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
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

⇒ Have GDP growth patterns of the CESEE countries and the euro area become more similar?

⇒ Does the adjustment process differ between large and small countries?

⇒ Has the Great Recession changed these patterns?
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 %


CESEE: small vs. large countries (2000-2011)
Cumulative GDP p.c. growth in %

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
  - 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 from advanced economies, but BC convergence within 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

Source: Eurostat, own calculations.
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 across CESEE than across Euro Area during Crisis

### Dispersion

**Standard deviations of cyclical components**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>EA (12)</th>
<th>CESEE (8)</th>
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</thead>
<tbody>
<tr>
<td>2000Q1</td>
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<tr>
<td>2002Q1</td>
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<td>2008Q1</td>
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<td>2010Q1</td>
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</tbody>
</table>

*Source: Eurostat, own calculations.*

### Correlation

**Average Correlation of individual country cycles**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>EA (12) with EA (12) Cycle</th>
<th>CESEE (8) with CESEE (11) Cycle</th>
</tr>
</thead>
<tbody>
<tr>
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*Source: Eurostat, own calculations.*
More Pronounced BC Heterogeneity across CESEE than across Euro Area during Crisis

**Dispersion**
Standard deviations of cyclical components

*Source: Eurostat, own calculations.*

**Correlation**
Average Correlation of individual country cycles

*Source: Eurostat, own calculations.*
Larger Cyclical Swings in CESEE, Particularly in Smaller Countries

Individual CESEE (11) country cycles

Individual EA (12) country cycles

Source: Eurostat, own calculations.
Smaller Economies Tend to Be More Open

CESEE: Size and Openness of the economy (2011)

Trade (in % of GDP)

Real GDP (in bn EUR FRS)

Source: AMECO

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

Trade (in % of GDP)

Real GDP (in bn EUR FRS)

Source: AMECO
Decoupling of CESEE from the Euro Area …

**Dispersion of the individual CESEE (11) cycles from EA (12) cycle**
in percentage points

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

Source: Eurostat, own calculations.

Quelle: Eurostat, own calculations.
… Driven by Small Countries

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

Source: Eurostat, own calculations.

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

Correlation coefficient

Source: Eurostat, own calculations.
The Long-Run Perspective: Great Recession Leads to Lower Growth Differential

Real GDP Growth

Annual Growth (y-o-y)

GDP Growth EA (12) | GDP Growth CESEE (11)

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

in percentage points

Source: Eurostat, own calculations.
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

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

⇒ 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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