Selection Effects in Producer Price Setting by Mikael Carlsson

Discussion

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The paper

Main question:

- How important are selection effects in producer price setting?

Approach:

- Prices at the producer level, matched with quantitative ULC data.
- Formulate probability model to estimate the effect of cumulated changes in ULC on price adjustment probability
- Calibrate a menu-cost model to compare model predictions to the data

Main answer:

- Selection effects are largely negligible in the data

The paper

Very careful data handling and a very clear result

- A large class of menu-cost models is not in line with the data
- First paper to use quantitative information on marginal costs at the firm level for producer prices
- This finding is in contrast to some studies for consumer prices, which find more evidence for selection effects (e.g., Eichenbaum et al., 2011)

Some questions on

- Sectoral heterogeneity
- Choice of the econometric model

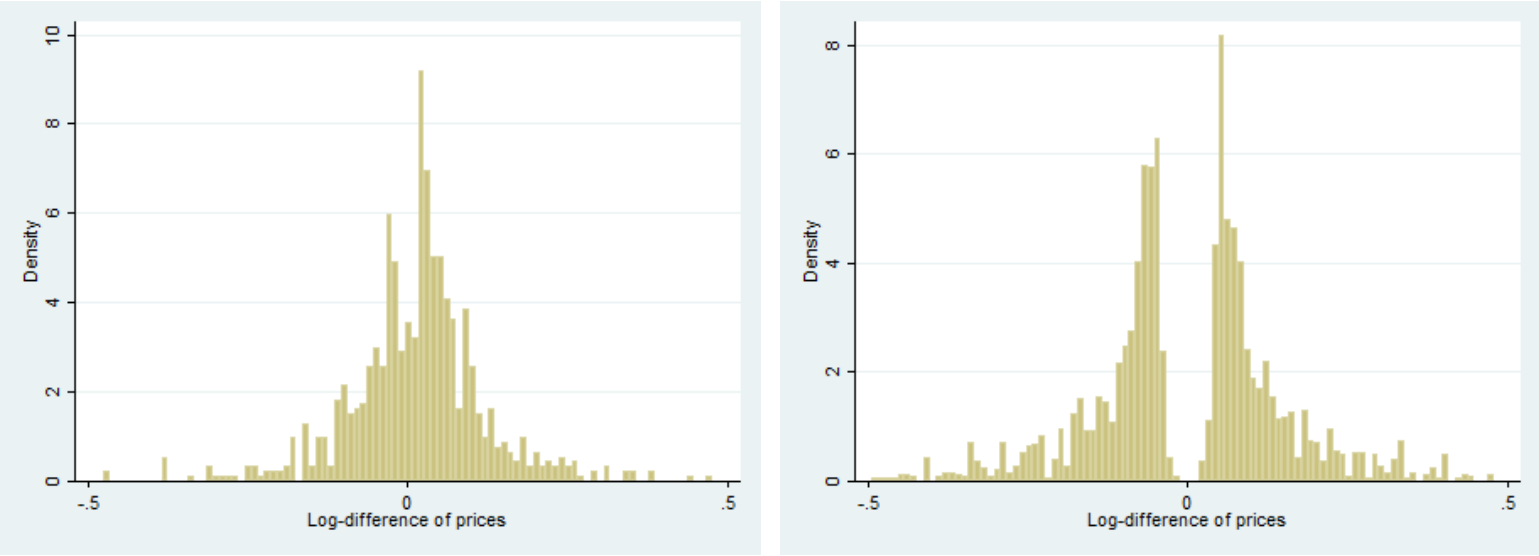
Sectoral heterogeneity

- Previous literature on producer-price micro data suggests substantial sectoral heterogeneity in terms of frequency of price changes
- Unobserved (sectoral) heterogeneity might bias econometric estimates
- The data from the calibrated Nakamura-Steinsson model is for one sector only and not affected by any unobserved variables, does not suffer from unobserved heterogeneity by construction

Sectoral heterogeneity

Inaction region might not be visible due to sectoral heterogeneity in inaction bands

Figure: Sizes of price changes: by product category



(a) Snus (b) Mustard

Price changes of Swedish fast-moving consumer goods, 2006-2013. Homescan data (GfK Sverige, AiMark).

