

# Competitiveness and Current Account Adjustments in the Euro Area

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**Abstract** 

We empirically assess the impact of competitiveness measured by unit labor costs for current account balances in the Euro area. For this purpose, we estimate a panel with annual observations from 2000 to 2013. Our findings confirm the importance of competitiveness: Higher unit labor costs growth leads to lower current account balances. By splitting up unit labor costs growth in *wage growth* and *productivity growth*, we find wage growth and productivity growth to have a significantly negative and positive effect, respectively. However, the effect of unit labor costs is mainly driven by productivity growth, so that wage cuts are relatively ineffective and painful to fight current account deficits. But pushing productivity is also likely to be ineffective, since its positive effect for the current account may be offset by its effect on wages and GDP, which decreases current account balances.

Keywords: Euro Area, Competitiveness, Unit Labor Costs, Wage Growth, Labor Productivity Growth, Current Account, Panel

JEL code: F32, E69, C33

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### 1 Introduction

Current account imbalances are central in understanding the Euro area crisis. Baldwin et al. (2015) argue, in a "consensus narrative", that the build up and unwinding of current account imbalances have been the cause of the Euro area crisis. Before the crisis, massive capital inflows to mostly southern European economies led to an accumulation of public and private debt held by foreigners. During the Euro area crisis, lenders withdrew the debt from sovereign bond markets and national banking systems, which led to severe crisis in those economies.

In this article, we empirically assess the determinants of the change of current account balances by using a panel of eleven Euro area economies. In our empirical analysis, we use unit labor costs, government budget balances, GDP growth rates, interest rates and the nominal effective exchange rate as explanatory variables.

There are different explanations for current account imbalances in the Euro area. Low competitiveness of economies with current account deficits is one popular explanation. Another explanation, however, emphasises high levels of public and private spending in economies with current account deficits. We assess the significance of competitiveness, which we measure by unit labor costs, for the change of current account balances. Our results confirm the significance of unit labor costs. A higher growth rate of unit labor costs has a highly significant negative effect on the change of current account balances.

Furthermore, we evaluate the effectiveness of wage reduction and productivity increases, since restoring competitiveness can be accomplished both ways. The results confirm the significance of wage and productivity growth for current account balances. The effect of wage growth, however, is very weak, especially for the group of GIIPS economies (Greece, Ireland, Italy, Portugal, and Spain), which makes current account adjustments painful in terms of wage losses. Although productivity growth is highly significant and large in absolute terms, it likely has no significant effect for current accounts. The reason is that productivity growth translates into GDP growth and wage growth, which neutralizes the positive effect of productivity growth for current account balances.

We proceed by discussing the role of unit labor costs and alternative policies to manage the current account in the Euro area in section 2. Afterwards, we describe our methodology, data, and specifications in section 3. Results are presented in section 4. Section 5 concludes.

# 2 Unit Labor Costs and Current Accounts in the Euro Area from 2000 to 2013

In this section, we discuss unit labor cost developments and current account policies in the Euro area in greater detail.

Figure 1 shows the development of unit labor costs of selected Euro area economies. In the period prior to the financial crisis of 2008, the levels of unit labor costs diverged. The GIIPS economies experienced high growth rates of unit labor costs until 2008 compared to the Euro area average shown by the thick line in Figure 1.

#### (Insert Figure 1)

An interesting pattern is that economies which had high levels of unit labor costs in 2008, especially the GIIPS economies, also had current account deficits in 2008. For example, Greece, Ireland, and Spain had current account deficits of 14.41%, 5.43%, and 9.37% of their GDP, respectively. A goal of this study is to quantitatively analyze the relationship between unit labor costs and the current account.

In the aftermath of the global financial crisis, the Euro area crisis unfolded. The GI-IPS economies experienced severe recessions, high unemployment rates, and difficulties to fund their government debt. Current account balances at the beginning of the crisis predicted the macroeconomic performance during the crisis very well. Economies with current account deficits had severe recessions, while economies with current account surpluses, especially Germany, did not experience severe problems.

