

ESTIMACIÓN DEL CRECIMIENTO POTENCIAL Y LA BRECHA DE PRODUCCIÓN

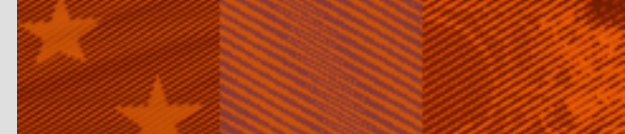
Departamento de Análisis de la Situación Económica
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Desarrollos recientes y herramientas para el análisis de la situación económica.

Banco de España – CEMLA

Madrid, 05 junio 2019

METHODOLOGY IN A NUTSHELL

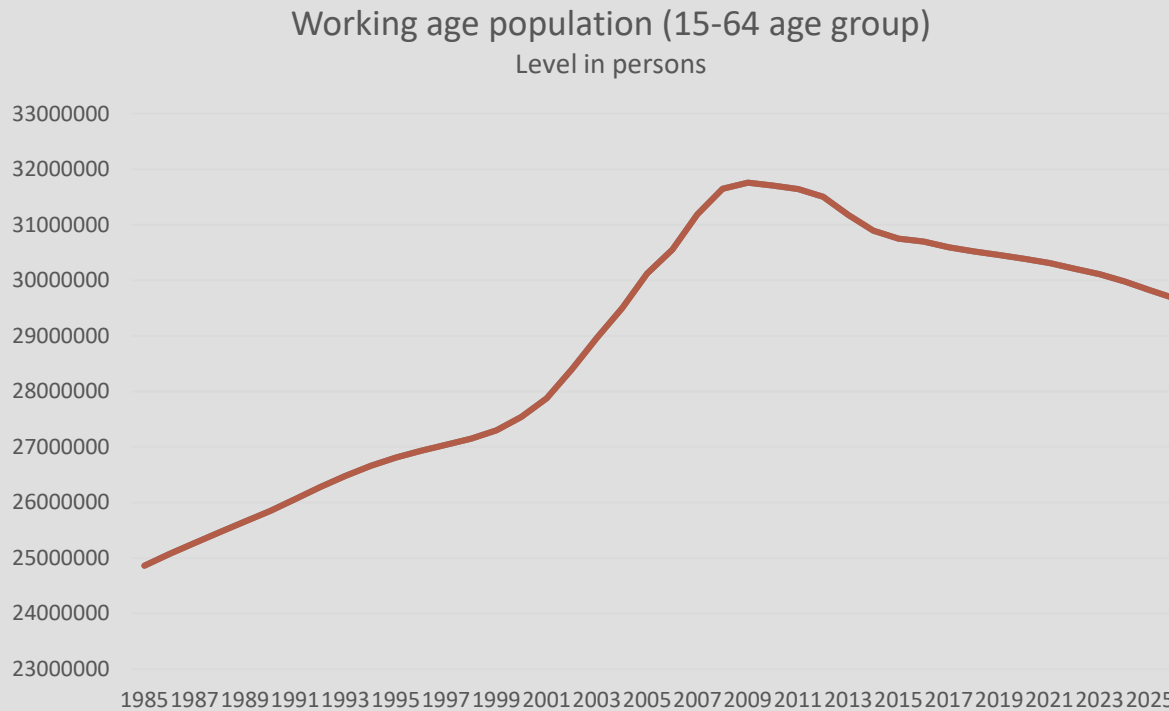


- **Two ingredients are combined in our baseline potential growth estimates:**
- **1980-2019: The standard production function methodology**
 - NAIRU based on Gali (2011, JEEA). [[More](#)]
 - HP filtered potential TFP. [[More](#)]
 - Recent structural reforms implicitly included.
- **2019-2026: The neoclassical growth model**
 - Population projections from National Statistics Institute.
 - Convergence to certain anchors achieved in 2026. [[More](#)]
 - Historical average 1982-2013 of NAIRU (14.4%) and TFP growth (0.8%).
- **More details: “Potential growth of the Spanish economy” Banco de España Occasional Paper 1603 (Available at <http://goo.gl/Dqw2kw>)**

