Discussion of

Cross-Border Prices, Costs and Markups

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Overall

Very interesting paper, introducing several potentially useful innovations to the literature studying Law of One Price (LOP) deviations as a metric for national market segmentation.

Highlights two recent methodological problems

- Gorodnichenko and Tesar (2004) (GT): if within-country price dispersion used as a benchmark, the measure of the border effect depends upon how one treats heterogeneity in this among countries.
- Broda and Weinstein (2008) (BW): aggregation biases past studies, even of fairly narrowly defined commodity groups used in past micro studies (more about this in the next session).
- The present paper takes steps toward addressing both of these types of problems.

Contributions

- The present paper addresses these problems by introducing/adapting multiple innovations new to this literature.

1) Employ a new data set
2) Apply econometric method new to this literature
3) Interpret in light of theoretical model unusual in this literature

- My goal: discuss in turn the usefulness of these innovations for the present literature (followed by some points discussing the results).

1) New Data Set

- Barcode data, which his very disaggregated (unlike most past micro studies, but similar to BW)
- All from one retail chain (unlike BW).
- Benefit: Enhanced precision; avoids much noise present in micro data sets:

  SITC trade data (common in the trade literature) groups together different goods.

  EIU data collectors not look at same good across time or locations (Crucini et.al, Bergin & Glick)

(Where do we sign up for this data?)

1) Data Set, cont.

- Note: only 5% of products have exact matches across the border. Underscores risk of compositional bias in past studies grouping goods.

  Should we worry about throwing out 95% of data? How substantive are the distinctions between goods?

  Should we worry about selection of goods least subject to trade barriers?

- Nice that have corresponding wholesale costs, useful for inferring markups.

2) New Econometric Method

- Regression Discontinuity (RD) design: introduced in 1960 by Thistlewaite and Campbell; popular in recent decade in applied micro studies of treatment effects.
- Idea:

  Ideally would like to compare identical cases, with and without treatment.

  Where this not possible, this method approximates it in the limit as difference between cases approaches zero.

2) Econometric Method, cont.

Steps (from treatment literature):

- Identify a “forcing” covariate: treatment applied if covariate hits a threshold.
- Focus on a subpopulation where the covariate is “near” the threshold, within some optimally determined bandwidth.
- Estimate a regression (including other covariates) on each side of threshold.
- Extrapolate the outcomes for two hypothetical cases very near the border on either side of it.
- Gap between these two is the treatment effect.

2) Econometric Method, cont.

Translating for our context of estimating border effects:

- Outcome: price level of product.
- Treatment: being Canadian.
- Forcing covariate: signed distance from border (pos for US, negative for Canada)
- Threshold: distance from border = 0.
- Other covariates: demographics, income.

2) Econometric method, cont.

Some well-known limitations on use of method:

- Note that predictions are only "locally valid." Not intended for predicting effects of treatment farther from border, or for averages of populations.
- OK for most applications in labor/public. For example, interested in the effect of lowering the income threshold for certain benefit programs.
- So estimates precisely answer the question:

  What is the effect of Canada annexing Seattle?

  Not: Does the US market as a whole function as a segmented market from Canada?

2) Econometric method, cont.

Does method help deal with GT critique?

- Method conveniently abstracts away from within-country distance debated in GT: estimate separate regression in each country, to estimate price on their immediate side of the border.
- But: not really solve GT problem of benchmark. Can get quantitative estimate of the border coefficient. But provides no benchmark for interpreting its economic significance.
- Another Question: Method seems to replace distance between cities with distance from border. Correct? Would seem to have implications: compare Vancouver to Seattle and Detroit.

3) Model

- Circle model where…
- Homogeneous goods sold by multiple stores in different locations.
- Consumers choose between their two closest locations on the circle, paying a cost for distance, and a cost for crossing border.
- Firms set price in response to competitors prices (alternative to linear demand or translog preferences).

3) Model, cont.

