Market Size, Competition and the Product Mix of Exporters

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Discussion by

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Introduction

- Very much enjoyed reading this paper

- Addresses an important question

- Elegant theory

- Convincing empirical evidence

Structure of Discussion

- Why do multi-product firms and the within-firm allocation of resources matter?

- How are multi-product firms modeled and what are the empirical implications of the model?

- Comments and questions

Margins of Trade

- Decompose total U.S. exports to each trade partner in 2002

$$x_c = f_c p_c \frac{o_c}{f_c p_c} \left(\frac{1}{o_c} \sum_p \sum_f x_{cpf} \right)$$

	$\ln(\text{Value}_c)$	$\ln(\text{Firms}_c)$	$\ln(\text{Products}_c)$	$\ln(\text{Density}_c)$	$\ln(\text{Intensive}_c)$
$\ln(\text{Distance}_c)$	-1.37	-1.17	-1.10	0.84	0.05
	0.17	0.15	0.15	0.13	0.10
$\ln(\text{GDP}_c)$	1.01	0.71	0.55	-0.48	0.23
	0.04	0.03	0.03	0.03	0.02
Constant	7.82	0.52	3.48	-2.20	6.03
	1.83	1.59	1.55	1.37	1.07
Observations	175	175	175	175	175
R^2	0.82	0.76	0.68	0.66	0.37

Notes: Table reports results of country-level OLS regressions of U.S. exports or their components on trading-partners' GDP and great-circle distance (in kilometers) from the United States. Standard errors are noted below each coeficient. Data are for 2002.

Source: Bernard, Redding and Schott (2006) "Multi-product Firms and Trade Liberalization," NBER Working Paper 12782.

Within-firm Heterogeneity

Number of Products Produced by the Firm

Average Percent of Output	1	2	3	4	5	6	7	8	9	10
1	100	80	70	63	58	54	52	50	48	46
2		19	21	22	21	21	21	20	20	20
3			7	9	10	11	11	11	11	12
4				4	5	6	7	7	7	7
5					2	3	4	4	5	5
6						2	2	3	3	3
7							1	2	2	2
8								1	1	2
9									1	1
10										1

Notes: Columns indicate the number of products produced by the firm. Rows indicate the share of the produce, in descending order of size. Each cell is the average across the relevant set of firm-products in the sample. Sample includes all firms producing at least ten products in the 1987 to 1997 Censuses.

Source: Bernard, Redding and Schott (2009) "Multi-product Firms and Product Switching," American Economic Review, forthcoming.

Market Size, Competition and Product Mix

- Preferences are quasi-linear in a homogeneous good and a continuum of horizontally-differentiated varieties:
  - ➤ Multi-country setting with asymmetries in country size and bilateral trade costs
  - ➤ Products with lower marginal costs have higher mark-ups

- Monopolistic competition: firms supply a countable number of products, which is of measure zero relative to the mass of varieties

- Upon entry, firms draw marginal cost for a core competence product (c) and can produce additional products by moving up a cost ladder
  - ➤ $v(m,c) = \omega^{-m} c$ where $\omega \in (0,1)$ and $m \geq 0$

- Trade involves proportional iceberg variable costs (τ) and additional product customization costs (θ)
  - ➤ $\tau^{lh} v_X^{lh}(m,c) = (\theta^{lh} \omega)^{-m} c$ where $\theta^{lh} \in (0,1)$ and $\tau^{lh} > 1$

Key Theoretical Prediction

- In each market, there is a firm zero-profit cutoff for core competence for non-exporters and exporters (v_D^h, $v_X^{lh} = v_D^h / \tau^{lh}$)

- Export sales are more skewed towards varieties closer to the core ($r_X^{lh}(v_X^{lh}(m, c)) / r_X^{lh}(v_X^{lh}(m', c))$ for $m < m'$)
  - ➢ In export markets with tougher competition (lower v_D^h)
  - ➢ The higher proportional trade costs (τ^{lh})
  - ➢ The higher customization costs (θ^{lh})

