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# **“Firm Entry, Trade, and Welfare in Zipf’s World”**

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January 9, 2011

## What this Paper is About

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**Intuition:** when the firm size distribution is fat-tailed, the marginal firms (the new entrants following episodes of trade liberalization) are VERY SMALL compared to the incumbents  $\Rightarrow$  carry little weight in aggregate welfare calculations.

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**Intuition:** when the firm size distribution is fat-tailed, the marginal firms (the new entrants following episodes of trade liberalization) are VERY SMALL compared to the incumbents  $\Rightarrow$  carry little weight in aggregate welfare calculations.

**Why is this important?** For trade policy, trade liberalizations targeting reductions in fixed costs have limited effects on welfare.

## What this Paper Does

- Develop a GE multi-country Melitz-type model incorporating an intermediate goods channel, which delivers closed-form expressions for relative welfare.
- Show analytically:
  - minor quantitative importance of changes in fixed costs.
  - that the elasticity of welfare with respect to the extensive margin tends to zero as the firms' distribution approaches Zipf's law.
- Calibrate the model to match the dispersion of the firm size distribution and relative GDP levels.
  - With the calibrated model, perform counterfactual exercises looking at the effects of reductions in fixed costs and iceberg costs of trade.

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⇒ **Does this result depend on the infinite support of the distribution?**

- Calibrate the model to match the dispersion of the firm size distribution and relative GDP levels.
  - With the calibrated model, perform counterfactual exercises looking at the effects of reductions in fixed costs and iceberg costs of trade.

⇒ **Alternative calibration methodology might deliver more accurate welfare calculations.**

# On the Firm Size Distribution

Introduction

Comments

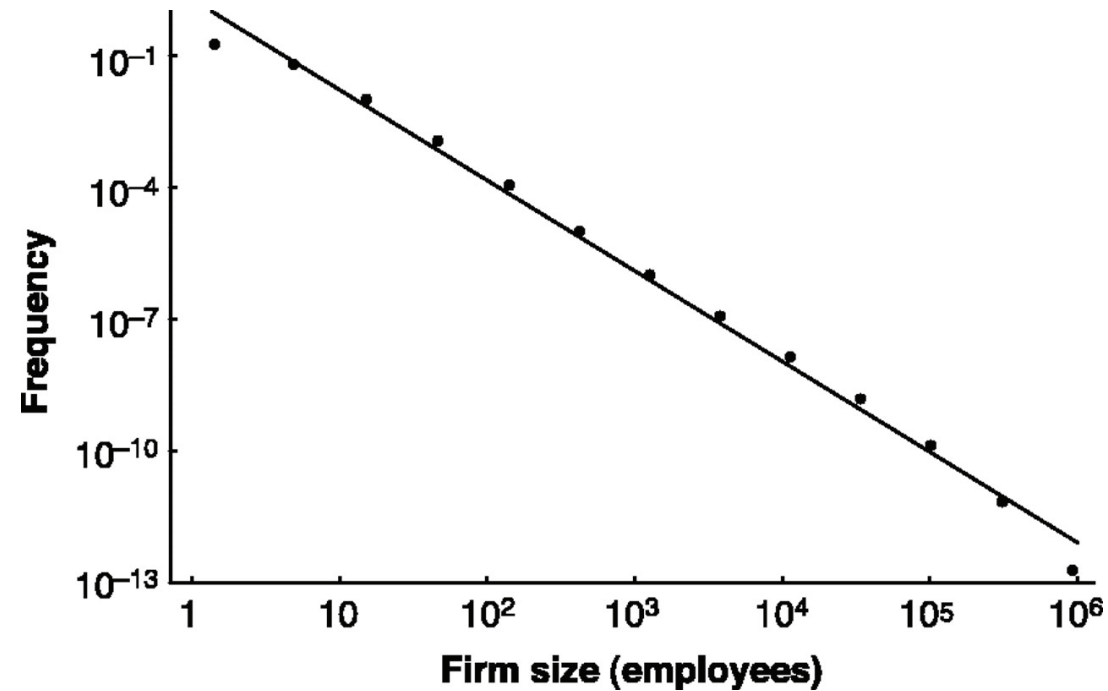
● Firm Size Distribution

● Calibration

● Other

Conclusions

Figure 1. Estimated Power Law in Firm Size in the U.S. (Axtell, 2001).



- Not so good fit for the largest firms in the distribution.
- Number of firms finite (and fixed in the model)  $\Rightarrow$  bounded support at least in the short run.



- Firm Size Distribution
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## On the Firm Size Distribution (contd.)

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**How do the predictions of the model change if we parameterize the size distribution on a bounded support?**

**They don't:**

- if the productivity distribution is a bounded Pareto, the distribution of sales is also a bounded Pareto with shape parameter  $\vartheta/(\varepsilon - 1)$ ;
- welfare is unchanged as long as the support of the distribution is common across countries;
- the effect of changes in fixed costs  $f$  on welfare is still negligible, even if the support of the distribution is different across countries;
- the elasticity of welfare with respect to the extensive margin is unchanged.

