Options for updating and applying productivity adjustment factors for interim years and 2017 cycle

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university of groningen

Agenda

1. Conceptual perspective
2. Measurement issues

Productivity adjustment

- Difficulties in measuring prices for construction and government, health and education (GHE)
- Scope for bias due to differences in:
  - Total factor productivity (TFP)
  - Capital intensity
- Status so far:
  - No adjustment for TFP differences ⇒ no productivity adjustment in construction
  - Use economy-wide capital intensity differences for GHE adjustment

ICP 2011 productivity adjustment factors

$$P_i = \frac{1}{2}(\alpha_i + \bar{\alpha}) \log\left(\frac{k_i}{\bar{k}}\right)$$

$$F_{i,b} = \left(e^{P_i - P_b}\right)^{-1}$$

$$\widetilde{PPP}^{w}_{i,b} = PPP^{w}_{i,b} \times F_{i,b}$$

Practical implementation: round PAFs to nearest 0.5 or 0.

Adjustment over time

Case:

1. Extrapolation: $PPP^{w}_{t+1,i,b} = PPP^{w}_{t,i,b} \times \left(\frac{P_{t+1,i}}{P_{t,i}}\right) / \left(\frac{P_{t+1,b}}{P_{t,b}}\right)$
2. Additional benchmark: $PPP^{w}_{t+1,i,b}$ (regional or global)

Adjustment issues

- *Case 1:* How are deflators measured? Wages, input prices or based on nominal expenditure and quantity indicators?
  - Wages/input prices: need to adjust for changing productivity adjustment factors
  - Quantity indicators: no further adjustment needed
- *Case 2:* How are PPPs measured?
  - Eurostat/OECD: increasingly based on quantity indicators ⇒ no (strong) case for within-region productivity adjustment, but still important for between-region adjustment of linking factors

