The Eurostat business cycle clock and the pandemic: some considerations

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Outline

- Introduction
- The BCC tool: overview
- Impact of the COVID-19 pandemic
- Adapting the BCC methodology
- Current situation
- Last signals from the BCC
- Conclusions

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

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… 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

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A visual representation of the αABβCD approach
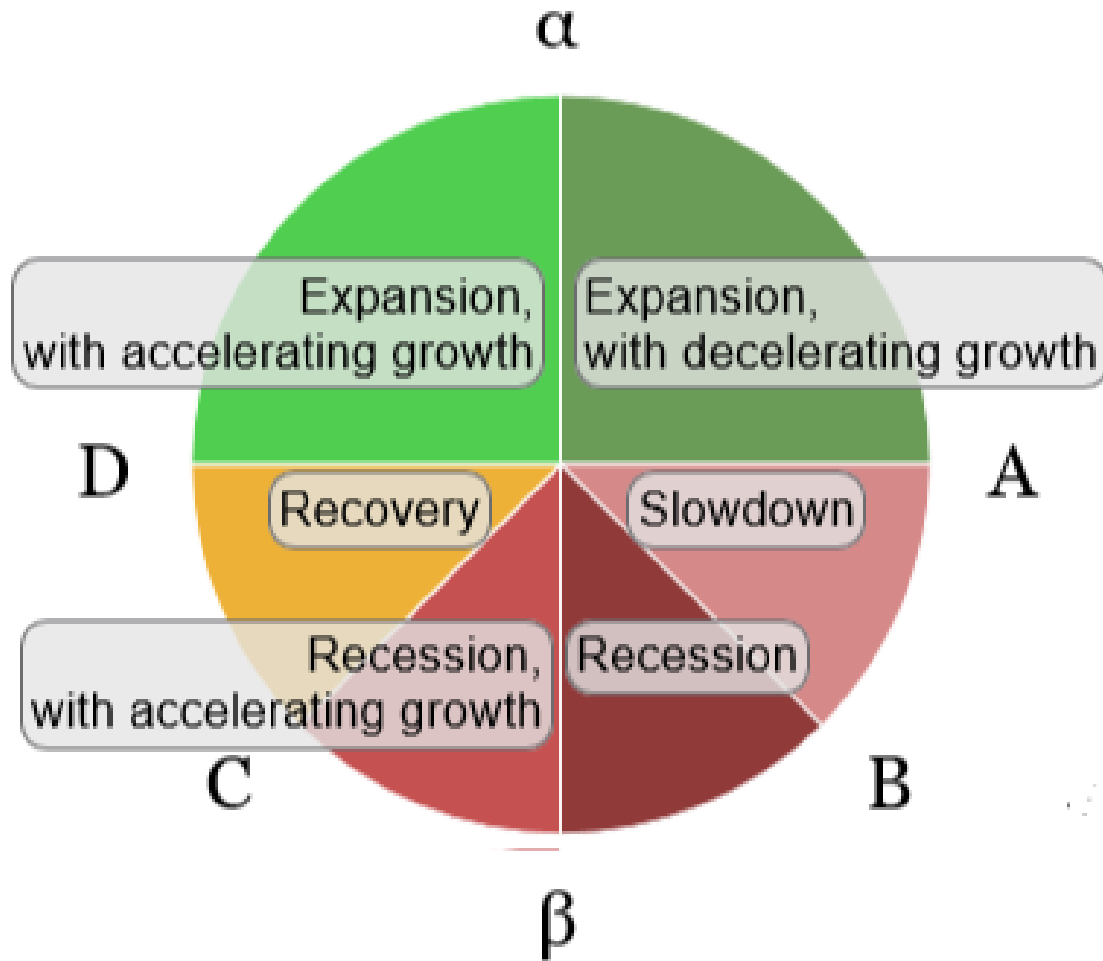
α: maximum of the growth rate

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 BCCI 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)

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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

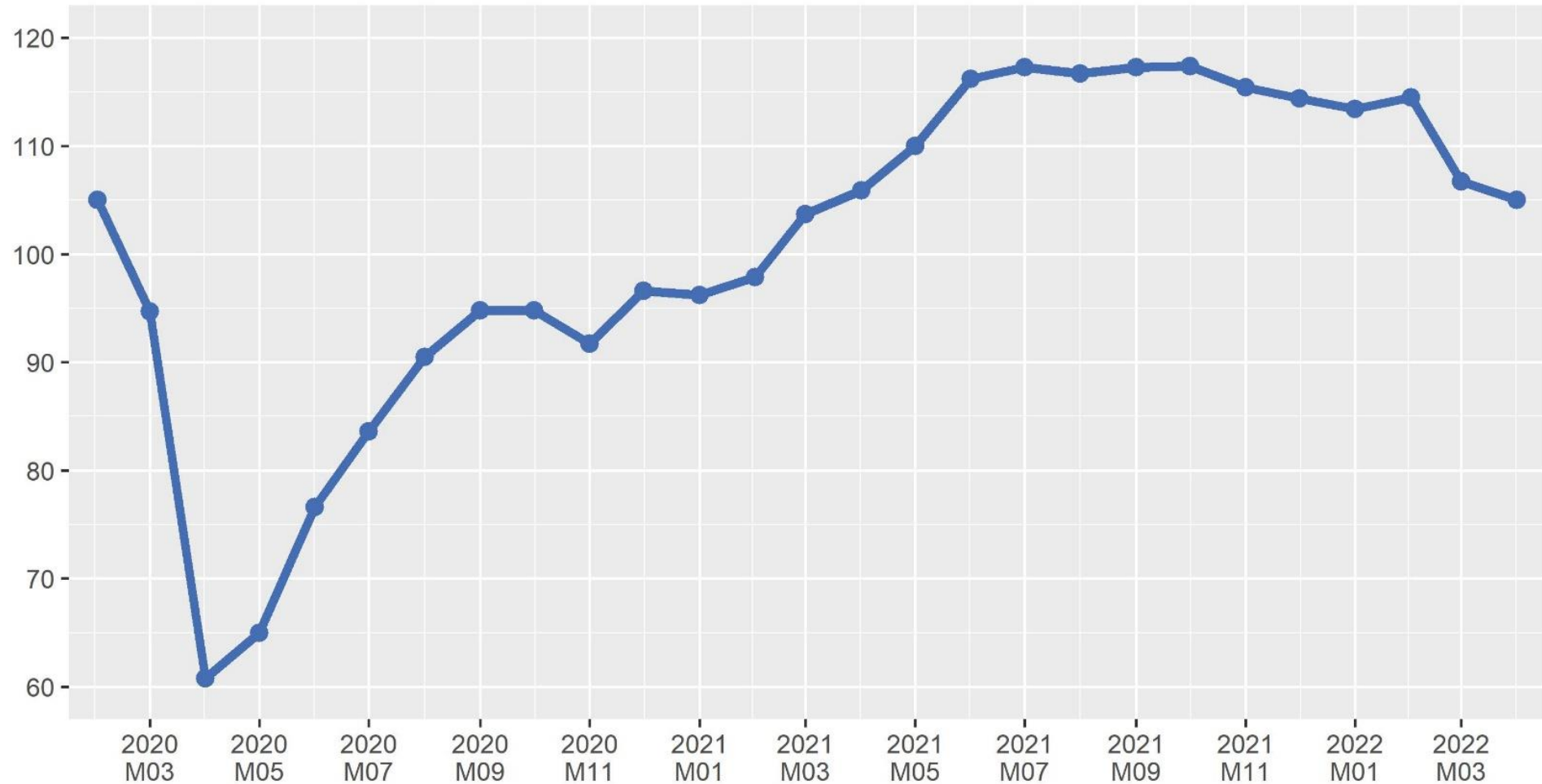- Job losses were unprecedented, though the decline was much more contained than the drop in economic activity

