Business Cycle Convergence or Decoupling?
Economic Adjustment of CESEE Countries during the Crisis

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Overview

1. **Motivation**

2. **Business Cycle vs. Income Convergence**

3. **Data and Methods**

4. **Empirical Results**

   ▪ Cyclical heterogeneity in CESEE

   ▪ Decoupling from the euro area?

   ▪ Implications for the catching-up process

5. **Conclusions**

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Motivation

- **Wide-ranging economic coordination measures across the EU-27**

    - 2004/2007: EU accession of CESEE countries (Copenhagen criteria)

    - Since 2011:

        - **Fiscal policy:** strengthening the Stability and Growth Pact

        - **Structural policy:** Europe 2020 growth strategy

        - **Monetary policy:** common currency area for all EU countries in the long run

$\Rightarrow$ **Have GDP growth patterns of the CESEE countries and the euro area become more similar?**

$\Rightarrow$ **Does the adjustment process differ between large and small countries?**

$\Rightarrow$ **Has the Great Recession changed these patterns?**

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Two Main Literature Strands on Convergence

1. **Convergence of income (GDP per capita) – the long run**

   – Implies negative correlation between GDP-per-capita level and corresponding growth rates in the long run

   – Focuses on catching-up process of emerging market economies (EMEs)

2. **Convergence of business cycles – the short run**

   – Focuses on short-run fluctuations around long-run trend GDP

   – Particularly relevant as OCA meta-criterion

Convergence of Income:
Strong Catching-Up Process in CESEE since 2000

CESEE vs. EA countries (2000-2011)

Cumulative GDP p.c. growth in %

Legend: ◆ EA (12) ■ New EA (5) ▲ CESEE (8)
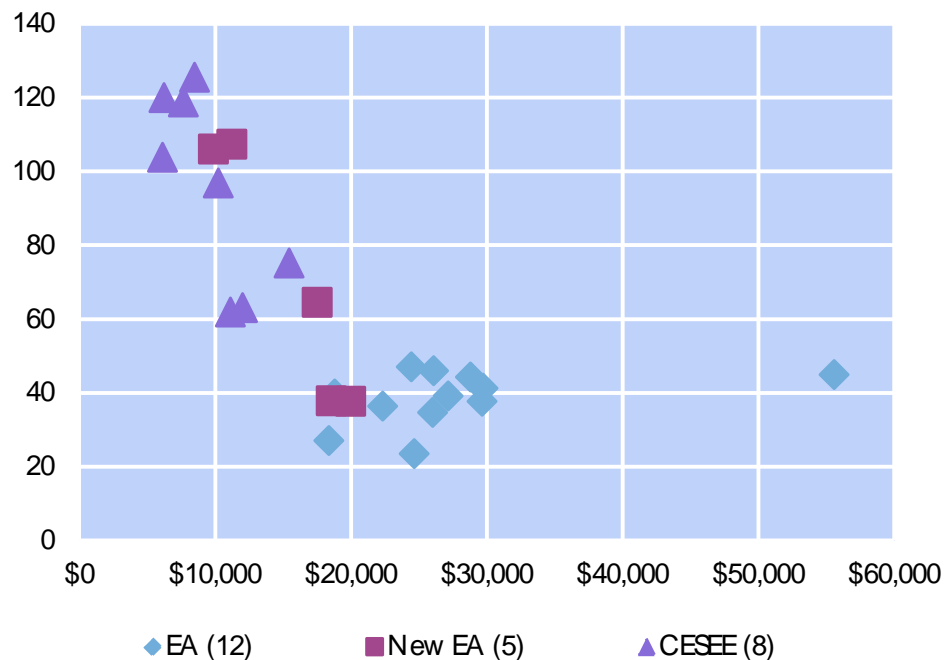
Source: IMF WEO Database (Oct. 2012), own calculations..

CESEE: small vs. large countries (2000-2011)

Cumulative GDP p.c. growth in %

Legend: ● Small CESEE (SI SK HR BG EE LV LT) ● Large CESEE (PL RO CZ HU)

Source: IMF WEO Database (Oct. 2012), own calculations.

Literature on Business Cycle Convergence

- **BC synchronization in Europe widely examined topic since the 1990s**
  - BC convergence in the euro area in 1990s, stabilization at high levels thereafter
  - E.g. Artis & Zhang (1999), de Haan et al. (2008)

- **Increased interest on CESEE region before EU enlargement**
  - High BC synchronization for some countries, lower for others
  - E.g. Fidrmuc & Korhonen (2006), Eickmeier & Breitung (2006), Darvas & Szapáry (2008)
  - BC fluctuations generally more pronounced in CESEE countries than in advanced economies (Benczúr & Rátfai, 2010)

Convergence of Business Cycles:
Increased Synchronization or Decoupling?

- **Decoupling hypothesis**

  - Kose et al. (2012): Decoupling of EMEs <u>from</u> advanced economies, but BC convergence <u>within</u> the two groups

  - **On the one hand…** increasing bilateral trade leads to higher BC synchronization (Frankel & Rose, 1998)

  - **But on the other hand…** rapidly rising income levels in EMEs expand domestic markets and reduce dependence on advanced economies.

