

ECB Roundtable: International Buyer-Seller Relationships

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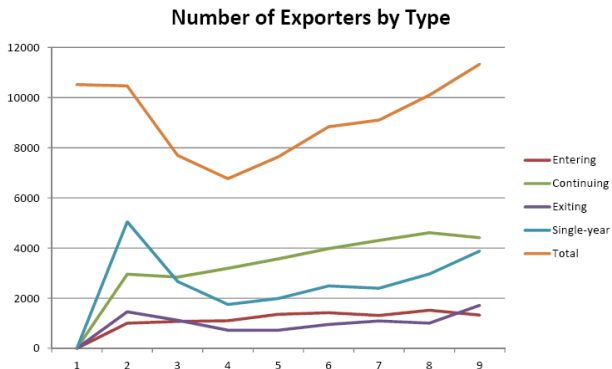
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- **Approach topic from a micro perspective:**
 - What are the important firm-level trade frictions?
 - What are main drivers of selection into foreign markets and post-entry growth?
- **Early work: use establishment-level panel data to estimate:**
 - threshold costs of breaking into new markets
 - underlying stochastic processes for marginal cost and demand shocks
- **Recent work: study formation, evolution, and dissolution of international buyer-seller relationships.**
 - Begin with descriptive analysis
 - Formulate dynamic structural models of international buyer-seller matching, network formation

Some stylized facts

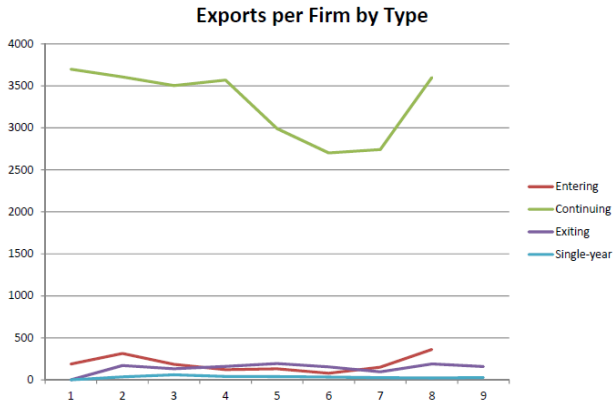
- **U.S. Customs records:** population of (legal) import shipments $> \$2,000$ from Colombia and China.
- Each transaction has a date, value, product code, affiliated trade indicator, exporter country *and* firm ID, and importer firm ID.
- We also use **establishment survey data** and **firm-level financial statements**, merged with shipments records.

Exporters by durability

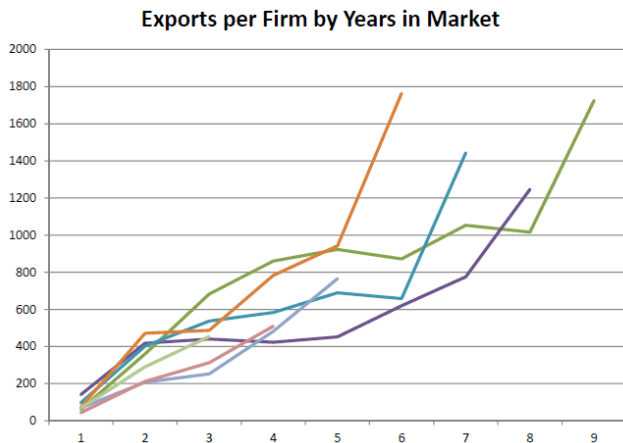


- As a fraction of total exporters, firms that enter a market and immediately exit are important.

Exporters by durability

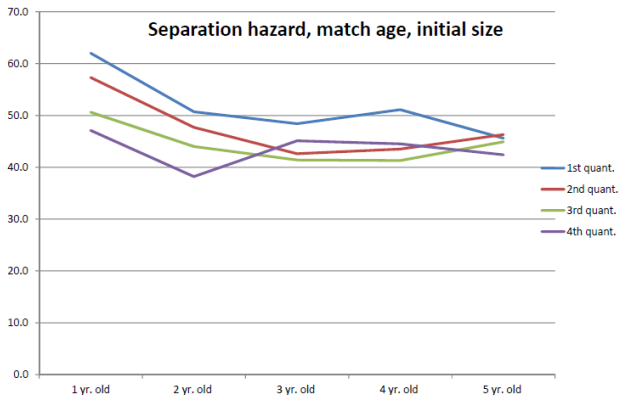


- But as a fraction of total export revenue, brand new exporters don't account for much.

