

The 30th anniversary of the Maastricht Treaty “The Past, Present and Future of European Integration”

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Estimating Causality Between Trade and Budget Balances, Fiscal Expansion, and Austerity:

Suggestions for a New European Rulebook for Heterogenous Cross-Country Governance

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Introduction

European Integration project was designed on the premise that the four freedoms would lead to a single market and ensure convergence of cross-country per capita incomes and growth rates (Rubinić & Tajnikar, 2020).

Thirty years following the signing of the Maastricht treaty in 1992, we know it is not so.

Neoclassical economists have argued that this resulted from “fiscal profligacy” and rigid labor markets. However, fiscal austerity, declining wages, and labor market deregulation during the last twelve years in weak economies did not bring the economies of the EU closer.

Based on the **Ricardian Equivalence Hypothesis – REH** (Barro, 1974; Buchanan, 1976), this theory implies **absence of any causal relationships between budget and trade deficits.**

Keynesian Economists have argued the opposite. Fiscal discipline is responsible for the persistent and increasing gaps between European Economies. In their view, weak economies should be left to run budgetary deficits to catch up with the others, and the EU should create a mechanism to absorb the cost of convergence. The latter is no other than the financing of increasing trade deficits in these countries.

Introduction

The Keynesians rely on two assumptions: (1) **“Twin deficit hypothesis”** holds
(2) **Causality runs from fiscal to trade deficits.**

Persisting trade deficits that strongly correlate with budget deficits, referred to as the “twin deficit hypothesis”, is inconsistent with the neoclassical theory. In other words, when “twin deficits prevail” the Ricardian Equivalence Hypothesis does not hold.

Recent empirical works for Greece (Kalou & Paleologou, 2011; Stravelakis, 2022) shows that the causality runs from fiscal to current account deficits. If this holds for other countries, it brings about additional analytical, and policy implications since both the neoclassical and Keynesian stories cannot be considered stylized facts.

The latter is known as the **Current Account Targeting Hypothesis - CATH** (Abell, 1990; Kearney & Monadjemi, 1990; Fountas & Tsoukis, 2000), which suggests that there exists a **causality running from trade to budget deficits.**

Finally, there could be a **bi-directional causality** between the budget and trade deficits.

Hence, our paper aims to estimate the causality between European countries' fiscal and current account deficits and discuss the findings' main analytical and policy implications.

Theoretical Underpinnings

The neoclassical **REH** is a dynamic version of the “Pigou effect”, where an adjustment in private savings is expected to offset any increase in public debt resulting from running fiscal deficits. In this world, the fiscal multiplier is practically zero, and the trade and budget deficits are expected to be uncorrelated.

The current account will balance from an adjustment in the exchange rate and in a common currency area by adjustments in wages and prices. This is the ground for “internal devaluation” policies regarding countries with a competitive disadvantage.

In 2009, Dominic Straus Khan (IMF's Director), used the term "internal devaluation" to explain the Greek Fiscal Adjustment Program's objective to reduce wages to eliminate the Greek current account balance. The same logic was used to justify the Irish and Portuguese adjustment programs and the EU countries common fiscal rules.

The **Keynesians** rely on the notion of the multiplier, where the rate of savings is constant and fiscal expansion stimulates growth. But accelerated growth comes at a cost. Weak economies will experience increasing trade deficits, especially in the Eurozone. In this regard, Keynesian economists (Mazier & Valdecantos, 2019) have proposed Euro–Bancor solutions for clearing the EU countries’ current account balances.

Theoretical Underpinnings

For the identification of “twin balances” and excess demand (E) from the NIPA accounts, we use:

$$E_t = D_t - Sup_t = (C_t + I_t + G_t + X_t) - (Y_t + M_t) = (C_t + I_t) - (Y_t - T_t) + (G_t - T_t) + (X_t - M_t) \quad (1)$$

Equation (1) states that excess demand is demand (D) minus supply (Sup). It is equal to the sum of three balances **a)** consumption (C) plus investment I, minus disposable income [GDP (Y) minus taxes (T)], **b)** the budget primary balance i.e., expenses (G) minus taxes (T), and **c)** the current account balance ($X_t - M_t$)

