

From Micro to Macro: Entry Barriers, Resource Misallocation, and Aggregate Productivity

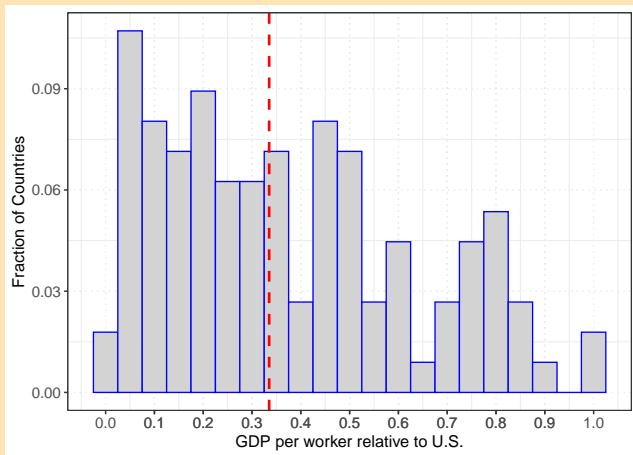
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Income per Worker Relative to USA

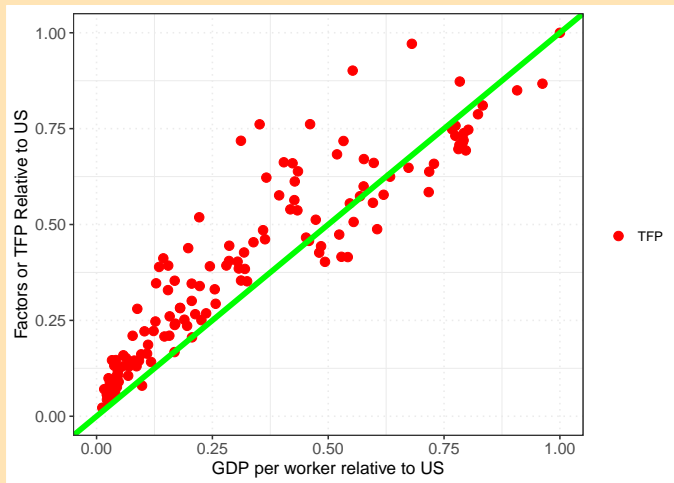


Source: Penn World Tables v10.0 year 2019

- Argentina 36%, Brazil 28%, Chile 44%, Colombia 26%, Mexico 36%

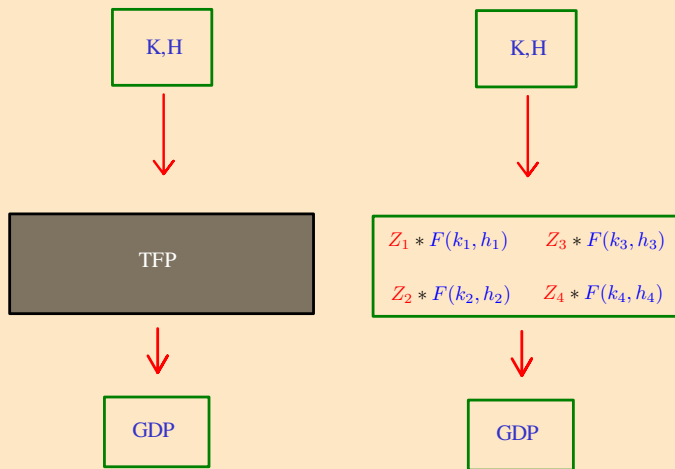
Development Accounting: The Role of TFP

$$\text{GDP per worker} = \text{TFP} * \underbrace{F(\text{Physical Capital, Human Capital})}_{\text{Factors}}$$

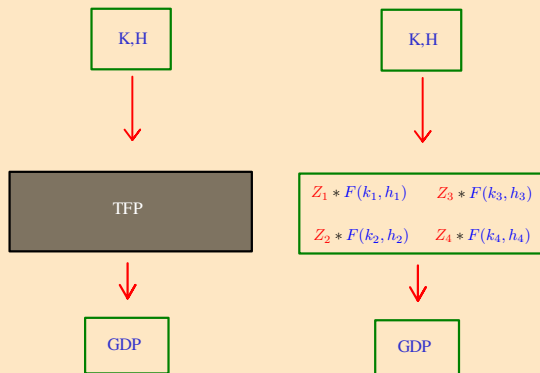


What Drives Productivity Differences Across Countries?

