Comments on "Price Setting and Inflation Persistence"
Angeloni, Aucremanne and Ciccarelli

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Findings

- Frequency of price changes increased around 2002
- Magnitude of price changes decreased at the same time
- One-off adjustment (transitory change)
- Inflation persistence changed in 1996 but not in 2002

Why do we care? (I)

- These findings should be important to inform monetary policy. But:
- Evidence on price changes not tied to any theory of price setting.
- Determinants of price setting not investigated!
- Wouldn't it be nice to explain magnitude of price changes and frequency of price changes by something?

Why do we care (II)?

- It is great to have micro data on prices (a privilege indeed).
- This should allow us to understand the macro evidence better.
- Wouldn't it be nice to have a framework that allows us to link micro and macro evidence on persistence precisely?

Price Setting : Link to Theory

- Most common models of price setting are: Time Dependent Pricing (TDP), State Dependent Pricing (SDP) and Rational Inattention.

- Which one fits better European data? This seems to me to be the first order question.

- In other words: what are the respective roles of the extensive (SDP) and intensive margins (TDP) in explaining inflation?

Variance decomposition

- Follow Klenow and Kryvtsov (2005) and derive:
- $\text{Var(inf)} = \text{Var}(\Delta p).\underline{\text{freq}}^2 + \text{var(freq)}(\underline{\Delta p})^2 + 2\underline{\text{freq}}.\underline{\Delta p}.\text{cov(freq},\Delta p)$

freq=freq of adjustment=extensive margin

Δp=magnitude of adj.=intensive margin

$\underline{\text{freq}}$ and $\underline{\Delta p}$ are sample averages.

Learning more about price setting

- We could regress frequency and magnitude of price changes on aggregate inflation, inflation volatility, some measure of market competition, some openness to trade measures, seasons, geography etc…

- What explains differential behavior across sectors/countries in normal times and at the moment of changeover to the euro?

- And the next step would be to calibrate standard TDP and SDP models using the micro evidence…

Perceived inflation?

- In surveys, European citizens complained about various degrees of sizable price increases after the euro changeover.

- Can we explain this by looking at which subcomponents increased most across countries?

- Authors have the perfect dataset to study "subjective" inflation rates across countries. This is a key question for political support.

Persistence and Aggregation

- Discussion of the paper starts with an aggregate "neo Keynesian" Phillips curve.
- Interesting points on "expectations driven", "extrinsic" and "intrinsic" persistence. But…
- It all collapses into an AR(p)

A micro-macro framework

- There is an "aggregation bias" when one estimates aggregate inflation persistence without controlling for sectoral heterogeneity in inflation rates.
- See Pesaran and Smith (J. Econ. 1995) and Imbs, Mumtaz, Ravn, Rey (QJE 2005).

Heterogeneity matters

$$q_{it} = c_i + \rho_i q_{it-1} + \varepsilon_{it}, \; i = 1, .., N$$

$$\text{with } c_i = c + \eta_i^c \text{ and } \rho_i = \rho + \eta_i^\rho$$

Forcing dynamic homogeneity imposes:

$$q_{it} = c_i + \rho q_{it-1} + e_{it}$$
$$e_{it} = \eta_i^\rho q_{it-1} + \varepsilon_{it}, \; i = 1, .., N.$$

Application to Inflation

- Proper theoretical framework would start from a model with heterogeneous sectors. The Phillips curve looks different.

- The next slide is courtesy of Morten Ravn (taken from Morten's discussion of Altig et al. 2005).

