Inflation Expectations and Monetary Policymaking

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Introduction

I appreciate the opportunity to participate in this panel and I thank the organizers for including me. In my opening remarks, I will focus on inflation expectations and reflect on some of the associated monetary policy challenges from the recent episode of high inflation.

Focus on Anchored Long-Term Inflation Expectations

Monetary policymakers have been focused on inflation expectations throughout this period of high inflation. This makes sense because inflation expectations have been a central factor in models of inflationary dynamics since the 1960s and 1970s, with the seminal work of Phelps, Friedman, and Lucas.[1] One of the big lessons from the 1970s is that it is much more difficult and costly to bring inflation down once it has become embedded in the economy, i.e., once businesses and households expect inflation to remain elevated and those expectations influence their savings and investment decisions and price-setting and wage-setting behavior. Recent research concludes that the cost of bringing inflation down is relatively low in terms of increased unemployment so long as inflation expectations remain anchored.[2]

In many inflation models used by central banks, inflation is driven by three key factors: some measure of a resource utilization gap (e.g., the output gap or unemployment rate gap), or marginal cost of production; lagged inflation, which captures the inertia in the inflation process; and expectations of inflation. Different models put different weights on these fundamental factors, but household and business expectations matter, since they affect wage demands and offers, and therefore firms' price-setting behavior.

[1] See Phelps (1967), Friedman (1968), and Lucas (1972).

[2] This is one of the conclusions of Benigno and Eggertsson (2024), which posits that the relationship between inflation and unemployment differs depending on whether labor markets are tight, as measured by a vacancy-to-unemployment ratio greater than one. Reis (2021) and Walsh (2022) also discuss the importance of anchored inflation expectations, drawing on the experience of the U.S. during the 1960s and 1970s.

In the models, when longer-term inflation expectations remain well anchored at the inflation goal, they can help to mitigate the pull of resource gaps on inflation. This means that the cyclical movements in interest rates by policymakers to maintain price stability need not be as large as they would need to be if inflation expectations were not well-anchored.

The Fed's statement on longer-run goals and monetary policy strategy recognizes the importance of keeping inflation expectations well-anchored at levels consistent with 2 percent inflation.[3] It does not define what "well-anchored" means, but a good working definition is longer-term inflation expectations being insensitive to changes in the data and at levels consistent with the 2 percent inflation goal. Achieving "well anchored" in this sense should depend on how well the public understands the central bank's inflation goal and how strongly it believes the central bank is committed to returning inflation to that goal when it has deviated. So central bank communications should play an important role in keeping inflation expectations anchored. But communications are not enough; communications need to be accompanied by action.

[FIGURE 1. Inflation Expectations] Throughout the recent high-inflation episode, the FOMC emphasized in its communications that it was committed to bringing inflation back down to 2 percent. Measures of short-term inflation expectations moved up as inflation moved up, but most measures of medium- and longer-term inflation expectations appeared to remain reasonably well anchored at levels consistent with 2 percent inflation. Even so, throughout the episode, the *risk* that inflation expectations could become unanchored was one of my concerns and managing that risk did affect my policy views.

[3] The FOMC first set an explicit, numerical target for inflation in its statement on longer-run goals and monetary policy strategy in January 2012. The 2 percent target was taken as given when the FOMC undertook its review of the monetary policy framework in 2019. The FOMC's statement on longer-run goals and monetary policy strategy, revised in 2020 as a outcome of the review and reaffirmed since then, says that the Committee judges that longer-term inflation expectations that are well-anchored at 2 percent contribute to achieving its monetary policy goals. See Federal Open Market Committee (2024). FOMC Chair Powell has said that the Fed will be undertaking another framework review late this year. (See Federal Open Market Committee, June 12, 2024, p. 26.)

I was not always convinced that long-term expectations were as anchored as they appeared to be. And I do not think that communications alone would have kept longer-term inflation expectations as stable as they were. Instead, it was communications backed by actions.

