The language of the Federal Reserve's inflation target*

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Abstract

We study the Fed's communication of its inflation target and how it has evolved since their adoption of an average inflation targeting (AIT) framework in 2020. We find that when inflation became elevated, the Fed shifted away from language referencing the objective as an "average over time." This likely reflects an asymmetric AIT regime but highlights the communication challenges of a regime where the goals change over time. Leveraging the timing of this shift suggests that the Fed uses an implicit averaging window of 3-5 years. We also find that the Fed shifted away from referencing a "longer-run" goal, despite this remaining the official objective. This language was replaced with more frequent references to a simple "2 percent goal," but also with more frequent use of ambiguous language like "over time" and "sustainably", which could be interpreted in different ways. We complement these results with an online survey to gauge how the public interprets different versions of inflation target language and to assess the clarity of this different language. We also assess whether different target language engenders different expectations about the future path of inflation.

Keywords: inflation; Federal Reserve; language; communication.

JEL Codes: E31, E52, E58

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1 Introduction

In January 2012 the Federal Reserve (Fed) adopted a Statement on Longer-Run Goals and Monetary Policy Strategy, where it specified an explicit 2 percent longer-run inflation objective (FOMC (2012)). Following eight years of inflation persistently below 2%, this statement was revised in August 2020, with the addition of the flexible average inflation targeting objective (FOMC (2020)). In addition to their longer-run (forward looking) goals, the inclusion of average inflation targeting made explicit that policy would make up for past target misses. Of course, the two are related as making up for past target misses can shape longer-run expectations. Both of these Statements on Longer-Run Goals and Monetary Policy Strategy represent important changes in the Fed's policy objectives, and they also clearly articulate the priority the Fed places on the communication of its policy objectives: "The Committee seeks to explain its monetary policy decisions to the public as clearly as possible."

In this paper, we study the Fed's communication of its inflation objectives and how it has evolved over time. We begin by going through various mediums of Fed communication (speeches, minutes, press conference transcripts, and announcements) and finding explicit references to the Fed's inflation goals. For each of these references, we examine the language used to describe the Fed's objectives. We code this language into different categories. The first is what we consider a clear articulation an AIT goal. The second category is language that clearly references the Fed's longerrun inflation objective. The third category is what we argue are more ambiguous descriptions of their inflation objectives, which contain language like "over time" or "sustainably." Using this language coding, we find that since the formal adoption of their flexible average inflation goals, the Fed's inflation target language has shifted considerably over time. In 2020 and early 2021, when inflation remained relatively low in the US, there is a much more frequent framing of inflation goals as averages over time/longer-run. As inflation began to rise in the second half of 2021, the Fed abandoned referencing the goals as an average over time, likely reflecting an asymmetric average inflation targeting regime. However, the Fed also shifted away from referencing their longer-run inflation objectives despite this remaining part of their official policy framework. In replacement of this language, the Fed began referencing their objectives as a simple "2 percent goal," but they also started using ambiguous language more frequently.

There are multiple interpretations for why these shifts took place. The Fed's initial framing of their average inflation targeting regime only referenced situations when inflation was persistently below target (FOMC (2020)). That is, if inflation was persistently below 2 percent, they would be comfortable allowing inflation to rise above 2 percent so that inflation would average 2 percent over some period of time. Prior to this revision, the Fed referred to its longer-run goals as symmetric,

but language about an asymmetric/symmetric rule nor details about how the Fed would respond to inflation persistently above 2 percent have never appeared in the Fed's revised Statement on Longer-Run Goals and Monetary Policy Strategy. Many observers referred to the AIT regime as asymmetric, but others noted an asymmetric regime contradicted the Fed's original desire for AIT. Some Fed officials have highlighted that the AIT regime is, indeed, asymmetric.² In addition, the question of an asymmetric/symmetric regime has come up at least twice in post-FOMC press conference Q&A, and Chair Powell indicates that the regime is asymmetric.³ This highlights a few instances where Fed officials have indicated that AIT is asymmetric. However, the questions by reporters, who have experience with monetary policy, may also indicate that the public has a poor understanding of whether or not the AIT regime is asymmetric. Nevertheless, one natural interpretation of the decline in AIT language is that it reflects the abandonment of AIT once average inflation exceeded 2%. Although the shift away from AIT language may be a natural outcome of an asymmetric regime, our findings highlight the challenge of a time-varying objective that requires ongoing communication changes conditional on historical patterns of inflation. We also leverage the abrupt abandonment of AIT language in Q4 2021 to shed some light on the implicit averaging window used by the Fed in their AIT framework.

Interestingly, our results also document that the shift in language was not only away from "average over time" but also away from referencing their "longer-run" goals, which remain part of the official objective throughout. For example, in the boilerplate language of FOMC announcements, they continuously reference the longer-run goals from 2020 to current: "The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run." However, they move away from this language in other modes of communication. In other words, while moving away from "average over time" language might reflect an asymmetric objective, the shift away from "longer-run" is harder to rationalize in this light.

Another interpretation is that this shift in language reflects a forward guidance type of strategy. When inflation is persistently below 2 percent, referencing average

¹See Beckworth and Horan (2022) for an excellent discussion.

²For example, in a November 2020 speech, then Vice Chair Richard Clarida states "The new framework is asymmetric.." (Clarida (2020)), and in a September 2021 speech, Chicago Fed President Charles Evans states "Furthermore FAIT is asymmetric.."

³In January 2022, reporter Michael McKee asked "Do you want to go below 2 percent so that, on average, you get a 2 percent inflation rate?" to which Chair Powell responds "So, no. There's nothere's nothing in our framework about having inflation run below 2 percent..." (Powell (2022)). And in November 2024, reported Jean Yung asked "Would it be appropriate for the Fed to undershoot for a while on its inflation goal.." to which Chair Powell responds "No. That's, that's not the way our framework works. We're aiming for inflation at, at 2 percent...we do not think it would be appropriate to deliberately undershoot" (Powell (2024)).

inflation targeting or longer-run goals might lead market participants to believe inflation will be high in the future, which itself may engender a rise in inflation towards 2 percent. On the other hand, when inflation is substantially above 2 percent, as it was in 2022/2023, a stronger appeal to simply "2 percent" might cause market participants to have inflation expectations more firmly anchored at 2 percent. While these interpretations might rationalize the shifts away from "average over time" or "longerrun" language, the motivation behind the increased use of ambiguous language that we document is harder to interpret.

These shifts in the Fed language are important to consider and document for a few reasons. At perhaps the most pragmatic level, these shifts in language could cause confusion/uncertainty regarding the Fed's inflation goals. This could be viewed as a notable disadvantage of an asymmetric AIT regime. Second, as we discuss below, different variants of language could be more/less ambiguous, and thus shifting between them could yield more/less effective communication about the Fed's objectives. Finally, from a theoretical standpoint, the shift in language could be interpreted as a type of discretionary policy, which can have important consequences (e.g. seminal contributions by Kydland and Prescott (1977) and Walsh (1995)).