- Intuition: Products closer to the core have lower prices and hence more inelastic demand. In addition, higher customization costs affect products further from the core most ($\tau^{lh} v_X^{lh}(m,c) = (\theta^{lh} \omega)^{-m} c$)

- Higher bilateral trade costs have ambiguous effects on relative export sales depending on the correlation between proportional and customization costs

Comments and Questions

- Interpretation: Is the heterogeneity in sales across products within firms supply-side (cost ladder) or demand-side?
  - ➢ Foster, Haltiwanger and Syverson (2009) comparison of revenue and quantity TFP suggests "learning about demand"
  - ➢ Eaton, Kortum and Kramarz (2008), Munch and Nguyen (2008), Bernard, Redding and Schott (2009) evidence of country-specific components of firm and firm-product revenue
  - ➢ Eaton, Eslava, Kugler and Tybout (2009) evidence of age and scale dependence of entry into export markets

- In the model, toughness of competition depends on country size and geography (proximity to other big countries)
  - ➢ Could embed the estimation of supplier access using international trade data within the model

- As the model emphasizes product differentiation, why include both agriculture and manufacturing?

Comments and Questions

- Firm-country regression of skewness of exports towards core products on firm fixed effects, distance, language, market size and remoteness
  - ➤ Control for variation in the identity of the two products across markets within the firm, as variation in French comparative advantage across markets could affect the sales ratio
  - ➤ Could cluster standard errors by export market

- Rich structure of proportional trade costs and customization costs
  - ➤ The skewness of exports towards core products is increased by the language barrier but reduced by distance
  - ➤ Opening the black box of trade costs: What are their components and why do they affect trade in different ways?

- Alchian-Allen hypothesis: transport costs based on quantity rather than value (e.g. wine bottles)
  - ➤ In high-transport cost markets, transport costs are proportionately lower for higher-value products than for lower-value products, inducing changes in export composition

Comments and Questions

- Natural and intuitive demand-side explanation for changes in the skewness of exports towards core products across markets
  - Variable elasticities of substitution

- Possible supply-side explanations for changes in the skewness of exports towards core products across markets?
  - Suppose there is a fixed factor of production (e.g. Lucas 1978). Does the toughness of competition change the relative return to allocating this factor across products?
  - Suppose firms incur endogenous market access costs (Arkolakis 2008). Does the toughness of competition change the relative return to market access investments across products?

