Europe's Productivity Drift

Bruegel Economic Workshop

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Economic growth sources

Growth Factors

$$GDP \quad p.c. = f(L; LP)$$

L: Labour Force
LP: Labour Productivity

$$GDP \quad p.c. = \frac{Y}{N} = \frac{L}{N} \bullet \frac{Y}{L}$$

Employment rate | Labour Productivity

Y: GDP L: Employee N: Population

In terms of neoclassical production function, Labour Productivity (LP) is defined as:

$$LP = \frac{Y}{L} = A \bullet \left(\frac{K}{L} \right)^{\alpha}$$

k: Capital

α: Elasticity of product with regard to capital

A: Total Factor Productivity which depends upon the effect of technology on production and on the economy´s level of technological development.

Productivity as long-term growth factor

Δ GDP p.c.

- **Δ L/N** →
  - Socially beneficial economic growth
  - Restrictions
    - Can occur as long as the economy has not reached full employment (Current employment rate US 72%, EU15 65%, Spain 58% - Lisbon Agenda target: EU 70%)
    - Limited in the long term by labour force replacement rate
- **Δ LP** →
  - Allows for per-capita GDP growth without additional increases in the labour force, leaving it as the sustainable growth source in the long term for those economies that are at full employment.

Long-term determinants of labour productivity

- Capital stock per employee
- Human capital
- Technological capital stock: R&D
- Technology utilisation in productive process
- Proper regulation of labour market, product and service markets.

Increases in labour productivity and workforce utilisation will be needed to preserve EU average living standards, given that Europe's population is aging.

Productivity measurement: Macro versus Micro outlook

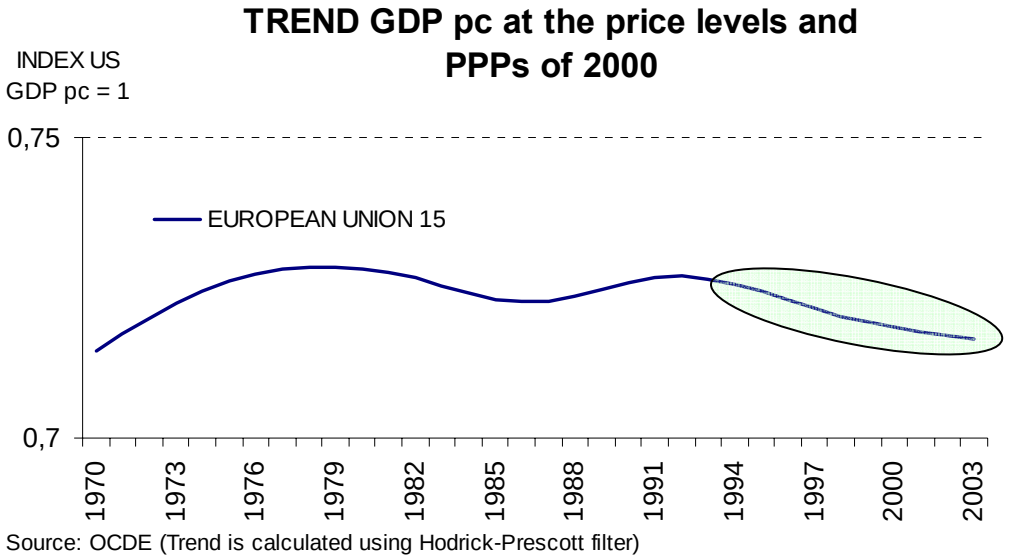
Aggregate Macroeconomic Productivity analysis: measurement difficulties

- Subject to many measurement conditions:
  - Data not available on important productivity determinants
  - Different price index to series deflation: standard or hedonic index
  - Informal economy (or black economy)
- Considerable volatility over the economic cycle (short-term influent factors)
  - Labour market: Employment acts as a compensation mechanism between real wages and productivity, with their respective rates of growth tending to converge in the medium-term.
  - Demographic evolution and migrations
  - Economic cycle: When interest rates drop rapidly, they encourage the proliferation of less profitable businesses, with lower added value, generating employment with lower productivity (construction, hotel trade services) and reducing overall productivity

