Center *for* Inflation Research

FEDERAL RESERVE BANK *of* CLEVELAND

2024 Annual Report

CfIR Center for Inflation Research

FEDERAL RESERVE BANK of CLEVELAND

The mission of the Center for Inflation Research is to improve the understanding of policymakers, researchers, and the public about inflation and the factors that influence its behavior. The Center is an initiative of the Federal Reserve Bank of Cleveland, www.clevelandfed.org.

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Center for Inflation Research Annual Report 2024. Damjan Pfajfar and Robert Rich. Federal Reserve Bank of Cleveland, March 2025.

Executive Summary

In 2024, the Center for Inflation Research had another successful year of meeting its objectives and advancing its reputation as a leading resource on inflation amid continued strong public interest in inflation and monetary policy. The Center maintained its focus on producing quality research, generating insightful analysis on inflation issues, promoting scholarly discourse, updating indicators and data related to inflation, and contributing to a greater awareness and understanding of inflation among researchers, policymakers, and the public. As in previous years, the Center held its annual inflation conference, hosted events that invited the public into conversations about the fundamentals of inflation, elevated the perspectives of inflation experts, and continued to engage its advisory council in meaningful dialog. The Center's inflation data and indicators were widely covered in the media and received increased attention by the broader public, and inflation nowcasting continued to be the indicator with the highest visibility. The Center was also active in discussing inflation developments and promoting the Research Department's work through interviews with media outlets and presentations to varied audiences. In partnership with the communications and marketing staff of the Federal Reserve Bank of Cleveland, Center staff continued to strengthen its communications strategies and make inflation-related research and data releases accessible on social media.

Research. Center staff and Bank economists produced 19 inflation-related articles and papers highlighting research findings in the Bank's *Economic Commentary* and working paper series. These publications covered new-tenant rent passthrough and projections of future rent inflation, wage growth, labor market tightness, inflation in the services sector, learning effects with repeated survey respondents, and inflation and deflationary biases in the distribution of inflation expectations. Survey work remains an integral part of the Center's activities, with the Indirect Consumer Inflation Expectations series garnering significant attention. The Center continued to publish results from the Survey of Firms' Inflation Expectations (SoFIE), which captures top business executives' outlooks for inflation, in quarterly press releases.

Professional collaboration. The Center hosted formal and informal visits by prominent academic scholars and, through several channels, engaged researchers in presenting and discussing their latest work. In partnership with the European Central Bank, the Center organized and cosponsored the ninth installment of the Bank's signature annual Inflation: Drivers and Dynamics conference. Also, Center staff and Bank economists presented at various inflation-related seminars, meetings, and conferences, including the 44th International Symposium on Forecasting and the annual meeting of the Central Bank Research Association.

Programs. Center staff sponsored two events as part of the Bank's *Conversations on Central Banking* series. The topics focused on challenges and opportunities for central bank communication and a review of the Fed's dual mandate in light of the upcoming monetary policy framework review. The Bank's *Fed Talk* series provided opportunities for experts to discuss the latest economic data, inflation dynamics, and overall policy environment with the public.

Education. The Center expanded the content on its Inflation 101 webpages to meet the interests of its target audiences. The newest multimedia addition, a stop-motion video, explains disinflation, and a newly added infographic compares two important cost of living measures—the consumer price index (CPI) and the personal consumption expenditures (PCE) price index—in accessible language.

Awareness. Media attention on the Center's inflation research, data, and indicators was robust in 2024, with more than half of all media citations focused on inflation nowcasting. Total citations also rose, helped in part by the start of quarterly press releases featuring survey results of firm's inflation expectations. Center staff worked closely with the Bank's communications, media relations, and marketing teams to increase the visibility and accessibility of its work, with a particular interest in expanding the use of the Bank's social media channels. Several prominent news outlets cited the Center's products and Bank economists, including Bloomberg, *The Economist*, *Financial Times*, Fox Business, CNBC, *USA Today*, *Barron's*, and *The New York Times*.

Center for Inflation Research 2024: Insights in a Year of Gradually Easing Inflation

The Center's work in 2024 was shaped in part by the continued, albeit uneven, downward trend in inflation during the year. While the year ended with inflation's having decreased by about 5 percentage points from its peak in June 2022—as measured by the 12-month change in the PCE price index—inflation nevertheless remained above the Federal Open Market Committee's (FOMC) 2 percent goal. Also driving the work were questions about the nature of inflation that are at the center of active research.

Following the monetary tightening cycle that began in early 2022, inflation fell rapidly during 2023 without the onset of a recession. During 2024, however, the slowing in inflation was more gradual. Moreover, movements in inflation showed notable variability. Readings in inflation picked up by more than anticipated during the first quarter of 2024, but subsequent readings generally improved. This latter development was a key consideration underlying the FOMC's decision to begin the policy recalibration process in September and to eventually lower the federal funds rate by 100 basis points, ending the year with a target range of 4.25 percent to 4.5 percent.

