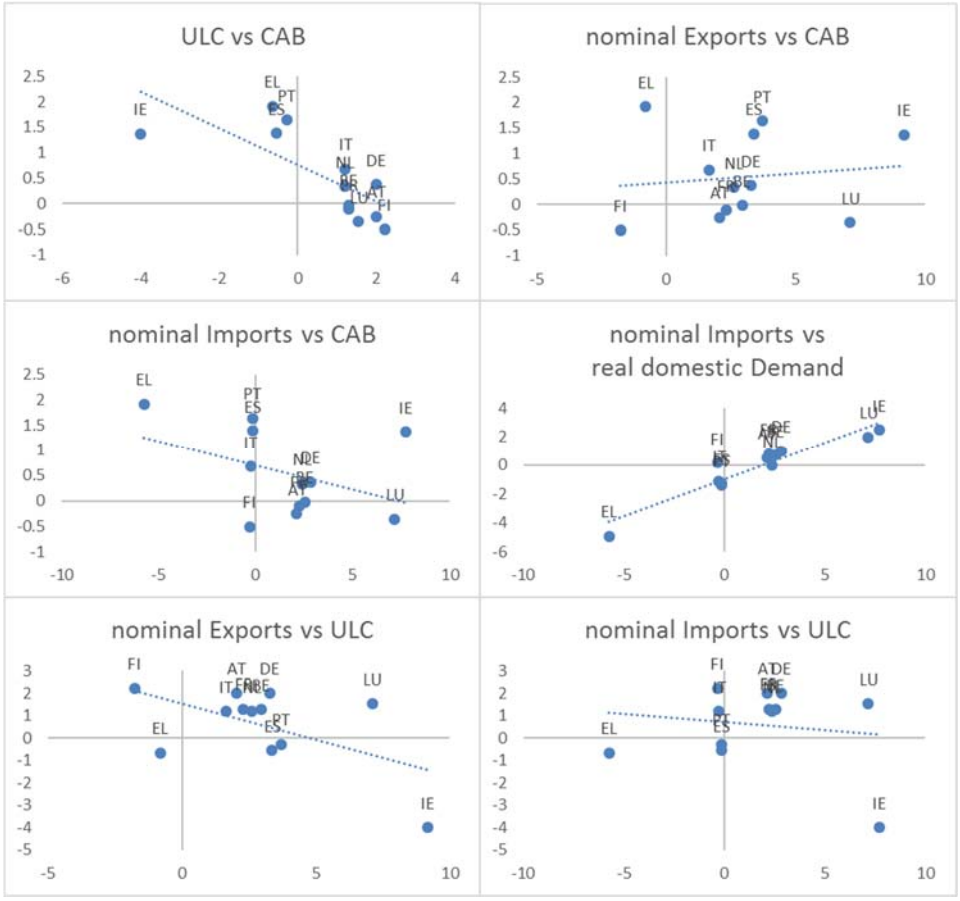
The Deutsche Bundesbank criticizes the use of whole economy wage and unit labour cost developments as an indicator of price competitiveness. The focus should be on private sector wages, excluding the high public sector wages of peripheral countries (see Bundesbank 2016b), at least for measuring competitiveness. Yet, not even average wage and unit labour cost developments for individual sectors may correctly indicate competitiveness, as averages may hide inter-firm differences (ECB 2015).

Gaulier/Vicard (2012) stress that wage developments in non-tradable sectors (instead of export-oriented manufacturing sectors) triggered the overall increase in unit labour costs and prices. This pushed domestic demand and thereby imports, which is reflected by strong correlations between unit labour costs and imports. Our updates of their calculations for the post-crisis period[8] supports this view and points to the relevance of demand effects (see Figure 4). In the lead up to the financial crisis, unit labour costs in manufacturing, the tradable sector, grew at a slower pace than in the rest of the economy in all five periphery countries (see AMECO: PWC-series).

Fig. 4: Correlations of price and trade indicators, update of Chart 4 from Gaulier/Vicard (2012)

First Name = X-axis CAB (current account balance): average abs. difference between 2008 and 2016 in pp

Second Name = Y-axis Other variables: annualized growth rate between 2008 and 2016 in % p.a.