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Industrial production for the euro area (index rebased, 2020 Feb =100)
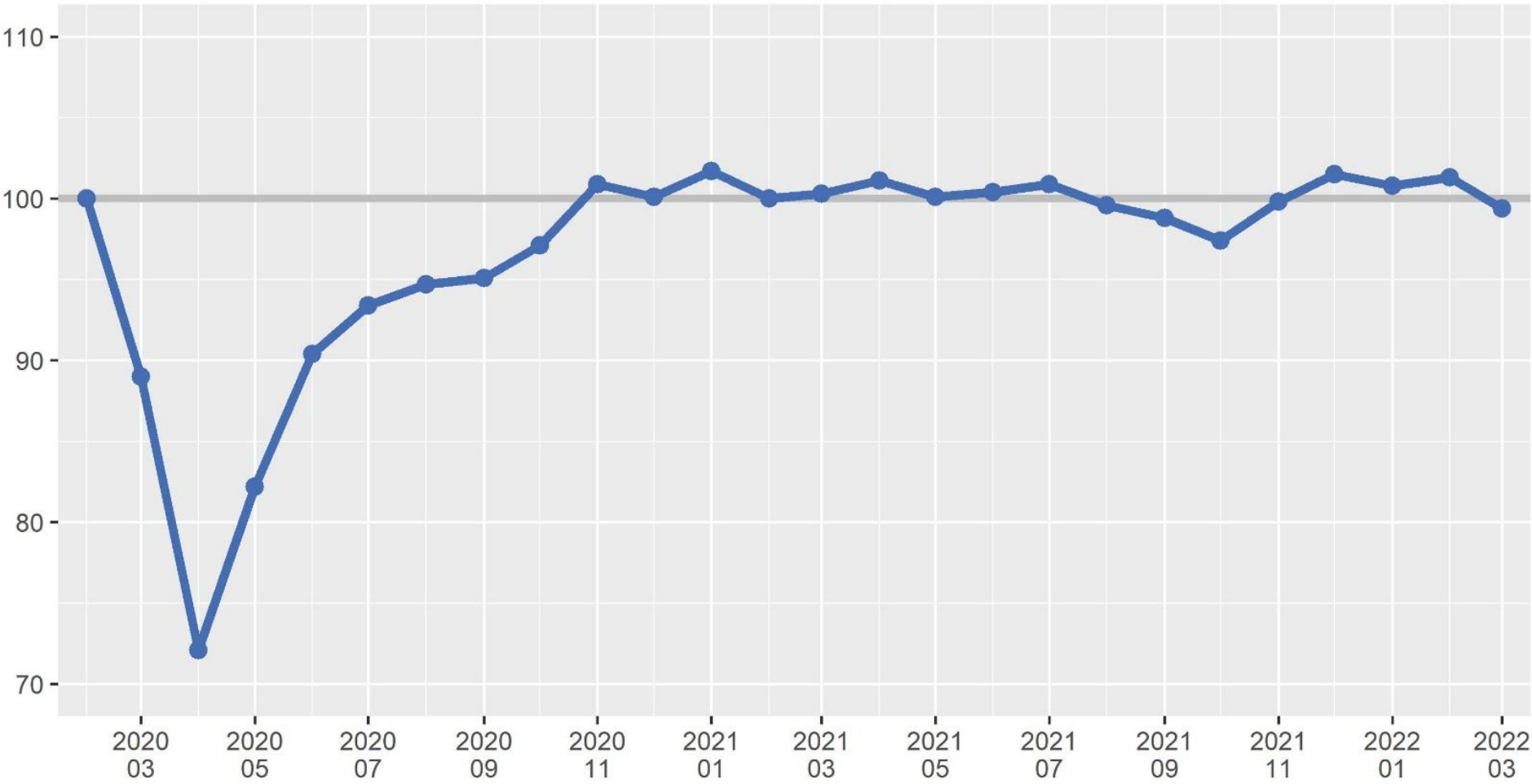
Unemployment for the euro area (% of labour force)
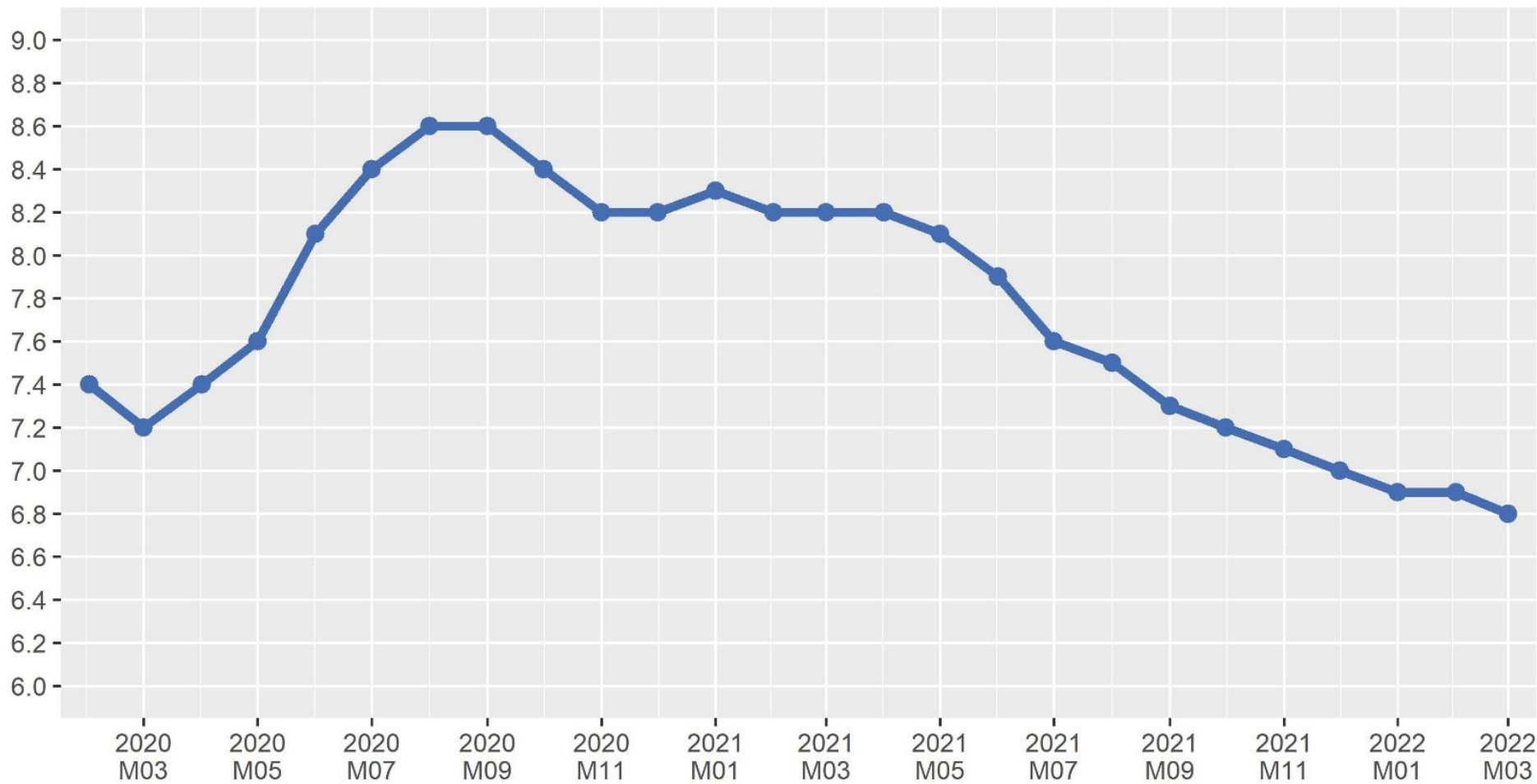
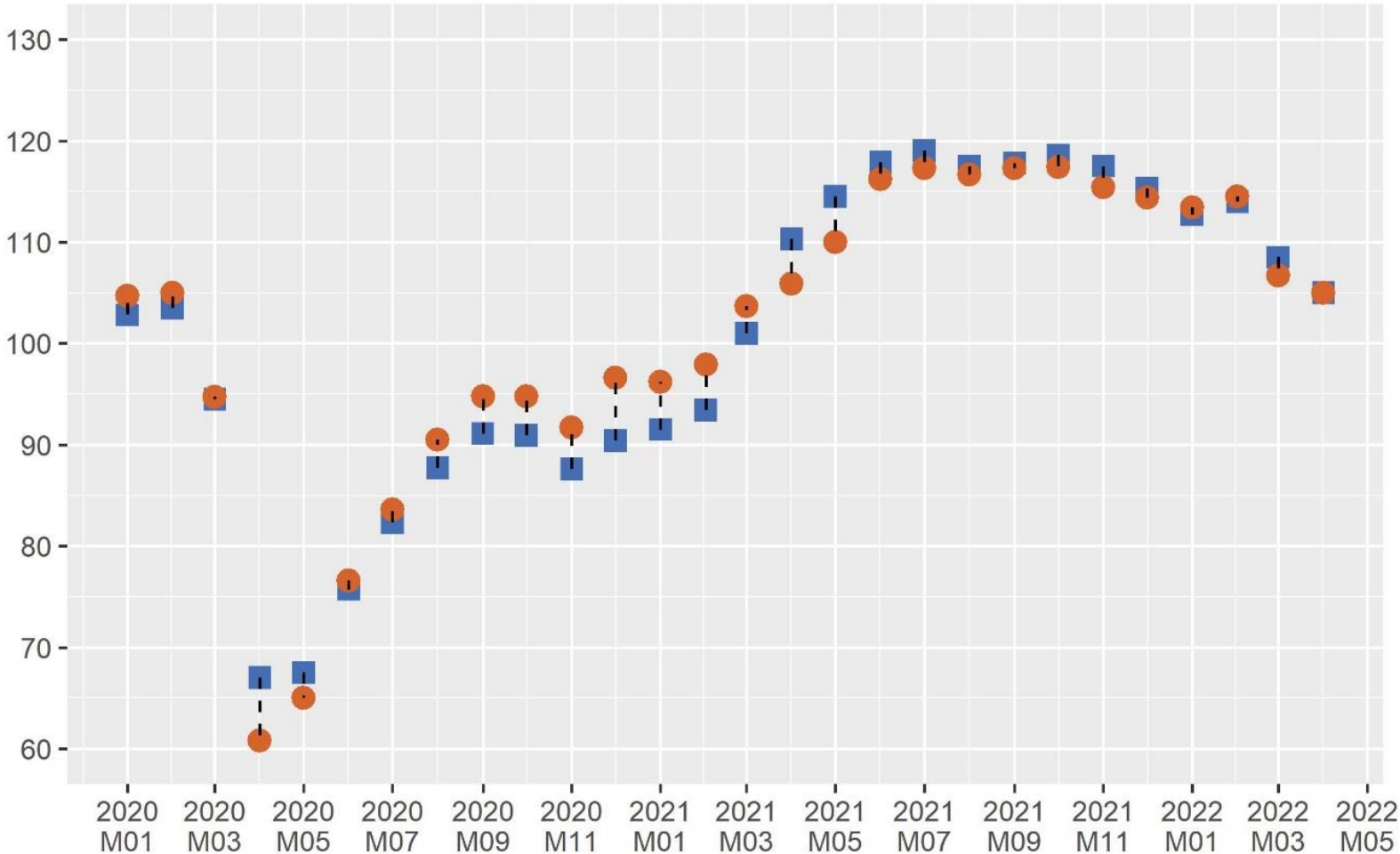# ESI for the euro area
(long term average = 100)