The uptick in inflation at the beginning of the year and the overall slower pace of cooling prompted questions about the sustainability of the disinflation process. Because of the critical importance of this question, the Center focused considerable attention on determining whether inflation will resume its steady downward trend or prove sticky around current levels. In one approach, Bank researchers analyzed inflation dynamics using a Phillips curve model that distinguishes between two sources of inflation persistence, extrinsic and intrinsic, and found that the intrinsic dynamics of inflation are very persistent. If the extrinsic forces that have lately helped to lower inflation, notably, the resolution of supply chain issues, have run their course, then it may take several years for inflation to return to the FOMC's 2 percent goal.

There are also a variety of indicators available to help inform the debate about the sustainability of the disinflation process. For decades, the Bank has produced median and trimmed-mean CPI measures. These have proven useful in various contexts, such as forecasting and understanding postpandemic inflation dynamics. Revisions to the Bank's methodology have historically involved increasing the level of disaggregation in the CPI components, a strategy which has improved accuracy. Using CPI microdata, Bank researchers investigated the relationship between finer disaggregation of the CPI components and forecast performance of the median and trimmed-mean CPI measures. Their results do not support the view that increasing the level of disaggregation by as much as possible results in the highest performance gains.

The pandemic and its aftermath have been a reminder that differing movements across the underlying components of inflation such as core goods, core services excluding housing, and housing services can have important implications for the path of aggregate inflation. Core goods inflation slowed and returned close to its prepandemic level largely because of the improvement in supply chains. Core services inflation excluding housing remained a little above its prepandemic rate, but the cooling in labor market conditions during the year could result in further easing in those price pressures in the future. While housing services inflation declined from its peak, it remained elevated. Official shelter indices reflect a combination of rents paid by new and existing tenants. To illustrate why CPI rent inflation remained elevated, Bank researchers developed a model that features mobility rates, a new-tenant rent inflation measure, and a time-varying passthrough rate as inputs. Exploring alternative paths for the input series, their baseline forecast suggested that housing services inflation could remain elevated for a while.

In addition to those topics previously described, Bank staff published new research on a variety of other inflation topics. Topics included the effects of interest rate increases on consumers' inflation expectations, the predictability of forecast errors in full-information rational expectations models with regime shifts, the international comovement of inflation, the updating of professional forecasters' uncertainty predictions , the revisions of households' point and density forecasts, and the inflation and deflationary biases in households' medium-run inflation expectations. The inflation-related research presented at Center-sponsored academic forums in 2024 focused on the Phillips curve, the inflation effects of supply disruptions, the current dynamics of inflation, price dispersion, and the formation of inflation expectations.

Looking ahead, the Center will investigate important new inflation-related questions that have surfaced in the past year along with longer-standing questions that remain unanswered. One issue that merits further exploration is the reason or reasons for the slowing in the disinflation process and how this slowing might affect the progress being made toward the FOMC's 2 percent objective. As part of this ongoing assessment, it will be critical to improve our understanding of inflation dynamics, the role of expectations for inflation dynamics, and their interaction with monetary policy. The question of how households and firms forecast inflation remains a topic of interest, with Bank staff examining the roles played by network channels, macroeconomic preferences, attentiveness to inflation and monetary policy, and income growth expectations. A better understanding of how households and firms perceive the relationship between employment and inflation and how their decisions change when they adjust their macroeconomic expectations is paramount for understanding the effects of economic policies. In particular, the relationship between inflation expectations and labor market decisions remains on the radar for Bank staff. These topics and others remain areas for future research and will continue to be featured at Center-sponsored conferences.

Center Leadership

Damjan Pfajfar leads the Center, and the Center reports to Edward S. Knotek II, senior vice president and director of research. Other Center staff members are Robert Rich, Ina Hajdini, and Mathieu Pedemonte (departed the Bank August 2024).

In addition to these specialists in inflation, six experts from academia, central banking, and the private sector serve on the Center's advisory council and provide the Center with guidance and feedback.

The Center hosted its 2024 advisory council meetings on May 7 and November 12. Meeting conversations focused on progress on research projects and capturing the feedback of external experts and their views on the state of inflation. Conversations also featured a review of the Center's accomplishments and a presentation of selected research by Center staff.

Advisory Council Members, 2024

Oscar Arce
Director General Economics, European Central Bank

Olivier Coibion
Professor, University of Texas at Austin

Julia Coronado
President and Founder, MacroPolicy Perspectives
Clinical Associate Professor of Finance, University of Texas at Austin

Sharon Kozicki
Deputy Governor, Bank of Canada

David Lopez-Salido
Senior Associate Director, Division of Monetary Affairs, Board of Governors of the Federal Reserve System

Ricardo Reis
A.W. Phillips Professor of Economics, London School of Economics and Political Science

Research

Outlined below is a selection of the inflation-related *Economic Commentary* articles, working papers, and *Research [in] Brief* installments that were produced in 2024 and long-term research projects maintained during the year.

