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Factor Income and the Euro Area Current Account

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Factor Income and the Euro Area Current Account

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The increase in the current account surplus of the euro area has been accompanied by muted growth in real wages and an increase in corporate profits. I show that these developments are linked. In particular, temporary shifts in labor income covary negatively with the current account, while permanent shifts show little correlation. On the other hand, temporary shifts in capital income covary positively with the euro area current account, while permanent shifts are marginally negatively correlated. With recent income dynamics likely being temporary in nature, the findings suggest that both external and internal imbalances could unwind simultaneously, were the upward pressure in the labor market to translate into a redistribution of corporate profits towards labor income.

Introduction

The euro area current account has changed from being approximately balanced in 2011 to a surplus of EUR 343 billion in 2018.² The widening in the external balance has been accompanied by a muted growth in real wages and an increase in corporate profits. In particular, from 2001 to 2010 the average annual growth rate of deflated labor compensation per employee and deflated gross operating surplus per employee stood at 0.3 percent and 0.4 percent respectively. These growth rates diverged substantially over 2011-2018 period. While labor compensation per employee grew at the same pre-2011 rate, the growth rate of deflated gross operating surplus per employee increased to 1.4 percent. This paper shows that the shifts in the current account are linked to fluctuations of these two income components.

Recently, a particular emphasis has been put on the sectoral composition of savings and investment. It has been shown that imbalances beyond the household sector contain useful information about the current account. For instance, Chen et al [2017] point to dramatic shifts in the sectoral composition of global savings and a lack of similar shifts in investment. Similarly, Dao and Maggi [2018] document an uptrend in savings and net lending of non-financial corporations, with the patterns more evident in countries running large current

¹I thank Valerie Herzberg and Peter McQuade for their discussions during my work on this project. Lorenz Emter provided excellent research assistance. The views expressed in this paper are personal and do not represent the views of the Central Bank of Ireland.

²Large and persistent current account deficits lead to an accumulation of net foreign liabilities, and are usually deemed unsustainable. On the other hand, large and persistent current account surpluses translate into larger holdings of net foreign assets and could reflect domestic distortions (Blanchard and Milesi-Ferretti 2012).

account surpluses. Looking at sectoral imbalances, Allen [2019] finds weak correlation between net lending of the household sector and the current account, as opposed to net lending of nonfinancial corporations and governments. In the euro area context, Galstyan [2019a] finds that corporate net lending and the fiscal balance are important covariates of the the current account, with a substantial fraction of the observed external surplus accounted for by corporate imbalances.

This paper contributes to the literature above by studying fluctuations in factor income and the euro area current account. Importantly, by attributing relevance to the persistence of shifts in sectoral incomes, it also incorporates certain features of more traditional approaches.³ The results suggest that temporary shifts in labor income covary negatively with the current account, while permanent shifts show little co-movement. These findings are in stark contrast to shifts in corporate profitability, where temporary shifts correlate positively with the current account. In contrast, permanent shifts show negative association with the current account. Based on the empirical analysis, I conclude that the recent euro area income dynamics are likely to be temporary in nature. Hence, the results suggest that both external and internal imbalances could unwind simultaneously, were the upward pressure in the labor market to translate in a redistribution of corporate profits towards labor income.

The rest of the paper is structured as follows. Section 2 presents the econometric approach. Section 3 describes the data. In Section 4 I discuss the empirical findings. Finally, Section 5 concludes.

Empirical Approach

Unrestricted VAR

The initial approach is based on an unrestricted VAR specification:

$$x_t = A_0 + A_1 x_{t-1} + u_t \quad (1)$$

where $x_t = (cay_t, \Delta \ln LIR_t, \Delta \ln OSR_t)'$ is a 3x1 vector of jointly determined dependent variables.⁴ In turn, cay is the euro area current account balance to GDP ratio, LIR is the deflated labor compensation of employees, OSR is the deflated gross operating surplus of nonfinancial corporations, and Δ captures the quarter-on-quarter difference in the relevant variable. Finally, A_0 and A_1 are 3x1 and 3x3 matrices of coefficients respectively.

Next, I split both measures of income into a transitory and permanent component. In particular, for a random variable $z \in (LIR, OSR)$, define a transitory component (τ) and a permanent component (p) such that $\ln z_t = \tau_t^z + p_t^z$. This decomposition is obtained by estimating an univariate unobserved component model on $\ln z_t$ which, in turn, is assumed to follow a random walk process with a drift.⁵ Finally, equation (1) is estimated again with

³The importance of transitory and permanent shocks has been emphasised by Sachs [1981].

⁴Various lag-selection criteria point to a one lag VAR.

⁵The entire sample period is used for the estimation.

the vector x redefined as a 5x1 vector of jointly determined dependent variables, $x_t = (cay_t, \tau_t^{LIR}, \Delta p_t^{LIR}, \tau_t^{OSR}, \Delta p_t^{OSR})'$.

