

Research Statement

The main theme of my research is understanding the mechanisms through which economic agents process information and learn about the economic environment they inhabit, and how these mechanisms shape macroeconomic dynamics. In my job market paper, I study the role that learning has played in the anchoring of expectations in the post-war period in the US.

I find that the systematic conduct of monetary policy has shaped private sector expectations in important ways: agents attribute a much larger weight to the Federal Reserve's unemployment-stabilization motive now than they did during the inflation crisis of the 70s-80s period. This has caused private agents to anticipate a weak response from the Fed to shocks in the Phillips curve causing a larger pass-through of perceived cost-push shocks to inflation expectations in the short-run; but this same mechanism also causes their beliefs regarding the Fed's inflation target to respond less to perceived policy mistakes, thus generating anchoring. In a world where the central bank's policy preferences are not ex-ante known and are believed to be evolving, policy-emphasis on keeping the unemployment-gap closed (real-side stabilization) generates long-run anchoring while also magnifying short-run volatility of inflation in response to shocks in the Phillips curve. I demonstrate how a model of learning under *structural* reasoning by agents can explain the remarkable stability of the long-run inflation expectations even in the face of large shocks and how the *right* policy behavior generates credibility endogenously and shields the anchor from policy mistakes. I also demonstrate how key structural parameters like the slope of the structural Phillips curve remain poorly identified as agents learn in real-time but anchoring remains robust to mis-measurement.

My research also investigates how behavioral biases shape the way agents interpret economic signals. In one of my working papers, I uncover a negative correlation between the response of Treasury yields to FOMC announcements and their response to the release of the corresponding minutes, with the effect concentrated at medium-term maturities. A factor-model decomposition suggests that markets tend to overreact to forward guidance embedded in announcements, only to revise these expectations once the minutes provide additional context. To account for this pattern, I develop a model of diagnostic expectations, which formalizes how agents overweight salient information at first and subsequently adjust. This evidence illustrates that agents do not treat all central bank communications alike; instead, their responses reveal what information they perceive each kind of signal to contain.

Going forward, I would like to explore frictions in how agents acquire information under cognitive constraints, building on the rational inattention literature and adapting that to a learning environment. While the amount of information we have access to, grows, our capacity to attend to, and keep track of various signals remains limited. *Salience* of signals becomes important in such an environment. Different agents might find different signals to be relevant to forming expectations and making decisions, adding an element of heterogeneity to their belief-formation process. I want to work on incorporating heterogeneous attention and learning and study how divergence of beliefs between different sets of agents (firms and households for

instance) can have implications for economic dynamics and transmission of policy. I want to use survey data on households' and firms' expectations to empirically quantify these effects.

In terms of empirical methods, I am interested in using insights from the Machine Learning literature, particularly how attention to past information/signals is modeled (attention transformers) and incorporating them into models of economic behavior and real-time learning by economic agents. My goal is to study how attention to macroeconomic signals endogenously evolves over time.

I am also interested in exploring how interest rates also serve as an *implicit communication channel* between central banks and private agents in environments with asymmetric information. Policymakers plausibly have information about economic fundamentals that private agents either lack or find costly to monitor. One of my current projects draws a novel connection between this problem and *Witsenhausen's counterexample*, a stylized problem in decentralized control theory - a setting where optimal strategies are inherently non-linear due to information constraints. Using this analogy, it can be shown that *quantized* policy rules, such as the Federal Reserve's practice of adjusting rates in discrete steps (typically of 25 bp) - can dominate linear feedback rules like the Taylor rule at achieving optimal stabilization. The framework provides a new theoretical foundation for understanding why central banks might favor discrete adjustments: its actions serve not only to stabilize the economy but also to communicate information credibly in an environment where interest-rate adjustments are costly in a cooperative equilibrium.

Continuing along similar lines of research, I would like to keep advancing my agenda of developing a structural understanding of the process of expectation-formation in macroeconomics, from both theoretical and empirical perspectives.