Economic Commentaries

Do Higher Markups Lower Labor's Share of Income?
Barış Kaymak and Immo Schott

Higher price markups are typically associated with larger profits at the expense of labor's share of income. In this *Economic Commentary*, we challenge this view. The key to our argument is the reallocation of market shares toward labor-intensive firms, a reallocation caused by an increase in the prices of capital goods as a result of higher markups.

Financial Markets' Perceptions of the FOMC's Data-Dependent Monetary Policy
Christopher Healy and Chengcheng Jia

Over the past ten years, the Federal Open Market Committee (FOMC) has repeatedly emphasized that future policy is data dependent. In this *Economic Commentary*, we investigate how financial markets expected future interest rates to change with the release of new data on inflation and labor market conditions. We find that the surprises in economic indicators have a stronger effect on the 2-year Treasury yield than on the expected federal funds rate to be set in the next FOMC meeting. This implies that markets understand that under the data-dependent approach, policy decisions do not heavily rely on the most recent data or short-run fluctuations, but, rather, rely more on the persistent trend of the economy. In addition, we observe that expected future interest rates have become more sensitive to surprises in inflation after 2022, suggesting that the FOMC's determination to reduce inflation has been well-understood by the markets.

[Comparing Two House-Price Booms]
Lara Loewenstein and Jason Meyer

In this *Economic Commentary*, we compare characteristics of the 2000–2006 house-price boom that preceded the Great Recession to the house-price boom that began in 2020 during the COVID-19 pandemic. These two episodes of high house-price growth have important differences, including the behavior of rental rates, the dynamics of housing supply and demand, and the state of the mortgage market. The absence of changes in fundamentals during the 2000s is consistent with the literature emphasizing house-price beliefs during this prior episode. In contrast to during the 2000s boom, changes in fundamentals (including rent and demand growth) played a more dominant role in the 2020s house-price boom.

[The Failure of the Bank of the Commonwealth: An Early Example of Interest Rate Risk]
Edward S. Prescott

This *Economic Commentary* describes the collapse and subsequent bailout of the Detroit-headquartered Bank of the Commonwealth in 1972. Commonwealth failed because it invested heavily in long-duration, fixed-rate municipal securities in the mid-1960s in a bet that interest rates would decline. Instead, with the beginning of the Great Inflation of 1965–1980, rates rose. Liquidity problems then ensued, and the bank approached failure. Unable to find an acquirer because of Michigan's banking restrictions, regulators instead bailed out the bank because of fears of contagion. This article also compares the collapse of Commonwealth with the spring 2023 failures of Silicon Valley Bank and First Republic. In particular, I discuss structural changes in banking that impacted the speed of the runs and the pools of potential acquirers.

[Inflation's Last Half Mile: Higher for Longer?]
Randal J. Verbrugge

Will inflation quickly return to the FOMC's target of 2 percent? I explore this question through the lens of the Verbrugge and Zaman (2023) model—the VZ model—a structural model whose forecasts are competitive with hard-to-beat forecasting models. The time it takes to get to the target depends on the persistence of inflation, and theory gives mixed signals about whether inflation persistence is currently high or low. The VZ model distinguishes between two sources of inflation persistence, extrinsic and intrinsic, and implies that inflation has high intrinsic persistence. If the extrinsic forces that have lately been pushing down inflation, notably, the resolution of supply chain issues, have run their course, then the last half mile could take several years.

[Understanding Post-Pandemic Surprises in Inflation and the Labor Market]
Paolo Gelain and Pierlauro Lopez

Since the COVID-19 pandemic, the United States has experienced sharply rising then falling inflation alongside persistent labor market imbalances. This *Economic Commentary* interprets these macroeconomic dynamics, as represented by the Beveridge and Phillips curves, through the lens of a macroeconomic model. It uses the structure of the model to rationalize the debate about whether the US economy can expect a hard or soft landing. The model is surprised by the resiliency of the labor market as the US economy experienced disinflation. We suggest that the model's limited ability to capture this resiliency is a feature of using a linear model to forecast the historically unprecedented movements seen after the pandemic among inflation, unemployment, and vacancy rates. We explain how, by adjusting the model to mimic congestion in a tight labor market and greater wage and price flexibility in a high-inflation environment, as during the post-pandemic period, the model can then capture what has been a path consistent with a soft landing.