While we attempt to be as transparent as possible in coding the Fed's inflation target language, our interpretations are, of course, subjective. To complement our study of Fed language, we run an online survey to explore how the public interprets different versions of inflation target language used by the Fed. We find that except for the most explicit language, the public does not interpret other variants of Fed language as reflecting average inflation or longer-run objectives. For example, only the most explicit references to average inflation targeting are interpreted as such. Ambiguous language such as "over time" or "sustainably" are not generally interpreted as either average inflation or as reflecting the Fed's goal of targeting longer-run inflation expectations. Referencing the inflation objective as a "longer-run" goal engenders very different interpretations, suggesting that this framing is particularly difficult for the public to interpret.

Using an incentivized question, we also explore if different inflation target language impacts expectations about inflation. We find that framing goals with "longer-run" leads individuals to expect inflation to be slower to return to target relative to a simple "2 percent" framing.

The remainder of the paper is structured as follows. In Section 2 we discuss some related literature. In Section 3 we describe our language coding methodology and show how the Fed's inflation target language has evolved over time. In Section 4 we

⁴It is important to note, though, that if the motivation for a "longer-run" objective in 2012 was to ensure inflation expectations were anchored at 2 percent during a period of persistently low inflation, it's not clear why the same benefit shouldn't apply when inflation is persistently above 2 percent.

describe our online survey and its results. In Section 5 we provide some conclusions and discussion.

2 Related literature

There is a vast literature on central bank communication. Kryvtsov and Petersen (2021) explore how different types of central bank announcements impact expectations in a learning-to-forecast experiment. Relevant for our paper is their finding that central bank communication works when it is simple and relatable. Our paper is quite different, focusing on the communication of goals, not policy actions, but these findings are relevant in that we also explore which type of language is "simple" and easy to interpret.

Moessner et al. (2017) surveys the literature on central bank communication. In particular, they discuss the different types of communication about future policy rates. In general, they find that the literature on the effects of publishing future interest rate forecasts is quite mixed. They also find that the literature on Forward Guidance announcements suggests that this communication can have important effects. This is consistent with the literature surveyed in Kuttner (2018), which highlights important effects from Quantitative Easing and Forward Guidance announcements, but also flags important identification challenges and sensitivity of these results. Other work argues that Fed announcements contain an information effect, which can impact market expectations by revealing the Fed's views/information on the state of the economy (Nakamura and Steinsson (2018)). More recent work documents the importance of Fed communication via Chair speeches (Swanson and Jayawickrema (2023)). This is a very large literature and we will not do it justice here, but the important general conclusion from it is that Fed communication of its future policies, or its economic outlook, can have an important impact on market expectations.

More closely related to our work is Arias et al. (2020). They study whether make-up strategies that seek to stabilize average inflation around an inflation target over some time horizon can help the FOMC to achieve its dual mandate. Most relevant to our paper, they find that make-up strategies foster expectations of more stable inflation, on average, reducing the sensitivity of inflation to transient developments. However, they also point to practical challenges that may emerge in communicating an AIT strategy to the public. They also show that in order to be effective, make-up strategies must be clearly understood by agents in the economy. Our paper complements these findings along a few dimensions. The first is that aside from complexities explaining make-up strategies, our paper highlights that an addition communication challenge posed by an asymmetric regime is that objective language is required to shift over time. In an online survey we explore how the public interprets different

versions of AIT language used by the Fed, and thus provides some insights as to which type of language is most easily understood by the public.

Similarly, Coibion et al. (2023) stresses that the success of the AIT in achieving its inflation target rests on whether the Fed's inflation targeting strategy is understood by households and firms. They study this question using a daily survey of U.S. households running before and after Powell's speech that introduced the updated framework, and they follow up by surveying households on the one-year anniversary of the announcement. In general, they find that households have a very low level of awareness about the policy change and its implications. Using an RCT they find that households randomly provided with information about AIT do not have different expectations than those provided information about traditional inflation targeting. Our work complements these findings by analyzing how the language of the Fed's inflation target has changed over time, how the public interprets different variants of Fed language, and if these different variants engender different expectations about the future path of inflation.

Perhaps most closely related to our paper is Cieslak et al. (2024), which examines Fed communication post-2020. They show that after the AIT framework revision, communication created uncertainty about the Fed's reaction function, and this had an impact on term premia. They show that a shift towards more hawkish language contributed to a lowering of term premia. As evidence of communication failures, they document divergent responses of Treasury futures in response to FOMC announcements, and Chair press conferences following those announcements, possibly suggesting that the Fed Chair communication is contradicting FOMC communication. These post-2020 press conference communication problems are also documented in Swanson and Jayawickrema (2023).

Our paper is broadly related to this work in that we also study Fed communication post-2020, but we focus on one particular aspect of communication: how the Fed refers to its inflation objectives. Our results may be related to the "communication failure" evidence in Swanson and Jayawickrema (2023) and Cieslak et al. (2024) in that we document that a) certain variants of inflation target language are interpreted in different ways by the public and b) certain variants of inflation target language engender more disagreement about interpretations. We do not attempt to tie specific inflation target language used in particular speeches, etc., to measures of communication failures, as making such causal arguments would be difficult. However, our results may be one interpretation of why the effectiveness of Fed communication was lacking post-2020: the public may have had a harder time assessing what the Fed's inflation goals were. In their list of suggestions for the Fed to consider with respect to its communication strategy, Cieslak et al. (2024) list "[o]bjective-oriented communication" first, stating: "It is the objective that matters. Therefore, the Fed should communicate in a way that ties its specific decisions and actions to the objectives it is

aiming to achieve." This highlights the critical importance of studying the language of the Fed's objectives, which we do in this paper.

3 Fed Inflation Target Communication

3.1 Data Collection and Coding

Before getting into the details of how we analyze the Fed's inflation target language, we highlight a descriptive example of how this language has shifted over time. Consider Chair Powell's inflation target language in perhaps his most influential annual speeches at the Jackson Hole Economic Symposium. In his 2021 speech, before inflation became significantly elevated, he made the following references to the Fed's inflation target:

2021

- "... lifting inflation well above our 2 percent objective."
- "...well above our 2 percent longer-run objective."
- "These measures generally show inflation at or close to our 2 percent longer-run objective."
- "We also assess whether wage increases are consistent with 2 percent inflation over time."
- "Our monetary policy framework emphasizes that anchoring longer-term expectations at 2 percent.."
- "We carefully monitor a wide range of indicators of longer-term inflation expectations. These measures today are at levels broadly consistent with our 2 percent objective... This index captures a general move down in expectations starting around 2014, a time when inflation was running persistently below 2 percent. More recently, the index shows a welcome reversal of that decline and is now at levels more consistent with our 2 percent objective."
- "Longer-term inflation expectations have moved much less than actual inflation or near-term expectations, suggesting that households, businesses, and market participants also believe that current high inflation readings are likely to prove transitory and that, in any case, the Fed will keep inflation close to our 2 percent objective over time."
- "...since the 1990s, inflation in many advanced economies has run somewhat below 2 percent even in good times... In the United States, unemployment ran below 4 percent

for about two years before the pandemic, while inflation ran at or below 2 percent. Wages did move up across the income spectrum—a welcome development—but not by enough to lift price inflation consistently to 2 percent. "

- "...with inflation returning to levels consistent with our goal of inflation averaging 2 percent over time."
- "We have said that we will continue to hold the target range for the federal funds rate at its current level until ... inflation has reached 2 percent and is on track to moderately exceed 2 percent for some time... and time will tell whether we have reached 2 percent inflation on a sustainable basis."

