Inflationary Household Uncertainty Shocks

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The views expressed are those of the author's and do not necessarily represent those of the Bank of Finland.

I. Motivation

Precautionary savings is an important transmission channel and yet most measures of macro uncertainty, usually derived from financial markets, news-media, surveys of professional forecasters, or econometrically from large vector auto-regressions of macro data (e.g. Bloom, 2009; Jurado et al., 2015; Baker et al., 2016; Rossi et al., 2016), are only indirectly linked to households.

In a setting with nominal rigidities, which Basu and Bundick (2017) show as key to the dampening effects of uncertainty shocks, the response of inflation to uncertainty shocks is ambiguous due to a countervailing mechanism - pricing bias - in which firms tend to set higher prices when faced with higher uncertainty (Born and Pfeifer, 2014; Fernandez-Villaverde et al., 2015).

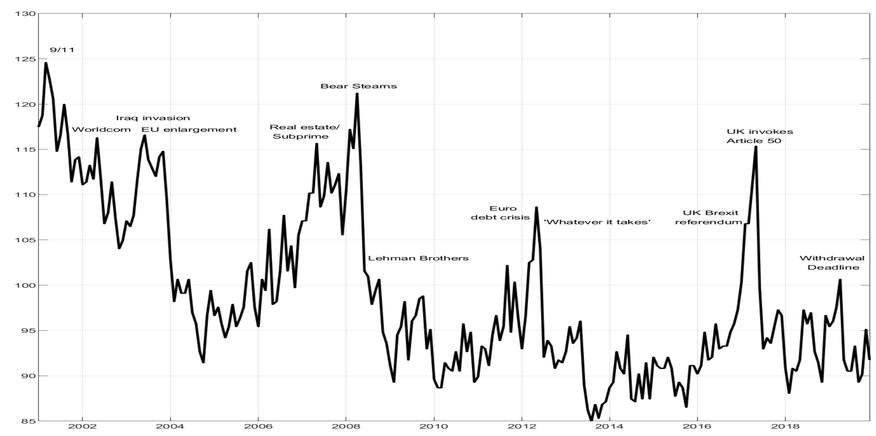
Consequently, evaluating the effects of household uncertainty on inflation is largely an empirical question. Leduc and Liu (2016) provide an assessment using the U.S. Michigan Consumer Survey and find that uncertainty shocks are deflationary. Whether their results hold for other countries remain an open question.

In this paper, I

1. Propose a new monthly measure of household uncertainty available for many European countries over several decades;
2. Use vector auto-regressions to evaluate its effects on unemployment and inflation;
3. Compare results across European countries to elicit factors that may relate to the inflationary effects of uncertainty;
4. Use a New Keynesian model with demand- and supply-side uncertainty to evaluate implications of the empirical results:
   - The relevance of the pricing bias mechanism by verifying whether variations in markups can account for cross-country results
   - The role of monetary policy in generating both inflationary and deflationary uncertainty shocks when they arise from different sources

II. Measuring Uncertainty

Figure 1: Household Uncertainty Index for the Euro area



The figure above plots how the standardized measure of household uncertainty has evolved over time for the Euro area. It peaks during the EU enlargement, the Global Financial Crisis, the European Sovereign Debt Crisis, and Brexit. The uncertainty index (HUN) is based on responses to four questions in the consumer survey:

- How do you expect the general economic situation in this country to develop over the next 12 months?
- How do you expect the number of unemployed in this country will change over the next 12 months?
- How do you expect the financial position of your household to change over the next 12 months?
- Over the next 12 months, how likely will you be able to save any money?

Respondents' answers are categorized into one of the following:

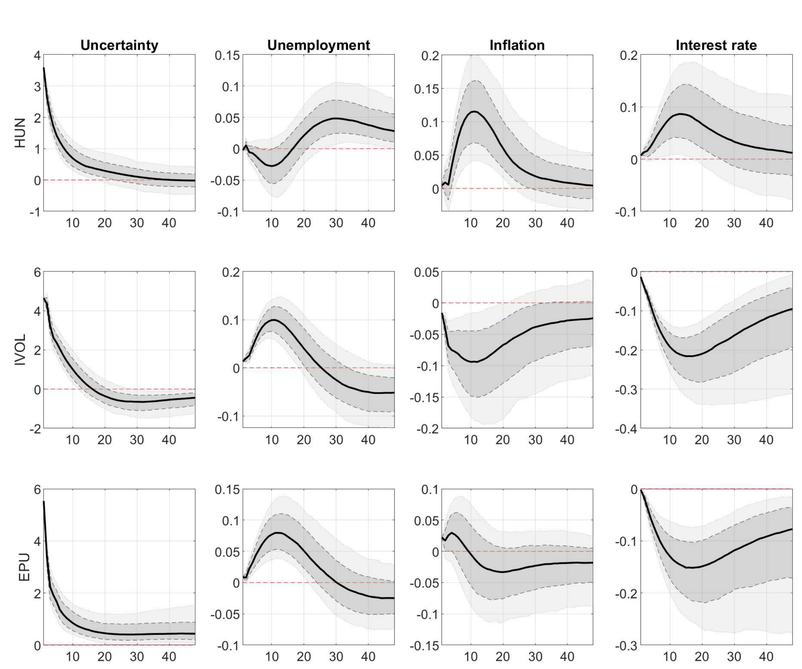
1. Much better/more (+ +)
2. Somewhat better/more (+)
3. The same (0)
4. Somewhat worse/less (-)
5. Much worse/less (- -)
6. ***Don't know (?)***

The measure takes the average fraction of households who respond with *Don't know*

III. VAR and Model Impulse Responses

Results from recursively-identified vector auto-regressions following Leduc and Liu (2016) show that while financial uncertainty shocks (IVOL is the implied volatility of the EuroStoxx 50) are deflationary and policy uncertainty shocks (EPU from Baker et al., 2016) have ambiguous effects on inflation, household uncertainty shocks (HUN) are inflationary in the Euro area and for many European countries.

Figure 2: Impulse responses to uncertainty shocks for the Euro area



Counterfactual analysis following Bachmann and Sims (2012) and Kilian and Lewis (2011) as well as model-based simulations indicate that monetary policy can partially explain the differences in the response of inflation to various uncertainty shocks.

Table 1: SVAR Counterfactuals

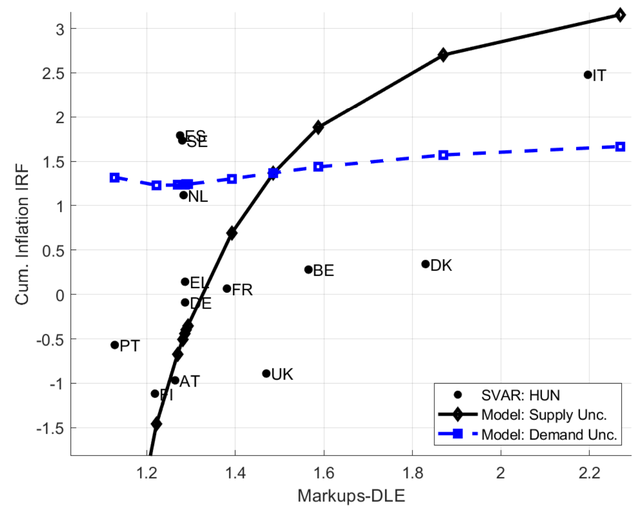
	Inflation cumulated IRF (48 months)	
Uncertainty measure	Baseline	Counterfactual
HUN	2.02	1.66
EPU	-0.79	0.68
IVOL	-2.66	-1.33

Table 2: Monetary Policy Response from the Model

	Inflation cumulated IRF (16 quarters)	
Monetary policy response (α_v)	Supply-side	Demand-side
0.00	1.37	1.37
1.05e-05	0.15	1.37
2.15e-05	-1.12	1.37

Consistent with a pricing bias mechanism, an evaluation of cross-country impulse responses indicate that markups (estimates from De Loecker and Eeckhout, 2020) correlate positively with inflationary household uncertainty shocks. This relationship is largely replicated by varying the elasticity of substitution to match average markups in a New Keynesian model.

Figure 3: Model-implied and SVAR responses of inflation across markups



IV. Conclusion

The results in this paper indicate that the pricing bias mechanism as well as the response of monetary policy may play an important role in the economic transmission of household uncertainty shocks in Europe.

The results also indicate that the effects of macro uncertainty may differ depending on their source and also across countries with differing economic structures.

It is hoped that the introduction of a new measure of household uncertainty available for a broad set of countries and over two decades would help spur more research and help deepen our understanding of the effects of uncertainty on the macroeconomy.

Read the full paper and have a look at the data: https://sites.google.com/site/ambrociogpg/research