

**Firms in Developing Countries:**  
**Can Trade Policy Serve as Competition Policy?**

Penny Koujianou Goldberg  
Yale University, NBER and BREAD

July 2018

# Why study “firms” in Devo?

- Devo has been traditionally a “people-focused” field
- Latest focus of World Bank on “people”: Human Capital Project → invest in “people”
- BUT: People do not live in a vacuum
- They function within:
  - Institutions
  - Firms and Markets

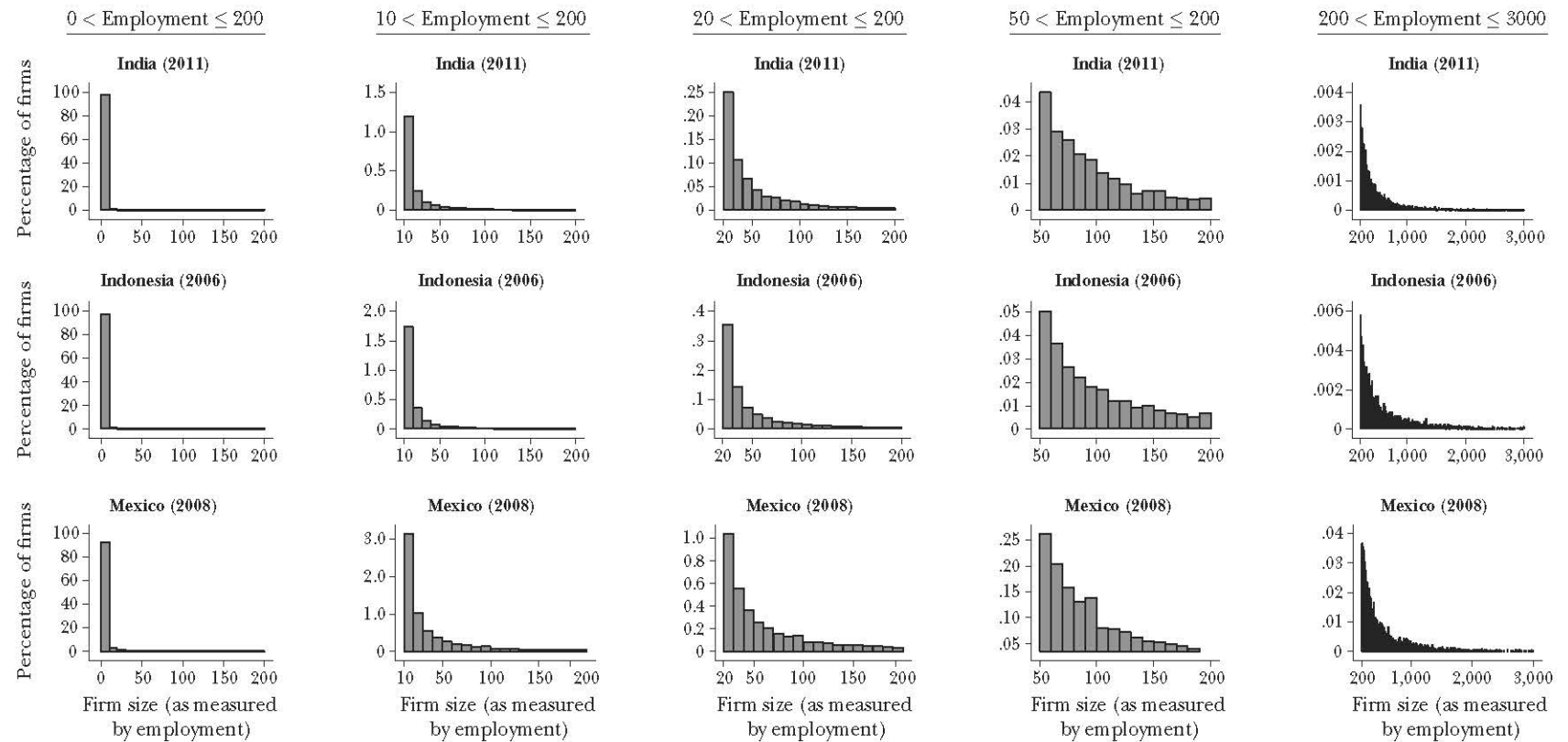
- Institutions extensively studied.
- Firms and Markets less so (with few exceptions). Most of the work in this area comes from Trade/Macro, and not IO

# Firms in Developing Countries

What makes them different?

1. Large share of small, inefficient, and informal  
(see graphs in Hsieh and Olken, LaPorta and Shleifer, JEP 2014)
2. Still, pockets of market power
  - Cement monopolies in Africa
  - Cartels in food markets; fertilizer and other inputs; telecommunications; pharmaceuticals

## Distribution of Firm Size as Measured by Number of Workers



- Issue 1. has received a lot of attention lately
  - Paucity of big firms = impediment to growth
- Because of 1., Issue 2. (market power) has received very little (if at all) attention
- In general, 1. and 2. are considered distinct issues that have nothing to do with each other
- Underlying this separation is a “duality” view of firms: small firms operate in different market segments and will never challenge the big ones (will take issue with this shortly.....)

Link between the two:

Potentially common solution to both problems:  
Deregulation and Trade Liberalization

- Lifting of entry restrictions and regulations can promote the growth of small firms. Free trade will drive out the small and inefficient
- Trade will erode the power of (state) monopolies and promote competition

Do we need Competition Policy?

→ Trade is Competition Policy

# In this talk:

- Will talk about these two issues separately
- However, will periodically come back to the question whether both issues can be addressed through deregulation and liberalization

