Discussion of
"The Risky Capital of Emerging Markets"
by
David, Henriksen & Simonovska

Stanley E. Zin
New York University

Workshop on International Economics
Atlanta Fed & NYU Stern
December 12, 2014

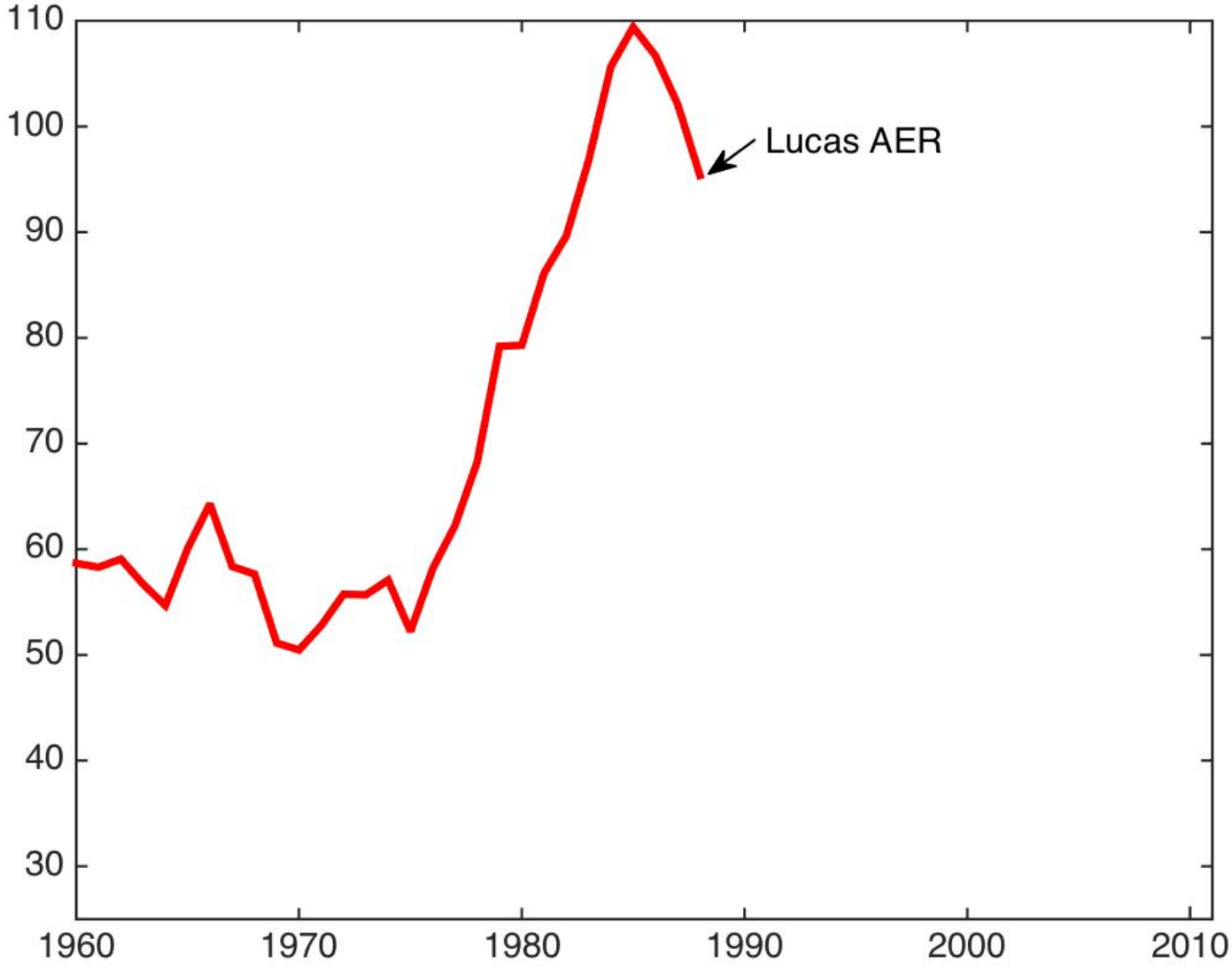
Lucas 1990

Data Capital productivity is orders-of-magnitude bigger in some countries (low-income?) than others (high-income?)

Theory Frictionless and complete world capital markets $\Rightarrow$ MPKs equal across countries

Puzzle Why doesn't capital flow from low-MPK countries to high-MPK countries to bring these differences closer to equality?

MPK India/US 1960-1989 (Lucas, TFP equal)



Answers?