ESI for the euro area – vintages (long term average = 100)

First vintage: first data release

- **First vintage** (blue square)
- **Last vintage** (orange circle)

Last vintage: 05/2022

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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
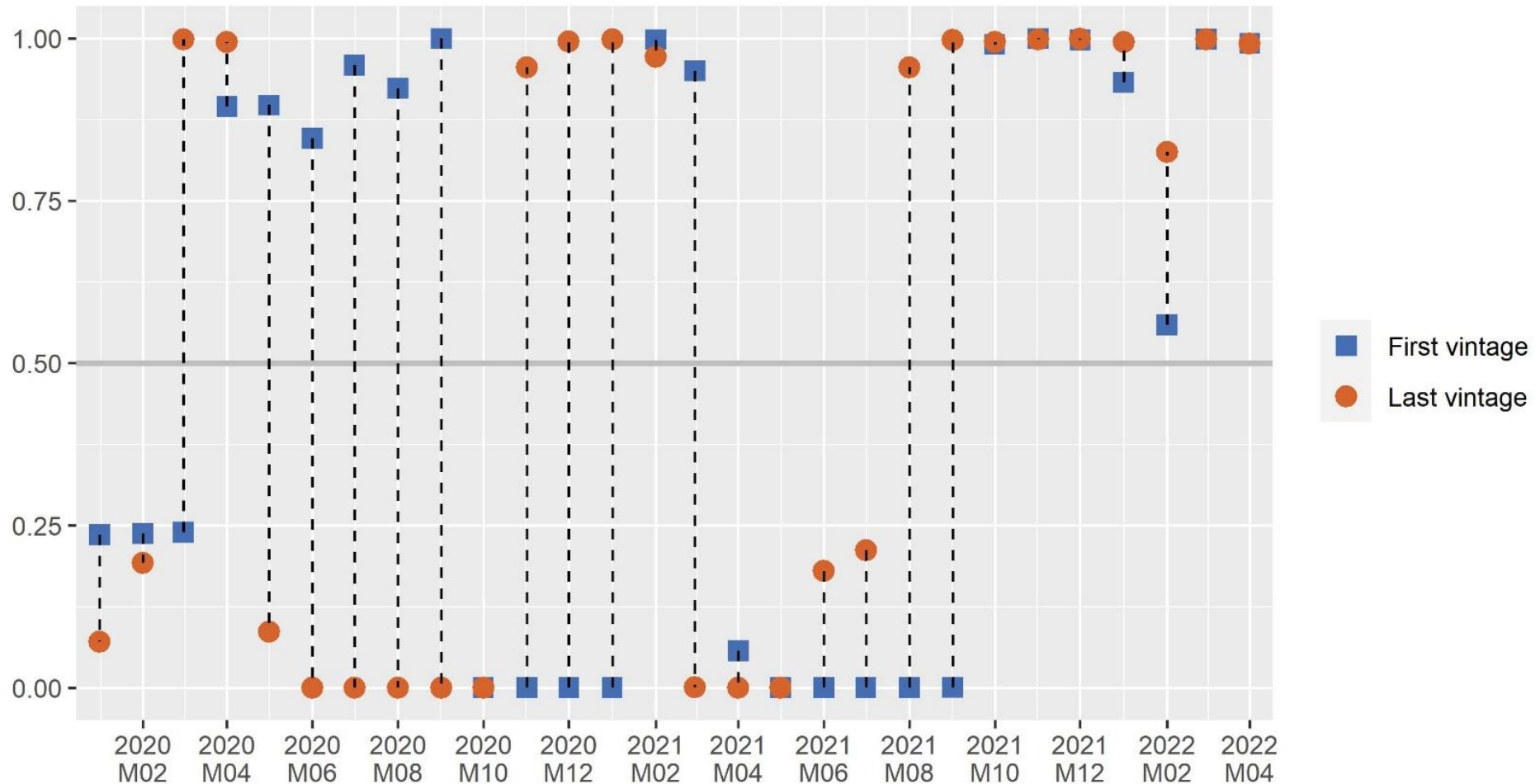 - intervention variables introduced at the later stage

