Heterogeneity in Macroeconomic Expectations: Theory, Evidence, and Implications



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A thesis presented for the degree of

Doctor of Philosophy in Economics

January 20, 2026

Abstract

This thesis examines the origins of heterogeneity in macroeconomic expectations, particularly inflation expectations, and its impact on economic behavior and the transmission of monetary policy. Drawing on theory and rich microdata from household, firm and expert surveys across multiple countries, I provide an integrated perspective on expectation formation mechanisms and their implications.

I begin by exploring one specific dimension of heterogeneity: the gender gap in inflation expectations. The first chapter argues that differences in forecast confidence, rather than exposure to specific prices, account for why women, on average, report higher inflation expectations than men. I then proceed to investigate the consequences of this gap, demonstrating first how gendered beliefs shape wage bargaining behavior (Chapter 2) and secondly how they influence trust in and responsiveness to central bank communication (Chapter 3).

Broadening the scope, the final chapter compares inflation expectations between different types of economic agents: households, firms, social partners, and economists. I find systematic differences in levels, dispersion, and sensitivity to shocks which highlight the limitations of representative-agent assumptions and underscore the need for more inclusive, behaviorally informed approaches to monetary policy design.

Taken together, the chapters highlight the importance of expectation heterogeneity not only for understanding inflation dynamics but also for addressing distributional concerns and improving central bank communication.

Acknowledgements

I would like to begin by expressing my sincere gratitude to all those who have supported me throughout this journey. Completing this work would not have been possible without the guidance, encouragement, and generosity of many individuals and institutions.

First, I would like to thank my supervisor, Professor Michael McMahon, for his support and encouragement throughout my MPhil and DPhil in Oxford. His mix of wise guidance and good humor have often been the push I've needed along the way.

I am also sincerely thankful to Professor Alexandre Kohlhas. His clarity and sharp insights have significantly strengthened the quality and rigor of my work. I promise to stay ambitious and productive every week, remembering the DPhil years and making sure life in Norway isn't too easy.

Working with Michael and Alex has shaped how I think and work, and I will carry all I learned with me as I move forward in my academic career. I would also like to thank Professor Joseph Swierzbinski who inspired this journey many years ago and though he is no longer with us, his faith in me, even then, left a lasting mark.

It has been a pleasure to work alongside faculty at the Department of Economics in Oxford and I thank them for their constructive comments and suggestions throughout my time here. In particular, I would like to thank Professor Ryan Rholes, who has advised me throughout his time in Oxford. I am also grateful for my experiences at Norges Bank and De Nederlandsche Bank who have both been so welcoming and

offered me alternative perspectives on my research.

I feel fortunate to have worked with all of my coauthors who challenged me intellectually and helped me and my research to grow. Working together on our projects has not only strengthened this thesis but has also taught me the value of shared ideas and constructive debate. I look forward to future joint work and to continuing to learn from their expertise. I would like to extend special thanks to Eleonora who has not only improved our joint work through her insights and attention to detail but also offered valuable advise when making decisions about my life beyond research.

I am also especially grateful to Nicolò, who has been part of this journey in more ways than one. What began as a coauthorship grew into a friendship, and eventually into partnership beyond research (a productive internship indeed!). His intellectual and emotional support, ability to balance my stress with calmness and humor, and positive encouragement have made this experience not only more meaningful but also far more enjoyable. I am truly fortunate to have shared two chapters of my DPhil with him and I am looking forward to more chapters in life together.

Special thanks also go to my colleagues and friends at the Department of Economics and University College Oxford for all the stimulating discussions on Economics and beyond, countless dinners - in gown and without, as well as lunches and coffee-breaks which together made Oxford my home away from home. I particularly want to thank my friends at the boat club, Viki and Julia, for making me wake up early in the mornings and helping me start the day motivated. Further, I thank my friends at home, Julie and Solveig, who have always been there for me to share moments of joy and pain, and always felt close to me despite the geographical distance.

Finally, I am deeply indebted to my parents for their unwavering love, patience, and understanding. Without their support, this thesis would not have been possible.

Declaration

Supervision This thesis was supervised by Professor Michael McMahon.

Word Count approx. 38758

Statement of authorship I certify that this thesis is my own work except where otherwise clearly stated.

Chapter 1 is solely my own work. An earlier version was submitted as part of the degree of MPhil in Economics at the University of Oxford but has since been heavily revised.

Chapter 2 is joint work with Dr Nicolò Maffei Faccioli. I have been responsible for the work with the microdata (data cleaning and aggregation of gender wage gaps and expectations) and the theoretical model. The idea and the overall write-up of the paper including literature review are joint work.

Chapter 3 is joint work with Professor Michael McMahon. I have been responsible for data cleaning and data analysis. The overall write-up of the paper including literature review is joint work.

Chapter 4 is joint work with Dr Eleonora Granziera, Dr Nicolò Maffei Faccioli, Professor Michael Weber and Ms Tuva Marie Fastbø. This paper is the product of an internship at Norges Bank. I was responsible for the data analysis and involved in the research idea and overall write-up including the literature review.

Funding I wish to acknowledge funding by the Grand Union DTP and the National Institute of Social and Economic Research through a collaborative studentship.

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Introduction

Understanding how different economic agents form and act on inflation expectations is central to effective monetary policy, as it determines households and firms' consumption and savings decision as well as the wage-setting process. Recent inflationary episodes have underscored the importance of these expectations and highlighted the role that heterogeneity in expectations can play in the distributional consequences of inflation.

Drawing on theory and microdata from household, firm and expert surveys, my thesis offers an integrated view of inflation expectation formation and its consequences. I start by focusing on one specific heterogeneity, namely the gender gap in inflation expectations, in Chapter 1. Chapter 2 and 3 will then look at the consequences of gender differences in macroeconomic expectations, firstly by analyzing the effect of different beliefs on wage bargaining of men and women and secondly, by showing how this matters for central bank communication and gendered attitudes towards the central bank. Finally, Chapter 4 gives a broader picture on how household expectations compare to those of firms, economists, and labor unions.

A special case of heterogeneity:

Beyond groceries: Forecast confidence and the gender gap in inflation expectations

Focusing on German households, in the first chapter, I revisit the well-documented gender gap in inflation expectations, i.e. women reporting higher inflation point forecasts than men. I challenge the traditional attribution of this gap to greater exposure to volatile food prices and gender norms around shopping responsibilities. Instead, I show that differences in forecast confidence fully account for the gap. A

Bayesian learning framework illustrates how individuals with low confidence rely on noisy price signals, leading to higher reported inflation expectations. This finding matters beyond gender, as it highlights that local price signals (such as food or gasoline) matter especially to consumers whose confidence is low or in times when confidence is low.

Consequences of heterogeneity on wage inequality:

Divergent Perceptions, Divergent Pay: Inflation and the Gender Wage Gap

The second chapter, coauthored with Nicolò Maffei-Faccioli, investigates how inflation affects fluctuations in the gender wage gap in the United States. Using microdata, time-series analysis and a structural New Keynesian model with search and match frictions, we find that the gender wage gap widens following both supply- and demand-driven inflationary shocks. The widening stems from gender differences in how inflation is interpreted: women tend to view inflation as a sign of deteriorating labor market conditions. This is restraining their nominal wage growth relative to men. The model replicates the observed cyclicality of the gender wage gap and highlights the importance of belief heterogeneity in wage dynamics.

Consequences of heterogeneity on monetary policy:

Does the Bank of England need gendered communication?

The third chapter, coauthored with Michael McMahon, turns to the United Kingdom to examine gender differences not only in expectations but also in uncertainty, inflation aversion, and policy trust using the Inflation Attitudes Survey. Although headline expectations are similar between men and women in this survey, women display greater uncertainty and stronger inflation aversion, and are more likely to respond to inflation by increasing savings rather than seeking higher wages. The chapter explores how financial literacy gaps and differing levels of trust in the Bank of England contribute to these patterns and discusses the implications for inclusive monetary policy communication.

A broader picture of heterogeneity:

Five facts about inflation expectations: Evidence from four different groups of agents

In the final chapter, written jointly with Eleonora Granziera, Nicolò Maffei-Faccioli, Michael Weber and Tuva Marie Fastbø, we establish five stylized facts about how households, firms, social partners, and economists form inflation expectations. Using harmonized survey data from Norway that span a period before and after the recent surge in inflation, we document systematic differences in the level and dispersion of expectations, their term structure, and their pass-through to wage growth expectations. Finally, the chapter highlights the sensitivity of expectations to electricity price shocks and demonstrates the important role of firm-level price forecasts in shaping disagreement among firms.

Chapter 1

Beyond Groceries: Forecast Confidence and the Gender Gap in Inflation Expectations

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This paper develops a theoretical framework to understand heterogeneity in inflation expectations. I integrate two mechanisms previously studied in isolation, exposure to salient prices and forecast confidence, within a Bayesian learning model. Empirically, I examine these mechanisms through the well-documented gender gap in inflation expectations. German and US household data confirm that forecast confidence is the dominant driver, while exposure to grocery prices matters only for low-confidence respondents. Forecast confidence is improved by financial literacy. Beyond gender, I provide a lens to study demographic heterogeneity, and show that salient prices exert greater influence during periods of elevated macroeconomic uncertainty.

I thank Michael McMahon, Alexandre Kohlhas, Ryan Rholes and Martin Weidner for supervision and advice, and Michael Weber, Tabea Bucher-Koenen, Annamaria Lusardi, Carly Urban, Roxana Mihet, Terrance Odean, Elisabeth Kempf, Josefina Cenzon, Dmitry Vinogradov, Maya Haran, Lea Weigand, Anders Anderson and Nicolò Maffei Faccioli for their excellent comments and discussions. This work has also benefited from the feedback of conference and seminar participants at the University of Copenhagen, the Royal Economic Society, Bocconi University, the University of Bamberg, the National Bank of Belgium, Norges Bank, the CEPR, Stanford University, University of Bergamo, the Mannheim Institute for Financial Education, the ifo Institute, Bundesbank, the European Central Bank, SAFE. I thank the European Central Bank for inviting me to present this work at the ECB Forum in Sintra.

1.1 Introduction

The gender gap in inflation expectations is a well-documented phenomenon. Using Swedish survey data from 1977, Jonung (1981) first showed that women report significantly higher expected inflation. Subsequent research has confirmed the robustness of this finding across countries, survey methods, and experimental settings.[1] On average, the gender gap amounts to 2.6 percentage points in the US and 1.2 percentage points in Germany.[2] The prevailing explanation is that traditional gender roles expose women more to volatile grocery prices, leading them to overweight salient price increases (D'Acunto, Malmendier & Weber 2021). In this paper, I propose a complementary mechanism: forecast confidence. Consumers with low confidence hold flatter priors, making them more responsive to noisy signals. In this sense, traditional exposure matters only insofar as it interacts with confidence. Equalizing confidence could close the gender gap in expectations. Beyond gender, my mechanism offers a uniform lens through which heterogeneities in expectations can be understood and suggests that in times of low consumer confidence salient price signals play a larger role.

I formalize this intuition in a Bayesian framework with log-normally distributed signals and a conjugate log-normal prior. Exposure to higher grocery price volatility enters as higher signal variance, while flat priors correspond to low confidence. Volatile signals raise average expectations only when priors are flat, so low confidence amplifies the effect of noisy prices. Empirically, I use the Bundesbank Online Panel–Households (BOP-HH, 2019–2025), proxying forecast confidence via predicted rounding scores, motivated by linguistic evidence linking "round numbers" to "round interpretations" (Krifka 2007, Binder 2017*b*, Reiche & Meyler 2022). Results show that equalizing confidence across genders closes the gap, while grocery shopping

[1] See, e.g., Brischetto & de Brouwer (1999) for Australia; Bryan & Venkatu (2001) for Ohio; Palmqvist & Strömberg (2004) for Sweden; Pfajfar & Santoro (2010) for the US Michigan Survey; Blanchflower & MacCoille (2009) for the UK; Leung (2009) for New Zealand; Del Giovane et al. (2008) and Corduas (2022) for Italy; Bruine De Bruin et al. (2010) and Armantier et al. (2016) for the RAND American Life Panel; Arioli et al. (2017), D'Acunto et al. (2024) for EU countries; D'Acunto, Malmendier & Weber (2021) for the Chicago Booth Expectations and Attitudes Survey; Dräger & Nghiem (2020) for Germany; and Abildgren & Kuchler (2021) for Denmark.

[2] Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020–June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013–October 2024. Figure 1.1 illustrates the persistence of these gaps over time.

increases expectations primarily for low-confidence respondents. Findings are confirmed in the New York Fed Survey of Consumer Expectations (2013–2024) and the Michigan Survey of Consumers (1978–2025). Removing the top 20% of outliers eliminates the gender gap, consistent with the framework's mechanism via the right-skew. Additional evidence shows that the gap persists among single households and does not widen during high food price inflation - both pointing towards a theory that does not rely solely on food price exposure.

Understanding the gender gap matters for both micro and macro outcomes. At the individual level, higher inflation expectations are linked to lower life satisfaction (Di Tella et al. 2001) and weaker retirement savings and stock market participation, with gender gaps well documented (Lusardi & Mitchell 2008, Cota et al. 2025, Almenberg & Dreber 2015, van Rooij et al. 2011). Higher expectations are also associated with greater perceived uncertainty (Reiche & Meyler 2022), which can depress spending (Coibion et al. 2024, Coibion, Georgarakos, Gorodnichenko & van Rooij 2023). At the macro level, women account for roughly 70% of consumer spending in advanced economies (Silverstein & Sayre 2009), making systematic differences salient for monetary policy. An emerging literature examines how central bank communication shapes household expectations (Coibion et al. 2022*b*, Coibion, Georgarakos, Gorodnichenko & Weber 2023, Coibion et al. 2020, Lamla & Vinogradov 2019, Coibion, Gorodnichenko, Knotek & Schoenle 2023, Binder 2017*a*). Yet, women pay less attention to such communication and hold more negative views of central banks (McMahon & Reiche 2024, Garriga 2026).

This paper contributes to two literatures: heterogeneity in inflation expectations due to signal exposure (Jonung 1981, Malmendier & Nagel 2016, Cavallo et al. 2017, D'Acunto, Malmendier, Ospina & Weber 2021, Weber et al. 2022, D'Acunto & Weber 2024*b*, D'Acunto et al. 2024, Anesti et al. 2025), and the role of education, financial literacy and uncertainty in shaping forecasts (Bruine De Bruin et al. 2010, Burke & Manz 2014, D'Acunto et al. 2019, D'Acunto et al. 2023, Piccolo et al. 2025). I show empirically and theoretically that these strands are connected: the effect of exposure is conditional on confidence. More broadly, confidence gaps also arise across the age, income and education distribution (Bruine De Bruin et al.