Lucas Proposed (and dismissed) a number of possibilities

- human capital
- externalities from human capital
- capital-market frictions

Others More of the same

This paper's question(s)

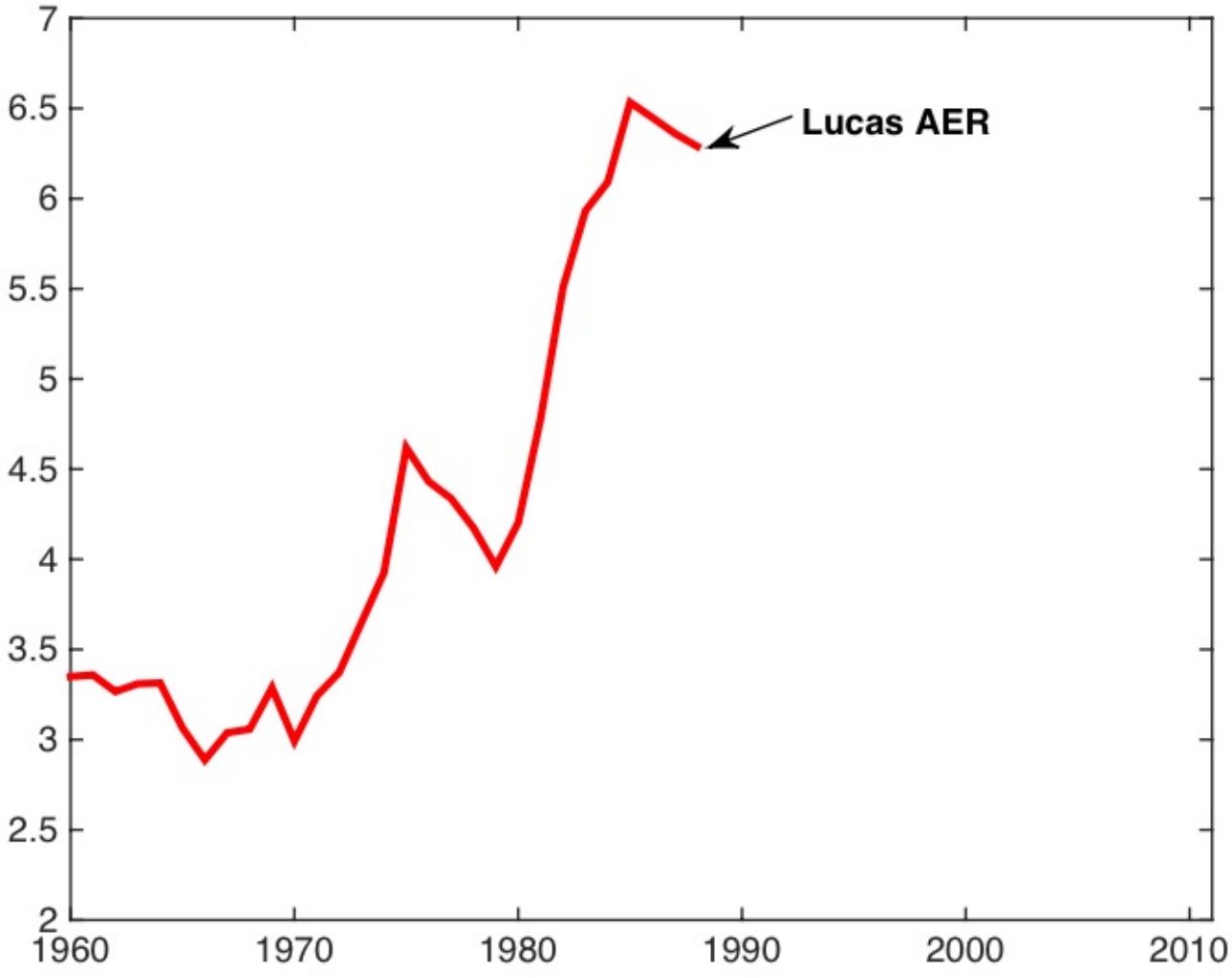
Are high MPKs compensation for high risk?

What kinds of risks could command such large premiums?