WORKING AGE POPULATION



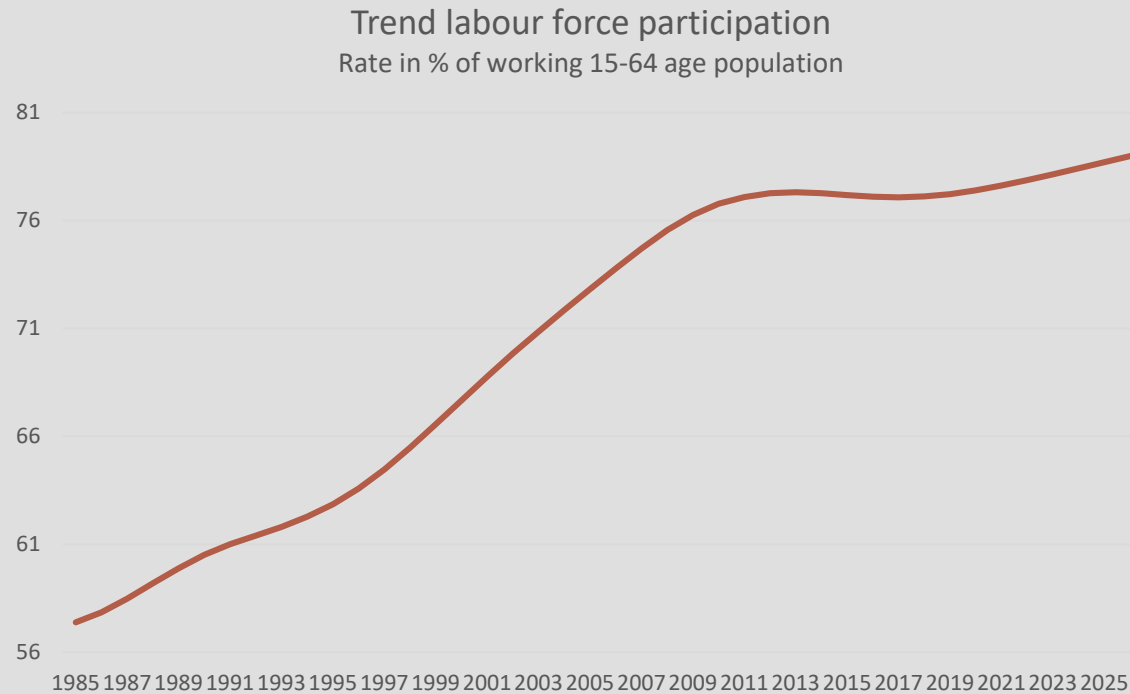
- Population ageing is at the root of the negative WAP prospects.
- This tendency might be partially compensated by higher than expected net migration flows.



