Comments on "The production of cognitive and non-cognitive human capital in the global economy"

Jianhuan Xu

May 22, 2017
Important research question: assess the education system in different countries

Idea: use output, occupation share rather than the test score

Classical labor model

Two abilities cognitive vs non-cognitive (initial talent draw from Frechet dist with shape parameter $\theta$)

Aggregate production function

$$y^k = \Theta^k \left( A_c L_c^k \frac{\alpha-1}{\alpha} + A_n L_n^k \frac{\alpha-1}{\alpha} \right)^{\frac{\alpha}{\alpha-1}}$$

Human capital production function

$$h_c = h_c^k e^\eta, \quad h_n = h_n^k e^\eta$$

Education quality is the part of output per worker, which can not be explained by the TFP $\Theta^k$
Comment: Model setup

- Parameters that are same across all countries
  - $A_c$, $A_n$ and $\alpha$ in the production function,
  - and $\eta$ in the human capital production function
- It seems to me that assuming $A_c$ and $A_n$ same across k is difficult to swallow
Comment: The Identification

- Three observed variations: output per worker, test score and employment share (education expenditure)
- Three country specific variables $\Theta^k$, $h^k_c$ and $h^k_n$; and two elasticities $\eta$ and $\alpha$

\[
\frac{p^k_c}{p^k_n} = f \left( \frac{h^k_c}{h^k_n}, \frac{A_c}{A_n} \right) \\
y^k \frac{L^k}{\theta^k} = g \left( \frac{p^k_c}{p^k_n}, \frac{A_c}{A_n} \right) \\
S^k = m \left( h^k_c, p^k_c \right) \\
E^k = \eta y^k
\]

- Variation of education expenditure is not well used in the current model
  - When $\frac{A_c}{A_n}$ depends on $k$, the expenditure share is not a constant
Comment: Measurements

- How to handle the jobs that need both cognitive and non-cognitive skills, when computing the employment share?
  - If a worker with high cognitive skill is matched with a low cognitive skill demand job, can the model capture it as well?

- Does the classification of cognitive vs non-cognitive occupancy same across all countries?