The Expected Inflation – Realized Inflation Spiral: An Investigation of the Role of Expectations During the COVID-19 Inflation Surge

A Proposal for "Inflation in the COVID Era and Beyond"

Carola Conces Binder
Haverford College

Rupal Kamdar
Indiana University, Bloomington

Jane M. Ryngeart
University of Notre Dame

September 21, 2023

Objective

The New Keynesian Phillips curve (NKPC) has enshrined a nexus between inflation expectations and current realized inflation. Intuitively, firms facing sticky pricing are forward-looking and incorporate future expected inflation into current pricing decisions. More broadly, inflation expectations may theoretically affect wage negotiations, job search behavior, and consumption choices. The empirical relationship between realized and expected inflation is typically strong; however, can weaken over small samples featuring upheavals such as wars (Binder and Kamdar, 2022).

This paper will investigate the role that inflation expectations played in the inflation surge that followed the COVID-19 pandemic. We will investigate the extent to which expectations contributed to the initial rise in inflation and its persistence. In counter-factual exercises, we plan to answer hypothetical questions about the path of inflation. For example, how would the path of inflation have differed if short- and long-run expectations had stayed fixed? Similarly, how would inflation have evolved if long-run inflation expectations were completely unanchored?

Reduced-Form Approach

We will begin with an empirical analysis centered around the NKPC. Namely, we will estimate NKPCs for different economic eras in recent history: the Great Inflation, the Great Moderation, and the COVID era. For each of these periods, we will also investigate how short-run expectations passed-through to long-run inflation expectations. Note that the small sample of COVID may result in having to appeal to creative approaches such as survey data or disaggregated data (Mavroeidis et al. 2014, Cerratto and Gitti, 2022; Hazell et al. 2022). Using our estimates, we will develop a series of "reduced-form counterfactuals". For

instance, we could simulate what would have happened to inflation if the structural parameters of the NKPC had not changed during COVID. Alternatively, we could assess how much of the rise in inflation could be attributed to the increase in expectations. Or, how much worse would inflation have been if long-term inflation expectations were as poorly anchored as they were in the 1980s?

Structural Approach

In addition to the reduced form approach, we plan to develop and estimate a structural New Keynesian model incorporating some of the key economic elements from the COVID recovery.

- *Labor Market Frictions:* We will begin by using the search and matching and downward nominal wage rigidity setting from Begnino and Eggertson (2023). In their model, these frictions result in a nonlinear Phillips curve where, when the labor market is sufficiently tight, the Phillips curve steepens.
- *Expectations that deviate from FIRE:* Then, we will incorporate expectations that can deviate from full-information rational expectations. There are two frameworks that are particularly relevant for the COVID era that we will consider. First, naïve inflation expectations that are partially backward-looking may be a good fit for inflation expectations during this period (e.g., long-run expectations remain elevated despite a notable decline in realized inflation). This formulation of expectations may result in a spiral: inflation causing higher expectations resulting in higher inflation and so on. Second, models of rational inattention suggest agents only pay costly attention to things that matter for their decision-making processes. This setting would suggest that prior to COVID, when inflation was low and stable, agents did not need to pay attention to inflation and could keep their beliefs anchored. However, as inflation rose, attention to inflation increased, and expectations began to rise. In this setting, again, a realized inflation – expected inflation spiral could manifest.
- *Supply Shocks*: Estimating the slope of the Phillips curve during COVID and the post-COVID era is challenging in part because of the large supply and demand shocks that hit the economy nearly simultaneously. Thus, carefully incorporating supply shocks, such as productivity shocks, into the model is important.
- *Demand Shocks*: Furthermore, we plan to incorporate expectations-driven demand shocks as well as sectoral demand shocks arising from a change in preferences over goods as in Baqaee and Farhi 2022.

After solving and parameterizing our model, we will use it to assess the role of inflation expectations in the recent inflationary episode. We will show how a shock to expected inflation passes through to realized

inflation, and decompose the change in inflation into parts attributable to demand shocks, supply shocks, and shifts in expectations.

Finally, we will use the model to assess what forces can break the expectation- realized inflation spiral. For example, a loosening of the labor market can reduce inflation and expected inflation in turn.

References

Baqaee, David, and Farhi, Emmanuel. 2022. "Supply and Demand in Disaggregated Keynesian Economies with an Application to the COVID-19 Crisis." *American Economic Review*, 112(5): 1397-1436.

Binder, Carola, and Rupal Kamdar. 2022. "Expected and Realized Inflation in Historical Perspective." *Journal of Economic Perspectives* 36 (3): 131-155.

Benigno, Pierpaolo and Gauti B. Eggertsson. 2023."It's Baaack: The Surge in Inflation in the 2020s and the Return of the Non-Linear Phillips Curve." National Bureau of Economic Research No. w31197.

Cerrato, Andrea, and Giulia Gitti. 2022. "Inflation Since COVID: Demand or Supply." Working Paper.

Hazell, Jonathon, Juan Herreño, Jón Steinsson, and Emi Nakamura. 2022. "The Slope of the Phillips Curve: Evidence from US States." *The Quarterly Journal of Economics* 137 (3): 1299-1344.

Mavroeidis, Sophocles, Mikkel Plagborg-Møller and James H. Stock. 2014. "Empirical Evidence on Inflation Expectations in the New Keynesian Phillips Curve." *Journal of Economic Literature* 52(1).