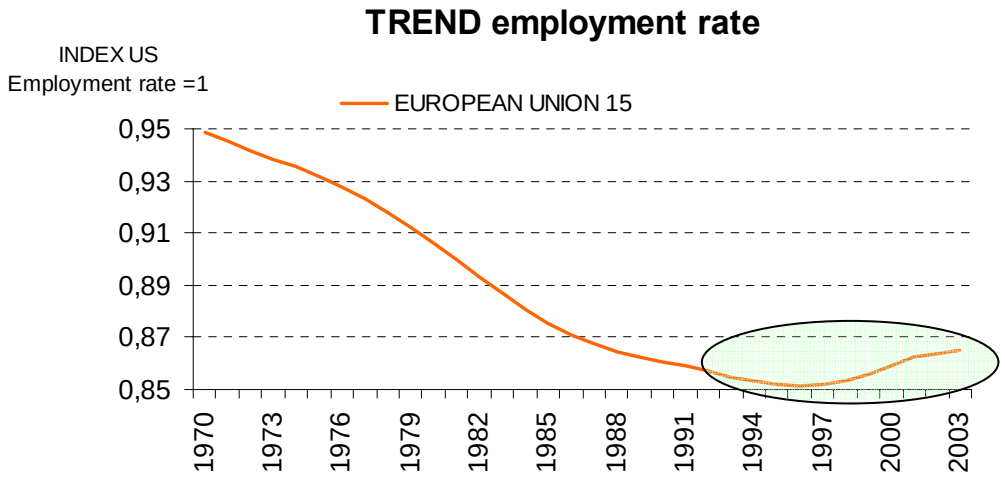
Microeconomic outlook

- Sector analysis is more reliable.
  - More homogeneous data
  - Especially in tradable sector and open market

Empirical evidence: GDP pc and productivity growth US – EU15



Source: OCDE (Trend is calculated using Hodrick-Prescott filter)



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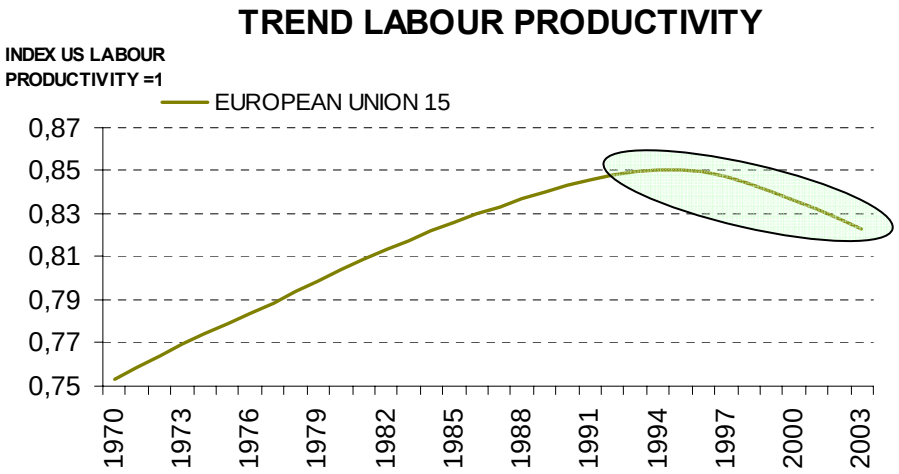


Source: OCDE (Trend is calculated using Hodrick-Prescott filter

GDP pc gap sources (I): Labour resource utilisation

- Lower employment rate EU15
  - Labour market rigidities
    - Industry-wide negotiation of collective bargaining agreement
    - Income support for job loss
    - Structural problems:
      - Female unemployment
      - Advanced age unemployment
  - Social insurance
- Fewer working hours per employee EU15
  - Fewer incentives to increase additional job and capital earnings
  - Some social preference for leisure in part explained by more extensive coverage by welfare state.
    - Higher marginal tax rate on job and capital earnings
    - Extensive social coverage by welfare state

GDP pc gap sources (II): Labour productivity

- Downward trend in labour EU productivity since 1995 versus US is sustained by:
  - Lower Information and Communication Technologies (IT) utilisation
    - IT production industry is smaller in the EU (6%) than in the US (7.3%) but the difference is small.
    - Insufficient use rather than production (especially in service sectors) has contributed significantly to aggregate productivity growth in the US. In the EU this contribution has been modest. Not only the IT-using services sector is smaller in the EU, but its productivity growth since 1995 is four times lower.
  - Lower R&D investment and sub-optimal selection of investment projects
  - Regulatory barriers
  - Barriers to competition
  - Product and services market rigidities