[FIGURE 2: SoFIE] Some evidence of that can be seen in the Survey of Firms' Inflation Expectations (SoFIE). This is a quarterly survey of CEOs and other top business executives, which started in 2018.[4] In the second quarter of each year, businesses are asked what they believe the Fed's inflation target is. When the question was first asked in 2018, the mean response was 2.4 percent. But by April 2022, the mean had risen to 3.7 percent, its peak. As the Fed began raising rates and as inflation began to move down, the perceived inflation target began to move down, reaching its current level of 2.4 percent in April of this year. Although it is not clear whether this decline in perceptions was driven by the Fed's action or the decline in inflation itself, I think it is likely that the actions played a role; indeed, inflation was unlikely to have declined without the action. Still, the movement in these perceptions should make us question whether firms feel the Fed is truly committed to returning the economy to 2 percent inflation.

Inflation Expectations in Theory and Practice

Understanding the real-world role that inflation expectations play in inflation dynamics is made difficult by the disconnect between our models' notion of inflation expectations and what we understand about how agents form these expectations in the real world. Indeed, the theory is compelling, but the real world does not always cooperate.

[4] The Survey of Firms' Inflation Expectations (SoFIE) was created by Professors Olivier Coibion and Yuriy Gorodnichenko; it is maintained by the Federal Reserve Bank of Cleveland at https://www.clevelandfed.org/indicators-and-data/survey-of-firms-inflation-expectations. For background on the survey, see Garciga et al. (2023).

The inflation expectations of different groups of agents, e.g., households, businesses, and professional forecasters, can behave differently from one another.[5] Even within groups there can be variation, and the literature has not firmly established *whose* expectations are most important for inflation dynamics. It also has to be recognized that households may find it challenging to answer questions about the economic concept of inflation. Recent research finds that when consumers are asked about what they think inflation will be in the future for the various categories of consumer spending, their answers do not aggregate up using any plausible weighting scheme to what they expect overall inflation will be.[6] Aggregated inflation expectations over categories tend to be lower than expectations of overall inflation, and the bottom-up aggregated expectations explain a greater share of planned consumer spending.

[FIGURE 3: ICIE] The Cleveland Fed's indirect consumer inflation expectations (ICIE) measure, based on weekly surveys conducted by Morning Consult, tries to address the issue. It does not require the respondents to understand the economic concept of aggregate inflation. Instead of asking consumers directly about overall inflation, the survey asks consumers how they expect the prices of the things they buy to change over the next 12 months and how much their incomes would have to change for them to be able to afford the same consumption basket and be equally well-off.[7] According to this measure, the mean measure across all categories has moved down with inflation, but the inflation expectations of older respondents tend to run higher than those of younger respondents. Also, women and those with higher incomes also have reported higher inflation expectations than their counterparts.

Of course, the concept of inflation is not just difficult for consumers. Even economists do not always communicate in a way that makes a clear distinction between inflation and relative price changes, which

[5] Candia, Coibion, and Gorodnichenko (2021) find that the mean inflation forecasts of firms often deviate significantly from those of professional forecasters and households.

[6] See Dietrich, et al. (2022).

[7] The ICIE series is available on the Central Bank Research Association (CEBRA) website at https://cebra.org/indirect-consumer-inflation-expectations/. For background on the survey and results using the survey, see Hajdini, et al. (2022a,b).

means that measures of inflation expectations need not reflect the concept in our models. This seemed particularly true during the recent high-inflation episode when the connection between inflation and commodity-price increases driven by supply shocks was not clearly explained by policymakers. The FOMC used language about "transitory" movements in inflation as a shorthand for supply shocks but did not explain why these transitory moves could and did end up being persistent. It turned out to be difficult in real time to separate temporary changes in inflation from more persistent changes. Ex post, the usual prescription to look through supply shocks did not apply but that was because of something we already knew: when demand is outpacing supply in an environment of very accommodative fiscal and monetary policy, inflation will begin to rise and it will remain persistent until monetary policy is recalibrated to moderate demand to be more aligned with constrained supply. What might have started out as a potentially temporary shock led to more persistent effects on inflation until monetary policy reacted in an appropriate way to reduce the accommodation.[8]