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GCCI for the euro area – vintages (probabilities for slowdown)
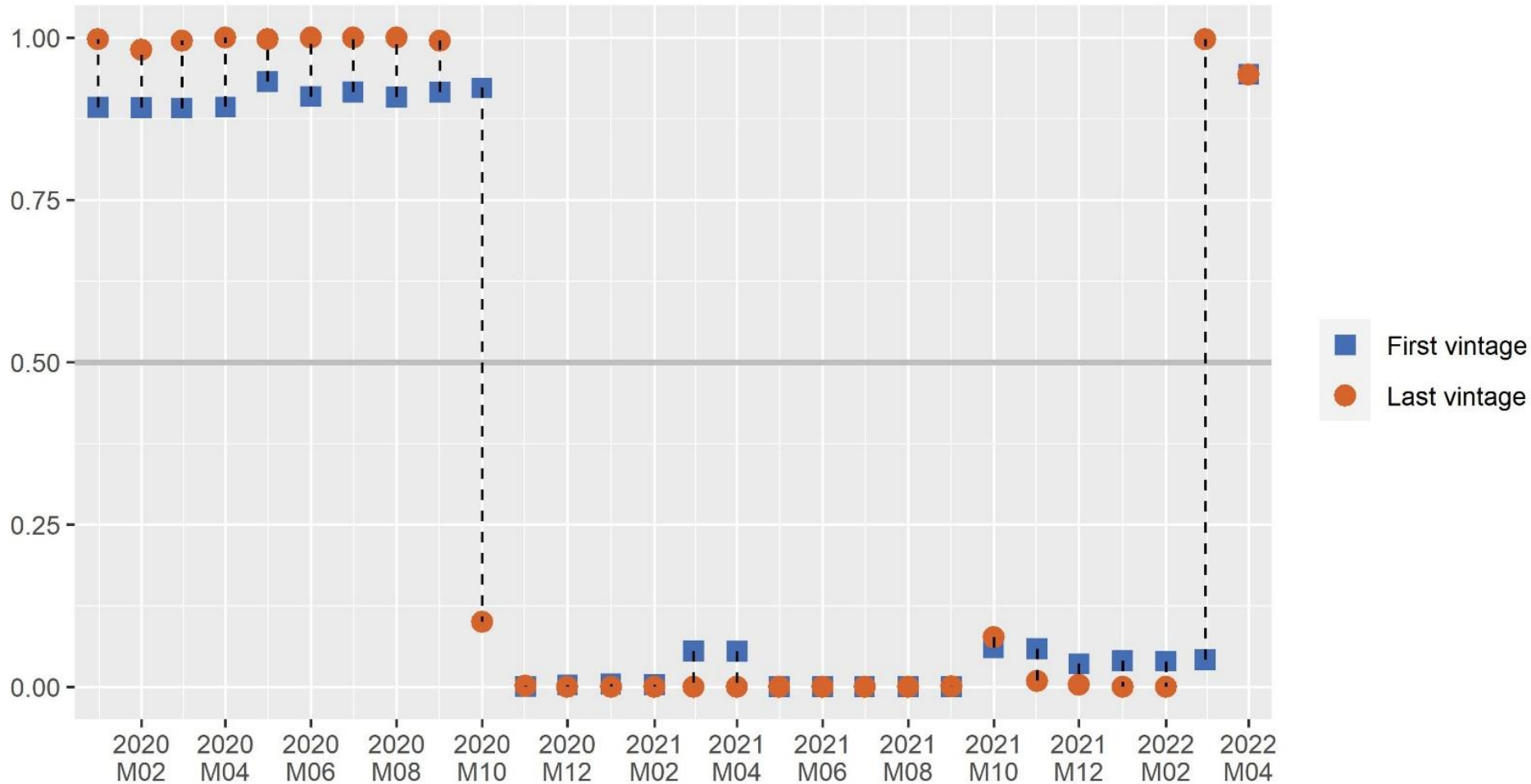
# BCCI for the euro area − vintages (probabilities for recession)
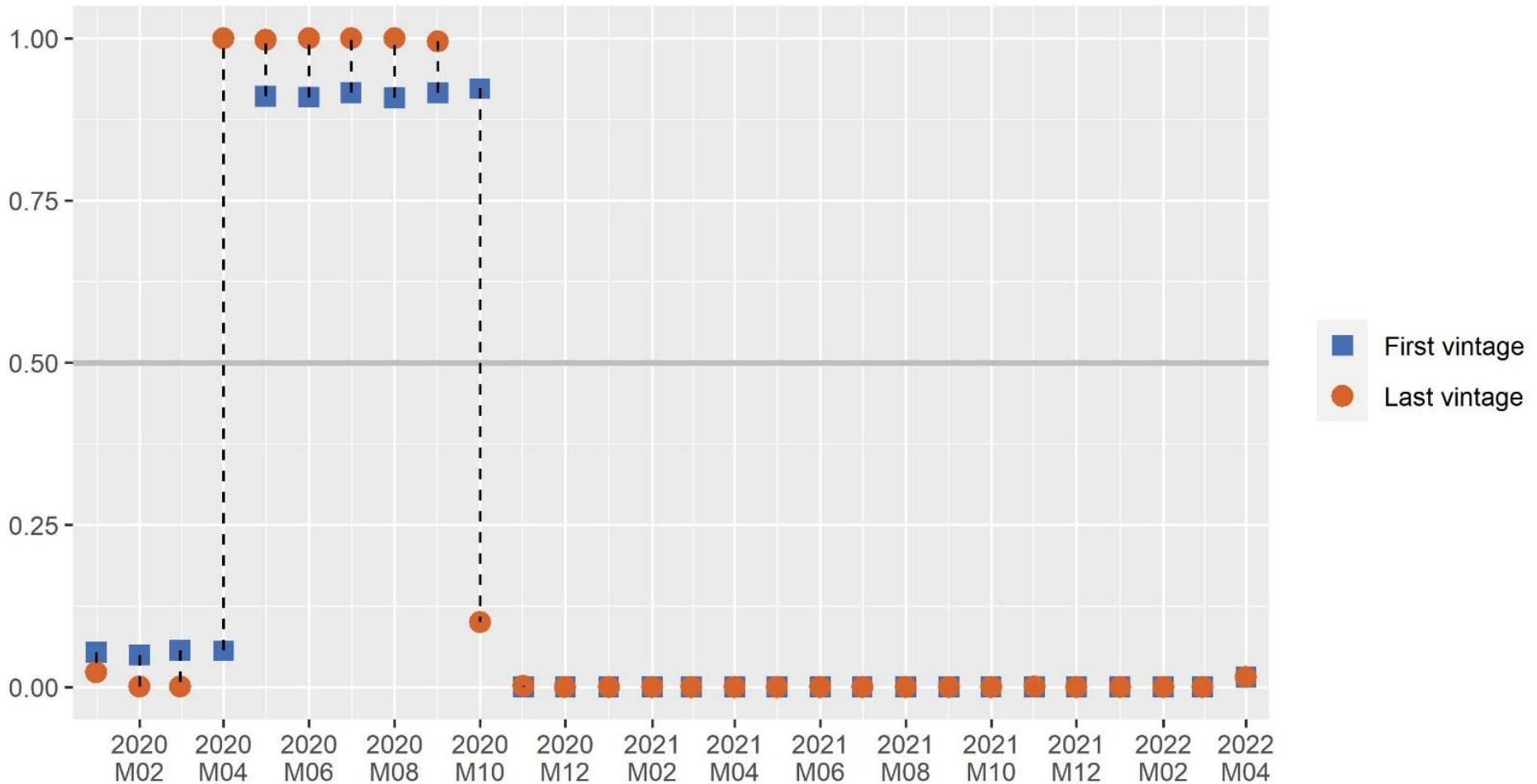
# ACCI for the euro area – vintages (probabilities for deceleration)