The pattern of a positive correlation between unit labor costs and current account balances has at least two different explanations, which are not mutually exclusive. The first explanation regards low competitiveness or overvalued prices as a cause (European Commission, 2010; Krugman, 2012; Shambaugh, 2012). Economies with high unit labor costs have higher good prices leading to lower exports and higher imports and resulting, in the end, to current account deficits.

The second explanation regards spending behavior across economies as the cause of imbalances (Reis, 2012; Wyplosz, 2013). By accounting identity, the current account balance equals private savings minus investments plus the government budget surplus

(CA = S - I + (T - G)) (Krugman et al., 2012). Economies which save little, invests much, and run high government budget deficits have low or even negative current account balances. All GIIPS economies had spending booms in private consumption, investments, housing, or public spending prior to 2008. This spending led to current account deficits in the GIIPS economies. Furthermore, these spending induced booms led to increased labor demand which led to increased wages and unit labor costs.

Bayoumi et al. (2011) and Belke and Dreger (2013) assess the importance of competitiveness for the current account in the Euro area. Bayoumi et al. (2011) estimate a panel of Euro area economies from 1995 to 2009 and use export volumes as a dependent variable. They find competitiveness, measured by unit labor costs, to have a significant, negative effect on exports. Belke and Dreger (2013) apply a panel-cointegration analysis to a dataset from 1982 to 2011. Their findings also show that unit labor costs matter for current account balances. They do not analyze, however, which component of unit labor costs, which is wages divided by labor productivity, influences current account balances.

Our original contribution is to further analyze competitiveness by splitting up unit labor cost growth in wage growth and productivity growth and by separately analyzing the effects in GIIPS economies and non-GIIPS economies. Furthermore, we use a different dataset and apply a different panel methodology.

Additionally, our empirical approach allows to evaluate the effectiveness of alternative current account policies which aim to adjust the current account. GIIPS economies have to increase their current account balances to reduce their vulnerability. We consider wage reductions and the increase of productivity as measures to restore productivity, and we also analyze restrictive fiscal policy and currency depreciation as additional policies.<sup>2</sup>

Structural adjustment programs such as the programs in Greece since 2010 try to restore competitiveness (European Commission, 2010). Since unit labor costs consists of nominal wage costs and labor productivity, increasing competitiveness can be accomplished by cutting wages or increasing productivity. Wage policies can be accomplished by labor market reforms and wage bargains with negative wage growth. For example, Ger-

<sup>&</sup>lt;sup>1</sup>Exports and the current account are related to each other, since the current account mainly consists of exports minus imports. Hence, if exports increase and imports do not change, the current account changes accordingly.

<sup>&</sup>lt;sup>2</sup>The scope of this article is on competitiveness. These policies should not be understood as instruments, but rather a guide which policy agenda to pursue. Another question on policy is, whether an intervention in markets is justified. It could be the case that a deficit is desirable to smooth intratemporal consumption. However, this question has to be assessed for every country on its own and lies beyond the scope of this study.

many undertook those measures in the decade before the financial crisis (Dustmann et al., 2014). Facilitating productivity growth can be accomplished by higher investments in R&D, better education, industrial policies that facilitate market entry, technology transfer, etc. By using both wage growth and labor productivity growth in our regression, we can assess both policies separately.

A depreciation of the Euro also increases competitiveness on global markets and, therefore, should increase current account balances. An alternative policy is fiscal policy. From accounting identity, a restrictive fiscal policy, which increases the government budget surplus (T-G), should increase the current account balance. By adding the government budget surplus as an explanatory variable, we assess the impact of reducing the government budget deficit on the current account.

## 3 Methodology and Data

#### 3.1 Panel Data Model and Standard Errors

We use panel data of eleven Euro area economies including all major Euro area economies. Due to data availability, our sample starts in 2000. With annual observations only a panel structure allows to have a sufficient number of observations.

Instead of using a dynamic panel model, we use a static panel model for the following reasons: First, a lagged dependent variable is unlikely to be empirical relevant, since we do not find evidence of autocorrelation in our regression or of a persistent dependent variable. Second, we do not find evidence in favor of lagged explanatory variables.

