

Discussion of  
Carlos Carvalho and Oleksiy Kryvtsov  
Price Selection

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- ▶ Calvo (1983): no selection - random, which prices change
- ▶ State-dependent menu-cost models: can have high selection  
Caplin and Spulber (1987); Golosov and Lucas (2007) -  
those prices adjust that are far from their optimum

## Why do we care?

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- ▶ A crucial determinant of monetary non-neutrality
- ▶ Can be as important as *how many* prices change (see e.g. Caplin and Spulber, 1987)

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- ▶ Selection at sectoral level, mixed results at aggregate level (yes in UK, no in Canada, US)
- ▶ Multi-sector menu cost model lowers aggregate selection
- ▶ More flexible (low selection) sectors get over-weighted

# Praise

- ▶ Well motivated question:
  - ▶ There are menu cost models with high selection Golosov and Lucas (2007) and with low selection Midrigan (2011)
  - ▶ It is ultimately an empirical question.
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  - ▶ It is ultimately an empirical question.
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- ▶ Empirical tour-de-force: uses three different datasets.
- ▶ Also uses a model to show that selection and non-neutrality are closely linked, and multi-sector model goes in the right direction

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  - ▶ Potential small-sample bias in the particular measure.
  - ▶ Might account for part of the difference between sectoral (small sample) and aggregate (large sample) results
- ▶ Theoretical
  - ▶ The ultimate question is aggregate selection.
  - ▶ What can sectoral selection add to it?

# Empirical measure of selection

- ▶ Reduced-form measure of selection ( $\gamma$ )

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- ▶ In a model with continuum of firms, selection and monetary non-neutrality related

# Results

Level of aggregation	Number of groups	Regular prices, excluding subs
<b><u>A. U.K.</u></b>		
Stratum	8941	-0.371*** (0.002)
Category	1037	-0.385*** (0.006)
Basic class	66	-0.361*** (0.016)
<b>Aggregate</b>	<b>1</b>	<b>-0.197***</b> <b>(0.072)</b>
<b><u>B. Canada</u></b>		
Stratum	9165	-0.285*** (0.003)
<b>Aggregate</b>	<b>1</b>	<b>-0.003</b> <b>(0.021)</b>

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  - ▶  $DP_{st}$  might not be driven by aggregate shocks

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  - ▶ At the category level (66): 250 (mean: 492) **Coicop**
  - ▶ In the aggregate level: 10105 (mean: 10642)
  - ▶ With lumpy adjustment, large idiosyncratic shocks, small aggregate shocks: even 250 can be a small sample (Berger, Caballero and Engel, 2017)

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- ▶ Proposed solution: simulated method of moments
  - ▶ Use a model (e.g. CalvoPlus) to simulate price changes
  - ▶ Replicate the small sample multiple times
  - ▶ Measure the reduced-form selection
  - ▶ See what the empirical measure implies for the level of non-neutrality in the model

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## Selection at the sectoral level

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- ▶ Two motivations
  - ▶ Additional moments to match
  - ▶ Informative about frictions that matter for the aggregate + more variation
- ▶ Multi-section menu cost model:
  - ▶ To match both sectoral and aggregate moments
  - ▶ Sectoral selection informative about frictions that influence aggregate selection

## Alternative frameworks

- ▶ Rational inattention (Mackowiak and Wiederholt, 2009)
  - ▶ Can be optimal to concentrate on idiosyncratic/sectoral shocks (larger) and ignore aggregate shocks
  - ▶ Selection at the idiosyncratic/sectoral level will not be informative for the aggregate

## Alternative frameworks

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- ▶ Strategic complementarities (Carvalho, 2006; Woodford, 2011; Nakamura and Steinsson, 2010)
  - ▶ Macro complementarities (e.g. intermediate inputs) can generate non-neutrality
  - ▶ With idiosyncratic/sectoral selection still high

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## Selection at the sectoral level, cont.