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
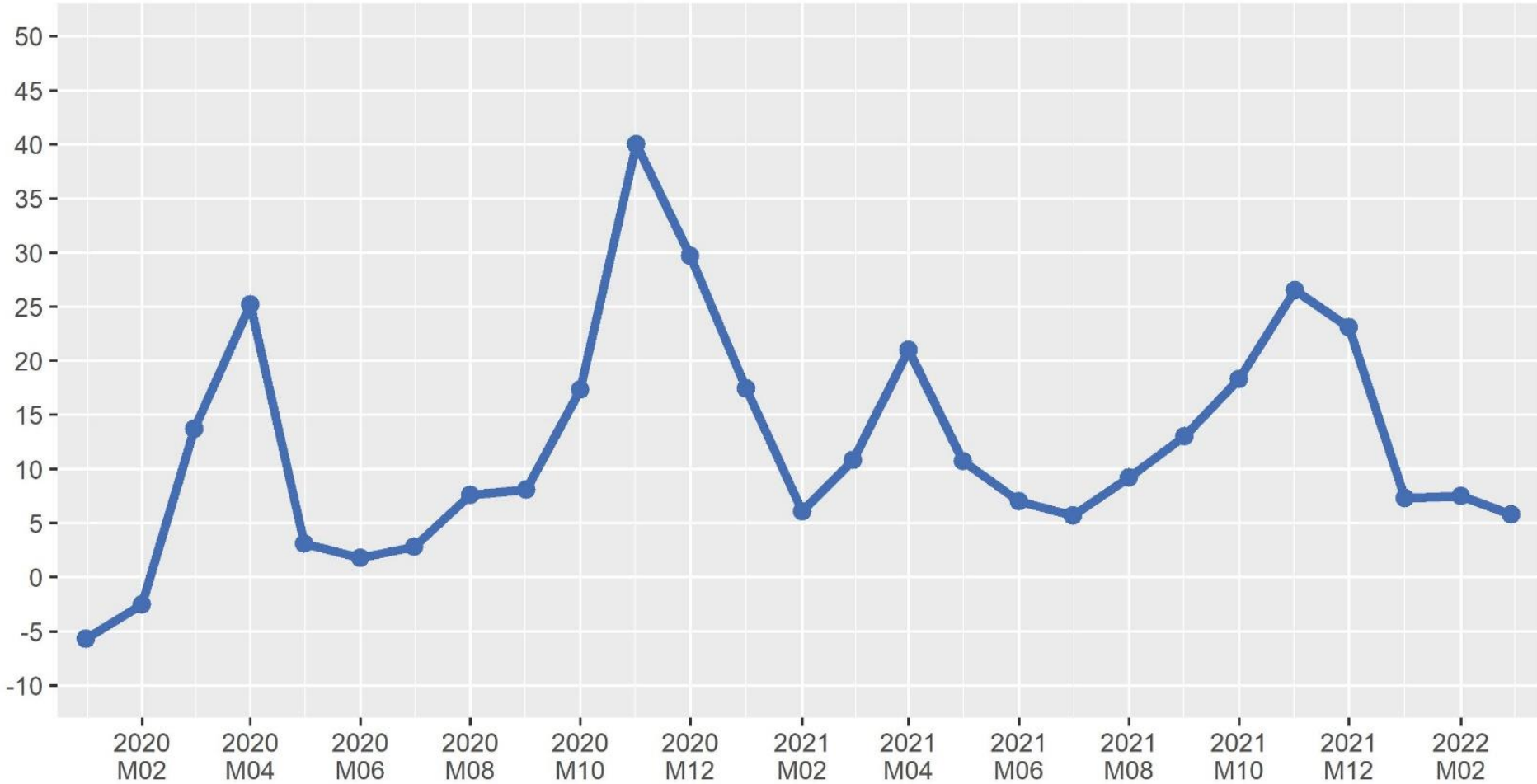
  - excess mortality declined in EU

