Discussion of "The Life-Cycle Growth of Plants in Colombia: Fundamentals vs. Distortions," by Marcela Eslava and John Haltiwanger

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What They Do and Find

(1) Decompose growth over the life-cycle of plants into fundamentals (physical productivity, demand,...) versus distortions (residual)

- Distortions weaken the link between fundamentals and size (static accounting)

(2) Exploit detailed panel micro data for Colombia (prices available at the plant level)

(3) Fundamentals account for 70% of the variability of output growth across plants whereas the remaining 30% attributed to distortions

- Demand and physical productivity equally important in fundamentals part
- Contribution of distortions falls with plant's age

Why interested in plant's life-cycle?

- Many reasons, firm dynamics interesting per se
- My focus is on life cycle growth as a potential amplification channel to productivity differences across countries
- Similar focus in growing literature exploring the dynamic implications of misallocation

(2) Simple Framework of TFP Differences

- Output of a single homogeneous good y_i is produced according to

$$y_i = A_i \cdot h_i^{\gamma}, \qquad \gamma \in (0,1)$$

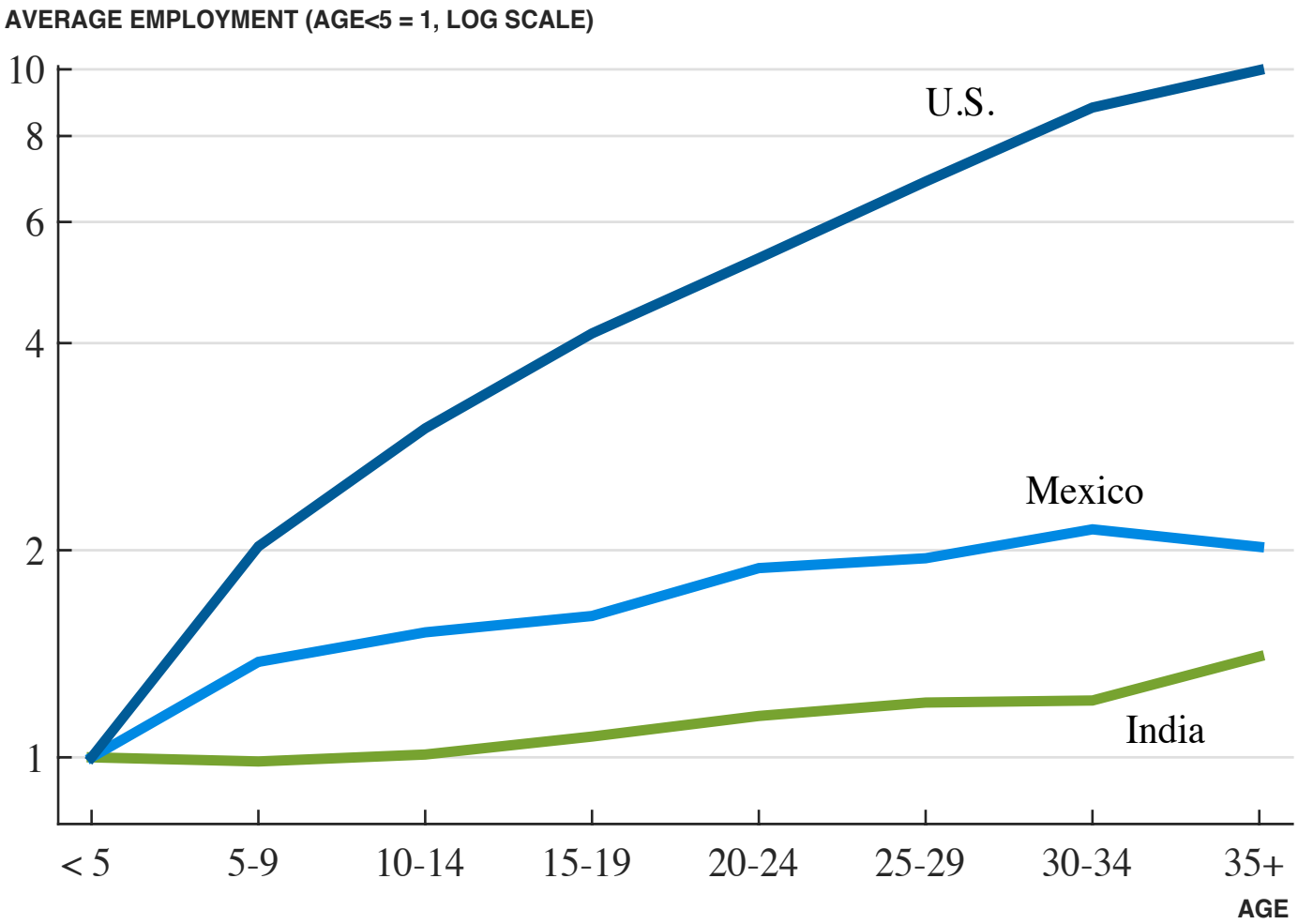
where A_i reflects productivity differences across producers