2010, D'Acunto et al. 2023). I show that differences in forecast confidence explain a substantial fraction of expectation gaps also by other demographics. This suggests that the gender gap, while especially visible, is part of a broader pattern: forecast confidence acts as the common channel shaping heterogeneity in household expectations across demographic groups. In addition, my framework allows interpretation of other striking features in expectations surveys, such as the effect of incentivization on the demographic differences (Drobot et al. 2025) or how women's beliefs typically are moved more in RCTs than men (Coibion et al. 2022*b*, Armantier et al. 2016, Coibion, Georgarakos, Gorodnichenko & Weber 2023). Further, my results reconcile the prominent finding that gas prices influence inflation expectations (Coibion & Gorodnichenko 2015, Binder 2018) with the gender gap in expectations. While the exposure hypothesis predicts stronger responses among women due to greater exposure to grocery prices, gas prices pose a puzzle since men are more often the refiller. I show that differences in forecast confidence resolve this puzzle: even when exposed to equally volatile prices such as gasoline, men revise their expectations by less. Finally, I show that food prices, seen as the most important factor in forming expectations (Anesti et al. 2025), matter the most when macroeconomic uncertainty is high, in line with my framework. This adds to the literature on the formation of inflation expectations and monetary policy in different environments (Weber et al. 2025, Pfäuti 2024, Granziera et al. 2025). While there are additional reasons that may lead to higher inflation expectations (such as the ignorance of quality adjustments Agarwal et al. (2022)), exposure and forecasting behavior appear as two dominating drivers that plausibly differ by gender.

The remainder of the paper proceeds as follows. Section 1.2 introduces the Bayesian framework. Section 1.3 describes the data and measurement. Section 1.4 presents the main empirical results, highlighting confidence as the dominant driver and experience as secondary. Section 1.5 shows that financial literacy explains part of the confidence gap. Section 1.6 reports additional evidence in favor of the forecast confidence channel and Section 1.7 shows implications of the mechanism beyond gender. Section 1.8 concludes.

1.2 Bayesian Framework

I start with a Bayesian framework to illustrate the two hypothesized channels causing the gender gap in inflation expectations: exposure and confidence. I model differences in exposure, such as grocery shopping activity, as differences in the distribution of the signals received. An agent who visits grocery stores frequently observes more volatile prices as food prices are fundamentally more volatile than the core component of the consumption basket (see Appendix Figure A.1); hence, the agent will receive more volatile signals. On the other hand, I capture differences in confidence as differences in prior precision about future inflation. The framework highlights how these two channels work in isolation and that they interact. An agent with less confidence will place less weight on their own forecast and so signals matter more as they become the dominant source of information about inflation. I first present the basic framework and then explore the impact of changes in signal and prior precision. For simplification, the framework is shown for a representative agent.

Let θ denote inflation 12 months ahead, an unknown random variable. The representative agent's prior belief about future inflation is assumed to follow a log-normal distribution, such that

$$\log \theta \sim \mathcal{N}\left(\mu_0, \frac{1}{\tau_0}\right).$$

Lower prior precision, i.e. a smaller τ_0 indicates lower confidence in the prior mean $\exp(\mu_0 + 1/(2\tau_0))$. The framework allows me to test the consequences of lower prior precision on the posterior mean and variance of an agent's inflation expectation.

In addition, the agent receives a signal x about future inflation. Signals are unbiased but contain some noise, reflecting heterogeneity in inflation experiences given by heterogeneous consumption baskets,

$$\log x = \log \theta + \epsilon,$$
$$\text{where } \epsilon \sim \mathcal{N}\left(0, \frac{1}{\tau_x}\right).$$

If the agent shops for goods with volatile prices (such as groceries, see Appendix Figure A.1) she will receive signals with lower precision, i.e. with a smaller τ_x.

Notice, that unbiasedness of signals allows me to show that signal volatility alone can affect mean expectations, such that purely by observing more volatile grocery prices an individual's inflation expectation can increase.

The log-normal prior is chosen because it is bounded at zero and features a heavy tail. This choice aligns with observations in the data: (1) there appears to be a zero lower bound in inflation expectations (Gorodnichenko & Sergeyev 2021); (2) a majority of agents have expectations in line with central bank targets, but there are possible tail events to the right; (3) the average density forecast aligns with this choice (see Appendix Figure A.3). The right skew here serves a similar purpose as loss aversion in Dräger et al. (2014) where price increases contribute more to expectations such that variance increases the average. The signal about log inflation is unbiased and normally distributed. The asymmetry of the log-normal distribution is a key element of the framework. The framework can be extended to heterogeneous priors and biased signals as drivers of heterogeneous forecasts. The focus here is to show that gender gaps in precision of prior and signals are sufficient for gender gaps in expectations to emerge.

The agent updates her beliefs about θ based on the observed signal using Bayes' rule (see Appendix A.1),

$$\log \theta | x \sim \mathcal{N}\left(\hat{\mu}, \frac{1}{\hat{\tau}}\right),$$

where $\hat{\mu}$ represents the mean of the logged posterior inflation expectations and $\hat{\tau}$ the corresponding precision given by:

$$\hat{\mu} = \frac{\tau_0 \mu_0 + \tau_x \log x}{\tau_0 + \tau_x}, \tag{1.1}$$

$$\hat{\tau} = \tau_0 + \tau_x. \tag{1.2}$$

The expected value of θ under the posterior distribution is simply the mean of its posterior distribution. It depends directly on the precision of priors and signals and thus on the agents confidence in her own beliefs and the price signals she receives:

$$\mathbb{E}(\theta|x) = \exp\left(\hat{\mu} + \frac{1}{2\hat{\tau}}\right) = \exp\left(\frac{\tau_0 \mu_0 + \tau_x \log x + \frac{1}{2}}{\tau_0 + \tau_x}\right). \tag{1.3}$$

Similarly, the posterior variance is given by

$$\mathbb{V}ar(\theta|x) = \left[\exp\left(\frac{1}{\hat{\tau}}\right) - 1\right] \exp\left(2\hat{\mu} + \frac{1}{\hat{\tau}}\right) \tag{1.4}$$

$$= \left[\exp\left(\frac{1}{\tau_0 + \tau_x}\right) - 1\right] \exp\left(\frac{2\tau_0\mu_0 + 2\tau_x \log x + 1}{\tau_0 + \tau_x}\right). \tag{1.5}$$

The framework can be used to explain heterogeneity in observed point forecasts as well as density forecasts, particularly those between men and women. I show comparative statics for the effects of shocks to prior precision and signal variance. While using a representative agent framework for illustrative purposes, the framework can easily be interpreted as featuring two groups of agents. For instance, let women experience greater shocks to both prior precision and signal volatility due to lower forecast confidence and greater exposure to volatile food prices.

Beginning with the role of shopping experience, I assume that the composition of an agent's shopping basket may affect the signal precision parameter τ_x. Shopping for groceries is connected to a lower τ_x in line with historical food prices showing a larger variance than the overall basket. Further, the signal is assumed to be unbiased to reflect that groceries have the same level of inflation as other goods on average. The distribution of historical inflation of food prices and the total index for the US and Germany can be found in Appendix Figure A.1. The framework reveals that the expected inflation expectation as well as the variance thereof[3] is increasing in signal volatility whenever $\log x$ exceeds μ_0 by less than half of the prior variance $\frac{1}{\tau_0}$.

$$\frac{d\mathbb{E}(\theta|x)}{d\tau_x} < 0 \iff \log x - \mu_0 < \frac{1}{2\tau_0} \tag{1.6}$$

Notice that the condition in (1.6) will always be satisfied when $\mu_0 > \log x$. This indicates that when consumers prior expectations exceed the signal, making the signal more volatile will always increase expectations since the signal becomes less reliable. In other words, those with high prior expectations do not revise them downwards if the price signals they receive become more volatile. Further, the condition relaxes when the prior is flat, i.e., prior precision τ_0 is small, such that

[3]Appendix A.1 shows that the condition for the posterior variance to increase with signal volatility is weaker than for the posterior mean.

the agent relies more on the signals received. When priors are sufficiently flat, the agent may revise her expectations upwards as signals become more volatile even when signals on average exceed the prior.

Further, equation 1.4 shows that under condition 1.6 it will also always be the case the variance is increasing in signal volatility. This is the case because the first term of equation 1.4 is monotonically increasing in $\frac{1}{\tau_x}$ while the second term is increasing under the same condition as the posterior mean in equation 1.3 (full proof in Appendix A.1).

Proposition 1.2.1 *Consumer inflation expectations (and the uncertainty thereof) are increasing in signal volatility whenever* $\log x - \mu_0 < \frac{1}{2\tau_0}$. *This condition has two features:*

1. *The condition is always satisfied when average prior expectations exceed the average of the signal* $\mu_0 > \log x$.

2. *The condition relaxes when priors are imprecise and* τ_0 *is small.*

In summary, under the assumption of a log-normal signal and its conjugate prior, increases in the noise of the signals can indeed increase the expected value of the posterior distribution. This is the case because it increases the variance of the right-skewed density forecast. This captures and formalizes the argument of the exposure hypothesis (D'Acunto, Malmendier & Weber 2021): women observing higher volatility through higher observed food prices have increased inflation expectations. However, this is facilitated by small prior precision. In contrast, a tight prior may cause mean expectations to decrease when the environment is noisier. Thus, it is important to analyze the consequences of prior heterogeneity, which may be caused by different levels of confidence.

Forecast confidence may impact the parameters of the prior distribution μ_0 and τ_0 such that an agent with lower confidence has a flatter prior, i.e. a lower τ_0. It has been shown that women have lower financial confidence (Bucher-Koenen et al. 2025).[4] Intuitively, individuals with low financial confidence may have a less formal-

[4]The authors show that women perform equally well in financial literacy tests when no "don't know" answer is provided, but worse when such option is not available.

ized idea of price changes when observing prices. Subsequently, I will discuss the comparative statics of a decrease in τ_0 on $\mathbb{E}(\theta|x)$. The computations can be found in Appendix A.1.

$$\frac{d\mathbb{E}(\theta|x)}{d\tau_0} < 0 \iff \mu_0 - \log x < \frac{1}{2\tau_x} \tag{1.7}$$

Heterogeneity in priors can give rise to heterogeneous expectations even when signals received are identical. Reduced prior precision will always increase average expectations when signals exceed the prior. Similar to before, this makes the agent rely less on own forecasts and so the higher signals transmit directly to the expectations. Just as condition (1.6) relaxes with the prior being flat, condition (1.7) relaxes when signals are imprecise. Further, just as in the case of increased signal volatility, the same condition also ensures that the posterior variance will increase for the same reason as above.

Proposition 1.2.2 *Consumer inflation expectations (and uncertainty thereof) are increasing in prior imprecision whenever* $\mu_0 - \log x < \frac{1}{2\tau_x}$. *This condition has two features:*

1. *The condition is always satisfied when signals exceed the average of the prior* $\log x > \mu_0$.

2. *The condition relaxes when signals are volatile and* τ_x *is small.*

In the Bayesian framework with log-normal priors and signals, noisy environments caused by grocery shopping and low confidence can individually be a cause for higher inflation expectations. Moreover, they interact: The framework shows that noisy signals increase expectations when priors are flat. Simultaneously, low confidence (modeled as flat priors) increases expectations when signals are imprecise.

The conditions reveal that there is a combination of values for $\log x$, μ_0, τ_x and τ_0 for which both conditions, (1.6) and (1.7) hold: $\mu_0 \in [\log x - \frac{1}{2\tau_0}, \log x + \frac{1}{2\tau_x}]$. Outside of this interval at least one of the conditions will always hold.

Proposition 1.2.3 *For a given* $\log x$, *whenever* $\mu_0 \in [\log x - \frac{1}{2\tau_0}, \log x + \frac{1}{2\tau_x}]$ *the agent's inflation expectation* $\mathbb{E}(\theta|x)$ *are increasing in both, higher signal volatility*

$\frac{1}{\tau_x}$ and prior imprecision $\frac{1}{\tau_0}$. Otherwise, the agent's inflation expectation $\mathbb{E}(\theta|x)$ are increasing in either higher signal volatility $\frac{1}{\tau_x}$ or prior imprecision $\frac{1}{\tau_0}$.

The framework is well suited to explain the interaction of the two channels hypothesized to explain the gender gap in inflation expectations. It shows that if women on average observe more volatile price signals through greater involvement in grocery shopping, they may have higher expectations than men. Similarly, if women on average have lower confidence about their own forecasts they could also have higher expectations. Both channels complement each other: observing volatile prices will increase expectations when the individual is less confident. One application for this channel could be the the use of local information (i.e. grocery or fuel prices) by less confident forecasters and the use of more aggregate signals (i.e. newspapers) by more sophisticated forecasters (D'Acunto & Weber 2024*a*).

1.2.1 Structural calibration of confidence

The Bayesian learning framework delivers sharp comparative statics: noisy food-price signals raise expected inflation only when priors are imprecise and right-skewed. To assess whether this mechanism can plausibly account for the observed gender gap in the data, I conduct a simple calibration exercise. I map posterior mean and interquartile range (observed in the survey through point and density forecasts) to τ_0 and τ_x for men and women separately, holding μ_0 fixed at 2% inflation. I then test whether equalizing the prior precision for men and women (while holding the calibrated signal precision fixed) has the potential to close the gender gap and find that it does.

I target two moments of the cross-sectional distribution of expectations separately for men and women in Germany (BOP-HH) and the US (SCE): the mean of point forecasts, i.e. the average posterior mean and the mean individual interquartile range (IQR) of density forecasts, i.e. the average posterior interquartile range. The measurement of both variables will be explained in more detail in the next section. The model generates corresponding moments by simulating draws of the

true inflation rate θ, signals x, and posterior beliefs. Specifically, I draw

$$\log\theta \sim \mathcal{N}(\mu_0, \frac{1}{\tau_0}), \qquad \log x = \log\theta + \varepsilon, \quad \varepsilon \sim \mathcal{N}(0, \frac{1}{\tau_x}),$$

and compute the posterior mean

$$E[\theta \mid x] = \exp\Big(\hat{\mu} + \frac{1}{2\hat{\tau}}\Big),$$

as well as the posterior IQR

$$\text{IQR}(\theta \mid x) = \exp\Big(\hat{\mu} + \frac{\Phi^{-1}(0.75)}{\sqrt{\hat{\tau}}}\Big) - \exp\Big(\hat{\mu} + \frac{\Phi^{-1}(0.25)}{\sqrt{\hat{\tau}}}\Big),$$

from the lognormal distribution implied by $(\hat{\mu}, \hat{\tau})$[5]. I fix $\mu_0 = \log 2$ as the average prior mean of inflation and choose parameters (τ_0, τ_x) to minimize the squared distance between simulated and empirical moments.

