Discussion on 'Financial Intermediation and Macroeconomic Efficiency' by Yves Kuhry and Laurent Weill

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The Question

Are macroeconomic efficiency and financial intermediary development related?

1. Compute measure of macroeconomic efficiency, ie "Solow residual", using stochastic production frontier approach
2. Regress this on various measures of degree of financial intermediary development, taking into account possible endogeneity of financial intermediary development.

Building on earlier work

Kuhry and Weill

Méon and Weill

Arestis *et al*

DEA analysis.

Stochastic frontier approach.

Endogeneity between financial intermediary development and macroeconomic efficiency allowed.

Stochastic frontier

Cobb-Douglas production function with labour (L), physical (K) and human (H) capital as inputs

$$Y_{it} = \exp(\varepsilon_{it} + \upsilon_{it} + \alpha_0) L_{it}^{1-\alpha_1-\alpha_2} K_{it}^{\alpha_1} H_{it}^{\alpha_2},$$

where

- ε_{it} is country-specific, Normally distributed random term,
- α_0 common constant,
- υ_{it} country-specific total factor productivity ("macroeconomic efficiency"), and
- α_1 and α_2 are income shares of physical and human capital.

The paper makes an important contribution in conditioning on human and physical capital deepening!

Underlying assumptions

$$Y_{it} = \exp(\varepsilon_{it} + \upsilon_{it} + \alpha_0) L_{it}^{1-\alpha_1-\alpha_2} K_{it}^{\alpha_1} H_{it}^{\alpha_2},$$

1. Constant returns to scale.
2. Factor shares are identical to all countries.
3. Elasticity of technical substitution is unity for all inputs in all countries.
4. Same elasticity of substitution to all inputs.
5. No restriction between years sampled!

Empirical counterparts

Time-span: 1991-1995.

PrivateCredit

Credit to private enterprices/GDP

LiquidLiabilities

Wide monetary aggregate/GDP

CommercialCentralBank

Commercial banks' assets / (Commercial banks' assets + central bank assets)

Empirical counterparts...

Trade openness

Trade/GDP, possibly (Exports+imports)/GDP?

Inflation rate

log(inflation) + 1

GovernmentSize

Government expenditure/GDP

Modeling macroeconomic efficiency

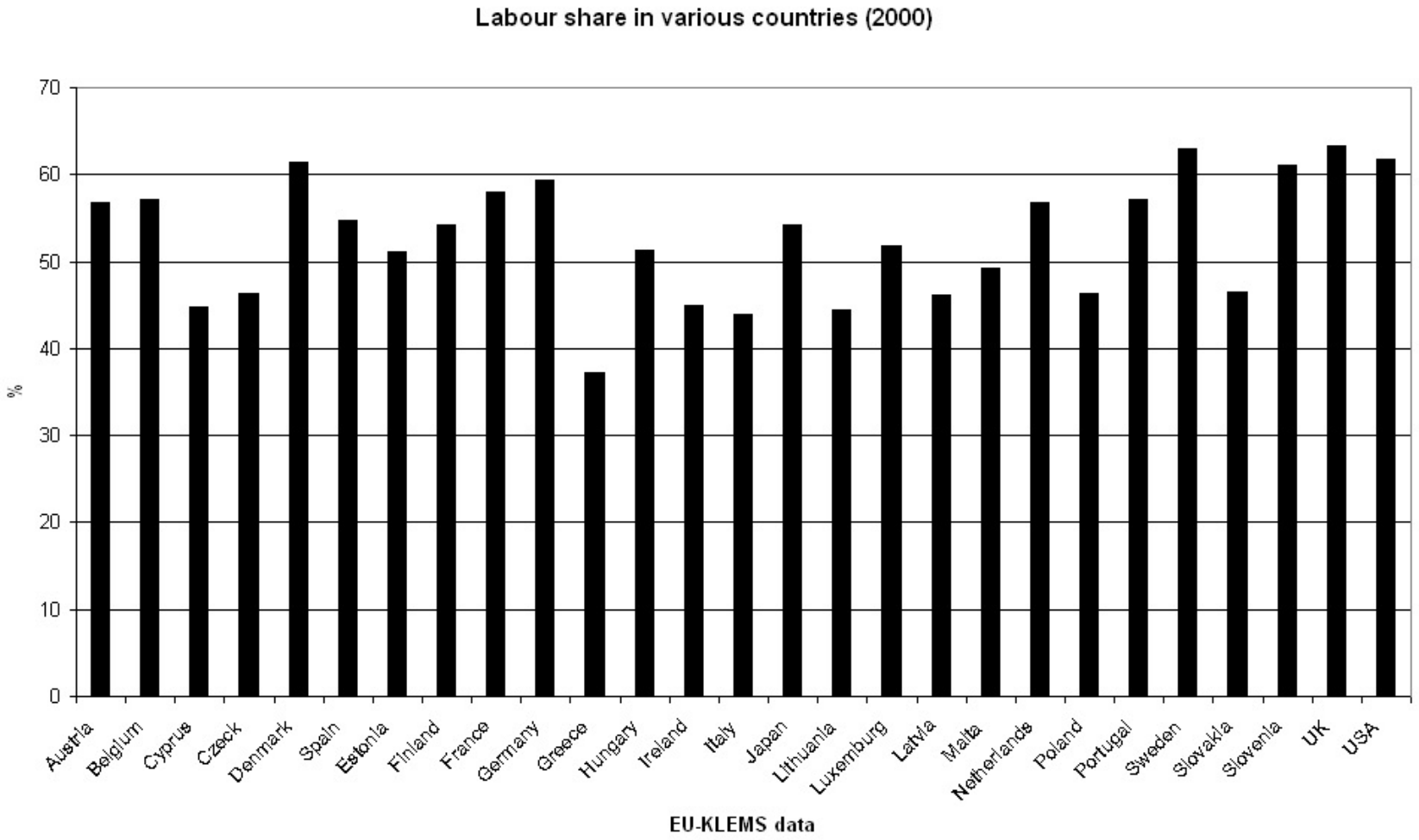
What is called macroeconomic efficiency is actually the level measure of total factor productivity under strong, and possibly counter factual, assumption

- Same income share for inputs in all countries
- Unit elasticity of technical substitution to all inputs.

To facilitate evaluation of the method and the underlying assumptions, please

- show us the efficiency measures, and
- compare these to, for example, *growth accounting* measures or level of average labour productivity? (Compare EU-KLEMS data when possible)

Heterogeneity in factor shares



Surprisingly nice results

- The expansion of PrivateCredit lead to a positive growth in total factor productivity.
- Also LiquidLiabilities and CommercialCentralBank lead to a positive TFP growth when controlling GovernmentSize.
- The test for over-identifying restrictions always alerts when InflationRate is used as an instrument. This is a sad message to a central banker, who would love to see that the higher the inflation rate, the lower the macroeconomic efficiency.

but

- 2nd order autocorrelation present in the Model III of LiquidLiabilities
- time dimension is very small: how close asymptotics
- country-specific fix effect in growth-rates (convergence)

Extensions?

1. Chosen approach endogenizes the total factor productivity. It proceeds in two steps. $\longrightarrow$ combine these steps into single framework: stochastic frontier with financial market institutions.
2. Panel cointegration techniques: longer time-span is needed.
3. Are the results robust when controlling the income-level (discussion by the first keynote speaker).