

The Evolution of Okun's Law and of Cyclical Productivity Fluctuations in the United States and in the EU-15

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Why should you read this paper?

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- ▶ Topical subject
- ▶ US-EU comparison
- ▶ Discussant-friendliness:

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- ▶ Let's look at some suggestions:
 - ▶ Decomposition
 - ▶ Model
 - ▶ Gap regression
 - ▶ End-of-expansion effect
 - ▶ Productivity
 - ▶ EU case

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- ▶ Paper uses Kalman filter for trend-cycle decomposition
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→ Choice of specific model should be rationalised.

Suggestions: Decomposition

- ▶ *"we need estimates of trend growth that are not sensitive to the ups and downs of the business cycle"*
 - "The severity of the recession in 2007-09 should be measured [...] not by the estimated Kalman trend shown by the dotted black line that bends in response to the business cycle."*
 - ▶ Why trend necessarily unconnected to ups and downs?
 - ▶ Why should the trend not decline in response to crisis?
- ▶ EU case: HP with $\lambda = 6400$ extremely smooth
Implicit restriction on an unobserved components model

Suggestions: Model

$$\Delta x_t = a_t + bZ_t + w_t$$

$$a_t = a_{t-1} + v_t$$

- ▶ Z exogenous and contemporaneous
 - ▶ Is the unemployment gap exogenous?
 - ▶ Is the unemployment gap contemporaneous to productivity?
- ▶ x_t differenced, a_t random walk $\Rightarrow x_t \sim I(2)$
- ▶ Relation of variances of w and v must be prespecified.
- ▶ Latent cycle dynamics would provide identifying information:
e.g. AR(1): $w_t = cw_{t-1} + u_t$
 \Rightarrow Reduced form: ARIMA(1,2,1)
 \Rightarrow 3 moment conditions for 3 unknown parameters

Suggestions: Gap Regression

$$\Delta x'_t = \sum_{i=1}^4 \alpha_i \Delta x'_{t-i} + \sum_{j=1}^4 \beta_j \Delta y_{t-i} + \phi x'_{t-1} + \sum_{k=1}^8 \gamma_k D_k + \varepsilon_t$$

- ▶ x'_t = endogenous variable minus trend
→ In fact regression of unemployment gap Z on output gap y
- ▶ DGP of x'_t is known and different from the above regression.
→ Include all relevant variables in state space model.
- ▶ Deviation from trend x' stationary by definition (see x'_{t-1})
→ no *long-term* response to output gap
- ▶ No level term y'_{t-1} → y overdifferenced

Suggestions: End-of-Expansion Effect, Break

- ▶ *"overhiring that is not balanced by subsequent underhiring will result in a small and insignificant coefficient on the EOE dummy"*
 - ▶ Upward bias in dummy coefficient if there is overhiring but no subsequent correction
 - ▶ Solution: 2 separate coefficients, test for equality
- ▶ *"dating of the EOE dummies by referring to the distinction between the NBER business cycle and the growth cycle"*
 - ▶ How and why does this relate to overhiring?
 - ▶ Alternative: Determine regimes endogenously
- ▶ *"response of productivity change to output change declines from significantly positive to zero [...], but this structural change is not statistically significant."*
 - ▶ Chow test based on sum of squared residuals
 - ▶ Solution: direct test for coefficient equality

Suggestions: Productivity

- ▶ Two attempts to explain buoyant productivity growth:
 - 1) Unconventional productivity measure
 - 2) Economic modelIf 1) is true, do we need 2)?
- ▶ Focus on labor productivity
Control for capital input → TFP
→ US-EU: different performance or different input structure?

Suggestions: Productivity Shocks

- ▶ *"Because after 1986 productivity did not respond in any systematic way to output fluctuations [...] the concept of a 'productivity shock' [...] appears to be obsolete."*
 - ▶ Productivity shock = *trend shock* - here: trend filtered out
- ▶ *"changes in the cyclical deviation of productivity growth are highly noisy and negatively correlated"*
"fluctuations are a residual depending on the response of labor input to output and do not reflect autonomous changes in technology."
 - ▶ RBC: technology trend shocks also affect the cycle; no implication of special form of the cycle
 - ▶ Observed productivity = mixture of different latent shocks

Suggestions: EU-15 Case

- ▶ EU case interesting, but limited sample and lack of hours data
 - ▶ However, explanation of shrinking EU employment elasticity by hours reduction
 - ▶ Huge differences between EU-15 countries in recent crisis
 - ▶ Unusual decline of productivity (rather than hours per person)
- ▶ Informative discussion of institutional US-EU differences, but stronger focus on *changes* in EU needed
 - ▶ Important: perception of structural severity of crisis, employment backlog before crisis