Distribution of sum of autogressive parameters, US CPI components, AR(12) monthly
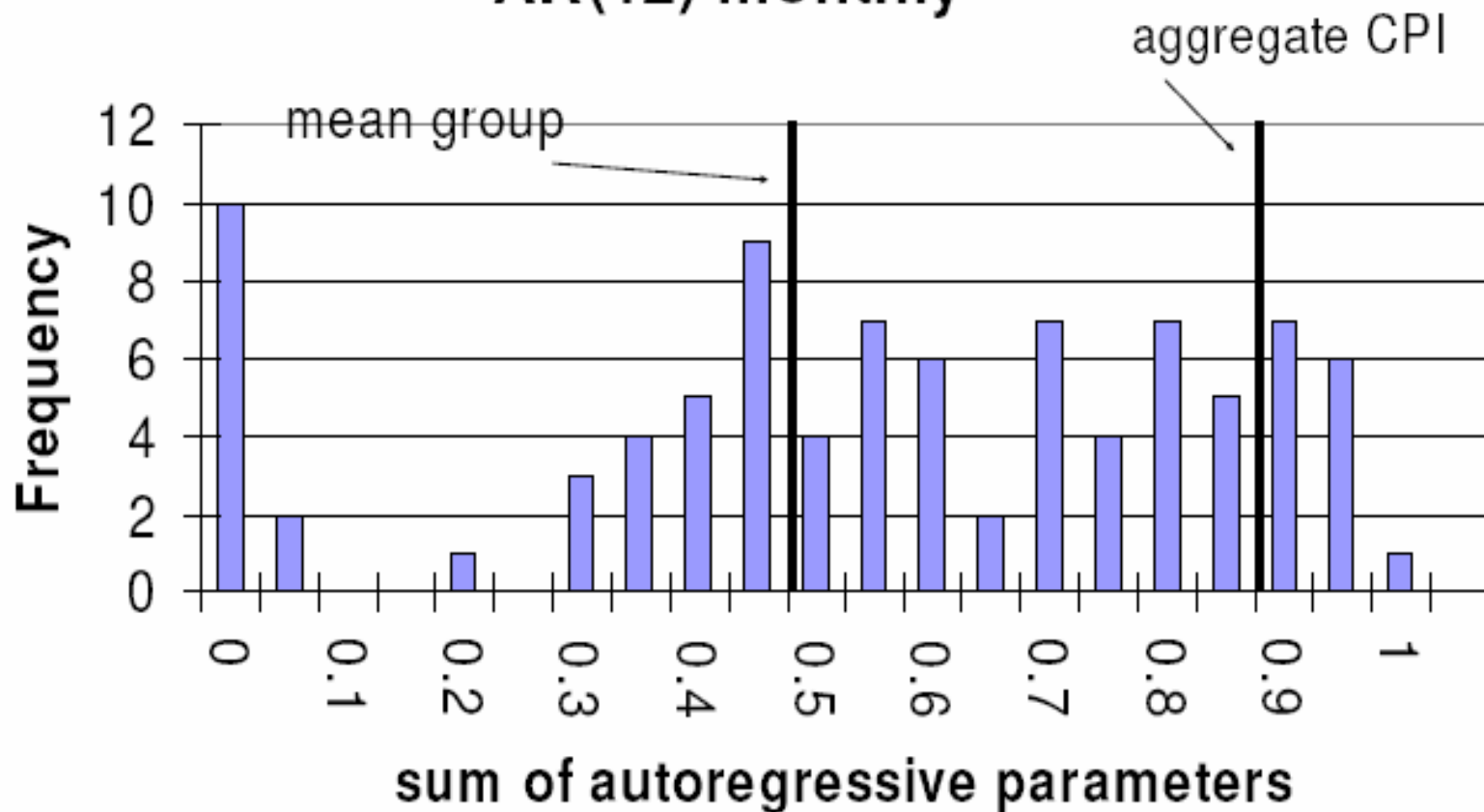
Aggregation bias in inflation data

- The aggregation bias leads to overestimate aggregate persistence relative to the average of sectoral inflation persistence.
- The bias is higher, the higher the degree of heterogeneity across sectors.
- So persistence may be changing because of changes in sectoral heterogeneity.

Practical points

- A lot of the material in the text should be shortened and put in Appendix (like the detailed description of the data).

- Focus discussion and message: pick 1 or 2 issues and explore in more depth: variance decomposition; perceived inflation; link theory and evidence on price setting…

- Cut number of tables/graphs.

An important question

- The authors mention several times that "EMU brought about a more competitive environment" that could alter price setting behaviour. Do we know that? The Single Market may be more likely to have increased competition. It is in the sample…

Conclusion

- Very interesting data set that should allow us to make a leap forward in the understanding of price dynamics.

- My co-authors and I (and I suspect many others) would love to apply our micro/macro methodology on aggregation bias to the European price data. Why aren't your data made available to researchers at some level of disaggregation? What is *so secret* about CPI data?