LABOUR FORCE PARTICIPATION



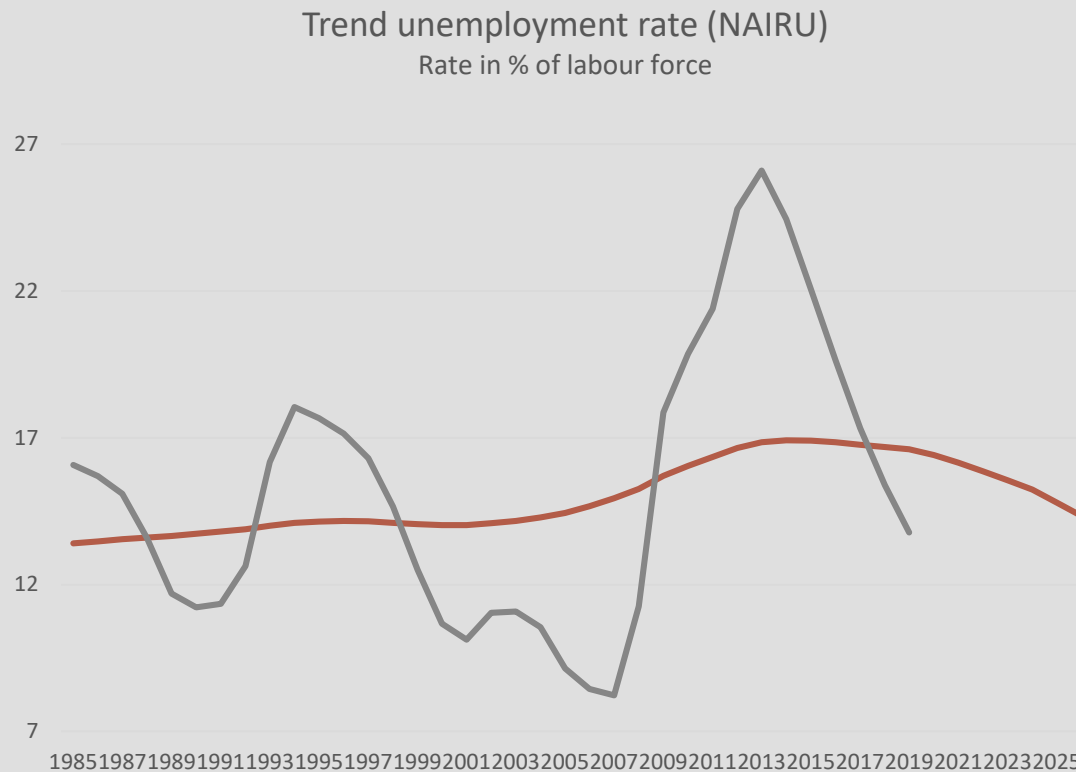
- Broadly constant over the recent years due to population ageing.
- The AWG anchor might be too high in light of the recent developments.



TREND UNEMPLOYMENT RATE



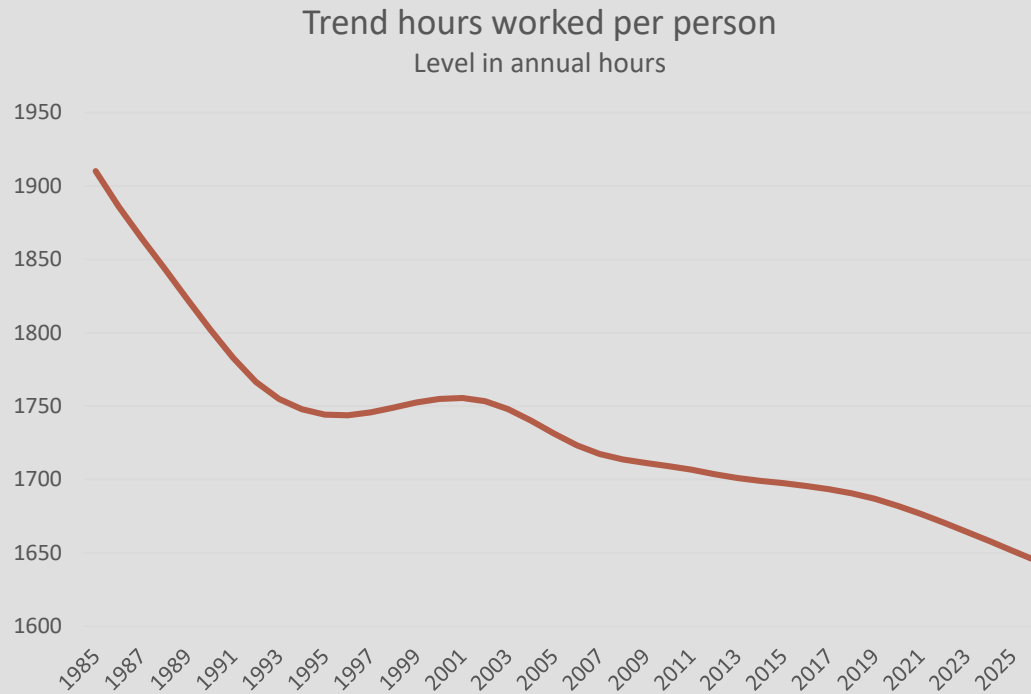
- Fairly stable in the vicinity of 14-16%.
- Model-based estimates driven by a micro-founded Phillips Curve relationship.