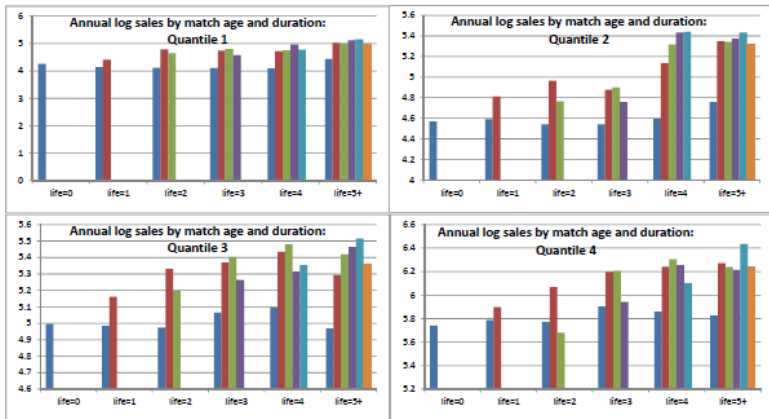


- The firms that survive their first year grow exceptionally rapidly in their early years.

Match maturation



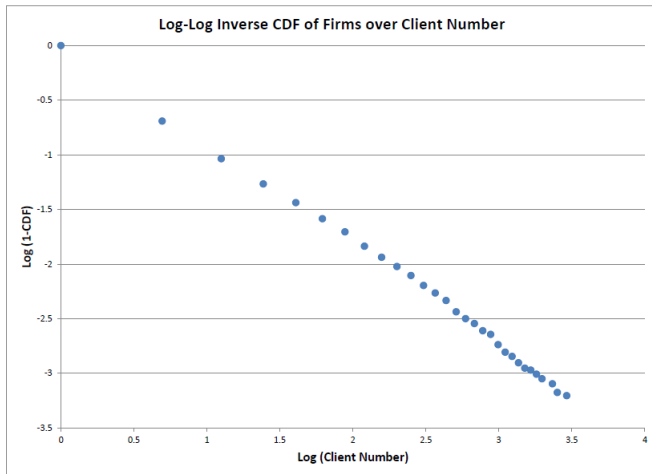
- Most new matches fail within a year, but
 - Chances of survival are higher for matches with large initial sales
 - Survival rates improve and converge for all matches after the first year.
 - To sustain or increase exports, firms must continually replenish client base.

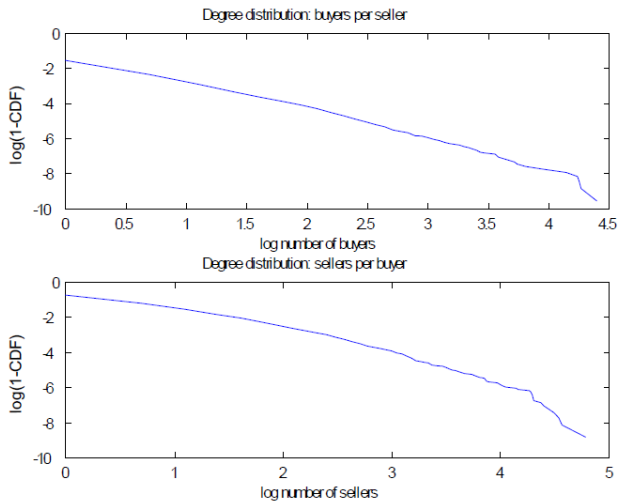


- Matches that start small tend to stay small.
- After a match's first year, there is no systematic tendency for its annual sales to grow.