- Three channels can account for aggregate TFP differences across countries:
  - Distribution of A_i's differs across countries (technology)
  - Countries choose different set of producers to operate (selection)
  - Countries allocate inputs differently across producers (misallocation)

Misallocation and Dynamic Implications

- From accounting perspective, misallocation may be less than 1/4 of the differences in TFP across countries
- Recent work considers dynamic implications of misallocation
- Policies/institutions causing misallocation can generate larger effects on aggregate productivity by altering the productivity distribution via technology and selection channels

Plant Life-Cycle Employment Growth

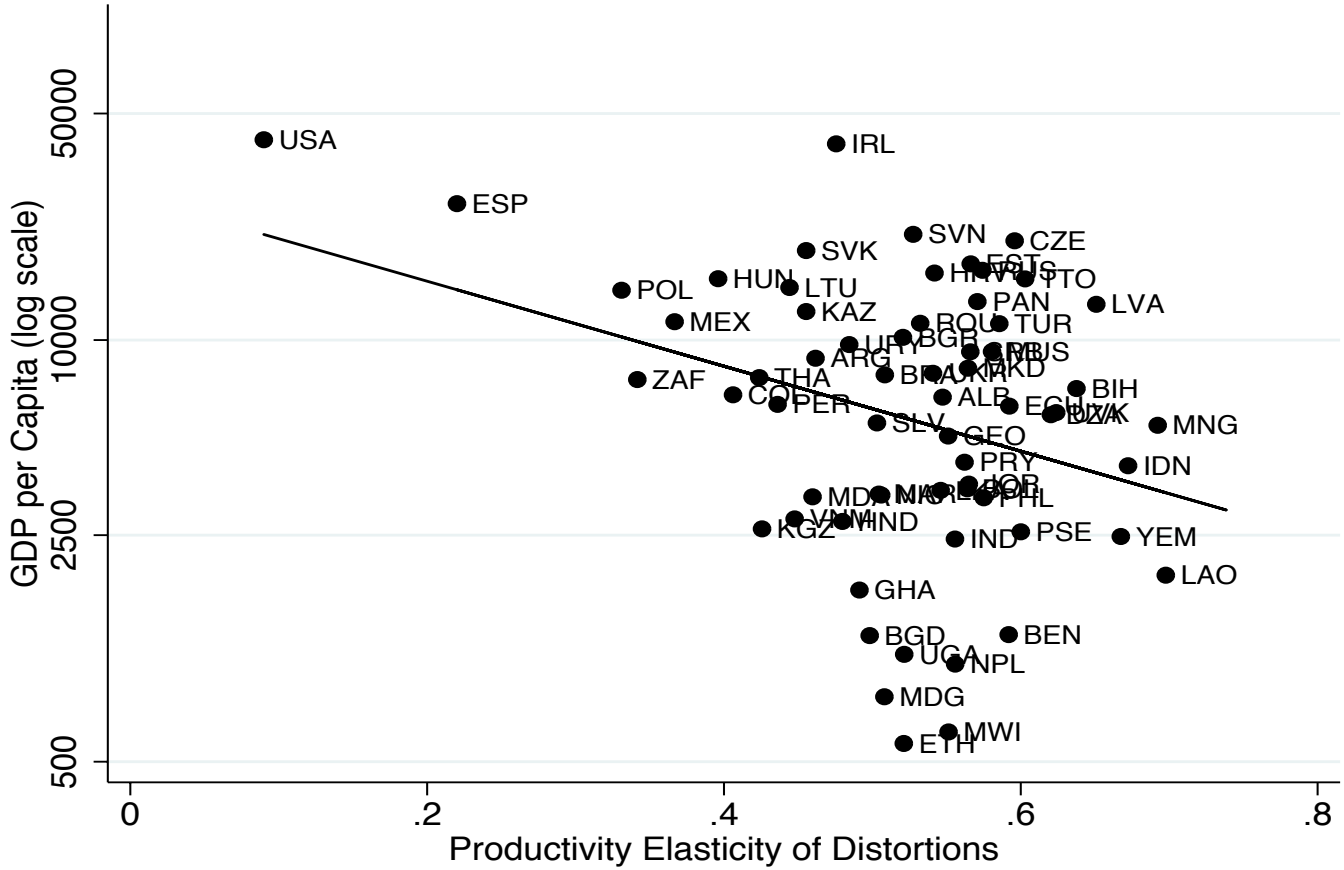


Source: Hsieh and Klenow (2014) via Jones (2016)

Misallocation and Dynamic Implications

- Why would there be a connection between static misallocation and dynamic decisions?
- Prevalent pattern of distortions (wedges or actual policies/institutions): higher productivity elasticity of distortions in poor countries
- Evidence from Hsieh and Klenow (2009,2014): USA (0.09), India (0.5), Mexico (0.66) for manufacturing industries
- Similar evidence from census of manufacturing in Africa, elasticity between 0.5-0.7
- Broader evidence across countries for manufacturing industries, Bento and Restuccia (2017)

Productivity Elasticity of Distortions



Source: Bento and Restuccia (2017)