- ▶ Sectoral selection can be a useful additional moment
- ▶ Sectoral heterogeneity goes in the right direction
- ▶ But other mechanisms (e.g. rational inattention, strategic complementarities) might be more relevant
- ▶ Less informativeness of sectoral selection for aggregate selection

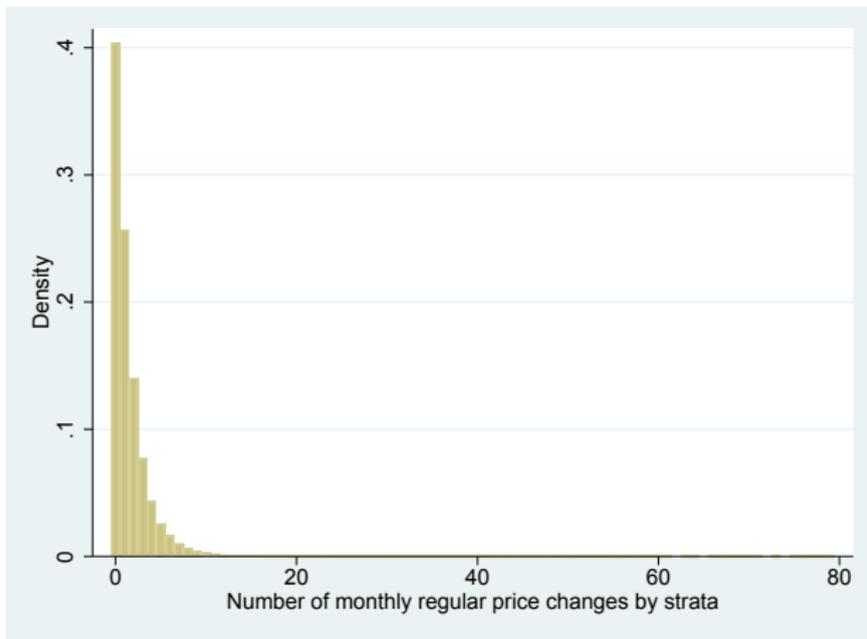
# Conclusion

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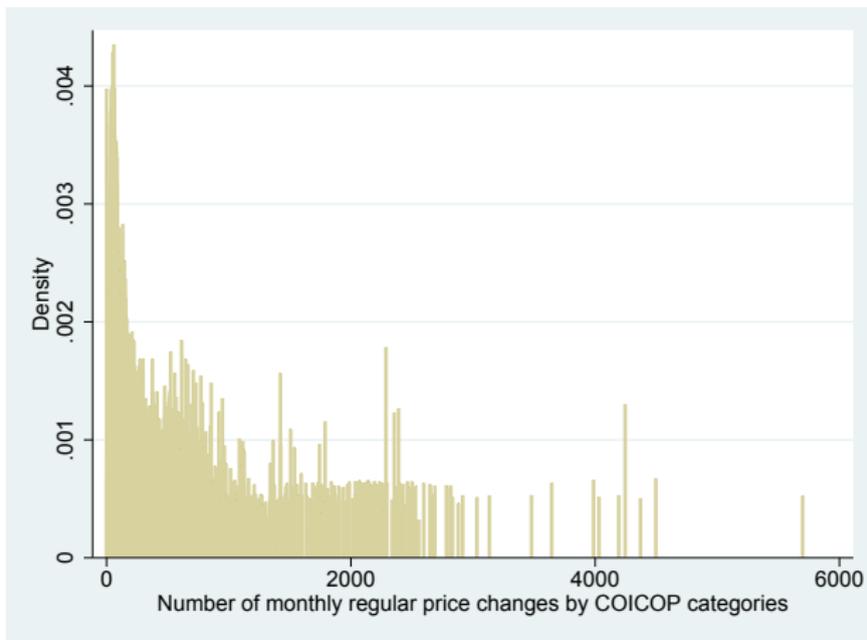
# Conclusion

- ▶ Great work
  - ▶ Asks a very relevant question
  - ▶ Arrives at interesting results
- ▶ Comments
  - ▶ Control for small sample bias
  - ▶ Clarify the importance of sectoral selection

# Histogram of monthly regular price changes by stratum



# Histogram of monthly regular price changes by categories



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