

CSC PhD Project

Talking about Policy: using text analytics for economic policy evaluation

Name and Contact of the Supervisors

Dr. Stephan Smeekes, Associate Professor, Dept. of Quantitative Economics, Maastricht University, s.smeekes@maastrichtuniversity.nl | www.stephansmeekes.nl

Dr. Lenard Lieb, Assistant Professor, Dept. of Macro, International and Labour Economics, Maastricht University, l.lieb@maastrichtuniversity.nl

Dr. Rui Jorge Almeida, Assistant Professor, Dept. of Quantitative Economics & Data Analytics and Digitalisation, Maastricht University, rj.almeida@maastrichtuniversity.nl

Project Description

Evaluating the effects of macroeconomic policies is one of the most important, but also most challenging, elements in empirical economic research. One difficulty arises from the fact that many policies are endogenous, as they are typically implemented in response to macroeconomic conditions. Accounting for this endogeneity requires a joint dynamic modelling approach of the economy and the policy which disentangles endogenous responses to economic conditions from exogenous changes that can be used to evaluate policy effects [1]. A second complication in modeling the dynamic causal effect of a policy intervention, is to properly account for anticipation effects (ref 2). Economic agents form expectations of future policy changes and act accordingly: new information about a (possible) future policy change - such as a tax reform - may already have consequences on economic agents' behaviour before the policy is implemented [2-3]. This makes it difficult to get the timing of policy changes right, especially as expectations - or the information shaping expectations - are very difficult to measure using traditional economic data. Text, such as official announcements by the government or newspaper articles, on the other hand provides a rich data source about expectations and the information shaping them [4]. Text however is a difficult and unstructured data source, and advanced analytical methods are needed for extracting the right information from the text. In this project we will study and develop appropriate methods for extracting 'economic information' from text such that they can be incorporated in an econometric model for evaluating causal effects of economic policies.

Good to know

The project takes place on the interface between econometrics (causal inference, dynamic modelling), macroeconomics (policy evaluation) and machine learning (natural language processing), which aligns with the research expertise of the three supervisors (Smeekes: econometrics, Lieb: macro, Almeida: NLP).

This project is a continuation of an existing research project of the supervisors, which among others has delivered a paper where the news content, and its effect on economic expectations, of U.S. presidential speeches about tax policy changes is explored [5]. The methods and data used here provide a useful starting point for the PhD student.

Features of a good candidate

This is a project for a very good, ambitious student with strong analytical skills. The student does not have to be an expert in all three areas (econometrics/macroeconomics/machine learning) but should be willing to invest time and effort in becoming proficient in all three. A strong background in econometrics and statistics is essential. Interest in programming (skills can be developed on the go) is highly recommended. Most of all an open mind towards combining different disciplines and the ability to work in a multidisciplinary team is required.

References

- [1] Ramey, V. A. (2016). Macroeconomic shocks and their propagation. In J. B. Taylor and H. Uhlig (Eds.), *Handbook of Macroeconomics* (Vol. 2, pp. 71–162). Elsevier.
- [2] Ramey, V. A. (2011). Identifying government spending shocks: It's all in the timing. *Quarterly Journal of Economics*, 126(1), 1–50.
- [3] Leeper, E. M., Walker, T. B., and Yang, S. C. S. (2013). Fiscal foresight and information flows. *Econometrica*, 81(3), 1115–1145.
- [4] Gentzkow, M., Kelly, B., and Taddy, M. (2019). Text as data. *Journal of Economic Literature*, 57(3), 535–574.
- [5] Jassem, A. , L. Lieb, R. J. Almeida, N. Bastürk and S. Smeeke (2021). Min(d)ing the President: A text analytic approach to measuring tax news. arXiv e-print 2104.03261.

Approved by the Head of Department

Prof.dr. Dries Vermeulen

Signature

A handwritten signature in black ink, appearing to be 'Dries Vermeulen', written in a cursive style.

Place

Maastricht

Date

28-09-2022