The calibrated model reproduces the gender gap in average expectations with striking accuracy in both the US and Germany (Table 1.1). The empirical mean forecast of women exceeds that of men by 1.22 (Germany)/2.61 (US) percentage points. The model with gender-specific τ_0 values generates an actual gap of 1.24 (Germany)/2.35 (US) percentage points. When I equalize prior precision across genders (applying the estimated τ_0 for men) while holding signal precision fixed, the gap essentially disappears. This implies that differences in τ_0, interpreted as forecast confidence, explain more than/almost the entire empirical gender gap: the share explained is 108% in Germany and 93% in the US. Bootstrap confidence intervals confirm the precision of these estimates: in Germany the share of the gap explained by τ_0 lies between 0.71 and 1.35 at the 95% level, while in the US the corresponding interval ranges from 0.79 to 1.06.

This calibration demonstrates that the mechanism proposed by the model is quantitatively consistent with the data. Lower prior precision among women suffices to reproduce the higher mean expectations observed in survey responses. Once priors are equalized, exposure to noisy food-price signals no longer generates a persis-

[5] $\hat{\mu} = \frac{\tau_0\mu_0 + \tau_x \log x}{\tau_0 + \tau_x}, \quad \hat{\tau} = \tau_0 + \tau_x$

Table 1.1. Simulation exercise

	BOP-HH, Germany		SCE, US	
	Men	Women	Men	Women
Model τ_0	0.57	0.45	0.60	0.40
Model τ_x	8.22	9.39	1.27	1.32
Model Actual Gap	1.24		2.35	
Empirical Gap	1.22		2.61	
Equalized Gap	-0.07		-0.07	
Share Explained by τ_0	1.08		0.93	

Note: The table reports calibrated values of prior precision τ_0 and signal precision τ_x by gender, obtained by moment-matching the mean and interquartile range of inflation expectations in the BOP-HH and the SCE. "Model Actual Gap" is the difference in mean expectations generated by the calibrated model, "Empirical Gap" is the observed survey difference, and "Equalized Gap" sets women's τ_0 equal to men's while keeping τ_x fixed. The "Share Explained by τ_0" reports the proportion of the empirical gap accounted for by differences in prior precision.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; own calculations

tent gap. These results provide structural validation of the reduced-form evidence presented in the next section: forecast confidence is not only statistically but also quantitatively sufficient to account for the gender gap in inflation expectations.

1.3 Data and Estimation

My primary data source is the Bundesbank Online Panel of German consumers from April 2019 until June 2025 (Fischer et al. 2025).[6] This survey is particularly suited to analyze the gender gap in inflation expectations because it contains individual-level data on household responsibilities including grocery shopping alongside more standard questions such as a probabilistic elicitation of inflation expectations and a financial literacy test, thus allowing me to test all hypotheses on the same individuals. The BOP-HH has been conducted regularly since April 2020, and I use data up to June 2025. In addition, I include three months of pilot data collected from April to June 2019. Approximately 2000 participants are initially drawn randomly from a larger pool of candidates recruited via telephone. Participants complete

[6]Disclaimer: The results published and the related observations and analysis may not correspond to results or analysis of the data producers.

Table 1.2. Features of the three surveys

Survey	Time/Place	Participants	Survey details
BOP-HH	Apr.2020-Jun.2025, DE + Apr.2019-Jun.2019	2000/month	*inflation/deflation* + (definition) from 0-100 + Probabilistic bins for inflation + Financial literacy test + Household responsibilities
SCE	Jun.2013-Oct.2024, US	1200/month	*inflation/deflation* from 0-100 + Probabilistic bins for inflation + Financial literacy test
MSC	Jan.1978-Jan.2025, US	500/month	*prices in general* from 0-95, probing if $> 5\%$

an online survey with various questions ranging from macroeconomic assessments and expectations to political issues. Demographic characteristics are recorded by self-assessment; therefore, the terms "female" and "women" in my analysis refer to self-identified gender. The survey includes the option to not choose a binary gender and few candidates do so; these responses are excluded here. I also exclude all participants who do not give an inflation point forecast.

I complement this survey with two established consumer surveys, the Michigan Survey of Consumers in the US from June 1978 until January 2025 (MSC, Survey Research Center (2025)); and the Survey of Consumer Expectations in the US from June 2013 until October 2024 (SCE, Federal Reserve Bank of New York (2024)).[7] Adding these surveys allows me to explore a longer time horizon than the short period of the BOP-HH, which was also heavily influenced by the Covid-19 pandemic, and provides external validity by benchmarking results for the US. All surveys are summarized in Table 1.2 and summary statistics of the demographics can be found in Table 1.3 Panel A. Women in all surveys have marginally lower education and substantially lower reported household incomes. They are of similar age as men in the surveys.

1.3.1 Measuring inflation point forecasts and uncertainty

The literature has established that there are gender gaps in inflation point forecasts (Jonung 1981, Bryan & Venkatu 2001, D'Acunto, Malmendier & Weber 2021). The

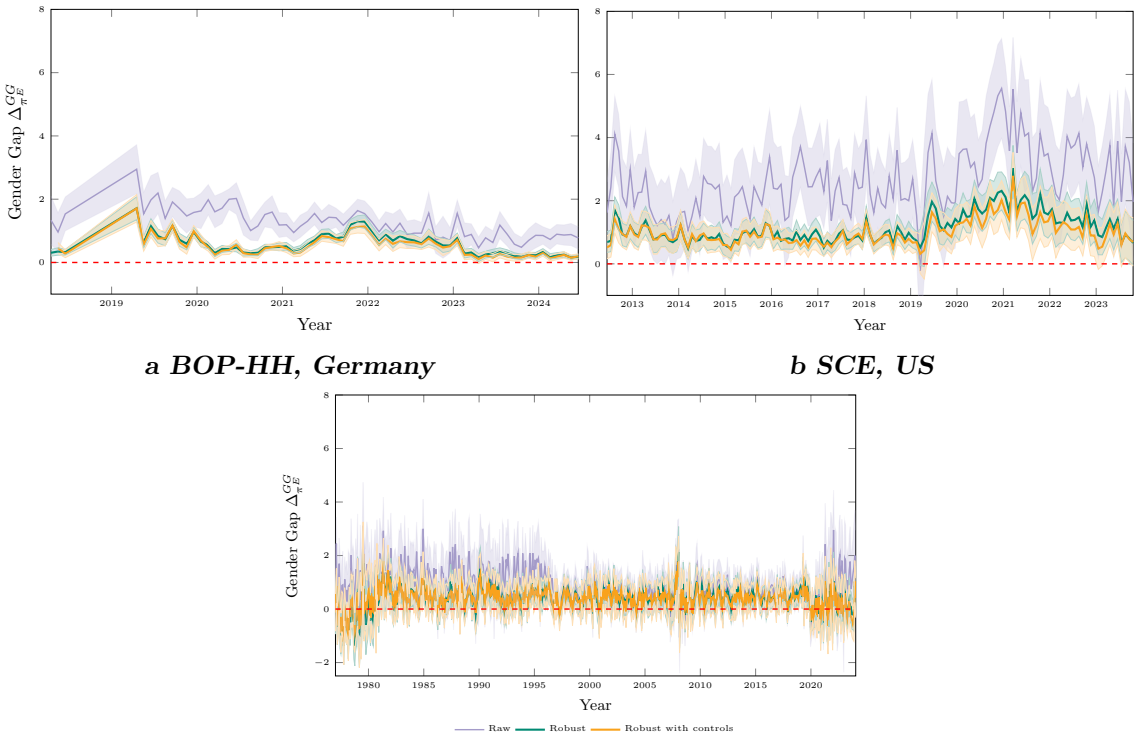
[7]Disclaimer: FRBNY did not participate in or endorse this work, and FRBNY disclaims any responsibility or legal liability for the administration of the survey and the analysis and interpretation of data collected.

framework discussed above highlights that these gaps can arise through greater posterior variance in a right-skewed distribution caused by volatile signals or imprecise priors. Before discussing how to measure signals and priors, I focus on my measure of mean inflation expectations, i.e. posterior mean, and the uncertainty around them, i.e. a proxy measure of the posterior variance on the individual level.

Inflation expectations in all three surveys are measured quantitatively. In the BOP-HH, individuals are presented with a short definition of inflation[8] and are asked if they expect inflation or deflation in the next 12 months. Subsequently, they indicate their anticipated inflation or deflation rate numerically. The answers are limited to a range of 0 to 100. The SCE skips this definition but the wording remains the same while the MSC instead asks for prices in general. This can cause respondents to increase their forecast and is a less precise measure of inflation expectations (Armantier et al. 2013). Further the MSC probes answers when respondents give a numerical value above 5%. I assume that the point forecast represents the mean of the respondents forecast in line with previous literature (Armantier et al. 2013). The non-response for inflation expectations in the surveys is very low, but in the BOP-HH and the SCE slightly higher for women. This indicates that if confidence drives the gender gap, my estimates are a lower bound as those with the lowest confidence ("don't know") are not captures by the survey.

Additionally, BOP-HH and SCE elicit uncertainty around the point forecast through probabilistic bins. Respondents are asked to assign probabilities to ranges or intervals of possible future inflation realizations. The lowest bin is smaller than -12% and the highest is higher than 12%. There are 10 bins in total. Appendix Figure A.3 shows the average density forecast in the BOP-HH. I use the probabilities of the reported bin to fit an underlying parametric density following the approach of Engelberg et al. (2009) and applied to the SCE as described in Armantier et al. (2017). My uncertainty measure is the interquartile range of the density forecast, defined as the difference between the third and first quartile. This is preferred to the standard deviation as it is more robust to outliers. The share of non-response to this measure

[8]Inflation is the percentage increase in the general price level. It is mostly measured using the consumer price index. A decrease in the price level is generally described as "deflation". The inflation question is asked before other questions in the survey.



a BOP-HH, Germany ***b SCE, US***

c MSC, US

Figure 1.1. The gender gap raw, robust, and controlled for demographics over time

Note: Estimated regression coefficients for the dummy variable *female* in an OLS regression with no controls (purple line), Huber robust regression with no controls (green line) and with all demographics controls available in a Mundlak CRE specification (yellow line). These include: age, income, education, single, unemployed, retired, full-time work, part-time work, homemaker, and region controls.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

is higher for all respondents than for the the point forecast, but especially so for women.

Table 1.3 compares mean (π^E_`point`) and interquartile range (π^E_`intqr`) of inflation forecasts in Panel B. As anticipated, women hold both substantially higher point forecasts as well as greater uncertainty around them. This is confirmed also in Figure 1.1 which shows the differences in means (purple line) over time. The gap shrinks when outliers are removed (green line)[9] but remains persistently positive even when controls for demographics such as age, income and education are included (yellow).

[9] `female`-coefficient in Huber robust regression

Observation 1.3.1 *There is an gender gap in inflation expectations in both means (point forecasts) and uncertainty around those forecasts. The gap is robust to including demographic controls and removing outliers.*

1.3.2 Measuring experience

Inference of differentiated experience is possible in the BOP-HH due to a question regarding household responsibilities introduced in April 2021, namely everyday purchases (`shop_groceries`) and financial decisions (`decide_finance`). Respondents indicate whether they are not involved in the task (0), engage jointly with other household members (0.5) or are solely responsible for all work (1). I use the gradual ranking to differentiate between sole and joint responsibility as recommended in van Hove & Verbraecken (2025). The focus of this analysis is the variable `shop_groceries` as it is a direct measure of whether an individual frequently observes food prices. Since the question is only asked for the first time an individual participates in the survey, I must assume that household chores remain constant over time in the panel. Further, the variable is only asked for non-singles. Whenever grocery shopping is used in the analysis I include only households with more than one member. However, I use singles as an alternative robustness measure observed also in SCE and MSC as the men and women in the single sample are assumed to engage symmetrically in grocery shopping.

The data reveal that traditional gender norms are still present in German households. Table 1.3 Panel C compares grocery shopping and financial decision making for men and women. As expected, women appear significantly more involved in grocery shopping in households that involve more than one member. Men in the data are less likely to live alone. However, I note that financial decision making is split equal between German and US couples, hence women make most purchasing decisions and are equally involved in the spending and investment decisions, making them a relevant group to analyze.