[Wage Growth, Labor Market Tightness, and Inflation: A Service Sector Analysis]
Ina Hajdini

This *Economic Commentary* explores the connections among labor market tightness, wage inflation, and price inflation at the service sector level. Across most service sectors, sector-specific labor market tightness and nominal wage growth have been above prepandemic averages since 2022. The data suggest that a stronger positive relationship between labor market tightness and wage growth has emerged in the aftermath of the pandemic. The relationship between sector-specific wage growth and inflation is more varied. In the education and health services sector, higher wage growth is associated with higher inflation after about one year; in the leisure and hospitality services sector, the positive relationship is contemporaneous. I do not find a significant relationship between wage growth and inflation in the other service sectors, such as transportation or financial and business services.

[New-Tenant Rent Passthrough and the Future of Rent Inflation]
Lara Loewenstein, Jason Meyer, and Randal J. Verbrugge

New-tenant rent inflation rose sharply during the COVID-19 pandemic, subsequently falling. Concomitantly, consumer price index (CPI) tenant rent, which measures rent increases for both new and continuing renters, rose more gradually and, after falling somewhat, has remained elevated. To illustrate why CPI rent inflation has remained elevated, we combine a measure of new-tenant rents and annual renter mobility rates to create a simulated CPI tenant rent inflation measure. We use this simulation to define a “rent gap” that represents the difference between actual CPI tenant rent inflation and rent inflation we would observe if every tenant experienced new-tenant rent inflation. This gap has declined since hitting its peak at the end of 2022 but remains high, implying that existing rents for continuing renters may still be notably below new-tenant rent levels and that rent inflation may remain elevated. However, the future path remains uncertain because it depends on future mobility rates, future passthrough rates, and future new-tenant rent inflation.

Research [in] Brief

[Why Doesn’t CPI Rent Look Like Alternative Rent Indices?]

Among rent indices available, CPI rent tracks the rent of an average tenant, while alternative indices track new-tenant rents. Both are useful.

[Do Our Social Networks Influence Our Expectations of Inflation?]

Economists seek to understand the role of social networks in the formation of inflation expectations.

[Supply Chain Disruptions and Inflation]

Economists have pointed to multiple potential drivers of the recent high-inflation evironment, and supply chain issues stand out among them.

Working Papers

[The Effects of Interest Rate Increases on Consumers' Inflation Expectations: The Roles of Informedness and Compliance](#)
Edward S. Knotek II, James Mitchell, Mathieu Pedemonte, and Taylor Shiroff

We study how monetary policy communications associated with increasing the federal funds rate causally affect consumers' inflation expectations. In a large-scale, multiwave randomized controlled trial (RCT), we find weak evidence on average that communicating policy changes lowers consumers' medium-term inflation expectations. However, information differs systematically across demographic groups, in terms of ex ante informedness about monetary policy and ex post compliance with the information treatment. Monetary policy communications have a much stronger effect on people who had not previously heard news about monetary policy and who take sufficient time to read the treatment, implying scope to increase the impact of communications by targeting specific groups of the general public. Our findings show that, in an inflationary environment, consumers expect that raising interest rates will lower inflation. More generally, our results emphasize the importance of measuring both respondents' information sets and their compliance with treatment when using RCTs in empirical macroeconomics, to better understand the well-documented evidence of heterogeneous treatment effects.

[The Effect of Component Disaggregation on Measures of the Median and Trimmed-Mean CPI](#)
Christian Garciga, Randal J. Verbrugge, and Saeed Zaman

For decades, the Federal Reserve Bank of Cleveland (FRBC) has produced median and trimmed-mean consumer price index (CPI) measures. These have proven useful in various contexts, such as forecasting and understanding post-COVID inflation dynamics. Revisions to the FRBC methodology have historically involved increasing the level of disaggregation in the CPI components, which has improved accuracy. Thus, it may seem logical that further disaggregation would continue to enhance its accuracy. However, we theoretically demonstrate that this may not necessarily be the case. We then explore the empirical impact of further disaggregation along two dimensions: shelter and nonshelter components. We find that significantly increasing the disaggregation in the shelter indexes, when combined with only a slight increase in nonshelter disaggregation, improves the ability of the median and trimmed-mean CPI to track the medium-term trend in CPI inflation and marginally increases predictive power over future movements in CPI inflation. Finally, we examine the practical implications of our preferred degree of disaggregation. Our preferred measure of the median CPI suggests that trend inflation was lower before the pandemic, while both our preferred median and trimmed-mean measures suggest a faster acceleration in trend inflation in 2021. We also find that higher disaggregation marginally weakens the Phillips curve relationship between median CPI inflation and the unemployment gap, though it remains statistically significant.