Almost all of these references to the inflation target include language like "longerrun", "averaging over time/over time", and "sustainable." Contrast this language to his subsequent speeches in August 2022, 2023, and 2024 where he makes the following references to the Fed's inflation target:

2022

- "The Federal Open Market Committee's (FOMC) overarching focus right now is to bring inflation back down to our 2 percent goal."
- "The labor market is particularly strong, but it is clearly out of balance, with demand for workers substantially exceeding the supply of available workers. Inflation is running well above 2 percent, and high inflation has continued to spread through the economy."
- "We are moving our policy stance purposefully to a level that will be sufficiently restrictive to return inflation to 2 percent."

2023

- "My remarks this year will be a bit longer, but the message is the same: It is the Fed's job to bring inflation down to our 2 percent goal, and we will do so."
- "Getting inflation sustainably back down to 2 percent is expected to require a period of below-trend economic growth as well as some softening in labor market conditions."
- "Wage growth across a range of measures continues to slow, albeit gradually. While nominal wage growth must ultimately slow to a rate that is consistent with 2 percent inflation, what matters for households is real wage growth. Even as nominal wage growth has slowed, real wage growth has been increasing as inflation has fallen."
- "Two percent is and will remain our inflation target. We are committed to achieving and sustaining a stance of monetary policy that is sufficiently restrictive to bring inflation down to that level over time."

2024

- "For much of the past three years, inflation ran well above our 2 percent goal, and labor market conditions were extremely tight."
- "After a pause earlier this year, progress toward our 2 percent objective has resumed. My confidence has grown that inflation is on a sustainable path back to 2 percent."
- "...there is good reason to think that the economy will get back to 2 percent inflation while maintaining a strong labor market."
- "...the anchoring of expectations have worked together to put inflation on what increasingly appears to be a sustainable path to our 2 percent objective."
- "Disinflation while preserving labor market strength is only possible with anchored inflation expectations, which reflect the public's confidence that the central bank will bring about 2 percent inflation over time."

There is a notable shift in 2022 away from referring to the Fed's inflation objective as longer-term/average inflation targeting goals towards a simple 2 percent target. Although illustrative these four speeches are, of course, a small sample of the Fed's communication. To get a more comprehensive view of the Fed's inflation target language, we collect quotes from several official communication channels, including FOMC Minutes, Press Conferences, and Statements, as well as speeches by Members of the Federal Reserve Board of Governors and regional Fed bank presidents who have been on the FOMC since at least 2021, which include Jerome H. Powell, Christopher J. Waller, Michelle W. Bowman, and John C. Williams.

Going through these different mediums of communication from January 2019 to September 2024, we identify explicit references to the Fed's inflationary goals. We only include language that makes explicit reference to the Fed's objectives. For example, language that makes vague reference to the inflation target or focuses on current inflation but does not make a clear reference to their objective was excluded. To give readers a feel for what sort of language was excluded, we provide one example below.

In his speech on April 9th, 2020, Chair Powell states: "..we are confident that the economy has weathered the storm and is on track to achieve our maximum-employment and price-stability goals." This quote was not included in our list because while there is a vague reference to "price-stability goals" the reference lacks specificity about the precise nature of the goal.

The context surrounding the quotes is also important in interpreting the language. We used our best judgment to include important context/language pertaining to each

reference to the inflation target. In total, across all communication mediums we studied, we identified 1407 quotes that reference the Fed's inflationary goals.

We code each quote in the following manner. The first is to highlight whether the inflation target reference contains clear language regarding the Fed's average inflation goals. For example, second to last quote from Powell's 2021 speech above contains "..goal of inflation averaging 2 percent over time" and is thus coded as 1 for the average inflation criteria (AIT). Second, we code target language that clearly highlights their longer-run objective. For example, Powell's second quote from his 2021 speech listed above contains "..well above our 2 percent longer-run objective" and would thus be coded as 1 for the longer-run criteria. There are inflation target references that contain both references to longer-run and averaging inflation over time, and these would be coded as 1 in both categories.

There is also inflation target language that, we argue, is more ambiguous. Language like "sustainable/sustainably" or "over time" is used by the Fed, we think, as synonyms for longer-run or average inflation goals, but this language could be interpreted in different ways. For example, the last quote from Powell's 2023 speech listed above states that 2 percent is the target, and that they are committed "to bring inflation down to that level over time." Here, "over time" could be interpreted as having inflation average 2 percent "over time," but it could also be interpreted as meaning that inflation will return to 2 percent but that that reduction will take time. Because multiple interpretations are possible, we code language like "sustainable/sustainably" or "over time" (without explicit reference to things like "average over time") as "ambiguous." Ultimately, understanding how the public interprets this language is an open question, and we study this using an online experiment in Section 4.

These different groupings allow us to examine how the Fed's inflation target language has shifted over time. Naturally, describing the inflation target as an average over time, or longer-run goal requires more language. Concise language is desirable and it seems natural to expect that Fed communication does not always refer to inflation goals in this way to reduce verbiage. Thus, we are not necessarily interested in any instance where the Fed uses different language; clearly they will always use some mixture of language. We are more interested in how the frequency of this language has shifted over time. To examine these changes over time, we compute the share of Fed inflation target quotes in each of our groups above, which we present next.

3.2 Results

To examine the patterns of inflation target language, we group results by the different language coding highlighted above (AIT, longer-run, and ambiguous) and present the prevalence of that language across different mediums of communication. While much of the literature focuses on the reaction to FOMC announcements, others have

also highlighted the importance of other modes of Fed communication. For example, Swanson and Jayawickrema (2023) has highlighted the important role of Chair speeches, Cieslak et al. (2024) shows interesting reversal in financial market data during press conferences, and Rosa (2013) has documented the significant effects of minutes releases on various financial market data. As such, we include all of these forms of communication in our analysis.

3.2.1 AIT Language

We begin by examining the frequency of AIT language across the different mediums of communication. Figure 1 plots the share of inflation target references that articulate an AIT goal along with the PCE inflation rate (right axis).

