A Search and Learning Model of Export Dynamics

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Big Picture

- Exciting era for trade theory: firms & trade

- Exciting EEKKT agenda: Establish new facts on firm dynamics
  - Large turnover of small exporters
  - Large growth rates of small exporters
  - Entrants and Exitors typically small

Costas Arkolakis: Market Access Costs 2
Survivors Market Share in the US Census

US manufacturing census data

1963 Cohort
1967 Cohort
1972 Cohort
1977 Cohort
Fact 1: Large exit rate of exporters in a destination
Survivors Market Share in the US Census

![Graph showing market share of survivors over different cohorts.]

- 1963 Cohort
- 1967 Cohort
- 1972 Cohort
- 1977 Cohort

Model $\beta = 1$

Model $\beta = 0$
Fact 2: In a decade, new exporters large part of trade

![Graph showing the relationship between cohort year and cohort market share. The x-axis represents cohort year ranging from 0 to 9, and the y-axis represents cohort market share ranging from 0.5 to 1. The graph is titled "Colombian Data." There are data points scattered across the graph, indicating a trend where market share increases with cohort year.]
Potential Contribution

- Rich data can identify right modeling assumptions
  - Favor a theory of firm-productivity dynamics (ala Hopenhayn)
    - But too much turnover in the first year!
    - Learning can help us explain this fact
    - Learning can explain growth as a function of age (conditional on size)
Why searching and learning together?

- Modeling subtlety
  - i. Searching alone probably not enough to match 1st year turnover
  - ii. Learning alone no value (no reason for adjustment of sales!)
So what do we Learn from “Learning”? 

- EKK, EEKKT present striking findings:
  - Many really tiny exporters and really tiny entrants
  - Size of entrants and exitors almost the same

- Data put doubts on assumption of sunk costs (as currently modeled)

- Learning can create a ”sunk cost” behavior (generates irreversibility)
Two main counterfactual experiments

- Productivity shocks alone can match exporter turnover & growth

- Model with learning overqualified to simply do this
  - Its real value in counterfactual experiments

- Counterfactual 1: Exporter behavior and exchange rate movements
  - Is irreversibility created by persistence in matches…
Two main counterfactual experiments

- Productivity shocks alone can match exporter turnover & growth

- Model with learning overqualified to simply do this
  - Its real value in counterfactual experiments

- Counterfactual 1: Exporter behavior and exchange rate movements
  - Is irreversibility created by persistence in matches...
  - Or the sales within the matches?
Two main counterfactual experiments

• Productivity shocks alone can match exporter turnover & growth

• Model with learning overqualified to simply do this
  • Its real value in counterfactual experiments

• Counterfactual 2: Trade Liberalization
  • Why growth of trade is slow?
  • Modeling export surges: further complications (learning spillover?)
Across Matches and Within Matches

- The truth for firm Growth is in the matches!
Across Matches and Within Matches

- Matched data can help us figure out the mechanics of export growth

- Here is an example:
  - If sales in matches not correlated growth similar to Kortum Klette
  - If sales in matches perfectly correlated similar to Luttmer
  - In the first case variance declines by rate $\sim 1/\text{firm size}$ in the second it might actually increase (due to selection)!
A Robustness Check for Learning

- A way to check how much of a “kick” learning gives

- Take \( N \) (correlated) stochastic processes

- Look at their behavior (turnover and growth)
  - Does it look like turnover & growth of within firm matches?
  - Can you replicate the behavior of the EEKKT model?