- **Our contribution**

  - CESEE – euro area

  - Effect of the Great Recession

  - Small vs. large countries

Data and Methods

- **Data**

  - Quarterly real GDP (seasonally adjusted) from Q1 1999 to Q1 2012

  - Country sample: euro area (12), new euro area countries (5) and remaining CESEE EU Member States, including Croatia (8)

  - Eurostat
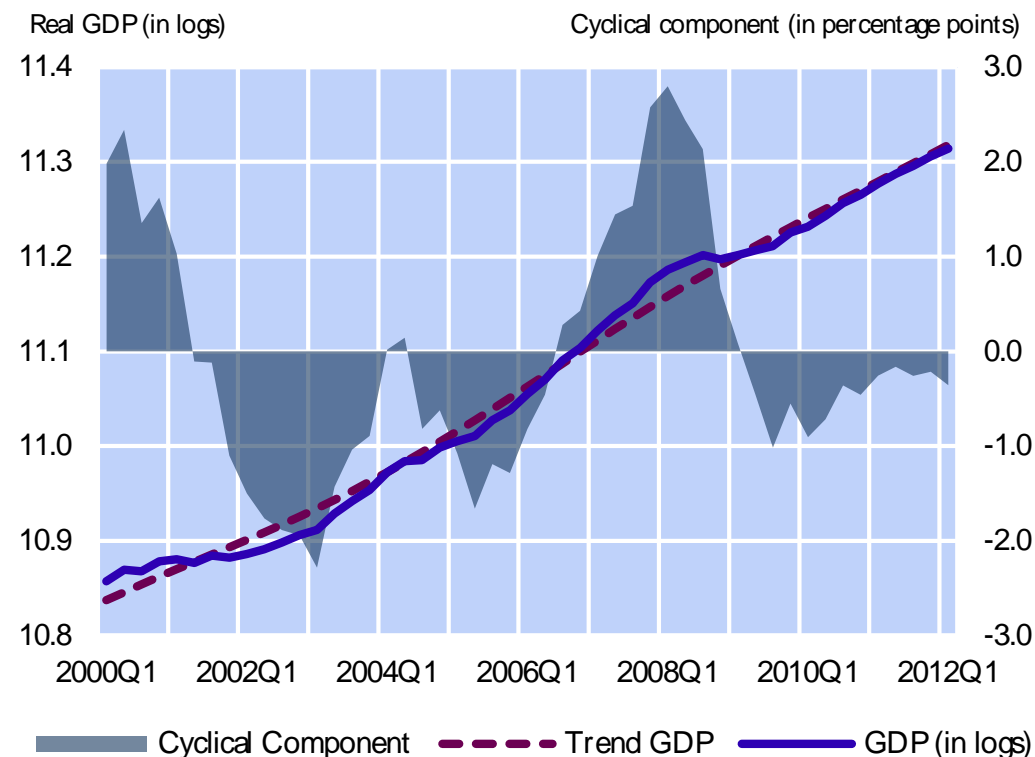
- **Decomposition method**

  - Hodrick-Prescott (1997) filter to calculate trend (potential) GDP and cyclical components

  - Purely statistical decomposition technique

  - Caveat: Estimates at the end of the sample period can be biased

Trend GDP versus Cyclical Component

GDP can be decomposed into

(i) trend GDP and

(ii) a cyclical component

(Log) GDP, Trend GDP and Cyclical Components

Real GDP (in logs)   Cyclical component (in percentage points)

Cyclical Component ─ ─ ─ Trend GDP ──── GDP (in logs)

Source: Eurostat, own calculations.

- 9 -

Measures of Business Cycle Synchronization

- **BC synchronization implies…**

  - that the cyclical components of two countries are moving up/down simultaneously, and/or

  - that the cyclical components show similar values at a given point in time.

  - Therefore, increasing BC synchronization is also referred to as BC convergence.

- **Accordingly, we use two different measures:**

  - **Correlation**: Strength of linear relationship between two time series of cyclical components (in two-year rolling windows)

  - **Dispersion:** Standard deviation of cyclical components across the examined country sample

More Pronounced BC Heterogeneity <u>across</u> CESEE than <u>across</u> Euro Area during Crisis