[Nowcasting Inflation](#)
Edward S. Knotek II and Saeed Zaman

This chapter summarizes the mixed-frequency methods commonly used for nowcasting inflation. It discusses the importance of key high-frequency data in producing timely and accurate inflation nowcasts. In the US, consensus surveys of professional forecasters have historically provided an accurate benchmark for inflation nowcasts because they incorporate professional judgment to capture idiosyncratic factors driving inflation. Using real-time data, we show that a relatively parsimonious mixed-frequency model produces superior point and density nowcasting accuracy for headline inflation and competitive nowcasting accuracy for core inflation compared with surveys of professional forecasters over a long sample spanning 1999–2022 and over a short sample focusing on the period since the start of the pandemic.

[The Causal Effects of Expected Depreciations]

Martha Elena Delgado, Juan Herreño, Marc Hofstetter, and Mathieu Pedemonte

We estimate the causal effects of a shift in the expected future exchange rate of a local currency against the US dollar on a representative sample of firms in an open economy. We survey a nationally representative sample of firms and provide the one-year-ahead nominal exchange rate forecast published by the local central bank to a random subsample of firm managers. The treatment is effective in shifting exchange rate and inflation expectations and perceptions. These effects are persistent and larger for nonexporting firms. Linking survey responses with administrative census data, we find that the treatment affects the dynamics of export and import quantities and prices at the firm level, with differential effects for exports to destination countries that use the US dollar as their currency. We instrument exchange rate expectations with the variation induced by the treatment and estimate a positive elasticity of a future expected depreciation in import expenditures.

[Predictable Forecast Errors in Full-Information Rational Expectations Models with Regime Shifts]

Ina Hajdini and André Kurmann

This paper shows that regime shifts in Full-Information Rational Expectations (FIRE) models generate predictable regime-dependent forecast errors in macro aggregates. Hence, forecast error predictability alone is neither sufficient to reject FIRE nor informative about alternative expectations theories. We instead propose a regime-robust test of FIRE and apply it to a medium-scale New Keynesian model with monetary policy regime shifts that is estimated on US data. While the test fails to decisively reject FIRE, the model conditional on macro data implies expectations that are generally different from observed survey forecasts, thus providing a new empirical motivation for alternative expectations theories.

[Sixty Years of Global Inflation: A Post-GFC Update]

Raphael Auer, Mathieu Pedemonte, Raphael S. Schoenle

Is inflation (still) a global phenomenon? We study the international co-movement of inflation based on a dynamic factor model and in a sample spanning up to 56 countries during the 1960-2023 period. Over the entire period, a first global factor explains approximately 58 percent of the variation in headline inflation across all countries and over 72 percent in OECD economies. The explanatory power of global inflation is equally high in a shorter sample spanning the time since 2000. Core inflation is also remarkably global, with 53 percent of its variation attributable to a first global factor. The explanatory power of a second global factor is lower, except for select emerging economies. Variables such as a broad dollar index, the US federal funds rate, and a measure of commodity prices positively correlate with the first global factor. This global factor is also correlated with US inflation during the 70s, 80s, the GFC, and COVID. However, it lags these variables during the post-COVID period. Country-level integration in global value chains accounts for a significant proportion of the share of both local headline and core inflation dynamics explained by global factors.

[A Unified Framework to Estimate Macroeconomic Stars]

Saeed Zaman

This paper develops a semi-structural model to jointly estimate "stars," long-run levels of output (its growth rate), the unemployment rate, the real interest rate, productivity growth, price inflation, and wage inflation. It features links between survey expectations and stars, time variation in macroeconomic relationships, and stochastic volatility. Survey data help discipline stars' estimates and have been crucial in estimating a high-dimensional model since the pandemic. The model has desirable real-time properties, competitive forecasting performance, and superior fit to the data compared to variants without the empirical features mentioned above. The byproducts are estimates of various objects of great interest to the broader profession.

An Investigation into the Uncertainty Revision Process of Professional Forecasters
Michael P. Clements, Robert W. Rich, and Joseph Tracy

Following Manzan (2021), this paper examines how professional forecasters revise their fixed-event uncertainty (variance) forecasts and tests the Bayesian learning prediction that variance forecasts should decrease as the horizon shortens. We show that Manzan's (2021) use of first moment "efficiency" tests are not applicable to studying revisions of variance forecasts. Instead, we employ monotonicity tests developed by Patton and Timmermann (2012) in the first application of these tests to second moments of survey expectations. We find strong evidence that the variance forecasts are consistent with the Bayesian learning prediction of declining monotonicity.

An Empirical Evaluation of Some Long-Horizon Macroeconomic Forecasts
Kurt G. Lunsford and Kenneth West

We use long-run annual cross-country data for 10 macroeconomic variables to evaluate the long-horizon forecast distributions of six forecasting models. The variables we use range from ones having little serial correlation to ones having persistence consistent with unit roots. Our forecasting models include simple time series models and frequency domain models developed in Müller and Watson (2016). For plausibly stationary variables, an AR(1) model and a frequency domain model that does not require the user to take a stand on the order of integration appear reasonably well calibrated for forecast horizons of 10 and 25 years. For plausibly nonstationary variables, a random walk model appears reasonably well calibrated for forecast horizons of 10 and 25 years. No model appears well calibrated for forecast horizons of 50 years.