For both specifications, the generalised impulse response functions of the current account to a shock originating from other equations of the system are constructed.⁶

First difference regression

Conditional on the sample size, higher dimensionality of a VAR can result in larger estimated error bands. Accordingly, to supplement the VAR approach of the previous subsection, the analysis here relates the current account balance to income and its composition by estimating the following restricted specification:

$$\Delta cay_t = \gamma_0 + \gamma_1 \Delta \ln LIR_t + \gamma_2 \Delta \ln OSR_t + u_t \quad (2)$$

where cay is the euro area current account balance to GDP ratio, LIR is the deflated labor compensation of employees, OSR is the deflated gross operating surplus of nonfinancial corporations, and Δ captures the quarter-on-quarter difference in the relevant variable.⁷

As before, I categorise sub-components of each regressor $z \in (LIR, OSR)$ according to its persistence, and estimate the following empirical specification as well:

$$\Delta cay_t = \alpha_0 + \alpha_1 \tau_t^{LIR} + \alpha_2 \Delta p_t^{LIR} + \alpha_3 \tau_t^{OSR} + \alpha_4 \Delta p_t^{OSR} + u_t \quad (3)$$

The serial correlation of residuals in this subsection is not significant enough to pose an econometric problem. Accordingly, all specifications are estimated by OLS. In alternative specifications, the first lag of the dependent variable is included as an additional regressor.

Data

Quarterly data on the current account and its sub-components are taken from the IMF's Balance of Payments database, while the oil balance data is constructed using data from Eurostat's International Trade in Goods Statistics. Labor income is measured using data on nominal compensation of employees from Eurostat, and is defined as total remuneration payments from employers to employees (in cash or in kind) including wages, salaries, as well as employers' social contributions. Nonfinancial sector profitability is captured by data on nominal gross operating surplus and mixed income from Eurostat, and is comprised of the surplus on production activities before interest and rent payments, as well as remuneration payments to owners of unincorporated enterprises. Finally, seasonality in all of

⁶For a description of the methodology see Pesaran and Shin [1998].

⁷Specifications with the current account to GDP ratio in levels have also been estimated. The estimated coefficients, except the intercept, are broadly the same both in terms of the magnitude and statistical significance.

the quarterly series is removed using the U.S. Census Bureau's X-13 seasonal adjustment procedure. The sample period is from 1999Q1 to 2018Q2.

Figure 1 provides a close look at the euro area current account (moving four quarter sum) between 2000Q1 and 2018Q2. Prior to the end of 2011, the euro area current account remained close to balance for most of the period except for two relatively brief deficit episodes from 2000Q4 to 2002Q2 and during the global financial crisis (GFC) from 2007Q4 to 2009Q4. In general, the euro area ran surpluses in non-oil goods and services trade while it exhibited a negative oil trade balance as well as negative balances on government and personal transfers. After 2011Q4, the euro area current account tipped into surplus which reached a peak of EUR 350 billion in 2018Q2. This was mainly driven by a widening of the surplus in non-oil goods trade and by a narrowing of the oil trade deficit. In addition, the services trade surplus increased slightly while investment income turned from a minor deficit into surplus after the GFC.

Figure 2 shows a bivariate relation between the current account on one side and the ratio of gross operating profits of nonfinancial corporations to labor income on the other side. The dynamics of the ratio track recent developments in the current account quite well. In particular, the sharp decrease in profits of nonfinancial corporations following the GFC went hand in hand with a deterioration of the current account. The subsequent recovery of corporate profits to labor income ratio has been associated with the current account turning into a surplus of 3 percent of GDP.

Finally, Figures 3 and 4 show a statistical decomposition of the euro area factor income into permanent and transitory components. Mechanically, in both figures the permanent component is trending upwards. Over the 2008Q1-2009Q3 period, the permanent component of the corporate profits experienced a 16 per cent decline, while the decline in the permanent component of labor income was more muted. Importantly, transitory components of both series experienced heightened variability during the GFC. Finally, it is interesting to observe that the transitory component of deflated corporate profits is substantially more volatile than that of deflated labor income.⁸

Empirical Findings

Unrestricted VAR

Figures 5 and 6 illustrate the generalised impulse response functions estimated from the unrestricted VAR detailed in section 2.1. More specifically, Figure 5 shows the response of the current account to a one standard deviation shock to the labor income equation, and a shock of equal size to the corporate gross operating surplus equation in panels (a) and

⁸This relative variability underscores the relative sluggishness of labor compensation relative to capital compensation. However, since both series are extracted using a statistical procedure, these are also prone to measurement error. Moreover, this error could potentially increase the standard errors of the estimated parameters in Section 4.

(b), respectively.⁹ A shock to the labor income equation is associated with a significant and persistent decline in the current account to GDP ratio during the first year after the shock (panel (a)). In contrast, a shock to the capital income equation is associated with an increase in the current account to GDP ratio in the initial quarters following the shock, although this increase seem to be marginally significant only.

Figure 6 shows the impulse response functions for the extended unrestricted VAR specification in which labor income and gross operating surplus are decomposed into transitory (TC) and permanent components (PC). The negative effect on the current account to GDP ratio for a shock to the labor income equation is driven by the transitory component (panel (a)). A shock to the labor income equation with permanent component, on the other hand, has no significant effect on the current account balance (panel (c)). Turning to the results for shocks to capital income equations, the positive initial response of the current account to GDP ratio is shown to be driven by transitory shocks as well (panel (b)), while shocks to the equation of the permanent component of capital income leave the current account balance virtually unchanged (panel (d)).