HOURS WORKED



- **Historical declining pattern is expected to continue in trend hours.**



CAPITAL STOCK



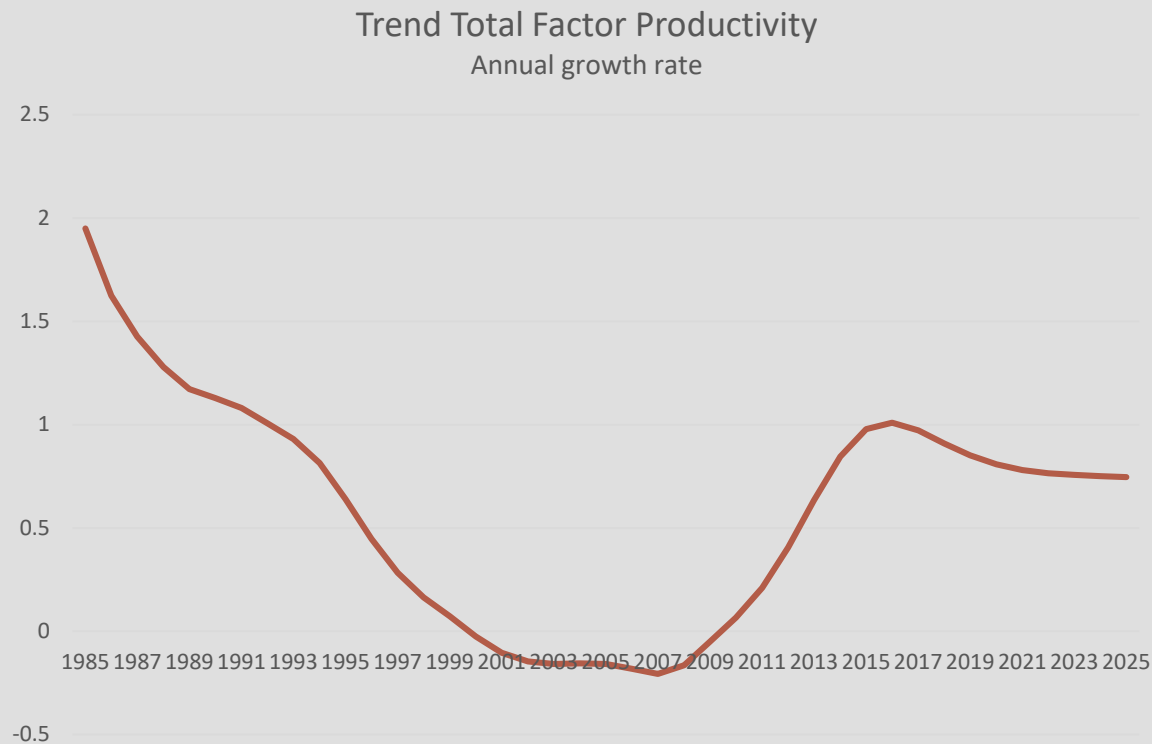
- Capital accumulation remains below pre-crisis levels.



TOTAL FACTOR PRODUCTIVITY



- The recovery of TFP growth during the crisis is expected to remain.
- Due to a better allocation of resources together with lower capital deepening.