The model serves to:

- Supports RD empirical design, focusing on cases just close to border, since prices there most strongly affected by the border cost.
- Implies a structural specification of how within-country price dispersion affected by border (as requested by GT)
- Also highlights limitations in price as a metric of market segmentation: if marginal costs same across border, there will be no price gap between countries, even if there is a large border cost.

3) Model, cont.

- Question: Not clear how to fully connect model to data, given that data all from one retailer. Are prices set in coordinated manner across locations? Need to lay this out.
- Question: Not fully make use of theory to address GT critique: need benchmark for measuring border effect that allows for border to endogenously affect within-country price dispersion.

- Now for some discussion of results…

Discussion of Results - 1

- Very interesting result: Appendix Table 5 replicates the exercise of Engel-Rogers
- Shows that unlike GR, border effect is large, regardless of taking US or Canadian perspective.
- Question: It is left unclear why result differs so from GR. Table 2 shows there is still much underlying heterogeneity in within-country price gaps.

Table 1. Engel-Rogers style regressions

Dependent Variable	Square of Price Difference	Absolute Price Difference
All Pairs		
Log Distance	0.336	1.366
	(0.004)**	(0.010)**
Border Dummy	7.926	13.473
	(0.016)**	(0.024)**
Observations	16320298	16320298
"Width" of the Border	1.79E+10	19141
Excluding CAN-CAN pairs		
Log Distance	0.36	1.45
	(0.003)**	(0.009)**
Border Dummy	7.06	13.22
	(0.518)**	(0.434)**
Observations	15334220	15334220
"Width" of the Border	3.29E+08	9111
Excluding US-US pairs		
Log Distance	0.06	0.44
	(0.014)**	(0.018)**
Border Dummy	10.78	22.01
	(0.497)**	(0.697)**
Observations	5230079	5230079
"Width" of the Border	1.07E+78	5.3E+21

