

Firm-Level Mechanisms for Export Price Determination

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How do firms choose their prices and quality for their export destinations?

- Linder Hypothesis
- Shipping the good apples out
- Data aggregated to product-destination-level

Theories on Firm Quality choices

- 1 Firm specific products
- 2 Firm specific quality
- 3 Destination specific quality
- 4 Relatively more product firms have larger market penetration

Sources

- Chilean transaction-level dataset for 2009
 - Unit Value: Free-on-board
- World Bank's World Development Indicators: GDP and GDP per Capita (GDPc)
- CEPII: Foreign Countries' Distances

Created Variables

- Firm Size
- Firm Type: Single vs Multi
- Firm's Product Quality: Low vs. High
- Manufactured Products

$$\begin{aligned} \log(\text{UnitValue}_{p,d,f}) = & \beta_1 \log(\text{GDP}_d) + \beta_2 \log(\text{GDP}_{c_d}) + \beta_3 \log(\text{Distance}_d) \\ & + \beta_4 \log(\text{Size}_f) + \sum_{p=1}^P \alpha_p \text{Product}_p + \epsilon_{p,d,f} \end{aligned} \quad (1)$$

p - product
d - destination
f - firm

Model Results: Export Destination Characteristic Analysis

Model: $\log(\text{Unit Value}) = \text{Covariates} + \text{Product Dummies}$

| Covariates | (1) Agg. | (2) S,L | (3) S,H | (4) M,L | (5) M,H |
|----------------|------------------------|-----------------------|---------------------|------------------------|------------------------|
| log(GDP) | -0.0179*** (0.0017) | -0.0528+ (0.0286) | 0.0975 (0.0723) | -0.0177*** (0.0033) | -0.0617*** (0.0076) |
| log(GDPc) | 0.07902*** (0.0034) | 0.1139* (0.0563) | -0.1042 (0.1518) | 0.0632*** (0.0064) | 0.0992*** (0.0144) |
| log(Distance) | 0.0371*** (0.0038) | 0.0007 (0.0623) | -0.0854 (0.1482) | 0.0804*** (0.0068) | 0.0265+ (0.0159) |
| log(Firm Size) | | 0.0630*** (0.0182) | 0.0435 (0.0631) | 0.0411*** (0.0026) | -0.0485*** (0.0071) |
| Type | N/A | Single | Single | Multi | Multi |
| Quality | N/A | Low | High | Low | High |
| Firms | | 942 | 324 | 2,013 | 1,189 |
| Destinations | 137 | 54 | 45 | 114 | 97 |
| Products | 3372 | 568 | 243 | 2,521 | 1,413 |
| Observations | 19,796 | 2,144 | 545 | 83,313 | 25,672 |

Significance Level: *** < 0.001, ** < 0.01, * < 0.05, + < 0.1

(1): Aggregated to product-destination level. (2): Single and low quality type firms. (3): Single and high quality type firms. (4): Multiple and low quality type firms. (5): Multiple and high quality type firms.

Model: Export Destination Likelihood Analysis

$$\begin{aligned} Pr(\text{Destination}_{p,d,f}) &= \beta_1 \log(\text{GDP}_d) + \beta_2 \log(\text{GDP}_{c_d}) + \beta_3 \log(\text{Distance}_d) \\ &+ \sum_{p=1}^P \alpha_p \text{Product}_p + \epsilon_{p,d,f} \end{aligned} \quad (2)$$