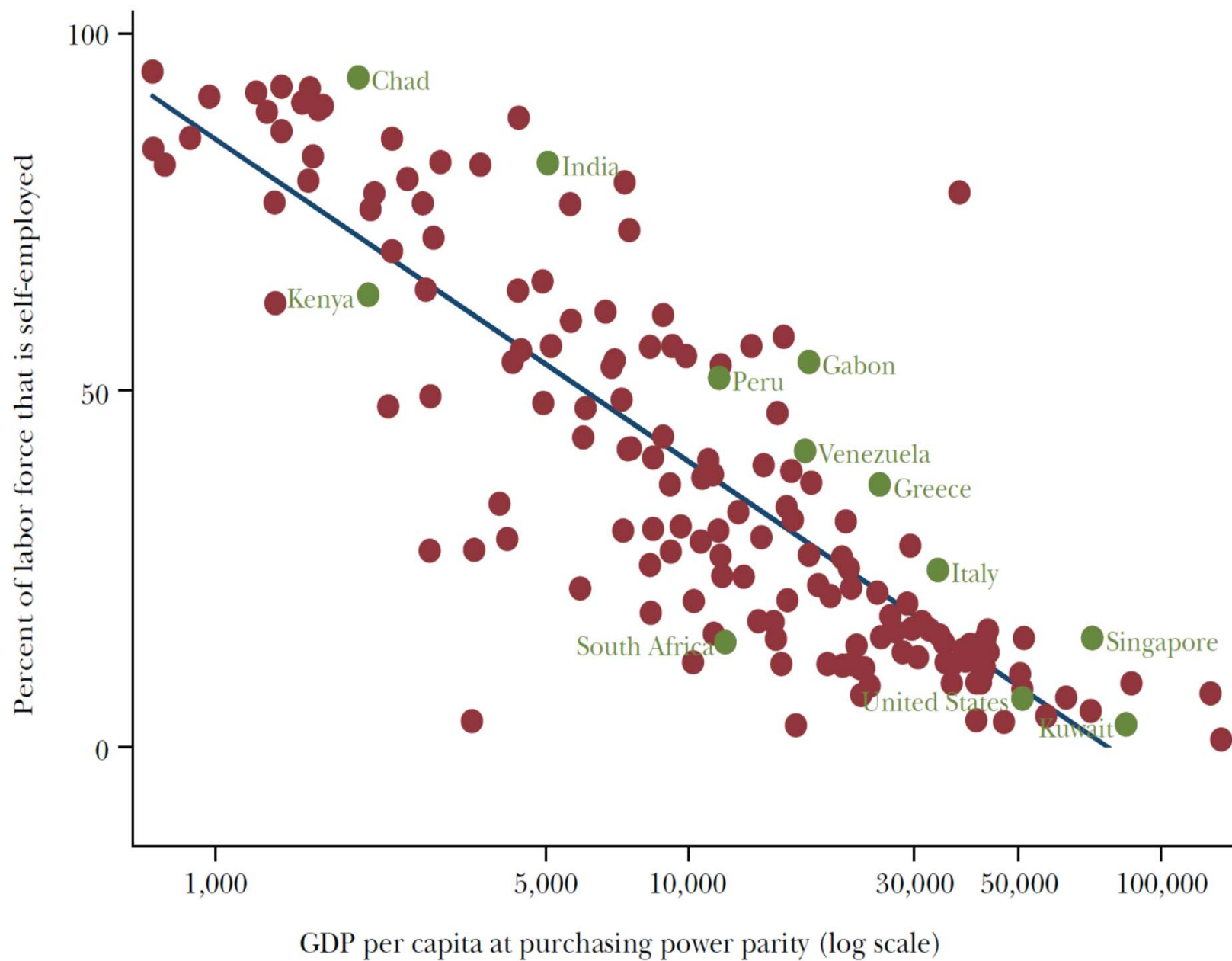
→ **Part I: The Small and Inefficient**  
**Part II: The Big and Powerful**



# Part I: The Small and Inefficient

- Consensus that developing countries are dominated by small firms
- Most of these firms are informal (see Ulyssea 2010, 2018; LaPorta and Shleifer JEP 2014)
- Why don't these firms grow?
- Policies favoring small businesses (e.g., product reservations in India) contribute to their prevalence.
- But we also see them in settings where such policies are absent.

## Self-Employment and GDP per Capita in 2013



# Relevant Questions

- 1) Is this a problem?
  - Are small informal firms an impediment to growth?
- 2) If so, why do they persist?
- 3) What are appropriate policies to promote (firm) growth and efficiency?

# Question 1: Are small firms less efficient?

On one side:

- Tybout (JEL 2000): NO
  - No evidence that dispersion of firm productivity is higher in developing countries
  - No evidence that small firms are less efficient
  - Small firms operate at optimal scale given markets they serve
- Echoed in Foster and Rosenzweig 2018 paper on fArms.

On the other side:

- Hsieh and Klenow and follow-up literature:
  - higher productivity dispersion in developing countries
  - small firms inefficient; never grow; never die
- Hsieh and Olken (JEL 2014): Average (and likely also marginal) products of K and L lower in small firms. Consistent also with Harrison and Rotemberg (2006 policy change in India)
- Large literature on heterogeneous firms in trade documents that larger firms more efficient (in the revenue sense)

# Formal vs. Informal

- Generally, informal firms are considered an anathema to development
- Not only small and inefficient, but also tax evaders
- Workers in informal firms have no security
- Regarding efficiency, three views:

# Three views of informal firms

- 1) Survivors:** Informal firms too small and inefficient; informality is a means of survival (dual view)
- 2) Parasites:** Informal firms could break even as formal firms, but choose not to formalize to avoid regulations and save on taxes (McKinsey view)
- 3) Held-back entrepreneurs:** Informal firms would formalize if they did not face high costs of entry and regulation (romantic view)

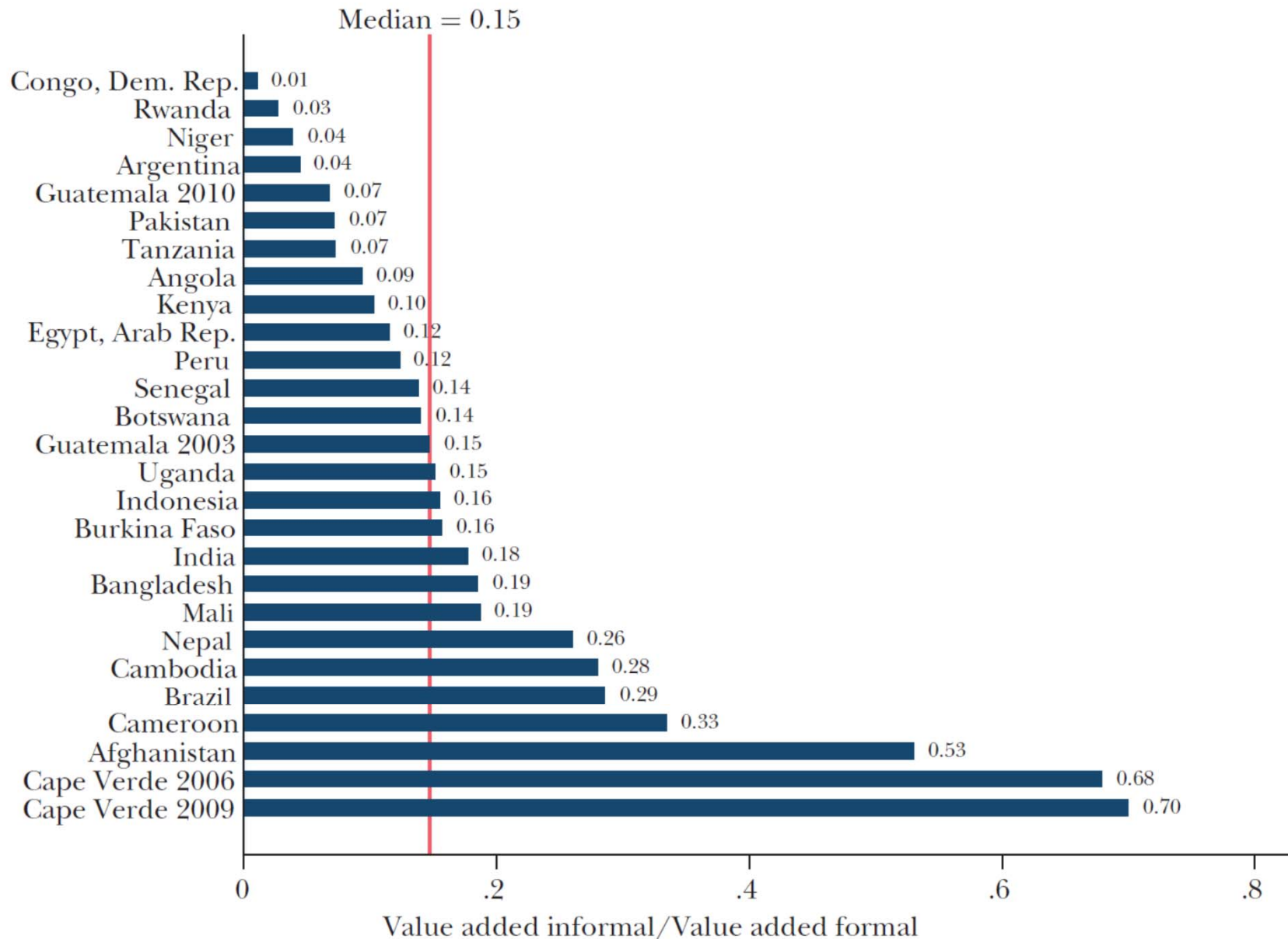
# The three views (contd.)