Taken together, these results suggest that shocks to labor income and capital income have opposite effects on the current account to GDP ratio. While increases in labor income reduce the current account balance, positive shifts in corporate profits lead to a more positive current account to GDP ratio. Moreover, there is some evidence that these effects vary in the degree of persistence of the respective shocks. These findings are corroborated by the results of the regression analysis described in section 4.2.

First difference regression

Conditional on the sample size, the higher dimensionality of a VAR can result in larger estimated error bands. Accordingly, I also relate the change in the current account balance to GDP ratio to income in a single equation framework.¹⁰ Table 1 presents the results from estimating equation (2). The change in the current account ratio is negatively correlated with the growth rate of domestic GDP: a one percentage point increase in the quarterly growth rate of GDP is associated with 0.21 percentage points decline in Δcay_t at quarterly frequency. The estimate, however masks substantial heterogeneity in the response of the current account to income composition. In particular, an increase in the growth of labor compensation by one percentage point is associated with a decline in Δcay_t by 0.65 percentage points at quarterly frequency. On the other hand, improvements in corporate profitability covary positively with changes in the current account with an estimated coefficient of 0.07.

Table 2 presents the results from regressions of the first difference of the current account ratio on transitory and permanent components of income. Looking at columns (1) and (3),

⁹The covariance matrix of the estimated unrestricted residuals points to little pairwise correlation.

¹⁰The dependent variable in this subsection is the quarterly change of the current account to GDP ratio (Δcay_t).

the current account change is negatively associated with permanent shifts in domestic GDP. As before, the sensitivity to the composition of income masks substantial heterogeneity in gross correlations. In particular, the results in column (2) suggest that temporary increases in labor income are negatively correlated with changes in the current account ratio (with an estimated coefficient of -0.5), while permanent shifts show a positive but statistically insignificant association at quarterly frequency.

Meanwhile, temporary improvements in capital income covary positively with shifts in the current account to GDP ratio: a one percentage point increase in the temporary component is associated with 0.06 percentage point increase in the quarterly change of the current account to GDP ratio. Furthermore, a one percentage point higher rate of growth in the permanent component of capital income is associated with a 0.06 percentage point decline of the change in the current account to GDP ratio at quarterly frequency. These results are in stark contrast to those with labor income changes, where temporary shifts covary negatively with changes in the current account ratio. On the other hand, permanent shifts in capital income covary positively with changes in the current account ratio.¹¹ Finally, in almost all cases the estimated intercept is statistically insignificant, confirming the temporary nature of current account movements.¹²

Summary

Both empirical approaches point to a negative correlation between shifts in the current account and the transitory component of labor income, and a positive, but marginally significant, association between the current account and the transitory component of capital income. On the other hand, there is less evidence in favour of a statistically significant association between the current account and permanent changes in factor income among the two empirical methodologies. Hence, based on the entire empirical analysis, I conclude that the recent euro area income dynamics are likely to be temporary in nature.

While the insignificance of the permanent component of household income is in line with the intertemporal model (under which permanent income should be fully consumed), the negative covariation pattern between temporary labour income and the current account is in line with models in which at least some households are liquidity constrained and consume out of current income, regardless of whether this income is temporary or permanent.

For capital income, an appealing approach for interpretation of the results is the mean-variance framework. From this perspective, in the presence of higher volatility of returns and a relatively low mean return on domestic projects, savings of nonfinancial corporates result in disproportionately larger accumulation of foreign assets relative to capital formation.¹³ In this environment, temporarily higher cash flow from existing projects is trans-

¹¹While inclusion of the lagged dependent variable annihilates the statistical significance of the permanent component of corporate profits, the sign stays intact.

¹²Inclusion of the fiscal balance in the list of regressors has no noticeable impact on the results.

¹³See Kraay and Ventura [2000] for a potential channel.

formed to relatively higher holdings of foreign assets. On the other hand, permanently higher cash flow improves the expected risk-adjusted profitability, driving more investments in domestic projects. In the first case, the change in the current account balance is positive, while in the second case it is negative.¹⁴

Discussion

From 2001 to 2010 the average annual growth rate of deflated labor compensation per employee and deflated gross operating surplus per employee stood at 0.3 and 0.4 percent respectively. These growth rates diverged substantially over 2011-2018 period. While labor compensation per employee grew at the same pre-2011 rate, the growth rate of deflated gross operating surplus per employee increased to 1.4 percent. Meanwhile, the surplus in the euro area current account has expanded significantly from an approximate balance in 2011. At the time of writing, the euro area current account surplus for 2018 stands at EUR 343 billion (or 3 percent of euro area GDP). Unsurprisingly, this surplus has attracted considerable attention in policy circles.

The results of this empirical paper point to a set of interrelated factors in shaping the euro area external imbalances. Firstly, high corporate profits have contributed to the accumulation of foreign assets. Second, lack of upward wage pressures in the euro area tend to further expand the current account. To the extent that these developments are likely to be temporary in nature, as suggested by the empirical analysis, the external imbalances could unwind with a redistribution of income from corporate profits to labor income.¹⁵ Moreover, the same redistribution of income could put an upward pressure on wages, and raise the persistently low inflation rate in the euro area. Thus, the recent current account surplus and low inflation are likely to disappear simultaneously (Galstyan 2019b).