A Pareto client distribution

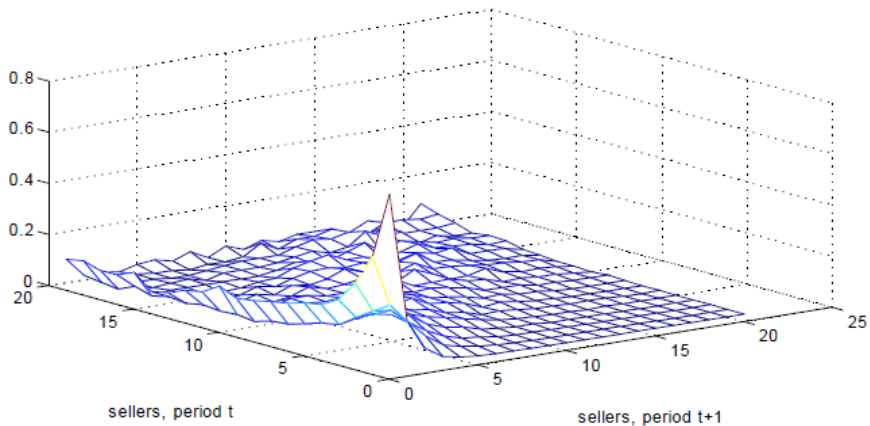
- Most firms have a single buyer, but the distribution of client counts across exporters is fat-tailed.





- Nearly Pareto on both buyer and seller side, though not as fat-tailed.

Client Count Transition probabilities



- General tendency to lose business partners, on net

● On the client distributions

▶ Details

- Chaney (AER, 2014)
- Bernard, Moxnes, and Ulltveit-Moe (2015)
- Eaton, Kortum, and Kramarz (2015)
- Carballo, Ottaviano, and Volpe-Martincus (2013)

● On transition dynamics

- Alessandria, Choi and Ruhl (2014): ramping up reflects investments in reducing trade costs
- Fajgelbaum (2014): ramping up reflects investment in labor force
- Berman, Rebeyrol and Vicard (2015): ramping up is demand learning
- Aeberhardt, Buono and Fadinger (2012): learning and incomplete contracts
- Araujo, Mion, and Ornelas (2012)
- Akhmetova and Mitaritonna (2012)
- Timoshenko (2013)

A search and learning model

(Eaton, Eslava, Jinkins, Krizan and Tybout)

- Firms engage in costly **search** to meet potential buyers at home and (possibly) abroad.
- Firms new to the foreign market don't know what fraction of buyers there will be willing to do business with them.
- As they encounter potential buyers, firms gradually learn the scope of the market for their particular products, and they adjust their search intensities accordingly (**learning**).
- Search costs fall as firms accumulate successful business relationships (**reputation/network effects**).
- Maintaining a relationship with a buyer is costly, so relationships that yields meager profits are dropped.

Buyer-seller relationships through the lens of the EEJKT model

- **Large volume of small scale exporters reflects**
 - large volume of inexperienced firms searching at a low level.
- **High exit rate reflects**
 - short lifespan of typical match
 - low-level search
 - learning about product appeal.
- **Small number of major exporters reflects**
 - skewed distribution of product appeal
 - reputation effects.

Explaining network patterns

Eaton, Jinkins, Tybout and Xu (in progress)

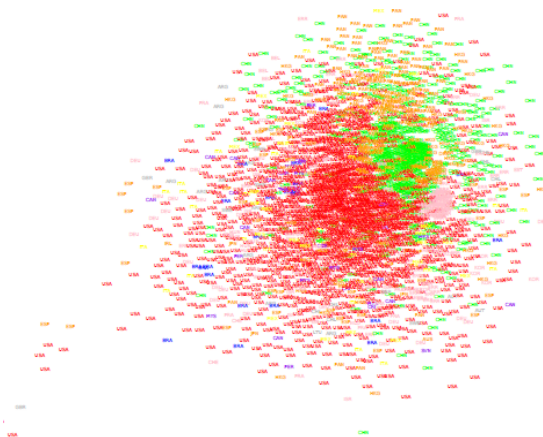
- **Next: characterize market equilibria. Questions of interest:**
 - How does network re-form if a major new player (e.g., China) appears?
 - How do equilibria depend on efficiency of matching mechanisms?
- **Forward-looking optimal search by heterogeneous agents on both sides of the market.**
 - convex search costs
 - reputation effects
 - market tightness
 - market efficiency
- **Match-specific payoffs depend on**
 - idiosyncratic profit shifters
 - own product lines
 - compatibility of buyer and seller product lines
 - number of business partners (diversification and saturation effects)

- **Want to match patterns mentioned earlier:**
 - buyer and seller degree distributions
 - match dynamics: net transition rates, match duration
- **Also want to match some network features. Define:**
 - **node**: Colombian importer or foreign exporter to Colombia
 - **edge** between two nodes: importer buys from a foreign supplier
 - firms are **connected** if one can trace a path from one to other through shared edges.
 - **component**: set of connected firms.