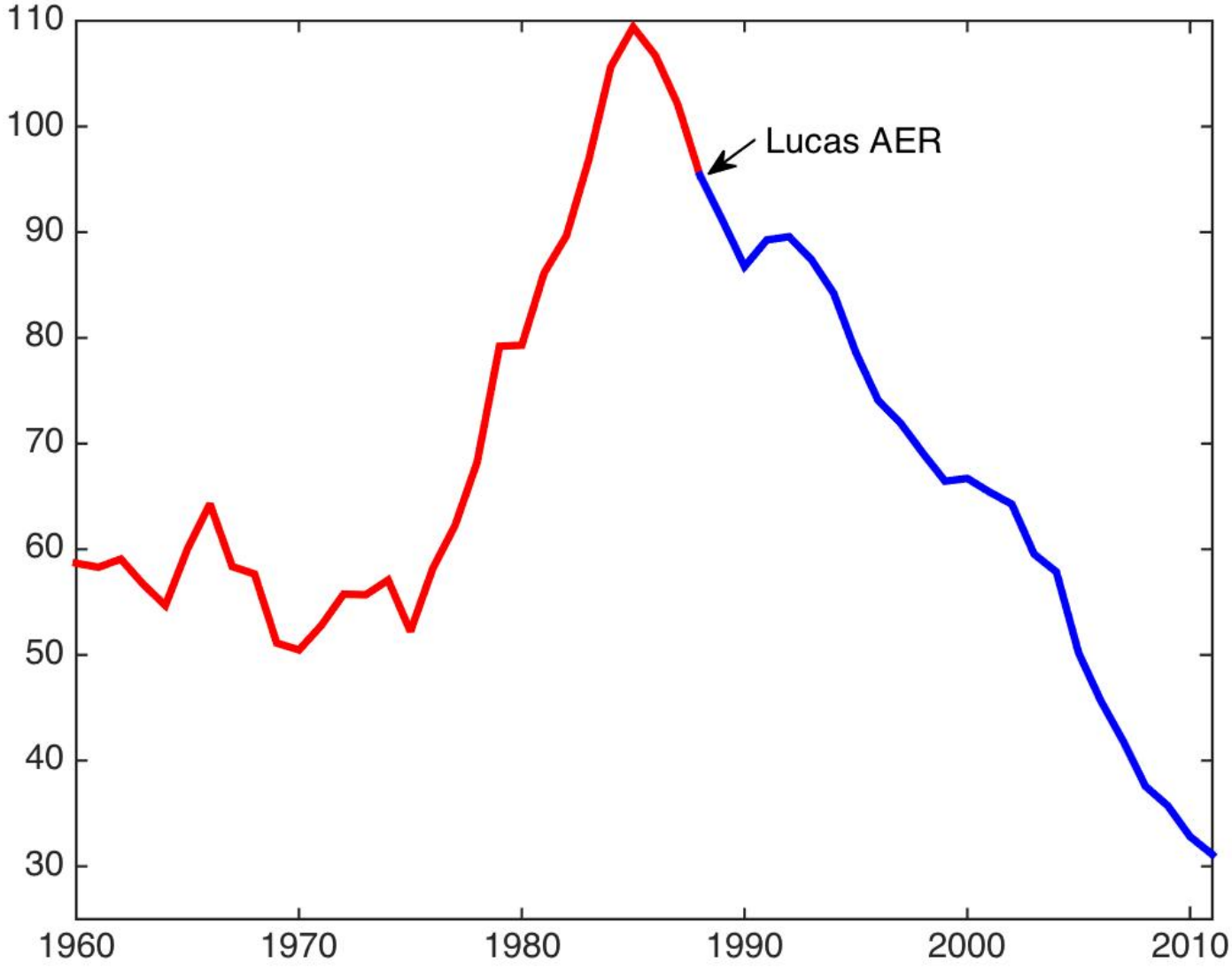
Approach:

- measurement of returns
- asset-pricing model

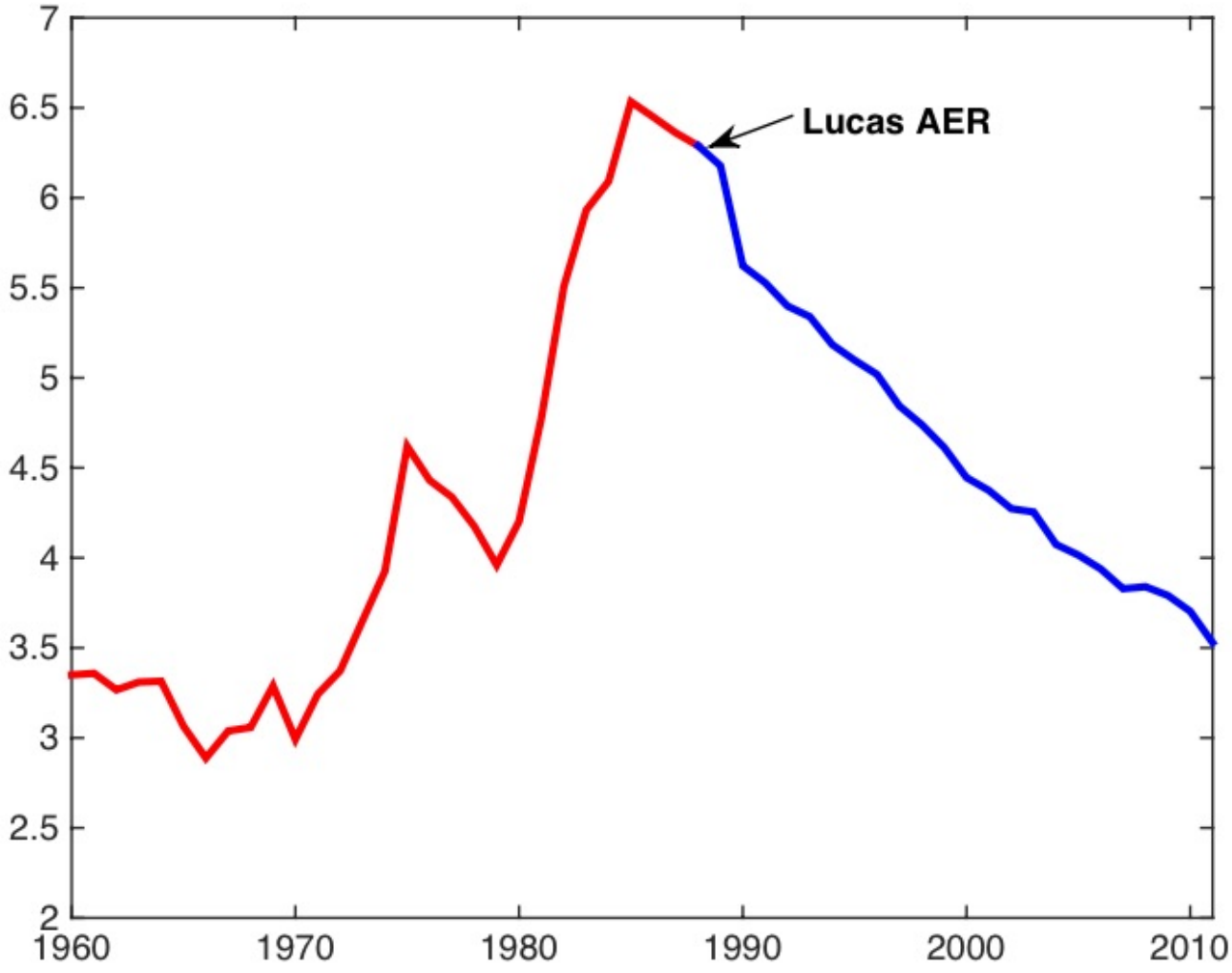
MPK India/US 1960-1989 (PWT8.0 capital)