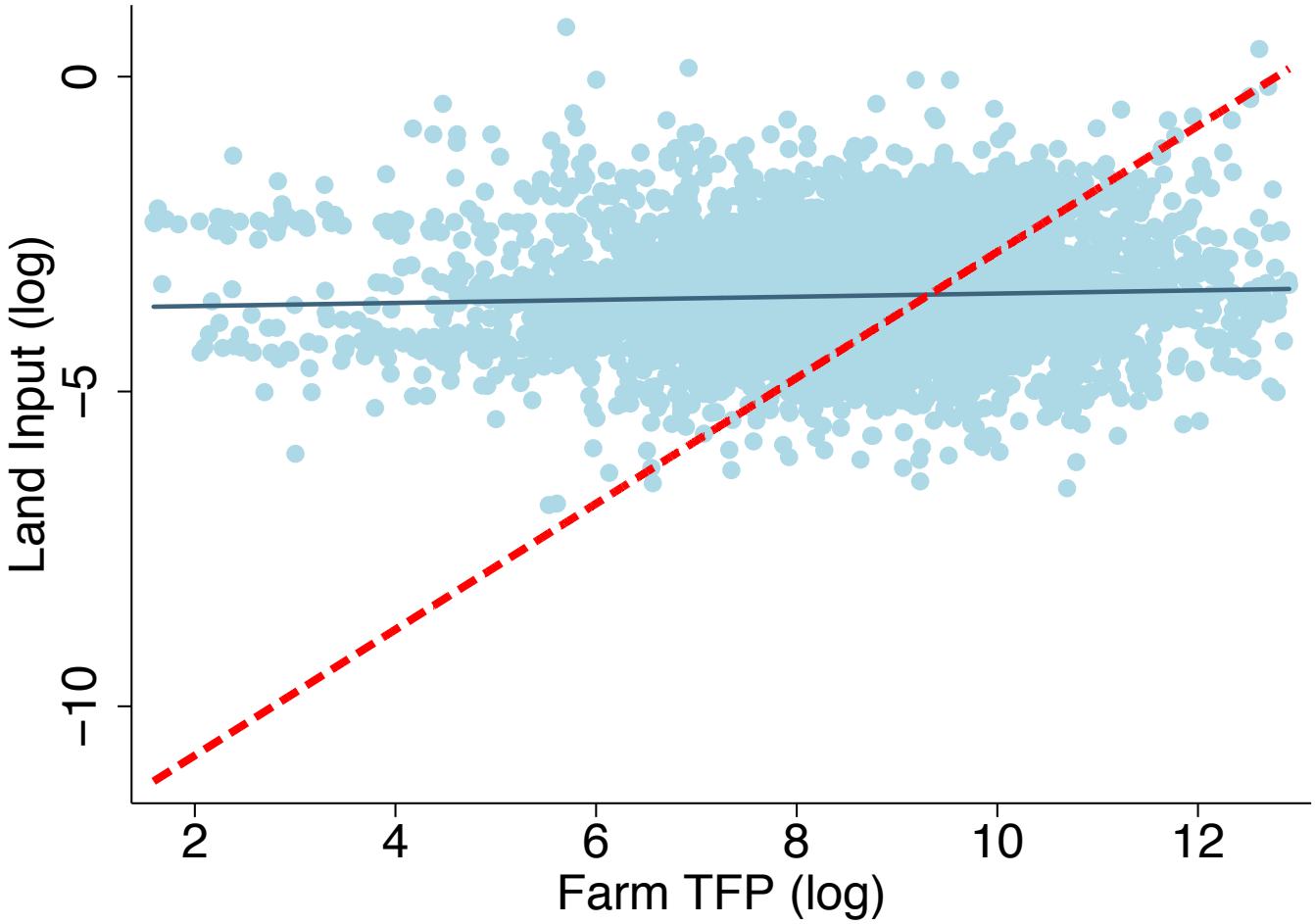
Financial Frictions

- Large literature (see survey in Buera, Kaboski, and Shin, 2015)
- Country-level institution, idiosyncratic effects
- Importantly: credit constraints disproportionally affect more productive producers that should operate at larger scale

Land Market Institutions

