Development Accounting & Human Capital

- 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

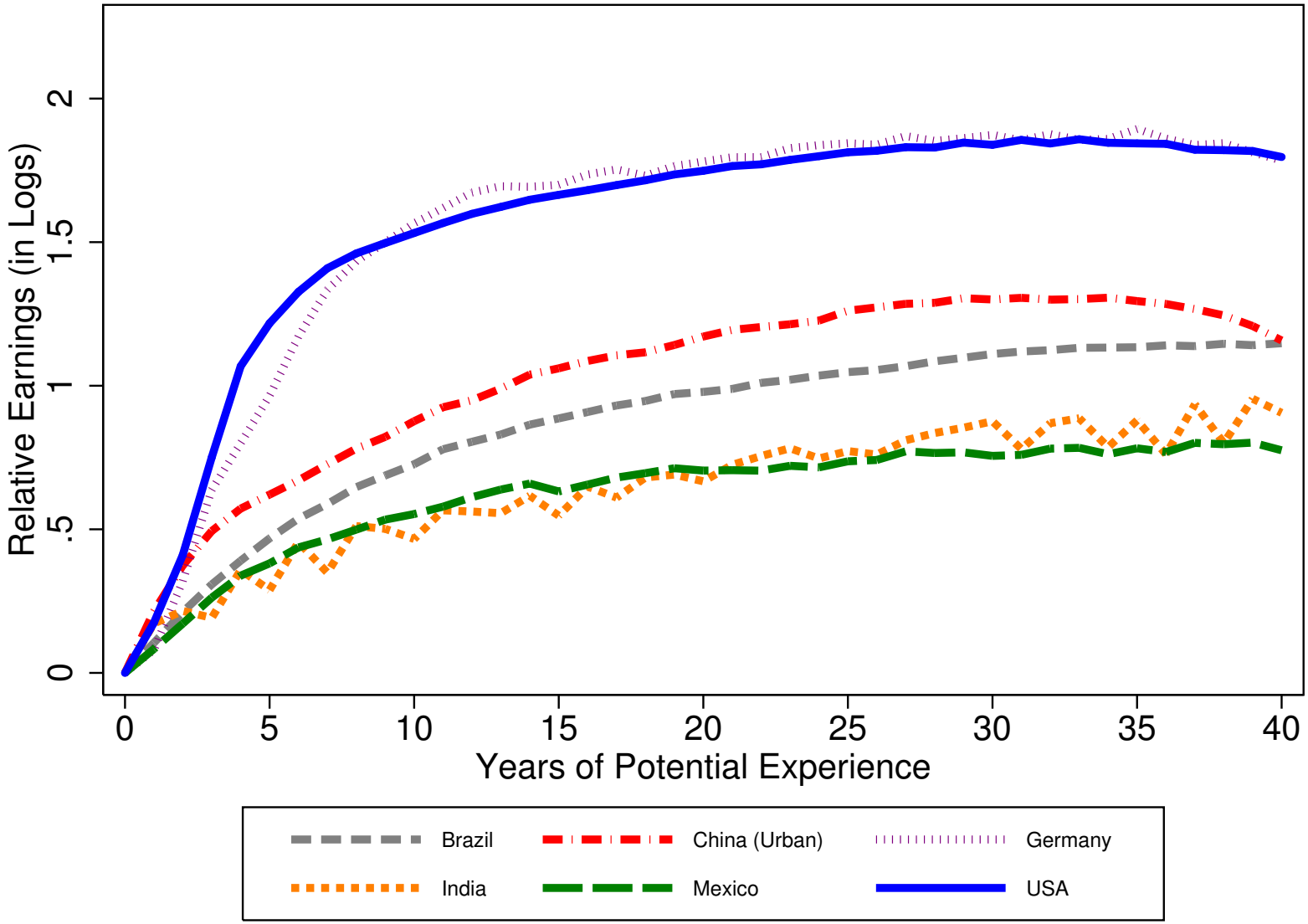
- Data: 242 household surveys from 36 countries:
  - representative of whole or urban population
  - labor income for +5,000 individuals
  - 83% of the world income distribution
  - no sub-Saharan African Countries
  - exclude self-employed.
- Observe earnings, schooling and age for all countries, hours worked for most countries.
- *(potential) experience = age – schooling – 6*

