

I am an applied macroeconomist studying how text analysis and natural language processing can be used to investigate the empirical effects of institutional communication, like those from central banks, on economic outcomes and expectations formation. My research is organised into two agendas. The first leverages text analysis and machine learning to advance macroeconomic measurement, using the information in source documents to extract purer signals of policy intent. The second analyses how this information shapes market expectations and macroeconomic outcomes.

1 Advancing Economic Measurement with Text as Data

A foundational challenge in empirical macroeconomics is that the objects of interest—the market’s “full” reaction to news or “exogenous” policy shocks—are unobservable. My research develops novel methods that use the textual content of policy announcements to construct credible proxies for these latent variables, thereby strengthening causal identification.

My job market paper, “[How Long Do Financial Markets Need to Fully Respond to FOMC Announcements?](#)” [1] (henceforth JMP), confronts the ad-hoc 30-minute event window standard in monetary policy studies. This choice ignores a crucial trade-off: short windows may capture incomplete reactions, while long windows risk contamination from other news. I propose the first systematic, data-driven method for selecting the optimal event window. My approach uses a neural network to map the textual content of Federal Open Market Committee (FOMC) statements directly to asset price changes, generating a signal of the market’s full response. The optimal window is then estimated as the time horizon that minimizes the error between the observed price change and this text-based signal, reframing the problem from one of assumption to one of optimization.

In “[Deciphering Financial Market Reactions to OPEC Announcements: A Neural Network Approach](#)” [2] (henceforth OPEC paper), I tackle a different identification challenge: isolating exogenous oil supply expectation shocks. Standard methods are contaminated by unrelated news and conflate supply information with OPEC’s commentary on global demand. To address this, I develop a novel two-step procedure to purify the shock measure. First, I fine-tune a neural network on the full corpus of OPEC press releases. Second, I use this trained model to predict oil price changes based only on the manually curated, supply-related text from those releases. The model’s out-of-sample predictions form a new series of “purified surprises” attributable solely to news about future oil supply.

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2 How Policy Communication Text Impacts Expectations and the Economy

Using text as data to provide more credible measures of market reactions and policy shocks, my research yields new insights into how institutional communication affects the expectations formation of markets and economic outcomes.

Applying my systematic estimation procedure of my JMP reveals that financial markets need significantly more time to process FOMC news than is typically assumed. The optimal event window is at least 40 minutes and lengthens with asset maturity, reaching 50–60 minutes for longer-term futures. This choice is consequential: the correlation between surprises measured in the optimal versus in the standard 30-minute window declines by 10% for fifteen-year-ahead expectations. This suggests studies of long-run policy effects may use attenuated shock measures. Economically, these results point to information frictions, as statements that are more complex, different, or contain dissents require longer reaction times.

My OPEC paper shows that using the purified surprises in a structural vector autoregression resolves puzzles present in the literature. Whereas previous work found a contractionary oil supply shock led to a puzzling initial expansion in world industrial production (IP) and a decline in U.S. unemployment, my text-based shock generates impulse responses consistent with economic theory: an immediate and persistent contraction in world IP and an unambiguous increase in unemployment.

3 Future Research

My future research will extend these agendas along three dimensions. One project will apply the methodology of my JMP to other forms of policy communication, such as press conferences and Fed Chair speeches, where systematically estimating the full reaction times is increasingly important. A second project will investigate non-textual communication by using deep learning models on audio recordings of FOMC press conferences to analyse how the Fed Chair’s speech patterns and delivery impact financial markets. A third project will enhance my OPEC paper’s method by incorporating OPEC forecasts and news headlines to further refine the extraction of oil supply expectation shocks.

References

- [1] Paul L. Tran. “How Long Do Financial Markets Need to Fully Respond to FOMC Announcements?” Job Market Paper. 2025. [URL](#).
- [2] Paul L. Tran. “Deciphering Financial Market Reactions to OPEC Announcements: A Neural Network Approach”. SSRN Working Paper No 4968664. 2025. DOI: [10.2139/ssrn.4968664](#). [URL](#).