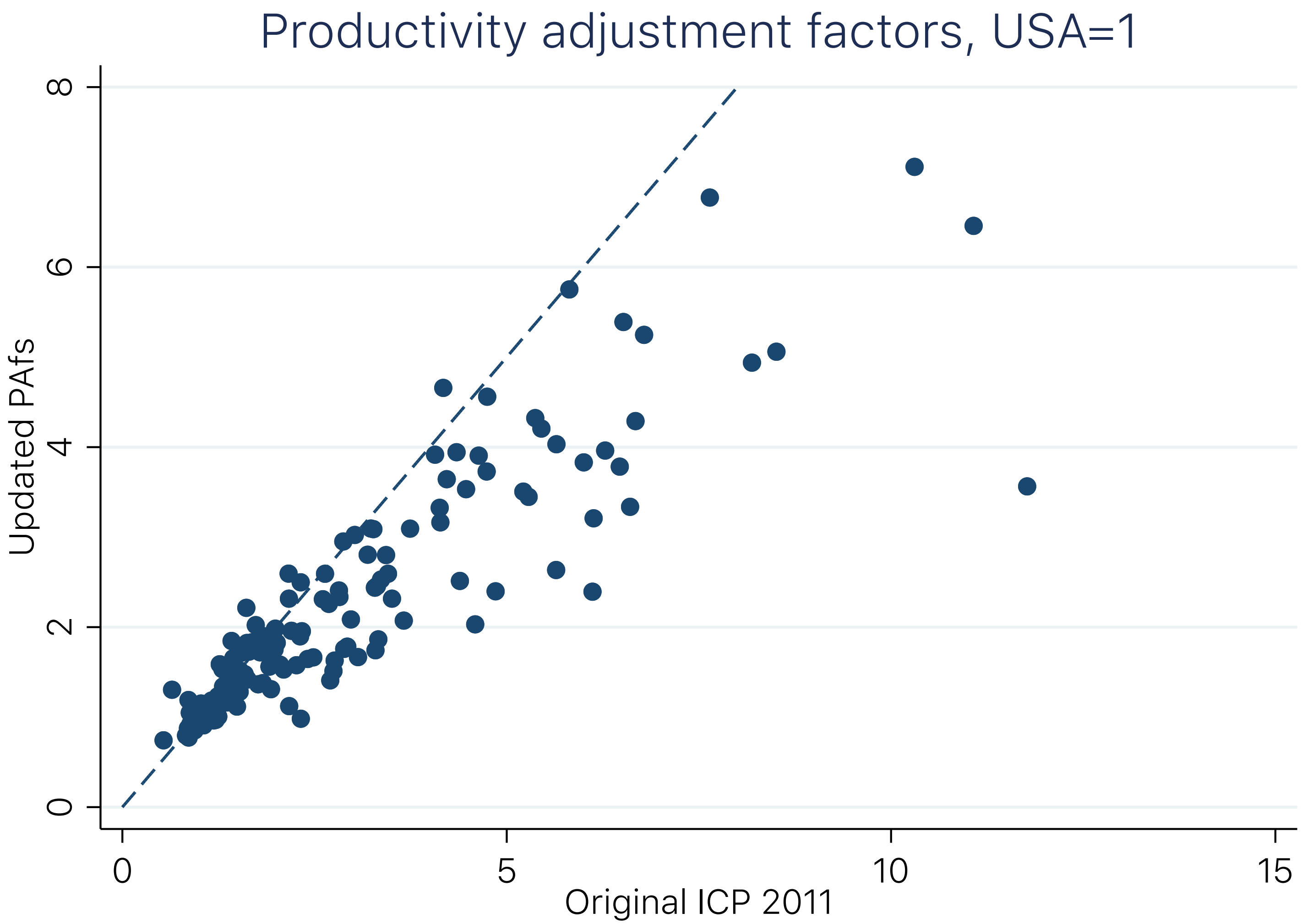
Measurement in ICP 2011

- Capital/worker data based on Penn World Table (version 8.1)
- $\alpha_i = 1 - \text{Labor share}$ (v8.1)

Measurement update

- Capital/worker data based on Penn World Table (version 9.0)
  - More national source used for estimating capital
  - Data until 2014
- $\alpha_i = 1 - \text{Labor share} - \text{Resource rents}$ (v9.0+WDI)
- Agenda:
  - Data until 2016 by June 2018, 2017 by mid-2019
  - Revisit initial stocks; relevant mostly for 'young countries'

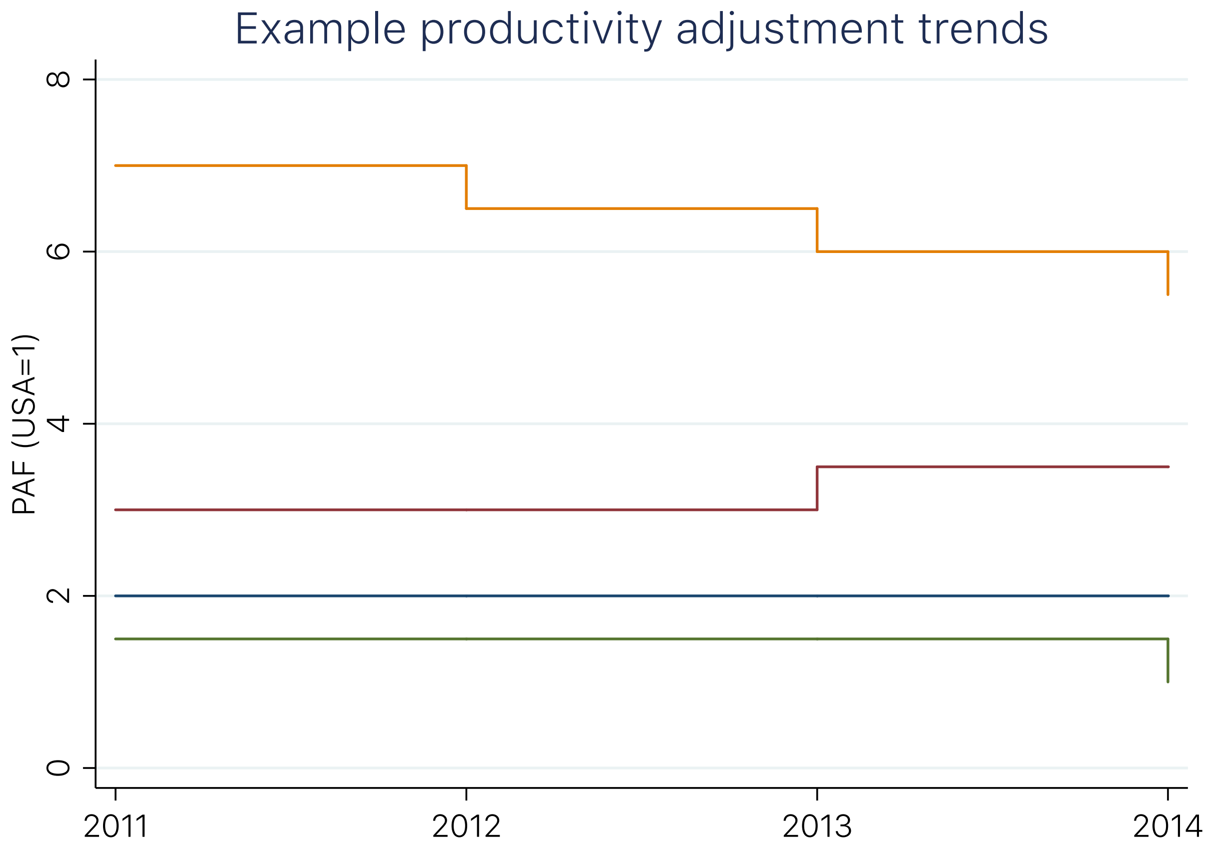
PAF comparison for 2011



Smaller adjustment factors, due to:

- Better capital data &
- Better capital share data

PAFs over time (2011–2014)



	# of countries
No change	156
– 0.5	20
+ 0.5	5
– 1.5	1
Total	182

Options for implementation

1. 2011–2017
   – Changes in PAFs can be smoothed to avoid jumps
2. Beyond 2017
   – Annual release will show jumps, unless previous years are revised

- Helpful to have a common approach (smooth or jump)
- Jumps may not be too notable at GDP level