Source: AMECO (UCBA, PXGS, OXGS, PMGS, OMGS, OUNT, PLCD), data download: May 2017

There is a broad consensus surrounding the factors that determine (real) exports and (real) imports.[9] Both sides of the trade balance are explained by an activity variable (foreign demand for exports and domestic demand for imports) and a price variable (relative prices). Estimates for the income elasticity of exports are twice as high as the price elasticity. Both variables have a statistically significant influence on exports. The estimated price-elasticities for imports are weaker than for exports. Low price-elasticities of imports can be explained by the high number of commodity imports (that are difficult to

[8] See chart 4, p. 13, in their publication, calculated on the period 2008-2011.

[9] See Bundesbank 2016a and Horn et al. 2017 for new estimations and an overview of the existing literature.

substitute) and the increasing import-content of exports due to global value chains. At the same time, estimated income elasticities are high and significant.[10]

Consequently, improving price competitiveness through low unit labour cost developments is expected to improve (real) exports, while the price effect on imports is expected to be much weaker. In addition, price effects of nominal trade have to compensate for volume effects: Even if improved price competitiveness increases exports and decreases imports, volume effects might be more than compensated by higher nominal import prices and lower export prices in the short run (see Horn et al. 2017 for Germany).

According to these estimates, the indirect effect of domestic demand for imports and foreign demand (of other EMU countries and the rest of the world) for exports is expected to be more relevant than price competitiveness. Yet, this is not to say that wage developments in peripheral countries have not played a role for demand: As an important factor for domestic demand, they partly explain the beneficial demand developments in these countries before the crisis (see Table 1), contributing to higher import growth. After the crisis, peripheral countries suffered from comparatively lower growth than the rest of the euro area (Table 1). Gaulier/Vicard (2012) find a strong correlation between unit labour costs and import developments before and after the crisis, which we confirm with updated data (Figure 4).

Tab. 1: Domestic and European Foreign Demand (Consumption, Investment and Inventories)

	2000-2007		2008-2016	
	Crisis country	EA12-w/o crisis country	Crisis country	EA12-w/o crisis country
Irland	5.8%	1.7%	2.5%	0.0%
Greece	4.5%	1.7%	-4.9%	0.2%
Spain	4.3%	1.5%	-1.3%	0.2%
Italy	1.3%	1.9%	-1.1%	0.3%
Portugal	1.0%	1.8%	-1.4%	0.1%

Note: Average yearly growth rates
Source: AMECO (UUNT, OUNT, own calculations; data download: May 2017)

2.3 Other factors

Other factors affecting the current account balances are non-price competitiveness, the structure of export products, growth in export destination countries and, as a result, demand from these countries (Altomonte et al. 2013, Karadeloglou/Benkovskis 2015 for overviews). Price competitiveness of exports can be measured by indicators like unit labour costs, relative real exchange rates, or the export price index. Yet, other factors which are more difficult to measure also play a role for competitiveness (see the overview by Karadeloglou/Benkovskis 2015). The following aspects are generally considered: the firm level (size, technological capacities, ...), the macroeconomic environment in which firms operate (taxation, financing constraints, R&D support…), and the geographical location of the country, which can explain geographical as well as product specialization (Altomonte et al. 2013). The problem is that while these factors are important, they are difficult to measure, as are their effects. Karadeloglou/Benkovskis (2015, p. 30 following the methodology of Benkovskis/Wörth 2012) estimate that the non-price competitiveness increased in Greece and Spain between 2000 and 2012, but declined in Ireland. For Italy, they find a much smaller decline and almost no change in Portugal.

[10] See Horn et al. 2017 for Germany and Bobeica et al. 2016 for individual EMU countries with different price variables and Lommatzsch et al. 2016 for other competitiveness indicators based on value added rather than gross values.

Export destination countries and the export structure also play an important role: The demand effects can be magnified by asymmetric demand shocks as described in Gaulier/Vicard (2012) if the periphery countries are specialized in products that are subject to sharply increasing competition within and outside the euro area. The authors point to textile and agricultural products or tourism as examples of goods and services that have come under higher competition as a result of globalization.[11] Exports may also be subject to adverse business cycle shocks once export destination countries experience a business downturn.