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Dispersion

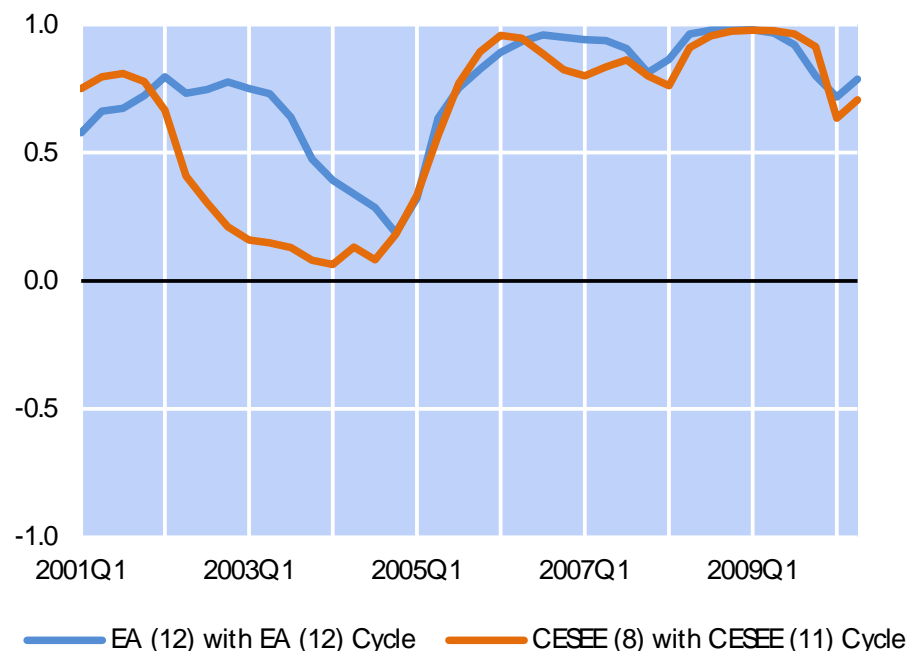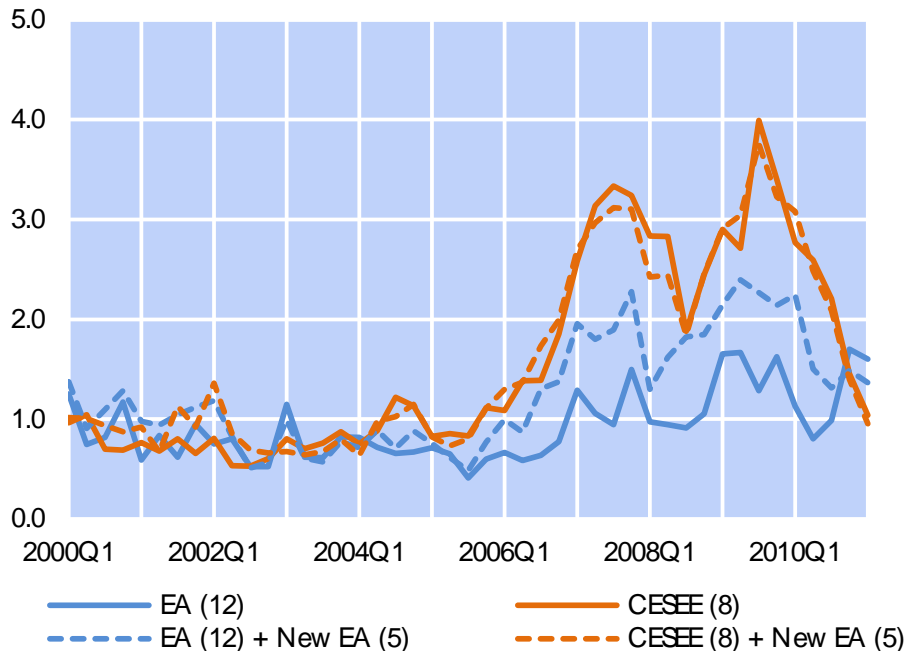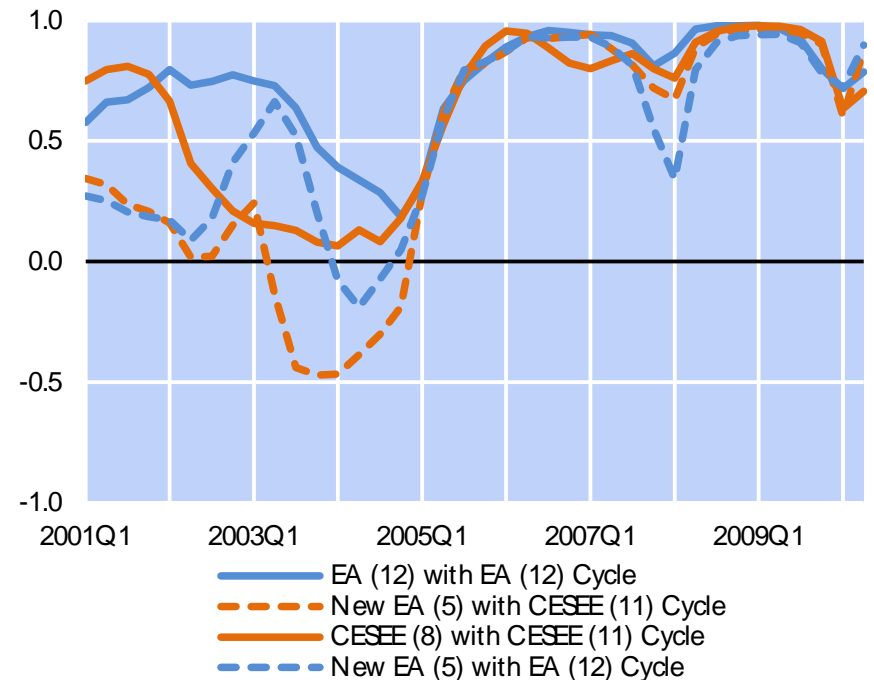Standard deviations of cyclical components

in percentage points

EA (12) — CESEE (8)

Source: Eurostat, own calculations.

Correlation

Average Correlation of individual country cycles

correlation coefficient

EA (12) with EA (12) Cycle — CESEE (8) with CESEE (11) Cycle

Source: Eurostat, own calculations.

More Pronounced BC Heterogeneity across CESEE than across Euro Area during Crisis

Dispersion

Standard deviations of cyclical components

in percentage points

Legend:
- EA (12)
- EA (12) + New EA (5)
- CESEE (8)
- CESEE (8) + New EA (5)

Source: Eurostat, own calculations.

