Comments on "From Micro to Macro: A New Methodology to Discriminate Among Models"

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The Objective

- The paper wants to make a choice between two micro pricing models - menu cost and Calvo

- Use evidence on this that doesn't just doesn't come from micro data

- A challenge for traditional menu cost models is that prices adjust only after a threshold is passed

- This means that we would not observe many small price changes

- In the data there are a lot of these and they produce leptokurtosis. Rather similar to stock returns.

Modifying the Model

- Model used here has a free adjustment cost opportunity coming to firms at a certain probability
- So it this which allows the menu cost model to produce leptokurtosis
- One might think that one could just compute the densities of price changes from the two models and then see what they each predict about the density around zero
- Alternatively one might look at the index of kurtosis in the data and from the models
- One problem with that is kurtosis might reflect fat tails

Macro data to Discriminate Between the Models

- Paper argues that it is frequency of change that is important to assess the models, not the degree of kurtosis as argued by Alvarez et al

- Find median frequency of price changes by industry and then concentrate on above median "high frequency" and below median "low frequency" industries

- Using industry data they find impulse responses of inflation to monetary shocks with a monthly FAVAR system and narrative methods from 1969-2007

- These are then cumulated to measure yearly inflation rates to a shock for each of the high and low frequency "industries"

Results from FAVAR?

- Find that for a 25 basis point decline in interest rates the cumulated change in the price level is 15 basis points for high frequency and 5 basis points for low frequency.
- There is no difference between impulse responses for the cut between high and low kurtosis industries
- So this seems to be useful evidence for testing the models
- We are talking here about the cumulative impact of a monetary shock for 1 year. This seems very small to me. And this is for the high frequency industries. Low only have 5 basis points.
- Moreover is the difference of 10 basis points really important? No standard errors (they have some in UVW slides but I am uncertain of how these are computed)
- Calibrate the parameters of the two models using average micro data from all the industries that are > high and < low frequency cut offs.
- They then find that the Calvo model does better at producing the above results

Permanent and Transitory Effects

- In the micro models nominal shocks have permanent effects on prices
- In FAVAR etc this is also true because the factors are combinations of inflation rates and other variables (to form the PCs)
- The problem with this is that one also has variables like growth of output in the data set and so monetary shocks have a permanent effect on the level of output
- This doesn't seem satisfactory (the micro models don't have it) but is a problem with using differenced variables and interest rates or shocks
- Might be o.k. if one uses nominal growth rates for real variables
- Otherwise one needs to separate the nominal and real variables when computing factors

The Narrative Approach

- Narrative approach is model free
- Essentially regresses industry inflation $q(t)$ against $q(t-1)$ and monetary shock $\varepsilon(t)$
- Problem is whether something else affects industry inflation besides monetary shocks
- One would think so
- So mis-specified equation as missing terms are in the error (they do have seasonal effects accounted for)
- May not affect coefficient on $\varepsilon(t)$ but should affect that on $q(t-1)$
- So impulse responses are affected.

The Model

- Calibrate model using industry statistics
- Not quite sure what they used as the micro moments - sales?
- Estimated menu cost model says that kurtosis is important for cumulative shocks
- Data shows it isn't
- One would need to change the calibrated model coefficients to match the macro moments and they show how much that would need to be. Good idea.
- The micro model looks rather simple to me and one wonders how robust this outcome would be to a more complex model of pricing and output (nominal demand is exogenous so no monetary rule of the type used in the FAVAR/Narrative facts)

Conclusions

- The idea is good.
- I am not sure that the impulse responses are estimated properly (FAVAR issue) and it is important that the differences according to the data split are estimated well
- I thought the 15 basis point *cumulative responses* of prices to monetary shocks were too low based on macro work
- I feel that a problem with the micro models is that they don't really embed in a macro context – sales are I(1) exogenous processes in aggregate. So I was a bit nervous about using macro data to test then
- I haven't looked at this literature much so I quite liked reading up on it