Another factor affecting competitiveness is profit margins, which will be discussed below in more detail: Price competitiveness depends on production costs. However, effects on export prices do not fully reflect wage costs and other costs, as production costs are not completely passed through to final export prices. As a result, wage corrections would not improve competitiveness and exports, if profit margins increase in times of decreasing wages (and other costs). Such an increase in profit margins would reflect adverse distributional effects. The next section focuses on this issue.

3. Wages and prices

As has been shown in the previous section, several factors influence net exports, and, by this, current account developments. Unit labour costs developments are only one factor of many, albeit an important one: as explained above, as wages are a relevant cost factor, affecting domestic price levels as well as price competitiveness of exports. At the same time, they are an important factor for domestic demand, be it for consumption demand out of labour income or be it via the effects on real interest rates for credit-financed demand. Deviations from euro area averages lead to pro-cyclical monetary policy that contributes to self-reinforcing divergent economic developments and current account imbalances in the monetary union.

As has been mentioned, several studies have shown that the euro area as a whole is demand-led, even in the crises countries, including Greece, Italy, Portugal, and Spain, with the exception of Ireland (see e.g. Onaran/Obst 2016, Onaran/Stockhammer 2016, Stockhammer/Wildauer 2016). This implies that changes in wages have a stronger effect on domestic demand than on price competitiveness. Consequently, is not correct to only focus on the cost aspect of wages, as the thresholds for unit labour costs in the scoreboard of the Macroeconomic Imbalances Procedure (MIP) of the European Commission implies. A wage rule implicitly accounts for both, the demand and the cost aspect of wages. We therefore discuss how a wage rule could contribute to less divergent economic developments, stabilizing the euro area.

Yet, the effect of such a wage rule would depend on the contribution of wage costs to final prices, given that wages and unit labour costs are not perfectly correlated and that wage costs do not completely roll over to final price levels. The following section concentrates on the development of unit labour costs and a broad price indicator for domestic prices, the GDP deflator.[12]

3.1 Imported inflation

Price increases of all peripheral countries discussed in this article have been above the average level of the euro area in the lead up to the financial crisis. Since the financial crisis, however, price rises have been below average euro area levels. As this change in price developments could be due to external

[11] See Felipe/Kumar 2014 for similar arguments based on calculations of the product complexity for the peripheral countries.

[12] The choice of this price has two reasons: from national accounts, it is straightforward to decompose its movements along distributional aspects and it seems to be one of the price measures with highest explanatory content when explaining real exports (see literature cited before).

factors like oil price developments, it is important to rule out the effect of imported inflation, especially from oil price variations. Due to a different production structure and differences in oil dependency ratios[13], one might suspect that high oil price increases in the lead up to the crisis (and lower levels following the crisis) have contributed to observable inflation differences between peripheral and core euro area countries.[14]

The pre-crisis high (and post-crisis lower) oil prices are reflected, for example, in the decreases in national nominal effective exchange rates following the crisis, especially for Greece (see AMECO: XUNNQ). This calls for an analysis of the relevance of imported inflation in contrast to domestic production costs for final price levels. While such a distinction is not possible for the harmonized inflation rate of consumer prices (HICP), the national accounts allow for calculating cost contributions to price deflators of final demand.

According to price deflators of final demand, the role of imported inflation has indeed decreased since the financial crisis. While the peripheral countries still import inflation to some extent, its relevance has declined. As a consequence, domestic cost developments play the main role for domestic price levels, at least since the aftermath of the financial crisis. Yet, an important exemption is Ireland, where imported inflation plays the main role, probably due to the high degree of openness of the country and the high level of inclusion in global value chains (see AMECO: PUTT, YPUT0, YPUT6).

3.2 Unit labour costs and the GDP deflator

Table 2 shows the change of the GDP deflator for the peripheral countries for the entire period since the introduction of the euro up to the year 2016, as well as its development for the pre-crisis period (2000-2007) and post-crisis period (2008-2016). The table also shows the contribution of wage costs (in the form of unit labour increases), profit costs, and costs from indirect taxation to the final price deflator. Profits refer to the gross operating surplus according to national accounting.[15] We follow the method of Feigl/Zuckerstätter (2013), described and implemented for Austria and Germany, to decompose the contribution of each component to the GDP-inflation rate and to derive target values that can be interpreted as the should-be-contributions if the wage rule would have been realized.