Important, because each view has different policy implications

- LaPorta and Shleifer → Dual View
- Hsieh and Olken → No View entirely supported by the data
- Ulyssea → All three types co-exist (in Brazil!). Reflect heterogeneous firms optimally responding to the institutional environment



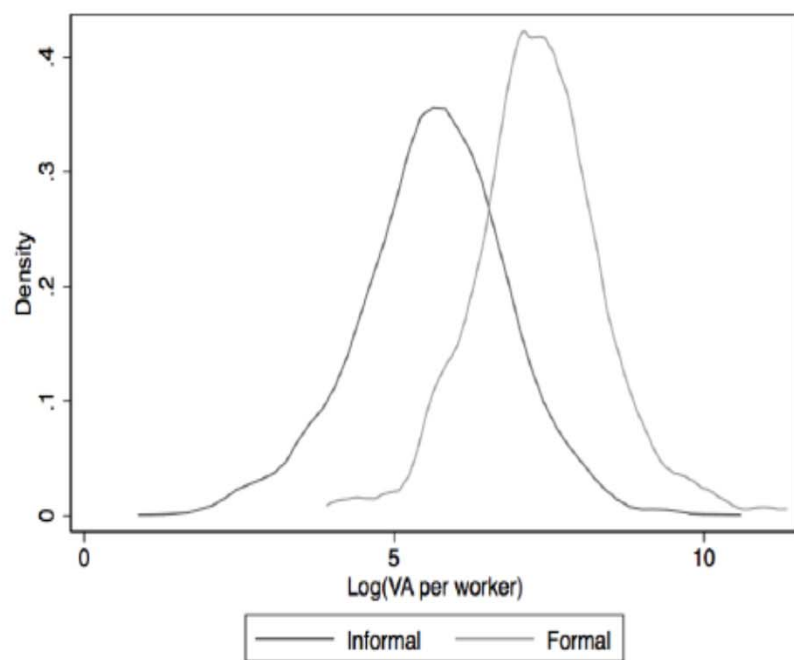
## Ratio of the Value Added by Informal Firms to Value Added by Formal Firms



# Firm Productivity and Revenue Distributions

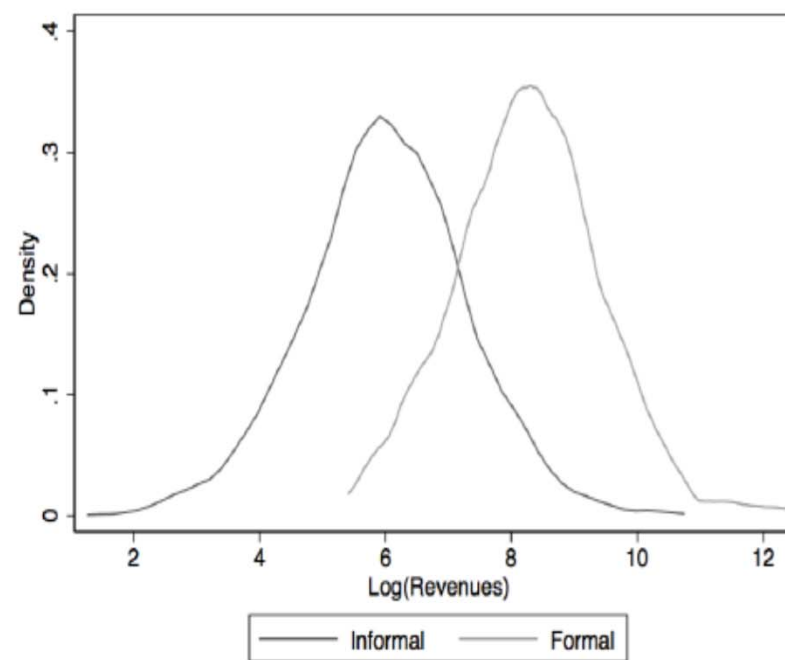
## Formal vs. Informal Firms (Brazil)

Source: Ulyssea, AER 2018



kernel = epanechnikov, bandwidth = 0.2183

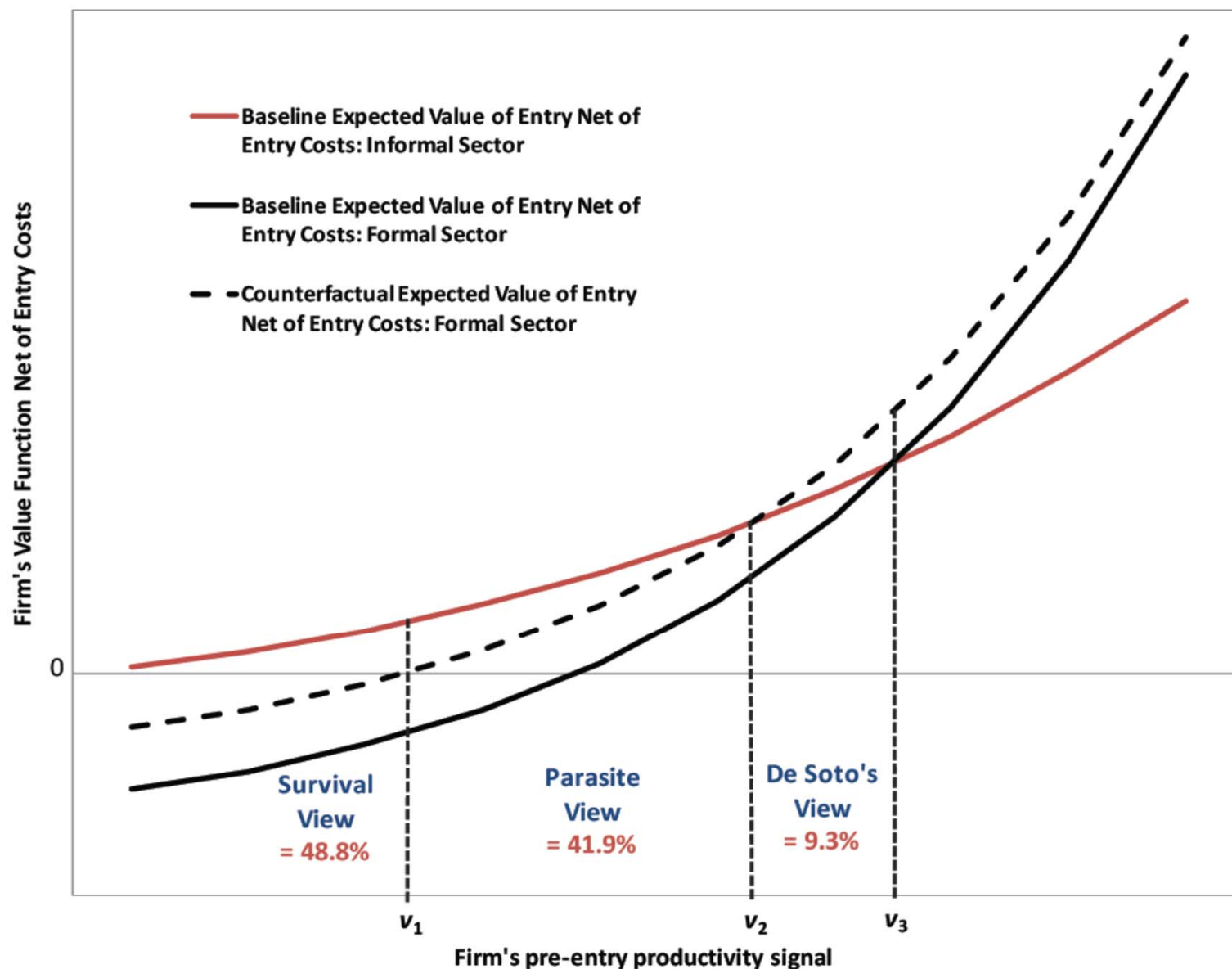
(a) Productivity: Log(VA/Worker)



