Leaning Against Inflation Experiences
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This paper provides a novel explanation for the observed secular variation in real interest rates across advanced economies by focusing on the interaction between monetary policy and experience-based expectations of long-run inflation. In addition to changes in the natural rate of interest—the standard explanation in the literature for secular changes in real interest rates—persistent deviations of long-run inflation expectations from monetary policymakers' explicit or implicit inflation targets play a central role in explaining secular real interest rate dynamics.

I first update the empirical evidence on experience-based inflation expectations in Malmendier and Nagel (2016) using US microdata from the Michigan Survey of Consumers, covering 1953–2023. Consistent with the earlier evidence, the updated data supports the notion that individuals rely on historical experiences during their lifetimes when they form a view about future inflation. Older individuals, for example, maintain higher inflation expectations throughout the 2000s until the recent rise in inflation post-COVID, consistent with memories of the 1970s, while younger cohorts have responded more strongly to the post-COVID inflation spikes.

Embedding such experience-based formation of long-run inflation expectations into a New Keynesian macroeconomic model, I show that the model predicts persistent secular variation in real interest rates tied to movements in long-run inflation expectations. Experience-based expectations are slow-moving and are insensitive to central bank communication. Consequently, if long-run expected inflation is above target levels, it takes prolonged periods of low realized inflation outcomes to bring public inflation expectations back towards the target. To achieve this, monetary policy "leans against" these slow-moving beliefs by persistently adjusting nominal rates, thereby causing real interest rates to vary secularly in response.

Moreover, since the public does not anticipate policymakers' eventual success in reaching the target, long-maturity bonds are priced under the expectation that real rate variation is persistent. As a consequence, when real rates rise in response to high expectations of long-run inflation, not only short-term real rates are high, but the entire term structure of real interest rates is elevated. This produces term structure dynamics consistent with empirical observations: long-term real rates vary with short-term nominal rates and nominal and real term-structures have "shifting endpoints."

The paper empirically tests these model implications using US data on ex-post real interest rates and ex-ante real interest rates derived from both household and professional forecaster expectations. Estimates based on error-correction models show that real interest rates—across the term structure and forecast horizons—co-move strongly with experience-based long-run inflation expectations. These results are robust to controls for recent inflation and changes in the natural rate of interest. The component attributable to monetary policy's leaning against expectations explains a substantial portion of secular variation in real rates, particularly the pronounced real rate decline from the 1980s to the early 2020s. Importantly, the key parameter

that determines the time-series properties of experience-based inflation expectations by controlling how quickly experience-based long-run expectations adjust to new data on realized inflation is fixed at values estimated from microdata on inflation expectations from the Michigan Survey of Consumers, not tweaked to best explain the real rate dynamics.

International evidence from Germany, the UK, and Japan supports the US findings. The same learning-from-experience model for long-run inflation expectations, with the same parameters based on US microdata, also helps explain a substantial share of secular real interest rate variation in these countries.

In the most recent inflationary episode after the COVID pandemic, experience-based long-run inflation expectations have not changed much so far. Compared to the 1970s inflation, the recent inflationary episode was not long enough to substantially change people's inflation experiences, allowing central banks to control inflation with less pain than in the 1980s. However, this would likely no longer be true if a second wave of high inflation were to hit the economy any time soon.