

# ***Potential Output & Inflation in EUCAM***

*Analysis of this issue in the context of the “Campaign against **Nonsense** Output Gaps” (CANOO)*

*Joint OGWG-ECFIN-JRC Conference, September 2021*

# Overview

**1,EU Policy makers depend on the OGWG's EUCAM\* to provide them with statistically sound & economically plausible OG estimates**

**2,Primary Goal of OGWG's EUCAM is to make the best possible decomposition of actual output into its potential & OG components.**

**3,CANOO debate highlights that insufficient attention is being given by policy makers to the quality of the cyclical indicators that are used**

**4,Many business cycle indicators are distorted by the failure to remove trend elements**

**5,Presentation looks at the empirical performance of the most widely used business cycle indicators**

**\*(EUCAM = EU's Commonly Agreed Methodology for Estimating Potential Output & OG's)**

# CANOO Debate

## CANOO (Campaign against **Nonsense** OG's)

1,COVID has changed the context of the debate but the CANOO criticisms will surface again in the post-Covid recovery period.

2,CANOO expected to see a significant negative OG in the euro area in 2018/2019; whereas according to EUCAM, the OG had closed.

3,CANOO / EUCAM OG differences presented 2 very different perceptions of inflation & output developments at that time

4,CANOO View = Changes to inflation & output are being driven by the cycle & co-movement should be conceptually expected

5,EUCAM View = A significant proportion of the changes to inflation & output are being driven by trend phenomena & decoupling between inflation & the OG (**'missing' inflation**) is an empirical reality (**'Let the Data Speak' View**)

# Conceptual Concerns with the CANOO approach

# Co-Movement vs Decoupling

1. Was EUCAM's closed output gap in the pre-Covid period consistent with almost no inflation ?

2. There is a correlation between the OG and inflation and limited inflation acceleration in the euro area in the pre-Covid period was a legitimate reason for questioning the speed in which the OG was closing in that period.

- **However, a one-to-one co-movement relationship between inflation & the OG should not be expected (there are a number of plausible explanations for the so-called missing inflation puzzle which support the decoupling hypothesis)**

3. CANOO assumes a direct relationship between price inflation and the output gap. The Phillips Curve does not assume a direct link – it assumes an indirect link between the difference of price inflation and expected / trend inflation (i.e. an inflation gap) & the OG.

4. A direct link would only exist if one assumes that inflation expectations are equal to a constant (e.g. an inflation target).

# **Empirical Concerns with the CANOO approach**

- CANOO use business cycle indicators which contain trends**

# Using PCA to Decipher the cyclical information content of business cycle indicators\*

- 1, Many commentators using the same estimation methods come to very different views about the cycle.
- 2, Wide range of business cycle indicators to choose from but the quality of those indicators is very uneven.
- 3, The only way one can rank the quality of the different indicators is by their empirical performance.
- 4, Principal component analysis (PCA) is a powerful statistical dimension-reduction technique used to assess 7 of the most commonly used indicators in OG analyses.
- 5, PCA led to the selection of two principal components; one which is more consistent with a demand driven business cycle pattern & a second component capturing either a persistent medium-term cycle\*\* or a supply side trend process.

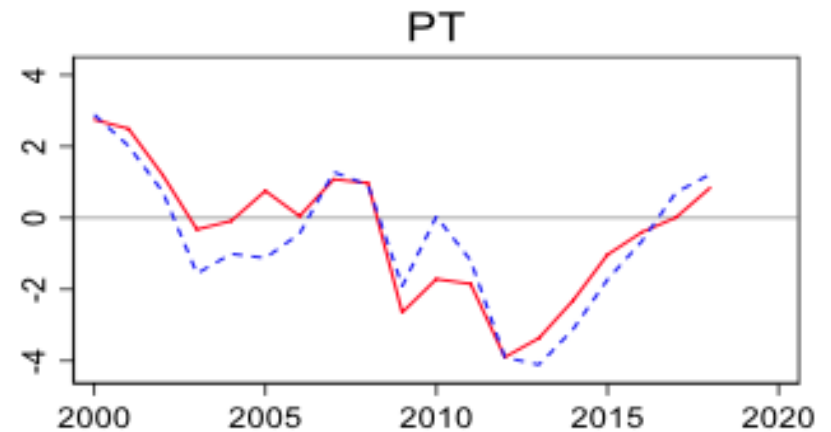
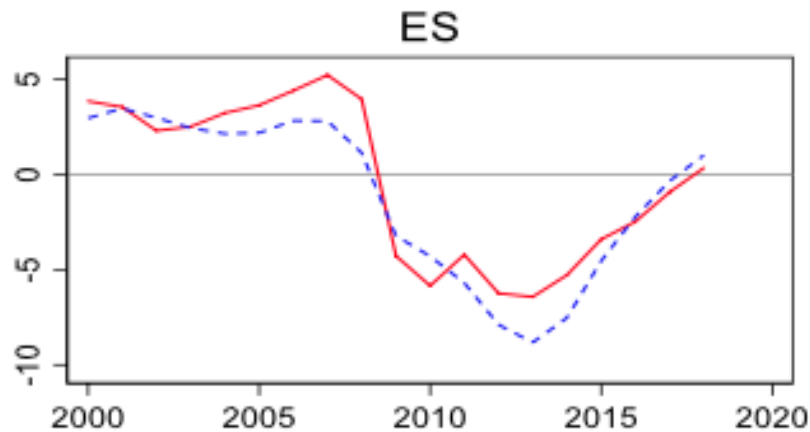
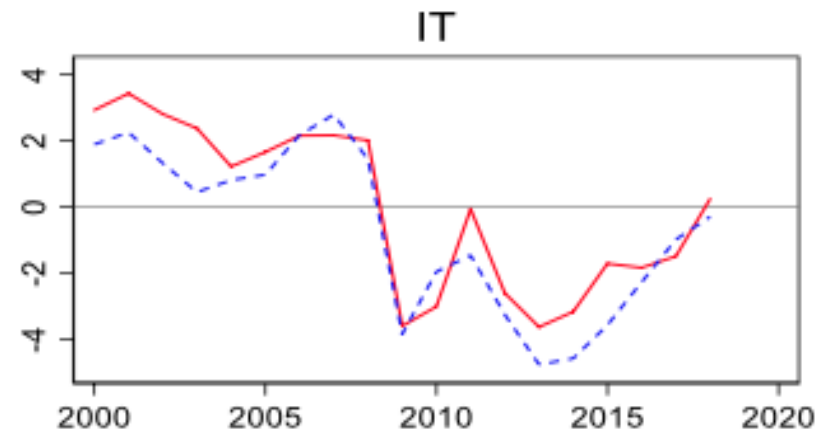
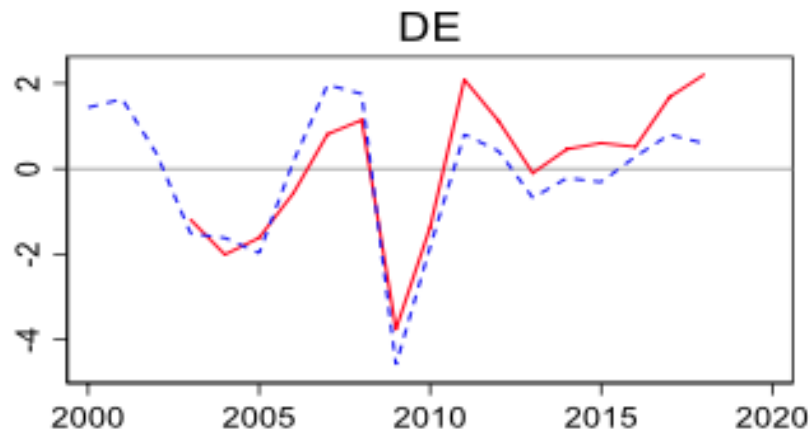
\*See ECFIN Discussion Paper 104 for additional details