Correlation

Average Correlation of individual country cycles

correlation coefficient

Legend:
- EA (12) with EA (12) Cycle
- New EA (5) with CESEE (11) Cycle
- CESEE (8) with CESEE (11) Cycle
- New EA (5) with EA (12) Cycle

Source: Eurostat, own calculations.

Larger Cyclical Swings in CESEE, Particularly in Smaller Countries
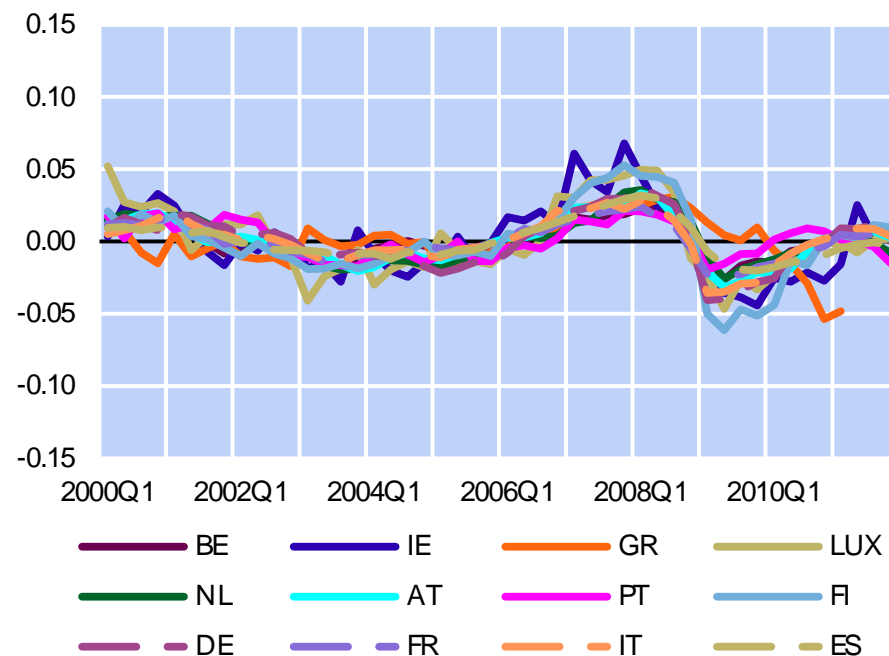
Individual CESEE (11) country cycles

Cyclical component

Legend:
SI, SK, HR, BG, EE, LV, LT, HU, PL, RO, CZ
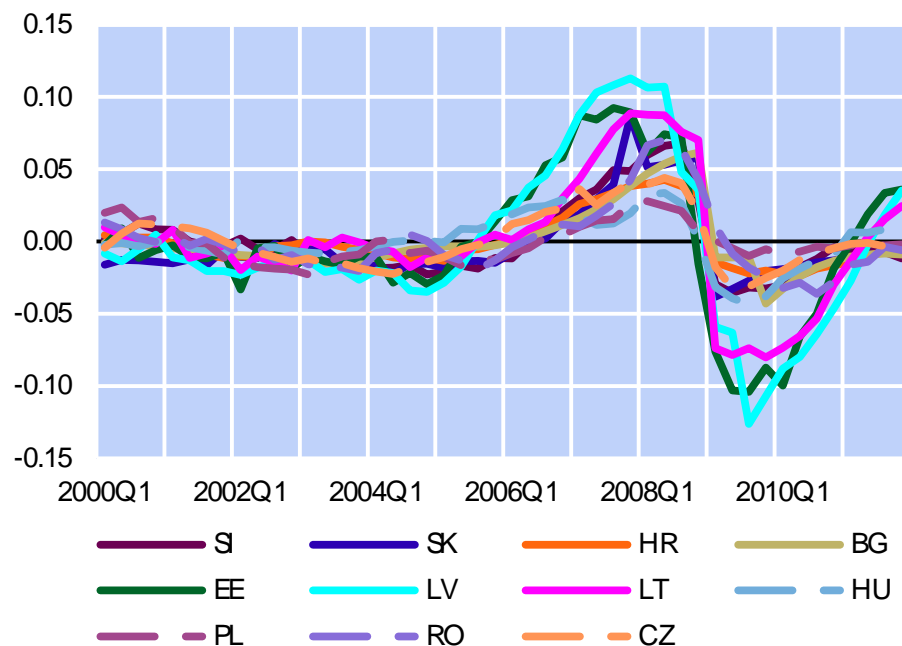
Source: Eurostat, own calculations.