We use a pooled OLS model, although we considered a random effect and a fixed effects model, which are appropriate in the case of country-specific intercepts. But since the testing procedure<sup>3</sup> does not show the presence of random or fixed effects, we use a pooled OLS model:

$$\Delta CA_{it} = \alpha + \beta_1 \cdot ULC_{it}^g + \beta_2 \cdot Gov_{it} + \beta_3 \cdot NEER_t + \beta_4 \cdot GDP_{it}^g + \beta_5 \cdot GDP_t^{g,EA} + \beta_6 \cdot i_t + \varepsilon_{it}$$
 (1)

<sup>&</sup>lt;sup>3</sup>Regarding model selection between a fixed effects model on the one hand and a random effects model or an OLS model on the other hand, we perform a Hausman test. If the Hausman test does not show the presence of fixed effects, we perform a Lagrange multiplier test to test between a random effects model and a pooled OLS model.

The  $\Delta CA$  represents the change of the current account balance in percent of GDP. We use the change of the current account balance, because the assumption of stationarity for the *level* of current account balances is highly questionable on grounds of unit root tests. The most important explanatory variable for our analysis is unit labor cost growth  $(ULC_{it}^g)$  which measures competitiveness. In an alternative specification, which is not explicitly presented here, we use the two explanatory variables wage and productivity growth instead of unit labor cost growth.

Furthermore, we use the government budget balance in percent of GDP (Gov), the nominal effective exchange rate (NEER) and the GDP growth rate of each economy  $(GDP^g)$  as additional explanatory variables and the GDP growth rate of the Euro area  $(GDP^{g,EA})$  and the interest rate of the Euro area (i) as additional control variables. The error term  $\varepsilon_{it}$  should have an expected value of zero – unconditional and conditional on contemporaneous explanatory variables.

Current account balances are related with each other, since exports of one economy are imports of another economy, which potentially raises the problem of cross-section dependence. We test for this problem by using Pesaran's CD test (De Hoyos and Sarafidis, 2006). The results indicate the presence of cross-section dependence so that we use the Driscoll-Kraay estimator to accommodate for this problem (Hoechle, 2007). This non-parametric method allows to compute robust standard errors and it is appropriate in panels in which N and T are of comparable size. Additionally, it accommodates for autocorrelation and heteroscedasticity.

#### 3.2 Data, Specifications, and Hypotheses

The dataset includes annual observations from 2000 to 2013 of eleven Euro area economies including all major economies in the Euro area so that we have 154 observations.<sup>4</sup> The data sources are the Organisation for Economic Co-operation and Development (OECD) and the European Central Bank (ECB). Table 1 shows information on measurement of the original data from the OECD or ECB and the transformation of each variable from the original data. We also show the results of a Levin-Lin-Chu unit root test. The null hypothesis of an unit root can be rejected for all variables, so that all variables are stationary.

<sup>&</sup>lt;sup>4</sup>The sample includes Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, and Spain. Luxembourg is excluded from our sample due to data availability. Its earliest data on unit labour cost growth starts in 2001, which is one year later than of all other economies.

#### (Insert Table 1)

We expect unit labor costs growth, wage growth, and the nominal effective exchange rate to have a negative impact on the current account balance change. The effect of productivity growth should be positive since it improves competitiveness and, therefore, the current account balance.

The computations are done in Stata. The data and the Stata dofile are available upon request.

#### 4 Results

#### 4.1 Baseline Specification

Table 2 shows the estimation results of the panel model in equation (1). The dependent variable is the change of current account balances in percent of the GDP.

The  $R^2$  values are 0.34 and 0.37, respectively. Hence, a considerable part but not all of the variation in current account balances can be explained.

#### (Insert Table 2)

As shown in specification (1), unit labor costs growth has a highly significant, negative effect on current account balances. The negative sign confirms the hypothesis that competitiveness matters for current account balances. Quantitatively, a reduction of unit labor cost growth rates by 10% increases the current balance by 2.5 percentage points.<sup>5</sup> Our result confirms results in previous literature. Belke and Dreger (2013) estimate a significant negative effect of the real exchange rate measured by unit labor costs on current

<sup>&</sup>lt;sup>5</sup>The use of the *change* of current account balances and growth rates makes interpretations more cumbersome. A valid interpretation of the coefficient of ULC is that an increase of the ULC growth rate by 1 percentage point – say from 2% to 3% – decreases the *change* of the current account balance by 0.25%. If  $\Delta$  current account were 1, it would decrease to 0.75 after the ULC shock of 1 percentage point.

account balances. Bayoumi et al. (2011) find a significant negative effect of real exchange rate measured by unit labor costs on export volumes.