kernel = epanechnikov, bandwidth = 0.2308

(b) Size: Log(Revenues)

# The three types of informal firms in the data



# My takeaway:

- Strong evidence that share of “survivors” is large
- Strong evidence that share of “held-back entrepreneurs” is small
- Some evidence that share of “parasites” is substantial.

→ So what does this all imply for policy?

# Potential Policy Responses

- Domestic
- Trade

# Domestic

- **Stricter enforcement:** force the “parasites” to formalize. Increases efficiency. But also eliminates survivors at high social and welfare cost.
- **Policies supporting small businesses:** ineffective if small businesses inefficient
- **Reducing the entry costs to formal sector (registration):**
  - BUT: in Ulyssea 2018, this would make a small difference
  - Experiments suggest minimal effect of registration
    - Brazil: De Andrade, Henrique, Bruhn, and McKenzie (2013)
    - Sri Lanka: De Mel, McKenzie, and Woodruff (2013)
- **Reducing regulatory and bureaucratic costs; taxes:** Most promising, so far explored only via simulation (Ulyssea 2010, 2018)

# Trade

- Intensified competition and growth of exports expected to lead to reallocation of resources towards larger firms

→ Evidence:

# Evidence on Trade and Informality

is mixed

- **McCaig and Pavcnik: Vietnam**
  - Bilateral trade liberalization with US
  - Rise in Exports
  - Structural transformation. Resources move to formal sector
- **Dix-Carneiro and Kovak: Brazil**
  - Unilateral trade liberalization
  - Increase in unemployment in short run, strong increase in informality in the long-run
  - Informality fall-back sector – otherwise higher unemployment



## Trade and Informality (contd.)

- Dix-Carneiro, Goldberg, Meghir and Ulyssea (in progress): try to make sense of the above

Potential mechanism at work: Growth of exports makes firm revenues more volatile. In a setting with labor market frictions, this leads to higher steady-state unemployment. Informal sector (more flexible) can absorb the unemployed, hence serving as second-best social insurance

- At any rate: No evidence that openness by itself will eliminate small and/or informal firms. Results likely to be context-specific.

# Part II: The Big and Powerful

First, why so little work on the subject?

- The focus on the small and inefficient distracts from the big and powerful
- Priority in developing countries: investment and growth (even if at the expense of consumers)
- Many countries still do not have anti-trust legislation or competition policy
- When state capacity is lacking, why push for policies that will never be enforced by reluctant or corrupt governments?
- Finally, issues, results and policies context-specific  
→ research is often viewed as thankless

# Some examples

- Food cartels (wheat, maize, poultry)
- Pharmaceuticals
- Agri-inputs (fertilizer, seeds)
- Cement
- Services: Transport and Telecommunications
- Traders and Intermediaries
  - Cashews in Mozambique
  - Atkin and Donaldson: Traders in Ethiopia, Nigeria
  - Lauren Bergquist: Maize traders in Kenya
- The above have a particularly large effect on the poor

# Monopsony Power

- In many countries “superstar” firms.
  - Freund and Pierola (ReStat ): Top 1% accounts for 53% of exports; top 10 firms account for 40% of exports
  - Examples: Samsung in Korea; Intel in Costa Rica
- Firms too small to influence (world) prices.  
But potential for monopsony power
- Buyer cartels in commodity markets (coffee)

# Current State of Affairs

- Competition policy non-existent in many countries (though progress was made)
- Competition authorities underfunded and understaffed; staff overworked
- Lobbying against enforcement
- Enforcement is lax

# Diagnosis of Market Power

1. Cross-sectional comparisons of prices
  - i. Cross-regional
  - ii. Establishment of Price Discrimination
2. Incomplete (Cost) Pass-through
3. Production-side approach → Markup estimation
4. Full Structural modeling → Markup estimation

# 1. Cross-sectional Comparisons

- Challenge: Need to adequately control for cost differences
- Most convincing when differences are large:
  - Example: Cement prices in Africa are on average 183% higher than in the rest of the world
  - Example: Sugar in Zambia is 41% more expensive than in other countries in the Great Lakes Region

## 2. Incomplete Cost Pass-through

- Popular because of ease of implementation
- Usually studies rely on commodity price shocks (driven for example by weather shocks)
- Enormous confusion about what is learnt from incomplete cost pass-through
- Would be instructive to consult the very large International literature on exchange rate pass-through
  - Goldberg and Knetter, JEL 1996 (Goods Prices and Exchange Rates: What have we learnt?)

