The Eurostat business cycle clock and the pandemic: some considerations

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Outline

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1. Introduction

- Hard to extract key signals from dashboards containing numerous indicators
- Cyclical features often hidden when looking at PEEIs and more generally to official statistics
- Great interest of users in tools providing concise messages on the economic developments
- Cyclical developments indicated by Eurostat’s BCC tool for the euro area economy
- Challenges: detect turning points in the economy during exceptional times like the COVID-19 pandemic
1. The BCC tool: overview

• The BCC is a visualisation tool provided on the Eurostat website to convey information about the cyclical situation in the euro area and its member states

• Coincident cyclical indicators as the engine of the tool

• Different phases of economic developments are visualised using a clock-type graph

• Dynamic application
  • Evolution over the time
  • Cross-country comparison
... and corresponding composite indicators

- **Growth Cycle Coincident Indicator** (GCCI) provides the probability of a slowdown in the economy signals the peaks and troughs of the growth cycle.

- **Business Cycle Coincident Indicator** (BCCI) provides the probability of a recession signals the peaks and troughs of the business cycle.

- **Acceleration Cycle Coincident Indicator** (ACCI) provides the probability of a deceleration in the growth rate signals the peaks and troughs of the growth rate cycle.
A visual representation of the αABβCD approach

α: maximum of the growth rate
A: the growth rate slips below the trend
B: the growth rate becomes negative
β: minimum of the growth rate
C: the growth rate becomes positive
D: the growth rate overpasses the trend
Input variables for the coincident indicators

**Input variables for the MVMS models BCCl and GCCI:**

- Industrial production index (Eurostat)
- Unemployment rate (Eurostat)
- Manufacturing employment expectations for the months ahead (DG ECFIN/BCS)
- Financial situation of consumers over last 12 months (DG ECFIN)

*The Acceleration Cycle Coincident Indicator (ACCI) is estimated using:*

- Economic Sentiment Indicator (DG ECFIN)
3. Impact of the COVID-19 pandemic

- The industrial production index (IPI) recorded very large decreases in March and April 2020 followed by very large increases in May and June, rising above its pre-pandemic level in November.

- Economic sentiment indicator (ESI) plummeted between February and April 2020 and then rose above its pre-pandemic level only in March 2021.
  - New seasonal adjustment methodology introduced for ESI from April 2022.

- Job losses were unprecedented, though the decline was much more contained than the drop in economic activity.
Industrial production for the euro area (index rebased, 2020 Feb = 100)
Unemployment for the euro area (% of labour force)
ESI for the euro area
(long term average = 100)
4. Adapting the BCC methodology to unprecedented shocks

• The pandemic caused discontinuities in the indicators used as endogenous variables in the coincident indicators resulting in convergence issues when estimating the parameters

• In the case BCCI and GCCI:
  • no model re-specification made,
  • as a quick fix, IPI trimmed in order to reduce its volatility
  • at the later stage, intervention variables introduced

• In the case of ACCI:
  • the model changed to account for heteroscedasticity
  • the sum of the probabilities of the first two regimes used instead of the first regime alone
  • intervention variables introduced at the later stage
GCCI for the euro area – vintages (probabilities for slowdown)
BCCCI for the euro area – vintages (probabilities for recession)
ACCI for the euro area – vintages (probabilities for deceleration)
Current situation

• High uncertainty regarding future economic developments in the euro area mainly due to the Russian invasion of Ukraine
  • GDP grew by 0.3 % in Q4 2021, stable compared to Q1 2022
  • Industrial production fell in March below its pre-pandemic level
  • Annual inflation stood at 7.5 % in April, stable compared to the previous month
  • The economic sentiment indicator fell in April below its pre-pandemic level
• The Covid-19 variant omicron, however, had a short-lived impact
  • Excess mortality declined in EU
GDP in the euro area
Annual inflation for the euro area (% change compared to same month in previous year)
Excess mortality (% change in number of deaths compared to average of same months in 2016-2019)
The euro area economy moved from a deceleration phase in January-February to a slowdown phase in March 2022
7. Conclusions

• COVID impact: GDP back to pre crisis levels by the end of 2021
• Revisions were in general more limited than expected (some issues with seasonal adjustment)
• Models were adapted to cope with data volatility
• New challenge: Russian war of aggression against Ukraine
• First impact on data already visible
• High uncertainty: no “best” solution
Thank you for your attention
Additional slides
Different cycles ...

- **Classical Business cycle (Burns and Mitchell definition)**
  - Very relevant for detecting recessions
  - Less informative during (possibly) quite long expansion phases

- **Growth cycle (Output gap)**
  - Very relevant to understand the position with respect to the potential output
  - Anticipating business cycle peaks
  - Unable to detect the start and the end of recessions

- **Growth rate cycle (Acceleration cycle)**
  - Highest number of fluctuations/ High degree of volatility
  - Anticipating growth cycle peaks and business cycle troughs

- **The BCC jointly monitors the three cycles**
  - Growth cycle and Business cycle (ABCD sequence)
  - Also including Acceleration cycle (αABβCD sequence)
Combining the cyclical indicators to compute the hand clock position

Growth, Business and Acceleration cycle indicators give the hand position

Sector 1: Expansion, with decelerating growth
Sector 2 Slowdown
Sector 3 Recession
Sector 4 Recession, with accelerating growth
Sector 5 Recovery
Sector 6 Expansion, with accelerating growth