Practice Makes Perfect: Learning Effects with Household Point and Density Forecasts of Inflation
James Mitchell, Taylor Shiroff, and Hana Braitsch

This paper shows how both the characteristics and the accuracy of the point and density forecasts from a well-known panel data survey of households' inflationary expectations—the New York Fed's Survey of Consumer Expectations—depend on the tenure of survey respondents. Households' point and density forecasts of inflation become significantly more accurate with repeated practice of completing the survey. These learning gains are best identified when tenure-based combination forecasts are constructed. Tenured households on average produce lower point forecasts of inflation, perceive less forecast uncertainty, round their uncertainty but not their point forecasts, report unimodal densities, and provide internally consistent point and density forecasts.

Inflation and Deflationary Biases in the Distribution of Inflation Expectations: Theory and Empirical Evidence from Nine Countries
Michael Lamla, Damjan Pfajfar, and Lea E. Rendell

We explore the consequences of losing confidence in the price stability objective of central banks by studying the resulting inflation and deflationary biases in medium-run inflation expectations. In a model with heterogeneous household perceptions of an occasionally binding zero-lower-bound constraint and of monetary policy objectives, we show that the estimated model-implied distribution of households' inflation expectations matches several characteristics of the empirical distribution when featuring both inflation and deflationary biases. We then directly identify these biases using unique individual-level survey data on medium-run inflation expectations across nine countries and over time. Both inflation and deflationary biases are important features of the distribution of medium-run inflation expectations.

Our Survey Instruments and Related Research

Survey work remains an area of particular interest for Center researchers. Part of this focus has involved the development of survey instruments to elicit and monitor the inflation expectations of individuals. These surveys have also been especially useful to study the inflation expectations formation process and the effect of expected inflation on key variables in the economy. Other work has drawn upon existing surveys, and the Center maintains a survey of US firms' inflation expectations. Given the ongoing interest among researchers and policymakers, the Center will continue to expand the scope and depth of its analysis of inflation expectations.

Consumers' Inflation Expectations. The Center continued its work with the survey company Morning Consult to record the Indirect Consumer Inflation Expectations (ICIE) measures in the US on a weekly basis and in 14 international countries on a monthly basis. Updates are made publicly available on the Central Bank Research Association (CEBRA) website. Center researchers have used this novel measure of inflation expectations to estimate the passthrough of inflation expectations into income-growth expectations and to isolate the role of social networks in the formation of inflation expectations.

Firms' Inflation Expectations. The Center reports the results of the Survey of Firms' Inflation Expectations (SoFIE) that are posted on a dedicated webpage. This dataset includes questions on short- and medium-term inflation expectations, the perceived inflation objective of the FOMC, perceived inflation, and the probability that CPI inflation over the next 12 months will exceed 5 percent. It is also worth noting that the dataset is one of only a limited number of surveys that elicit US firms' inflation expectations.

Firms' Price-Setting Behaviors. Researchers from the Center, together with researchers at the Federal Reserve Banks of Atlanta and New York, created a survey questionnaire that was used to interview company representatives about their price-setting behavior. This project is being undertaken as part of a long-term effort to better understand and document firms' pricing practices.

Consumers and COVID-19. The Center stopped updating the Consumers and COVID-19 data on its website, but survey efforts to capture consumers' attitudes and expectations for many inflation-specific questions continue. The survey was previously used by Center staff and academic economists to better understand the role of monetary policy communication for inflation expectations.

Looking ahead, these survey instruments will allow Center researchers to understand why firms in some industries are more attentive to inflation dynamics than others, to measure and study the drivers of consumers' attention to monetary policy announcements, and to measure the degree of anchoring in firms' inflation expectations.

Professional Collaboration

The Center sponsored the following events and invited the following scholars to visit and present their latest work and meet with Cleveland Reserve Bank research staff.

Events

Inflation: Drivers and Dynamics Conference 2024.
October 24–25, the Center hosted its ninth installment of the Bank's signature inflation conference, the sixth since becoming an annual event. It brought together top researchers from academia, central banks, and other policy institutions to present research findings related to inflation. Beth Hammack, president and chief executive officer of the Cleveland Reserve Bank, and Philip R. Lane, member of the ECB's executive board, provided remarks.
The program and videos of the sessions are posted to the Center's conference webpage.

Central Bank Research Association 2024.
Center staff made presentations on inflation during the 2024 meeting of the Central Bank Research Association (CEBRA), held in Frankfurt, Germany on August 28–30. Videos for papers presented were posted to the conference webpage.