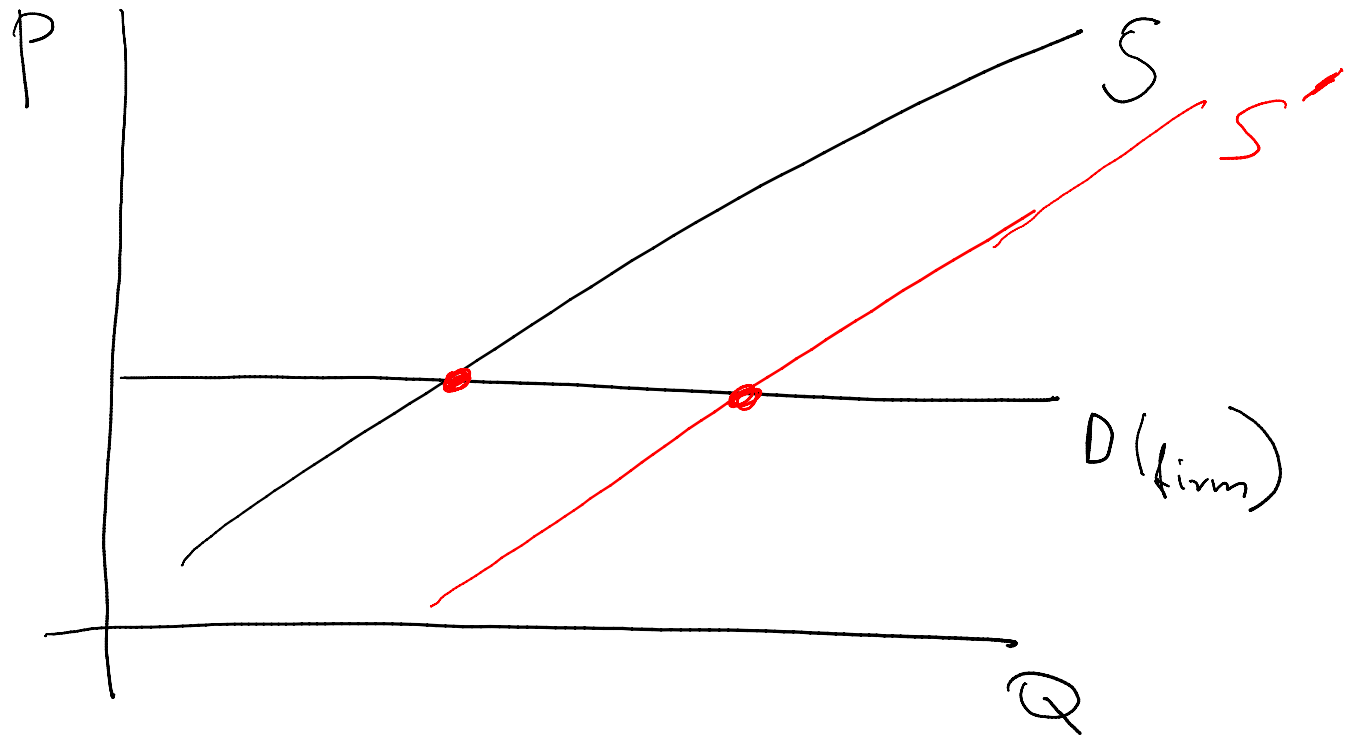


# Confusion between demand facing the FIRM and MARKET demand

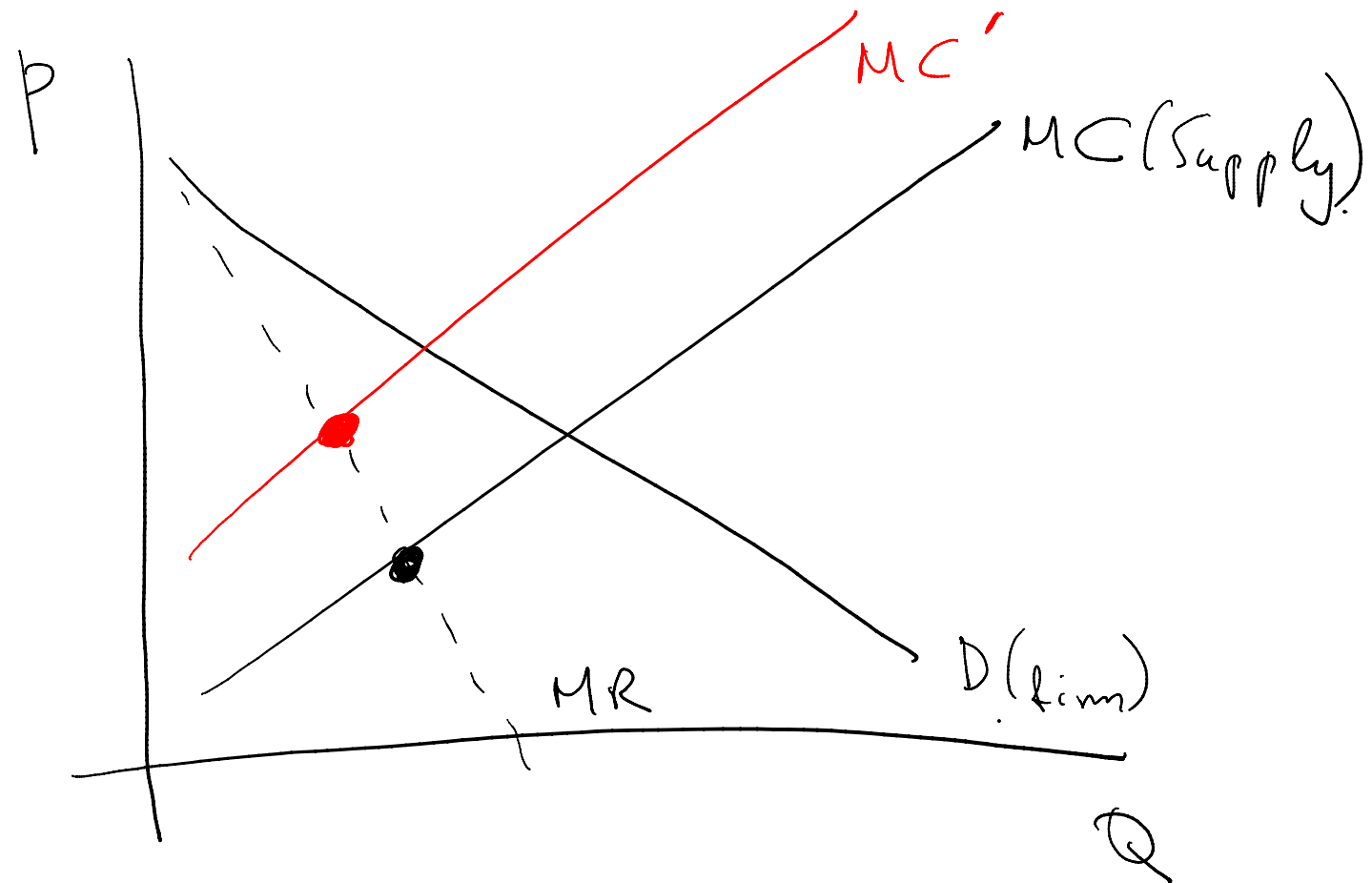
- Demand facing the FIRM
  - Horizontal under Perfect Competition
  - Downward-sloping under Market Power
- Market Demand: Downward-sloping