# Calibration: Targeted Moments and Model Fit

Introduction

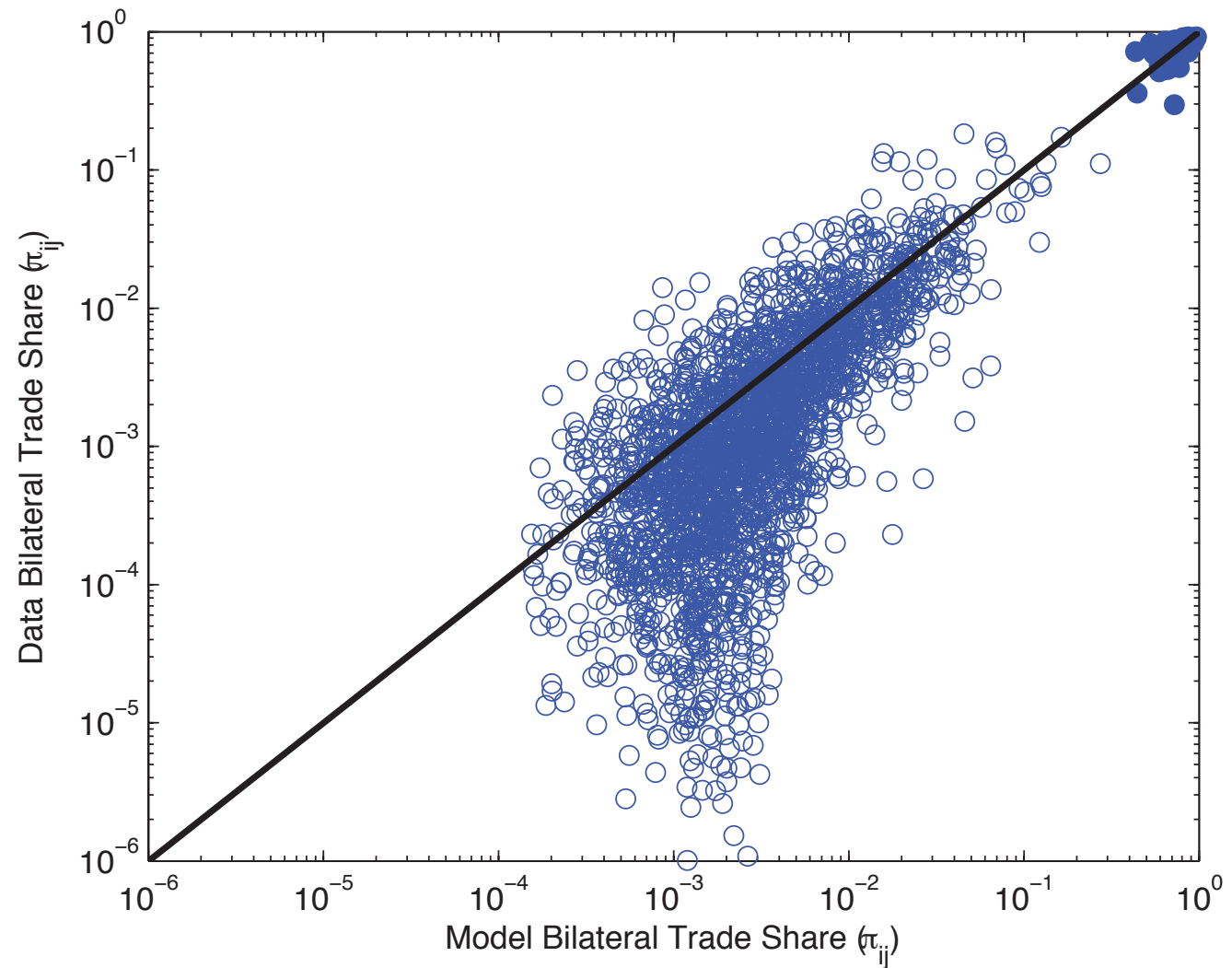
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## Calibration: Targeted Moments and Model Fit (contd.)

The model overpredicts the trade flows of the countries trading less.

How important is this to evaluate the effects of trade liberalization?

The calibration targets only the shape of the firm size distribution and relative GDP levels.

### Alternative calibration methodology:

Back up the fixed costs  $f_{ii}$ ,  $f_{ij}$  from the data on sales (or from the shares of firms trading - are they available in ORBIS?) to maximize the fit of the model.

Why? Because:

1. maybe the measures from the doing Business Indicators Database are not good measures of fixed costs;
2. welfare calculations more accurate starting from a parameterization that fits the data more precisely.

- Firm Size Distribution
- Calibration
- Other

## Other Thoughts

- Nice side contribution: provide evidence on the firm size distribution following Zipf's law for many countries.
- What are the implied shares of exporting firms in the model?
- Relevance of the exercise for trade policy: maybe limited if most of the trade costs are related to technology or geography (transportation costs seem more important than tariffs in impeding trade).

## Conclusions

- Careful exercise that sheds light on the role of the firm size distribution in identifying the source of the gains from trade liberalization.
- Both analytical and credible quantitative results.
- Leaves the door open for other potential mechanisms (not in this model) that could induce larger extensive margin effects: what are we missing?
- I look forward to more work in this agenda!