Equation (1) appears as an identity in the NIPA accounts with the following form:

$$C_t + (I_t - E_t) - (Y_t - T_t) + (G_t - T_t) + (X_t - M_t) = (C_t + I_t - \Delta INV_t) - (Y_t - T_t) + (G_t - T_t) + (X_t - M_t) = 0 \quad (2)$$

The difference between equations (1) and (2) is that in (2) excess demand (supply) is reflected on undesired changes in inventories ΔINV_t . Assuming that undesired changes in inventories will be zero on average equation (2) can be written as follows:

$$(G_t - T_t) = (M_t - X_t) - (I_t - S_t) \text{ and } Y_t - T_t - C_t = S_t = \textit{savings} \quad (3)$$

Theoretical Underpinnings

Starting from equation (3) the “new Cambridge hypothesis” assumes that private balances ($I_t - S_t$) are stable and very small, therefore they can be ignored. This way they arrive at the “twin balance hypothesis”. However, the analytical model applied (Godley and Cripps 1983) is unstable. **Shaikh (2012) proposed an analytical solution where private balances react to the rate of growth.**

In this case equation (3) is modified as follows:

$$\frac{(G_t - T_t)}{Q_t} = \frac{(M_t - X_t)}{Q_t} - a \cdot (1 - \tau) \cdot g_{Q_t} \text{ and } \frac{(I_t - S_t)}{Q_t} = a \cdot (1 - \tau) \cdot g_{Q_t} \quad (4)$$

The Shaikh’s solution suggests that the fiscal multiplier varies, and its price is limited by profitability. This approach is associated with the theory of “absolute advantage” in international trade. The later implies that countries experience periods of persistent structural current account deficits/surpluses. In this context the fiscal balance is expected to reflect the country’s competitive position.

In other words, if/ where structural trade deficits prevail, and private balances are relatively stable we anticipate causality to run from the right to the left-hand side of equation (4).

In the econometric test we have used the current account balance and not the trade balance because in several EU countries service imports/exports are an important part of the GDP. Finally, the balance of transfer payments (included in the current account balance) follow the balance of trade, therefore it does not affect the results.