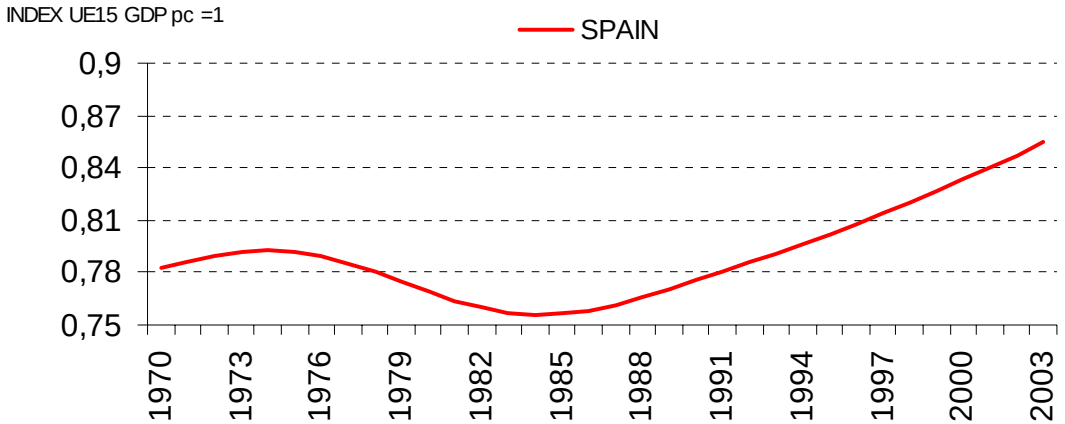
Productivity improvement measures

- Macroeconomic stability → Necessary but not sufficient condition.
- Improve labour market's flexibility:
  - Productivity incentives to employee
  - Productivity incentives to employer
  - Improve labour mobility
- Ease regulatory burden on business and raise transparency and competition in product and service markets.
- Increase research and development investment and utilisation, especially in the private sector.
- Increase overall education of human capital.
- Boost public sector efficiency.
- Reduce informal economy.

ANNEX

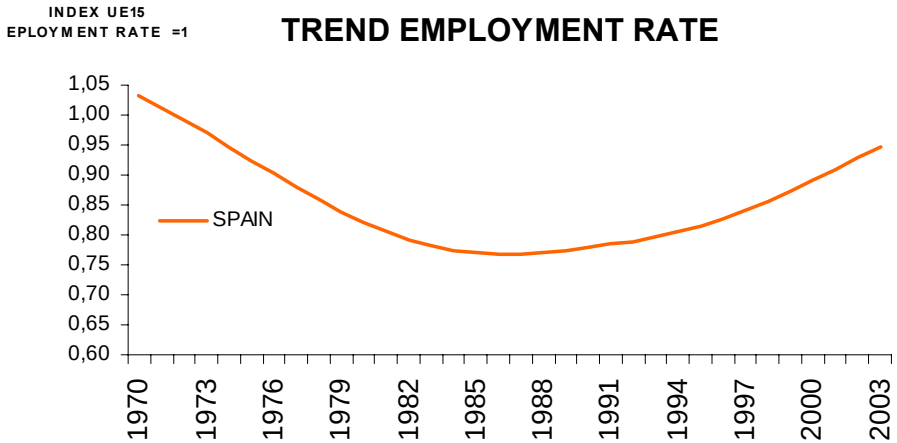
GDP pc gap EU - SPAIN

TREND GDP pc at the price levels and PPPs of 2000



Source: OCDE (Trend is calculated using Hodrick-Prescott filter)

TREND EMPLOYMENT RATE



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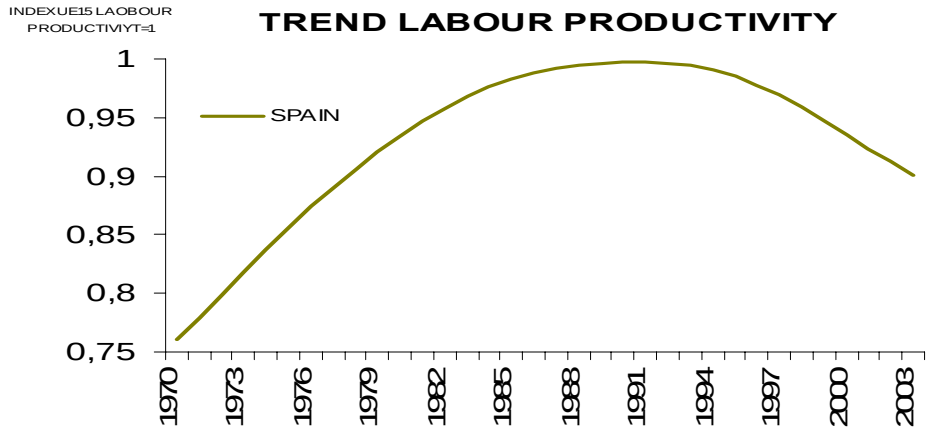
TREND LABOUR PRODUCTIVITY



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