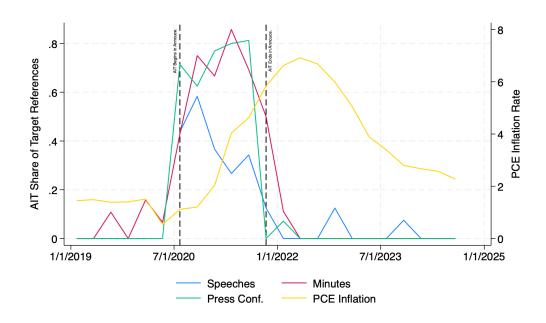


Figure 1: AIT Inflation Target Language

The figure highlights similar patterns in the frequency of AIT language across speeches, minutes, and press conferences. Perhaps not surprisingly, AIT target references climbed sharply with the August 2020 framework revision. AIT references in speeches start to decline almost immediately after the framework revision, whereas AIT references in minutes and press conferences remain higher until their sharp decline starting in mid-to-late 2021, when PCE inflation climbed past 5%.⁵ For speeches,

⁵As noted above, for each FOMC member who was an active member from at least 2021 (before

we also examine whether these patterns hold across the FOMC members in our sample, plotted in Figure A.1 in Appendix A.1. There is some heterogeneity across members, notably, Michelle W. Bowman never uses AIT language, but for those who do use AIT language after the 2020 framework revision, they all show declines in that language consistent with the timing documented in Figure 1 above.

The last medium of communication we analyze are FOMC announcements. These announcements are quite boilerplate and contain very similar language from meeting to meeting, so we do not construct a time series as we have done for the other modes of communication. However, we note when important changes in announcement language take place. In Figure 1, the first dashed vertical line is when the announcements start to reference an AIT goal, and the second dashed line is when that language was dropped from the announcements. These changes in announcement language align very well with the notable changes in the other mediums of communication.

Given that the abandonment of AIT language is concentrated in Q4 of 2021 for all the communication mediums in Figure 1, it may also reveal other interesting things about the Fed's AIT reaction function. When the Fed introduced AIT in 2020 they never specified over what window average inflation would be calculated. Indeed, in his 2020 Jackson Hole Speech, Chair Powell states "[i]n seeking to achieve inflation that averages 2 percent over time, we are not tying ourselves to a particular mathematical formula that defines the average." But, of course, there needs to be some implicit notion of the size of this averaging window to operationalize an AIT strategy. One interpretation of the delay in raising interest rates in the summer of 2021 was that the Fed was trying to get average inflation back to 2%. In his 2021 Jackson Hole speech (see more detailed quotes above) Chair Powell notes multiple times that that current inflation is "well above" their 2% objective (PCE inflation was around 4.5% at the time of his speech), and he closes his speech by stating that the Fed will "hold the target range for the federal funds rate at its current level until... inflation has reached 2 percent and is on track to moderately exceed 2 percent for some time... and time will tell whether we have reached 2 percent inflation on a sustained basis." This language clearly articulates that their decision to hold rates constant at this time was motivated by the idea that while current inflation was above 2\%, average inflation was not high enough to warrant rate hikes.

If one is willing to accept that the abandonment of the Fed's asymmetric AIT regime in Q4 2021 reflects the FOMC's judgment that average inflation became too high (i.e. crossed 2%), we can use this timing as the first piece of evidence on the

elevation became elevated) to current, we code their inflation target language as described above. Because speeches can be somewhat infrequent, we bin speeches by quarter and compute the share of inflation target language in each category. To construct the AIT shares for speeches plotted in Figure 1, and in other figures below, we average these shares over all the FOMC members in our group, and plot them from the start of 2019 to current.

size of the Fed's implicit AIT averaging window. Shedding some light on this question is interesting in understanding more about the Fed's AIT strategy, but putting some bounds on this number is also important in parameterizing theoretical models exploring the consequences of AIT (e.g. Nessén and Vestin (2005)).

To examine this question, we compute average PCE inflation in 1 through 6 year trailing windows and plot these values around the abandonment of AIT in Q4 2021 in Figure 2. Since the decline in AIT language across all mediums is concentrated in Q4, we shade this period to represent the time when the Fed felt comfortable abandoning AIT.

In Figure 2 we see that with the 1-year window, average inflation crosses a 2% threshold in June 2021 – much earlier than the abandonment of AIT – suggesting the Fed is using an averaging window of longer than one year. The 2-year window also crosses before Q4 2021. All of the 3, 4, and 5-year averaging windows cross the 2% threshold within Q4 2021, while the 6-year window crosses in March of 2022, suggesting it is too large. Thus, the timing of the Fed's abandonment of AIT language provides some evidence that the implicit averaging window in AIT is in the range of 3-5 years.

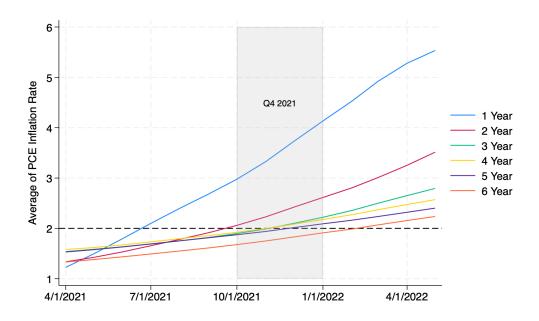


Figure 2: Averaging windows of AIT

It is, of course, important to recognize that this episode represents one observation, and there could have been other factors contributing to the abandonment of AIT (e.g. the acceleration in the rate of inflation). But it is still a worthwhile exercise,

we think, to start to put some bounds on the implicit averaging window in the Fed's AIT framework.

3.2.2 Longer-run language

The "longer-run" framing of the inflation target has existed for longer since this goal was formalized in the Fed's 2012 Statement on Longer-Run Goals and Monetary Policy Strategy. Figure 3 plots the share of inflation target references that contain a "longer-run" framing.

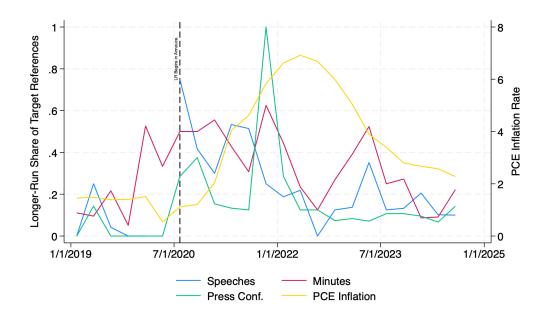


Figure 3: Longer-run Inflation Target Language

There was some use of "longer-run" pre-2020, likely reflecting the fact that this was part of the 2012 framework change. However, share of "longer-run" target references generally rises in 2020 before declining again to lower levels post-2022. Unlike the AIT language plotted above, the longer-run language does not disappear from the Fed's lexicon, with 15-20% of inflation target references containing longer-run language post-2022. Similarly, the longer-run target language appears in FOMC announcements in late-2020 (dashed vertical line in Figure 3) and remains in them today.

For the speeches, there is again some heterogeneity across FOMC members in our sample, with John C. Williams being the most frequent user of "longer-run" target language, but in general, all members do show a shift away from "longer-run" post-2022. These results are plotted in Figure A.2 in Appendix A.1.