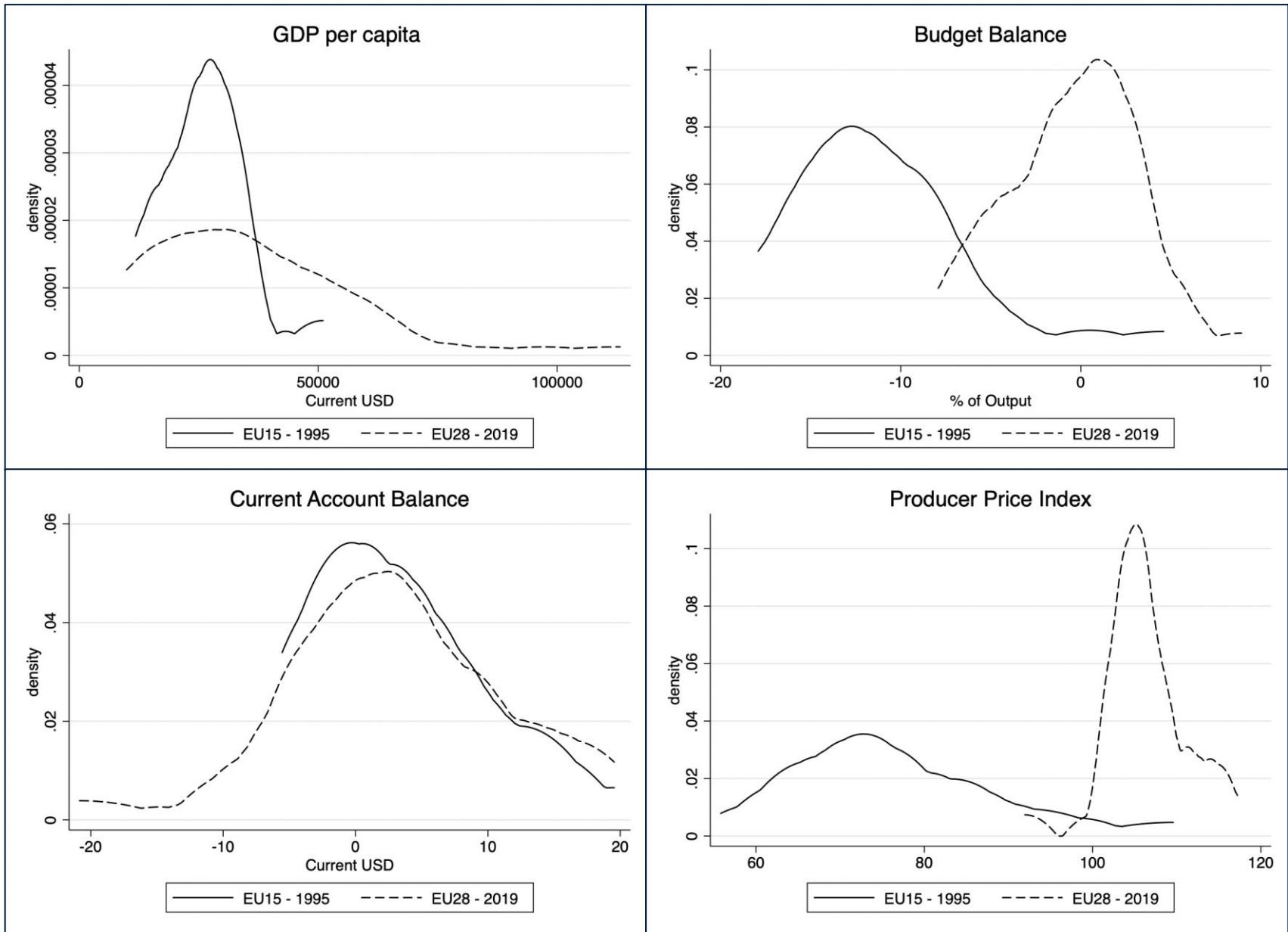
Data Issues

The empirical analysis eleven European Union's member states, and consists of annual data for the period between 1995 and 2019. The study employs the following variables:

Name	Description
Gross output (Q_t)	Difference between GDP and the sum of consumption of fixed capital, taxes on production and imports, less subsidies, imputed housing rentals, and gross value added in public administration activities. Following Shaikh and Tonak (1994), these deductions correct estimating the business sectors' net economic output for imputed fictitious components.
Budget balance (BD)	Difference between government revenues and expenditures, as a percentage of gross output.
Current account (CA)	Balance on current transactions, defined as the difference between the value of exports of goods, services, income and current transfers and the value of imports of goods, services, income and current transfers, as a percentage of gross output.
Producer Price Index (PPI)	Commonly referred to as output price index, PPI is a business-cycle indicator showing the development of transaction prices for the industrial output of economic activities.

The main sources of data are European Commission (Eurostat and AMECO databases), Organization for Economic Cooperation and Development (OECD data), International Monetary Fund (IFS data), and World Bank (WDI data).

Kernel Density Plots of the Main Indicators



The Empirical Model

We analyze hypothesized effects through the following VCEM model:

$$\begin{aligned}\Delta Budget_Deficit_t &= \sigma + \sum_{i=1}^{k-1} \beta_i \Delta Budget_Deficit_{t-i} + \sum_{j=1}^{k-1} \phi_j \Delta Trade_Deficit_{t-j} + \sum_{m=1}^{k-1} \vartheta_m \Delta Output_{t-m} + \lambda_1 ECT_{t-1} + u_{1t} \\ \Delta Trade_Deficit_t &= \alpha + \sum_{i=1}^{k-1} \beta_i \Delta Budget_Deficit_{t-i} + \sum_{j=1}^{k-1} \phi_j \Delta Trade_Deficit_{t-j} + \sum_{m=1}^{k-1} \vartheta_m \Delta Output_{t-m} + \lambda_2 ECT_{t-1} + u_{2t} \\ \Delta Output_t &= \vartheta + \sum_{i=1}^{k-1} \beta_i \Delta Budget_Deficit_{t-i} + \sum_{j=1}^{k-1} \phi_j \Delta Trade_Deficit_{t-j} + \sum_{m=1}^{k-1} \vartheta_m \Delta Output_{t-m} + \lambda_3 ECT_{t-1} + u_{3t}\end{aligned}$$

Notes: $k-1$ = The lag length is reduced by 1
 β, ϕ, ϑ = Short-run dynamic coefficients of the model's adjustment to long-run equilibrium
 λ = Speed of adjustment parameter
 ECT = The error correction term

For cases lacking cointegration, we use an unrestricted VAR model.