# Demand facing the FIRM

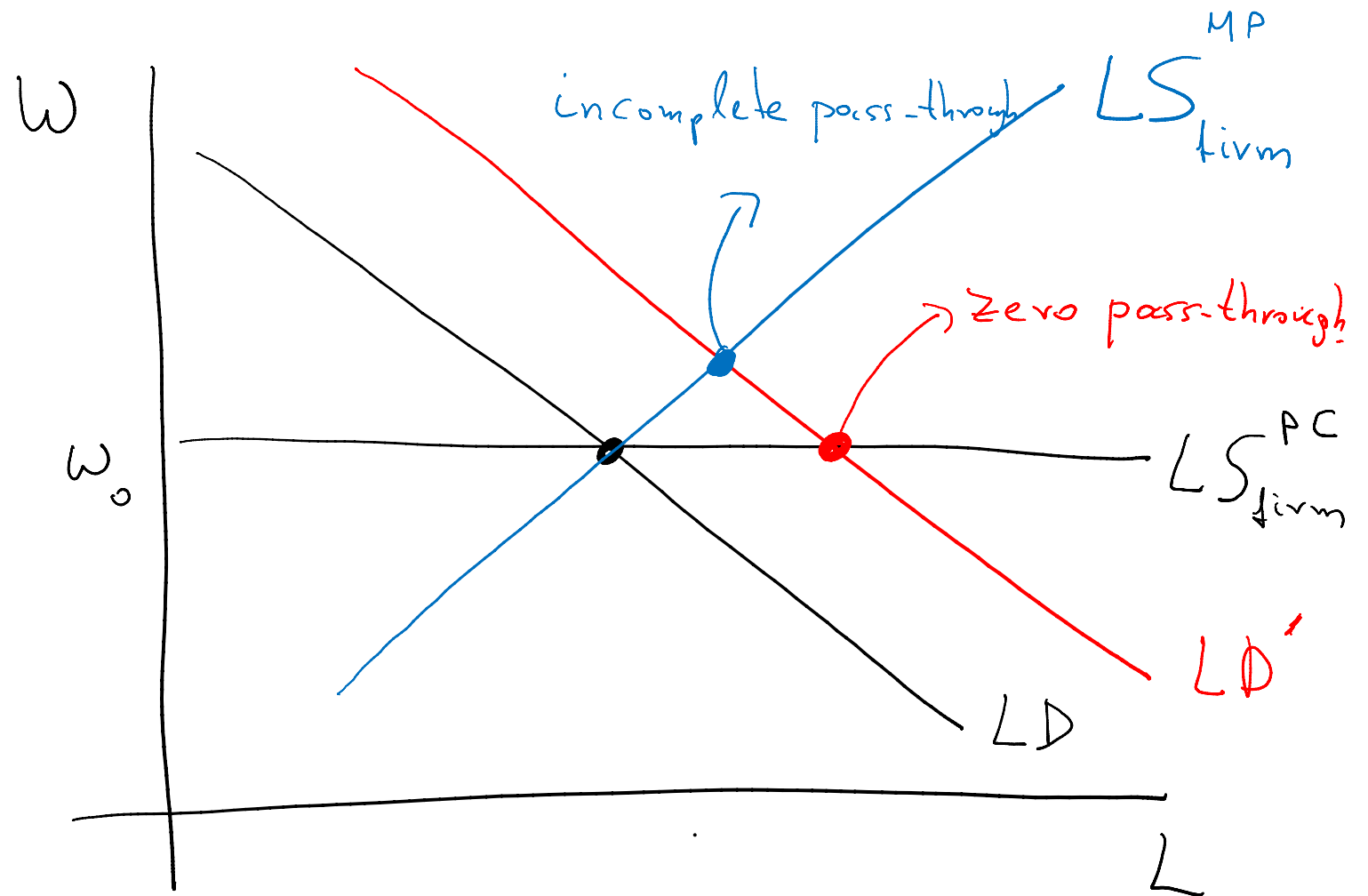
- Horizontal under Perfect Competition
- **Firm-specific** supply shock: NO pass-through



- Downward-sloping with Market Power
- **Firm-specific** shock: Incomplete Pass-through