Observation 1.3.2 *Traditional gender norms persist in Germany. Women in the BOP-HH are more often responsible for grocery shopping in households with more than one member.*

1.3.3 Measuring confidence and financial literacy

I measure individual forecast confidence using a simple proxy drawn from the linguistics literature: rounding to multiples of five. According to the "Round Numbers, Round Interpretations" hypothesis (Krifka 2007), individuals with low confidence in their ability to provide a precise value tend to report the nearest round number. Applied to inflation expectations, this implies that less confident respondents may predict values in multiples of five such as 0, 5, or 10 rather than more precise figures. Building on this idea, Binder (2017*b*) and Reiche & Meyler (2022) use the share of "rounders" in survey data to construct indices of macroeconomic uncertainty. A similar application for professional forecasters can be found in Glas & Hartmann (2022) though rounding is of smaller importance for professionals (Clements 2021). I treat rounding, i.e. coarseness in forecasts, as a signal of low confidence in one's own forecast, consistent with the notion of prior imprecision. The literature supports this measure: Ruud et al. (2014) show experimentally that (prior) uncertainty causes rounding and Reiche & Meyler (2022) show that, in a European survey, fewer than 2% of respondents who reported a multiple of five actually intended that number precisely, implying that classifying such responses as "low confidence" entails minimal misclassification. Rounding is also prevalent in probabilistic survey questions (Manski & Molinari 2010) and for the BOP-HH, Dovern & Glas (2025) find that less than half of respondents insist that their rounded bin forecast reflects actual expectations. My measure of forecast confidence contrasts with posterior uncertainty, which I measure using the interquartile range of probabilistic bins, as described above. Further, forecast confidence differs slightly from concepts such as overconfidence in finance (Moore & Healy 2008, Anderson et al. 2017) as it only measures the precision of prior beliefs and not the (mis)perceived precision of posterior forecasts. However, there are also known gender gaps in overconfidence (Barber & Odean 2001) and precision in financial questionnaires (Anderson et al. 2017) which supports my findings. Most respondents provide non-rounded answers, but Table 1.3 reveals a clear gender gap, with women rounding more frequently in all three surveys.[10]

[10]This pattern differs from Reiche & Meyler (2022), who report that only about 25% of respondents gave precise forecasts in 2019 and later. One explanation may be data source differences: the European Commission Consumer Survey records an inflation expectation of zero for all respon-

I use rounding as the baseline proxy for confidence but refine it by predicting rounding with other variables correlated with survey uncertainty, thereby filtering out influences unrelated to prior uncertainty, such as attention. Specifically, I incorporate responses to questions about how "easy" or "interesting" the survey was, as well as whether the respondent is a repeated participant (Kim & Binder 2023) (summarized in $X_{i,t}$ in Equation 1.8). In addition, I include indicators of rounding in other questions—house price expectations, interest rate expectations (in the BOP-HH), and government debt expectations (in the SCE)—all asked 12 months ahead (summarized in $R_{i,t}$ in Equation 1.8). I then estimate a logistic regression predicting the probability of rounding in inflation expectations (coefficients reported in Appendix Table A.1). The predicted probability exhibits a gender gap of similar magnitude to that found in the raw rounding measures. For the analysis that follows, I invert this measure so that higher values correspond to greater forecast confidence (i.e., 1 = high confidence).

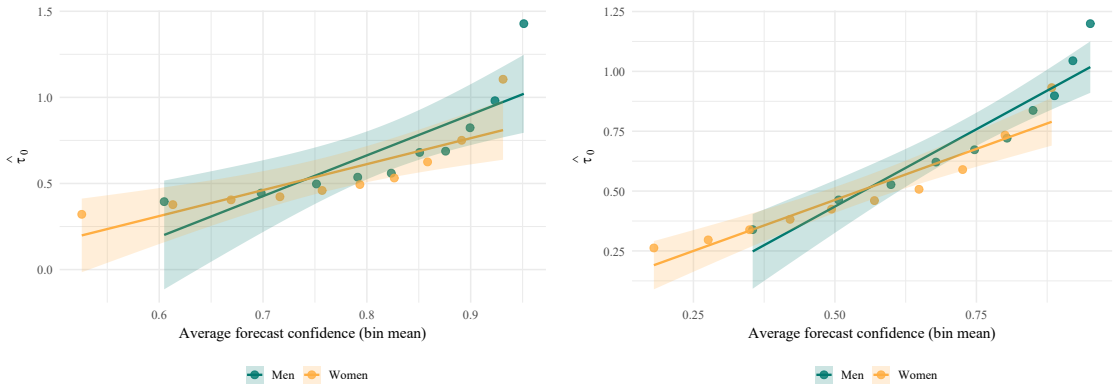
$$\text{prob_confident}_i = 1 - \frac{1}{1 + e^{-\left(\hat{\alpha}_0 + R_{i,t}\hat{\beta} + X_{i,t}\hat{\gamma}\right)}}. \tag{1.8}$$

I validate my measure of prior uncertainty by linking it to posterior uncertainty and to the model-implied prior precision. First, I test the correlation between my confidence score and posterior uncertainty, measured by the interquartile range (IQR) of density forecasts. As expected, the two are negatively and significantly correlated (Spearman's $r = -0.25$, $p < 0.001$; for the SCE $r = -0.37$, $p < 0.001$).

Second, I examine how my confidence index maps into the prior precision parameter τ_0 from the calibration exercise described above. To do so, I group respondents into deciles of forecast confidence, re-estimate the average τ_0 for each group, and plot the resulting relationship in Figure 1.2. The figure shows a strong and statistically significant positive correlation: higher values of my confidence index correspond to higher estimated prior precision, both in the BOP-HH and the SCE. This supports the interpretation of my confidence measure as capturing prior imprecision.

Table 1.3 Panel D shows that there are gender gaps in all confidence measures: actual

dents who qualitatively state that inflation will "stay about the same." By contrast, the BOP-HH and SCE do not directly link qualitative and quantitative questions. This reduces the share of "zero" responses, which are classified as "rounders" in their analysis.



a BOP-HH ***b SCE***

Figure 1.2. Confidence score and calibrated precision

Note: Binscatter plot of model simulated prior precision (Section 1.2.1) for different levels of forecast confidence.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; own calculations

rounding, predicted confidence measured as described above and survey feedback. While rounding is available also in the Michigan survey, the predicted confidence measure is not appropriate to be used in this context for two reasons. First, it probes everyone above 5% which leads to most responses being between 0 and 5 and thus by definition not rounded. Secondly, I am missing the other measures of survey uncertainty used above and thus cannot filter out other factors causing rounding such as attention.

Finally, I show that a lack of confidence as measured by rounding is a symptom of lower financial literacy of women. I utilize data from the BOP-HH and SCE, which include micro-level financial literacy via a standardized financial literacy test (Lusardi & Mitchell 2014).[11] I assign a score of 1 if a respondent answers all three questions covering compound interest, inflation, and risk correctly. Correct answers earn one point each, while "don't know" responses are marked as incorrect. Table 1.3 Panel D confirms previous literature that has shown that women are significantly less likely to obtain three correct answers (Lusardi & Mitchell 2008, Bucher-Koenen et al. 2017).

Observation 1.3.3 *Women have lower confidence in their survey forecasts, find surveys on inflation less interesting/easy and perform worse in standardized financial*

[11] Questions in Appendix A.4

literacy tests.

1.4 The Effects of Confidence and Grocery Price Exposure

Heterogeneity in experiences and in confidence are not mutually exclusive hypotheses for explaining the gender gap in inflation expectations. The Bayesian framework in Section 1.2 demonstrates that these parameters are complementary: low confidence increases the impact of experiences, and the effect of a flat prior is amplified when signals are noisy. I start by demonstrating that confidence is the dominating driver of the gender gap before showing that exposure does matter, but only through the lens of forecast confidence.

1.4.1 Forecast confidence dominates exposure

To test how the gender gap in inflation expectations evolves for different levels of forecast confidence and grocery price exposure, I interact predicted confidence with the female dummy. Similarly, I include grocery shopping and interact it with the female dummy:

$$\begin{aligned}\pi^E_{i,t} = \beta_0 + \beta_1 female_i + \beta_2 prob_confident_{i,t} + \beta_3 shop_groceries_i \\ + \beta_4 prob_confident_{i,t} \times female_i + \beta_5 shop_groceries_i \times female_i \\ + X_{i,t}\gamma_1 + D_t\gamma_2 + R_i\gamma_3 + \bar{X}_i\gamma_4 + \nu_{i,t}. \end{aligned} \tag{1.9}$$

In the regression model above, $\pi^E_{i,t}$ denotes individual i's inflation expectations 12 months ahead (point forecast) at time t. The vector $X_{i,t}$ contains demographic characteristics (age, income, education, full-time, part-time, unemployed, retired, homemaker, refresher), D_t captures time dummies, and R_i includes regional dummies. I restrict the sample to respondents in non-single households, where the grocery shopping question is asked.

To address potential correlation between unobserved individual effects and the regressors in an unbalanced panel, I adopt the correlated random effects approach of

Table 1.3. Summary statistics for men and women

	BOP-HH		SCE		MSC	
	Men	Women	Men	Women	Men	Women
Panel A: Demographics						
age	56.39	55.82	51.79	48.71	47.22	47.79
	(15.46)	(15.64)	(15.24)	(15.57)	(17.22)	(17.51)
educ	8.83	8.11	4.55	4.36	4.17	3.99
	(3.45)	(3.41)	(1.53)	(1.5)	(1.29)	(1.26)
hhinc	7.87	7.45	7.16	6.11	74	53
	(25.52)	(61.82)	(2.65)	(2.75)	(28)	(60)
Panel B: Inflation forecasts						
π^E_point	4.78	6	4.63	7.24	4.06	5.01
	(5.62)	(8.35)	(9.43)	(15.68)	(5.51)	(7.25)
	0.03	*0.06*	*0.003*	*0.005*	*0.00*	*0.00*
π^E_intqr	2.07	2.49	3.63	5.27		
	(2.3)	(2.97)	(3.85)	(5.38)		
	0.12	*0.18*	*0.01*	*0.03*		
Panel C: Household responsibilities						
shop_groceries	0.6	0.83				
	(0.39)	(0.3)				
decide_finance	0.76	0.73	0.66	0.7		
	(0.28)	(0.31)	(0.21)	(0.25)		
single	0.22	0.3	0.28	0.45	0.21	0.3
Panel D: Financial literacy and survey confidence						
prob_confident	0.82	0.76	0.73	0.54		
	(0.11)	(0.12)	(0.19)	(0.22)	(0.21)	(0.2)
fin_lit	0.85	0.78	0.38	0.22		
	(0.36)	(0.42)	(0.49)	(0.42)		
qeasy	0.32	0.3				
	(0.3)	(0.31)				
qinterest	0.46	0.39	0.36	0.31		
	(0.33)	(0.34)	(0.5)	(0.52)		
refresher	0.78	0.76	0.87	0.86	0.37	0.37
round_π^E_point	0.18	0.25	0.27	0.46	0.42	0.54

Standard deviation in parentheses, omitted for dummy variables.
Non-response share in *italics*.

Note: Panel A: Education is measured categorically from 1-14 in the BOP-HH where it is the sum of school education (1-6) and professional education (1-8), 1-8 in the SCE and 1-6 in the MSC. Household income is categorical for BOP-HH (1-13) and SCE (1-11) and in thousands for MSC.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

Mundlak (1978). Concretely, I augment the specification with the individual-level means of the time-varying covariates in $X_{i,t}$, denoted $\bar{X}_i$. This allows consistent estimation of coefficients for both time-varying and time-invariant regressors (such as $\texttt{female}_i$ or $\texttt{shop_groceries}_i$). For robustness, I estimate the models using Huber-robust regression (Huber 1964), which down-weights the influence of outliers and relaxes the classical assumptions on the error term (e.g., homoskedasticity). Applying this robust estimator reduces the estimated gender gap by about 50%, implying that the baseline results should be interpreted as lower bounds (see Figure 1.1).

The results are summarized in Table 1.4. The interaction term of confidence and female is significantly negative in all three surveys. It shows that for average values of confidence for women (0.76 in the BOP-HH and 0.54 in the SCE, see Table 1.3) the gender gap is closed. This indicates that women with low confidence have much higher expectations than their male counterparts but those with high confidence behave similar to men. In addition, I find that grocery shopping on its own has a positive and significant effect on inflation expectations as estimated in D'Acunto, Malmendier & Weber (2021) which is even stronger for women. Robustness checks with alternative measures for exposure and confidence that verify these results can be found in Appendix Table A.4. For exposure, I test the interaction of `single` with `female` and find that male singles in the SCE actually have lower inflation expectations than those in larger households suggesting that being more exposed to supermarket prices has no positive effect for inflation expectations for men. In contrast, for alternative measures of forecast confidence, namely rounding and survey feedback, I find effects pointing in the same directions and my forecast confidence measure (though less sizable). The gender gap is larger among those who round and similarly, smaller among those who find the survey easier (both in line with being lower among those who are confident).

To assess the relative contributions of forecast confidence and grocery shopping to the gender gap, I implement a Kitagawa-Oaxaca–Blinder decomposition (Kitagawa 1955, Oaxaca 1973, Blinder 1973) common in the literature on gender wage gaps (Blau & Kahn 2017). Specifically, I estimate separate regressions for men and women, where individual i's inflation expectation at time t ($\pi^E_{i,t}$, point forecast 12

Table 1.4. Effect of confidence and grocery shopping on the gender gap

	Inflation expectation (12 months ahead, point estimate)			
		BOP-HH		SCE
	(1)	(2)	(3)	(4)
female	0.36***	0.32***	0.23***	2.13***
	(0.07)	(0.02)	(0.08)	(0.07)
prob_confident	-10.97***		-10.97***	-3.69***
	(0.08)		(0.08)	(0.09)
prob_confident:female	-0.52***		-0.50***	-2.93***
	(0.09)		(0.09)	(0.10)
shop_groceries		0.04**	0.03*	
		(0.02)	(0.02)	
shop_groceries:female		0.22***	0.14***	
		(0.03)	(0.03)	
Constant	11.28***	2.92***	11.27***	7.52***
	(0.20)	(0.20)	(0.20)	(0.15)
Observations	155,203	155,202	155,202	108,961
Residual Std. Error	1.64	1.72	1.64	2.67

*p<0.1; **p<0.05; ***p<0.01

Robust Robust standard errors in parentheses.

Note: Mundlak CRE specification; Huber-robust regression. All regressions incorporate demographic controls, regional controls and time fixed effects. Singles are excluded in all models.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; own calculations

months ahead) is regressed on household characteristics $X_{i,t}$, along with time and regional fixed effects. Estimation is carried out using the Mundlak correlated random effects framework with Huber-robust regression. Let $\bar{W}$ and $\bar{M}$ denote the vectors of average covariate values for the female and male samples, respectively, and $\hat{\gamma}_w$ and $\hat{\gamma}_m$ the corresponding estimated coefficients. These inputs are then used to decompose the observed gender gap in expectations into parts attributable to differences in characteristics versus a residual, unexplained gap:

$$\pi^E_{i,t} = \beta_0 + X_{i,t}\gamma_1 + D_t\gamma_2 + R_i\gamma_3 + \bar{X}_i\gamma_4 + \nu_{i,t}, \tag{1.10}$$

$$\bar{\pi}^E_w - \bar{\pi}^E_m = \underbrace{\hat{\gamma}_w(\bar{W} - \bar{M})}_{\text{explained by differences in } \bar{W},\bar{M}} + \underbrace{\bar{M}(\hat{\gamma}_w - \hat{\gamma}_m)}_{\text{residual}}. \tag{1.11}$$

Figure 1.3a presents the Kitagawa-Oaxaca–Blinder decomposition for four model specifications in the BOP-HH. The first (baseline) model includes only demographic controls and a time dummy. In this case, the explained component reflects differences in age, education, or income distributions, while differences in grocery shopping involvement or forecast confidence fall into the unexplained component. The second model adds grocery shopping as a regressor, and the third adds forecast confidence. Grocery shopping alone accounts for roughly 11% of the total gender gap, while confidence alone explains about 110%—that is, it more than fully accounts for the observed difference. The fourth model includes both variables simultaneously. In this specification, the explained share rises but by less than the sum of the individual contributions, indicating that grocery shopping and confidence interact rather than contributing independently. This will be explored in more detail in the next section.

