Competition in Internet-Based Trading: Implications for 'Doing Business' in Partners and Strangers Markets

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Agenda

(1) Research Context and Theoretical Background
(2) Research Question and Approach
(3) Laboratory Experiments
(4) Findings
(5) Implications and Limitations

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Research Context

Well functioning markets:
Balancing cooperative and competitive behavior

Cooperation
Making good on one's agreements
- Reputation information
- Feedback / reputation systems
- Social (reputation) networks

+

Competition
➲ Buyers gain, sellers lose
- Tit-for-tat
- Signaling theory (in context of social networks)

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Social Networks Shaping Internet Markets

- Many Internet markets relying on 'feedback systems', essentially *social networks of reputation*, to facilitate trust and trustworthiness
  - Well functioning markets: Balancing competitive and cooperative behavior
  - Cooperation assuming 'making good on one's agreements'
- Social networks: Generating trust and discouraging malfeasance
  - Distributing reputation information
  - Enabling tit-for-tat trading strategies
  - Bypassing costly legal measures

Two kinds of social networks …

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Social Networks Distributing Reputation Info
(Granovetter 1985)

Partners Network
"One's own past dealings with that person"

- **Tit-for-tat:** Buyer doing business with seller *only* if seller has been reliable with buyer
- **Brick-and-mortar markets**: Partnering secures trust and trustworthiness with little legal safety net
(McMillan 2002)

Strangers Network
"Trusted informant[s]"

- Transactions mostly one-shot
- **Tit-for-tat:** Buyer doing business with seller *only* if seller has been reliable with third party (other) buyers
- **Internet markets:** Enabling traders to break through geographical constraints to trade in larger and **more competitive pools**

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Competition Enhancing or Curbing Social Network Efficiency (Signaling Theory)

Economic models
Information about trader's reliability or quality of product as *signal*, i.e., information with imperfect forecast value

- **Signal sufficiently reliable & buyers discriminating based on signal**
  - ➢ Sellers: Incentive to maintain reputation for trustworthiness
  - ➢ Market: High transaction efficiency

(Spence 1974, Cho & Kreps 1987)

- **Signal not reliable or buyers failing to discriminate based on signal**
  - ➢ Sellers: Little incentive to be trustworthy
  - ➢ Market: Low transaction efficiency, poss. shutting trade down

(Akerlof 1970)

➡ Competition *may or may not* increase effectiveness of reputation information

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Research Question and Approach

Markets *with no direct* competition:
More trust, trustworthiness, and higher gains-from-trade in partners networks than in strangers networks (Bolton et al. 2004)

Does market competition narrow or widen this 'performance gap'?

How does market competition interact with strangers and partners networks to affect buyers' trust in sellers, sellers' trustworthiness, gains-from-trade ?

To our knowledge:
No previous empirical study of this question so far

➔ Series of laboratory online experiments

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Six Treatments

Competition	Network: Strangers	Network: Partners
No	Strangers networks with no competition	Partners networks with no competition
Matching	Strangers networks with matching competition	Partners networks with matching competition
Price (*i.e., matching and price*)	Strangers networks with price competition	Partners networks with price competition

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Base Buyer-Seller Interaction in Markets with No Competition

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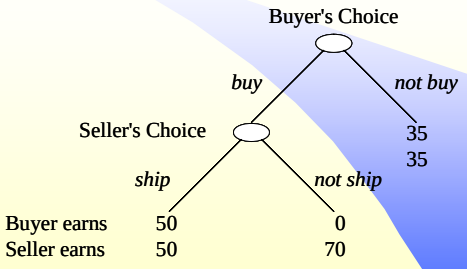

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Buyer-Seller Interaction in Markets with Matching Competition

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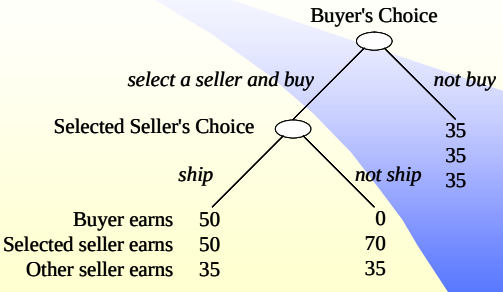

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Buyer-Seller Interaction in Markets with Price Competition

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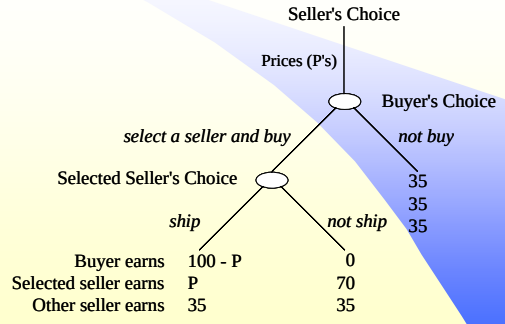

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Main Findings

- Buyers discriminating on basis of reputation information (buyers' trust being rewarded 88% of the time; i.e., high signal value)
- Buyers discriminating on basis of reputation information even in the face of price competition (large price break required to overcome seller's lesser reputation)
- Strangers networks and competition
  - Significantly higher gains-from-trade (than w/o competition)
  - Matching competition: Disciplining sellers
  - Price + matching competition: Transaction price stabilizing above marginal production cost (good reputation information being profitable)
- Largely erasing advantages of partners over strangers networks (competition promoting trust and trustworthiness)

