Secular rise and pro-cyclicality in markups: Evidence from US grocery stores

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Paper summary

- Granular scanner data on retail purchases of food
- Identification based on paired markets
- Findings:
  - Secular downward trend in price elasticity and upward trend in price markups
  - Price elasticities are *countercyclical*, price markups *procyclical*
  - Macro and demographic determinants of price elasticities and markups

Identification

- Hausman (1996)
- A retailer serving two neighbouring ("paired") markets
- Given that the marginal cost of deliveries is the same for both markets, the only source of price differences between them is different local demand conditions
- Identifying assumption: demand conditions in the two paired markets are independent
- For each pair, one can use the price on one market as an IV for the price in the demand equation for the other market
- Is independence of demand conditions within a pair is something that can be taken for granted? Are demand conditions, e.g., proxied by income, (un)correlated for paired markets?

Specification

$$\log(q_{v,s,w}) = -e_{m,c,t} \log(p_{v,s,w}) + upc_v + store_s + week_w + \varepsilon_{v,s,w}$$

- Dyadic fixed effects allow you to control for variations in unobservables:
  - time-varying local demand conditions: store$\times$week FEs
  - time-varying prices of variety-specific complements and substitutes: variety$\times$week FEs

negative markups?

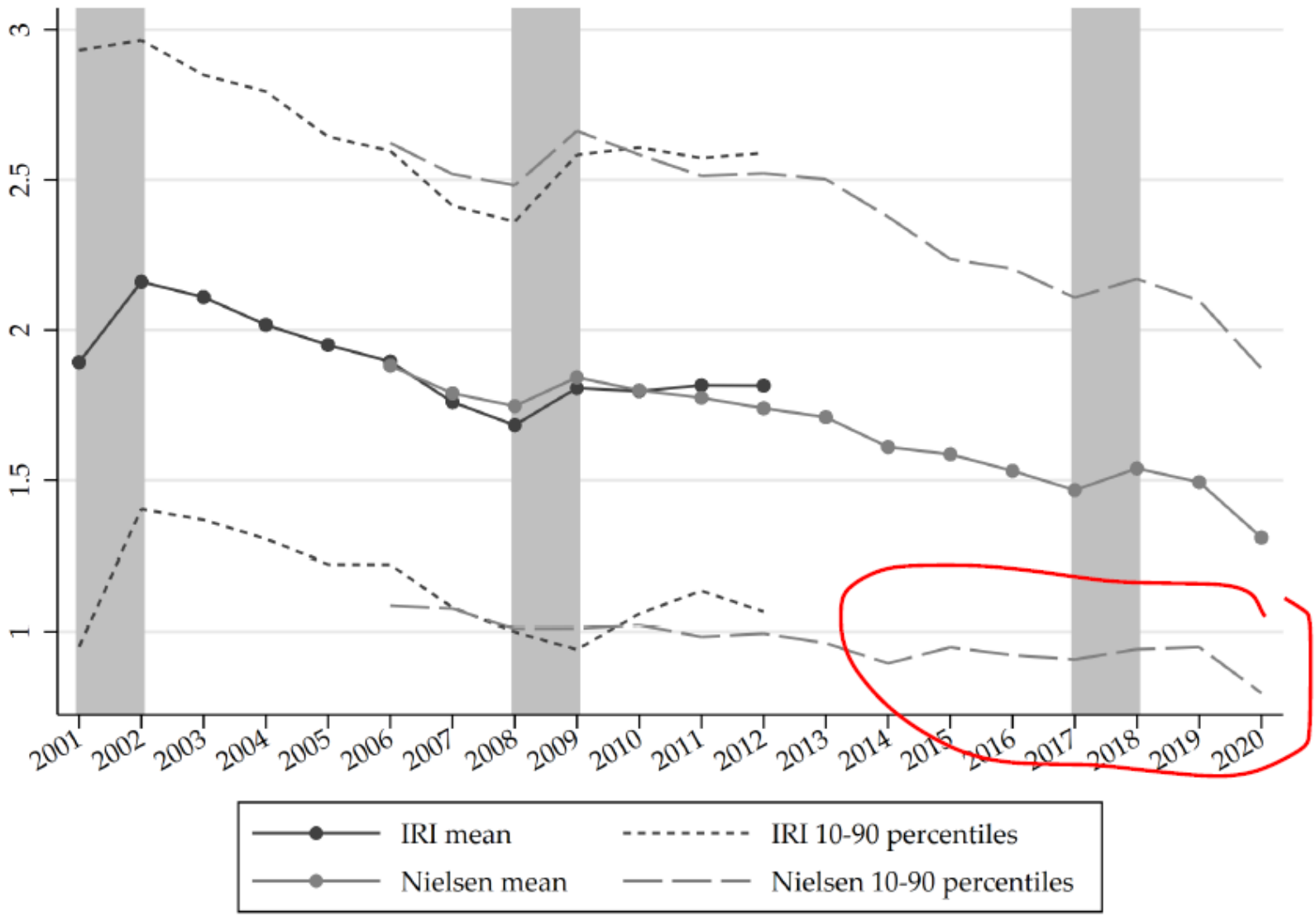

Figure 4. Demand Elasticity Estimates over Time.