Sectoral heterogeneity

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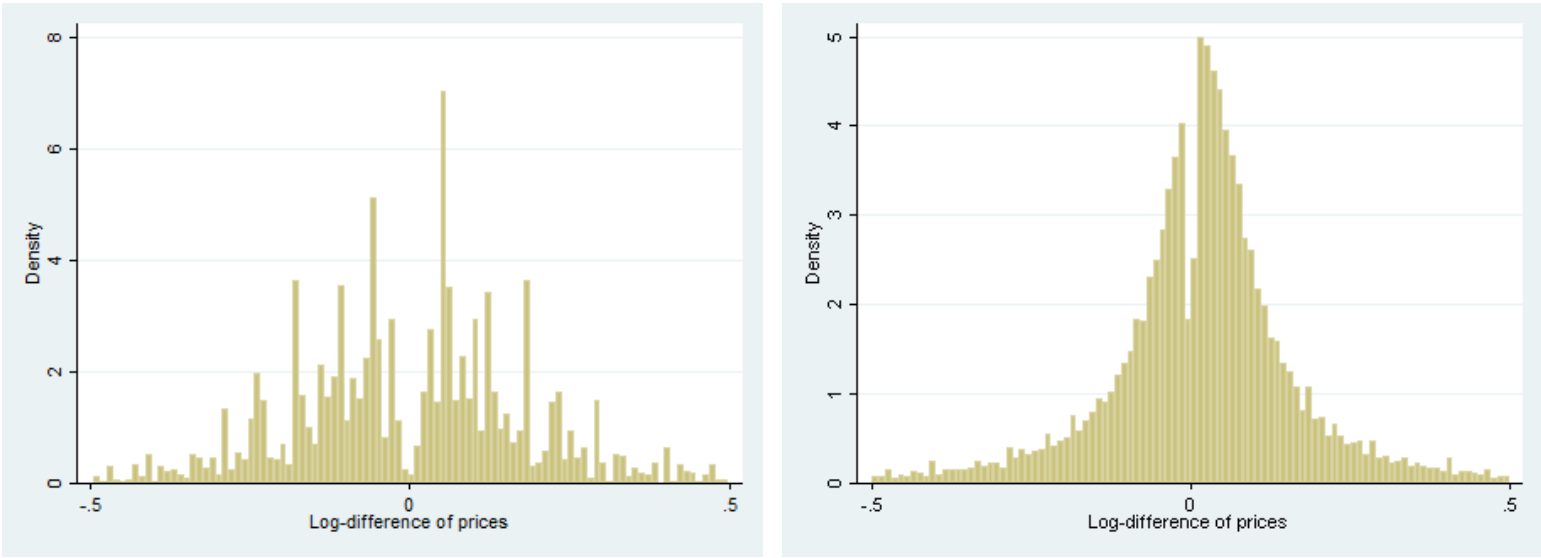


(a) Potato chips

(b) All products

Price changes of Swedish fast-moving consumer goods, 2006-2013. Homescan data (GfK Sverige, AiMark).