As a robustness check, I implement a parallel mediation model (MacKinnon 2012, Tingley et al. 2014). Unlike the Kitagawa-Oaxaca–Blinder decomposition, this approach treats the total gender gap (β_1 in Equation 1.12) as being mediated by the explanatory variables in Equation 1.13, such that the mediated (indirect) effect is given by $\beta_1 - \beta_1'$. Equations 1.14 and 1.15 then attribute the mediated effect to each explanatory variable separately: the effect mediated through forecast confidence is

$\alpha_1^c \beta_2$, while the effect mediated through grocery shopping is $\alpha_1^g \beta_3$.

$$\pi_{i,t}^E = \beta_0 + \beta_1 female_i + \nu_{i,t} \tag{1.12}$$

$$\pi_{i,t}^E = \beta_0' + \beta_1' female_i + \beta_2 prob_confident_{i,t} + \beta_3 shop_groceries_i + X_{i,t}\gamma_1 + D_t\gamma_2 + R_i\gamma_3 + \nu_{i,t} \tag{1.13}$$

$$prob_confident_{i,t} = \alpha_0^c + \alpha_1^c female_i + \nu_{i,t} \tag{1.14}$$

$$shop_groceries_i = \alpha_0^g + \alpha_1^g female_i + \nu_{i,t} \tag{1.15}$$

Although the mediation approach is fundamentally different from the Kitagawa–Oaxaca–Blinder decomposition, the results reported in Figure 1.3b are strikingly similar. Only about 4% of the total indirect effect is attributed to grocery shopping, with the remaining effect explained by my measure of forecast confidence. The direct effect is estimated negative, indicating that forecast confidence more than fully accounts for the gender gap. The regression results for these models are presented in Table 1.5.

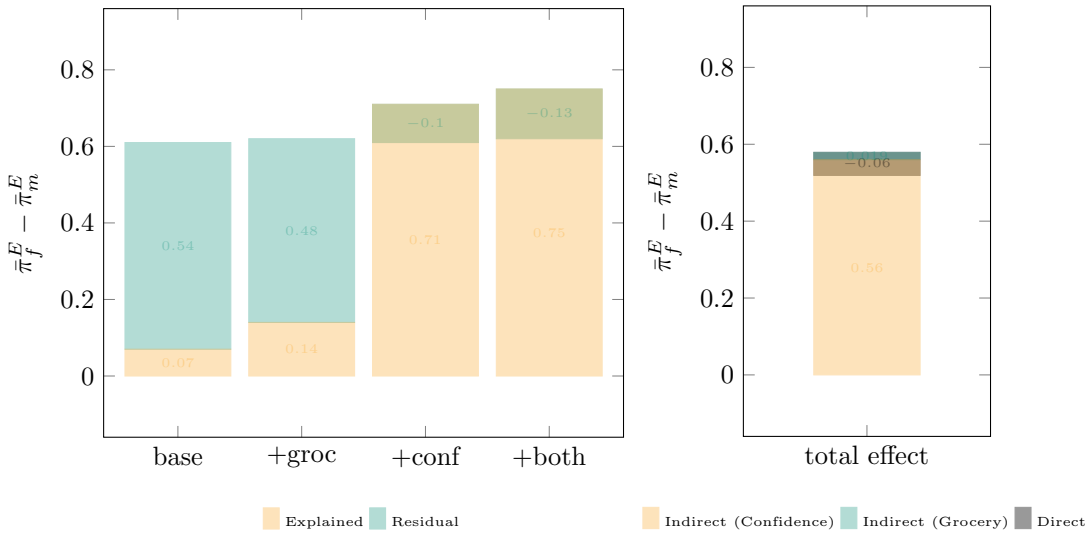
Result 1.4.1 *Differences in exposure account for only a small part of the gender gap. By contrast, differences in forecast confidence fully explain the gap.*

1.4.2 Grocery price exposure matters when forecast confidence is low

While the confidence channel dominates the exposure channel individually, the framework does predict an interaction of the two. I test the interaction of the individual-level confidence measure and grocery shopping with the following panel regression model:

$$\begin{aligned} \pi_{i,t}^E = \beta_0 + \beta_1 female_i + \beta_2 prob_confident_{i,t} + \beta_3 shop_groceries_i \\ + \beta_4 prob_confident_{i,t} \times shop_groceries_i + X_{i,t}\gamma_1 + D_t\gamma_2 + R_i\gamma_3 + \bar{X}_i\gamma_4 + \nu_{i,t}, \end{aligned} \tag{1.16}$$

where the variables are as explained above. Again, I exclude single households. Estimation is performed with the Mundlak correlated random effects approach, applying Huber-robust regression.



a Kitagawa-Oaxaca-Blinder ***b Mediation Model***

Figure 1.3. Decomposition of the gender gap in inflation expectations

Note: The left four columns show an Oaxaca-Blinder decomposition of the gender gap in inflation point forecasts when controlling for demographics only, grocery shopping, confidence or both. The right column decomposes the gender gap in raw data into a direct effect of gender on expectations (similar to a residual) and an indirect effect mediated through women's higher grocery shopping or confidence. Both are Mundlak CRE specification, Huber-robust regression. *Sources*: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; own calculations

Table 1.5. Effect of experience and confidence on point forecasts

	Inflation expectation (12 months ahead, point estimate)					prob_confident	shop_groceries
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
female	0.49***	-0.06***	0.47***	-0.08***	-0.08***	-0.05***	0.26***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.0005)	(0.002)
prob_confident		-11.20***		-11.20***	-10.76***		-0.08***
		(0.06)		(0.06)	(0.10)		(0.01)
shop_groceries			0.11***	0.07***	0.66***	-0.004***	
			(0.02)	(0.01)	(0.10)	(0.001)	
prob_confident:shop_groceries					-0.72***		
					(0.12)		
Constant	2.93***	11.46***	2.88***	11.42***	11.07***	0.76***	0.51***
	(0.20)	(0.20)	(0.20)	(0.20)	(0.21)	(0.01)	(0.04)
Observations	155,202	155,202	155,202	155,202	155,202	155,202	155,202
Residual SE	1.71	1.65	1.72	1.65	1.65	0.08	0.38

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors in parentheses.

Note: Mundlak CRE specification; Huber-robust regression. All regressions incorporate regional controls and time fixed effects. The full model is specified in Equation (1.16). Singles are excluded in all models.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; own calculations

Table 1.5 shows that grocery shopping alone has a small positive effect on inflation expectations in columns (3) and (4), whereas forecast confidence consistently exhibits a substantial negative effect across all specifications, confirming that higher confidence is associated with lower expected inflation.

When the interaction between exposure and confidence is included (column 5), the results reveal that exposure does matter: the main effect of grocery shopping becomes significant only when combined with low forecast confidence, as indicated by the negative and significant interaction term. A simple calculation illustrates this pattern: for average confidence levels of men (0.82) and women (0.76), the predicted effect of grocery shopping is effectively negligible. The effect is statistically significant at the 95% level only for respondents with forecast confidence below 0.76, representing roughly 26% of the sample, with women disproportionately represented in this group.

Figure 1.4 visualizes this interaction, highlighting that the impact of grocery shopping on inflation expectations is conditional on the level of forecast confidence rather than uniform across all respondents.

I include robustness checks for these results which employ alternative measures for forecast confidence and grocery shopping in Appendix Table A.3. I find that the interaction of `single` with `prob_confident` is insignificant. In contrast, a dummy for rounding yields similar results when interacted with `shop_groceries` as the preferred confidence measure.

Result 1.4.2 *Grocery shopping increases inflation expectations only for a small share of consumers with low forecast confidence ($\sim$ 26%) which is dominated by women.*

1.4.3 Verifying the mechanism

An implication of the confidence hypothesis is that the gender gap should disappear when the sample is trimmed to remove outliers in the right-skewed distribution. In the framework, the flat prior can affect the mean expectation only when the distribution is skewed to the right asymmetrically. To test this, I compute the gender

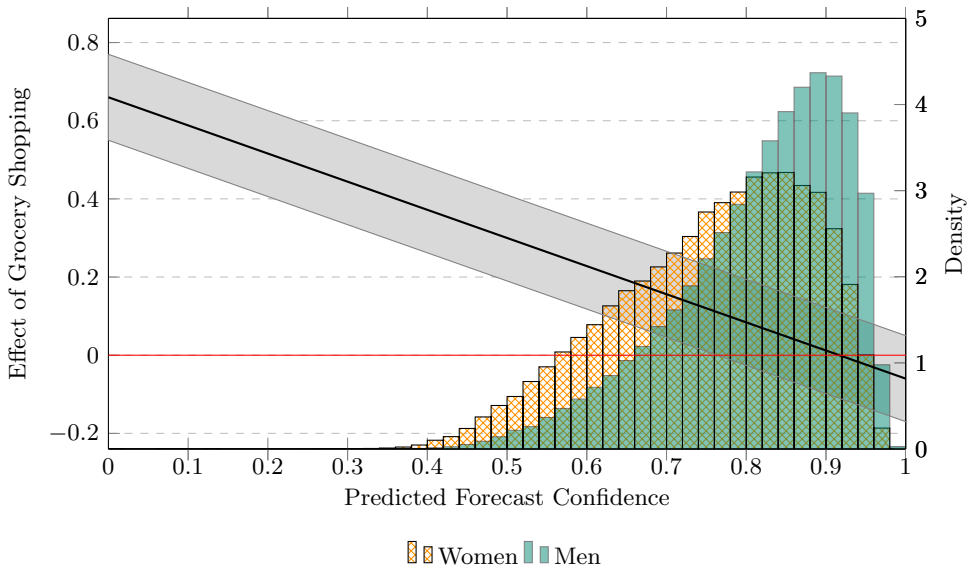


Figure 1.4. The effect of grocery shopping involvement on inflation expectations for different levels of forecast confidence

Note: The predicted effect of participation in grocery shopping on inflation expectations for different levels of forecast confidence in the black line ($f(x) = 1.28 - 1.38x$). The complete regression results are shown in Table 1.5, column (5). The gray area indicates the 95% confidence interval. The way grocery shopping is measured will be explained in Section 1.3.2 and confidence in Section 1.3.3. The histograms show the density of the male (green) and female (orange, cross-hatched) distribution of forecast confidence.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; own calculations

gap across deciles of the expectations distribution, controlling for demographics and time periods in the three surveys. I replicate model (1) in Table 1.5 for each decile of the expectations distribution and test whether the gender gap closes when outliers are removed. Figure 1.5 plots the coefficient of *female* across percentiles, showing a steady increase as predicted by the uncertainty hypothesis. In samples limited to inflation expectations below the 80th percentile, no positive gender gap is observed in any survey. Conversely, for lower percentiles, the gender gap is negative in both BOP-HH and SCE. This finding is in line with the confidence hypothesis as rounding for very low expectations can bias them downwards (saying 0% instead of 1 or 2%). The regression table is in the Appendix, Table A.5.

Observation 1.4.3 *The gender gap in means is driven by the heavy tail in the female distribution. When the sample is restricted to the lowest 80% of inflation expectations, there is no positive gap and at lower percentiles a significantly negative gender gap emerges.*

1.5 Drivers of the Forecast Confidence Gap

Financial literacy is a potential driver of the forecast confidence gap between men and women. The SCE includes a standardized financial literacy test (Lusardi & Mitchell 2014). It is well known that women perform worse in those tests (Bucher-Koenen et al. 2017), at least when "don't know" answers are possible (Bucher-Koenen et al. 2025). The latter finding has been attributed to women being less confident when answering surveys about financial variables (Anderson et al. 2017). Table 1.3 Panel D confirms lower financial literacy for women in the SCE.

I test the effect of financial literacy on the gender gap in confidence through a simple regression of the predicted confidence on the female dummy, a range of demographics, and the test score of the financial literacy test. I also include an interaction of financial literacy and the female dummy. Table 1.6 column (3) shows that women with high financial literacy are less likely to round their point forecast on inflation. Further, when separating Table 1.4 by high and low financial literacy (columns (4) and (5) in Table 1.6), I find that the gender gap in inflation expectations disappears for those with high financial literacy. Confidence itself also has a larger impact

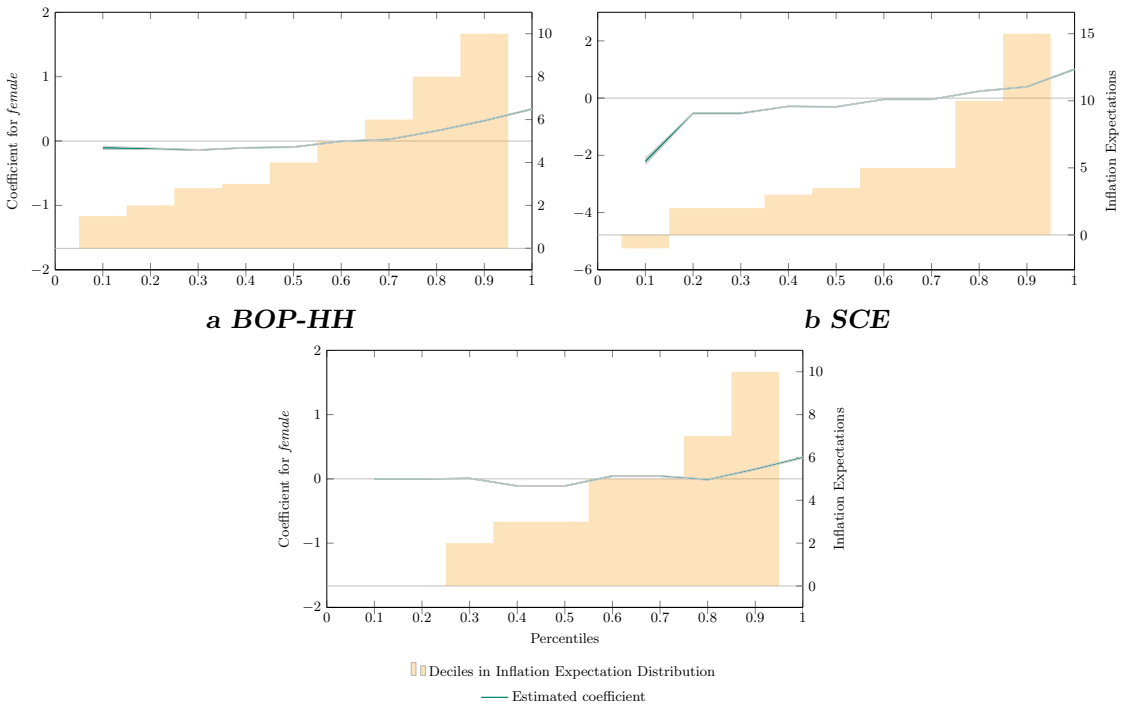


Figure 1.5. The gender gap along deciles in the inflation expectations distribution

Note: Estimated regression coefficients for the dummy variable *female* in decile regressions of the inflation expectations distribution (0.1 to 0.9) across three surveys: BOP-HH, SEC, and MSC in the green line. 95% confidence bands are shaded in gray. Orange bars represent the percentiles in the inflation expectations distribution.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

irrespective of gender in the low literacy sample.