Individual EA (12) country cycles

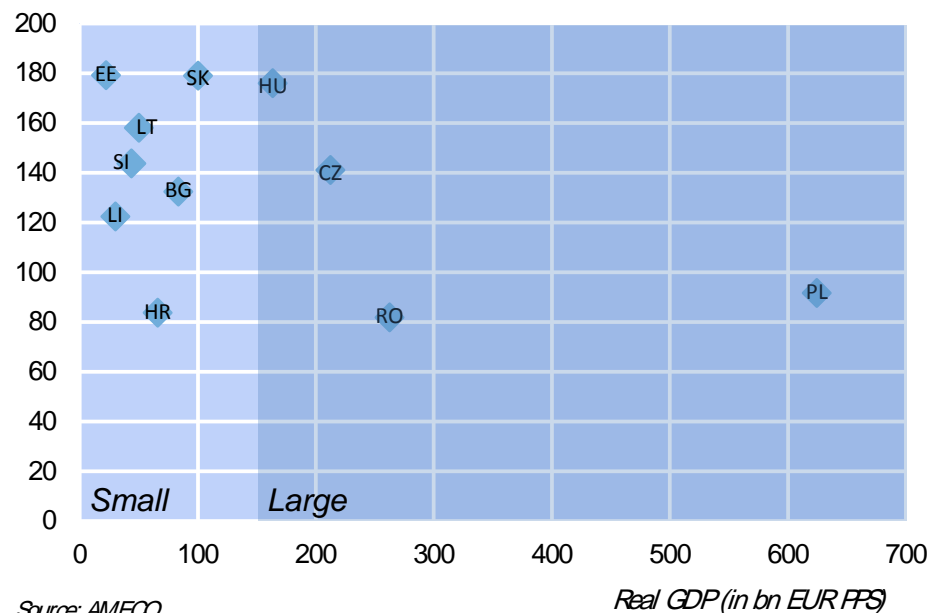*Cyclical component*

Legend:
BE, IE, GR, LUX, NL, AT, PT, FI, DE, FR, IT, ES

Source: Eurostat, own calculations.

Smaller Economies Tend to Be More Open

CESEE: Size and Openness of the economy (2011)

Trade (in % of GDP)

Source: AMECO.

Real GDP (in bn EUR PPS)

Euro Area: Size and Openness of the economy (2011)

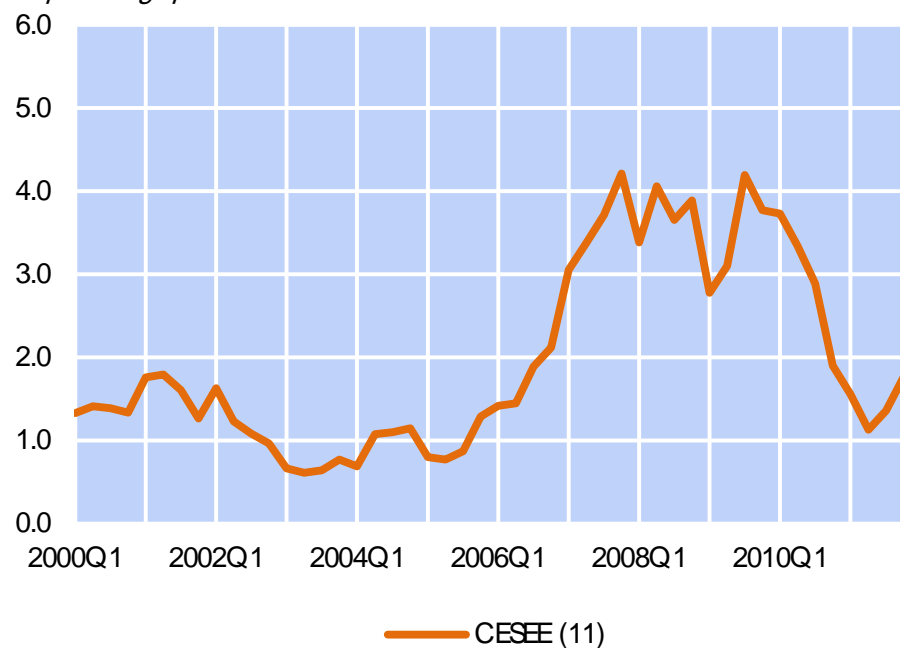Trade (in % of GDP)

Source: AMECO.

Real GDP (in bn EUR PPS)
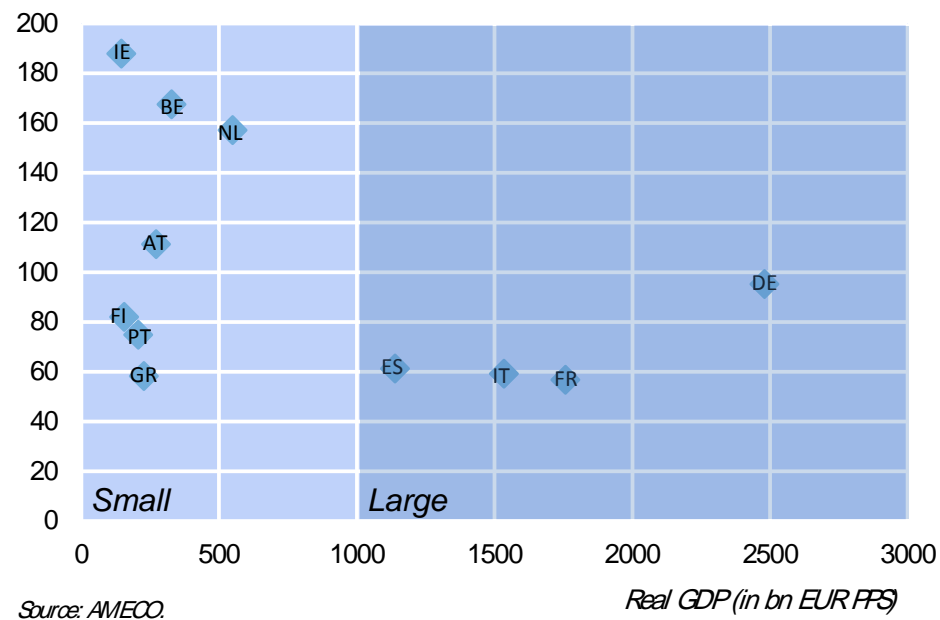
Decoupling of CESEE from the Euro Area …