Micro to Macro



From Micro To Macro

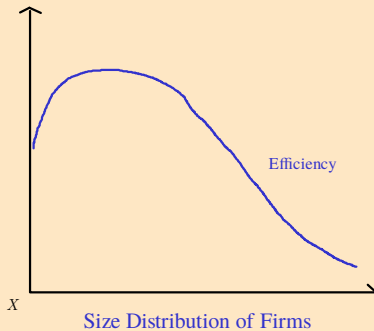
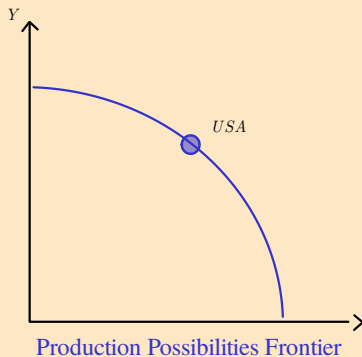


- Allocation of K, H to maximize output?
- Barriers to this allocation?
- Useful to understand TFP

Efficient Allocation and Free-Entry

$$MRP_1 = MRP_2$$

Entry Cost = Net Present Value Profits



Idiosyncratic Distortions and Barriers to Entry

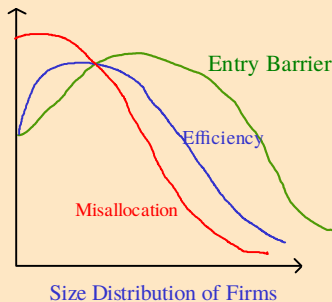
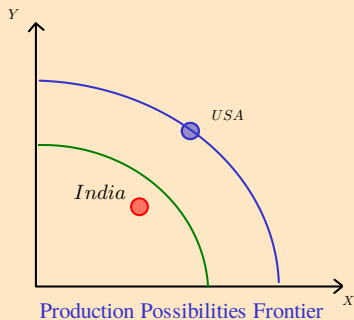
Idiosyncratic Distortion:

- * Financial Frictions
- * Labor Regulation

Entry Barrier

- * Entry Regulation
- * Incumbents blocking access to inputs

$$MRP_1 * Distortion_1 = MRP_2 * Distortion_2$$
$$Entry Cost * Barrier = Net Present Value Profits$$



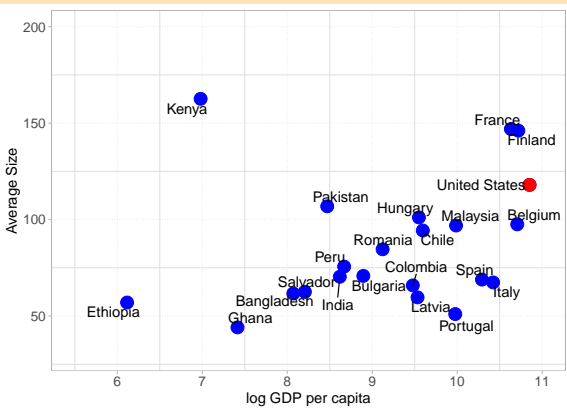
- Interaction between firms, frictions, policies → theory of *TFP*
- Frictions and policies manifest on firm size distribution

**Are there differences in size distribution across countries?
Can we use these to infer entry and allocative distortions?**

Firm-Level Data

- Representative firm-level data, manufacturing formal firms
- Manufacturing Censuses of 10+ worker firms
 - ▷ Chile, Colombia, El Salvador, Peru
 - ▷ Ghana, Ethiopia, Kenya
 - ▷ Bangladesh, India, Malaysia, Pakistan
- Amadeus: countries with representative size distribution
 - ▷ Belgium, Bulgaria, Finland, France, Hungary, Italy, Latvia, Portugal, Romania, Spain

Cross-Country Differences in Average Size?



- Smaller firms in poorer countries
- Promising starting point for distortions as theory of TFP

▶ control

How large is each type of distortion?

How much of TFP difference they account for?