Summary statistics for Colombian consumer electronics

- Value of imports more than doubled in value, 2003-12; number of importers increased 66 percent.
- Fraction of market in the largest component: stable at 86 percent. (small world)
- Percent of value in the largest component: stable at 53 percent.
- Second-largest component size 9; 1,989 components were size one. (mass market vs. fringe)

Clustered nodes by source of imports (2012)

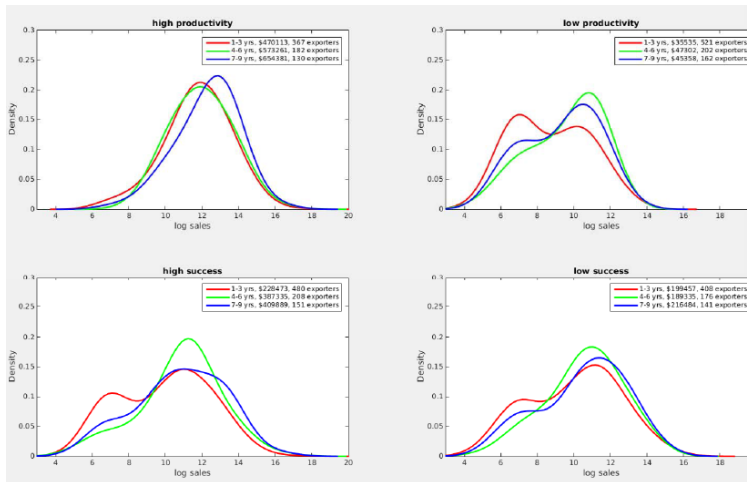


- Nodes that share more edges are closer together (US: red; China: green).

- **Degree distribution and matching dynamics similar to EEJKT**
- **Clustering patterns explained by**
 - product mix compatibility effects.
 - reputation effects
 - agent heterogeneity
- **(Very) preliminary simulations:**
 - Increasing the measure of sellers induces a more-than-proportionate increase in the rents generated by matches:
 - scale effects improve connectedness.
 - a "tipping point" in matching frictions

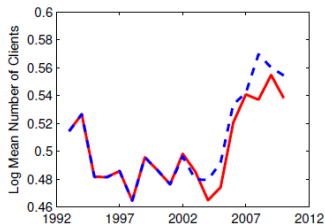
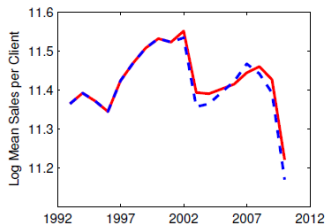
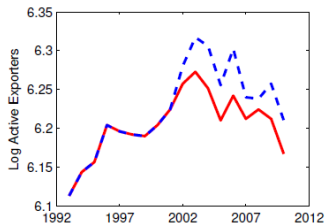
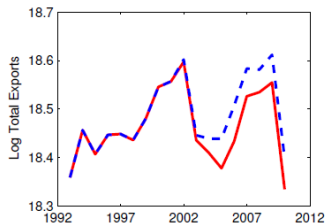
- **Substantial ramping up with new market entry; slow selection**
- **Lock-in effects** for exporters with early success
- Search costs, multi-period matches, learning, and reputation effects combine to provide an explanation for **hysteresis in trade**.
 - Reputation effects appear to be particularly important.
 - Since learning is mainly relevant for new, marginal players, probably doesn't have a big effect on short-run export dynamics.

Cohort selection and growth



- Cumulative sales: first 3 years (red), years 3-6 (green), years 6-9 (blue)
- Selection clearly at work, but not a lot of reduction in dispersion.