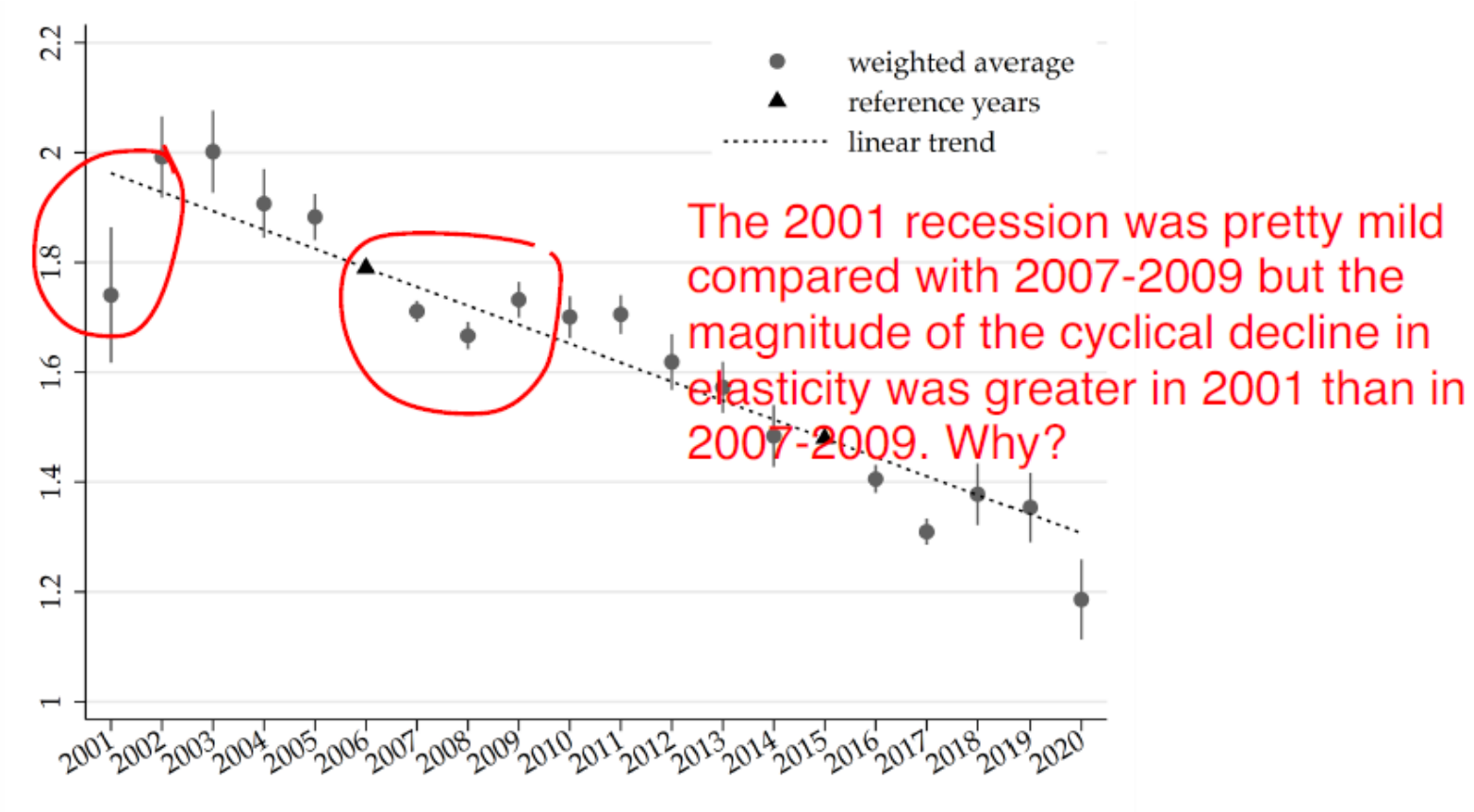

Figure 5. Trend and Cyclical Variation of Demand Elasticity.

The upward trend in markups is puzzling given the prolifiration of online shopping