Inferring Distortions: A Theory Based Approach

Firm size distribution contains information about distortions

1. Propose model of size distribution calibrated to USA
2. Use micro data to identify distortions

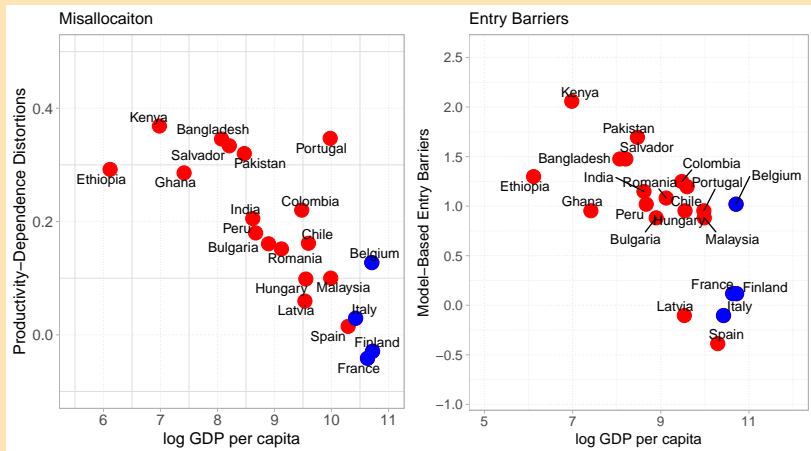
$$MRP_i * Distortion_i = MRP_j * Distortion_j$$

$$Entry Cost * Barrier = Net Present Value Profit$$

Identify distortion pair that matches size distribution in data

- Evidence of resource misallocation from high to low productivity firms in developing countries?
- Evidence of entry barriers in developing countries?

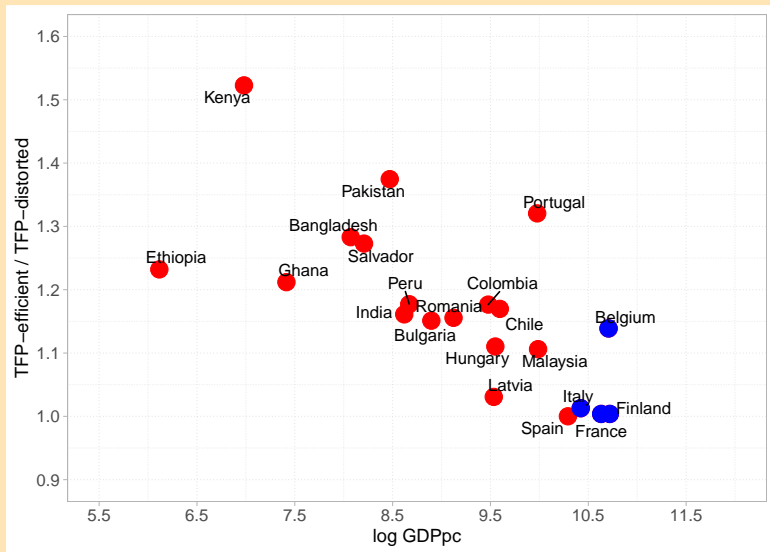
Evidence on Misallocation and Entry Barriers



