Human Capital Spill-Overs and the Geography of Intergenerational Mobility

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A Very Cool Idea

- The level of IGE (intergenerational elasticity of earnings) can be influenced by the technological structure of an economy.
- Economies with higher level of skill complementarities in production may have a lower (higher) private marginal return to human capital investment for high (low) skill levels.
- High (Low) ability parents may decide to invest less (more) in their children in economies in which skills are more complements.

A Very Cool Idea

Their analytical example explains very clearly the idea. In this model wages are:

$$w_h = \frac{1}{\lambda} y^{1-\lambda} h^{\lambda}$$

where

$$y = \int q(h) h^{\lambda} dh$$

The private return to skills depends on λ:

$$\frac{\partial^2 w_h}{\partial h \partial \lambda} = \left(\frac{y}{h}\right)^{1-\lambda} \left(\ln \frac{h}{y} + A(\lambda)\right)$$

which is positive (negative) for high (low) h (see their figure 1).

The Corollary

- The difference in technologies across different countries might partially explain the difference in IGEs:

$$\ln W(Child) = C + (1 - \lambda) \ln Y_{Child} + \lambda \ln W(Parent)$$

- Because of this externality, the optimal role of public support to human capital investment differs across countries.
  - The stronger the complementarities, the higher the level of public investment.
  - Equalization of skills is more socially desirable.

The discussion

- The idea is very cool, the execution is very careful and the result is very believable
  - I am not a big fan of papers that explain 100% of the pattern with one channel only...
- My discussion will be based on 3 different angles
  - Identification of the heterogeneity in technologies.
  - Some other testable implications of the model.
  - Discussion on modeling choices.

The Identification of the Heterogeneity in Technologies

- Identifying the level of skill substitutability across different countries is crucial!
- Being able to do a good job for the US is already a success. Doing it for many different countries is a nightmare
- The smart strategy is to assume that, conditional on industry, all countries have the same production function. The cross country heterogeneity is therefore driven by the differences in industry composition.
- Now the simplified task it to find the industry specific estimates of skill substitutability using US data only.

The Identification of the Heterogeneity in Technologies

- First Method: Industry specific skill dispersion,
  - Using equilibrium dispersion to explain dispersion is not ideal in my opinion.
  - Table 2 Panel B shows that countries with more "high inequality" industries have more IGE (which is very correlated with inequality). In my opinion not related enough to their story.
- Second Method (baseline?): Using O*NET measures that are linked to substitutability (team work, independence and responsibility)
  - This seems a more convincing identification strategy and indeed is the most used later on in the calibration part of the paper.
- Suggestion (although 2 methods are already many): high and low skills - college vs high school. Use Card's (2001) labor supply instrument (based on immigration) to estimate an industry specific demand function that identifies the elasticity of substitution.
  - Differently from the first method, this method uses a labor supply shock to identify the impact of relative quantities on relative prices.

Some Other Testable Implications

- The model provides many testable predictions:
  - Variance in education is higher in economies with more substitutability (how about levels?)
  - Variance in parental transfers is lower in economies with more substitutability (how about levels?)
  - Most skilled workers sort in industries where skills are the most substitutable.
  - The relationship between substitutability and educational spending (partially in Table 5)
- It would strengthen a lot the validity of the model if the same empirical approach used to validate the patterns in relationship to IGE would also validate the patterns in terms of the other variables.

Modelling Choices

- The industry specific PF is:

$$y = k^{\alpha}\left(\int z(i)h(i)^{\lambda}di\right)^{\frac{1-\alpha}{\lambda}}$$

  A standard PF to which we are fairly used is:

$$y = \left(U^{\delta} + (K^{\rho} + S^{\rho})^{\frac{\delta}{\rho}}\right)^{\frac{1}{\delta}}$$

  Does it matter?

- A related matter is that industry shares are exogenous. Different PFs (like the above for example) and a different aggregator for the final output would allow for the industry shares to depend on other factors.
  - Reverse causality: countries with higher IGE might have a greater demand for industries with higher substitutability.