POTENTIAL GROWTH OF THE SPANISH ECONOMY AFTER THE PANDEMIC

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Joint OGWG - ECFIN - JRC Conference
"Assessment of output gaps and potential output in the context of the COVID-19 pandemic and its aftermath"

29 -30 September 2021

ECONOMIC DEVELOPMENTS DEPARTMENT
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1. Impact of COVID19 on potential output
   • Shock nature
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COVID-19 AND POTENTIAL GROWTH

Shock nature

- Non-economic character shock, completely exogenous
  - Nevertheless, possible **long-term impact** due to **intensity** and **persistence**
- Effects on both supply and demand
  - Impact on **factors of production** and possible structural changes in **demand**
- Very different effects between sectors
  - Concentration in sectors with **high social interaction** and **labor-intensive sectors**
- Key role of economic policies in mitigating the effects of the crisis
Analysis of the effect of the pandemic on potential growth through its determinants:

- Total Factor Productivity
- Labour
- Capital

It can be distinguished:

- Short-term effects
- Long-term effects (scarring effects)
Total Factor Productivity

• Clearly **negative** effects in the **short term** due to lower use of installed capacity
  - Restricted worker mobility and disruption of supply chains

• **Ambiguous long-term** effects
  - Changes within the company:
    - Breakdown of worker-company or customer-supplier matchings
    - Adoption of new technologies: digitalization and e-commerce

• Inter-firm shifts and business demographics:
  - Lower entry rate of new companies due to poorer economic conditions
  - High number of companies in financial difficulties: risk of an excessive level of liquidations
  + Exit of less productive firms (**empirical evidence in the EBAE**)
  + Estructural change towards sectors with higher contribution to productivity growth
COVID-19 AND POTENTIAL GROWTH

Mechanisms

Labour

• Hysteresis effects:
  - Increase in NAIRU due to mismatch between labor demand and supply
  - Workers with low qualifications or close to retirement leave the labor market
  - International restrictions on mobility reduce migratory flows
  - Long-term negative effects of school closings on human capital accumulation

Capital

- Reduced incentives to invest in new capital
- Early obsolescence of existing capital due to demand changes
+ Decreased capital depreciation and increased useful life due to lower utilization
Production Function Methodology

• Contribution to potential growth of each growth factor
  • Labour
    • NAIRU - neo-Keynesian Phillips curve estimation (Galí, 2011)
    • Working-age population - INE projections
    • Participation rate
    • Worked hours per worker
  • Capital
  • Total Factor Productivity

• Three scenarios (baseline, mild and severe) based on the outlook for the severity and duration of the pandemic
  • Based on the official macroeconomic projections of the Bank of Spain
• Projection horizon to 2023
Baseline scenario:

- Potential growth rates only slightly lower, from 2022 onwards, than the previous scenario
- Permanent lower level of potential GDP (around -2%)
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POTENTIAL GROWTH ESTIMATE
Production Function Methodology

• Labour
  • **NAIRU increase** to about 16% between 2020 and 2023
  • **Fall in the working-age population**
    • *Reduction of net inflows of immigrants in 2020*
  • **Significant drop in activity rate and hours worked per employee**
    • *Recovery in following years*

• Capital
  • **Positive contribution**, although slightly lower
    • *Delayed investments due to increased uncertainty*

• TFP
  • **Severe drop in 2020** due to production disruptions
    • *Recovery of pre-Covid contribution by 2023*
POTENTIAL GROWTH ESTIMATE
Production Function Methodology

POTENTIAL GROWTH CONTRIBUTIONS IN SPAIN
(change rate and percentage points)

Sectoral analysis

- Large differences in the impact of the pandemic according to productive sectors
  - Greater intensity and persistence in sectors with a higher component of social interaction

- Two-step methodology:
  1. Setting unequal paths of recovery of the pre-covid activity level for each branch of activity based on the responses obtained in the EBAE
     - The disaggregation by sector of the aggregate GVA forecast is made according to the percentage of companies that state that they are able to recover the pre-covid level of activity in 2021, as of 2022 or that there is too much uncertainty to respond
  2. Estimated potential growth by industry based on Hodrick-Prescot filter
     - Calibrated lambdas that replicate the aggregate level of potential pre-Covid product
Potential Growth Estimate