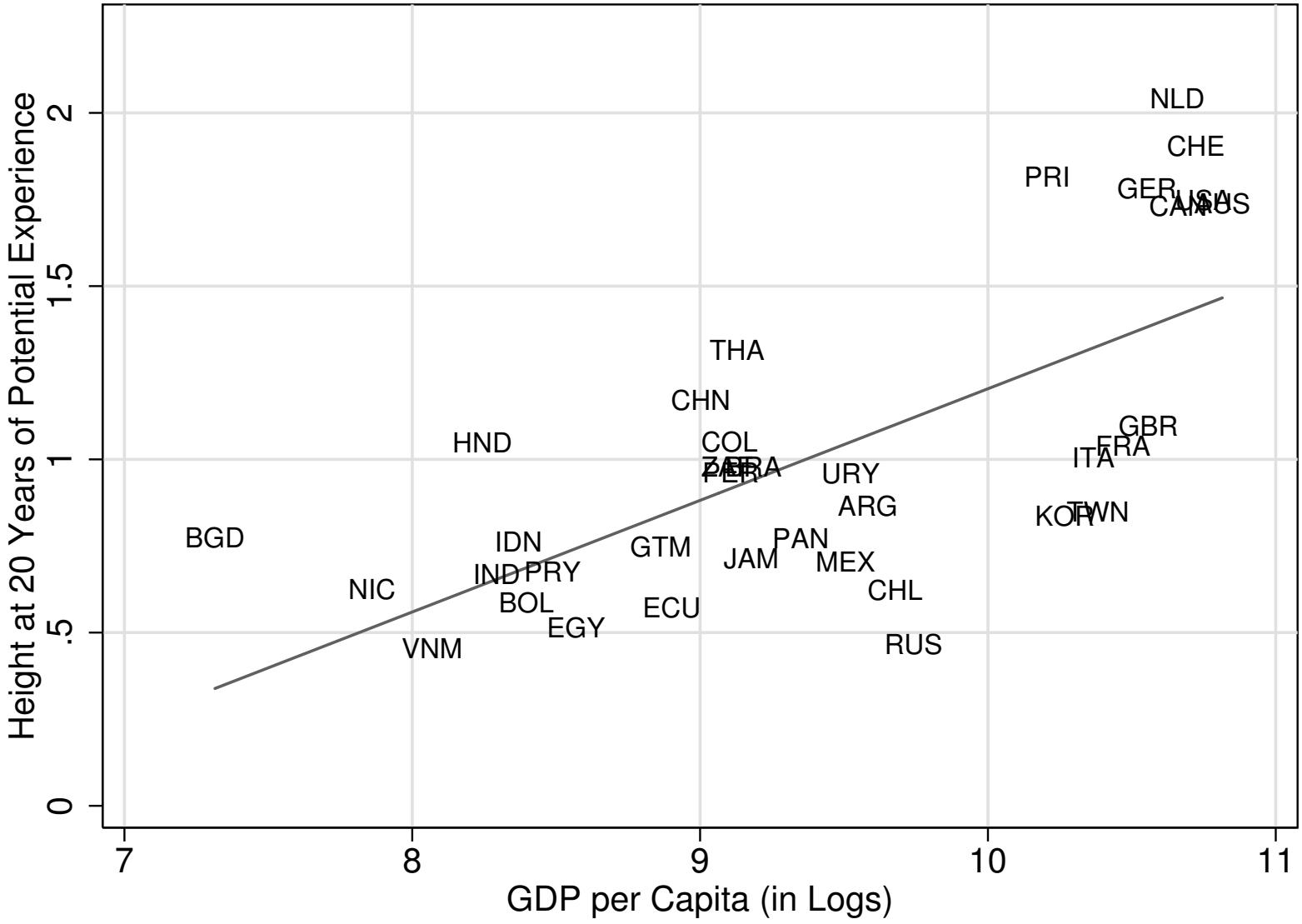
Estimation

- Fully flexible functional form

$$\log y_{ict} = \alpha + \theta s_{ict} + \sum_{x=1}^{45} \phi_x D_{ict}^x + \gamma_t + \psi_c + \varepsilon_{ict}.$$

- 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.


Relative Earnings (in Logs)
0
.5
1
1.5
2
0
5
10
15
20
25
30
35
40
Years of Potential Experience
Brazil
China (Urban)
Germany
India
Mexico
USA



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.

Development Accounting

- Follow Caselli (2005):

$$Y = K^{\alpha}(AH)^{1-\alpha}, \qquad \alpha = \frac{1}{3}$$

$$success_1 = \frac{\text{var}(\ln Y_{KH})}{\text{var}(\ln Y)}.$$

Development Accounting

Human Capital Measure	Var(log(H))	Success_1
Schooling	0.12	0.40
Experience	0.07	0.37
Schooling + Experience	0.23	0.60

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!