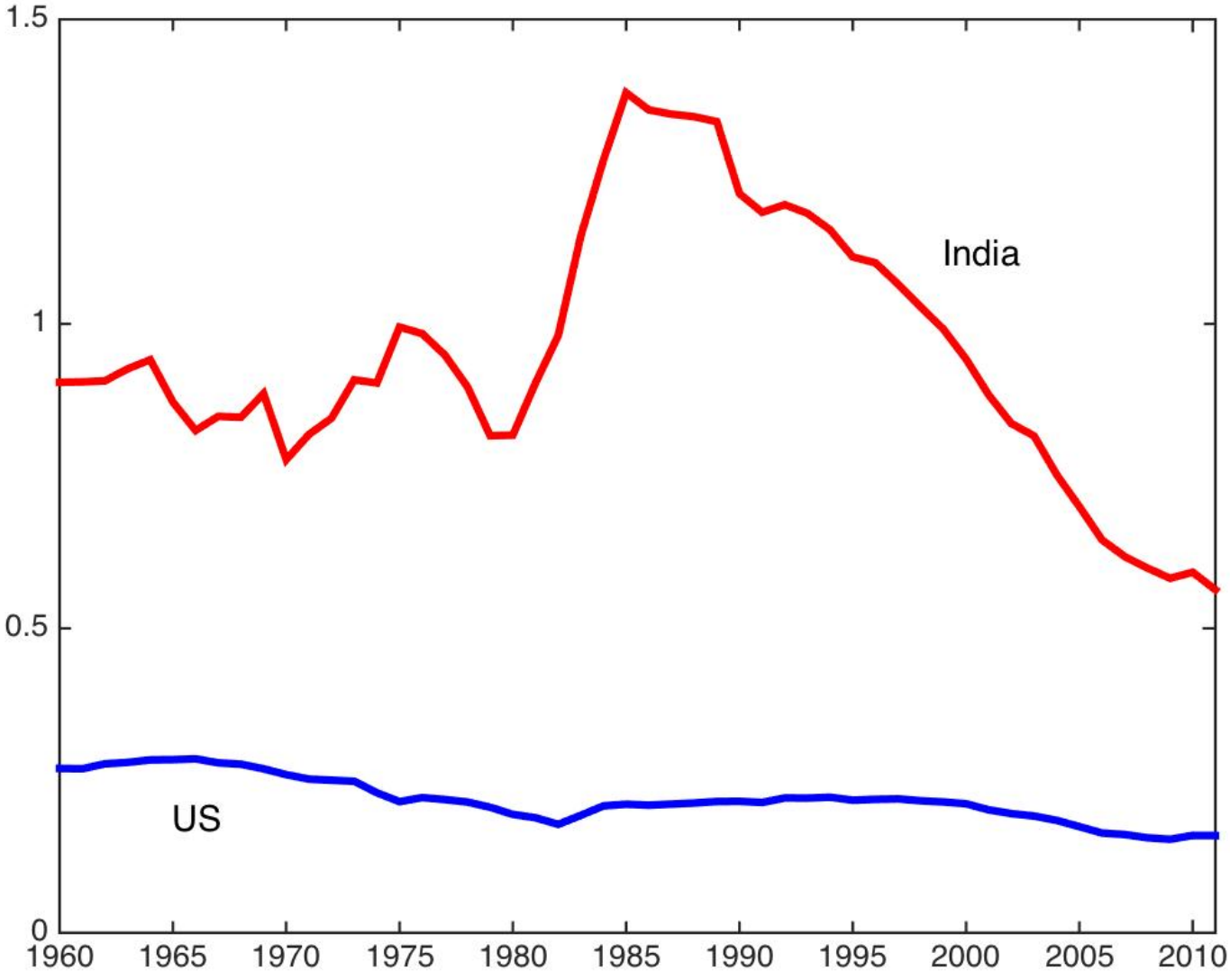
MPK India/US 1990-2011 (Lucas, TFP equal)