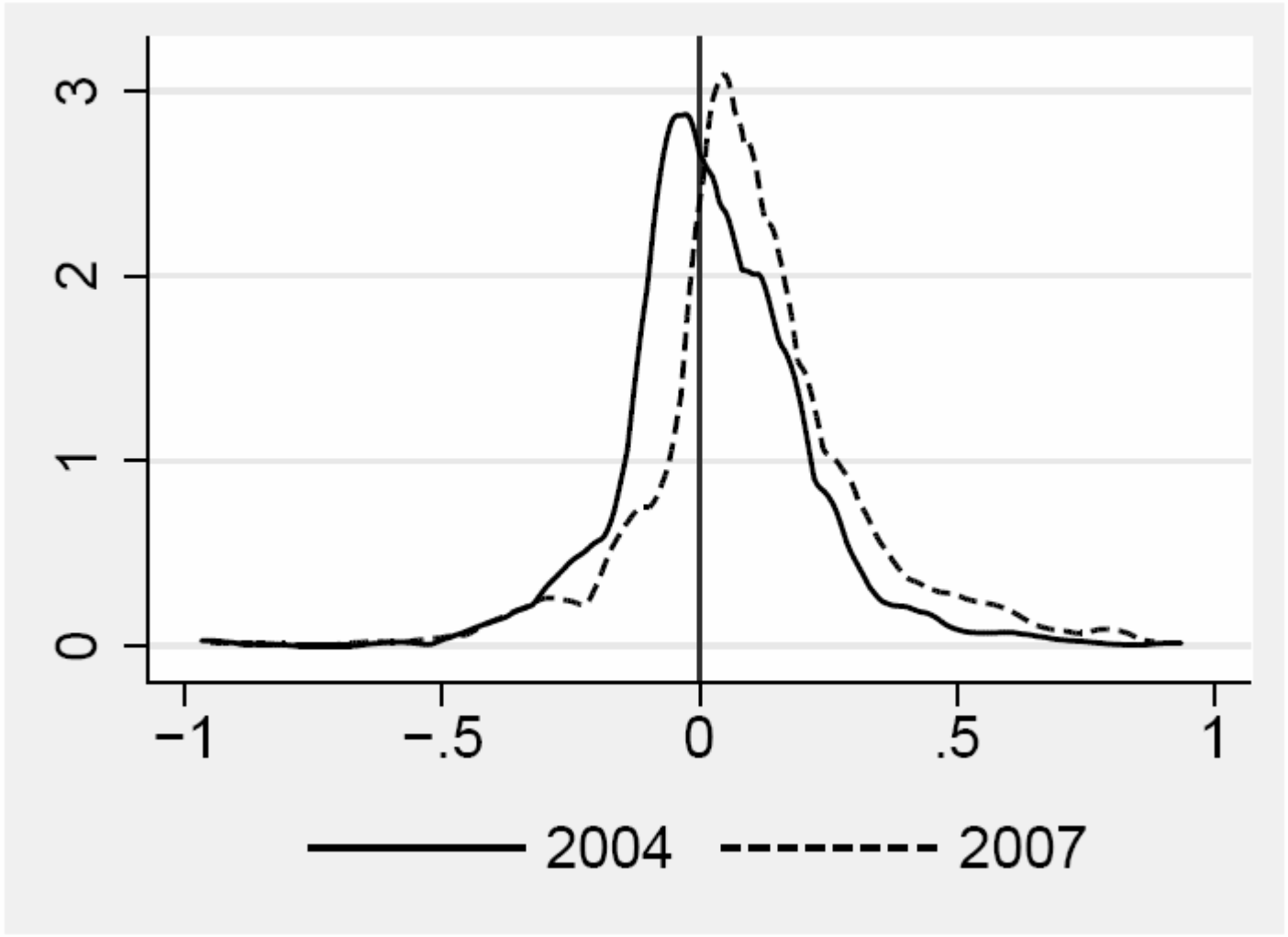
Table 3: deviations from the LOP

	# Common UPCs	Mean	Median	St. Dev.	Mean Absolute	Med. Absolute
	(1)	(2)	(3)	(4)	(5)	(6)
			USA-USA store-pairs (31125)			
Median	373	0.012	0.000	0.133	0.083	0.065
Average	369	0.018	0.008	0.131	0.084	0.055
St. Dev.	99	0.041	0.028	0.001	0.001	0.001
			CAN-CAN store-pairs (2775)			
Median	405	0.007	0.000	0.090	0.033	0.000
Average	393	0.009	0.000	0.094	0.037	0.004
St. Dev.	92	0.001	0.001	0.030	0.021	0.010
			CAN-USA store-pairs (18450)			
Median	248	0.068	0.065	0.220	0.166	0.130
Average	239	0.067	0.064	0.223	0.170	0.131
St. Dev.	65	0.048	0.044	0.028	0.027	0.027