Table 1.6. The impact of financial literacy

	Predicted confidence			Inflation point forecast	
				High literacy	Low literacy
	(1)	(2)	(3)	(4)	(5)
female	-0.16***	-0.16***	-0.17***	0.82***	2.72***
	(0.001)	(0.001)	(0.001)	(0.09)	(0.10)
fin_lit		0.02***	0.001		
		(0.001)	(0.001)		
fin_lit:female			0.04***		
			(0.002)		
prob_confident				-2.57***	-4.86***
				(0.10)	(0.14)
prob_confident:female				-1.23***	-3.69***
				(0.13)	(0.15)
Constant	0.39***	0.39***	0.40***	4.84***	8.79***
	(0.01)	(0.01)	(0.01)	(0.39)	(0.20)
Observations	145,452	145,452	145,452	46,252	99,200
Residual SE	0.18	0.18	0.18	2.11	3.75

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors in parentheses.

Note: Mundlak CRE specification; Huber-robust regression. All regressions include demographic controls, regional controls and time dummies.
Sources: Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; own calculations

Result 1.5.1 *The gender gap in confidence is driven at least in parts by women's lower financial literacy.*

1.6 Further Evidence in Support of the Forecast Confidence Hypothesis

I conduct two further robustness checks of the pure exposure hypothesis using all three available surveys:

1. **Singles Analysis**: I investigate whether the gender gap exists among singles. According to the experience hypothesis, there should be no gender gap among

singles since both men and women engage symmetrically in grocery shopping when living alone. However, a financial confidence gap may still exist among singles, leading to asymmetric expectations despite symmetric shopping.

2. **Food Price Inflation Periods**: I assess whether the gender gap widens during periods of high food price inflation, i.e. when women in traditional gender roles observe even higher price increases. This does not necessarily hold if financial confidence is the main channel causing the gender gap.

The rejection of both supports the confidence hypothesis proposed in this paper as the dominant driver of the gender gap.

1.6.1 The gender gap among singles

One implication of the pure experience hypothesis is that there should be no gender gap in inflation expectations for single men and women, as singles are likely to engage in grocery shopping irrespective of gender and thus should experience similar inflation levels and volatility. To test this, I run a panel regression of inflation expectations on a female dummy and other demographics as in column (1) of Table 1.5. I split the sample by household size. Under the experience hypothesis, the gender gap should be larger in the non-single sample as traditional gender norms don't exist for singles.

Table 1.7 shows that for all surveys (a) there is a persistent and significant gender gap for both, singles and non-singles and (b) it is not statistically smaller for singles. In fact, in the SCE the gender gap is larger for singles. This is novel evidence as D'Acunto, Malmendier & Weber (2021) show no evidence for non-married and single individuals, and Jonung (1981) shows no treatment of disaggregated data.

Observation 1.6.1 *The gender gap is significant and no different between singles and non-singles.*

1.6.2 The gender gap correlated with historical food prices

Under the experience hypothesis, the gender gap is expected to widen in periods of higher food price inflation or price volatility compared to CPI core. This is be-

Table 1.7. Comparing the gender gap in inflation expectations for singles and non-singles

	Inflation expectation (12 months ahead, point estimate)					
	BOP-HH		SCE		MSC	
	N	S	N	S	N	S
female	0.49***	0.46***	0.80***	1.67***	0.35***	0.33***
	(0.01)	(0.02)	(0.02)	(0.07)	(0.02)	(0.03)
Constant	2.93***	2.75***	6.08***	7.84***	5.78***	5.62***
	(0.20)	(0.17)	(0.15)	(0.43)	(0.17)	(0.36)
Δ female	*0.03*		*-0.87****		*0.02*	
	(0.02)		*(0.08)*		*(0.03)*	
Observations	155,203	55,022	108,961	36,491	207,312	69,781
Residual SE	1.71	1.88	2.76	5.08	3.11	3.34

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors in parentheses.

Note: Mundlak CRE specification; Huber-robust regression. All regressions include demographic controls, regional controls and time dummies. N indicates households with more than 1 member and S indicates single households. The italics below indicate the gap between the coefficient on female in non-single and single samples along with the robust standard error.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

cause in those periods, household members with grocery shopping exposure observe particularly high and volatile prices which increases the bias and noisiness of their signals in the Bayesian learning framework.

To test whether food price exposure contributes to the gender gap, I estimate a regression model similar to the previous setup but replace time dummies with measures of relative food price dynamics. Specifically, I include the difference between food price inflation and overall CPI inflation ($CPI_t^{food} - CPI_t^{total}$) and the difference in their 6-month moving coefficients of variation ($\rho_{t,6}^{food} - \rho_{t,6}^{total}$).[12] Under the exposure hypothesis, these interaction terms with female should be positive: women, due to greater grocery shopping experience, should respond more strongly to relative food price volatility.

The results, reported in Table 1.8, show little evidence in favor of this view. In the Michigan Survey of Consumers (MSC)—the longest-running dataset with the richest time variation—the coefficient on the interaction term with female are negative, suggesting that in fact, the gender gap shrinks when food price inflation is high. To align more closely with the confidence mechanism, I split the BOP-HH and SCE by forecast confidence. The results are striking. In the SCE, the interaction between food price volatility and gender is negative (and significant) for high-confidence respondents, and only marginally positive for low-confidence respondents. In the BOP-HH, the interaction is again insignificant at high confidence, while for low-confidence respondents it is small but positive. Taken together, these findings point away from a grocery-shopping channel and toward confidence as the operative mechanism. Food price signals matter only when respondents are uncertain about their forecasts. For confident households, food price volatility has no effect—or even a negative effect—on the gender gap.

Observation 1.6.2 *The gender gap in point forecasts does not increase in response to high or volatile food prices. It only increases for those with low confidence, who may pay more attention to signals.*

[12] The moving coefficient of variation is defined as $\rho_{t,n} = \frac{\sigma_{t,n}}{\bar{x}_{t,n}} \times 100$, where t denotes the current period, n the number of periods, $\bar{x}_{t,n}$ the moving average, and $\sigma_{t,n}$ the moving standard deviation, computed as $\sqrt{\frac{1}{n-1}\sum_{i=t-n+1}^{t}(x_i - \overline{x}_t)^2}$ with x_i the value at time i.

Table 1.8. Microlevel effects of high food prices

	Inflation expectation (12 months ahead, point estimate)				
	BOP-HH		SCE		MSC
	High conf.	Low conf.	High conf.	Low conf.	All
female	-0.002	0.22***	0.04**	1.28***	0.30***
	(0.01)	(0.03)	(0.02)	(0.06)	(0.01)
CPI_t^{food} - CPI_t^{total}	0.30***	0.30***	0.14***	0.14***	0.01**
	(0.002)	(0.003)	(0.004)	(0.02)	(0.004)
female x (CPI_t^{food} - CPI_t^{total})	0.002	0.03***	-0.04***	0.04	-0.05***
$\rho_{t,6}^{food}$ - $\rho_{t,6}^{total}$	0.08***	0.08***	-0.005*	-0.02	-0.02***
	(0.004)	(0.01)	(0.003)	(0.02)	(0.004)
female x ($\rho_{t,6}^{food}$ - $\rho_{t,6}^{total}$)	-0.001	-0.01	-0.0001	0.02	-0.01
	(0.01)	(0.01)	(0.005)	(0.02)	(0.01)
Constant	2.82***	5.29***	2.79***	8.97***	5.03***
	(0.05)	(0.07)	(0.06)	(0.19)	(0.04)
Observations	98,825	104,599	72,726	72,726	277,092
Residual SE	1.52	2.84	1.89	6.17	3.43

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors in parentheses.

Note: Mundlak CRE specification; Huber-robust regression. All regressions include demographic and regional controls.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; OECD, Prices: Consumer prices, Main Economic Indicators (database), January 1978 - January 2025; own calculations

While the gender gap does not respond to food prices beyond the level of CPI inflation, in Appendix Table A.6 I show that the gender gap in inflation expectations does respond to the level of overall inflation. For high confidence individuals the gender gap reduces when inflation is high while it increases marginally if confidence is low. This may be because in periods of high inflation attention increases (Weber et al. 2025) and the effect of low confidence on the gender gap becomes more pronounced.

1.7 Beyond Gender

The confidence hypothesis suggests two implications that go beyond gender: First, it offers a framework to understand heterogeneities beyond gender. While the gender gap is a particularly large and significant due to the amplification effects of traditional gender norms and lower forecast confidence on average, expectation differences between those on high and low incomes, high and low education or different age groups can also be explained through this lens. Forecasting confidence is likely to also vary along those dimensions and may interact with the different shopping baskets. Secondly, the framework implies that salient prices such as food or gasoline (irrespectively of observed by men or women) play a larger role in times when forecast confidence is low. This speaks to the literature on exposure which found large effects of supermarket and gas prices on average (Coibion & Gorodnichenko 2015, Cavallo et al. 2017, Binder 2018, D'Acunto, Malmendier, Ospina & Weber 2021, Anesti et al. 2025). These effects are expected to be pronounced in times of macroeconomic uncertainty.

1.7.1 Confidence and other dimensions of heterogeneity

The framework developed above highlights forecast confidence as the central determinant of how noisy price signals are incorporated into household inflation expectations. While the gender gap provides a prominent and quantitatively large case—amplified by traditional gender norms and the systematically lower forecast confidence of women on average—the mechanism is not gender-specific. Rather, it offers a general lens for understanding the well-established expectation hetero-

geneities across demographic groups (Bruine De Bruin et al. 2010, D'Acunto et al. 2023)

In particular, forecast confidence is likely to vary systematically along dimensions such as income, education, and age. Households with lower income or education levels, or those at the tails of the age distribution, may hold flatter priors, face greater uncertainty in their economic environment, and have fewer opportunities to learn from reliable sources. In these cases, confidence interacts with the composition of shopping baskets: exposure to volatile prices differs not only between genders but also across income groups (e.g., a higher budget share of food or energy), education levels (e.g., reliance on different retail formats), or age cohorts (e.g., pensioners facing different consumption bundles).

To assess the extent to which confidence mediates these broader gaps, I apply a mediation analysis similar to that used in Section 1.4. This approach decomposes the raw differences in expectations between demographic groups into two parts: (i) the direct effect of a characteristic, which reflects differences in expectations not mediated by forecast confidence, and (ii) the indirect effect, which operates through forecast confidence. If the proposed framework is correct, the indirect effect should explain a sizable share of observed heterogeneities, while the direct effect remains small once confidence is accounted for. The results in Figure 1.6 support the predicted role of forecast confidence as a mediator of socio-demographic effects on inflation expectations. The figure displays the effect of a one-standard-deviation change in key predictors—age, education (`educ`), and household income (`hhinc`)—on the outcome variable $\pi^E_{i,t}$, separated into indirect effects mediated by my confidence measure (`prob_confident`) and direct effects that do not pass through the mediator.

Standardization allows coefficients to be interpreted in terms of standard deviation changes, facilitating comparison across variables measured on different scales. The standardization procedure proceeds in two steps. First, the coefficients linking predictors to the mediator ($X \to M$) and the mediator to the outcome ($M \to Y$) are adjusted by the ratio of standard deviations of the relevant variables. Specifically,

for each predictor X, the standardized indirect effect is computed as:

$$\text{indirect}_{std} = \left(\text{coef}_{X\to M} \times \frac{\text{sd}_X}{\text{sd}_M}\right) \times \left(\text{coef}_{M\to Y} \times \frac{\text{sd}_M}{\text{sd}_Y}\right),$$

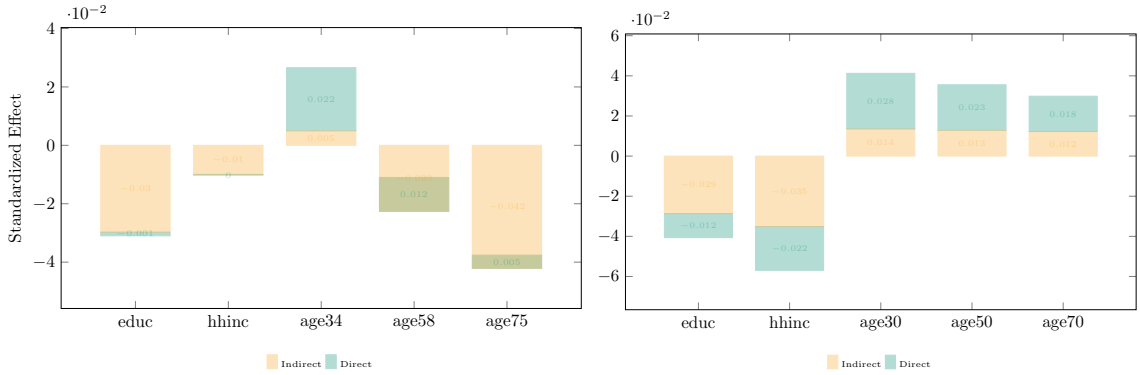
where sd_X is the standard deviation of the predictor, sd_M is the standard deviation of the mediator (`prob_confident`), and sd_Y is the standard deviation of the outcome variable (inflation expectations, $\pi^E_{i,t}$). The direct effect is standardized as

$$\text{direct}_{std} = \text{coef}_{X\to Y|M} \times \frac{\text{sd}_X}{\text{sd}_Y},$$

and the total effect is the sum of the standardized direct and indirect effects.