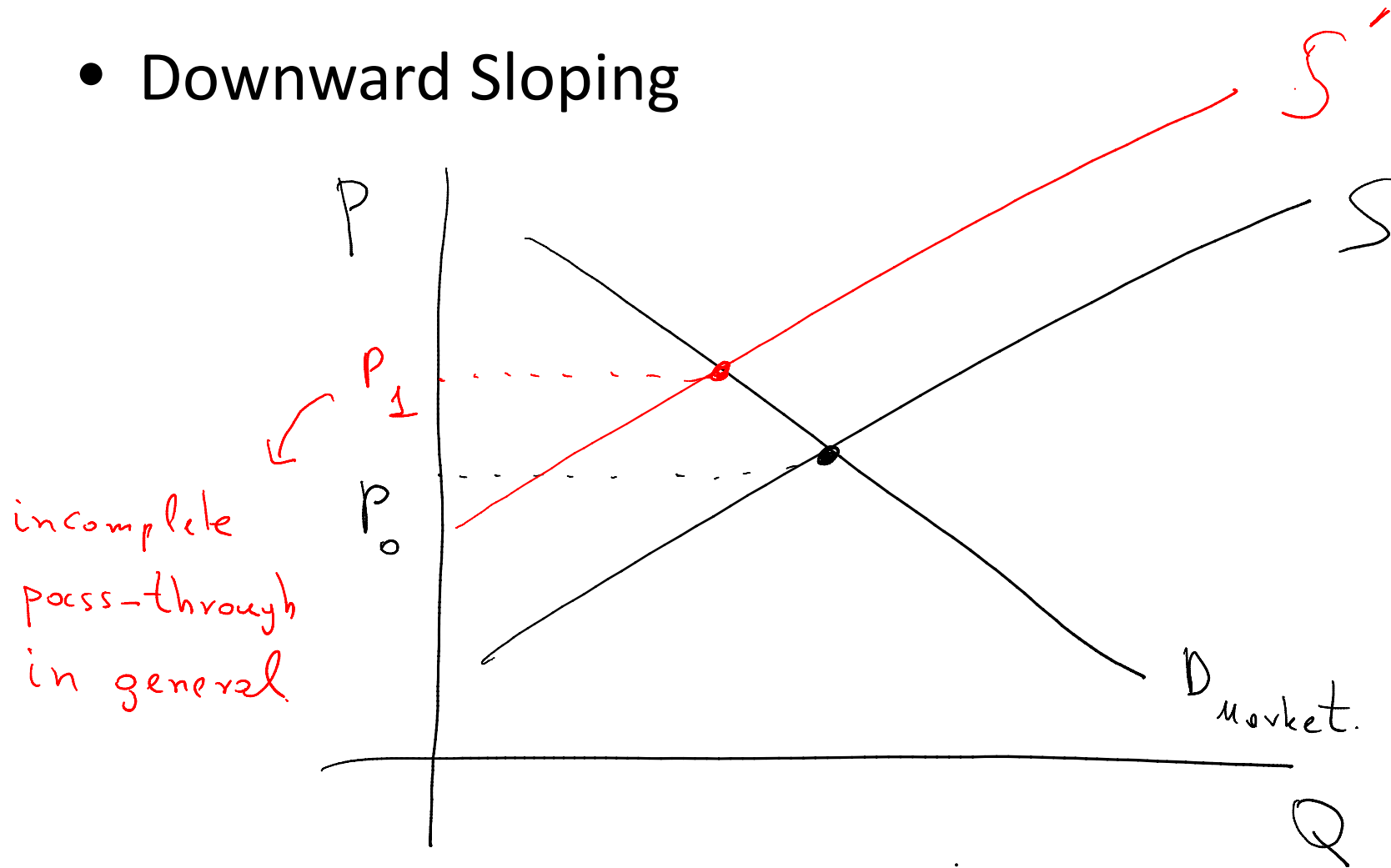


# Similarly with Monopsony

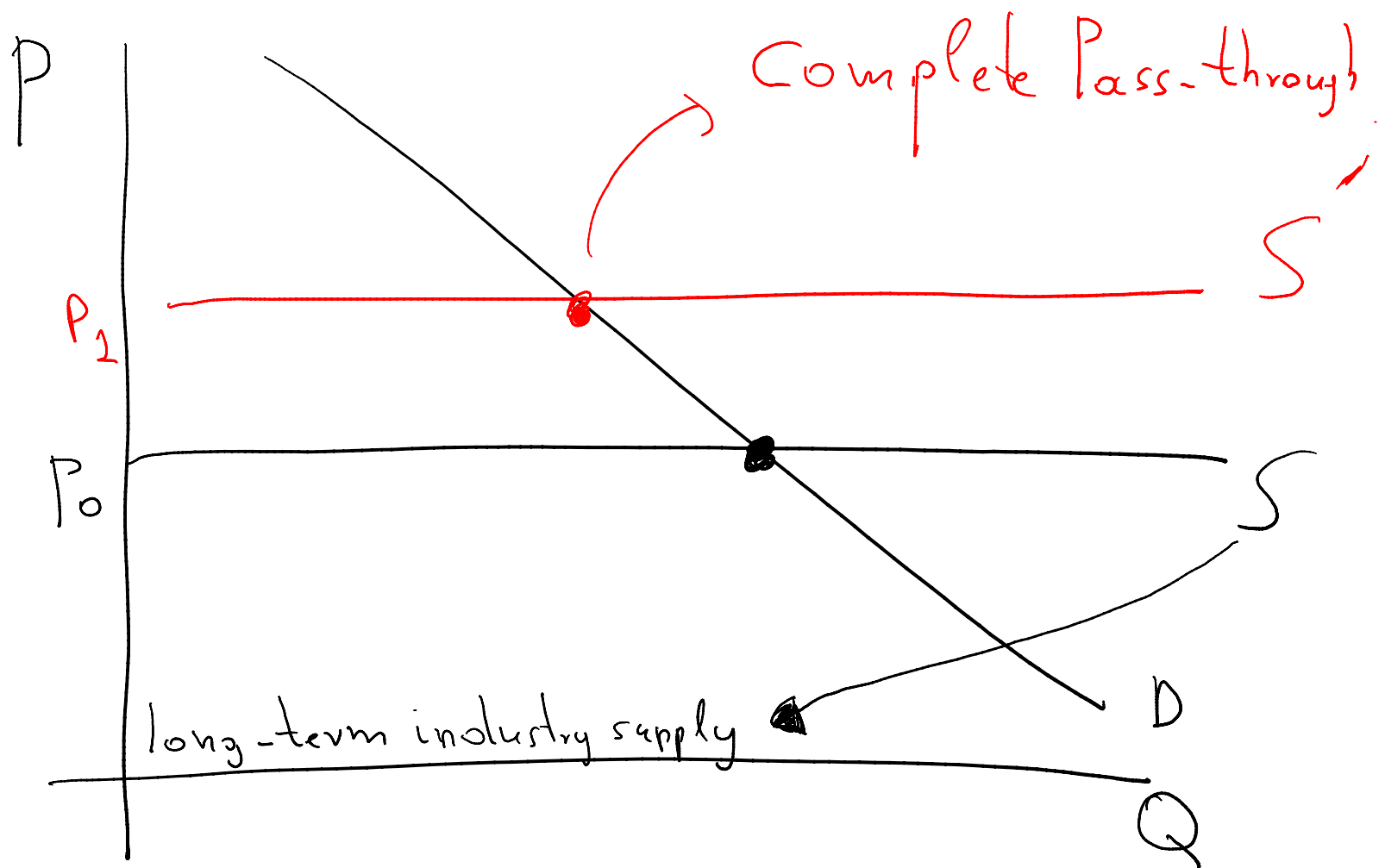


# Market Demand

- Downward Sloping



Unless:



# Bottomline:

- Unless one ASSUMES horizontal supply curve (i.e., constant MC), incomplete pass-through of MARKET-LEVEL shocks does NOT inform us about market power.
- With upward-sloping supply curve, need to control for change in marginal costs → challenging
- Therefore, most convincing applications use multi-market data to control for MC

# Incomplete Pass-through AND Price Discrimination

→ Pricing-to-Market

- More convincing, because comparison across markets controls for (unobserved) costs
- Underlying assumption: MC common across markets
- Violated if there are quality differences across markets (Verhoogen, Brambilla et al)



### 3. Production-side Approach

- In its simplest form: Markup = Price/MC
- Need MC measure (Variable cost? Accounting data?)
- DeLoecker&Warzcynski

DeLoecker, Goldberg, Khandelwal and Pavcnik:

$$\text{Markup} = \frac{\text{Output Elasticity of Variable Input}}{\text{Revenue Share of Variable Input}}$$

# Production-side Approach (contd.)

- Advantages:
  - Conceptual assumptions minimal
  - Implementable with publicly available firm-level data
- Disadvantages:
  - Actual Implementation with multi-product firm data is hard
  - Approach = descriptive in nature. No counterfactual simulations

## 4. Structural (Demand-Side) Approach

Example: Chaudhuri, Goldberg and Jia (AER 2005) on Indian pharmaceuticals

- A. Assume a particular utility or demand function. Use it to estimate prices elasticities of demand.
- A. Assume a particular market structure and firm behavior.
- B. The assumptions in A. and B. imply particular markups.
- C. Once we know markups, marginal costs are also identified from the identity:  
$$MC = \text{Price} / \text{Markup}$$

# Structural Approach (contd.)

- Advantage: Learn everything about the market, incl. size of markups. Counterfactual simulations.
- Main drawback of structural approach:
  - Results depend on assumptions
- BUT:
  - Assumptions about market structure and firm behavior can be informed by study of institutional setting
  - Experiments could help identify demand
    - Thus-far unexploited opportunity for Devo