Conclusions

The expansion in the current account surplus of the euro area has been accompanied by muted growth in real wages and an increase in corporate profits. This paper empirically shows that these developments are linked.

In essence, the paper is related to the recent literature on sectoral imbalances. It also incorporates certain features of more traditional approaches, namely the differential response of the current account to temporary and permanent shifts in income. The findings suggest

¹⁴A similar set of results can be generated in a basic intertemporal model of the current account. For instance, in a model with incomplete markets and capital accumulation, a productivity shock with zero persistence results in a current account surplus, while a permanent shock results in a deficit. In the intermediate case, a persistent but transitory improvement in productivity results in an immediate worsening of the current account.

¹⁵The redistribution could be directly reflected in higher wages paid, or increased investment and higher demand for labor and, consequently, higher aggregate compensation of employees.

that temporary shifts in labor income covary negatively with the current account, while permanent shifts show little co-movement. These findings are in stark contrast to shifts in capital income, where temporary shifts correlate positively with the current account. In contrast, permanent shifts show some negative association with the current account.

While the insignificance of the permanent component of household income is in line with the intertemporal model under which permanent income should be fully consumed, the negative correlation between temporary labour income and the current account is in line with models in which at least some households are liquidity constrained. I further postulate that, in presence of high volatility and low mean return on domestic projects, temporarily higher cash flow from existing projects is reflected in relatively higher holdings of foreign assets. On the other hand, permanently higher domestic cash flow improves expected risk-adjusted profitability, driving more investment into domestic projects. In the first case, the change in the current account balance is positive, while in the second case it is negative.

Overall, with recent income dynamics likely being temporary in nature, the findings suggest that both external and internal imbalances could unwind simultaneously, were the accumulation of upward pressure in the labor market to translate in a redistribution of corporate profits towards labor income.