\*\*Will be discussed in the next presentation in this session in the context of persistent demand shocks



|                                      | First component         |                         | Second component        |                                    | Total % of variance explained |
|--------------------------------------|-------------------------|-------------------------|-------------------------|------------------------------------|-------------------------------|
|                                      | Correlation coefficient | % of variance explained | Correlation coefficient | Additional % of variance explained |                               |
| <b>Price inflation</b>               | 0.3                     | 0.3                     | -0.5                    | <b>0.3</b>                         | <b>0.6</b>                    |
| Wage inflation                       | 0.4                     | 0.4                     | -0.3                    | 0.1                                | 0.6                           |
| <b>Current account balance</b>       | -0.2                    | 0.1                     | 0.6                     | <b>0.5</b>                         | <b>0.6</b>                    |
| Growth in GDP (lagged)               | 0.4                     | 0.6                     | 0.2                     | 0.0                                | 0.6                           |
| Short term unemployment rate         | -0.4                    | 0.6                     | -0.3                    | 0.1                                | 0.7                           |
| Economic slack (sentiment indicator) | -0.4                    | 0.7                     | -0.2                    | 0.0                                | 0.7                           |
| Capacity utilisation                 | 0.4                     | 0.6                     | 0.3                     | 0.1                                | 0.7                           |

# Cross-Checking the Plausibility of the EUCAM OG's using the results of the PCA



— PCA output gap      - - - CAM output gap

# **Are the Core Inflation Consistent OG's Plausible ?**

# Core Inflation Consistent OG's

1, PCA analysis confirmed EUCAM's pre-existing doubts about using the price inflation or current account balance as cyclical indicators.

2, Drawing heavily, or solely, on the price inflation indicator, as the core inflation consistent OG approach does, is highly problematic.

3, Kiel Institute evaluation of the **“Core Inflation Consistent OG's”** approach :

- Approach has serious theoretical / conceptual weaknesses (core inflation variable contains a trend - with the decline in the trend of inflation over recent years producing, unrealistic, non-stationary OG's)
- Approach also has large empirical weaknesses :A)Method suffers from a large OG volatility problem - small changes in core inflation sometimes imply large fluctuations in the OG B)Method generates a change in the OG which is too small over the period 2019 & 2020 (Other estimates suggest that this could affect a significant number of countries, including the US & Italy).

4,CANOO underestimated the size of the 2020 COVID shock & the OG for a large number of countries is likely to close more rapidly

# Conclusions

1. Policy makers need an OG method they can conceptually & empirically trust to extract a plausible cyclical signal from a wide range of business cycle indicators.
2. Institutions which calculate OG's need to pay sufficient attention to the quality (i.e. the relative empirical performance) of the indicators used.
3. “Rubbish In, Rubbish Out” adage applies also to trend cycle decomposition exercises (“Poor cyclical indicators in; **nonsense OG estimates out**”).
4. CANOO uses indicators of the economic cycle which have a poor track record in terms of explaining changes in the amount of cyclical slack in the EU's economy + They need to look at a broader range of indicators in order to get a more balanced view of the current cyclical position.
- 5, Like EUCAM they should combine indicators that exploit the cyclical signal coming from both the labour & product market sides of the economies. EUCAM's ability to capture both dimensions of the business cycle will be helpful in the Autumn Forecasts in interpreting the summer 2021 surge in inflation & whether this will be a transitory or more persistent phenomenon.