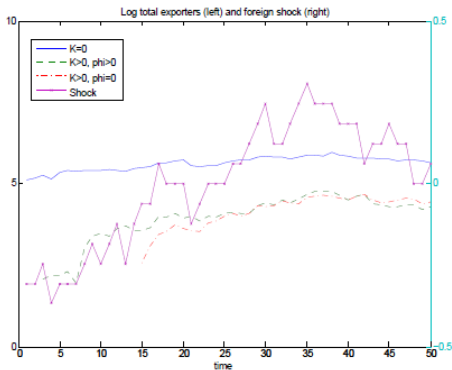
20% reduction in search costs in 2002



- gradual response in exports as client bases grow
- mainly encourage inexperienced firms to search harder

Born-to-export (BTE) firms without domestic markets

- log number of exporters and foreign demand shocks



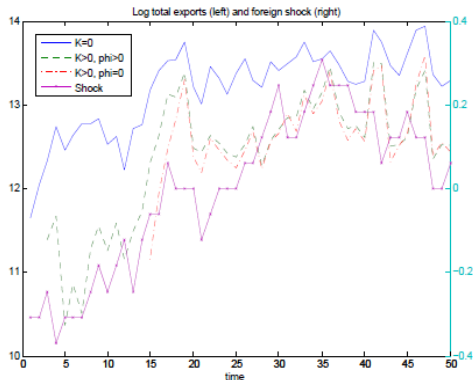
Sunk costs delay entry until market-wide demand improves, especially when scrap value is small relative to entry cost.

Born-to-export (BTE) firms in the EEJKT setting

- A variant of the EEJKT model provides an interpretation for export booms
- Consider an industry that
 - might be viable as an exporter, but
 - enjoys very low domestic demand (western apparel in Bangladesh, cut flowers in Africa, . . .)
- Without pre-existing firms,
 - exporting must come from new capacity formation: big sunk costs
 - little observable information about demand conditions abroad
 - little idiosyncratic information available to potential entrepreneurs
- Takes a big push to get started, and when the push occurs, entrepreneurs tend to move together.

Born-to-export (BTE) firms in the EEJKT setting

- log aggregate exports and foreign demand shocks



Dramatic booms are possible when entry costs are important: delayed entry effect, entry volume effect, stick-around effect, and search intensity effect.

- On domestic linkages:
 - boards of directors, other information on common ownership
 - domestic intermediate input linkages
 - distributors/intermediaries
 - movements of workers across establishments, both as a conduit for knowledge movement and as a reaction to changing reliance on intermediate inputs/offshoring.
- Investments in relationship building (market-specific marketing, sales)
- Detailed data on the emergence of new destination markets

Other perspectives: Chaney (AER, 2014)

- Firms' location and clientelle determine their probabilities of matching to clients located elsewhere.
 - the closer a potential client, the easier it is to find her.
 - firms search locally at exogenous rate (direct search)
 - firms use their existing network of customers to search remotely at exogenous rate (indirect search).
- Model matches
 - Pareto-like degree distribution of number of clients
 - geographic distribution of clients
- Model predicts
 - remote search grows in importance as firms acquire more contacts.
 - average distance of exports increases at an accelerating pace.
 - disruptions of trade linkages may have long-lasting impacts on world geography of trade

Other perspectives: Eaton, Kortum, Kramarz (2015)

- Heterogeneous firms produce output by performing a fixed set of tasks.
 - Each task can be accomplished using domestic labor or intermediate goods from anywhere.
 - Firms' access to inputs determined by their location; input suppliers' prices partly reflect transport costs.
 - Firms opt for the low cost option, task by task.
- Model matches
 - French buyer and seller degree distributions, and their relation to market size
 - Heavier reliance on intermediates in large countries
- Model predicts
 - reductions in trade costs or improvements in visibility lead to higher skill premium, assuming tasks for skilled labor cannot be done with intermediate goods.

Other perspectives: Bernard, Moxnes, and Ulltveit-Moe (2015)

- Heterogeneous buyers and sellers match with each other
 - Firms pay fixed costs for each match they make. (They can see the productivity of potential business partners before deciding whether to match with them.)
 - More productive firms pay the fixed costs of matching with more clients
- Model matches
 - degree distributions
- Model predicts
 - reductions in trade linkages (taken as exogenous) during trade collapse of 2009 significantly increased marginal costs of downstream firms.