Econometric model

In the main text, the paper uses the linear probability model of the form

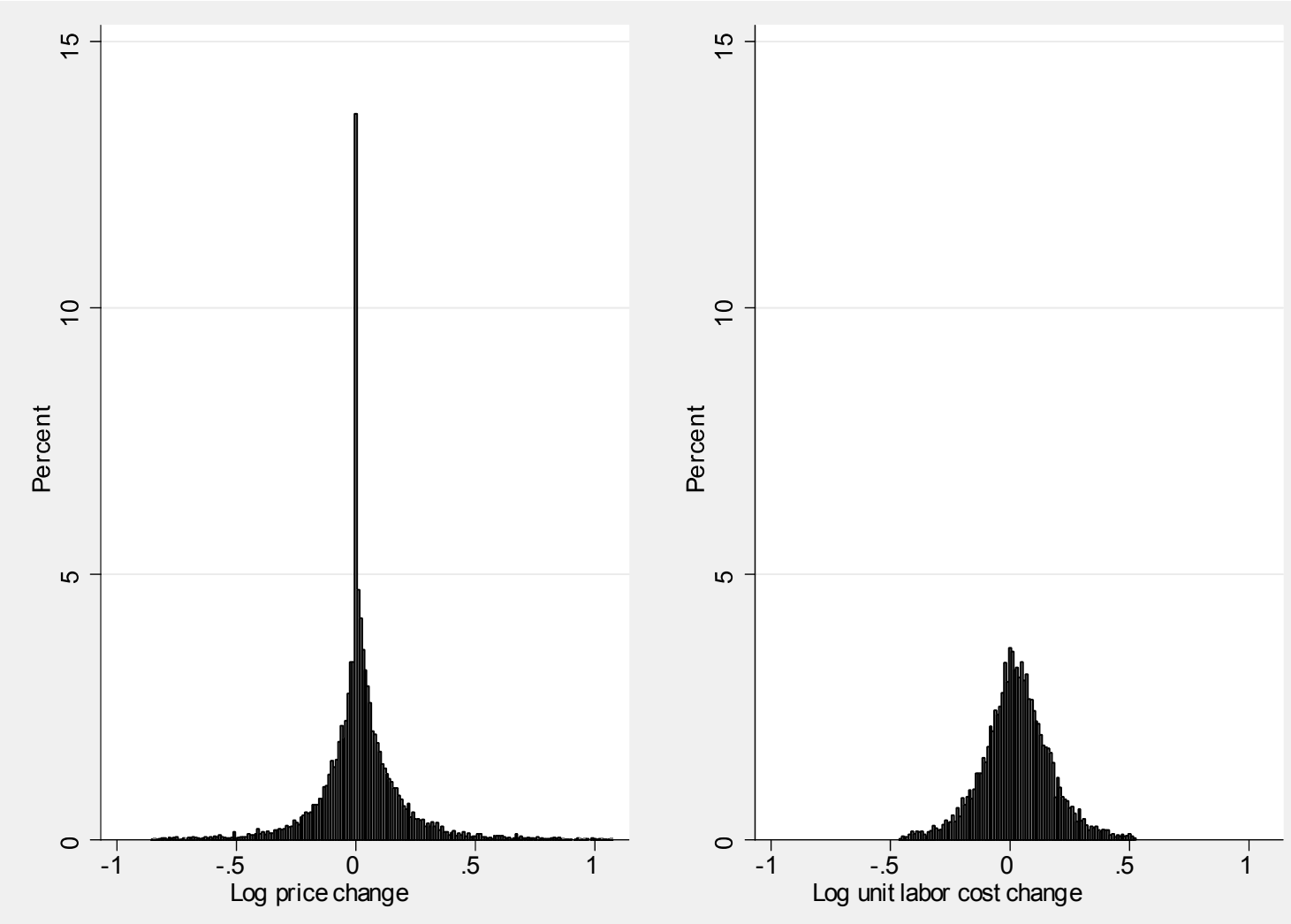
$$P(y_{gt} = 1|\mathbf{x}) = \gamma_0 + \gamma_1 |d^s lnMC_{jt}| + \eta_{gt}$$

where $y_{gt} = 1\{|\Delta p_{gt}| > 0\}$.

- Linear probability model often gives predicted probabilities outside the unit interval
- Linear model is not appropriate for an underlying model with strong selection effects
- Difficult to handle unobserved heterogeneity