In specification (2), we split up unit labor costs growth in wage growth and labor productivity growth.<sup>6</sup> Wage growth has a significant, negative effect on the current account change. Quantitatively, a reduction in wage growth by 10% increases the current account by 1.5 percentage points. Productivity growth has a highly significant but positive effect on current account balances. An increase in productivity growth by 10% increases the current account position by 4.1 percentage points. Hence, the effect of productivity growth is more than 2.5 times larger compared to wage growth in absolute terms.

The GDP growth of each economy has a significantly negative effect on current account balances. a higher demand for goods demand also increases imports and, thus, has a negative effect on the current account. This effect might have contributed to positive development of the current account balances in Greece and other GIIPS economies since 2010.

Productivity growth also influences GDP growth and it might influence wage growth. When productivity growth affects wage and GDP growth one to one, the positive effect of productivity on current account balances is very likely to vanish. This can be shown in specification (2). An increase of productivity growth by one percentage point improves the current account balance by 0.41. However, when wage and GDP growth increase by one percentage point as well, the current account balance decreases by 0.15 and 0.27, respectively. The overall effect is almost zero (0.41 - 0.15 - 0.27 = -0.01). Only if productivity growth by one percentage point increases wage growth by less the one percentage point, a positive effect of productivity growth remains in specification (2). For example in Germany, there has been *wage moderation* so that productivity growth did not translate into wage growth (Dustmann et al., 2014).

In contrast to the competitiveness measures, the effect of the government budget balance on the current account balance is not significantly different from zero in both specifications in Table 2. Hence, fiscal policy by changing the government budget surplus has no significant effect on the current account balance.

The nominal effective exchange rate has a significant effect on current account balances so that a depreciation of the Euro will improve the balance. Hence, exchange rate

<sup>&</sup>lt;sup>6</sup>We need to split it up and drop ULC growth to avoid a singular observation matrix. This would result since unit labor costs growth equals to a linear combination of wage growth and labor productivity growth.

policies might also contribute to current account adjustments in the Euro area. Quantitatively, a 10% depreciation increases the change of the current account balance by around 0.3% or 0.4%.

Hence, competitiveness can explain a considerable part of current account adjustments. An adjustment program can also be stretched over several years. For example, if wage growth keeps lower by 1% to a counterfactual scenario, this accumulates to an increase of the current account balance of 1.5 percentage points after 10 years.

#### 4.2 Results with Financial Crisis and GIIPS Dummy Variables

In this section, we analyze the stability of the results regarding our competitiveness measure over time and between GIIPS and remaining Euro area economies.

#### (Insert Table 3)

In Table 3, the columns (3) and (4) show whether the effects of the respective competitiveness measure on current account balances changed after the financial crisis of 2008. For this purpose, we defined a dummy variable which takes a value of 1 from 2008 on. The results do not show a different effect of competitiveness since 2008. Neither the interaction of the dummy variables with ULC growth, wage growth nor productivity growth is significantly different from zero.

Another question is whether the effect of competitiveness on current account balances is constant across the Euro area. Here, we define a dummy variable for GIIPS economies (Greece, Ireland, Italy, Portugal, and Spain). The results are shown in the columns (5) and (6) in Table 3.

Regarding the effect of unit labor costs growth, the effect significantly differs in GIIPS from the remaining six economies, which are mainly from northern Europe. The positive value for ULC in (5) shows that the responsiveness to changes in unit labor costs growth is significantly lower in GIIPS economies. Hence, in order to increase the current account balance by the same amount, they have to decrease unit labor costs to a greater extent than the remaining economies so that current account adjustment will be more painful in GIIPS economies. But the effect of unit labor cost growth is still significantly different

from zero, which we checked in separate regressions.

