Firms, Productivity and Trade

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Firms, Productivity and Trade

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Overview

1. Recap of Literature of Heterogeneous Firms, Productivity and Trade
   – Applications for Food and Agriculture
2. Multiproduct Firms
3. Role of Intermediaries
4. Questions for Future Research
Impacts of Trade on Aggregate Productivity

• Gains from Trade
  – Ricardian and factor endowment models focused on reallocations of resources across industries
  – Increasing returns to scale

• Literature recently has focused on the role of individual firms (Melitz, 2003)
  – Trade induces reallocation of resources from less to more efficient firms
Impacts on Manufacturing with Heterogeneous Firms

– Trade liberalization in Chile: 2/3 of aggregate productivity gains from reallocation of resources (Pavnick, 2002)

– Canada-US free trade agreement: 12-14 % increase in aggregate productivity gains from shutting down of inefficient plants (Trefler 2004)

– Bernard and Jensen (2004) report that 40% of the productivity growth may be attributed to the intra-industry reallocation effect
Now, the focus is on intra-firm reallocation of resources...

• Multi-product firms account for a large share of employment and output in developed and developing countries. With multiple products, there is “within” extensive and intensive margins.

• That is, shocks (trade liberalization) change product range and share in total revenue/output.

• Trade liberalization causes firms to drop their least-competitive products (Bernard, Redding, Schott, 2011).

• Tougher competition in an export market induces a firm to skew its export sales towards its best performing products (Mayer, Ottaviano, Melitz, 2011).
“Structure and Behavior of Multi-Product Firms”
Choi and Gopinath (2013)

- Investigate the Relationship between Intra-firm Resource Reallocation and TFP
  - Estimate Total Factor Productivity (TFP) of Indian multi-product firms
    - Panel of medium-large sized firms from 1989-2009
    - Matched product and firm level information
    - Measure TFP using revenue as in De Loecker (2011)
- Finds Product Range has a negative and a statistically significant effect on productivity
  - confirm the prediction from Bernard et al., 2011 and Mayer et al., 2001.
  - High productivity firms have higher revenue and product range, but lower skewness of production
Great, what about food and agriculture?
IATRC Trade Issues Paper “Firm Heterogeneity and International Trade: Implications for Agricultural and Food Industries”

1. The observed differences in productivity, size and skill intensity between exporters and non-exporters in manufacturing industries carry over to food processing firms. So, the gains appear to directly apply to these industries.
   – Food Industry’s average productivity increases with liberalized trade (Ruan and Gopinath, 2008)
   – Productivity gains from import penetration in European Countries: Olper, Pacca, and Curzi (2013)

2. However, the applicability of the new firm-heterogeneity models to primary agriculture is not clear since most farms do not export.
Heterogeneity with Intermediated Trade

• Heterogeneous firm model assumes firms are direct exporters
  – Leads to self-selection decision to export

• What happens with trade through intermediaries?
  – Firms endogenously select their mode of export
    (Ahn et al. 2011, Felbermayr and Jung 2011)
  – Manufacturers with intermediate levels of size and productivity are more likely to use intermediaries to export
Melitz Model with Intermediate firms

Source: Prehn and Bernhard, 2013
Implications

• Wholesalers affect trade costs
  – Wholesalers alleviate the difficulty of reaching less-accessible markets (Crozet, Lalanne, Poncet 2012)
  – Intermediaries facilitate changes along extensive margin and are less responsive to changes in real exchange rate shocks (Bernard, Grazzi, Tomasi 2013)

• Even though producers are not directly trading, through intermediaries, trade may still lead to a self-selection process
  • Still have important implications on aggregate productivity
Does the same mechanisms for aggregate productivity improvements found in manufacturing apply for the primary sector?

– We don’t know yet. We have to empirically account for the role of intermediaries.

– Main problem: Data
“Wholesalers and Retailers in U.S. Trade”
Bernard, Jensen, Redding, and Schott AER, 2011

• First to look at the micro-level activity of wholesalers and retailers
• Combines data on individual trade transactions from U.S. customs records with comprehensive information on firm data
  – U.S. Linked/Longitudinal Firm Trade Transaction Database (LFTTD)
  – Matches individual U.S. transactions to U.S. firms in the Longitudinal Business Survey
• Introduces a new dimension to trade
Intermediaries and Agricultural Production

- Little is known how agricultural producers trade
  - How does individual producer engagement with intermediaries and trade depend upon productivity?
  - How do transmitted signals on export and import sides affect producers’ or intermediaries’ allocation of resources, e.g. investment or employment changes?
  - To what extent is consumer welfare affected by increased trade opportunities, e.g. net effect on prices or variety-based utility improvements?
Other Unanswered Questions

- Are price shocks or demand effects of income growth in key trade partners fully passed on to U.S. producers and consumers?
- How do wholesalers deal with NTMs?
- Does the presence of intermediaries create an oligopolistic market structure and competition related issues for producers?
- Does the improved understanding help identify barriers to increasing trade opportunities and welfare through trade?
Summary

• Trade has increasingly focused on the role of heterogeneous firms
  – Reallocation of resources and aggregate productivity gains found in manufacturing and food processing sector

• Two promising areas of research for Food and Agriculture
  1. Multiproduct firms and intra-firm reallocations
  2. Role of Intermediaries
Thank you