# Can Trade act as Competition Policy?

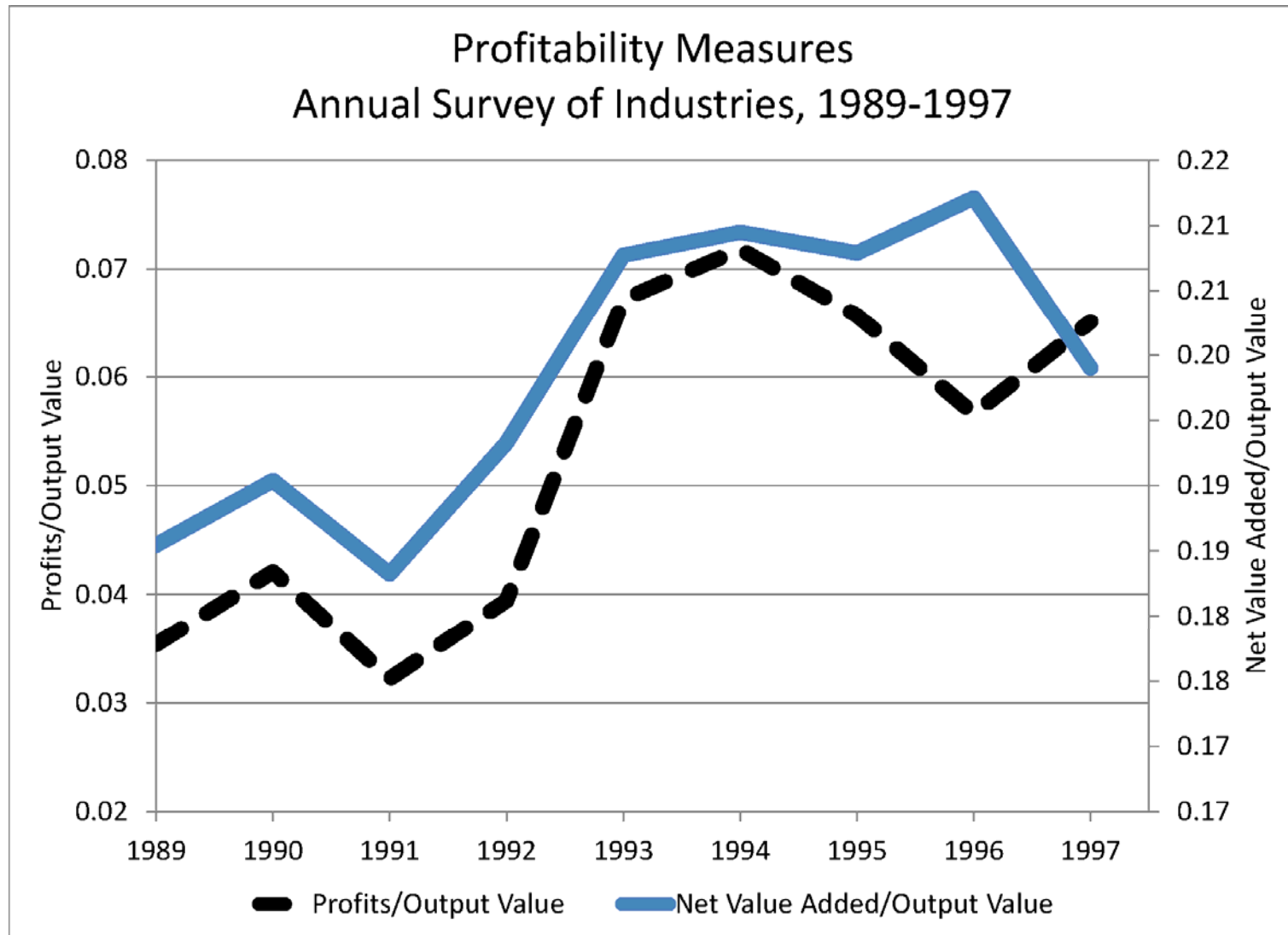
- Trade increases competition (from abroad).
- BUT: Four caveats
  - 1) Non-traded sector is not covered
  - 2) Market structure needs to be taken into account  
(Example: Cashews in Mozambique)
  - 3) Entrants often have market power themselves
  - 4) Context and particular trade policy matter

Example: De Loecker, Goldberg, Khandelwal and Pavcnik  
on India's Trade Liberalization

- Large trade liberalization INCREASED firm markups. How?
- Liberalization reduced not only tariffs on final products, but also tariffs on intermediates
- Major effect: Cost Reduction for firms
- Cost reductions were incompletely passed through to consumers.
- Hence, markups increased, and prices decreased by less than the cost savings

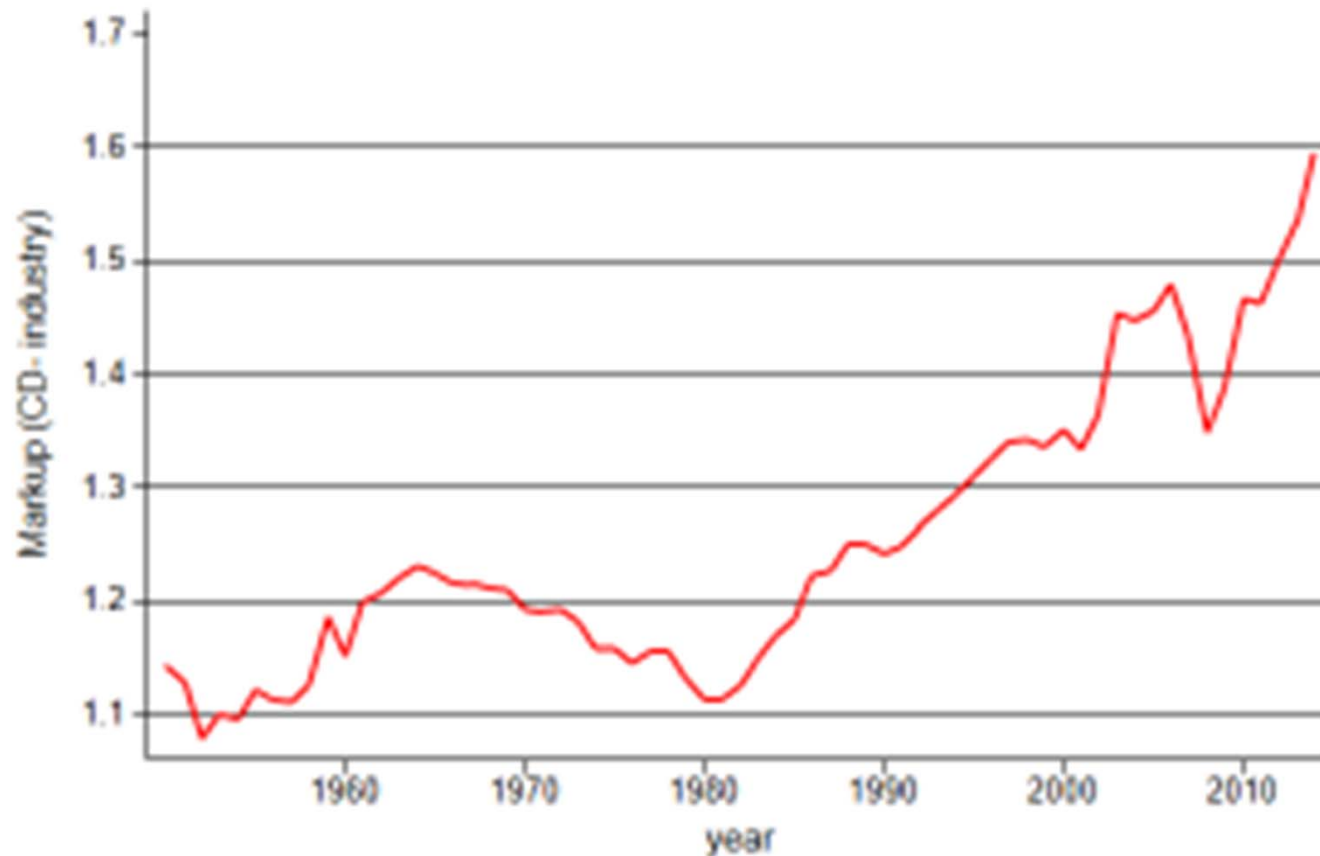
# Two Graphs:

## 1. Evolution of Markups in India



## 2. Evolution of Markups in the U.S. (Source: DeLoecker and Eeckhout, 2017)

- Cost Reductions AND Lack of Cost Pass-through?
- Monopsony Power? (Morlacco 2017)





# Concluding Remarks

- Firms in the developing world present many important, policy-relevant, and unanswered questions
- Approaches and answers likely to be case- and context-specific
- Empirical work in Devo could play an important role in this area

On the other side:

- Hsieh and Klenow and follow-up literature:
  - higher productivity dispersion in developing countries
  - small firms inefficient; never grow; never die
- Hsieh and Olken (JEL 2014): Average (and likely also marginal) products of K and L lower in small firms. Consistent also with Harrison and Rotemberg (2006 policy change in India)
- Large literature on heterogeneous firms in trade documents that larger firms more efficient (in the revenue sense)

**THANK YOU!**