Large literature on development accounting calculates the contribution of physical ($K$) and human capital ($H$) to X-country income dispersion (e.g., Hall and Jones, 1999; Klenow and Rodriguez-Clare, 1997).

Main difficulty is measurement.

Traditionally, focus on $H$ from schooling.

Some studies also consider experience (e.g., Bils and Klenow, 2000; Klenow and Rodriguez-Clare, 1997).

- Returns to experience similar across countries.

Find that $H$ and $K$ explain around 40% of X-country income dispersion.
Our Paper

1. Improve estimates of experience-earnings profiles across countries
   - Better data – more representative, larger samples
   - Flexible functional form.

2. Show implications for development accounting.

3. Provide some guidance for theory.
Data

- Data: 242 household surveys from 36 countries:
  - representative of whole or urban population
  - labor income for +5,000 individuals
  - 83% of the world income distribution
  - no sub-Saharan African Countries
  - exclude self-employed.

- Observe earnings, schooling and age for all countries, hours worked for most countries.

- (potential) experience = age − schooling − 6
Estimation

- Fully flexible functional form

\[
\log y_{ict} = \alpha + \theta s_{ict} + \sum_{x=1}^{45} \phi_x D^x_{ict} + \gamma_t + \psi_c + \varepsilon_{ict}.
\]

- Benchmark: assume no time or cohort effects.
- Adapt Deaton (1997) and Hall (1968) and assume:
  - Time effects sum to zero
  - Cohort effects sum to zero
  - Time effects sum to average TFP growth.
Slope: 0.32  
Correlation: 0.68
Development Accounting: Aggregate Human Capital Stocks

\[ h_{it} = \exp(g(s_{it}) + f(x_{it})) \]

\[ h_{it}^X = \exp(f(x_{it})) \]

\[ H^X = \frac{1}{T} \sum_{t=1}^{T} \frac{1}{N_t} \sum_{i=1}^{N_t} h_{it}^X \]

• Allow the returns to experience to vary across countries.
Follow Caselli (2005):

\[ Y = K^\alpha (AH)^{1-\alpha}, \quad \alpha = \frac{1}{3} \]

\[ success_1 = \frac{\text{var}(\ln Y_{KH})}{\text{var}(\ln Y)}. \]
## Development Accounting

<table>
<thead>
<tr>
<th>Human Capital Measure</th>
<th>Var(log(H))</th>
<th>Success$_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schooling</td>
<td>0.12</td>
<td>0.40</td>
</tr>
<tr>
<td>Experience</td>
<td>0.07</td>
<td>0.37</td>
</tr>
<tr>
<td>Schooling + Experience</td>
<td>0.23</td>
<td>0.60</td>
</tr>
</tbody>
</table>
Interpretation

- Workers in poor countries
  - have fewer opportunities to acquire H: learning-by-doing, social interactions (e.g., Lucas, 2009)
  - choose to invest less in H (Ben-Porath, 1967): TFP (Manuelli and Seshadri, 2010; Erosa et al., 2010), credit constraints (Galor and Zeira, 1993), taxes (Guvenen et al., 2011).

- Alternative explanations
  - long-term contracting, search frictions.

- Relation to slow lifecycle growth of firms (Hsieh and Klenow, 2013).
Concluding Remarks

- Document that experience-earnings profiles are flatter in poor countries.
- Allowing the returns to experience to vary across countries increases the contribution of $H$ and $K$ to X-country income differences from 40% to 60%.
- Thank you!