As can be seen in Table 2, all peripheral countries experienced rather high increases in the price deflator, ranging from 20% in Italy to more than 30 % in Spain during the pre-crisis period. An increase in line with the inflation target of the ECB (even though officially addressing HICP inflation) would have allowed an increase during 2000 and 2007 of only 15%. During the post-crisis period, the countries undershot the inflation target: The GDP deflator only rose by one-digit levels between 2008 and 2016, and even turned negative for Greece, while the ECB's target requires an increase of 17 % for this period.

Looking at the contribution of wages, profits, and indirect taxes to the final GDP price deflator, the "target" rate indicates the recommended increase for each component that would be in line with a stable distribution (constant nominal shares of each component) and the inflation target of the ECB.

[13] The oil dependency ratios, measured as net oil imports in % of GDP, of the five countries in 2000 range between 1.2 and 3.2 %, while the average of the rest of the euro area countries is 3.1%. In 2016, the figures are slightly higher for all countries, ranging between 1.5 and 5.8% compared to the rest of EA-average of 4.4%. See Figure A1 in Appendix for oil dependency.

[14] According to international data (FRED, EIA, IMF), the crude oil price (UK-Brent in €) increased by more than 260% between 2000 and 2007. In 2008, there was an increase of an additional 40%. Since then, it has decreased by almost 70% (Figure A2 in Appendix).

[15] In the national accounts from AMECO, the nominal GDP is the sum of the domestic wage sum (compensation of employees), gross operating surplus, and net taxes on Imports/production.

Had the increase of all components been in line with the target rate, distributional effects between functional income groups (wage income vs. capital income) would not have occurred and inflationary, as well as deflationary, tendencies would not have been observed.

Not surprisingly, and in line with IMF and European Commission claims of excessive wage increases (see IMF 2013, EC 2013), unit labour costs rose by more than what was recommended during the pre-crisis period. They reached two times the recommended target rates in Ireland, Greece, and Spain, and were still more than 2.5 %-points above the adequate growth rates for Italy and Portugal. Interestingly so, the same holds for profits, which also exceeded recommended growth, albeit by a smaller margin.

Tab. 2: Inflation decomposition for peripheral countries after/before crisis (2000-2016)

		IE	GR	ES	IT	PT
		Total (%)				
2000-2007	Actual	26.4%	24.8%	31.0%	19.7%	25.7%
	target	14.9%	14.9%	14.9%	14.9%	14.9%
2008-2016	Actual	1.9%	-1.6%	1.6%	9.0%	8.0%
	target	17.2%	17.2%	17.2%	17.2%	17.2%
2000-2016	Actual	28.2%	28.1%	35.8%	33.8%	38.1%
	target	37.3%	37.3%	37.3%	37.3%	37.3%
		Wages (pp)				
2000-2007	Actual	11.4%	10.8%	13.8%	8.6%	9.5%
	target	5.4%	4.7%	6.9%	5.4%	6.9%
2008-2016	Actual	-11.6%	-1.3%	-2.0%	4.0%	0.2%
	target	6.5%	5.6%	8.1%	6.5%	7.5%
2000-2016	Actual	1.4%	11.6%	14.8%	14.9%	11.2%
	target	13.2%	11.3%	16.7%	13.1%	16.0%
		Profits (pp)				
2000-2007	Actual	10.0%	10.2%	11.8%	7.7%	10.5%
	target	7.4%	8.2%	6.0%	7.2%	5.7%
2008-2016	Actual	17.3%	-3.5%	1.1%	3.3%	5.5%
	target	8.5%	9.0%	7.0%	7.9%	6.9%
2000-2016	Actual	26.3%	8.1%	14.1%	12.5%	17.1%
	target	17.8%	19.2%	14.4%	16.7%	14.0%
		Indirect taxes (pp)				
2000-2007	Actual	3.3%	2.4%	3.2%	2.6%	4.1%
	target	1.5%	1.5%	1.4%	1.8%	1.7%
2008-2016	Actual	-2.4%	3.2%	2.4%	1.5%	2.2%
	target	1.4%	1.9%	1.4%	2.1%	2.0%
2000-2016	Actual	-0.5%	6.3%	3.9%	3.6%	6.3%
	target	3.2%	3.7%	3.1%	4.1%	4.0%