Dispersion of the individual CESEE (11) cycles from EA (12) cycle

in percentage points

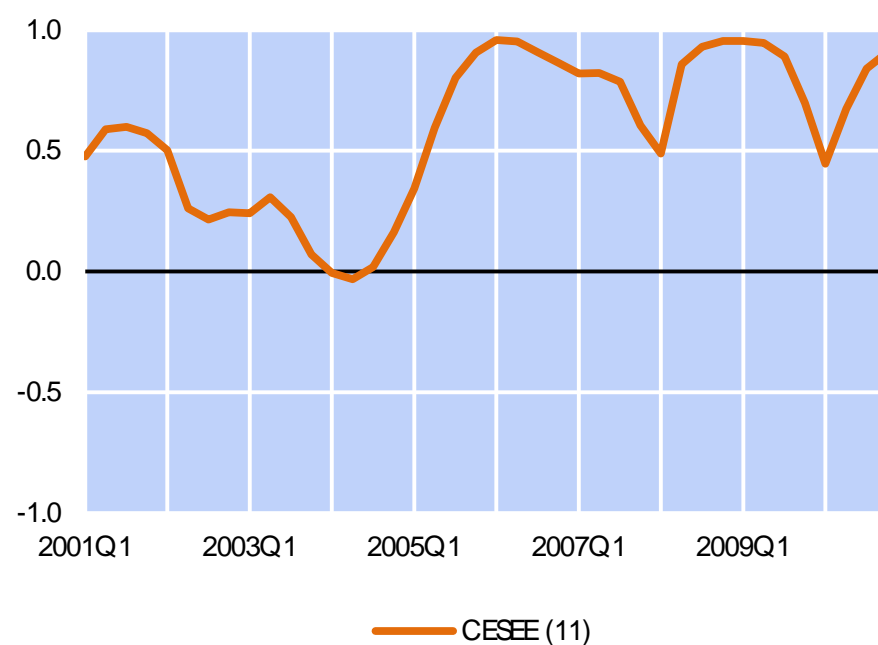CESEE (11)

Source: Eurostat, own calculations.

Correlation between the individual CESEE (11) cycles and the EA (12) cycle, 2-years rolling window
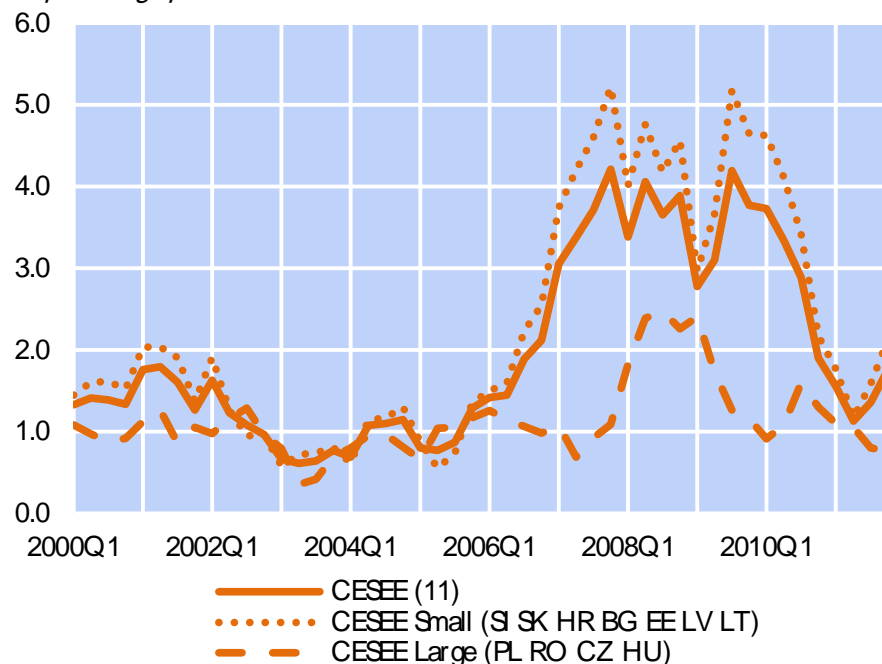
correlation coefficient

CESEE (11)

Quelle: Eurostat, own calculations.

