

Structural change in times of increasing openness

Assessing path dependency in European economic integration

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Introduction and outlook I

- Presentation based on Gräbner *et al.* (2017, 2018)¹
- Does the European integration lead to convergence or divergence among the member states?
 - ▶ Integration here understood as an increase in economic and financial openness.
- We estimate the dynamic effects of openness shocks on 26 EU countries
 - ▶ Strong heterogeneity in the effects

¹Gräbner, Heimberger, Kapeller and Schütz: *Structural change in times of increasing openness: assessing path dependency in European economic integration*, [ICAE Working Paper](#); *Is Europe disintegrating? Macroeconomic divergence, structural polarization, trade and fragility*, [ICAE Working Paper](#).

Introduction and outlook II

- Based on these heterogeneous effect we develop a taxonomy of European economies
- European integration has given rise to different path-dependent developmental trajectories in the EU
- The differences are rooted in the evolution of technological capabilities in the member states.
- We propose interrelated policy measures to counteract structural polarization

Outline

1. The dynamic effects of European integration
2. A taxonomy of countries
3. Polarization among the country groups?
4. The technological roots of polarization
5. Policy measures and a way out (?)

The dynamic effects of European integration

- We use the method proposed by Jordà (2005) to construct impulse response functions
 - Shock variable: Membership in the EMU or pegging of currency
 - ▶ Lowered transaction costs of trading, harmonization of interest rates, increase of capital flows ...
 - ▶ Results are robust w.r.t. other globalization and openness indices such as KOF
 - Eight dependent variables:
 - ▶ GDP growth, unemployment, current account balance, capital accumulation²
 - ▶ the public debt to GDP, Gini of disposable income, the share of the financial sector in gross output, exports to GDP ratio.

²Real gross fixed capital formation/real net capital stock · 100

Data

- Unbalanced panel for 26 EU countries
 - ▶ all current EU member countries excluding Great Britain and Croatia
- Time period 1960-2016
- Data sources
 - AMECO (GDP growth, unemployment, public debt, capital accumulation)
 - Standardized World Income Inequality database (Gini)
 - World Bank (exports to GDP)
 - KLEMS database (share of finance in value added)

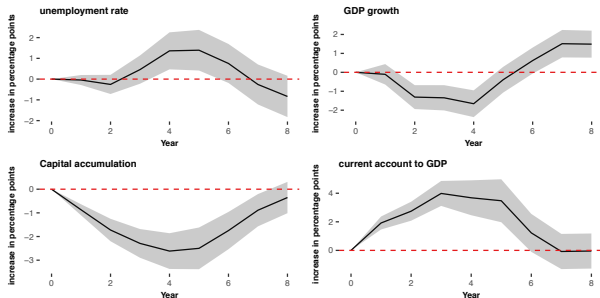
First estimation results

$$y_{i,t+k} - y_{i,t} = \beta^k OS_{i,t} + \gamma^k Z_{i,t} + \delta^k Z_{i,t} + \zeta_i^k + \eta_t^k + \epsilon_{i,t}^k \quad (1)$$

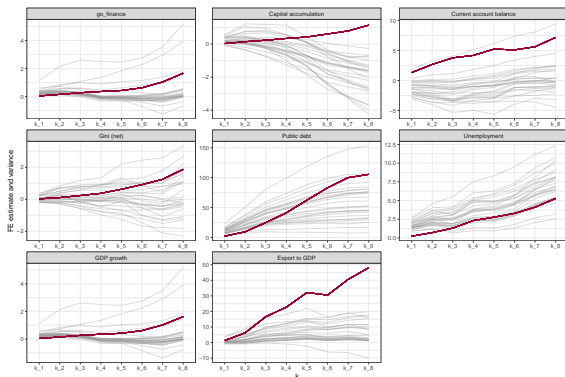
- $y_{i,t+k} - y_{i,t}$: projected future change of 'shock-dependent' variable y in country i from year t to year $t + k$.
- β^k : effect of the shock variable
- $Z_{i,t}$ control variables
- ζ_i^k country fixed effects
- η_t^k time fixed effects