Source: AMECO (OVGD, UVGD, UWCD, UOGD, UTVN), own calculations; data download: May 2017

Since the start of the post-crisis period, this picture has completely reversed for unit labour costs: Their growth rates have remained below recommended target rates for all selected countries, and have even become negative for Ireland, Greece, and Spain. Profit developments vary between countries: Ireland

is the only country where profit increased at double the target rate, despite of decreasing price contributions from wages. All other countries with the exception of Greece have been characterized by a positive contribution of profits to domestic prices, yet below target levels.

3.3 Distributional effects of price changes

In conflicting claims theory, resulting inflation in a country is explained by the interplay between increasing wages and profits (see the overview by Setterfield 2002). A cost-push shock, stemming from wage increases, will only lead to inflation if firms do not accept lower profits, rolling over the increased wage costs to final prices. The same holds the other way round: if wage earners do not accept a decreasing wage share as a result of an increased profit mark-up. Consequently, inflation can be profit-led or wage-led (Setterfield 2002), and very much depends on the bargaining power of workers.

Whatever the initial trigger, inflation will eventually result in reduced domestic economic activity (Setterfield 2002), be it via effects on the exchange rate or – as in the monetary union – via the accumulation of current account deficits that lead to unsustainable levels of external debt. In retrospect, peripheral countries would be in a less severe crisis, if pre-crisis profits and wages developed according to national productivity and the ECB's inflation goal. As wage developments were singled out as the main culprit behind imbalances by official institutions like the European Commission after the financial crisis, most of the adjustment was expected to stem from decreasing unit labour costs, harming the bargaining power of employees. This allowed profits to increase even in the face of decreasing wage costs.

As the peripheral countries' experience also shows, not only wages, but also profits, would have to stick to such a rule. If profits increase by more than productivity and the ECB's inflation target, the wage share could decrease, even in the case of wage increases above the wage rule.

4. Conclusion

Analysing the current account, wage, and price developments for peripheral countries of the euro area during the period 1999-2016, we find evidence that the crisis countries would have benefitted from a wage rule. Wages are a relevant production cost. Increasing unit labour costs above the level of trade partners have the potential to decrease price competitiveness of exports. At the same time, wages are an important factor for demand developments, indirectly affecting imports. Higher than average wage inflation decreases real interest rates (via domestic prices) and thereby investment costs, indirectly stimulating domestic demand and thereby imports. At the same time, wages themselves are an important component of domestic demand for consumption and are thereby important factors for imports. As most peripheral countries (with the exception of Ireland) are wage-led, the demand aspect is even more important than the cost aspect of wages.

Unit labour cost developments in a monetary union are crucial for stable economic developments, especially regarding current account balances. Our analysis shows that divergent wage developments are more important than other effects, like oil price fluctuations. A wage rule that recommends that wage increases are in line with productivity and the ECB's inflation goal would thereby help dampen current account imbalances in the euro area.

This would however require that *all* monetary union members follow this rule. The wage rule refers to each country's average productivity and the ECB target inflation rate: If important trading partners, like Germany, permanently deviate from the targeted inflation rate of near 2% (1999-2007: 1.68% p.a. vs. 2.22% p.a. for the Euro Area), even a country following the rule, like France, will lose price competitiveness, as the target moves implicitly from the official ECB rate to the unofficial average of the relevant competitors.

At the same time, unit labour costs are strongly correlated with domestic price levels, above all with the GDP price deflator. If all member countries followed the wage rule, national inflation rates would show less divergence, thereby easing the problem of pro-cyclical effects of monetary policy. This would improve the conditions for monetary policy transmission in the euro area, supporting the ECB's promotion of growth friendly measures rather than focusing strongly on inflation targeting.

A wage rule could also contribute to stabilizing the functional income distribution between capital and labour. Yet, our analysis also shows that it is not enough if only wages follow this rule. The income distribution would only remain stable, if also profits develop in line with national productivity and the target inflation rate. The profit mark-up would then stay constant in relative terms.