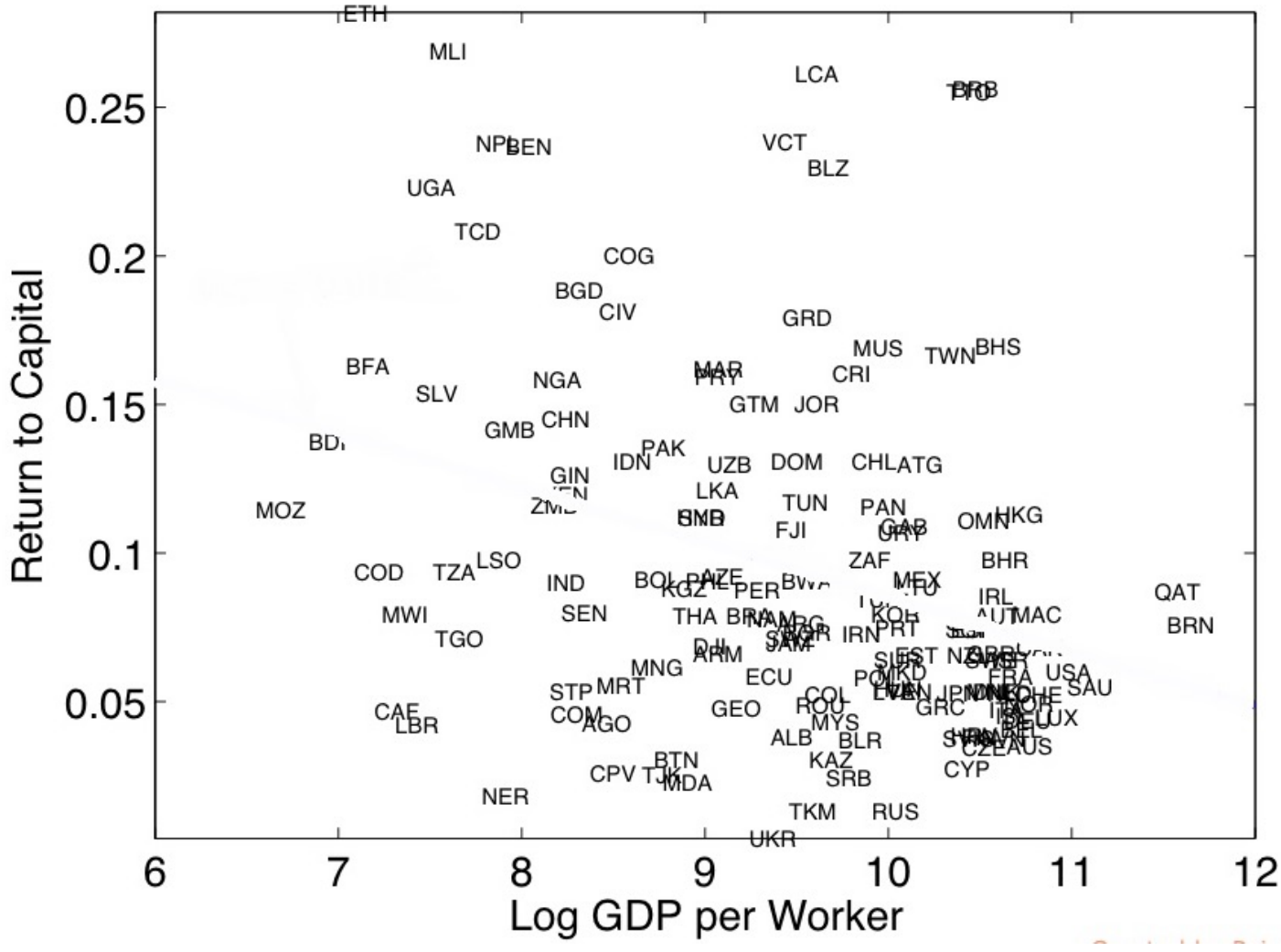
MPK India/US 1990-2011 (PWT8.0 capital)