Short-Term vs. Long-Term Inflation Expectations

Another complication during the episode of high inflation was squaring the behavior of short-term and longer-term inflation expectations. Monetary policymakers typically focus on medium- to longer-term inflation expectations because this is the time horizon over which monetary policy can be expected to affect the economy. Short-term inflation expectations tend to fluctuate and be driven by the prices of salient items like food and gasoline, and monetary policy typically is less concerned about those types of movement.[9] In contrast, even though inflation rates are down, consumers remain very concerned about the higher prices they are paying for food.

[8]Benigno and Eggertsson (2024) point out the strength of demand plays an important role is whether supply shocks will have a significant effect on inflation.

[9] Ample research shows that changes in the prices of particular salient items, including gasoline and food, which are independent of monetary policy, can have an outsized effect on households' shorter-run inflation expectations. See Coibion and Gorodnichenko (2015), Cavallo, Cruces, and Perez-Truglia (2017), D'Acunto, et al. (2021), and Campos, McMain, and Pedemonte (2022).

Recent research suggests that monetary policymakers should pay more attention to short-term inflation expectations. The research indicates that households form their expectations of inflation based on their lifetime experience of inflation,[10] and that surges in inflation can bring back memories of past periods of high inflation and affect the expectations of those who experienced those past episodes.[11] When this mechanism is incorporated into a conventional New Keynesian model, inflation shocks are more persistent than otherwise. The optimal response is for monetary policy to tighten when short-run inflation expectations rise even if longer-term expectations are stable. Doing so helps to limit the experience households have with high inflation, which helps to keep inflation expectations anchored in the future. So shorter-term expectations matter.

Another reason to look at short-term expectations is that they can provide some signal of whether longer-term expectations are at risk for becoming unanchored from the target. Another potential signal of unanchoring is the dispersion in survey responses on inflation expectations. Lower dispersion can indicate better anchoring.[12] These measures and other measures to assess the risk of unanchoring should get more attention from policymakers and researchers.

Risk of Unanchoring May Depend on the Nature of the Shock

Finally, there is some interesting work suggesting that monetary policy should react differently depending on the nature of the shock that has led to a rise in inflation because different shocks have different implications for inflation expectations. For example, Beaudry, Carter, and Lahiri (2022) suggests that in an environment where prices are more flexible than wages and agents have bounded rationality rather than fully rational expectations with respect to inflation, policy may want to respond more aggressively to

[10] See Pedemonte, Toma, and Verdugo (2023).