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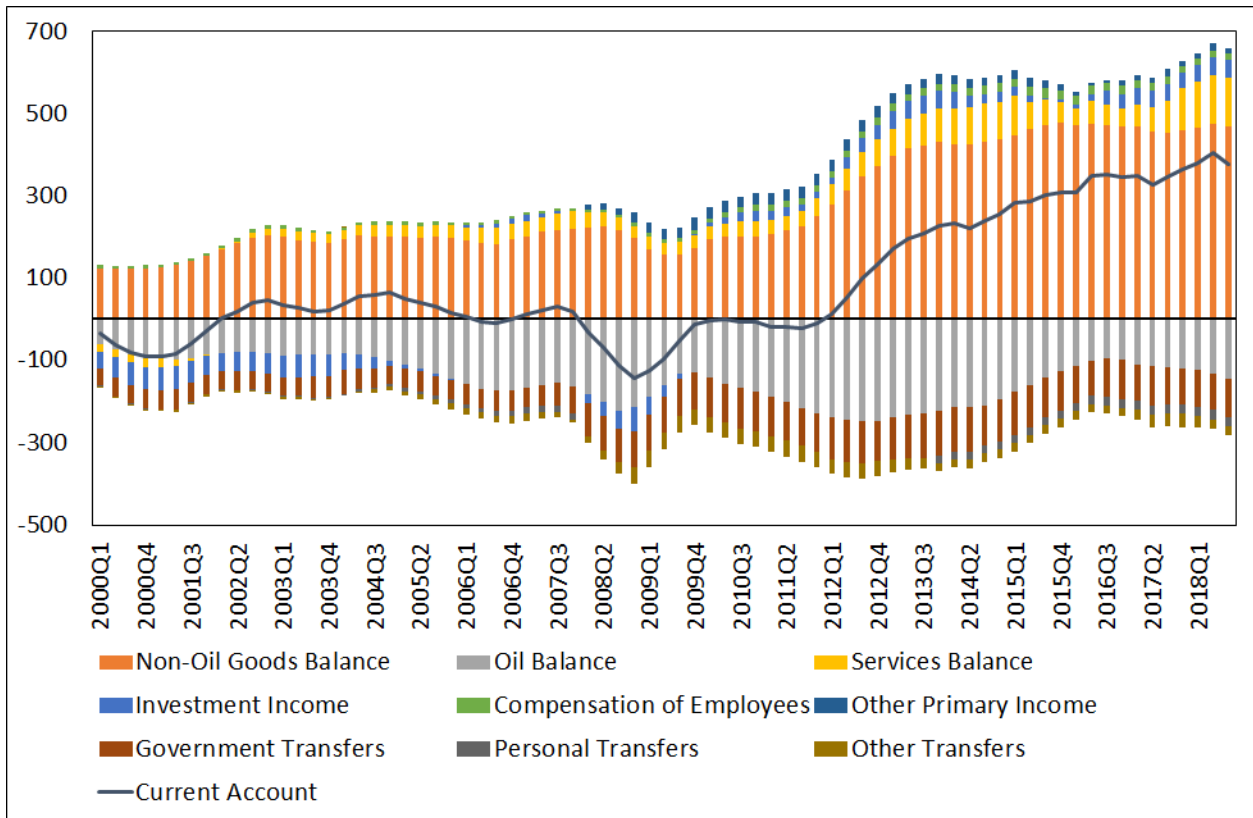
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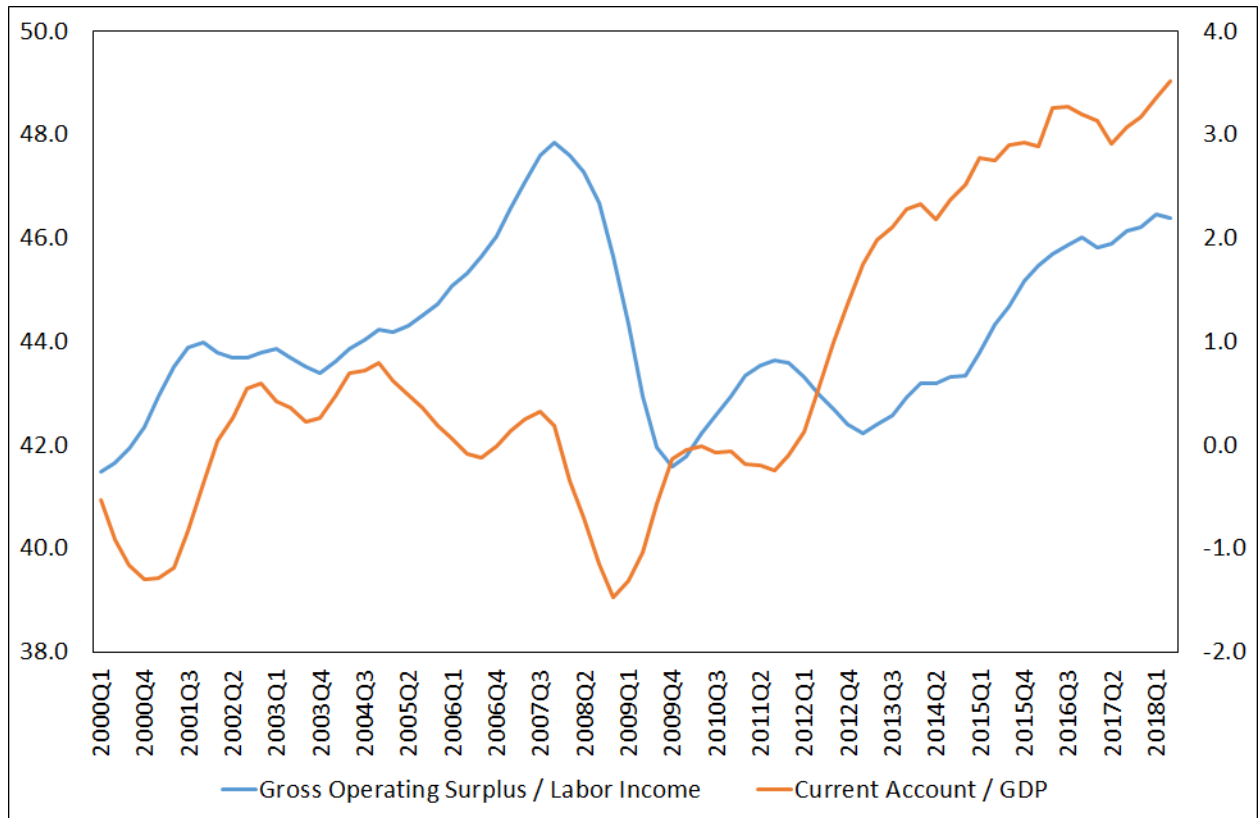
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Figure 1: Composition of the Current Account