What is interesting to highlight about these results is that the use of a "longerrun" framing shows similar patterns to the AIT framing, even though the longerrun objective is not asymmetric. Indeed, it has remained in FOMC announcements
throughout this period. This suggests that the shifting target language is not only
a product of an asymmetric policy objective, and likely reflects an attempt to shape
expectations via target language. This is interesting because it is distinct from normal
forward guidance in which the Fed attempts to shape expectations about the future
of the policy rate. Whether or not shifting target language is effective at shaping
expectations about future inflation is an open question, and something we begin
to explore in our online experiment below. There may also be important concerns
with using variations in target language as a way to shape expectations. Coibion
et al. (2023) show that households are very slow to learn about changes in the Fed's
inflation targeting framework and it is possible that changing target language could
cause confusion over what the Fed's strategy is.

3.2.3 Ambiguous language

With the declines in AIT and longer-run language, what is taking their place? We next examine the frequency of inflation target language that is more ambiguous. As noted above, we code target language with "sustainable/sustainably" and "over time" (without explicit references to averaging) as ambiguous because it could be interpreted in multiple ways. The share of inflation target references with this language is plotted in Figure 4.

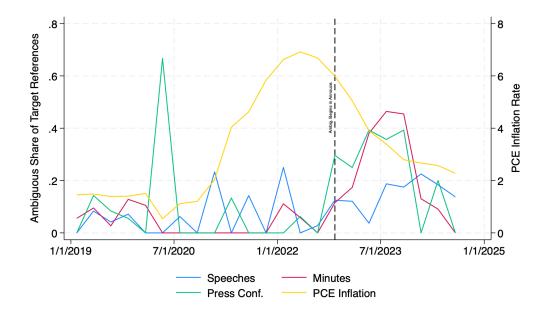


Figure 4: Ambiguous Inflation Target Language

Figure 4 highlights some irregular usage of ambiguous target language before 2023, but all mediums of communication show more regular usage starting in 2023. In addition, FOMC announcements started to include this language in November 2022, indicated by the vertical dashed line.⁶ This evidence that ambiguous language has become more of a consistent part of the Fed's inflation target language starting later in 2022 raises some interesting questions.

It is unclear what is driving this shift in language. One interpretation of "over time" is that it is referring to an AIT goal. For example, in Nov. 2022 FOMC statements start to include: "The Committee anticipates that ongoing increases in the target range will be appropriate in order to attain a stance of monetary policy that is sufficiently restrictive to return inflation to 2 percent over time."

One interpretation is that this language is referencing the FOMC's desire to have inflation be 2 percent over some period of time. In other words, AIT. However, this meaning would be puzzling given the abandonment of AIT in late 2021.

A second interpretation is that this ambiguous language could be referencing the FOMC's longer-run objective. If this is the case, it is somewhat unclear why they deemed it desirable to replace "longer-run" with this alternative language. We explore how the public interprets these different variants of target language in our online experiment below.

 $^{^6{}m Figure~A.3}$ in A.1 shows similar patterns in the speeches of the individual FOMC members in our sample.

The other type of communication that has increased later in the sample is more frequent use of a simple "2 percent" target. This simple "2 percent" share is not quite the complement of the sum of the different shares plotted above because references can be coded as both AIT and longer-run. The share of target references coded as simple 2 percent is plotted in Figure 5 below. We see a sharp decline in simple 2 percent target references in 2020 and 2021, while AIT and longer-run language was more prominent, and we see a shift back to this simple language early in 2022 and it has remained prominent since.

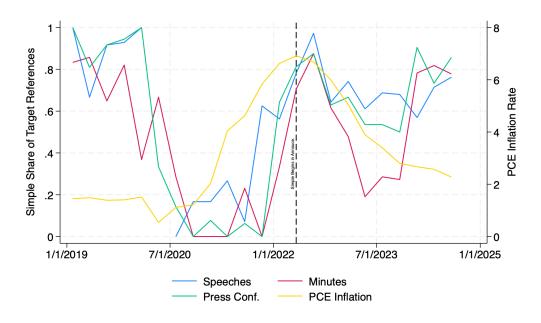


Figure 5: Simple 2 Percent Inflation Target Language

3.2.4 Language Coding Summary

Across Fed speeches, minutes, press conferences, and announcements, we observe similar trends in inflation target language. After the 2020 policy framework update, AIT language dominates how the Fed references their inflation targeting goals. Around this time there is also an increase in the longer-run framing, despite the Fed having adopted this policy after the 2012 review. The AIT language declines precipitously in late 2021 when PCE inflation passed 5%. Again, this could naturally reflect the asymmetric AIT goal, but it also highlights the communication challenges of an asymmetric regime which requires changing the objective language over time. Leveraging this abrupt abandonment of AIT, we attempt to shed some light on the implicit averaging window used in AIT. The data suggests an averaging window of 3-5 years.

Of interest is the fact that the longer-run framing also declines during this period. However, unlike AIT language, the longer-run framing does not go away entirely with around 20% of inflation target language in speeches, minutes, and press-conferences containing longer-run references. Similarly, the boilerplate FOMC announcements keep the longer-run inflation objective framing from 2020 onward. The shifting frequency of longer-run language possible reflects a forward guidance type of strategy where the Fed is altering the policy objective language to help shape inflation expectations. We also document an increased usage in what we argue is more ambiguous language, and beyond that, there is a notable shift towards referencing a simple "2 percent goal."

4 Online Survey

4.1 Overview and design

Some of the language coding presented above reflects the subjective interpretation of Fed language by a pair of economists. Naturally, this may not reflect how the general public interprets Fed language. To better assess this question, we conduct an online survey. The survey contains two main parts, the first is a set of five interpretation questions where we ask subjects to rank different interpretations of a version of Fed language. The second part is a set of three incentivized questions to assess general knowledge of inflation and to assess whether different versions of inflation target language used by the Fed engender different expectations about the future path of inflation.

The survey was conducted online using Prolific in October 2024.⁷ There were a total of 306 participants located in the US. Subjects were paid a base rate of \$2 for completing the survey and were awarded an additional 50 cents for each correct answer to the incentivized inflation questions. On average, subjects took approximately 8 minutes to complete the survey and earned an average of approximately \$3 (an equivalent of \$22.5/hour). The survey included an attention check at the beginning to ensure attentive reading. Subjects who failed the attention check were removed from the survey at that point.⁸

The pool of subjects was relatively representative of the US population in a number of important dimensions. This is important because the Fed prioritizes communication with the broader population. In Table 1 we report various demographic

 $^{^7}$ This experiment was pre-registered in the AEA RCT Registry: AEARCTR-0014490.

⁸A full copy of the survey can be found here: https://middlebury.pdx1.qualtrics.com/jfe/preview/previewId/95b271d3-67be-4995-bcaa-cdcfc74bc9ef/SV_ey6NzCa0uw4k5dc?Q_CHL=preview&Q_SurveyVersionID=current

characteristics and how those compare to 2023 US Census data (where applicable).