Discussion of Results - 2

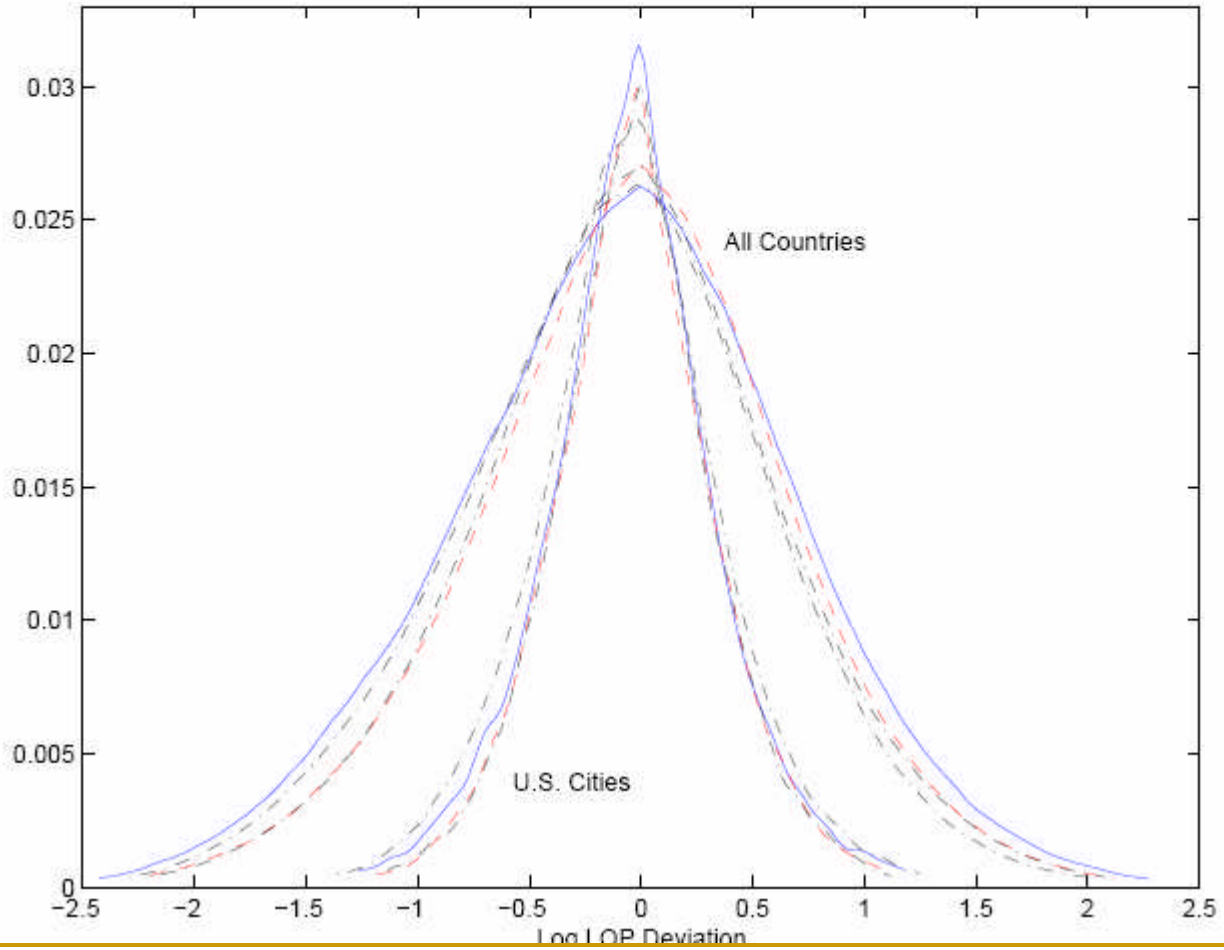
- Main result: DR border coefficients:
  - Wide dispersion cross-sectionally
  - The mean of their distribution moves with exchange rate over time.
- These conclusions are very similar to looking at the absolute LOP deviations themselves (as in Crucini-Telmer)

Figure 6



Crucini-Telmer: figure 1

Figure 1
Distribution of LOP Deviations: $\log q_{i,jk,t}$



Discussion of Results - 3

Wholesale costs:

- Authors show the price dispersion is due to wholesale costs, not markup variation.
- In this case, perhaps wholesale prices should be the focus of study.
- But then we might need a different model and econometric method, since competition is no longer just local.

  Wholesalers likely have a broader geographical range than do local consumers in the current model.

Broader question: What makes for a good metric of market segmentation?

- Past literature has favored price metric, as trade flows affected by many other things (bus cycle…).
- But it is no longer clear prices are so much better:

  Like trade flows, price wedges appear to be affected by many other things (cost and demand shocks).

  Price wedges shown here to be a only a lower bound measure of border cost.

  Also, in standard model of monopolistic competition, a fixed cost of crossing border has no effect on price setting. Uninformative about border cost.

Broader question, cont:

What about using extensive margin as a metric?

- Recall that only 5% of products have a match across the border. Might be informative.
- Looking again at table 3, note that there are more matches within country than across.
- Further, this measure has benefit that is less affected by within-country heterogeneity (table 3).
- BW briefly report gravity regressions on the number of products in their appendix, but not discuss implications.
- Do we have a theory of product entry as a metric of market integration, and how closely it reflects fixed border cost v other confounding factors?

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In Conclusion

- This paper introduces several new ideas and tools to this particular literature, which have a potential to be useful.
- I look forward to seeing their continuing work.