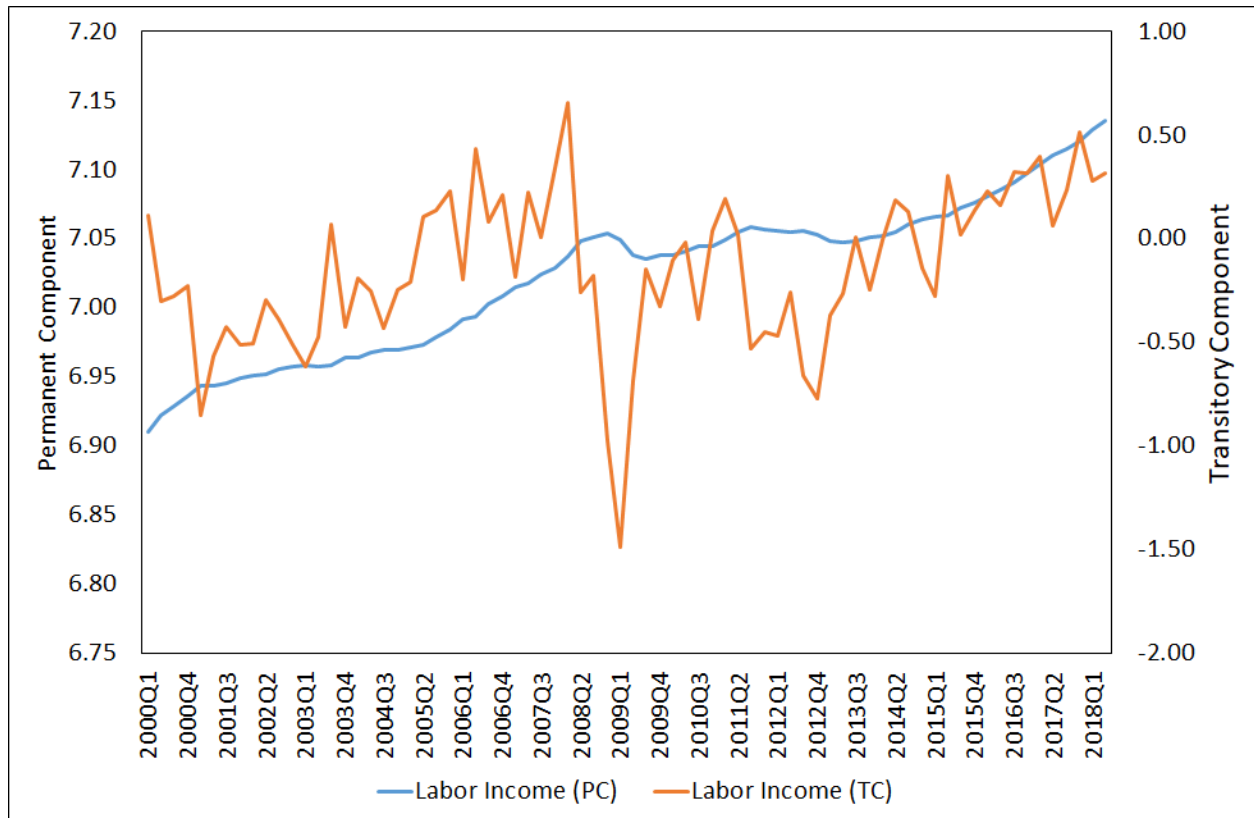
Note: The figure shows the composition of the euro area current account. All components capture moving sums over four quarters in billions of euro. Author's calculations based on IMF BOP and EUROSTAT data.

Figure 2: Factor Income and the Current Account



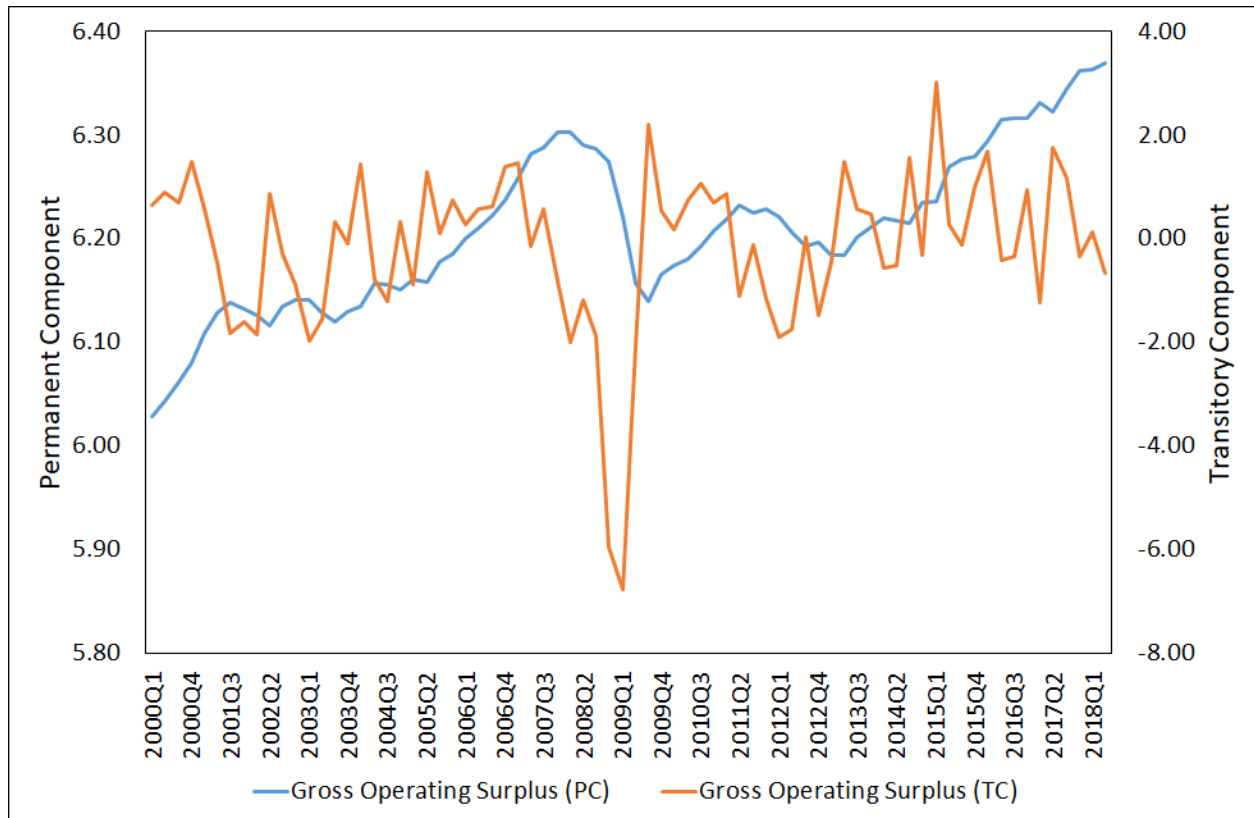
Note: The figure shows the dynamics of the current account and the ratio between gross operating surplus of nonfinancial corporations and labor income. Both components are constructed using moving sums over four quarters. Author's calculations based data from EUROSTAT and the IMF BOP.