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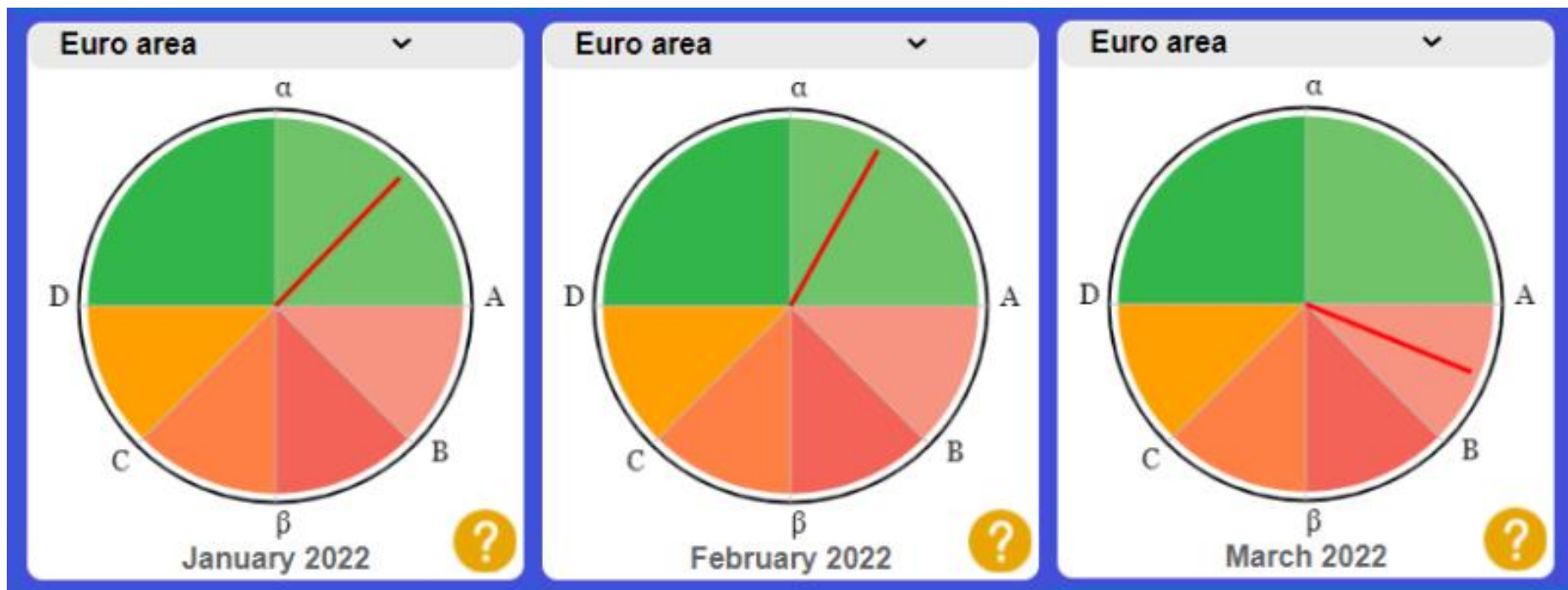
GDP in the euro area
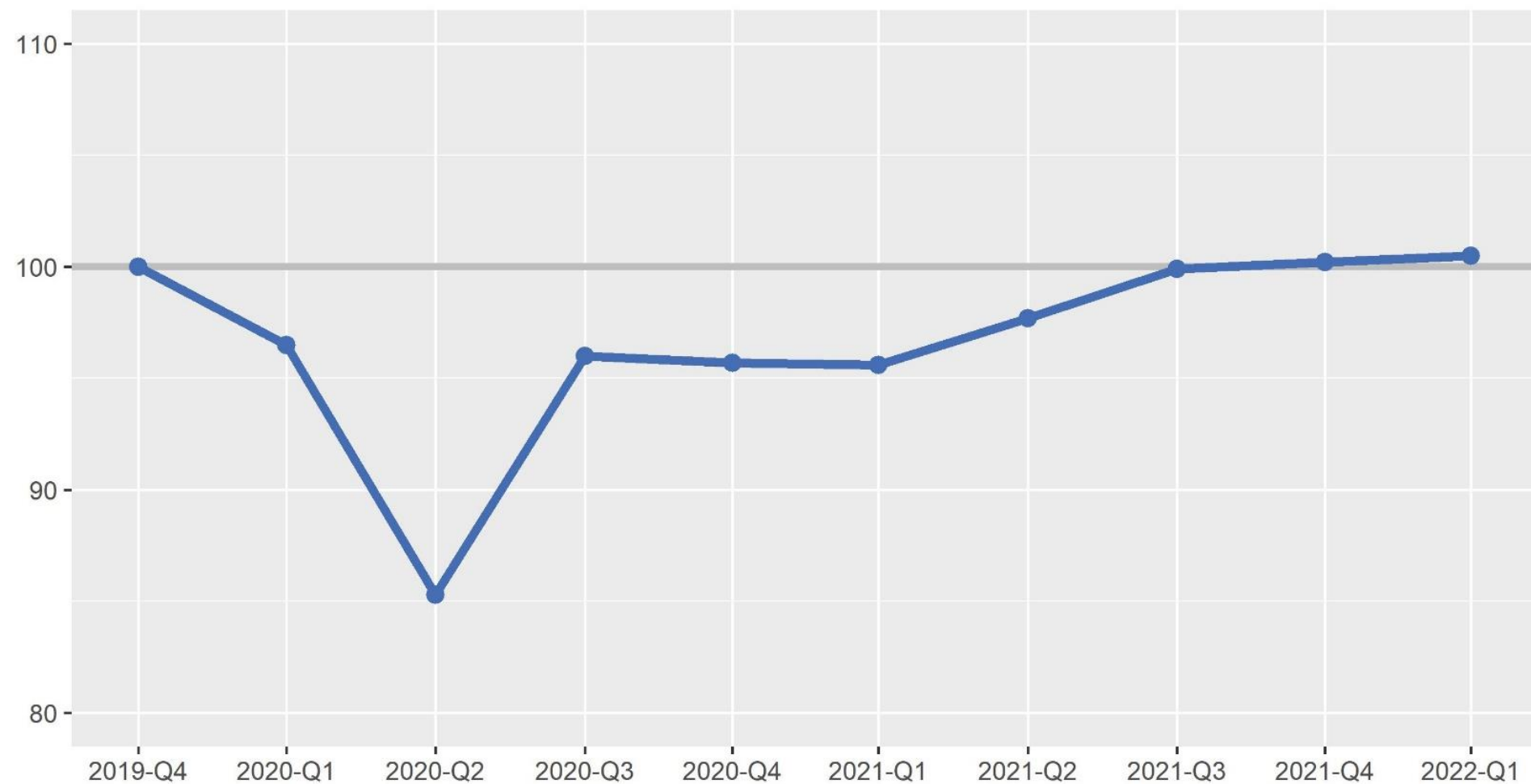
Annual inflation for the euro area (% change compared to same month in previous year)