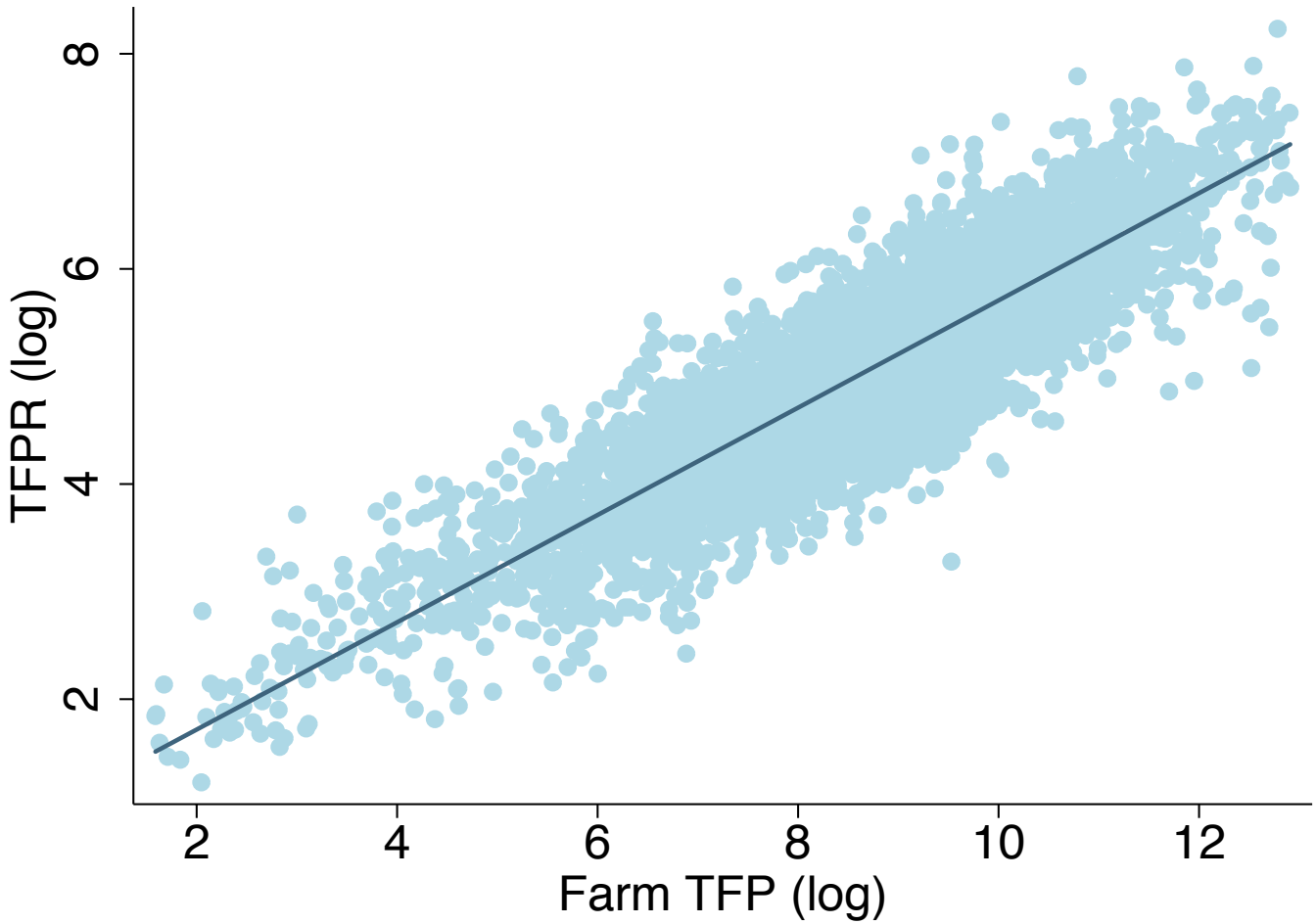
- Land institutions in poor countries characterized by:
  - Lack of well-defined property rights over land
  - Land use-rights are distributed in a fairly egalitarian basis...
  - ...coupled with difficulty of adjusting operational scales
- As a result, land is misallocated, distortions more severe for productive farmers