- Variable mark-ups create incomplete pass-through
  - Multi-product firms and exchange rate pass-through
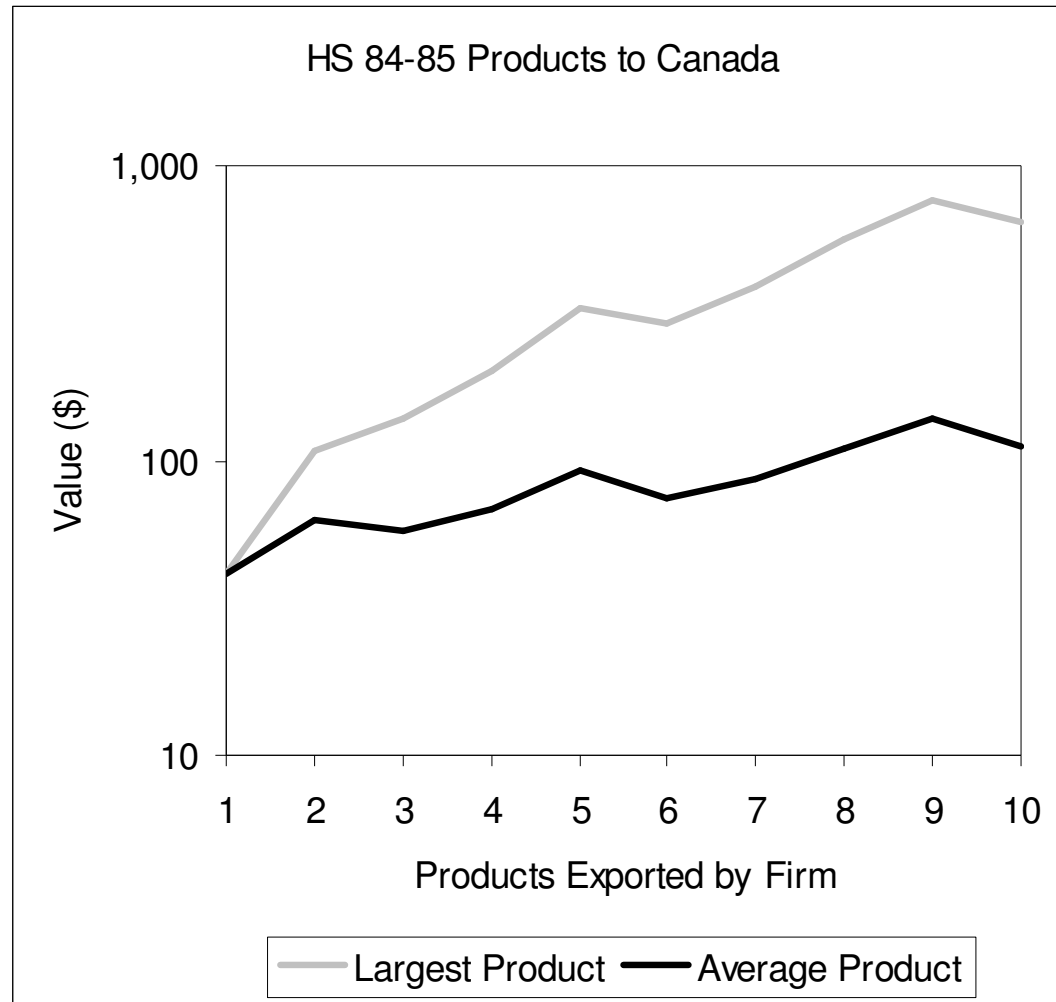
The End

Within-firm Heterogeneity

	Rank	Export Products	Export Destinations	Products Exported to Canada	HS 84-85 Products Exported to Canada
	1	49.0	47.7	47.4	47.9
	2	18.6	19.5	19.4	19.3
	3	10.5	11.1	11.1	11.0
% of Firm Exports	4	6.7	7.1	7.0	7.0
	5	4.6	4.9	4.8	4.7
	6	3.4	3.4	3.4	3.3
	7	2.5	2.4	2.5	2.4
	8	1.9	1.7	1.9	1.8
	9	1.5	1.2	1.5	1.4
	10	1.1	0.9	1.1	1.1

