Discussion of "Potential Output Growth in Several Industrialized Countries: A Comparison"

"Perspectives on Potential Output and Productivity Growth" (April 2006)

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Overview

1. Highlights
2. Some thoughts on modeling TFP from a policymakers perspective
   - Difficulties identifying breaks in trends
   - Discrimination between deterministic trends and stochastic trends and Type I versus Type II policy errors

Highlights

1. International comparisons of potential output growth (7 countries/regions) based on 3 different techniques
   - Careful to distinguish between medium-term and long-term concepts
2. New contributions:
   1. Consistent and homogenous capital stock series
   2. Capital deepening effects calculated based on a stable capital/output ratio in value terms

Conclusions

1. Medium-term U.S. potential growth much higher than Euro Area over 1991-2004 due to (3.2% versus 2.2%)
   1. Differences in contribution from labour input growth, mainly reflecting demographic factors (0.8 versus 0.2%)
   2. Stronger contribution from TFP growth (1.4 versus 0.9)
      - domestic R&D expenditures highly correlated with tfp growth across countries

Detecting Trend Breaks

- Detecting breaks in the trend growth of productivity is difficult
  - with the benefit of hindsight it may seem relatively clear in mid-sample
  - hard to identify in real time because trend breaks are clouded by transitory movements in data

Detecting Trend Breaks

- Conventional tests are not very powerful as the possible break point approaches the end of the data sample

- Andrews (2003): best of the bunch

Detecting Trend Breaks

- "Are We There Yet? Looking for Evidence of A New Economy -- Van Norden (2005)
  - Simulation experiments calibrated to U.S. labour productivity growth data
  - Null: no break

$$q_t = \alpha + p.q_{t-1} + \varepsilon_t$$

Detecting Trend Breaks

- How long does it takes to detect an improvement in trend productivity growth at the 5% level with a probability of at least 50%?
  - Double the trend growth rate: 6 quarters
  - 50% improvement: 5 years
  - 25% improvement: 9 years

- Economically important changes in trend growth are identified too late for policymakers
  - need to take probabilistic approach to operationalize this research

Modelling the TFP trend

- TFP is modelled as:

$$g_t = \gamma_0 + \gamma_1 g_{t-1} + \gamma_2 \Delta cur_t + \gamma_3 \tau_t + \gamma_4 t + \gamma_5 t_1 + \gamma_6 t_2 + \varepsilon_t$$

- Deterministic time trend (or trend stationary TS)

  – Segmented trends view (Perron 1989)

Deterministic or Stochastic Trend?

- Another possibility…

- Stochastic trend (or difference stationary DS) (Nelson and Plosser 1981)

$$\Delta g_t = \alpha_0 + \varepsilon_t$$

Deterministic or Stochastic Trend?

- econometrics question: can we reject the null of DS in favour of a deterministic time trend TS?
  - Tests have low power…not sure

Deterministic or Stochastic Trend?

- What is the monetary policymaker really interested in?
  - How should a policymaker adjust her estimate of potential output given an innovation in output of indeterminate origin?

Deterministic or Stochastic Trend?

- If she views tfp/potential as TS, she might simply continue to project linearly the level of trend tfp/potential from her starting point
  - 1970s monetary and fiscal policy mistakes in many western countries could be thought of in this light

Stochastic or Deterministic Process?

- If she thought of tfp/potential as DS, she might incorporate a discrete jump in her level of trend tfp/ potential output

- Being wrong could be costly with either assumption but what should she assume? (Coletti, Muir and Tetlow 1995)

Stochastic or Deterministic Process?

- Prudent strategy is to assume that TFP is a stochastic process
  - Measurement errors will be more systematic under the TS assumption than under the DS assumption if the model turns out to be wrong!
  - Take part of the surprise as a shock to potential output

Conclusions/Suggestions

- Carefully done, thoughtful paper
- Suggestions:
  - alternative ways to model tfp
  - structural analysis of medium-term labour inputs (e.g. using cohort analysis for estimating the trend participation rate)
  - more work on understanding reasons why tfp is so different across countries (e.g. Canada)
    - What's preventing the adoption of tfp growth enhancing measures in certain countries?