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… Driven by Small Countries

Dispersion of the individual CESEE (11) cycles from EA (12) cycle

in percentage points

Legend:
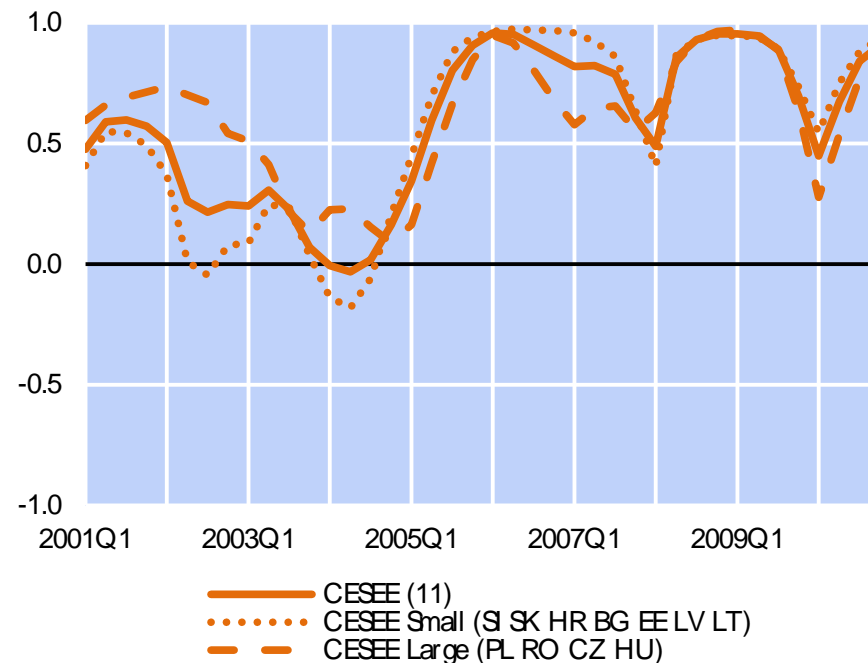- CESEE (11)
- CESEE Small (SI SK HR BG EE LV LT)
- CESEE Large (PL RO CZ HU)

Source: Eurostat, own calculations.

Correlation between the individual CESEE (11) cycles and the EA (12) cycle, 2-years rolling window
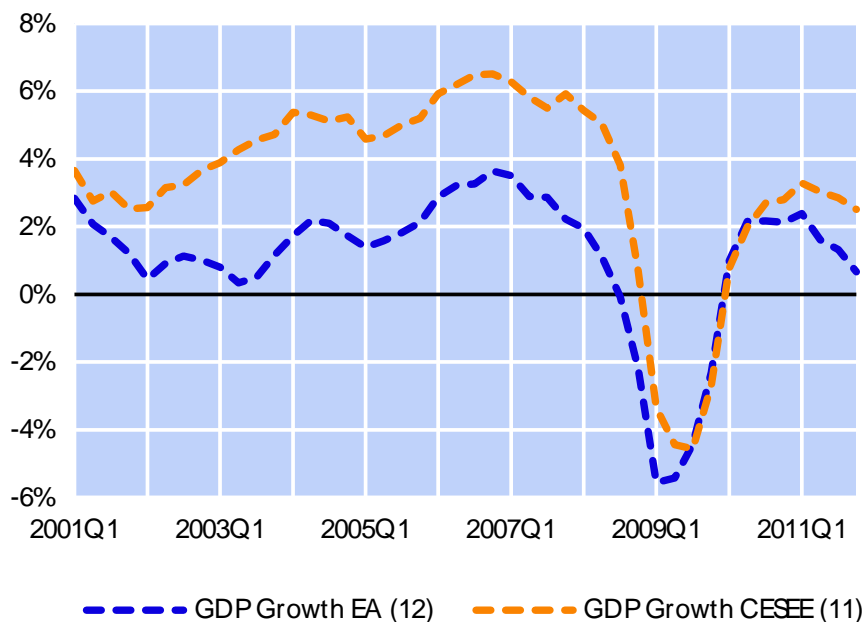
correlation coefficient

Legend:
- CESEE (11)
- CESEE Small (SI SK HR BG EE LV LT)
- CESEE Large (PL RO CZ HU)

Quelle: Eurostat, own calculations.

The Long-Run Perspective: Great Recession Leads to Lower Growth Differential

Real GDP Growth

Annual Growth (y-o-y)

Legend: GDP Growth EA (12) — GDP Growth CESEE (11)

Source: Eurostat, own calculations.

Growth Differential: CESEE (11) vs. EA (12)

in percentage points

Legend: Growth Differential

Source: Eurostat, own calculations.

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The Long-Run Perspective: Great Recession Leads to Lower Growth Differential