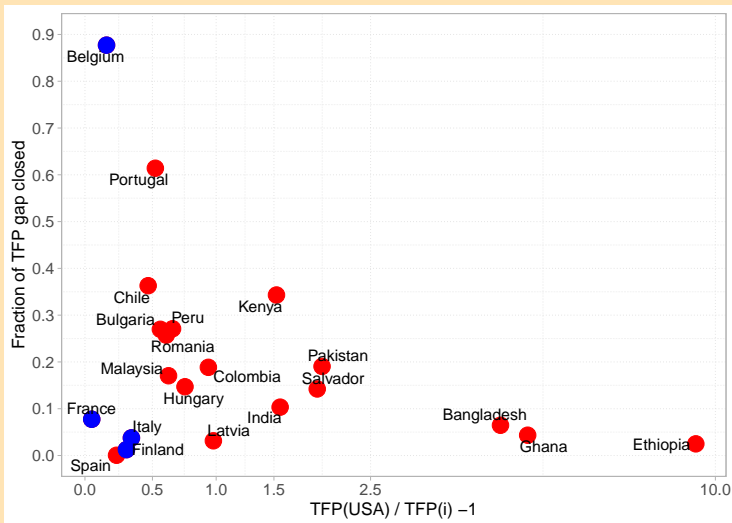
From Micro to Macro

Aggregate Effects of Entry Barriers and Misallocation

Aggregate Productivity Gains from Removing Distortions



Aggregate Productivity Gains from Removing Distortions



POLICY DISCUSSION

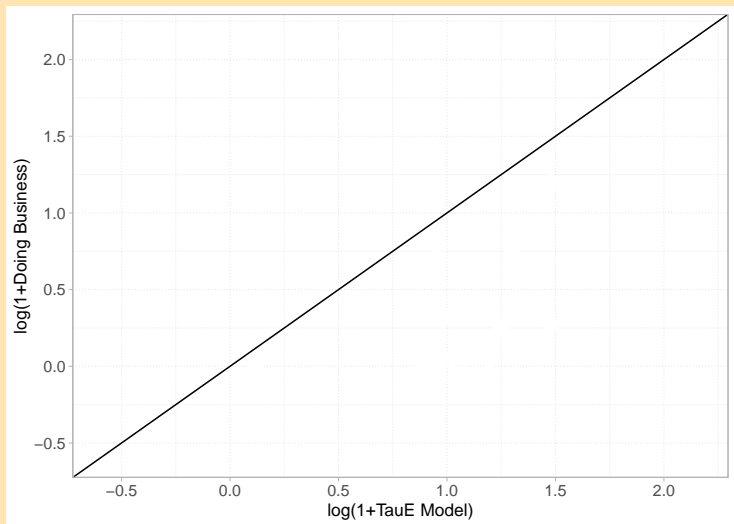
What is behind the Model-Based Entry Barriers and the Idiosyncratic Distortions?

- Natural reactions: “all very nice, but....”
 1. What’s behind all these distortions?
 2. How to fix them?
- A discussion coming, but pause to appreciate the progress
 - ▷ Development accounting only recently feasible, still improving
 - ▷ Opening “black-box” of TFP not trivial:
 - ▶ integrate industry dynamics in general equilibrium
 - ▶ firm-level data
 - ▶ numerical methods

Model-Based Entry Barriers and Idiosyncratic Distortions: Connection with actual policies and frictions?

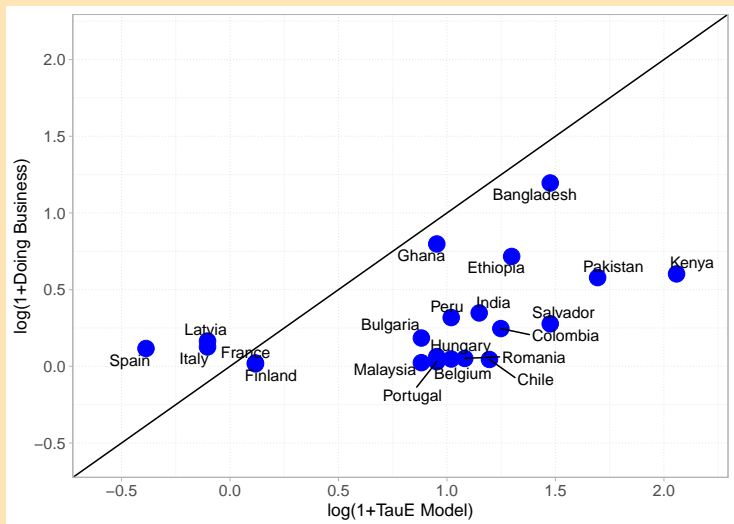
Model-Based Barriers and Entry Regulation

- Model's entry barriers vs WB's Doing Business' entry cost



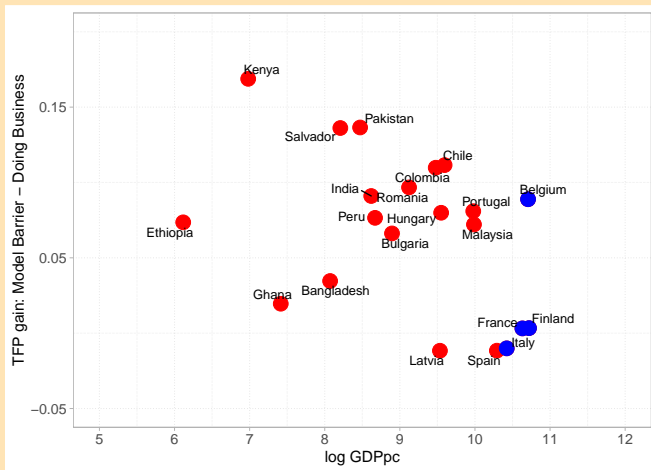
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TFP Gains from Removing Model-Based Barriers vs Entry Regulation

- Differential TFP gains model-based barriers vs regulation?