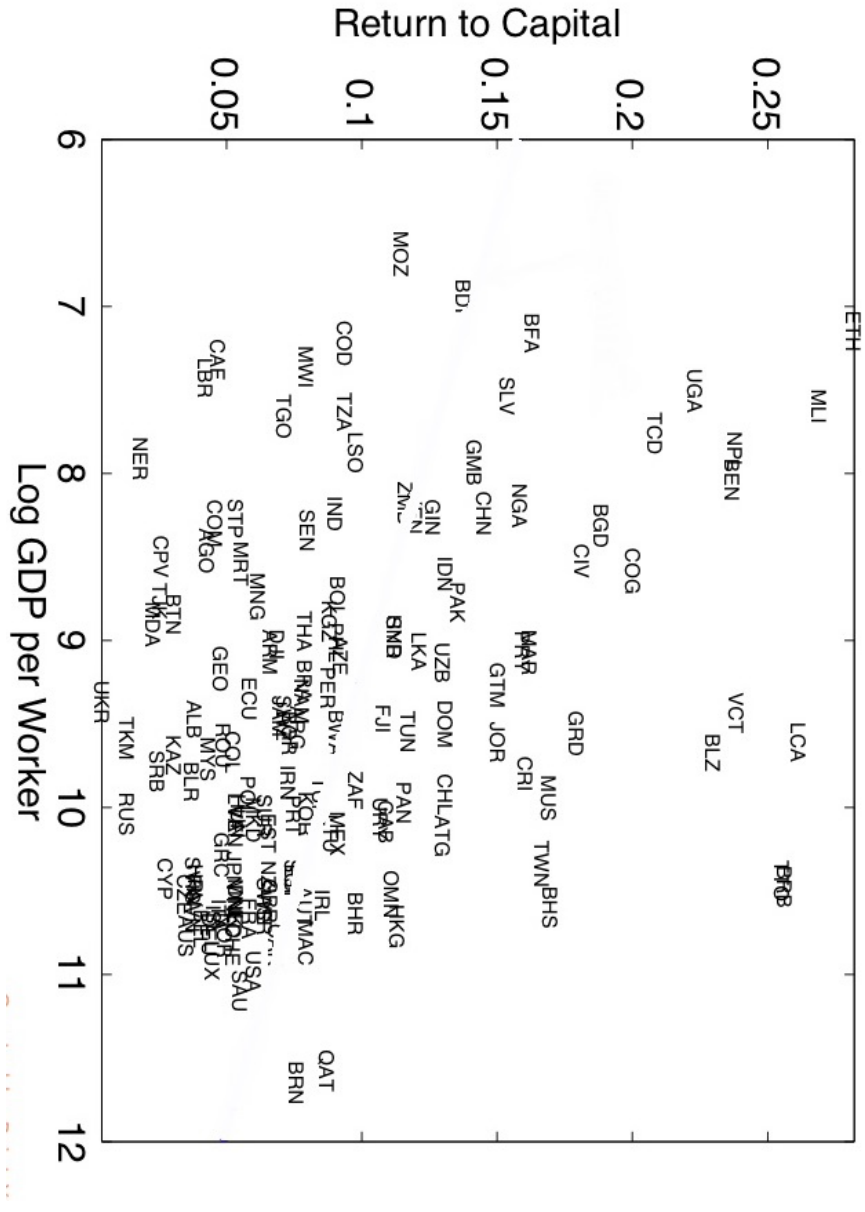
MPK India vs. US (PWT8.0 capital)