Fifth Biennial Conference "Macroeconomic Adjustments After Large Global Shocks."
The Center coorganized the conference with Lietuvos Bankas, Narodowy Bank Polski (NBP), and the Central Bank Research Association's (CEBRA) International Trade and Macroeconomics Research Program. The conference was held in Vilnius, Lithuania, on September 19–20.

44th International Symposium on Forecasting.
The Center sponsored the "Inflation: Drivers and Dynamics" sessions at the International Symposium on Forecasting held in Dijon, France, on June 30–July 3.

Presentations

Center staff and Bank research economists made presentations at conferences and invited seminars.

Ina Hajdini

- "Indirect Consumer Inflation Expectations: Theory and Evidence," presented at ASSA Annual Meeting.
- "The Expectations of Others," presented at Kent State University; Canadian Economics Association Conference; Society for Economic Dynamics Conference; Inflation, Inflation Expectations, and Policy: New Perspectives Conference.
- "Consistent Expectations Equilibria with Imperfect Common Knowledge: Implications for the Forward Guidance," presented at Midwest Macroeconomics Meeting.

Edward S. Knotek II

- "The Effect of Interest Rate Increases on Consumers' Inflation Expectations: The Roles of Informedness and Compliance," presented at 2024 CEBRA Annual Meeting.

Lara Loewenstein

- "Sticky Continuing-Tenant Rents," presented at the 2024 Inflation: Drivers and Dynamics conference; Berkeley Fisher Center Seminar Series; Fannie Mae Seminar Series.

Pierlauro Lopez

- "A New Keynesian Model of the Term Structures of Equity and Bond Returns," presented at Northeast Ohio Economics Workshop 2024.
- "A Neoclassical Model of the World Financial Cycle," NBER Summer Institute 2024 – Macroeconomics within and across Borders.

James Mitchell

- "The Effect of Interest Rate Increases on Consumers' Inflation Expectations: The Roles of Informedness and Compliance," presented at Second Paris Conference on the Macroeconomics of Expectations, HEC Paris.
- "The Effect of Interest Rate Increases on Consumers' Inflation Expectations: The Roles of Informedness and Compliance," presented at ISF, Dijon, France.
- "The (Varying) Distributional Predictive Content of Inflation Expectations Measures," presented at NBER Summer Institute, Boston.

Damjan Pfajfar

- "Households' Preferences over Inflation and Monetary Policy Tradeoffs," presented at Bank of Canada/ECB/Federal Reserve Bank of New York Conference: Expectations Surveys, Central Banks and the Economy; Theory and Experiments in Monetary Economics; 14th ifo Conference on Macroeconomics and Survey Data.

Willem Van Zandweghe

- "Labor Supply Shocks, Labor Force Entry, and Monetary Policy," presented at Midwest Macro Meeting.

Randal J. Verbrugge

- "Late Fees and Nonpayment in Rental Markets, and Implications for Inflation Measurement," presented at Society for Economic Measurement Conference.

Saeed Zaman

- "Forecasting Core Inflation and its Goods, Housing, and Supercore Components," presented at International Association of Applied Econometrics and ISF (special session organized by the Center), Dijon, France.
- "Nowcasting US Inflation: The Usefulness of Regional Fed Bank Surveys," presented at Day-Ahead System Regional Meeting, Atlanta Reserve Bank, MacroFor (IIF) Virtual Seminar and Joint Statistical Meetings.

Visitors

Mark Bils
Hazel Fyfe Professor of Economics
University of Rochester

Francesco D'Acunto
A. James Clark Chair in Global Real Estate and Provost Distinguished Associate Professor of Finance
Georgetown University

Alp Simsek
Professor of Finance
Yale School of Management

Mirko Wiederholt
Professor of Economics
Ludwig-Maximilians-Universität München

Olivier Coibion
Malcolm Forsman Centennial Professor of Economics
University of Texas at Austin

Sydney Ludvigson
Silver Professor of Economics
New York University

Michael Weber
Associate Professor
University of Chicago Booth School of Business

Education

The Center implemented further enhancements to its "Inflation 101" section to ensure the content is broadly accessible to the widest possible audience.

Inflation videos. Center staff worked with a cross-functional team to develop a new brief stop-motion video explaining the term "Disinflation."

Infographics. The Center worked with a cross-functional team to develop an infographic on measuring the cost of living and the differences between the CPI and the PCE price index.

Programs

Cleveland Fed Conversations on Central Banking. The Center continued to sponsor the Bank's *Conversations on Central Banking* series, which provides a forum to convene experts on topics important to central bankers. The first event was moderated by Nick Timiraos of the Wall Street Journal and the second event was moderated by Michael Derby, of Reuters. Both included distinguished panelists who provided short presentations. Each event concluded with general discussion and a Q&A session. The Center hosted sessions on May 13 (Challenges and Opportunities for Central Bank Communications) and November 14 (The Fed's Dual Mandate: Recent Progress and Challenges).