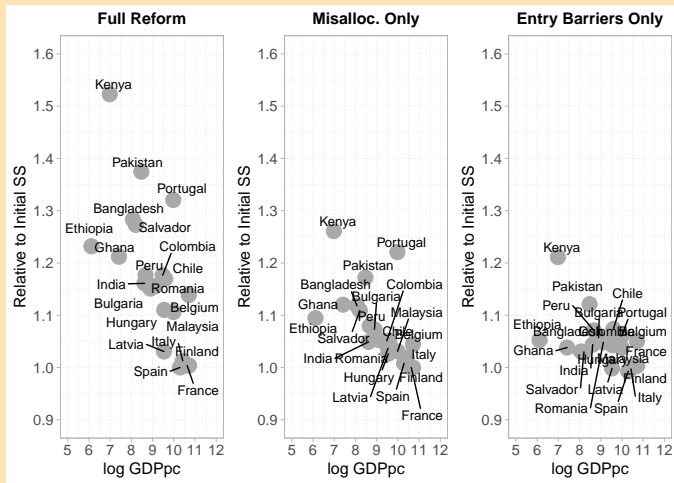
Idiosyncratic Distortions and Specific Policies and Frictions

- Extensive literature on causes of idiosyncratic distortions
- Labor regulations (firing costs, size-dependent labor costs)
 - ▷ Hopenhayn and Rogerson (1993), Garicano, Lelarge and Van Reenen (2013)
 - ▷ Accounts for little misallocation, small aggregate effects
- Size-dependent taxation
 - ▷ Bachas, Fattal-Jaef, Jensen (2019)
 - ▷ Small productivity losses from size-dependent tax enforcement
- Financial Frictions
 - ▷ Buera, Kaboski, and Shin (2011), Midrigan and Xu (2014)
 - ▷ Small effects on misallocation, large effects on TFP when interacted with technology adoption

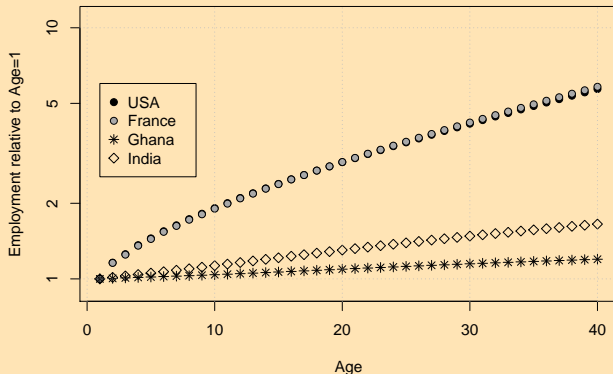
Misallocation combines multiple sources, country specific
Useful diagnostic to rank reforms and prioritize

BACK-UP SLIDES

Decomposition TFP Gains: Misallocation vs Entry Barriers

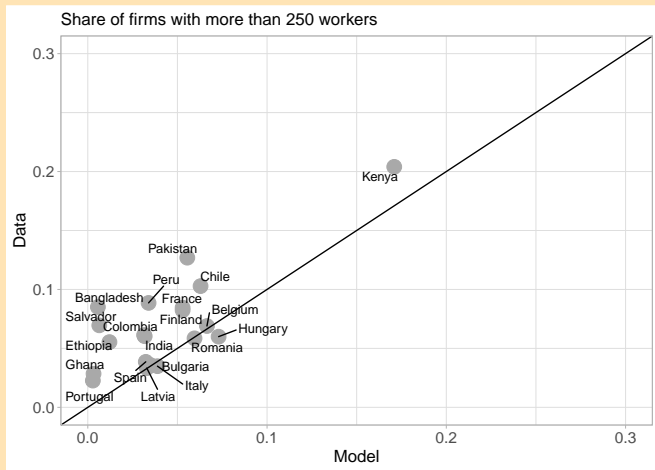


Validation 1: Implications for Life-Cycle Dynamics



▶ gains

Validation 2: Implications for Top of Size Distribution



► gains

Measurement of Average Size: Controlling for Production Structure

- Need to control for differences in production structures within manufacturing

$$AvSize = \sum_{s=1}^S AvSize_s * \frac{M_s}{M}$$

- Theory is silent about cross-country differences in $\frac{M_s}{M}$

Strategy: aggregate according to the U.S.' distribution of firms

$$AvSize^{FD} = \sum_{s=1}^S AvSize_s * \left(\frac{M_s}{M} \right)^{US}$$

▶ avsize