The effects of wage and productivity growth on current account balances also significantly differs from the rest of the Euro area. The parameter of wage growth is -0.41 + 0.33 = -0.08. Hence, adjusting current accounts in GIIPS economies by decreasing wage growth is relatively ineffective. The parameter of -0.09 is even not significantly different from zero with a p-value of 10.15%. Changes in productivity growth seems to be more promising since the parameter is 0.77 - 0.47 = 0.30. The effect of productivity growth on current account balance is, however, weaker than in the remaining economies of the Euro area and vanishes, when productivity growth translates to GDP growth and wage growth.

The implication is that adjustment programs which try to restore the current account by changing wages are likely to be ineffective or very painful for these economies. Table 4 presents what it needs to increase the change of the current account balance by one percentage point. The values are computed by the inverse of the coefficients in regression (6).

#### (Insert Table 4)

For GIIPS economies, a reduction of nominal wages by  $12.5 \ (\frac{1}{-0.41+033})$  percentage points increases the current account balance by one percentage point. In contrast, the remaining economies have to decrease wage by only 2.5 percentage points. An increase in productivity of 3.4 and 1.3 percentage points for GIIPS and non-GIIPS economies, respectively, increases the current account by one percentage point. However, the results should be interpreted with some caution, since the estimates are necessarily unprecise for single economies.

## 5 Conclusion

We confirm the importance of competitiveness measured by unit labor cost growth for current account balances by using a different dataset and methodology than previous literature. We show that this is heavily driven by productivity growth. The consequences

<sup>&</sup>lt;sup>7</sup>These regressions are not reported in the article. We checked the significance by dropping the ULC growth of all Euro area economies and adding an interaction dummy variable with the ULC growth of non-GIIPS economies.

<sup>&</sup>lt;sup>8</sup> Again, this p-value is computed by another regression, which is not reported here.

is that adjusting current accounts by wage growth is less effective and more painful than the unit labor cost measure suggests. The tempting conclusion that economies have to increase productivity for adjusting current account is questionable, since the positive effect is offset by negative effects through increased GDP and wage growth.

In addition, the nominal effective exchange rate and GDP growth is effective for current account balance, while fiscal policy is ineffective.

Generally, this paper takes a granular perspective on current account balances. Since it takes a macroeconomic perspective, we cannot say much about microeconomic industrial policies. Fore example, it can be a policy option to support some export industries to adjust current accounts. We think it is worthwhile to take this perspective in further research and policy discussions.

Furthermore, the limited number of observations for each country prevents us from making statements on individual economies. For example, it is likely that the coefficients for each country deviate from the average of the Euro area or from (non) GIPPS economies. A longer sample also makes alternative models more interesting. For example, a vector auto regressive model or vector error correction model might be interesting to study potential dynamics and interdependencies.

Finally, since the cause of the *Euro crisis* and political issues of it go far beyond competitiveness, the political implications are far more complex than just adjusting current accounts by adjusting unit labor costs. There might be a role for economies with current account surpluses, better financial regulation, etc.

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# Appendix

Figure 1: ULC Developments of Selected Euro Area Economies since 2000

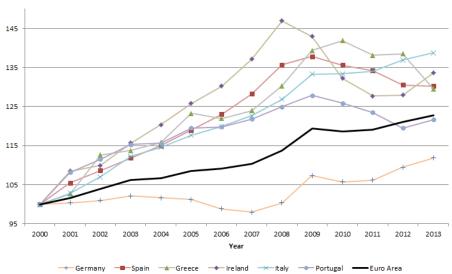


Table 1

Data Sources and Measurement

Variable	${\bf Measurement}$	Transformation	Data Source	Stationarity
Current Account Ratio Change	current account balance, $\%$ of GDP	difference	OECD	yes
ULC Growth	total economy, based on hours, index	%-change	ECB	yes
Wage Growth	total economy, based on hours, index	%-change	ECB	yes
Productivity Growth	total economy, based on hours, index	%-change	ECB	yes
Government Budget Surplus	excessive deficit prodecure, AMECO	none	ECB	yes
GDP Growth	real, ESA2010	%-change	ECB	yes
Euro Area GDP Growth	real, ESA2010	%-change	ECB	yes
Euro Area Interest Rate	3-month Auribor	none	ECB	yes
NEER	denominator: Euro	natural log	ECB	yes