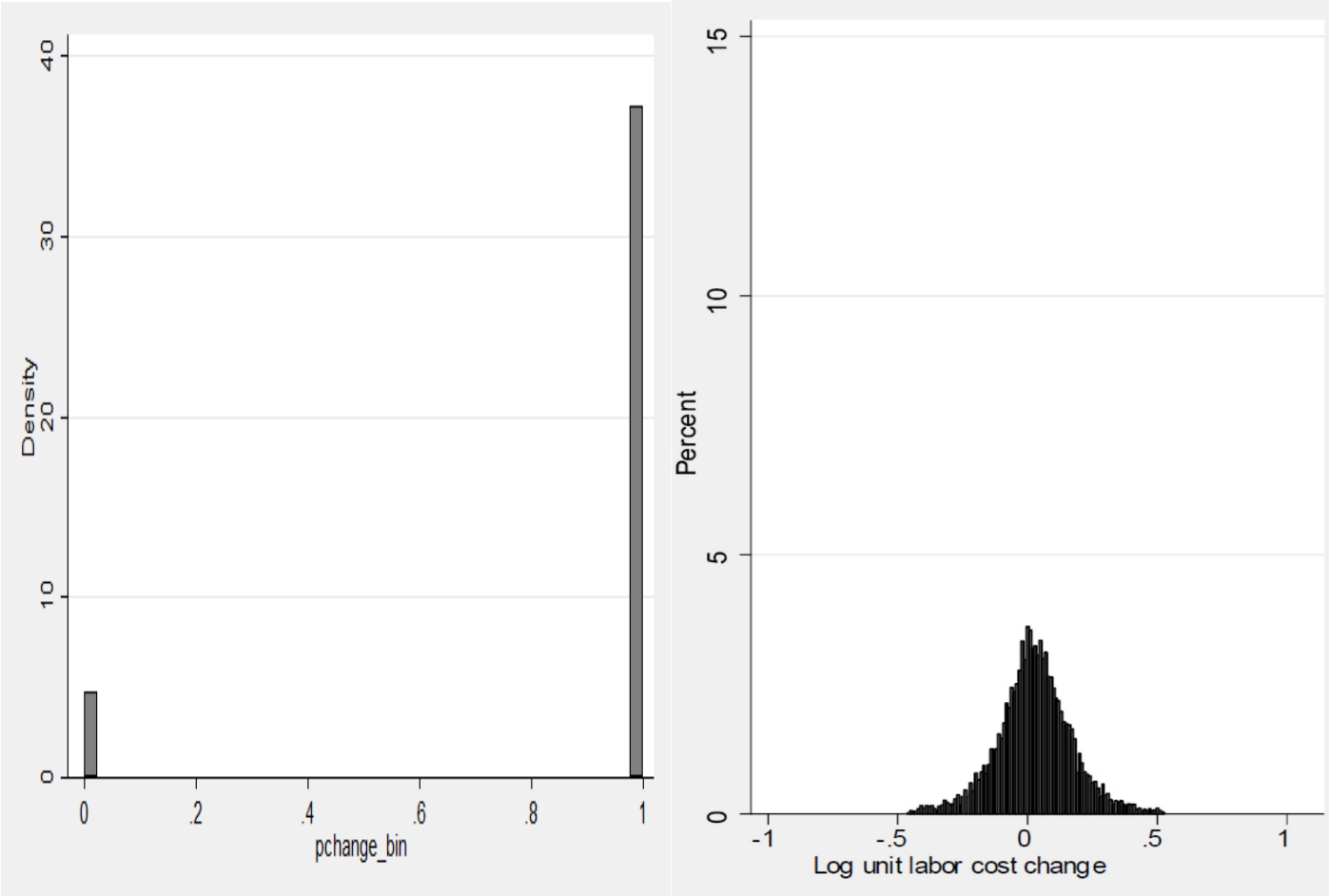
Econometric model

Figure: The actual distribution of price changes and changes in ULC



Econometric model

Figure: The distributions used in the econometric model



Econometric model

Fougère, Gautier and Le Bihan (2010), Dhyne et al. (2011) or Honoré, Kaufmann and Lein (2012), for example, use the information in the size of price changes to model adjustment thresholds. The price adjustment rule is

$$p_{it} = \begin{cases} p_{it}^* & \text{if} \quad p_{it}^* - p_{it-1} > \theta_{it}^+ \\ p_{it}^* & \text{if} \quad p_{it}^* - p_{it-1} < \theta_{it}^- \\ p_{it-1} & \text{otherwise} \end{cases}$$

The unobserved desired log-price for product i at time t is set as a markup over nominal marginal costs

$$p_{it}^* = \mu_i + mc_{it}\beta + \varepsilon_{it}$$

Adjustment thresholds can be modelled as

$$\begin{aligned} \theta_{it}^+ &= z_{it}\delta^+ + u_i^+ \\ \theta_{it}^- &= z_{it}\delta^- + u_i^- \end{aligned}$$

Econometric model

- The model would allow to exploit variation in the size of price changes for identification
- The model would allow for product-specific fixed effects in the thresholds (heterogeneity in adjustment costs) and the desired mark-ups

A few more questions

- The probability of adjusting price with accumulated change in ULC being zero is 90%. Plot of marginal effects.
- According to Carlsson and Nordström Skans (2012), expected marginal costs are important. Could expected MC be considered here?
- Nakamura and Steinsson (2010) can be extended to a multi-sector model. Given the sectoral heterogeneity, this might be the better model to calibrate and compare to the data.

Conclusion

- Creative paper, new evidence on the question whether modelling pricing with a TDP rule is sufficient
- The data used in this paper on firm-level marginal costs is the key information to estimate the desired (reset) price

Questions/Suggestions:

- Could selection effects be hidden behind unobserved heterogeneity in price stickiness?
- Could the econometric model include the information from the size of price changes and take into account potential unobserved heterogeneity?