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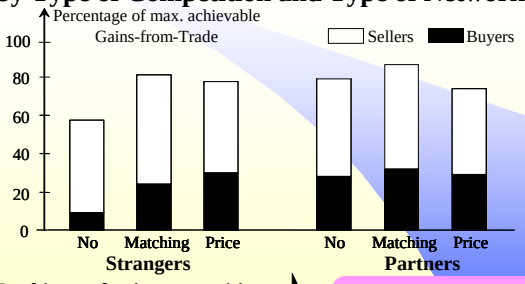
Gains-from-Trade by Type of Competition and Type of Network



Matching and price competition: Performance of strangers networks ↑ (Buyers more trusting & sellers more trustworthy)

Erasing performance gap between network types

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Trust: Buy Decisions by Round (in %)

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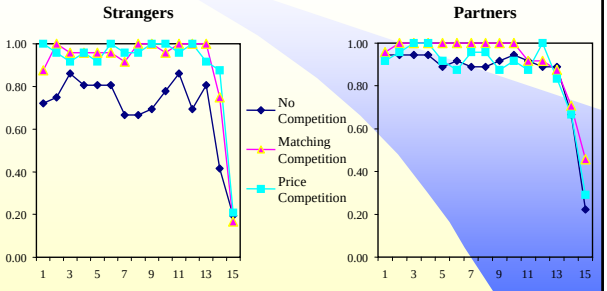

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Trustworthiness: Frequency of Ship Decisions Conditional on Buying by Round (in %)

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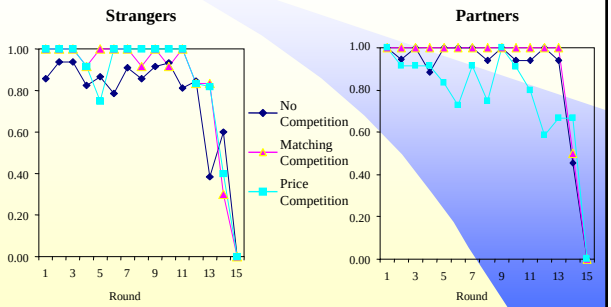

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Price Movements with Price Competition

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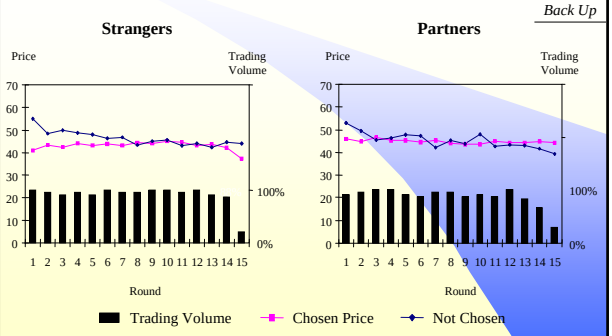

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Findings in Brief

Online Trading Networks
with
Matching and Price Competition

Performance of strangers networks ↑
(Buyers more trusting & sellers more trustworthy)

Erasing performance gap between network types ✓

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Implications and Recommendations

Internet Market Design

- **Offer search capabilities** considering **sorting on reputation** factors & price
- **Lower barriers to competition** possibly embedded **in reputation system**
- If unavoidably low competition, **encourage long-term buyer-seller relationships** (e.g., allow for finding one's old transaction partners)

Trader Strategy

- Buyers: Increasingly **use markets with competition** (and thus attract sellers to such settings)
- Sellers: **Invest in building reputation** for reliability

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Study Limitations and Possible Extensions

- Simplification of partner & strangers market (Anonymity except trading history — also for 'partners')
  - ➢ Trader subgroups with additional relationships (e.g., McMillan '02)
- Only one good (Price as only quality differentiating feature)
  - ➢ Several goods OR EVEN service / marketing as differentiating qualities
- Only two sellers to choose from
  - ➢ Larger number of sellers
- Lab experiment with students as subjects
  - ➢ Field experiment; field study

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…. Questions, Comments, Complaints ?

Thanks for your attention !

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Regression Analysis of Buyers' Criteria for Choice in Price Competition Markets

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BuyerChoosesSeller1
= 0.459 + 0.085*PARTNERS* + 0.045*REPDIFF* - 0.008*PRICEDIFF* - 0.338*LASTRND*
(<0.001) (0.028) (<0.001) (<0.001) (<0.001)
adj.-R^2 = 0.258

where
BUYERCHOOSESSELLER1 = 1 if choice is Seller 1, 0 otherwise (label 1 or 2 is arbitrary);
PARTNERS = 1 if Buyer is in the partners network, 0 otherwise;
REPDIFF = (#Seller1 ships - #Seller1 no ships) - (#Seller2 ships - #Seller2 no ships);
PRICEDIFF = Seller 1 Price - Seller 2 price;
LASTRND = 1 if round 15, 0 otherwise;
(x.xxx) = two-tailed *p*-value of coefficient.

Buyer average willingness-to-pay to deal with seller with net increment of one ship over his competitor:
0.045/0.008 = 5.6 tokens or about 13% of the selling price
(see also Resnick et al. (2006) for similar result)

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