Figure 3: Decomposition of Labor Income



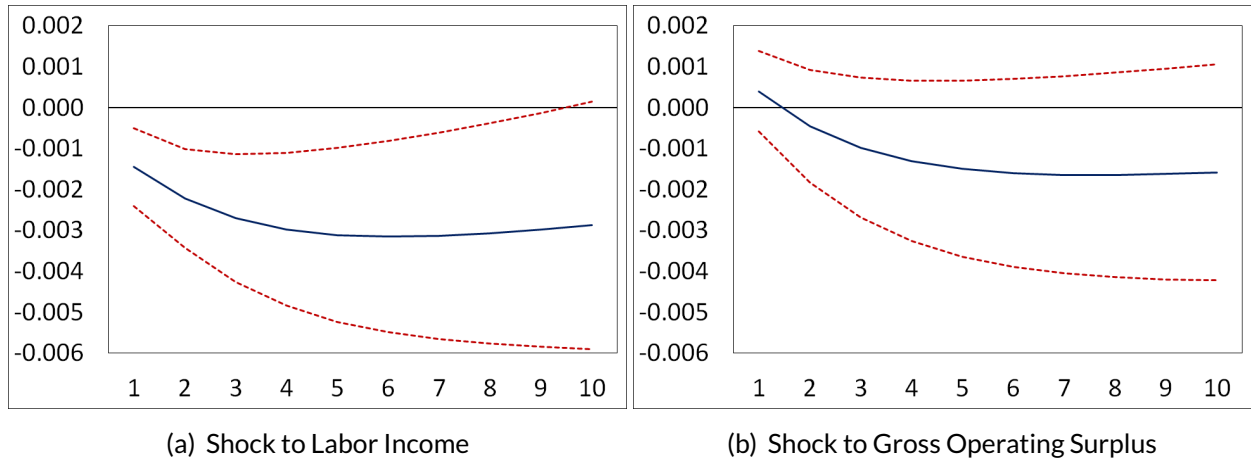
Note: The figure shows a decomposition of the deflated labor income into permanent (PC) and transitory (TC) components (shown in per cent). In particular, for a random variable z define a transitory component (τ) and a permanent component (p) such that $\ln z_t = \tau_t^z + p_t^z$. This decomposition is obtained by estimating an univariate unobserved component model on $\ln z_t$ which, in turn, is assumed to follow a random walk process with a drift.

Figure 4: Decomposition of Gross Operating Surplus



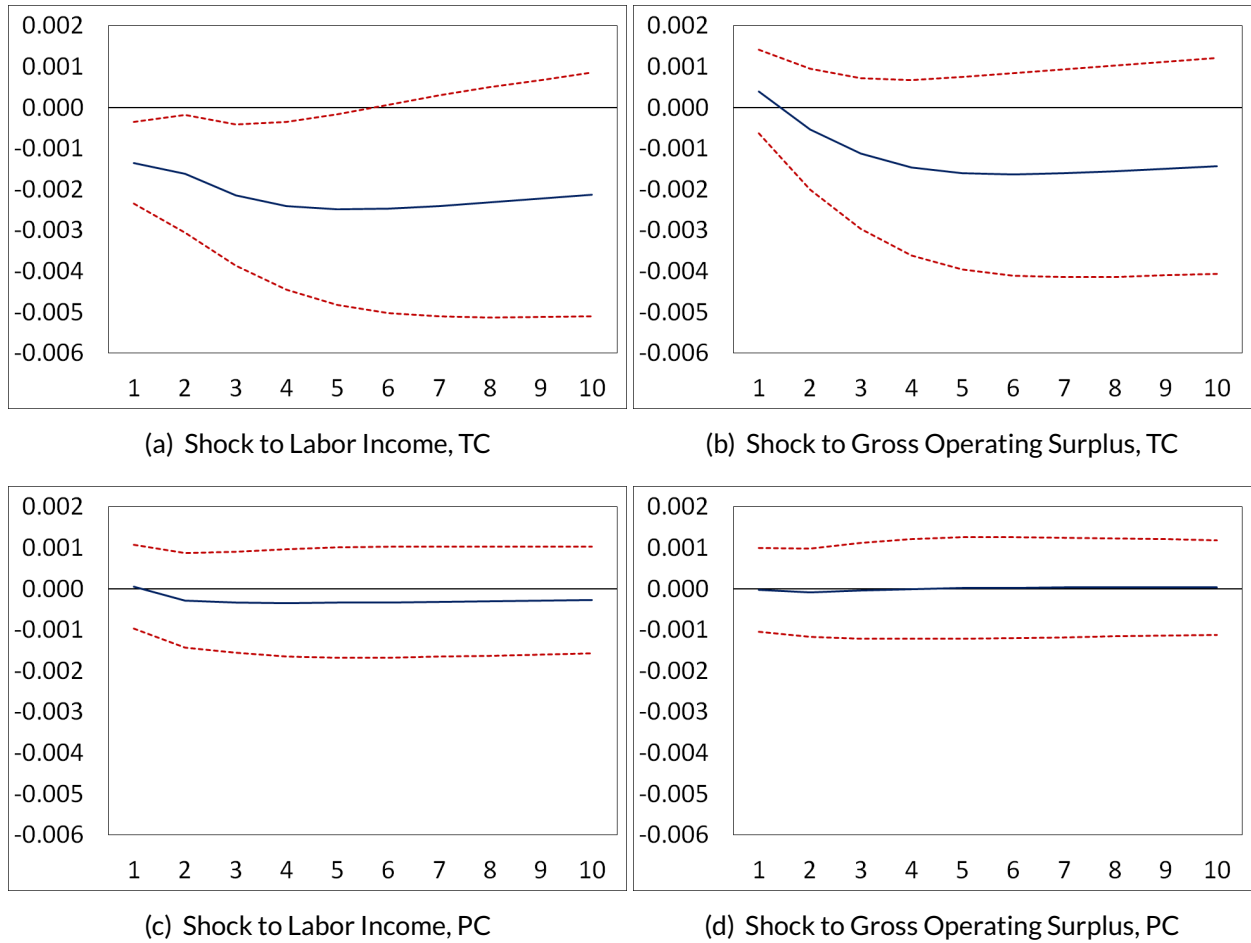
Note: The figure shows a decomposition of the deflated gross operating surplus into permanent (PC) and transitory (TC) components (shown in per cent). In particular, for a random variable z define a transitory component (τ) and a permanent component (p) such that $\ln z_t = \tau_t^z + p_t^z$. This decomposition is obtained by estimating an univariate unobserved component model on $\ln z_t$ which, in turn, is assumed to follow a random walk process with a drift.