Table 1: Demographic Characteristics of Subjects

Characteristic	Experiment Subjects	US Census
Median Age	36	38.9
Gender: Share Female	63%	50.5%
Race: Share White	70.3%	75.3%
Race: Share Black	15.4%	13.7%
Race: Share Asian	8.5%	6.4%
Ethnicity: Share Hispanic	11.4%	19.5%
Education: Share Bachelor's or more	57.8%	34.3%
Household Income: Share > 100 k	52.2%	40.9%
Politics: Share Democrat	42.5%	N/A
Politics: Share Republican	20.3%	N/A
Politics: Share Independent/No pref.	36%	N/A

Broadly speaking, the self-reported demographic characteristics of our subjects well represent the diversity of the US population. The median age in the sample is quite similar to that of the general population. Our sample is skewed somewhat more towards females, but captures the racial and ethnic shares of the general population well. Our subjects report being somewhat more educated and having somewhat higher incomes. Various political affiliations are also well represented in our sample.

4.1.1 Language interpretation questions

Given the numerous variants of Fed language used in reference to their inflation goals, an important question is gauging how the general public interprets this language. Our objective is to assess both if the general public interprets different language as reflecting AIT or longer-run goals, and also the degree to which different language is ambiguous – eliciting divergent interpretations.

To assess this, we created five different versions of inflation target language chosen to reflect the common variants of Fed language. To minimize language variation in the different prompts, we keep the language in the first part of the prompt constant and only vary the adverbial phrase. We elicit interpretations on the following five prompts:

- "My colleagues and I remain resolute in our commitment to bring inflation down to 2 percent over time."
- "My colleagues and I remain resolute in our commitment to bring inflation down to our 2 percent target on a sustained basis."

- "My colleagues and I remain resolute in our commitment to bring inflation down to a level that averages 2 percent over the longer run."
- "My colleagues and I remain resolute in our commitment to bring inflation down to our 2 percent goal."
- "My colleagues and I remain resolute in our commitment to bring inflation down to our 2 percent longer-run objective."

To keep the analysis straightforward, we developed a set of five different interpretations of the language and we ask subjects to rate how closely each matches their subjective interpretation of the prompt. An example of the interpretation ranking in the survey is displayed in Figure 6.10

⁹In a pilot (N=31), we also included a text box where subjects could enter a different interpretation than the set we provided. In only 3.2% of cases (5 of 155 interpretation responses) did a subject use the text box, and there were no similarities between the responses. Thus, we did not find evidence that our set of interpretations was missing commonly held interpretations.

¹⁰We also conducted a follow-up experiment that expanded this set of interpretations to include one about inflation expectations, which we discuss below.

Based on this statement, how do you interpret the Federal Reserve's objective? For each option below, please indicate how closely it aligns with your interpretation. Use a scale from 0 (does not align at all) to 100 (aligns perfectly).

(You need to click on each slider even if your score is 0)



Figure 6: Interpretation Ranking Interface

To control for ordering effects related to the order in which the different interpretations were presented to subjects, we randomized subjects into different versions of the survey that re-ordered the interpretations presented in Figure 6. The set of interpretations also includes one that is obviously incorrect (#5). Attentive subjects are always a concern in online experiments, especially for non-incentivized questions like these interpretation questions, so this "obviously" incorrect interpretation serves

as a way to gauge the frequency of inattentive responses.

4.1.2 Incentivized Questions

The second part of the survey was a set of three incentivized questions. The first two questions were simple inflation-related calculations to assess a subject's understanding of inflation. These two questions were taken from Stantcheva (2024), and where the following:

- Suppose that the price of a product you like is \$100 today. If the annual inflation rate is 10%, what will be the price of the product in 1 year?
- Now instead suppose that the product you like costed \$100 one year ago, and now it costs \$101. What has been the inflation rate over the year?

The third, and most interesting, incentivized question was constructed to assess whether different inflation target language used by the Fed impacts beliefs about the future path of inflation. It is difficult to construct an incentivized question that tests the impact of different language on inflation expectations because there must be a correct answer to the question. The other issue is that the norm in economics experiments is not to deceive subjects. For example, it would be inappropriate to say "The Federal Reserve said X, what do you think happened to inflation in the future" when the Federal Reserve did not actually say X. As a result, we chose two different versions of actual inflation target language used by Fed officials in the past, and we ask subjects whether inflation was faster to decline after one or the other statements. We also wanted to minimize other language variability between the two factual statements, so we searched FOMC speeches to find different framing of the Fed's inflation goals, but limited differences between the rest of the language. The question is displayed in Figure 10.

The following two statements were made at some point in history by prominent Federal Reserve officials. At the time of both of these statements, the inflation rate in the US was between 6 and 7%.

Statement 1: "The Federal Reserve [Open Market Committee (FOMC)] is strongly committed to bringing inflation back down to our 2 percent longer-run goal."

Statement 2: "The [Federal Reserve Open Market] Committee [(FOMC)] is strongly committed to returning inflation to its 2 percent objective."

Which of the follow statements is true:



Figure 7: Incentivized Question #3

Both statements in this question originate from the same speech made by FOMC member John C. Williams on July 8th, 2022 (Williams (2022)). As a result, the correct answer is, of course, that inflation declined at the same pace in the year after Statement 1 and Statement 2. Again, to control for any ordering effects stemming from the order in which the choices are presented to subjects, we randomly sort subjects into versions of the question where the choices are ordered differently.

4.2 Experiment Results

4.2.1 Language Interpretation

We begin by presenting the results of the language interpretation questions. We present the average ranking for each of the five different interpretations displayed in Figure 6. To ease the interpretation of the results we repeat the five candidate interpretations here and introduce some abbreviated versions to facilitate concise referencing.

- 1. "They want to bring inflation down to 2 percent, but that will happen over time."
 - Abbr: "..happen over time."
- 2. "They want to bring inflation down so that it is an average of 2 percent over some period of time."
 - Abbr: "..average of 2 percent."
- 3. "They want to bring inflation down to 2 percent and keep it at 2 percent going forward."
 - Abbr: "down to..and keep it at 2 percent"
- 4. "They want to bring inflation down to 2 percent."
 - Abbr: "..bring inflation down to 2 percent"
- 5. "They want to maintain inflation at its current rate."
 - Abbr: "..maintain inflation at its current rate."

To simplify comparisons between the different prompts, we plot all five together in Figure 8 below, labeled with their respective prompt numbers. The first prompt was "My colleagues and I remain resolute in our commitment to bring inflation down to 2 percent over time." The average rankings along with the 95% confidence intervals of the five interpretations are presented in leftmost bar chart in Figure 8. The top ranked interpretation of this prompt was #1: "..happen over time." This suggests that the public does not interpret the "over time" as referencing an objective to target inflation rate that averages 2 percent over time. Indeed, the average ranking of the AIT interpretation (#2.) is about half of #1 and this difference is highly significant. The second highest ranking is the simple 2 percent interpretation (#4). What is notably is that the average inflation targeting interpretation is ranked last

besides the obvious incorrect interpretation about keeping inflation at its current rate.¹¹ We assume that the "2 percent over time" language from the Fed is in relation to either (or both) notions of AIT or their longer-run objective. However, the results here suggest that the public does not interpret the language in that way.

Encouragingly, interpretation #5 is ranked quite low, and this is consistently the case across all of the other prompts. This suggests that inattentive responses to these interpretation questions are somewhat infrequent.