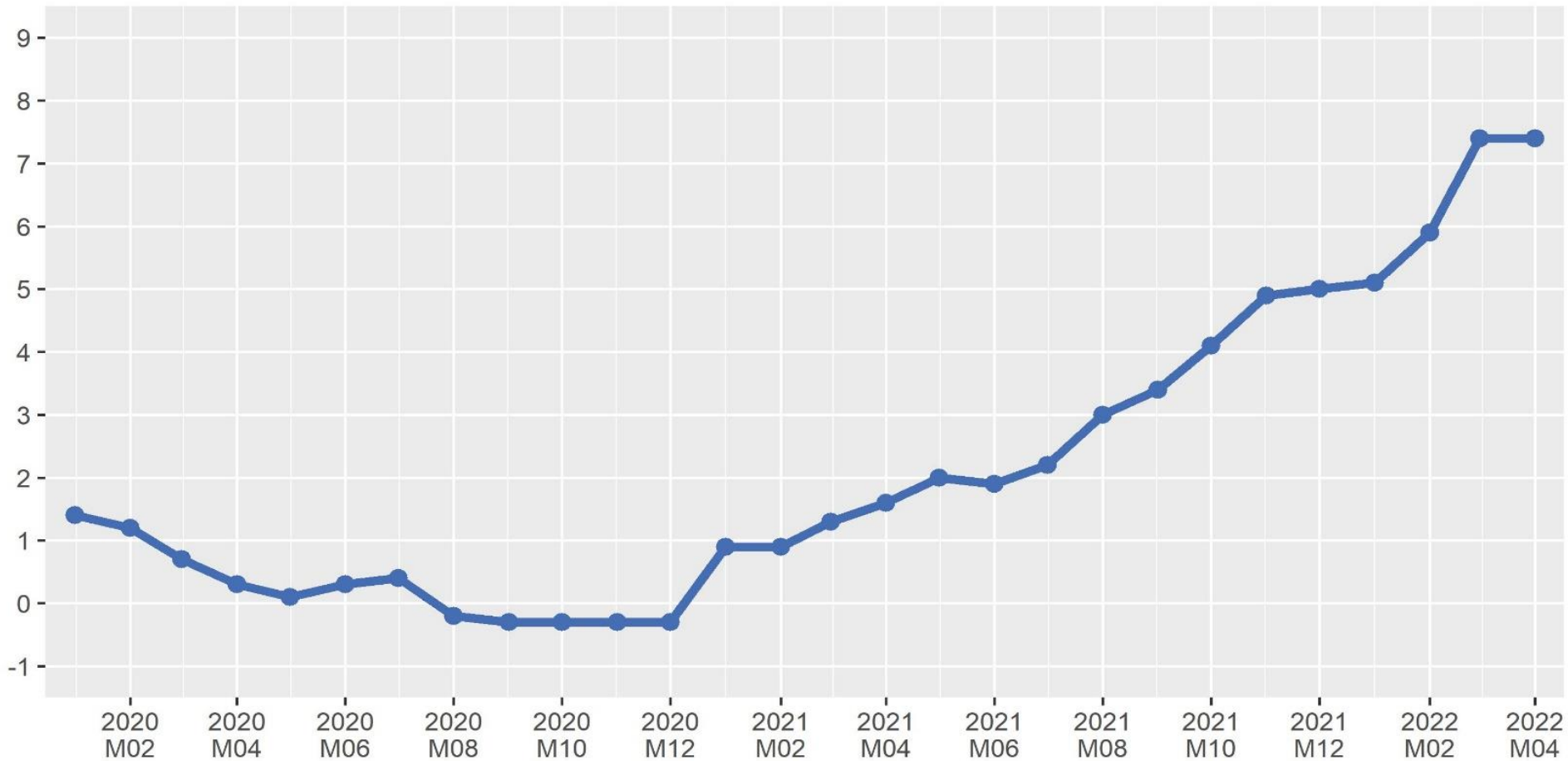
Excess mortality (% change in number of deaths compared to average of same months in 2016-2019)
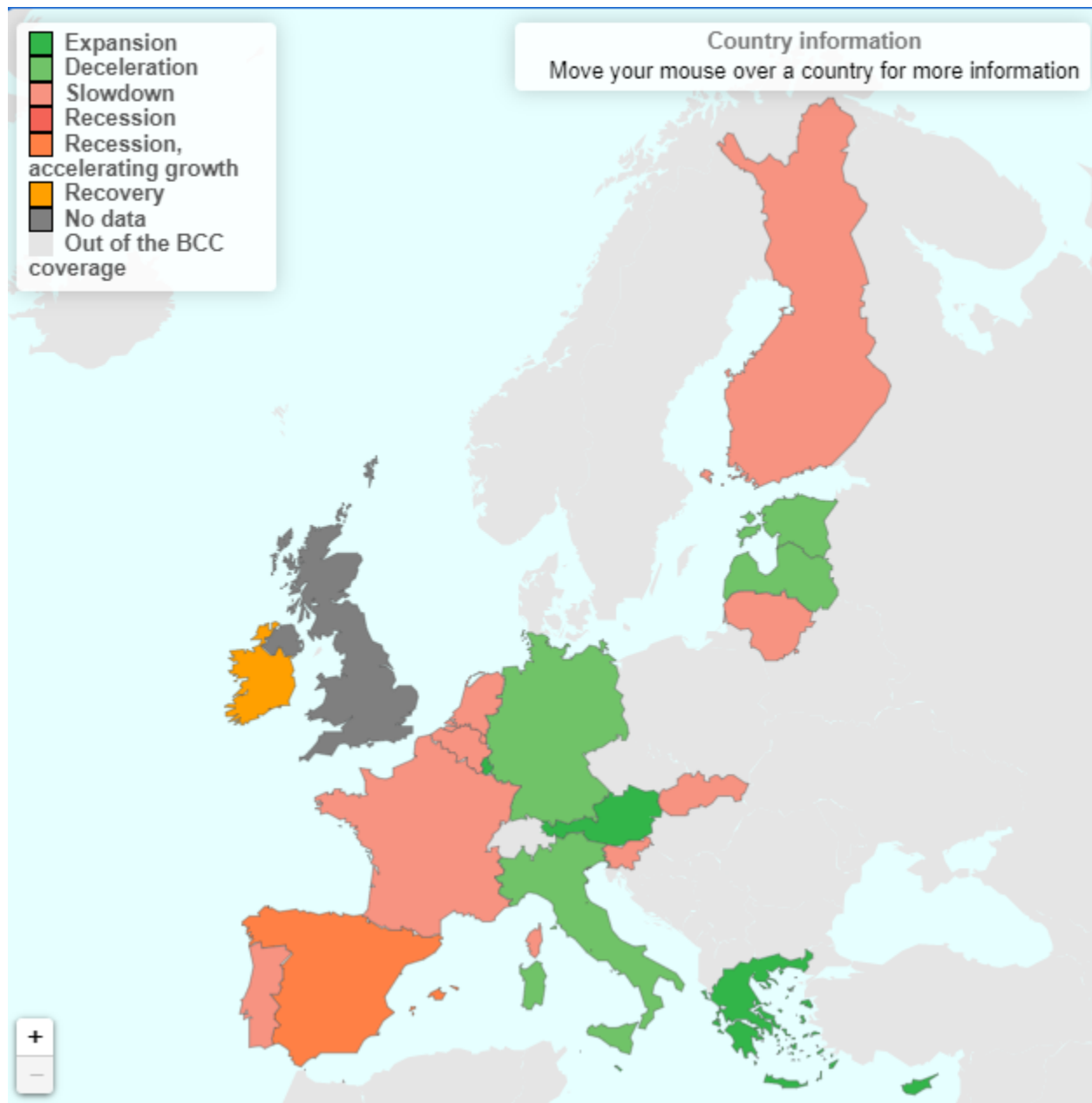
6. Last signals from BCC - Q1 2022