Figure 5: Generalised Impulse Response from an Unrestricted VAR



Note: The figure shows the generalised impulse responses functions of the euro area current account to GDP ratio to one standard error shock in the corresponding equation. The dotted lines represent two standard error bands.

Figure 6: Generalised Impulse Response from an Unrestricted VAR, Extended



Note: The figure shows the generalised impulse response functions of the euro area current account to GDP ratio to one standard error shock in the corresponding equation. TC stands for the transitory component of the given variable, while PC stands for the change in the permanent component of the given variable. These have been obtained by estimating an univariate unobserved component model. The dotted lines represent two standard error bands.

Table 1: Income and the Current Account

	(1)	(2)	(3)	(4)
GDP	-0.203 (0.078)**		-0.214 (0.078)***	
Labor Income		-0.496 (0.135)***		-0.699 (0.136)***
Gross Operating Surplus		0.037 (0.035)		0.068 (0.033)**
Lagged Dependent Variable			-0.077 (0.110)	-0.183 (0.101)*
Constant	0.001 (0.001)**	0.002 (0.001)***	0.001 (0.001)**	0.003 (0.001)***
Observations	77	77	76	76
R-squared	0.082	0.163	0.098	0.278

Note: The dependent variable in all regressions is the quarter-on-quarter difference in the current account to GDP ratio of the euro area. GDP is the growth rate of deflated gross domestic product; Labor Income is the growth rate of deflated labor income; operating surplus is the growth rate of deflated gross operating surplus of nonfinancial corporations; Current Account (-1) is the lagged difference of the current account to GDP ratio. All specifications are estimated by OLS. ***, **, * indicate significance at 1, 5, and 10 per cent.

Table 2: Transitory vs Permanent Income Shifts and the Current Account

	(1)	(2)	(3)	(4)
GDP, TC	-0.071 (0.095)		-0.047 (0.098)	
GDP, PC	-0.162 (0.091)*		-0.199 (0.098)**	
Labor Income, TC		-0.445 (0.145)***		-0.446 (0.145)***
Labor Income, PC		0.014 (0.143)		-0.067 (0.161)
Gross Operating Surplus, TC		0.062 (0.035)*		0.065 (0.035)*
Gross Operating Surplus, PC		-0.063 (0.036)*		-0.057 (0.037)
Lagged Dependent Variable			-0.117 (0.118)	-0.127 (0.119)
Constant	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)*	0.001 (0.001)
Observations	75	75	75	75
R-squared	0.101	0.211	0.113	0.224

Note: The dependent variable in all regressions is the quarter-on-quarter difference in the current account to GDP ratio of the euro area. GDP is the growth rate of deflated gross domestic product; Labor Income stands for deflated labor income; operating surplus stands for deflated gross operating surplus of nonfinancial corporations; Current Account (-1) is the lagged difference of the current account to GDP ratio. TC stands for the transitory component of a given variable, while and PC stands for the change in the permanent component of a given variable. These have been obtained by estimating an univariate unobserved component model. All specifications are estimated by OLS. ***, **, * indicate significance at 1, 5, and 10 per cent.