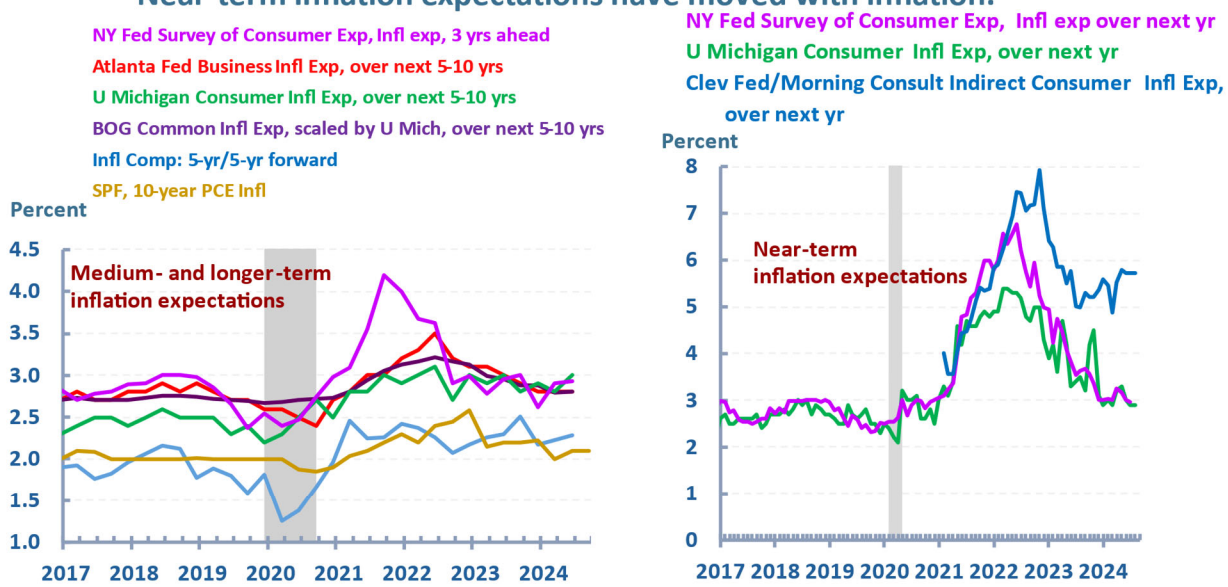
[11] See Gennaioli, et al. (2024).

[12] Naggert, Rich, and Tracy (2021) find that the lower end of the distribution of 5-year/5-year-forward PCE inflation expectations from the U.S. Survey of Professional Forecasters shifted up toward 2 percent and the dispersion of inflation expectations across respondents narrowed after the FOMC announced its revised monetary policy framework in August 2020.

supply shocks when inflation is already high and less aggressively when inflation is low. This can lead policymakers to first look through supply shocks and then respond more aggressively as inflation moves up, which arguably characterizes the recent high-inflation episode. However, research by Walsh (2022) shows that when expectations differ from rational expectations and are not well-anchored, policymakers are better off responding earlier to signs that inflation is rising rather than delaying and only then responding aggressively. The implication is that when there is uncertainty, policymakers should overestimate the degree of persistence of inflation shocks rather than underestimate it.

The body of research and historical experience indicates that optimal monetary policy depends critically on how inflation expectations are formed and how well they are anchored. It would be valuable for Fed policymakers to assess the state of knowledge on both in their upcoming monetary policy framework review.

Figure 1. Most measures of medium- and longer-term inflation expectations have remained reasonably well anchored.
Near-term inflation expectations have moved with inflation.



Source: Federal Reserve Board, Federal Reserve Banks of Atlanta, Cleveland, Philadelphia, and New York, University of Michigan via Haver Analytics, and Morning Consult

Quarterly data for medium- and longer-term measures (last month of qtr for NY Fed, U Mich, and Infl Comp): last obs. 2024Q3 for SPF, 2024Q2 for the others

Monthly data for near-term measures (weekly avg for Clev Fed/Morning Consult): last obs. July 2024 for NY Fed and Aug 2024 for the others