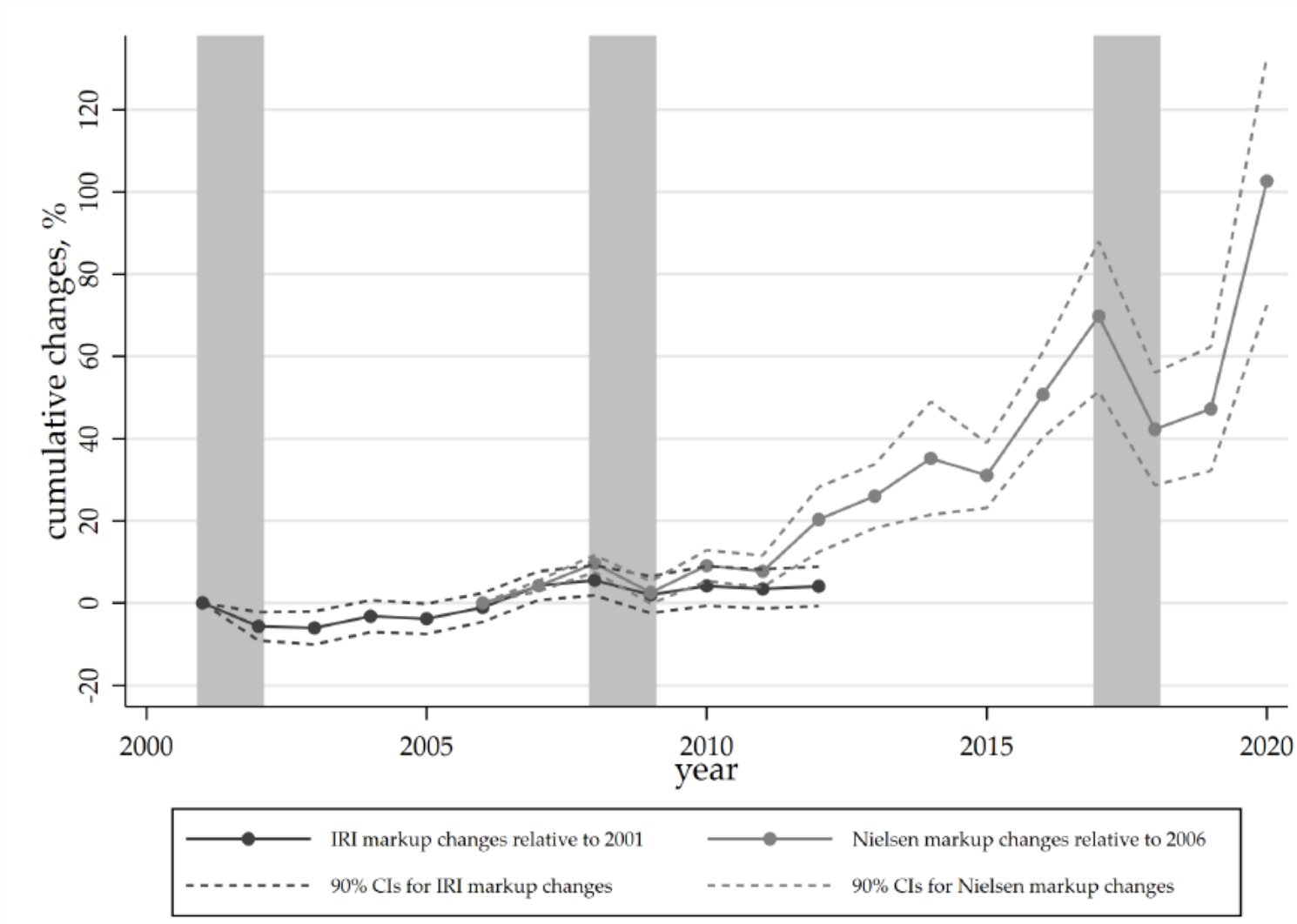

Figure 6. Cumulative Changes in Implied Markups.

Findings

- Within any given (m, c, t), you have Market Basket and Walmart, on the one hand, and Whole Foods, on the other hand, that target quite different clientiles (poor vs. wealthy) $\Rightarrow$ different elasticity values for different clientiles instead of $e_{m,c,t}$
- A declining trend in the cross-sectional distribution of elasticities suggests a downward trend in wealth distribution which does not seem to be in line with evidence
- A downward trend in the share of food items in household expenditures $\Rightarrow$ a secular decline in price elasticity?

Table 7. Factor Regression Results.

	dependent variable: *demand elasticity estimate*[b]							
explanatory variables[a]	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
real GDP per capita		-0.72***						-0.85***
		(0.21)						(0.16)
unemployment rate			1.77					1.49
			(1.18)					(1.25)
cum. change in real housing price				-0.01				0.40***
				(0.12)				(0.13)
economic dependency ratio					0.56			0.35
					(0.37)			(0.38)
population						-0.54		-1.20**
						(0.55)		(0.56)
grocery establishments per capita							-0.03	-0.02
							(0.23)	(0.17)
year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
$adj.R^2$	0.317	0.324	0.319	0.317	0.322	0.320	0.317	0.337
N^c	25062	25062	25062	25062	25062	25062	25062	25062

surprising

Marginal R-squared are tiny. The macro and demo variables do not really explain much.

Findings (cont.)

- Population growth is a leading indicator of GDP? You can test this.
- It seems that the lion's share of explanatory power comes from time fixed effects whereas the six macro/demo factors' marginal R-squared is only 0.02.

Minor comments

- Sales/specials $\Rightarrow$ upward bias in estimated elasticity?
- Rolling 52-week moving average as an alternative to calendar-year averages?
- Market-specific or good-specific trends in elasticity as an alternative to a common trend?
- Different effect of macro and demo factors for different product categories? Category-specific trends rather than a common trend?

$$\tilde{\hat{e}}_{m,c,t} = \tilde{X}'_{m,t}\beta + year_t + \epsilon_{m,c,t}$$

Conclusion

- Great paper! A lot of food for thought.
- Adds to the recent literature that overturns the used-to-be consensus on the counter-cyclicality of price markups (Rotemberg and Woodford, HB Macro 1999).
- Appealing evidence on secular trend and cyclical behavior of markups, which is not to easy to explain immediately.
- Major determinants are hidden in time fixed effects $\Rightarrow$ More work needs to be done.