All variables are stationary in their first differences.

VIF test ruled out multicollinearity, and number of lags was calculated using AIC criterion.

Breusch-Godfrey Serial Correlation LM Test ruled out autocorrelation in model with lagged dependent variable.

By performing Jarque Bera test we confirmed that errors are normally distributed.

“Ricardian equivalence” – no causal relationships between budget and trade deficits

Netherlands - Null Hypothesis	Obs	F-Statistic	Prob.
Trade deficit does not granger cause budget deficit	23	0.8881	0.4284
Budget deficit does not granger cause trade deficit	23	0.79685	0.466
Output does not granger cause budget deficit	23	0.11271	0.894
Budget deficit does not granger cause output	23	0.40217	0.6747
Output does not granger cause trade deficit	23	3.29181	0.0605
Trade deficit does not granger cause output	23	2.37706	0.1213

Twin deficit hypothesis – causality running from budget to trade deficits

Croatia - Null Hypothesis	Obs	F-Statistic	Prob.
Trade deficit does not granger cause budget deficit	21	1.17048	0.3719
Budget deficit does not granger cause trade deficit	21	3.66758	0.0357
Output does not granger cause budget deficit	21	1.14348	0.3826
Budget deficit does not granger cause output	21	0.38609	0.8145
Output does not granger cause trade deficit	21	3.14132	0.0553
Trade deficit does not granger cause output	21	1.20806	0.3574

The Results

Current account targeting hypothesis – causality running from trade to budget deficits

Greece - Null Hypothesis	Obs	F-Statistic	Prob.
Trade deficit does not granger cause budget deficit	21	10.1339	0.0008
Budget deficit does not granger cause trade deficit	21	1.35325	0.3069
Output does not granger cause budget deficit	21	0.88455	0.502
Budget deficit does not granger cause output	21	0.29815	0.87636
Output does not granger cause trade deficit	21	2.95176	0.0652
Trade deficit does not granger cause output	21	0.05758	0.993

Bi-directional causality –between budget and trade deficits

Finland - Null Hypothesis	Obs	F-Statistic	Prob.
Trade deficit does not granger cause budget deficit	22	2.73575	0.0803
Budget deficit does not granger cause trade deficit	22	3.05818	0.0607
Output does not granger cause budget deficit	22	3.32152	0.0486
Budget deficit does not granger cause output	22	0.89379	0.4671
Output does not granger cause trade deficit	22	3.5772	0.0394
Trade deficit does not granger cause output	22	0.20492	0.8914

The Results

Matrix of joint short-run and long-run effects

Ricardian equivalence

Belgium
Denmark
Netherlands

Twin deficit hypothesis

Austria
Croatia
Slovakia
Sweden

Czechia
France
Germany
Greece

Finland

**Current account targeting
hypothesis**

Bi-directional causality

The Conclusion

Our results explain why austerity and common fiscal rules (over past 30 year) did not deliver on promises. This is because:

- (1) Common fiscal rules apply to countries with balanced trade and/or competitive advantage but not to others. These mainly fall under the Ricardian Equivalence (no correlation) group.
- (2) For the countries where the “twin deficit” holds or causality runs bilaterally, fiscal expansion policies followed by a Euro–Bancor scheme for settling international transfers are appropriate.
- (3) In the “current account targeting group”, things are more complicated. When in deficit, it appears that these countries need a budget deficit to balance their economies. These Economies need to change their economic structure which may affect competition in the Union as a whole.
- (4) The examples of Germany (fiscal prudence) and Sweden (strong welfare state) indicate that maybe surplus countries can direct the causality between trade and budget balances through fiscal policy.

In short, **integration between independent countries is limited, and Federal rules are required to consolidate economies**. Using the small integration's (1992) single set of rules cannot be consistently and efficiently applied on the larger scale European integration (2022).

Therefore, updating the European economic backbone to transcend the shortcomings of the free market setting in a heterogeneous cross-country environment is a precondition for long-run sustainability, ensuring coherency between European institutional design and European values.

Thank You for Your Attention!

Questions, comments, or remarks?

For further questions, address the author using the information below:

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