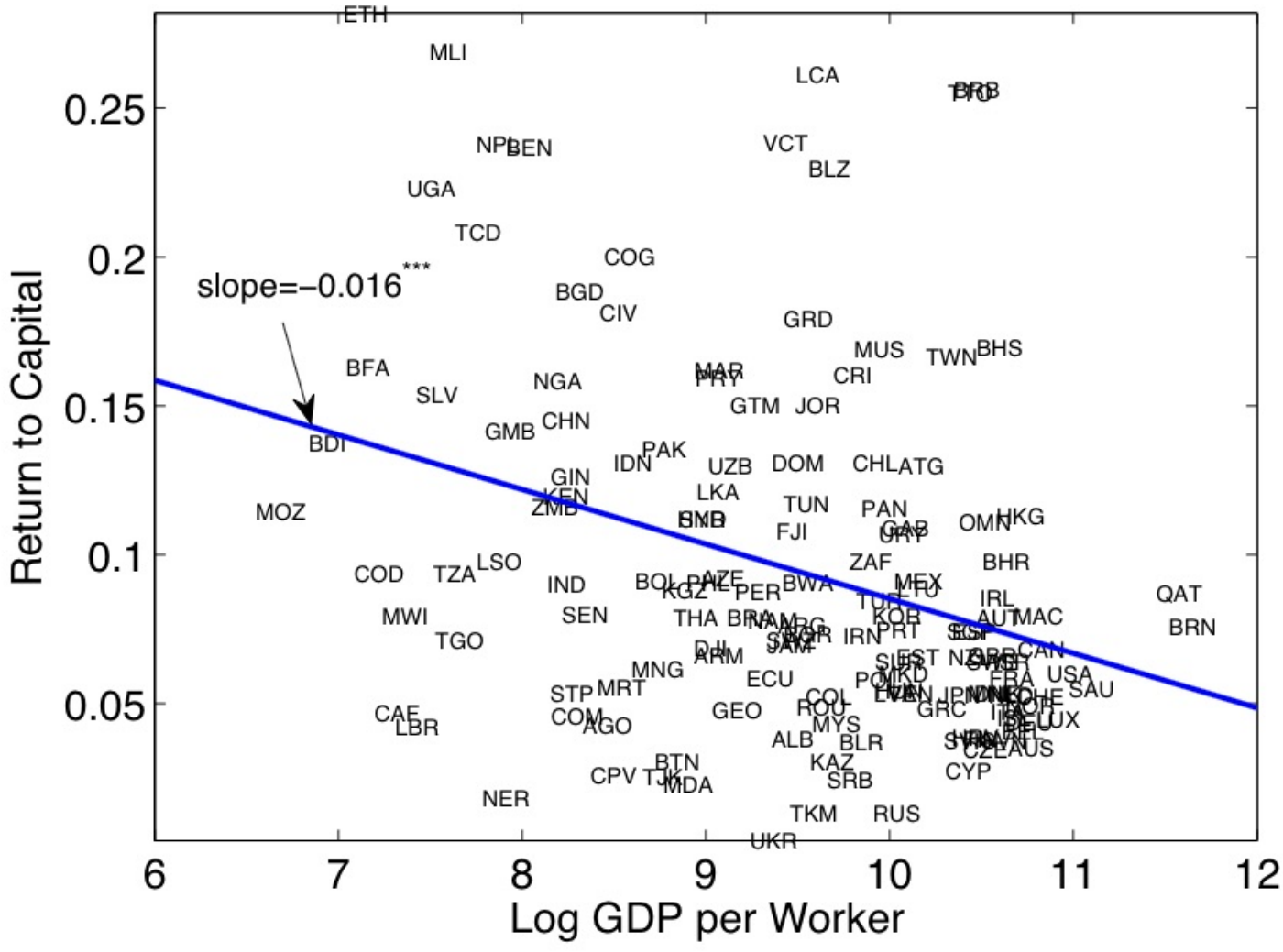
DHS: Avg Return to K vs. Avg Income



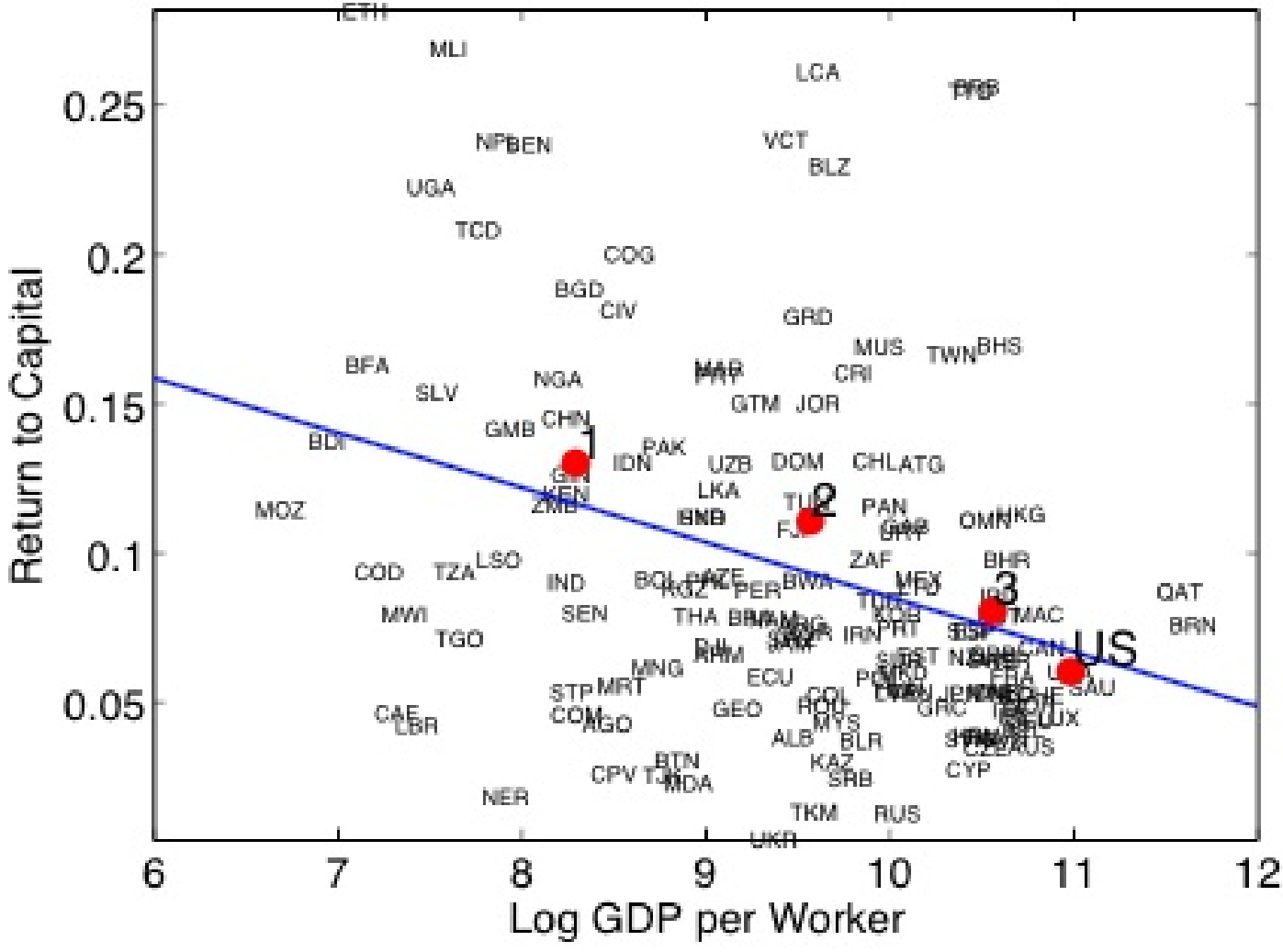
DHS: Avg Return to K vs. Avg Income



DHS: Regress Avg Return to K on Avg Income



DHS: Income-based portfolios



Portfolios?

- Why income?
  - Lucas was thinking about development
  - But maybe there are other equally interesting questions
- Lots of other alternatives:
  - DHS do income and "openness"... interesting!
  - finance guys do things like size, growth, momentum...
  - inflation/financial stability
  - geography or colonial history
  - resource vs. manufacturing vs. agriculture
  - "Doing Business" index and the like

Model

- Endowment/exchange economy
- Representative agent with Epstein-Zin preferences
- Correlation structure between US and foreign consumption and "cashflows" from owning US and foreign capital
- Calibrated to match features of international returns to capital

Risk

- Recursive references

$$\begin{aligned} U_t &= V[c_t, \mu_t(U_{t+1})] \\ &= [(1-\beta)c_t^{\rho} + \beta\mu_t(U_{t+1})^{\rho}]^{1/\rho} \end{aligned}$$

$$\mu_t(U_{t+1}) = [E_t(U_{t+1}^{\alpha})]^{1/\alpha}$$

V, μ_t $hd1$, $RA = 1-\alpha$, $EIS \equiv \sigma = 1/(1-\rho)$

- Pricing kernel with recursive preferences

$$m_{t+1} = \beta \left(\frac{c_{t+1}}{c_t}\right)^{\rho-1} \left(\frac{U_{t+1}}{\mu_t(U_{t+1})}\right)^{\alpha-\rho}$$

Constant vs. stochastic volatility

$$\log m_{t+1} = \log\beta + (\rho-1)\overbrace{\log(c_{t+1}/c_t)}^{\textit{short run risk}} + (\alpha-\rho)\underbrace{[\log U_{t+1} - \log\mu_t(U_{t+1})]}_{\textit{long run risk}}$$

