Research Statement | Paul Le Tran[1] | November 2025

I am an applied macroeconomist using text analysis and natural language processing to study how policy communication impacts economic outcomes and expectations. 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 cleaner measures of policy intent. The second analyses how this information shapes market expectations and macroeconomic outcomes.

1 Advancing Economic Measurement with Text as Data

A frequent challenge in empirical macroeconomics is that objects of interest, such as the full reaction of financial markets to news and exogenous expectations shocks, are difficult to measure and often contaminated with noise or confounding factors. My research develops unique methods that uses the textual content of policy announcement to clean these measures, resulting in stronger and more precise effects on economic outcomes.

My job market paper, "How Long Do Markets Need to Fully React to Monetary Policy Announcements?" [1] (henceforth JMP), confronts the popular 30-minute event window standard in monetary policy studies. This choice ignores a crucial trade-off: short windows may capture incomplete reactions, whilst long windows risk contamination from other news. My approach uses neural network methods to maps the textual content of Federal Open Market Committee (FOMC) statements directly to asset price changes and systematically estimates the event window length that captures the market's full reaction with the average impact of noise minimised. In other words, my JMP re-frames the problem of event window choice from one of assumption to one of empirical optimisation.

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 often contaminated by unrelated news and conflate supply information with OPEC's commentary on global demand. To address this issue, 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.

2 How Policy Communication Impacts Expectations and the Macroeconomy

Using text as data to provide more credible measures of market reactions and policy shocks, my research yields new insights into how policy communication affects macroeconomic vari-

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ables and the expectations formation of financial markets.

Applying my systematic estimation procedure reveals that financial markets need more time to process monetary policy announcements than the popularly assumed 30 minutes. The optimal event window is at least 40 minutes and lengthens with underlying maturity, reaching 50–60 minutes for longer-term futures. Additionally, statements with greater complexity, less similarity, and with dissents are associated with longer windows on average. This choice is consequential: the correlation between monetary policy surprises measured within optimal versus 30-minute windows decreases with underlying maturity. These differences alter the forward guidance component of monetary policy shocks. Crucially, constructing these shocks within optimal window lengths magnifies their impact on interest rates, break-even inflation, and equities. Furthermore, responses of macroeconomic variables are estimated with greater precision when using shocks made within the optimal windows. In other words, using the popular 30-minute windows could attenuate the measured effects of policy.

My OPEC paper shows that using the purified surprises in a structural vector autoregression resolves puzzles found in the oil supply literature. For example, prior studies found a contractionary oil supply news shock led to a puzzling initial expansion in world industrial production (IP) and a decline in U.S. unemployment. In contrast, my text-based supply expectations 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

I plan to further my research agendas with several new projects. One project will apply the methodology of my JMP to other forms of policy communication, such as Fed Chair speeches, where pinpointing the optimal window length is more crucial for identifying monetary policy surprises without risking attenuation. A second project will investigate how the *conceptual* complexity of FOMC communication affects market expectations of future monetary policy. A third project will use 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 fourth project will enhance my OPEC paper's method by incorporating OPEC forecast reports and news headlines to better estimate oil supply and demand expectations shocks.

References

[1] Paul L. Tran. "How Long Do Markets Need to Fully React to Monetary Policy Announcements?" Job Market Paper. 2025. URL: https://paulletran.com/papers/wps/tran_paul_le_fomc_nn_paper_jmp.pdf.

[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: https://dx.doi.org/10.2139/ssrn.4968664.