Sectoral Analysis Methodology

- Hotels, transport and commerce and Entertainment services
  - do not recover their pre-pandemic level in 2023 in the central scenario
- Information and communication, Financial services and Education, Health and Public Administrations.
  - will maintain sustained growth paths
- Negative effects are concentrated in labor-intensive sectors with a high level of social interaction

Projected recovery paths by branches after COVID-19

Baseline scenario

Source: Banco de España.
POTENTIAL GROWTH ESTIMATE
Sectoral Analysis Methodology

- **Baseline scenario**
  - Potential growth of around 1% in 2023
  - Slightly lower than the 2019
  - Pre-COVID level not recovered

- **Mild scenario**
  - Positive effects on potential in the long term

- **Severe scenario**
  - Severe drop in the short term
  - The drop in potential is both in growth rates and levels

Source: Banco de España.
Statistical methodology

- Problem with non-parametric models (such as Band-Pass or Hodrick-Prescott filters):
  - The huge fall in GDP in 2020 Q1-QT2 implies large revisions to potential output in pre-pandemic periods
  - It is difficult to justify an endogenous nature of the COVID-19 shock

- Possible solution: Unobserved components models
  - Modeling of the cyclical and trend components of GDP
  - Including a component associated with the effect of the active pandemic
    - It prevents the estimation of the cycle and the trend from being distorted by the exogenous shock
    - And reduces potential product revisions of prior periods
  - Incorporating information on working conditions for greater accuracy
After the sharp downturn in 2020, potential output would quickly recover positive and pre-pandemic-like growth rates under all three scenarios.

The "pandemic" shock negatively influences 2020 GDP, with a similar magnitude in all three scenarios.
Conclusions

Similar results from the three approaches. In the baseline scenario:

- **Significant drop** in the potential **growth** rate in **2020**
- **Recovery** of pre-pandemic rates towards the **end of the projection horizon**
- **Permanent effect** on the **level** of potential output

According to the production function approach, **deterioration due to**:

- **Hysteresis** effects in the **labour market**
- **Significant drop** in **TFP** in the **short term**

Projections subject to **high uncertainty**: **health** and **economic policy** developments
THANK YOU FOR YOUR ATTENTION
Metodología Estadística

\[ y_t = \tau_t + c_t + p_t, \ p_t \sim N(0, \sigma_{p,t}^2) \]  
(1)

\[ u_t = \bar{u}_t + \theta_1 c_t + \theta_2 c_{t-1} + v_{u,t}, \ v_{u,t} \sim N(0, \sigma_u^2) \]  
(2)

\[ \sigma_{p,t}^2 = \begin{cases} 0 & \text{si } t \notin T_{\text{pandemia}} \\ \sigma_p^2 & \text{si } t \in T_{\text{pandemia}} \end{cases} \]  
(3)

\[ \tau_t = \tau_{t-1} + \delta_{t-1} + \eta_{\tau,t}, \ \eta_{\tau,t} \sim N(0, \sigma_{\tau}^2) \]  
(4)

\[ \delta_t = \delta_{t-1} + \eta_{\delta,t}, \ \eta_{\delta,t} \sim N(0, \sigma_{\delta}^2) \]  
(5)

\[ c_t = \phi_1 c_{t-1} + \phi_2 c_{t-2} + \eta_{c,t}, \ \eta_{c,t} \sim N(0, \sigma_c^2) \]  
(6)

\[ \bar{u}_t = \bar{u}_{t-1} + \eta_{\bar{u},t}, \ \eta_{\bar{u},t} \sim N(0, \sigma_{\bar{u}}^2) \]  
(7)

- **Componente tendencial,** \( \tau_t \)
  - Paseo aleatorio
  - Tasa de crecimiento como paseo aleatorio

- **Componente cíclico,** \( c_t \)
  - Proceso autorregresivo

- **Componente pandémico,** \( p_t \)
  - Activo solo a partir de 2020

- **Desempleo tendencial,** \( \bar{u}_t \)
  - Paseo aleatorio