Notes: The measurement refers to the raw data we downloaded. The transformation describes our computation of final data from raw data downloaded from the respective institution. The data source refers to the institution we downloaded the data. All data were freely available in February 2015. The stationarity refers to a Levin-Lin-Chu unit root test without a time trend. We assume the series to be stationary, if we reject the null of a unit root.

 $\begin{tabular}{ll} Table 2 \\ \textbf{Regression Results: Baseline Specification} \\ \end{tabular}$ 

Explanatory Variable	(1)	(2)
ULC Growth	-0.25***	-
	(0.001)	
Wage Growth	=	-0.15**
		(0.019)
Productivity Growth	-	0.41**
		(0.003)
Government Budget Surplus	0.03	0.02
	(0.531)	(0.738)
NEER	-0.04**	-0.03**
	(0.018)	(0.030)
GDP Growth	$-0.14^{*}$	-0.27**
	(0.094)	(0.036)
GDP Growth EA	$-0.21^{*}$	-0.13
	(0.052)	(0.162)
EA Interest Rate	-0.11	$-0.13^{*}$
	(0.135)	(0.075)
Intercept	21.29**	16.83*
	(0.013)	(0.021)

Notes: We use an OLS estimator according to the results of a Hausman test. We use Driscoll-Kraay standard errors to accommodate for cross section dependence in both specifications. In parentheses, we show p-values.  $^*$ ,  $^{**}$  and  $^{***}$  refer to significance levels of 10%, 5% and 1%, respectively.

 ${\bf Table~3} \\ {\bf Regression~Results~with~a~Financial~Crisis~and~GIIPS~Dummy~Variable}$ 

	Crisis		GIIPS	
_	(3)	(4)	(5)	(6)
ULC Growth	-0.21**	-	-0.54***	-
	(0.015)		(0.000)	
ULC Growth · Dummy	-0.09	=	0.34***	÷
	(0.455)		(0.001)	
Wage Growth	-	-0.14	-	-0.41***
		(0.139)		(0.001)
Wage Growth · Dummy	-	-0.04	-	0.33**
		(0.751)		(0.001)
Productivity Growth	-	0.33***	-	0.77**
		(0.002)		(0.000)
Prod. Growth · Dummy	=	0.16	=	-0.47**
		(0.226)		(0.000)
Government Budget Surplus	0.02	-0.01	0.01	0.00
	(0.695)	(0.922)	(0.869)	(0.933)
NEER	-0.04**	-0.04**	-0.04**	-0.03**
	(0.015)	(0.015)	(0.015)	(0.030)
GDP Growth	-0.15*	$-0.27^{**}$	-0.20**	-0.31**
	(0.077)	(0.035)	(0.014)	(0.011)
GDP Growth Euro Area	$-0.23^{*}$	-0.15	-0.29**	-0.22**
	(0.077)	(0.201)	(0.012)	(0.017)
EA Interest Rates	-0.14	-0.12	-0.09	-0.11
	(0.160)	(0.247)	(0.223)	(0.179)
Intercept	21.36**	18.09**	22.09***	17.41*
	(0.010)	(0.010)	(0.009)	(0.021)

Notes: We use an OLS estimator according to the results of a Hausman test. We use Driscoll-Kraay standard errors to accomodate for cross section dependence in both specifications. In parentheses, we show p-values.  $^*$ ,  $^{**}$  and  $^{***}$  refer to significance levels of 10%, 5% and 1%, respectively.

Table 4
Current Account Adjustment Costs

Country	By Wages	By Productivity	
GIIPS-Economies	-12.5	3.4	
Non-GIIPS-Economies	-2.5	1.3	

Notes: The coefficients stem from model (6). The adjustment by wages and by productivity refers to a change of wages and productivity growth which is required to increase the change of the current account by 1 percentage point.