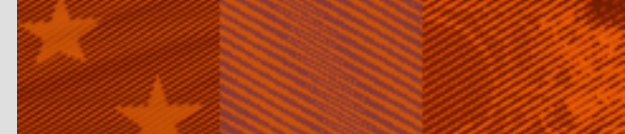
POTENTIAL GROWTH



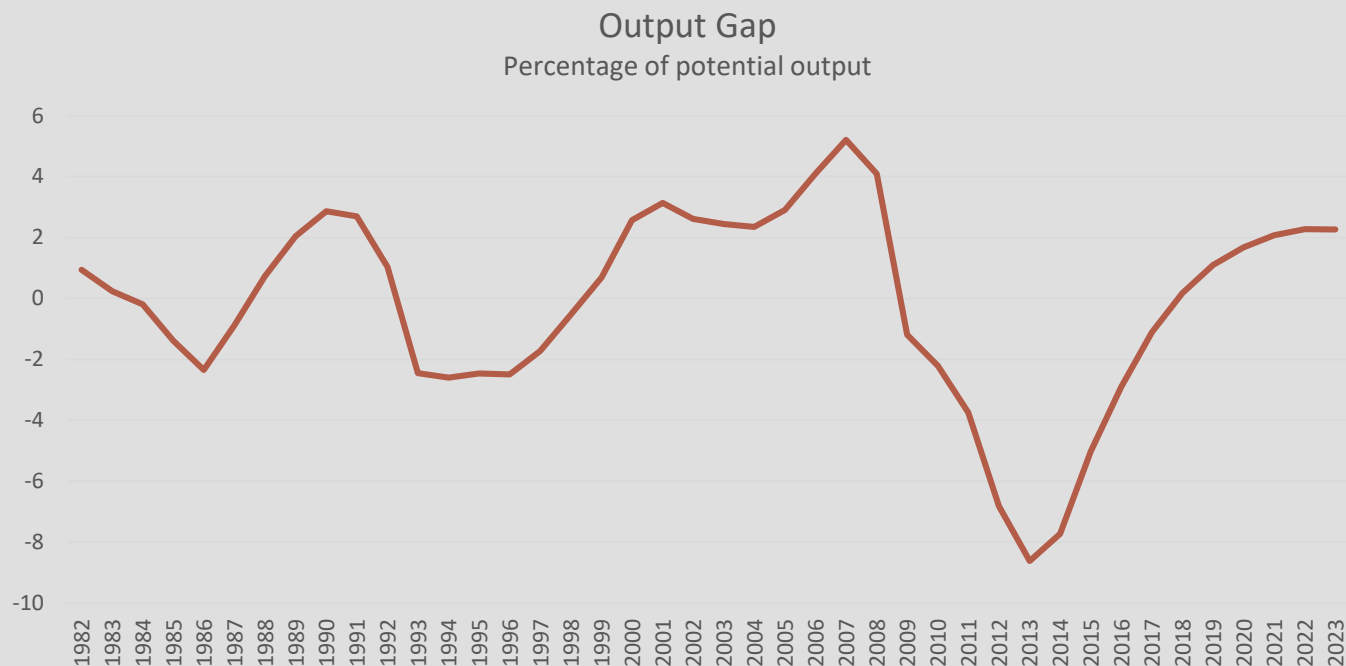
- Lower than pre-crisis figures.
- Mostly due to the evolution of working age population.



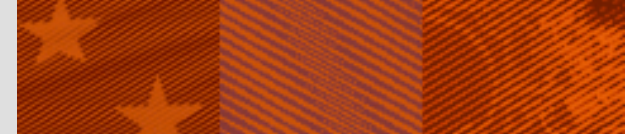
OUTPUT GAP



- The estimated output gap was **-9%** in 2013 and has progressively recovered to almost zero in 2018 (0.2%).
- For the forecast horizon, the output gap is projected to be around **2%**, in line with other expansionary phases of the Spanish economy.
- Other institutions (European Commission, IMF) also estimate a slightly positive output gap for 2018.



BASELINE SCENARIO RESULTS



	1983 1990	1991 2000	2001 2007	2008 2014	2015	2016	2017	2018	2019	2020	2021	2022
Potential growth	2.9	2.8	3.1	0.8	0.6	0.9	1.1	1.2	1.2	1.3	1.3	1.3
Contributions to potential growth												
- Employment	0.0	1.0	1.6	0.0	-0.5	-0.4	-0.3	-0.2	-0.2	0.0	0.0	0.0
- Capital	0.9	1.1	1.6	0.6	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.5
- TFP	2.0	0.7	-0.1	0.1	0.8	1.0	1.0	1.0	0.9	0.9	0.8	0.8

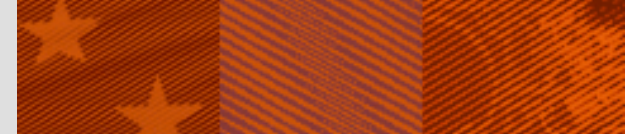
MEMORANDUM ITEMS: rates of change of the original variables

Output gap (a)	0.0	-0.6	3.2	-3.2	-4.5	-2.3	-0.4	1.0	2.0	2.7	3.5	4.2
potential GDP per capita	2.6	2.4	1.4	0.4	0.7	0.8	1.1	1.2	1.2	1.3	1.4	1.4

Source: Banco de España.