This approach shows that a substantial portion of the influence of age, education and income operates through forecast confidence, while the remaining direct effects are smaller. Full regression coefficients underlying these calculations are reported in Appendix Table A.7. For `educ` and `hhinc` in both SCE and BOP-HH, the standardized coefficients indicate sizable negative indirect effects via `prob_confident` and small direct effects on $\pi^E_{i,t}$. In contrast, **age** is included as a quadratic term to capture potential nonlinear effects (for example the youngest and oldest may be least confident). Its standardized effects are evaluated at three representative values corresponding to low (10th percentile), median, and high (90th percentile) ages. This allows the figure to show how both the indirect and direct effects of age change across the observed age range. At younger ages, the indirect effect through `prob_confident` is relatively small but positive in both surveys, while the direct effect is larger and positive. As age progresses, in the US the total effect reduces driven mainly by the direct effect shrinking. However, in Germany the total effect reverses. At median and especially at old age there is a strongly negative indirect effect suggesting that at older ages, confidence falls while the direct effect remains small and positive mitigating the negative confidence response marginally.

Observation 1.7.1 *Differences in forecast confidence explain a substantial fraction of expectation gaps by income, education, and age.*



a BOP-HH ***b SCE***

Figure 1.6. Mediation model for other dimensions of heterogeneity

Note: The stacked bar chart summarizes these standardized effects in the mediation model, with indirect effects shown in orange and direct effects in green. For age, the three bars correspond to low, median, and high ages.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; own calculations

1.7.2 When do food prices matter?

A second key implication of the framework developed in Section 1 is that salient price signals, such as food prices, should have a stronger impact on expectations when macroeconomic uncertainty is high. When uncertainty is elevated, forecasting becomes inherently more difficult, which is reflected in lower forecast confidence. Consumers with flat priors—interpreted here as low confidence—place greater weight on noisy signals, so aggregate shocks to salient goods exert a larger influence on inflation expectations during periods of elevated uncertainty.

To examine this implication, I extend the empirical strategy of Coibion & Gorodnichenko (2015) and Binder (2018), who regress the change in respondent i's expectation of one-year ahead inflation from six months prior on oil price inflation and find a positive coefficient. Specifically, I replicate their baseline regression with food prices and augment it by interacting food price changes with the 6-months change in the Baker et al. (2016) economic policy uncertainty index (EPU). This design allows me to test directly whether the pass-through from salient price movements to expectations is state-dependent. In the specification all variables are the same as in previous models and $\Delta\pi^E_{i,t}$ is the change in inflation forecast of individual i over

a 6 months time period.

$$\Delta\pi^{E}_{i,t} = \beta_0 + \beta_1\pi^{\text{food}}_{t} + \beta_2\pi^{\text{food}}_{t} \times \Delta\text{EPU}_t + \beta_3\Delta\text{EPU}_t + X_{i,t}\gamma_1 + R_i\gamma_3 + \bar{X}_i\gamma_4 + \nu_{i,t}, \tag{1.17}$$

The results in Table 1.9 strongly support the prediction. While the baseline effect of food price changes on expectations is modest and even negative in the US, the interaction with the EPU is positive and significant. Periods of heightened uncertainty amplify the effect of food price shocks on household inflation expectations, whereas in tranquil times food prices play a comparatively minor role. Put differently, consumers do not consistently overreact to grocery prices; rather, they rely on such signals disproportionately when uncertainty about the broader inflation environment is elevated. More generally, this result implies that central bank communication and policy credibility are especially important in periods of heightened uncertainty, when households are most susceptible.

Observation 1.7.2 *Consumers rely more on salient prices for forecasting inflation when macroeconomic uncertainty is increasing.*

Table 1.9. EPU mitigates food prices

	Difference in inflation expectation (12 months ahead, point estimate)						
	BOP-HH			SCE		MSC	
	All	Singles	Grocery Shoppers	All	Singles	All	Singles
π_t^{food}	0.11***	0.11***	0.11***	-0.01***	-0.02	-0.02***	-0.01
	(0.001)	(0.003)	(0.002)	(0.004)	(0.01)	(0.004)	(0.01)
Δ EPU$_t$	0.0004***	0.0005***	0.0003***	-0.002***	-0.002**	-0.003***	-0.002***
	(0.0001)	(0.0002)	(0.0001)	(0.0003)	(0.001)	(0.0003)	(0.001)
π_t^{food} x Δ EPU$_t$	0.001***	0.001***	0.001***	0.001***	0.001***	0.0003***	0.0001
	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0002)	(0.0001)	(0.0002)
Constant	-0.43**	-0.46	-0.50*	-7.79***	-15.87***	-0.69***	-0.74***
	(0.21)	(0.43)	(0.29)	(0.91)	(2.75)	(0.06)	(0.14)
Observations	100,482	25,054	52,714	57,122	14,215	99,379	24,424
Residual SE	2.37	2.47	2.52	2.72	4.26	2.95	3.10

*p<0.1; **p<0.05; ***p<0.01

Robust standard errors in parentheses.

Note: Mundlak CRE specification; Huber-robust regression. All regressions include demographic and regional controls.

Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; OECD, Prices: Consumer prices, Main Economic Indicators (database), January 1978 - January 2025; own calculations

1.8 Conclusion

This paper provides both theoretical and empirical insights into the determinants of inflation expectations, with a focus on the gender gap. Theoretically, I show that heterogeneity in point forecasts and forecast confidence can emerge from noise in priors and signals. Under a log-normal prior, increased noise raises average inflation expectations, consistent with the expoure hypothesis on the gender gap (Jonung 1981, D'Acunto, Malmendier & Weber 2021), but only when priors are sufficiently flat. Low forecast confidence—captured through flat priors—produces similar effects in noisy environments, offering an alternative and equally plausible mechanism.

Empirically, using German household data, I find that grocery shopping alone does not explain inflation expectations. Instead, forecast confidence, proxied through rounding behavior in survey responses (Binder 2017*b*, Reiche & Meyler 2022), is central. If men and women had equal confidence, the gender gap would in fact be negative. Grocery shopping elevates expectations primarily among low-confidence respondents, with little effect on those with high confidence. U.S. data from the SCE and MSC confirm that higher point forecasts arise from uncertainty in a right-skewed posterior, and trimming the right tail significantly reduces the gender gap. Moreover, the gender gap does not appear among singles, does not increase with elevated food prices, and is absent when respondents are asked specifically about food inflation. These findings indicate that the exposure alone is insufficient in accounting for the gap: forecast confidence is pivotal. Forecast confidence is strongly correlated with financial literacy, which differs systematically by gender (Lusardi & Mitchell 2008, Bucher-Koenen et al. 2017, Bucher-Koenen et al. 2025). The gender gap therefore reflects both traditional norms and lower financial literacy among women, leading to rounded and less precise forecasts. Importantly, forecast confidence also helps explain other demographic gaps in expectations, including age, education, and household income.

The policy implications are substantial. A sizable tail of low-confidence women produces imprecise expectations, affecting savings, investment, and responsiveness to policy communication (Lusardi & Mitchell 2008, McMahon & Reiche 2024). Improving financial literacy and increasing female representation in policy institutions

could help mitigate these gaps (D'Acunto et al. 2022). More broadly, the mechanism has implications for survey-based measures of inflation: low-confidence individuals tend to overstate moderate inflation but may understate high inflation, creating the appearance of more anchored expectations during high-inflation periods. Finally, easily observable price signals, such as food prices, become especially important during periods of heightened macroeconomic uncertainty providing a time varying element to the exposure literature.

Chapter 2

Divergent Perceptions, Divergent Pay: Inflation and the Gender Wage Gap

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How does the gender wage gap respond to inflation? We show that it widens after both supply- and demand-driven inflationary shocks. This widening reflects gender differences in labor market perceptions: women interpret inflation as a signal of deteriorating conditions, while men perceive mild improvement. These divergent beliefs reduce women's willingness to pursue higher wages, slowing their nominal wage growth relative to men's. To formalize this mechanism, we develop a New Keynesian search-and-matching model where workers do not observe the true nature of the shock and women form pessimistic beliefs. The model replicates the observed cyclicality of the gender wage gap, establishing a novel link between inflation and gender inequality.

This paper should not be reported as representing the views of Norges Bank. The views expressed are those of the authors and do not necessarily reflect those of Norges Bank. We are grateful to Michael McMahon, Alexandre Kohlhas, Barbara Petrongolo, Martin Ellison, Britta Gehrke, Lea Weigand, Sara Casella, Kurt Mitman, Per Krusell, Morten Ravn, Kjetil Storesletten, Marianna Kudlyak, Domenico Giannone and Hie Joo Ahn for their insightful comments alongside conference and seminar participants at the SNDE, the Kiel Institute, CEPR, Bank of Finland, the ICEEE, the IAAE, the University of Oxford, Norges Bank, the ASSA and Federal Reserve Bank of Philadelphia. We also thank an anonymous referee for the Norges Bank Working Paper Series for particularly helpful feedback.

Introduction

Despite decades of convergence, a substantial wage gap between men and women persists even after accounting for differences in worker demographics, industry, and occupation (Blau & Kahn 2017, Goldin 2014, Olivetti & Petrongolo 2016). In the United States, this gap narrowed in the 1980s and 1990s but has since stabilized, remaining above 10% and showing marked cyclical fluctuations (see Figure 2.1). The persistence of this gap remains a central puzzle in labor economics, with implications for both gender inequality and labor market efficiency. While much is known about the long-run convergence of male and female wages, we know comparatively little about how the gap evolves over the business cycle and, in particular, how it responds to inflationary shocks.

This paper offers a new perspective by linking inflation dynamics to the evolution of the gender wage gap. In doing so, we establish two empirical facts. First, we show that the gender wage gap systematically widens during periods of rising inflation, regardless of whether inflation is driven by demand or supply shocks. This finding implies that the costs of inflation extend beyond the aggregate loss in purchasing power: inflation also redistributes income across groups, widening gender inequality in the labor market. This redistribution represents a distinct equity cost beyond existing explanations of the cyclical behavior of the gender wage gap. Rather than reflecting changes in industry composition or labor market attachment, the inflation-induced widening we document persists among comparable workers and accounts for a sizable share of cyclical variation in the gap. Second, we document pronounced gender differences in how workers interpret inflationary surprises: women revise their labor-market beliefs more pessimistically in response to inflationary shocks, particularly regarding their own job prospects, whereas men do not. We propose a mechanism that links these belief differences to the widening of the gender wage gap: women's more pessimistic interpretation of inflationary shocks reduces their willingness to pursue nominal wage increases, slowing their wage growth relative to men during inflationary episodes. We formalize this mechanism within a two-agent New Keynesian search-and-matching model in which women's ambiguity-averse beliefs generate their differential response to inflation. The model reproduces the empirical

widening of the gender wage gap following inflationary shocks, thereby providing a coherent explanation for the two empirical facts.

We begin by documenting the response of the gender wage gap to inflationary demand and supply shocks. Using the U.S. Current Population Survey (CPS) from 1982 onward, we construct a monthly time series of adjusted gender wage gaps that control for worker characteristics, industry, and occupation using a Kitagawa-Oaxaca-Blinder decomposition (Kitagawa 1955, Oaxaca 1973, Blinder 1973, Blau & Kahn 2017). Using this time series in a structural VAR with zero and sign restrictions, we study how the gender wage gap responds to inflationary demand and supply shocks. The results reveal a robust and uniform pattern: inflation, regardless of its source, systematically widens the gender wage gap. The response is quantitatively important: inflationary shocks account for 12–25 percent of the forecast error variance of the gender wage gap across different model specifications. The widening of the gender wage gap under both types of inflationary shocks suggests a mechanism directly tied to the inflation process itself rather than to standard business cycle exposure. Importantly, these results are not driven by differential selection of women and men into employment over the business cycle or changes in workforce composition: the widening of the gender wage gap following inflationary shocks persists in gender-balanced matched samples that hold constant worker, industry, and occupation characteristics. These results differ from previous work emphasizing differences in industry exposure (O'Neill 1985, Hoynes et al. 2012, Bredemeier et al. 2017, Albanesi & Şahin 2018) and countercyclical wage convergence (Kandil & Woods 2002, Kovalenko & Töpfer 2021). Once differences in industry, occupation, and demographics are netted out, the remaining explanation points to differences in wage renegotiation behavior: men adjust their nominal wages more aggressively to preserve real pay, while women do so less. Consistent with this mechanism, decomposing the gender wage gap into real wages of women and men reveals that after both types of inflationary shocks, the real wages of women decrease while those of men remain largely unchanged.

To understand why wage renegotiation might differ across genders, we turn to the role of expectations. The idea that inflation shapes beliefs about the labor market

is well established. For instance, Hajdini et al. (2023) document a low inflation-to-wage expectations pass-through and Kamdar & Rey (2025) shows that consumers associate high inflation with high unemployment, coined the supply-side interpretation of inflation surges (Candia et al. 2020, Andre et al. 2022, Weber et al. 2022, D'Acunto & Weber 2024*b*, Andre et al. 2025). This may also explain why many workers dislike inflation, if they assume that nominal wages do not keep pace with rising prices (Stantcheva 2024, Guerreiro et al. 2024). Inflation expectations are also related to consumption and savings behavior (Coibion, Georgarakos, Gorodnichenko & van Rooij 2023, Coibion et al. 2022*b*), as well as behavior in the labor market. For example, high inflation expectations can increase the likelihood for consumers to search for a new job (Pilossoph & Ryngaert 2024) and reduce their reservation wages (Baek & Yaremko 2024). In addition, women have been shown to overestimate inflation (D'Acunto, Malmendier & Weber 2021, Reiche 2025), dislike inflation more (McMahon & Reiche 2024), perceive a lower inflation-wage pass-through (Hajdini et al. 2023) and that gender gaps in wages can be traced to a large extent to differences in bargaining behavior (Caldwell et al. 2025, Biasi & Sarsons 2022, Exley et al. 2020, Card et al. 2016, Leibbrandt & List 2015, Babcock & Laschever 2003, Azmat & Petrongolo 2014). Taken together, these findings suggest that women might interpret inflation more negatively than men in terms of labor market outcomes. Because they tend to associate inflation with weaker labor demand and expect a smaller pass-through from prices to wages, they may perceive less room to bargain for higher nominal pay. As a result, when inflation rises, women adjust their nominal wages less aggressively than men, leading to a widening of the gender wage gap even among workers with similar characteristics in the same industries and occupations.

