News, macroeconomic expectations and disagreement

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An increasing amount of research focuses on the effects of news and uncertainty on macroeconomic aggregates (e.g. [1]). Although it is widely agreed that uncertainty exhibits various transmission channels with regard to the real economy and financial markets, little is known about the effects of economic news on macroeconomic and financial expectations.

Quantifying textual data has become popular in recent years to, for example, construct uncertainty measures such as the *Economic Policy Uncertainty Index* [2]. Major advances in natural language processing, however, have made it feasible to quantify vast amounts of written texts without relying on pre-determined keywords or manual compilations [3]. We combine a correlated topic model [4] and a dictionary based sentiment analysis to extract economic topics from approx. 500,000 U.S. newspaper articles. The results are used to investigate which type of news is correlated with professional economic forecasts and whether such impact is varying over time. The newspaper articles are obtained from *LexisNexis Group* and the survey data from *Consensus Economics*.

The text analysis is entirely conducted with *R* and relies on powerful packages such as *dplyr*, *quanteda* and *stm* ([5], [6], [7]). The econometric analysis uses a flexible version of dynamic model averaging for which the code is written in *Matlab*.

References

1. Basu, S., Bundick, B.: Uncertainty shocks in a model of effective demand. Econometrica **85**(3) (2017) 937–958
2. Baker, S.R., Bloom, N., Davis, S.J.: Measuring economic policy uncertainty. The Quarterly Journal of Economics **131**(4) (2016) 1593 – 1636
3. Azqueta-Gavaldón, A.: Developing news-based economic policy uncertainty index with unsupervised machine learning. Economics Letters **158** (2017) 47–50
4. Blei, D.M., Lafferty, J.D.: A Correlated Topic Model of Science. The Annals of Applied Statistics **1**(1) (2007) 17–35
5. Wickham, H., François, R., Henry, L., Müller, K.: dplyr: A grammar of data manipulation. r package version 0.7.5. (2018)
6. Benoit, K.: quanteda: Quantitative analysis of textual data. r package version 1.2.0. (2018)
7. Roberts, M., Stewart, B., Tingley, D.: stm: R package for structural topic models. r package version 1.3.3. Journal of Statistical Software (Forthcoming)