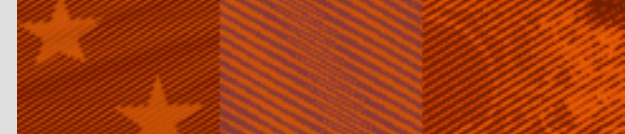
a. Level difference in percentage points between the actual and the potential GDP

THE EFFECT OF STRUCTURAL REFORMS (I)



- **Structural reforms implicitly included in our supply side figures over the forecast horizon 2017-2019 to the extent that they are of course included in the macroeconomic projections.**
- **Moreover, our medium term scenarios are constructed in a way such that incorporating potential effects of reforms is easy and transparent.**
- **We modify the anchors according to available estimates in the literature based on cross-country variation in PMR/EPL indicators and TFP growth and/or the unemployment rate.**
- **Structural reforms can be understood as improvements of one unit in either EPL or PMR indicators (recall that the 2012 labour market reform reduced EPL in 0.4).**
- **Armed with these estimates, we allow structural reforms to reduce the NAIRU and/or increase TFP growth in the steady state.**

THE EFFECT OF STRUCTURAL REFORMS (II)



- **Three scenarios serve to illustrate the approach:**

- Scenario 1:

- *Labour and product market reforms can reduce the NAIRU in 2.4pp (see Bassanini and Duval, 2009).*
- *NAIRU anchor 12% instead of 14.4%.*

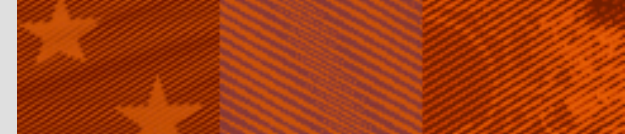
- Scenario 2:

- *Higher competition in the product market can increase TFP growth by 0.4pp (Nicoletti and Scarpetta, 2003)*
- *Lower employment protection legislation can further increase TFP growth by 0.15pp (Bassanini et al, 2009).*
- *TFP growth 1.3% instead of 0.8%.*

- Scenario 3:

- *Reduction in NAIRU together with increase in TFP growth.*

THE EFFECT OF STRUCTURAL REFORMS



POTENTIAL GROWTH OF THE SPANISH ECONOMY PROJECTIONS IN ALTERNATIVE SCENARIOS

	Baseline	Scenario 1	Scenario 2	Scenario 3
	2020-2025	2020-2025	2020-2025	2020-2025
Potential growth	1.3	1.5	1.7	2.0
Contributions to potential growth				
- Employment	0.0	0.2	0.0	0.2
- Capital	0.5	0.5	0.6	0.7
- TFP	0.8	0.8	1.1	1.1
MEMORANDUM ITEMS:				
Potential GDP per capita	1.4	1.7	1.9	2.2

Source: Banco de España.



Thank you

PHILLIPS CURVE 1980Q1-2015Q4



SOURCE: Banco de España



SOURCE: Banco de España

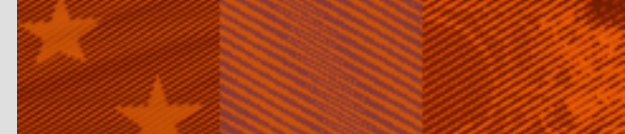
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POTENTIAL TFP GROWTH



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MEDIUM-TERM PROJECTIONS



- “Equilibrium” values will be attained in 2026 under the assumption that the current expansion will last as long as the previous one (Berge and Jorda, 2013)
- The neoclassical growth model predicts that output and capital per worker should grow at a rate that is constant and equal to the (exogenous) growth of technology:

$$g_{Y/L} = g_{K/L} = g_T$$

- g_T is the 1982-2013 average TFP growth, 0.8%.
- g_L is taken from the National Statistics Institute, -0.5%.
- Moreover, we also assume that:
 - NAIRU: 14.4%, the 1982-2013 average.
 - Participation rate: 79%. Taken from Carone (2005), EC AWG.
 - Hour worked: 1640 hours per year (34 hours per week).
- Linear convergence is imposed for all variables.

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