The euro area economy moved from a deceleration phase in January-February to a slowdown phase in March 2022

BCC 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
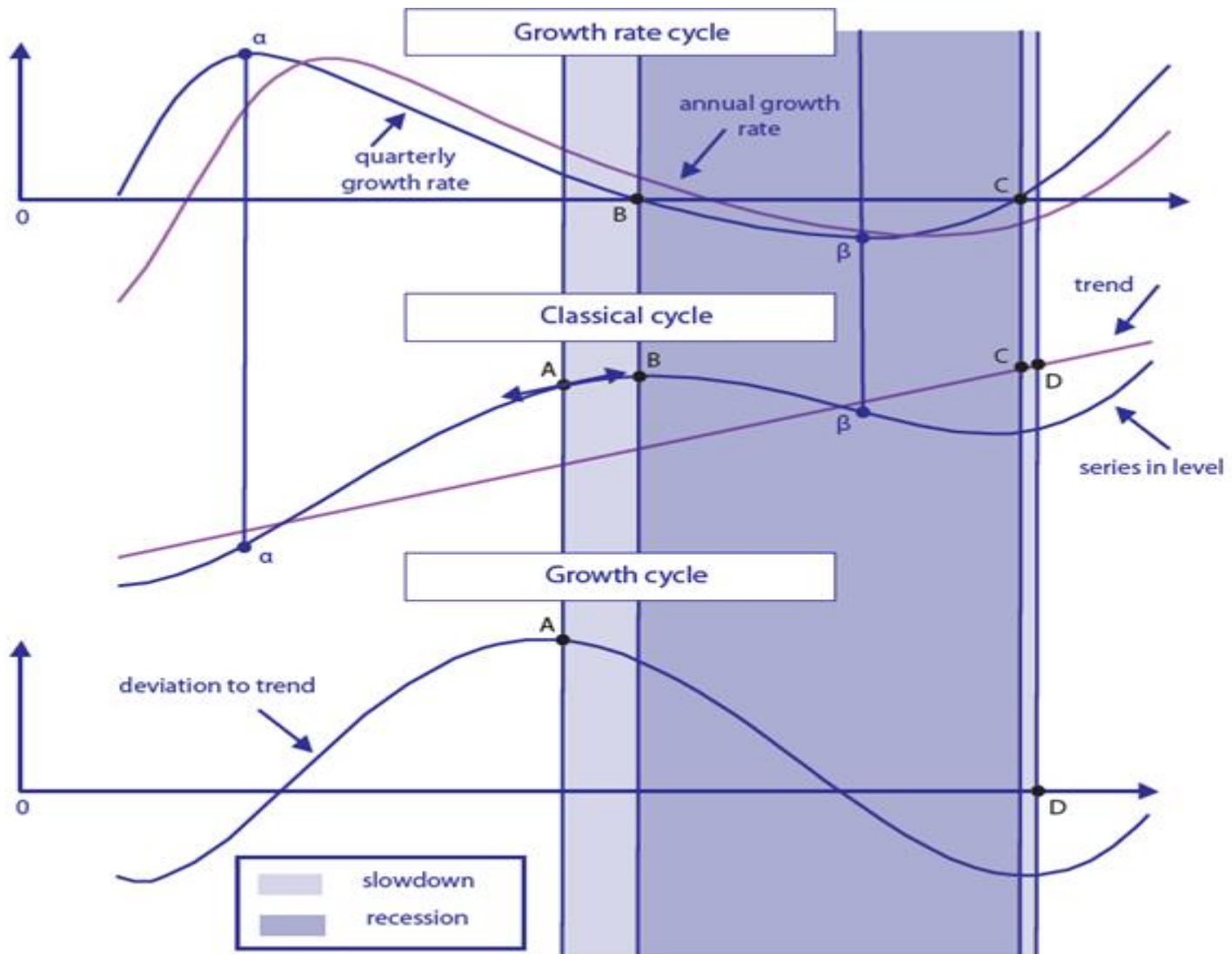
- High uncertainty: no "best" solution

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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)

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Growth rate cycle

annual growth rate

quarterly growth rate

Classical cycle

trend

series in level

Growth cycle

deviation to trend

slowdown
recession

Source: Anas and Ferrara (2004)

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Combining the cyclical indicators to compute the hand clock position

Growth, Business and Acceleration cycle indicators give the hand position
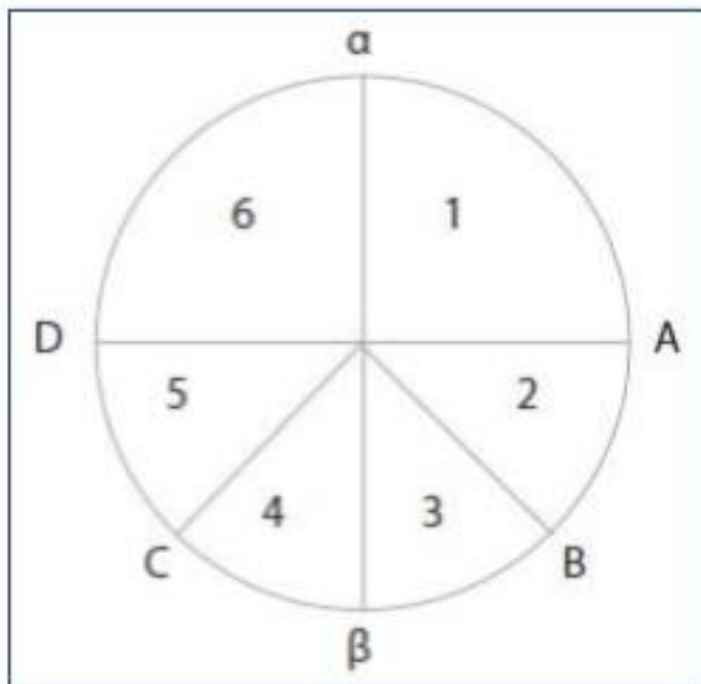
Sector 1: Expansion, with decelerating growth

Sector 2 Slowdown

Sector 3 Recession

Sector 4 Recession, with accelerating growth

Sector 5 Recovery

Sector 6 Expansion, with accelerating growth

		ACCI			
		<0.5		>0.5	
		BCCI		BCCI	
		<0.5	>0.5	<0.5	>0.5
GCCI	<0.5	6		1	
	>0.5	5	4	2	3