Average effects example results

$$y_{i,t+k} - y_{i,t} = \beta^k OS_{i,t} + \gamma^k Z_{i,t} + \delta^k Z_{i,t} + \zeta_i^k + \eta_t^k + \epsilon_{i,t}^k \quad (2)$$



Heterogeneity of the results: FE estimates

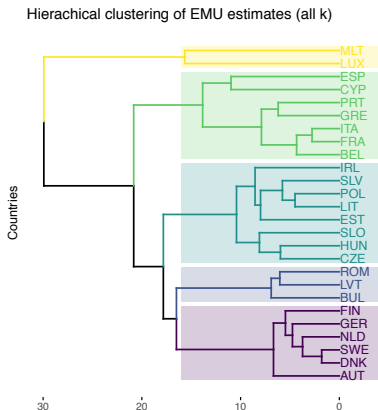


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Heterogeneity of the results

- We use the fixed effect estimates to cluster the countries
- Surprisingly intuitive results of a *hierarchical cluster analysis*:

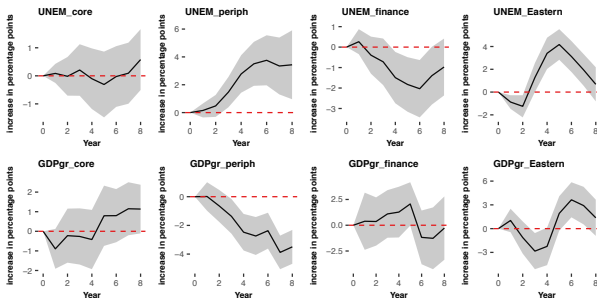


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The effects of openness revisited

- We now perform the initial estimations for the different country groups:



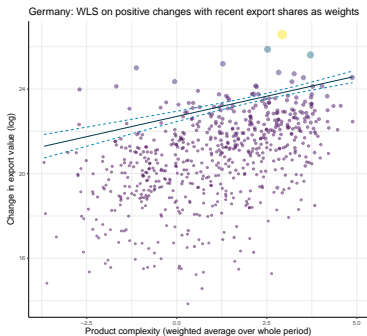
- Different effects of openness on the various country groups

Outline

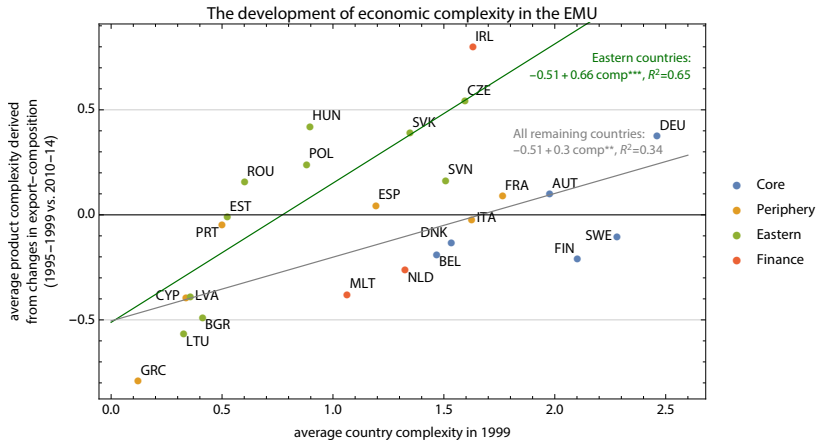
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Reasons for polarization

- We construct a measure for assessing the direction of technological change
- We compare trade volumes on the product level over two time periods
 - 1995-1999 (pre-Eurozone and pre-crisis)
 - 2010-2014 (post-Eurozone and post -crisis)
- We study whether export values change more drastically for more complex products
 - ▶ Technical details in the paper or appendix
- If our measure $\theta_c > 0$, more complex products become relatively more important for this country's export-basket.



- “Past success breeds further success and failure begets more failure” (Kaldor 1980)



■ The start position matters: technological change is strongly path dependent, reinforced by European integration

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Conclusion

- European integration impacts differently on EMU member states
- Increasing openness reinforces polarization
- The accumulation of technological capabilities play a decisive role for economic development
 - ▶ Interesting heterogeneity within clusters
- Policy measures must take path dependence and technological change into account

Our policy implications