How realistic is it that wages would follow such a rule? It would definitely require supporting labour market institutions as well as national and euro area policies based on a social agreement for a fair distribution between functional income groups. This is important as such a rule would be more difficult to implement than the Taylor rule for monetary policy or the Golden rule for investment, as the *involvement of more than one relevant actor* requires demanding coordination activities. Without a general national and euro-wide consensus, the medium-term implementation seems unrealistic. Yet, a first start could be to implement such a rule for wages and profits into the scoreboard for macroeconomic imbalances.

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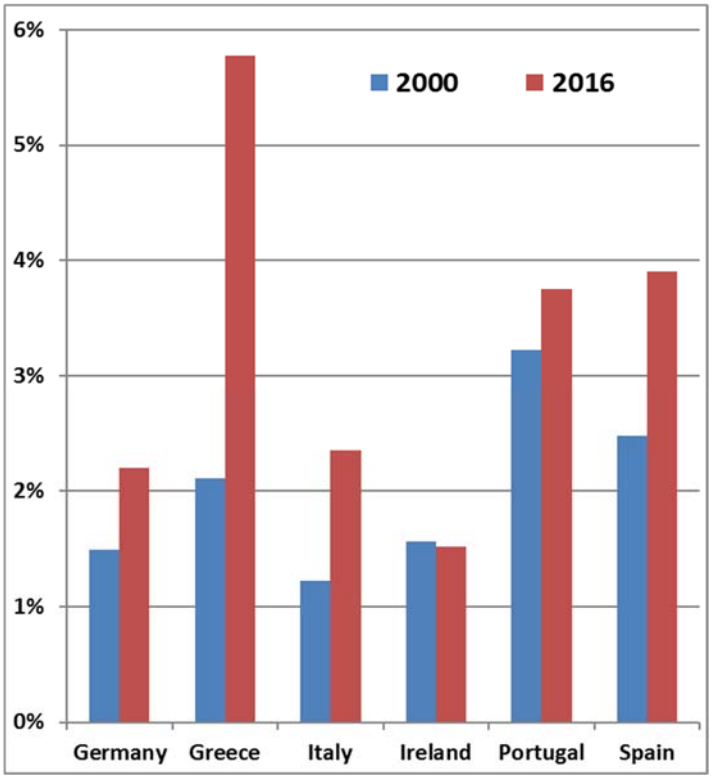
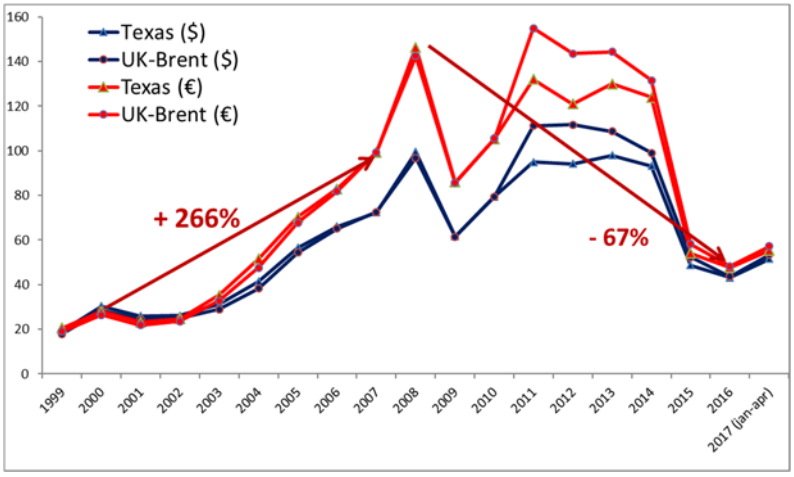
Appendix

Fig. A1: Oil dependency (net oil imports in % of GDP)