Real GDP Growth and Trend Growth Rates
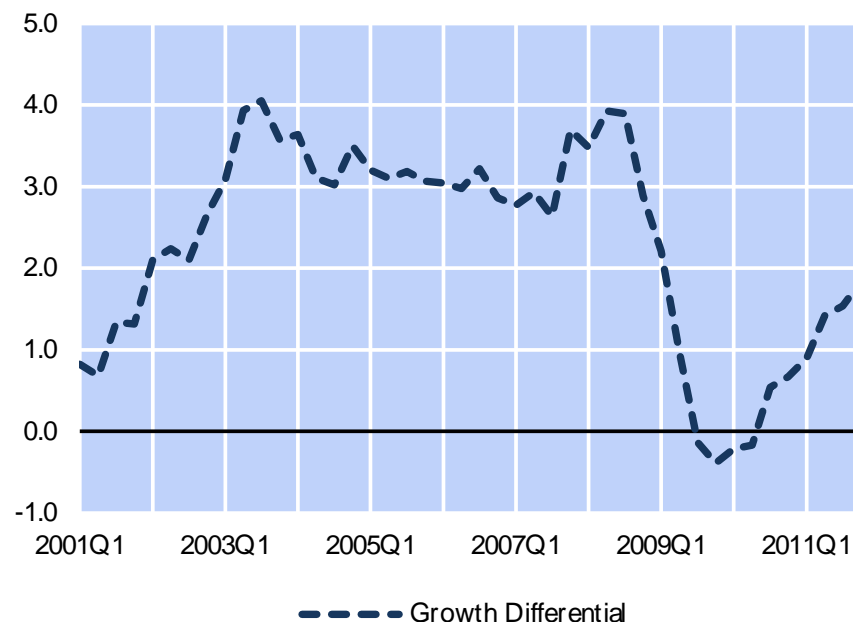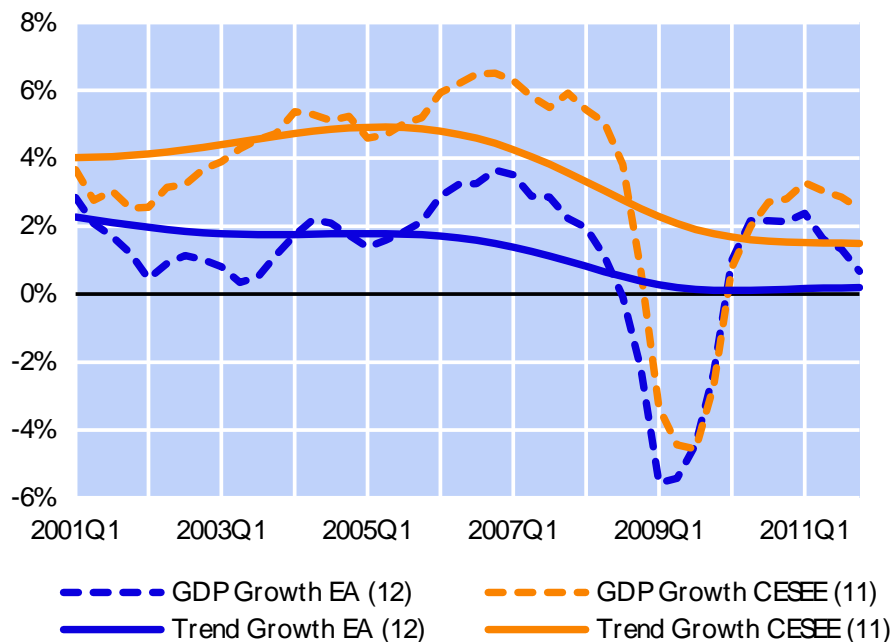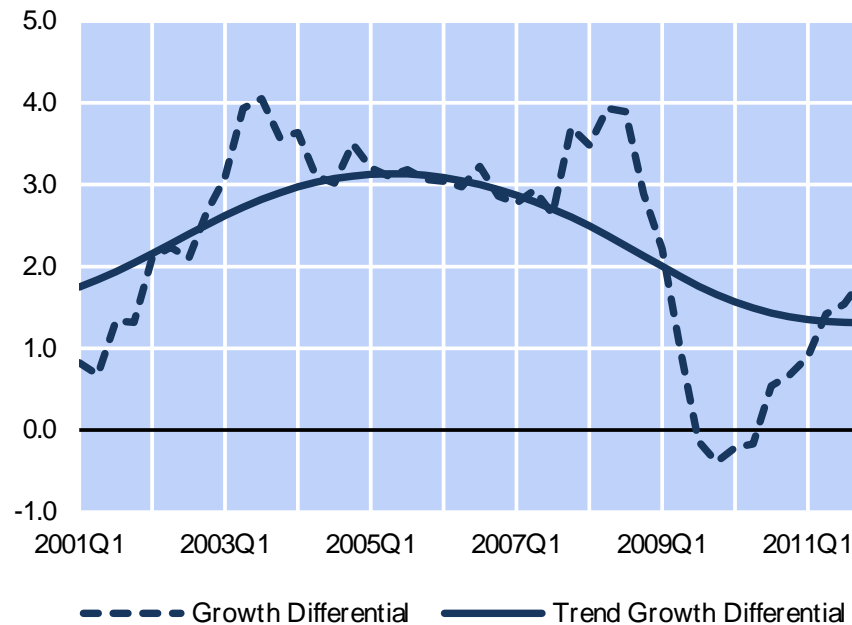
Annual Growth (y-o-y)

- - - GDP Growth EA (12)   - - - GDP Growth CESEE (11)
——— Trend Growth EA (12)   ——— Trend Growth CESEE (11)

Source: Eurostat, own calculations.

Growth Differential: CESEE (11) vs. EA (12)

in percentage points

- - - Growth Differential   ——— Trend Growth Differential

Source: Eurostat, own calculations.

Conclusions for the Short Run: BC Convergence

- **During the crisis, CESEE has become more heterogeneous than the euro area**

- **During the crisis, CESEE has decoupled from the euro area**

- **Decoupling is mainly driven by small countries**

- **Recoupling of CESEE "after" the crisis**

$\Rightarrow$ **Policy conclusion: Favorable preconditions for a common monetary policy**

Conclusions for the Long Run:
Income Convergence

- **Trend growth rates declined both in CESEE and the euro area**

- **Trend growth differential declined from 4 to 2 percentage points, but remains positive**

- **The still positive trend growth differential can be traced to the large CESEE economies, in particular Poland**

⇒ **Policy conclusion:** **Catching-up continues, but to a lesser extent than before the crisis**

Thank you for your attention!

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