Online price setting: Facts about exchange rate pass-through

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What do we do?

- Gather daily on-line prices in major retailers in Peru, Chile and Colombia.
- Study properties of on-line prices: exchange rate pass-through
- Other properties:
  - Frequency of on-line price changes
  - Law of one price

Related literature

- Gorodnichenko & Talavera (2017): prices in online markets are more flexible and exhibit stronger pass- through.
- Baye, Morgan & Scholten (2004): Little support for the “law of one price”.
- Boivin, Clark & Vincent (2012): International market segmentation is extensive and responsible for violations of the law of one price.
- Cavallo (2012): Online prices tend to be stickier.
- Castellares (2017): Car prices show a high exchange rate pass-through.

The data gathering process

- We develop scraping code to download online public prices from retailers in Chile, Colombia and Peru.
- Codes are run everyday to obtain daily prices.
- Retailers operate in the three countries: Falabella, Sodimac and Linio.
- About 6 millions observations.
- We concentrate in a subset: consumer electronics (1 million obs.)
- Observations include: category, subcategory, group, manufacturer, description.
- Problem: item classification is not uniform.

Some Descriptive Statistics

Unique pairs

Category	Chile	Peru	Total
Audio and Sound	27	242	269
Computing	281	178	459
Electrical Home Appliances	268	310	578
Small Electrical Home Appliances	624	471	1095
TV	22	68	90
Total	**1,222**	**1,269**	**2,491**

Category	Obs	Mean	Std. Dev.	Min	Max
Audio and Sound	124	6.32	1.12	3.37	7.00
Computing	240	3.14	0.55	1.95	3.61
Electrical Home Appliances	376	6.34	0.35	5.63	6.84
Small Electrical Home Appliances	632	5.35	0.71	4.08	6.78
TV	85	6.74	0.09	6.55	6.89
Total	**1,457**	**5.41**	**1.29**	**1.95**	**7.00**

Some Descriptive Statistics

Unique pairs

Category	Obs	Mean	Std. Dev.	Min	Max
Audio and Sound	8	6.14	1.19	4.21	6.80
Computing	156	3.51	0.18	2.70	3.61
Electrical Home Appliances	95	6.52	0.26	6.08	6.84
Small Electrical Home Appliances	237	5.30	0.74	4.16	6.78
TV	17	6.88	0.00	6.88	6.89
Total Chile	**513**	**5.05**	**1.26**	**2.70**	**6.89**

Category	Obs	Mean	Std. Dev.	Min	Max
Audio and Sound	116	6.34	1.12	3.37	7.00
Computing	84	2.46	0.32	1.95	3.00
Electrical Home Appliances	281	6.28	0.36	5.63	6.72
Small Electrical Home Appliances	395	5.38	0.69	4.08	6.71
TV	68	6.71	0.06	6.55	6.80
Total Perú	**944**	**5.60**	**1.26**	**1.95**	**7.00**

Empirical model

- A standard pass-through model for each country is estimated (i=good,t=time), controlling for type of goods and seller:

$$log(P_{i,t}) = \beta_1 + \beta_2 log(ER_t)$$

where *ER* is the nominal exchange rate, measure as domestic currency for one US dollar.

- International price differentials is estimated using:

$$log\left(\frac{P^j_{i,t}}{P^k_{i,t}}\right) = \beta_1 + \beta_2 log(ER^{jk}_t)$$

where j,k denote countries, and ER^{jk} is the bilateral exchange rate between countries *j* and *k*.

Preliminary results

- Exchange rate pass-through using online prices is higher compared to previous studies with offline prices.

- Exchange rate pass-through is higher in Peru than in Chile.

  Results for Peru:

$$log(P_{i,t}) = \underset{(0.26)}{4.91} + \underset{(0.22)}{0.54} \cdot log(ER_t)$$

  Results for Chile:

$$log(P_{i,t}) = \underset{(1.65)}{7.64} + \underset{(0.26)}{0.42} \cdot log(ER_t)$$

- Peru is a partially dollarized economy, so a higher exchange rate pass-through was expected.

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