p - product
d - destination
f - firm

Model Results: Export Destination Likelihood Analysis

| Model: Pr(Destination) = Covariates + Product Dummies | | | | | |
|---|------------------------|------------------------|----------------------------------|------------------------|------------------------|
| Covariates | (1) All | (2) S,L | (3) S,H | (4) M,L | (5) M,H |
| log(GDP) | 0.0152*** (0.0004) | 0.0119*** (0.0017) | 0.0148*** (0.0025) | 0.0141*** (0.0006) | 0.01778*** (0.0010) |
| log(GDPc) | -0.0110*** (0.0007) | -0.0173*** (0.0030) | -0.0007 (0.0048) | -0.0156*** (0.0011) | -0.0067*** (0.0018) |
| log(Distance) | -0.0544*** (0.0008) | -0.0311*** (0.0040) | -0.0112 ⁺ (0.0061) | -0.0583*** (0.0014) | -0.0483*** (0.0023) |
| Type | N/A | Single | Single | Multi | Multi |
| Quality | All | Low | High | Low | High |
| Firms | 4,893 | 942 | 324 | 2,013 | 1,189 |
| Destinations | 137 | 129 | 116 | 137 | 137 |
| Products | 3372 | 568 | 243 | 2,521 | 1,413 |
| Observations | 339,211 | 11,585 | 4,708 | 113,101 | 42,787 |

Significance Level: * * * < 0.001, ** < 0.01, * < 0.05, + < 0.1

(1): All firms. (2): Single and low quality type firms. (3): Single and high quality type firms. (4): Multiple and low quality type firms. (5): Multiple and high quality type firms.

Models: Firm Characteristic Analysis

$$\begin{aligned} \log(\text{UnitValue}_{p,d,f}) &= \beta_1 \log(\text{GDP}_d) + \beta_2 \log(\text{GDPc}_d) + \beta_3 \log(\text{Distance}_d) \\ &+ \beta_4 \text{Single} + \beta_5 \log(\text{GDP}_d) * \text{Single}_f + \beta_6 \log(\text{GDPc}_d) * \text{Single}_f \\ &+ \beta_7 \log(\text{distance}_d) * \text{Single}_f + \sum_{p=1}^P \alpha_p \text{Product}_p + \epsilon_{p,d,f} \quad (1.s) \end{aligned}$$

$$\begin{aligned} \text{Pr}(\text{Destination}_{p,d,f}) &= \beta_1 \log(\text{GDP}_d) + \beta_2 \log(\text{GDPc}_d) + \beta_3 \log(\text{Distance}_d) \\ &+ \beta_4 \text{Single} + \beta_5 \log(\text{GDP}_d) * \text{Single}_f + \beta_6 \log(\text{GDPc}_d) * \text{Single}_f \\ &+ \beta_7 \log(\text{distance}_d) * \text{Single}_f + \sum_{p=1}^P \alpha_p \text{Product}_p + \epsilon_{p,d,f} \quad (2.s) \end{aligned}$$

p - product
d - destination
f - firm

Model Results: Firm Characteristic Analysis

| Covariates | (1) log(Unit Value) | (2) Pr(Destination) | |
|----------------------|------------------------|------------------------|---|
| log(GDP) | -0.0176*** (0.0017) | 0.0155*** (0.0004) | |
| log(GDPc) | 0.0753*** (0.0034) | -0.0113*** (0.0006) | |
| log(Distance) | 0.036*** (0.0038) | -0.0565*** (0.0009) | |
| Single | -1.4039*** (0.2227) | -0.2003*** (0.0258) | |
| log(GDP)*Single | -0.0297* (0.0142) | -0.0030* (0.0012) | Model: (1): log(Unit Values) = covariates + product dummies |
| log(GDPc)*Single | 0.2555*** (0.0278) | 0.0035 (0.0022) | (2): Pr(Destination) = covariates + product dummies |
| log(Distance)*Single | -0.0205 (0.0286) | 0.0238*** (0.0027) | |
| Firms | 4,893 | 4,893 | Significance Level: *** < 0.001, ** < 0.01, * < 0.05, + < 0.1 |
| Destinations | 137 | 137 | |
| Products | 3,372 | 3,372 | |
| Observations | 354,678 | 339,211 | |

Findings

- Firms cater to their destination
 - Firm and quality type matter
- Firms are more likely to export to destinations where they have to discount
- Single-type firms have lower quality
- Single-type firms are less sensitive to destination characteristics