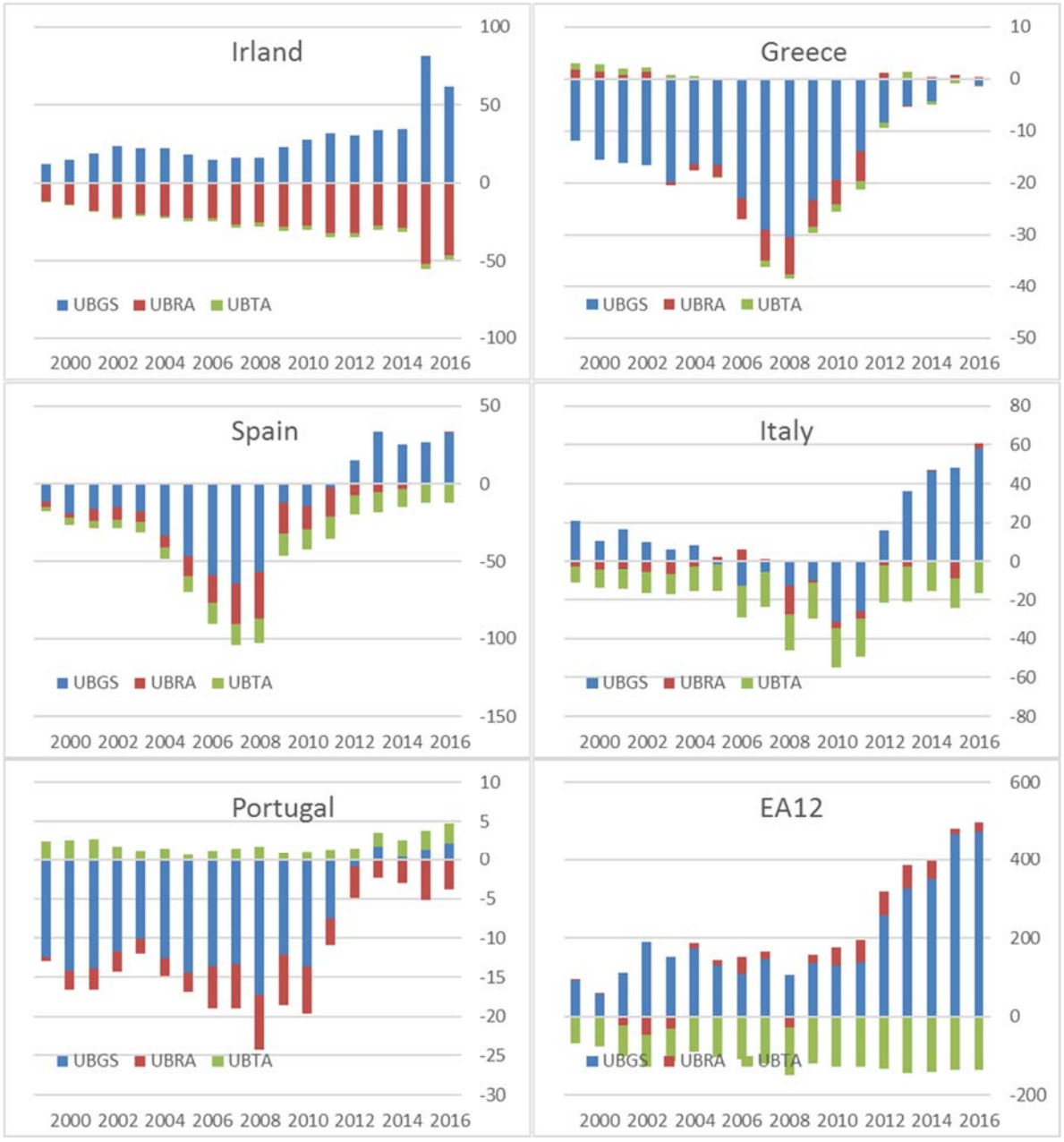
Source: IMF (WEO, Macrobond, own calculations). data download: May 2017

Fig. A2: Oil price in US-$ and in € pro Barrel (1999-2016; January-April 2017)



Sources: EIA and FRED, own calculations. data download: May 2017

Fig. A3: Components of the current account balance in the crisis countries and the euro area (12), in billion of national currency/euro (1999-2016)



UBCA (current account balance) = Net exports of goods and services (UBGS) + Net primary income from the rest of the world (UBRA) + Net current transfers from the rest of the world (UBTA)
Source: AMECO (UBCA, UBGS, UBRA, UBTA), data download: May 2017

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