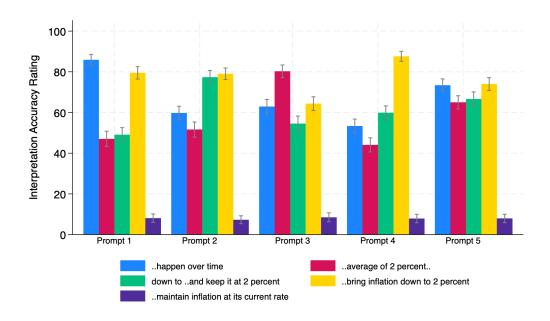


Figure 8: Interpretations of Language from Prompts 1-5

The second prompt was "My colleagues and I remain resolute in our commitment to bring inflation down to our 2 percent target on a sustained basis." The interpretation rankings of this prompt are reported in the second bar chart in Figure 8. Interpretations #4 and #3 are closely ranked. Again, #4 is the simple 2 percent interpretation, where #3 is about keeping inflation at 2 percent going forward. We assume here again that the Fed uses "sustainably" to mean either (or both) an AIT or longer-run objective. The results here highlight that the public does not interpret "sustainably" as an AIT objective (interpretation #2 is ranked 4th out of 5). However, the high ranking of interpretation #3 could be viewed as consistent with

¹¹In a follow-up experiment we expand the set of interpretations to include one about inflation expectations, and we find that subjects to not rank this interpretation high either. These results are reported in Figure 9 below.

a "longer-run" objective.¹² It is also important to note that the rankings for interpretations #3 and #4 are statistically indistinguishable from each other suggesting that subjects view the "sustained" framing to equally represent a simple 2 percent objective.

The third prompt makes explicit reference to the AIT goal: "My colleagues and I remain resolute in our commitment to bring inflation down to a level that averages 2 percent over the longer run." Encouragingly, subjects rank the AIT interpretation (#2) highest by a substantial margin. Thus, when the Fed uses more explicit AIT language, the public interprets it as such.

The fourth prompt is the simple 2 percent goal: "My colleagues and I remain resolute in our commitment to bring inflation down to our 2 percent goal." Perhaps unsurprisingly, interpretation #4 is ranked far ahead of the others. Perhaps more interesting is that this prompt produces the biggest distinction between the first and second ranked interpretations, which is possibly indicative that this simple language is the least ambiguous and yields the most agreement across subjects.

Finally, prompt #5 is: "My colleagues and I remain resolute in our commitment to bring inflation down to our 2 percent longer-run objective." This is commonly used language in relation to the Fed's inflation targeting goals. The top ranked interpretation is the simple 2 percent interpretation (#4), with a mean of 73.97. However, this ranking is nearly the same as interpretation #1, which has a mean of 73.38. More broadly, prompt #5 produces the most even rankings across the four reasonable interpretations. This suggests that the "longer-run" language engenders the most heterogeneity in interpretations. This is an important finding given the prominent use of this framing of the inflation target. If the Fed is aiming for clear communication of their policy goals, "longer-run" seems to mean different things to different people.

To assess the overall clarity of the different variants of inflation target language in our study we explore two metrics. The first is simply the average score of the leading interpretation. A score close to 100 indicates subjects viewed the interpretation as very closely aligned with their subjective interpretation of the target language. We rank the different prompts by this clarity metric in column 2 of Table 2 (with the average score of the leading interpretation in square brackets). As a second metric of clarity we compute the gap between the first and second place interpretation scores. If the gap is large, it indicates that subjects consistently rank one interpretation ahead of the others, and if the gap is small it indicates subjects had trouble distinguishing which interpretation best matched the prompt language. The prompt rankings for

¹²Though, in an expanded set of interpretations, subjects did not rank an inflation expectations interpretation as a leading choice, which is the normal way the Fed thinks about a "longer-run" objective.

this clarity metric are reported in column 3 of Table 2 (along with the gap between rankings in square brackets).

Table 2: Clarity Rankings of Prompts

Ranking	Top Score	1-2 Gap
1.	Prompt #4 (simple 2 percent) [87]	Prompt #4 (simple 2 percent) [28]
2.	Prompt #1 ("over time") [86]	Prompt #3 (explicit AIT) [16]
3.	Prompt #3 (explicit AIT) [80]	Prompt #1 ("over time") [7]
4.	Prompt #2 ("sustainably") [79]	Prompt #2 ("sustainably") [2]
5.	Prompt #5 ("longer-run") [74]	Prompt #5 ("longer-run") [0.6]

Using these two simple clarity metrics, the prompt rankings in Table 2 are very similar. In both cases the simple 2 percent framing (#4) is ranked first. The "over time" language (#1) and the explicit AIT language (#3) are ranked second or third depending on the metric. And, "sustainably" (#2) and "longer-run" (#5) have the lowest clarity scores, being ranked fourth and fifth in both metrics. Our hope is that these findings provide some insights into which variants of inflation target language is easily interpretable by the public.

As a robustness check, we ran an additional experiment that expanded the set of possible interpretations subjects could rank. In particular, we added an interpretation explicitly about targeting inflation expectations: "They want the public to expect that inflation will be 2 percent in the future." This is an important interpretation to assess because it is the main way in which the Fed views their longer-run policy goals. This additional experiment included the same original five interpretations and added this inflation expectations interpretation. Everything else about the experiment was identical.¹³

Overall, the ranking of interpretations for the different prompts are remarkably similar with this expanded set of six interpretations. For prompt #1 and #2, the inflation expectations interpretation is ranked third behind the leading interpretations presented in the first and second bar graphs in Figure 9, and the differences between the first and second place interpretations and the inflation expectations interpretation are significant at the 1% level. For prompt #3, the inflation expectations interpretation is ranked in 4th place, and its ranking is statistically indistinguishable from the other non-leading interpretations. For prompt #4, the inflation expectations interpretation is ranked second, but the difference between this and the leading interpretation is statistically different at the 1% level. Thus, adding the inflation expectations interpretations to the set did not change which interpretations the subjects ranked the highest in prompts 1 through 4.

¹³There were 100 subjects who participated in this experiment.

Perhaps most interesting is prompt 5, which is about the Fed's "longer-run" objective. We plot the interpretation rankings in the rightmost bar graph in Figure 9. Here, the inflation expectations interpretation is ranked in third place and it is statistically indistinguishable from the other interpretations (again, besides the obviously incorrect one). Thus, the evidence suggests that the public does not interpret the Fed's longer-run objective as necessarily having to do with inflation expectations. And, as in Figure 8, the results in Figure 9 highlight the "longer-run" language is interpreted very differently across subjects as no interpretation clearly leads the others.