- What if $u_t \equiv \log U_{t+1} \sim N(E_t u_{t+1}, V_t(u_{t+1}))$?
- New dynamics?

$$\log U_{t+1} - \log\mu_t(U_{t+1}) = \underbrace{u_{t+1} - E_t u_{t+1}}_{\textit{utility shock}} + \underbrace{\alpha V_t(u_{t+1})/2}_{\textit{utility risk}}$$

Equity vs. Capital: the role of ϕ and ϕ^*

$$
\begin{aligned}
\Delta c_{t+1} &= \mu_c + x_t + \eta_{t+1} \\
x_{t+1} &= \rho x_t + e_{t+1} \\
\Delta d_{t+1} &= \mu_d + \phi x_t + \pi \eta_{t+1} + \mu_{t+1} \\
\Delta c^*_{t+1} &= \mu^*_c + \xi^* x_t + x^*_t + \pi^*_c \eta_{t+1} + \eta^*_{t+1} \\
x^*_{t+1} &= \rho^* x^*_t + e^*_{t+1} \\
\Delta d^*_{t+1} &= \mu^*_d + \tilde{\phi}^* \left(\xi^* x_t + x^*_t \right) + \pi^* \eta_{t+1} + \pi^*_d \mu_{t+1} + \pi^*_{cd} \eta^*_{t+1} + \mu^*_{t+1}
\end{aligned}
$$

- In a model with limited liability and levered equity investments, ϕ is a hack to capture the fact that aggregate equity is like a call option on aggregate consumption
- When we're measuring capital itself, rather than levered equity, how do we interpret ϕ? Nationalization? Disasters?

What about capital?!!!

- Doesn't it seem a bit strange to study a capital-flow puzzle in an economy with no capital accumulation or mobility?
- New work by Backus, Ferriere and Zin shows that this is not a big deal:
  - stochastic growth model with recursive utility (and stochastic volatility)
  - endogenous capital dynamics unaffected by shocks, risk (constant or stochastic), or risk aversion
  - for asset-pricing problems, the growth model with endogenous capital and recursive utility will behave just like the endowment economy studied in this paper

Model Expected Returns