Land Misallocation in China



Source: Adamopoulos, Brandt, Leight, and Restuccia (2017)

Implicit Agricultural Distortions in China



- Large implied correlated distortions in the agricultural sector $\sigma(\log(\text{TFPR}))$=0.97, $\rho(\log(\text{TFPR}),\log(\text{TFP}))$=0.88

Misallocation and Dynamic Implications

- How correlated distortions affect technology/investment?
  - Not easy question to answer, but a starting point should be a dynamic model
- Key issue: how a given pattern of TFPQ growth is high or low compared to an alternative pattern of distortions
  - Importance and interpretation of static accounting

Misallocation and Dynamic Implications

- What should we expect the pattern of static distortions and plant growth?
  - Not obvious pattern, may depend on source of distortions
  - For some wedges (e.g. fixed land, can't grow in size), then we should not expect a lot of growth
  - If wedges arising from credit/collateral constraints, then wedges should ease out with plant age
  - Pattern may be different than what really drives productivity growth for the plant
- Bottom line: to assess importance of distortions, static growth accounting is not sufficient, a model that connects distortions to plant growth is needed

Importance of Life-Cycle Growth

- How important is life-cycle growth for overall dispersion in productivity across countries?
- Exploit panel dimension to assess contribution in Colombia
- Hsieh and Klenow (2014): moving from US to Indian life-cycle can generate a 25% drop in productivity
- Countervailing effects of lower life-cycle growth though entry and misallocation leave productivity gap roughly unchanged
- Similar finding in Bento and Restuccia (2017)

Productivity Investment and Firm Dynamics

- Bento and Restuccia (2017): Standard monopolistic competition framework extended to include endogenous entry and entry-level and life-cycle productivity investment

Prod. elasticity of distortions:	0.09 (US)	0.50 (India)
Average Establishment Size	22	3
Entrant Productivity	1.00	0.42
Life-cycle growth (%)	5.0	2.1
Prod. investment share (%)	13.5	5.4
Decomposition of agg. output:		
(a) Static misallocation	1.00	0.63
(c) Endogenous life-cycle growth	1.00	0.70
(d) Entrant investment	1.00	0.47

Changes from Economic Reforms

- Colombia went through serious market-oriented reforms during the 90s
- Comparison between 80s and 00s contain valuable evidence that points in the direction of improved resource allocation, faster plant growth
- Exploit and emphasize more the interesting patterns of changes

Compare with Restricted Data

- Colombian data unique
- Likely to remain as such for some time
- Valuable comparisons with analysis of the more common restricted data
- Examples: without plant-level prices, only cross-section, etc.

Conclusions

- Very interesting paper with amazing data
- To assess role of distortions, need a dynamic model of plant productivity growth...
- Can go beyond plant growth: panel data and dynamic model can be used to make empirical connection of misallocation with selection/technology channels
- Can exploit more policy changes over time