Notes: First two columns display mean percent of firm exports represented by product or country with noted rank (from high to low) across firms exporting ten ten-digit HS products or exporting to ten destinations, respectively, in 2002. Third and fourth columns restricted to firms exporting ten products to Canada, and ten Machinery and Eletrical products (HS 84-85) to Canada, respectively. Sample sizes across the four columns are 2791, 1641, 983 and 322 firms, respectively.
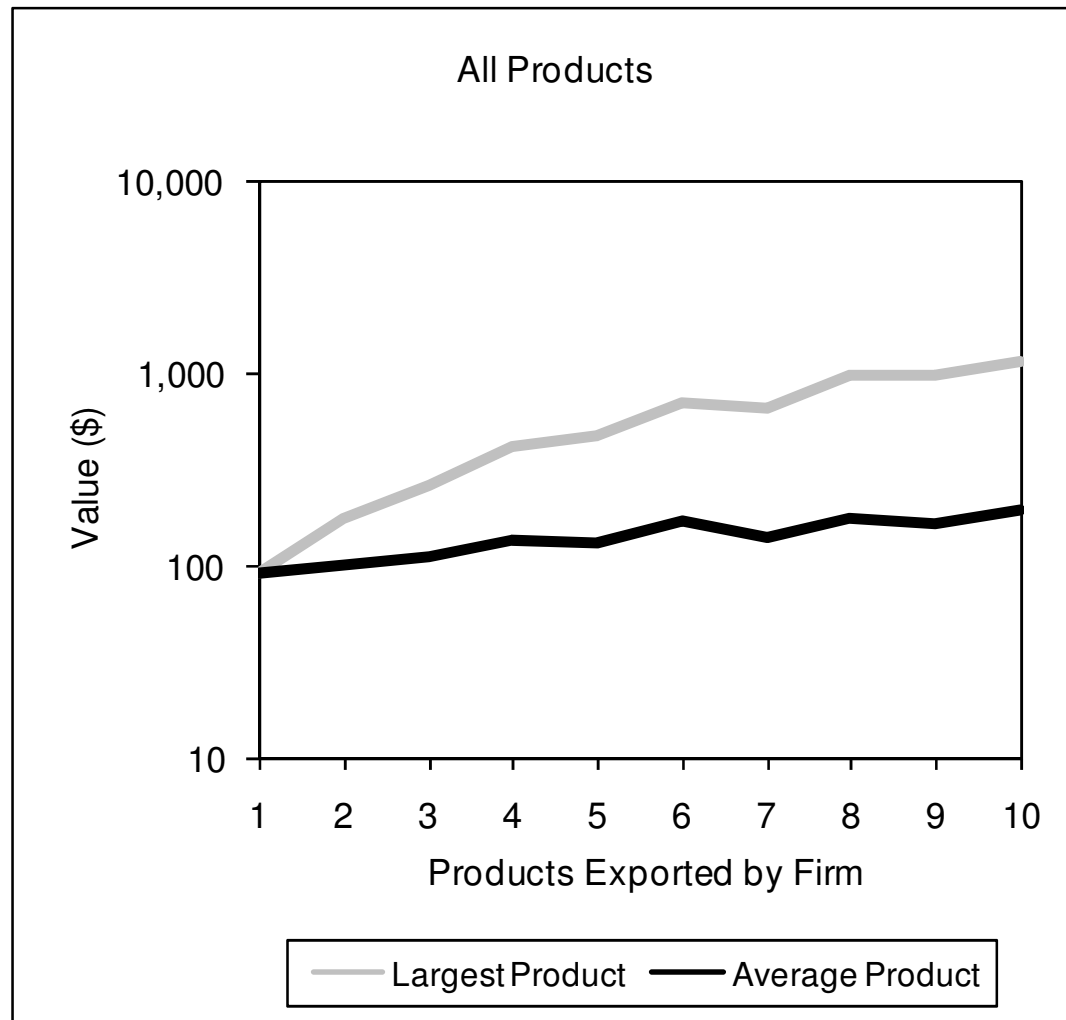
Source: Bernard, Redding and Schott (2006) "Multi-product Firms and Trade Liberalization," NBER Working Paper 12782.

Selection

HS 84-85 Products to Canada

Selection

Source: Bernard, Redding and Schott (2006) "Multi-product Firms and Trade Liberalization," NBER Working Paper 12782.

Dynamics

| | Average Share (%) of Product Output in Year t Produced by: | | | | | |
| | Backward-Looking | | | Forward-Looking | | |
	Firms Producing Product in t-5 and t	Firms that Add the Product Between t-5 and t	Firms Born Between t-5 and t	Firms Producing Product in t and t+5	Firms that Drop the Product Between t and t+5	Firms that Die Between t and t+5
1987	.	.	.	65	16	19
1992	67	14	19	67	15	18
1997	70	15	15	.	.	.

Source: Bernard, Redding and Schott (2009) "Multi-product Firms and Product Switching," American Economic Review, forthcoming.