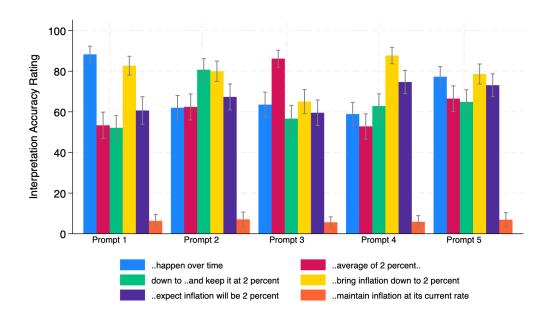


Figure 9: Interpretations of Language with Expanded Set

4.2.2 Incentivized inflation questions

As described above, the first two incentivized inflation questions were used to gauge subjects' knowledge of the basics of inflation. These questions were taken from Stantcheva (2024). These two questions had a 15 second time limit to force subjects to access their knowledge and respond quickly. These time limits were also applied to help reduce the number of subjects using generative AI, which would provide correct responses to the questions. Overall, the subjects did quite well on both questions. 79.5% of subjects gave the correct answer to Question 1, and 79% of subjects gave the correct answer to Question 2, and 66.7% of subjects got both correct. These results reflect that most subjects have a basic understanding of how inflation is calculated.

The third incentivized question explores if different versions of inflation target

language impact expectations about the future path of inflation. Again, Statement 1 in this question made reference to "2 percent longer-run goal" where Statement 2 was a simple "2 percent objective." Subjects were asked after which statement inflation declined faster, or if it declined at the same pace. The total responses for each answer are presented in Figure 10.

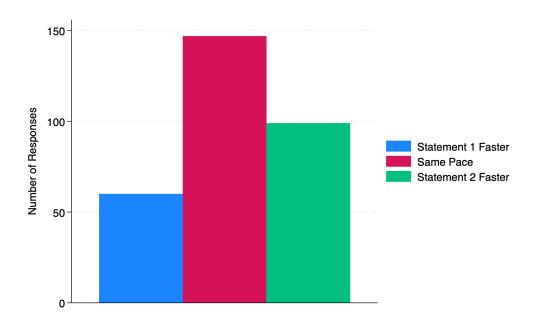


Figure 10: Results from Incentivized Questions 3.

The most frequent response was the correct one, that inflation declined at the same pace following the statements, and 48% of subjects gave this response. This suggests that many subjects think that the different versions of the target language will not impact the future path of inflation. However, this does not necessarily imply that the language does not matter for the average subject. Of course, more than half of the subjects thought that Statement 1 or Statement 2 would be followed by a faster decline in inflation, and these responses are not balanced: 32.4% of subjects thought that inflation would decline faster after Statement 2, relative to 19.6% for Statement 1, and this difference is statistically significant at the 1%-level (t-test). These results imply that subjects perceive that referencing a "longer-run goal" versus a simple "2 percent objective" will be followed by a slower decline of inflation. Framed in a different way, insofar as the Fed's shift in 2022 away from "longer-run" language was motivated by trying to keep inflation expectations anchored at 2 percent, these results support that reasoning.

5 Discussion

The Federal Reserve prioritizes clear communication of its policy objectives with the public. In this paper we study the communication patterns of the Fed's inflation objectives. We document significant changes in how they reference their inflation goals since the 2020 policy framework revision. We find sharp declines in the language referencing their inflation goals as an "average over time" and also as a "longer-run" objective. These declines stem from an increased use of simple "2 percent objective" language, but also some increase in ambiguous language like "over time" and "sustainably." The shift away from AIT language when inflation became elevated could naturally reflect an asymmetric regime. However, documenting these shifts is important as it highlights that an asymmetric regime might require ever-shifting target language, which poses obvious communication challenges. In addition, the timing of these language shifts can shed light on the implicit averaging window used by the Fed in an AIT regime. Overall, these shifts in target language are important to consider as they might generate uncertainty/confusion about what the Fed's objectives are. This might be particularly concerning given that Coibion et al. (2023) show households exhibit slow learning of the Fed's inflation goal. One way to improve upon this communication issue would be to adopt a symmetric version of AIT, which would obviate the need to change the target language over time. Beckworth and Horan (2022) also advocates for a symmetric AIT regime, noting that it would improve credibility and time consistency. Our results highlight that a symmetric regime would also likely alleviate the communication challenges posed by an asymmetric variety.

We complement our analysis of the evolution of target language with an online survey to assess how the public interprets different variants of target language. In general, we find that except for the most explicit language, the public typically does not interpret the Fed's inflation target framing in the way the Fed probably intends. These results may be helpful in understanding which target language is the most/least ambiguous to the public. Notably, we find that a "longer-run" framing engenders the most divergent set of interpretations and suggests continuing with this framing might compromise the Fed's ability to clearly communicate their inflation objectives. Similarly, we also find that different target language engenders different expectations about the future path of inflation. On average, subjects interpret a "longer-run" framing as indicating that inflation will be slower to return to target (when it is above target) relative to a simple 2 percent framing. Thus, one rationale for the Fed's declining use of "longer-run" when inflation became elevated was that they accurately perceived this issue and shifted to simple 2 percent target language to reduce inflation expectations.

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A Appendix: Additional Results

A.1 Additional Language Coding Results

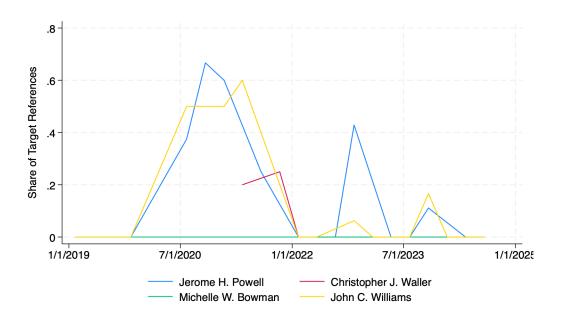


Figure A.1: Speeches: FOMC Members, AIT

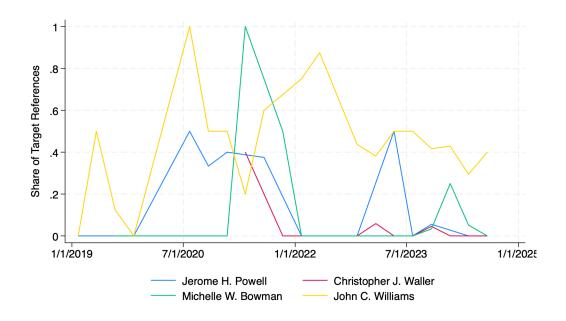


Figure A.2: Speeches: FOMC Members, Longer-Run

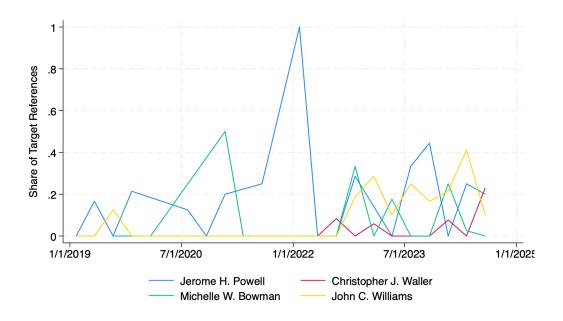


Figure A.3: Speeches: FOMC Members, Ambiguous