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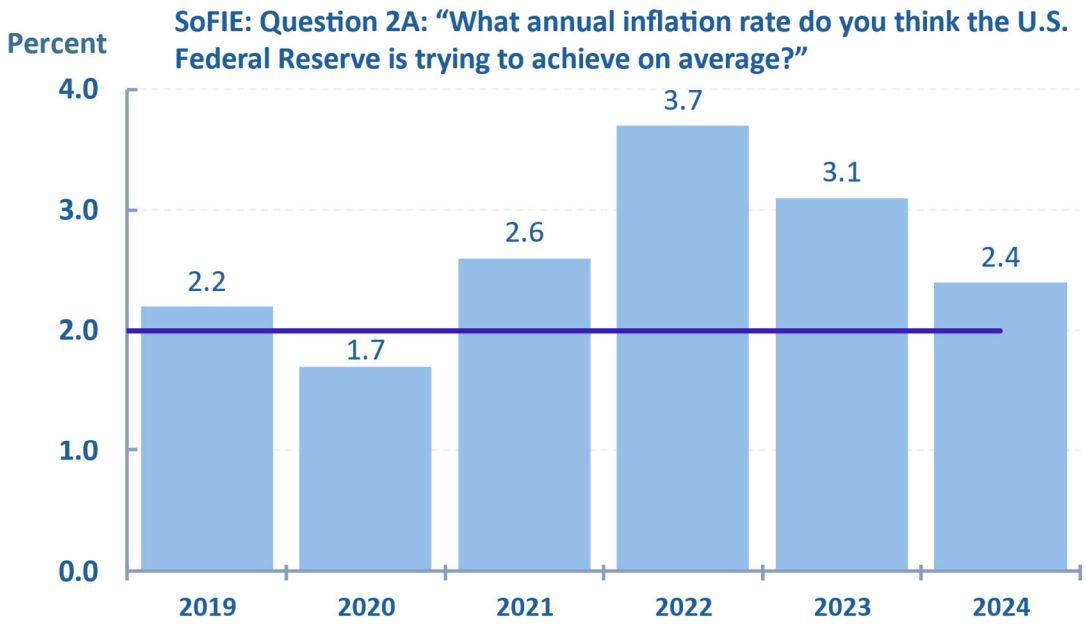
Figure 2. Business execs believe the Fed is aiming for inflation to average higher than the 2 percent target



Source: Survey of Firms' Inflation Expectations – Federal Reserve Bank of Cleveland
Annual data, each April: Last obs. April 2024

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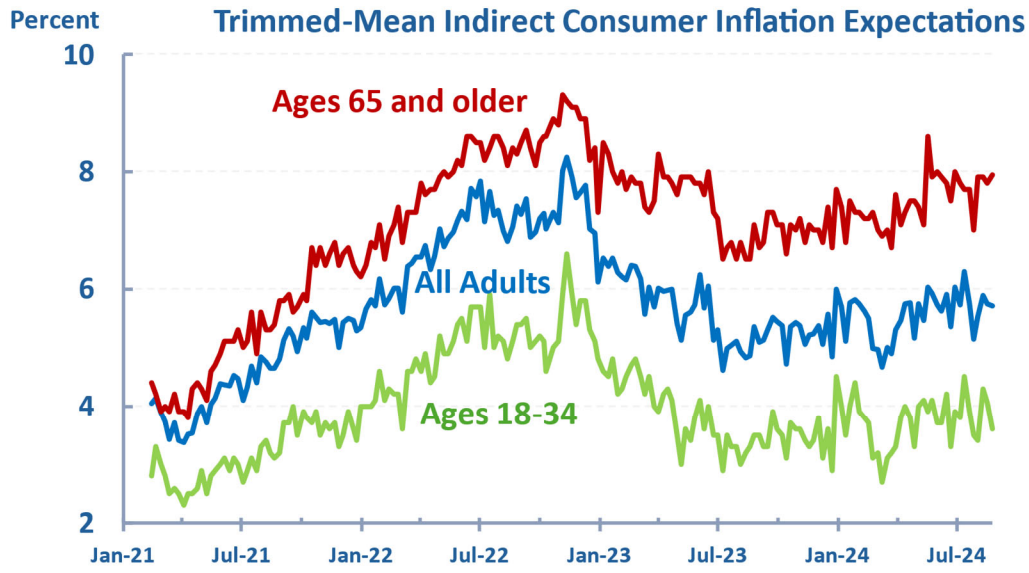
Figure 3. Consumer inflation expectations differ across demographic groups: older adults tend to have higher inflation expectations than younger adults



Source: Central Bank Research Association (CEBRA), Morning Consult, and Federal Reserve Bank of Cleveland
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