Fed Talk. The Bank's *Fed Talk* series creates opportunities for Bank experts to interact with industry experts, local businesses, community organizations, policymakers, and engaged citizens to discuss various issues. On January 18, Edward S. Knotek II delivered a presentation on the economic outlook for 2024 focused on the current monetary policy landscape, the latest inflation data, the labor market, and the prospects for labor force growth in 2024.

Media Citations

Inflation-focused research, indicators, and data were widely cited in 2024, as were Bank economists. A list of the most significant citations follows.

Bloomberg

- US Consumer Inflation Outlook Fell Slightly, Fed Survey Shows.
  Describes results of fourth quarter SoFIE survey.

- Rent Inflation Won't Ebb until 2026, Cleveland Fed Model Shows.
  Summarizes *Economic Commentary* about the inflation gap between new and existing tenants; led to several additional stories on the topic.

Charles Schwab podcast

- Our First Podcast Anniversary: Lessons from the Past Year.
  At 22:50 mark, host describes her experience attending the inflation conference.

CNN

- Everyone Is Worried about Inflation. Here's Why It's Tracked Two Different Ways.
  Story links to *Economic Commentary* describing differences between PCE and CPI.

Crain's Cleveland Business

- New Cleveland Inflation Center Leader Wants to Better Inform the Public and Policy.
  Describes the Center, why it's based in Cleveland, and recent inflation trends..
- New Faces in New Places – Damjan Pfajfar.
  New Center leader included on list of new names to know in Cleveland.

Financial Times

- 'Tis the season to be happy (about US inflation).
  Notes that median and trimmed-mean inflation measures remain elevated but have come down in recent months.

Forex Factory

- Calendar listing.
- Listed SoFIE on its economic calendar in Q3 and Q4; contact noted that many members receive alerts about it.

Fortune

- Jamie Dimon Is Done Psychoanalyzing the Fed.
  Cites working paper to support Jamie Dimon's theory that consumers aren't closely watching monetary policy.

Fox Business

- Inflation Will Take Years to Fall to 2% Target, According to Cleveland Fed Model.
  Describes "Inflation's Last Half Mile" *Economic Commentary*.

Journalist's Resource

- Why People Think the Economy Is Doing Worse Than It Is: A Research Roundup.
  Relies on Center indicators to describe path of inflation in recent years.

Macro Musings podcast

- [Loretta Mester on How to Improve the Fed's Operating Framework].
  Host notes that the Cleveland Reserve Bank is known for its inflation indicators; former Bank president Loretta J. Mester describes key products produced by the Center.

MarketWatch

- [Inflation Is Going to Keep Slowing, Business Leaders Predict; Big Price Increases Are No Longer Expected].
  Describes results of first quarter SoFIE survey.

Citation Information

- The Center was cited by media outlets 461 times in 2024, a figure which includes 252 citations referencing inflation nowcasting, by far the most popular web page on clevelandfed.org. The Center also began issuing quarterly press releases announcing results from the SoFIE, leading to an increase in citations of the survey results. The Center's products also were cited by several prominent outlets not listed above, including *New York Times*, CNBC, *Forbes*, *Economist*, *USA Today*, Axios, and *Barron's*.

Other Activities and Coverage

Annual Report. The Center produced an annual report for 2023 that summarized its activities for the year. Annual reports as far back as 2019 are also posted.

Center Newsletter. Published quarterly, the newsletter highlights recent research and provides information about upcoming events, links to inflation-related indicators, and descriptions of new products such as educational infographics and videos.

Communications. Center staff produced communications for the public through data releases, social media posts and promotion campaigns, an annual report, and the Center's quarterly newsletter.

Data Releases. Center staff released data updates for five inflation indicators throughout the year: the median CPI, median PCE inflation, inflation expectations, inflation nowcasting, and SoFIE.

Marketing Plan. Center staff worked with the Cleveland Reserve Bank's communications and marketing teams to enhance the visibility of the Center and its research and data products.

Social Media Promotion Campaigns. Center staff engaged with the communications and marketing teams and continued social media posts including those discussing monthly inflation releases and relevant research coinciding with monthly updates of inflation-related content on the Center's webpages that included CPI and PCE inflation data releases.

Website Metrics. Website traffic for inflation-related products continued to be high in 2024 as inflationary pressures remained persistently elevated. The inflation nowcasting page was extremely popular, views of which comprised more than one-third of all views of clevelandfed.org pages. Other pages that received considerable attention included those on inflation expectations, median CPI and median PCE, inflation basics, and Federal Reserve explainers.

Future Plans

Looking ahead to 2025, the Center plans to continue to build on its recent successes by contributing to policy conversations about inflation, conducting research on inflation and its determinants, organizing conferences, developing new data products, seeking out new opportunities on social media to promote our work, and providing new resources on the website to inform the public about inflation.