To provide evidence for this mechanism, we analyze how men and women revise their beliefs about the labor market in response to inflationary demand and supply shocks using microdata from the Federal Reserve Bank of New York's Survey of Consumer Expectations (SCE) within the same Structural VAR with sign and zero restrictions. This model allows us to study the responses of male and female survey beliefs to the same inflationary shocks we considered before. We focus on full-time workers and control for different demographic characteristics and industry sorting of male and female respondents as before. The results are striking: following both

types of inflationary shocks, women's unemployment expectations rise, while men's fall. Women lower their job-finding and earnings expectations, while men leave their job-finding expectations unchanged and revise their earnings expectations upward. Overall, men respond to inflationary shocks with relative optimism about the labor market, while women react with relative pessimism. These systematic differences in expectations help explain why wage adjustments might differ across genders even among workers with comparable characteristics employed in similar industries. Our findings complement the literature on consumer narratives (Shiller 2017, Stantcheva 2024, Andre et al. 2022, Binetti et al. 2024, Andre et al. 2025) by showing that the average "supply-side" interpretation of inflation observed in survey data may mask meaningful heterogeneity across individuals. The evidence is consistent with women responding to inflation historically in ways aligned with a supply-side interpretation, while men's reactions appear closer to a demand-side view.

We develop a New Keynesian model with search-and-matching frictions (Diamond 1982, Mortensen 1982, Pissarides 1985), building on Thomas (2008), Faia (2008), Galí (2010), Blanchard & Galí (2010), Christiano et al. (2016), but featuring male and female workers. The purpose of the model is to show that an expectation-driven mechanism can explain the observed widening of the gender wage gap after inflationary shocks, while alternative channels fail to do so.

Within our baseline model, we first examine conventional explanations for the gender wage gap, including taste-based discrimination (Becker 1971, Black 1995, Charles & Guryan 2008, Neyer & Stempel 2021), perceived productivity differentials arising through statistical discrimination (Arrow 2015, Phelps 1972, Aigner & Cain 1977, Altonji & Pierret 2001) or statically less frequent (Leibbrandt & List 2015, Exley et al. 2020) and less aggressive (Artz et al. 2018, Babcock & Laschever 2003) wage negotiation. None of these channels can replicate our empirical finding that the gender wage gap widens following both supply- and demand-driven inflationary shocks. In particular, these mechanism imply opposite responses of the gender wage gap across the two shocks, because in the model the direction of the gap is pinned down by the output response. By contrast, our empirical analysis demonstrates that the direction of the gender wage gap is contingent upon the direction

of inflation. We attribute this to a gender gap in subjective expectations: women assign higher posterior weight to adverse supply-shock interpretations. This leads to expectations of weaker labor market conditions and, consequently, less aggressive wage renegotiation. Such a mechanism generates a widening of the gender wage gap following inflationary shocks, consistent with our empirical findings. This gendered "pessimism gap" is well-documented in economics and finance (Dawson 2017, Jacobsen et al. 2014, Bjuggren & Elert 2019), as well as in psychology (Dawson 2023, Lin & Raghubir 2005) and political science (Gwartney-Gibbs & Lach 2016). Following Bhandari et al. (2025), we formalize these pessimistic expectations through the lens of ambiguity aversion.

Specifically, we solve the model in two stages. First, unions representing men and women in the wage negotiation observe only imperfect signals about the nature of shocks and must form beliefs about the underlying state of the economy (Erceg et al. 2024). They know how the economy will respond for each type of shock and compute the household value respectively. We specify household preferences such that lower consumption caused by a cost-push shock outweighs the reduced disutility from working and households perceive supply-side disturbances as more costly. We capture pessimism as ambiguity aversion using the robust control framework of Hansen & Sargent (2001), in which continuation values are exponentially tilted ("softmin" weighting). This formulation implies that ambiguity-averse agents behave as if facing a worst-case scenario. The model is then solved assuming rational expectations of the household (where men and women form joint decisions) and firms but ambiguity aversion by the union negotiating women's wages. Although output and inflation responses remain broadly similar across belief regimes, these differences in perceptions distort real wages: agents with ambiguity-averse, supply-biased beliefs experience larger real wage losses for any inflationary shock. Hence, the model provides a structural interpretation of the data, showing that gendered expectations shaped by ambiguity aversion can account for the observed dynamics of the gender wage gap, while traditional channels cannot. By embedding biased belief formation into a standard wage-setting framework, our analysis also contributes to the growing literature on expectation-driven wage dynamics (Baek & Yaremko 2024, Menzio 2023, Balleer et al. 2026, Pilossoph & Ryngaert 2024) and the role of

ambiguity aversion in business cycles (Bhandari et al. 2025, Ilut & Schneider 2014, Masolo & Monti 2021, Baqaee 2020).

The remainder of the paper is structured as follows. Section 2.1 discusses the construction of gender wage gaps from CPS data and studies the response of these to inflationary demand and supply shocks. Section 2.2 presents evidence on the effect of inflationary shocks on labor-market beliefs in the SCE. Section 2.3 introduces a New Keynesian search and match model with two types of workers and ambiguity aversion. Section 2.4 concludes.

2.1 Inflation and the Gender Wage Gap

We begin by documenting our first new empirical fact: the gender wage gap (GWG) widens in response to unanticipated increases in inflation, whether triggered by demand or supply shocks, even after controlling for worker demographics, industry and occupation. This pattern, which has not been emphasized in the existing literature, suggests a macroeconomic dimension to gender wage disparities that goes beyond individual characteristics or occupational sorting. To establish this link, we combine detailed measures of the GWG from the CPS survey with a structural VAR model that allows us to analyze its cyclical behavior in response to inflationary demand and supply shocks.

2.1.1 Computation of the adjusted gender wage gap

We construct our measure of the adjusted gender wage gap using monthly CPS data from January 1982 to December 2023 (Flood et al. 2025). Following standard practice in the literature (Blau & Kahn 2017), we restrict the sample of respondents to employed, full-time wage and salary workers, excluding the self-employed. This restriction serves two purposes. First, it ensures comparability across genders by focusing on workers whose pay is set through standard employer–employee wage-setting arrangements, rather than through self-employment or irregular hours. Second, it avoids conflating wage differences with gender gaps in hours worked or labor force attachment. Wages are measured as hourly earnings in respondents' current jobs. Throughout, we take hourly rather than weekly earnings as our base-

line measure of wages, as this better captures variation along the intensive margin.[1] While we assume that most respondents interpret the earnings question as referring to their base pay, there is evidence that additional pay is strongly correlated (Caldwell et al. 2025).

We define the adjusted gender wage gap (GWG) as the portion of the male–female difference in hourly earnings that cannot be explained by observable characteristics such as differences in industry, occupation, educational attainment, working hours, and other demographics (as, for example, age, race, and region). We compute this measure using a standard Kitagawa–Oaxaca–Blinder (KOB) decomposition of log hourly wage differences into an explained component, attributable to these observed characteristics, and an unexplained component (Kitagawa 1955, Oaxaca 1973, Blinder 1973). The latter is our measure of interest.

For any month t, we estimate separately male (m) and female (f) weighted ordinary least squares (OLS) wage regressions for individual i (the i and t subscripts are suppressed to simplify notation):

$$Y_m = X_m B_m + \gamma_m OCC1990_m + \zeta_m IND1990_m + u_m$$
$$Y_f = X_f B_f + \gamma_f OCC1990_f + \zeta_f IND1990_f + u_f,$$

where Y is the log of hourly earnings and X is a vector of demographic controls which includes age, age squared, education, race, children, marital status, region, union coverage and total household income. $OCC1990$ denotes a set of occupation dummies based on the 1990 Census Bureau occupational classification scheme, which distinguishes 389 detailed occupational categories.[2] $IND1990$ is a corresponding set of industry dummies constructed from the 1990 Census Bureau industrial classification system, comprising 247 distinct industries.[3] The high granularity of these controls allows us to compare men and women within narrowly defined occupations and industries, ensuring that the estimated gap, and its cyclicality, is not driven by broad sectoral or occupational composition differences. Finally, u is an error term.

[1] Nonetheless, our results are robust to using weekly earnings instead, as we show in the next subsection.

[2] See IPUMS variable description.

[3] See IPUMS variable description.

Denote with hats the predicted coefficients from the regressions above and define:

$$\hat{Y}_{mm} = X_m \hat{B}_m + \hat{\gamma}_m OCC1990_m + \hat{\zeta}_m IND1990_m$$
$$\hat{Y}_{mf} \equiv X_m \hat{B}_f + \hat{\gamma}_f OCC1990_m + \hat{\zeta}_f IND1990_m.$$

where $\hat{Y}_{mm}$ is the predicted log of hourly earnings of men using the estimated coefficients of the male regression, while $\hat{Y}_{mf}$ is the predicted log of hourly earnings of men using the estimated coefficients of the female regression.

The demographics adjusted, intra-industry, intra-occupation GWG is defined as:

$$\text{GWG}_t = \left[\exp\left(\sum_i (\hat{Y}_{mm,i,t} - \hat{Y}_{mf,i,t}) \times \omega_{i,t} \right) - 1 \right] \times 100, \tag{2.1}$$

where the sum is taken over all male individuals in period t and $\omega_{i,t}$ is individual i's sampling weight from the CPS survey. Intuitively, the gap measures the ratio of men's observed wages to the counterfactual wages they would earn if evaluated under women's wage coefficients. For example, a value of $\text{GWG}_t = 20$ means that men earn on average 20 percent more than they would if their characteristics were priced under women's wage structure. Equivalently, this implies that women earn about 17 percent less than men with the same characteristics. An increase in the adjusted GWG therefore indicates that men's observed wages have moved further above this counterfactual benchmark. That is, the wage penalty associated with being female, conditional on observables, has grown. Conversely, a decline in the adjusted GWG reflects a narrowing of this differential, meaning that men's actual and counterfactual wages are becoming closer, or equivalently, that women's relative disadvantage is shrinking.

More details on the estimation can also be found in Blau & Kahn (2017), who instead of industry and occupation controls include experience, not captured by the CPS. We include age, education and children as proxies for experience. When controlling for experience, the gap slightly narrows compared to our results, but their unadjusted specification matches our estimates, despite the use of different data sources. It is important to note that we define the GWG as male minus female wages, whereas Blau & Kahn (2017) define it as female minus male wages. We adopt the

male–female definition because it makes interpretation more intuitive: a widening gap means men's wages have risen further above women's, while a narrowing gap indicates convergence.

We adopt the KOB decomposition as our baseline measure of the gender wage gap for two main reasons. First, unlike a simple female dummy in a linear regression (as in Penner et al. 2022), KOB allows the observables in X to have different effects on the wages of women and men, i.e. it does not impose $B_m = B_f$ (Bonaccolto-Töpfer & Satlukal 2024). For example, the return to education may differ between men and women, an effect the KOB framework captures but a pooled regression would constrain to be identical. Second, KOB decompositions enjoy the status of "doubly robust" estimators of counterfactuals (Kline 2011) and are routinely used as the benchmark measure of adjusted gender wage gaps (Blau & Kahn 2017). That said, our main conclusions are not sensitive to this choice. In the next subsection, we show that alternative measures of the adjusted gender wage gap deliver the same results as our baseline.

In particular, we also consider an alternative, non-parametric measure based on nearest-neighbor matching (Ñopo 2008). The motivation for doing so is that any regression-based counterfactual approach, even when conditioning on a rich set of observables and restricting attention to employed full-time workers, may implicitly rely on comparisons across regions of the covariate space where men and women do not fully overlap. If men and women sort differently across detailed occupation–industry–hours–tenure combinations, or if the composition of employed workers varies by gender over the business cycle, regression-based decompositions may partly attribute composition effects to wage differences. Nearest-neighbor matching addresses these concerns by constructing gender-balanced samples at each point in time in which each employed woman is matched to the most similar employed man (and vice versa) based on a rich set of predetermined demographic and job-related characteristics. Similarity is defined using Mahalanobis distance on the raw covariates, while requiring exact matches on detailed occupation and industry.[4] By restricting the comparison to observationally similar workers who coexist in the

[4]Mahalanobis is preferred to Euclidean distance as it automatically standardizes variables that are on different scales.

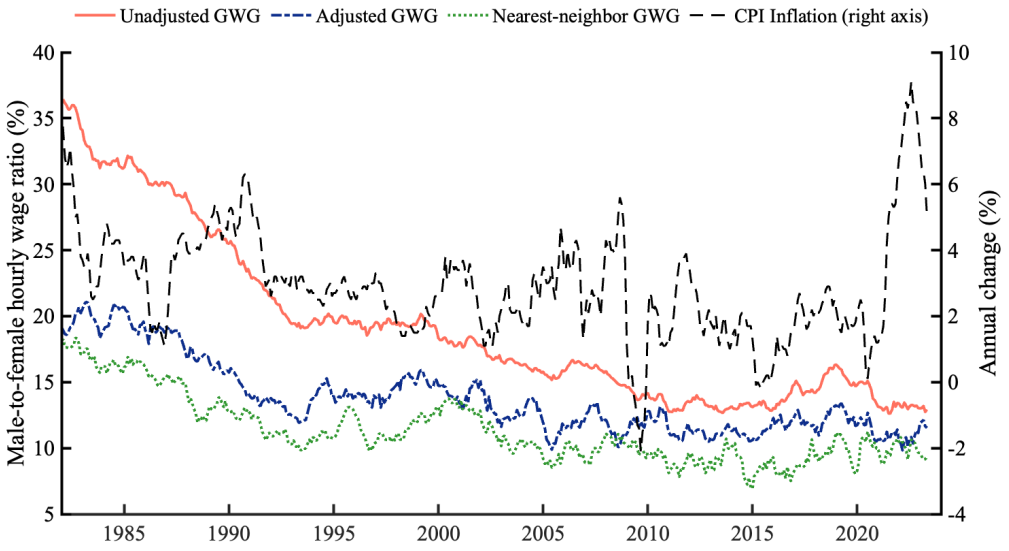


Figure 2.1. Adjusted and unadjusted GWG (1982-2023)

Notes: Adjusted GWGs are computed using a traditional Kitagawa-Oaxaca–Blinder decomposition of male/female differences in log wages controlling for worker characteristics, industry and occupation computed as in Equation 2.1. Unadjusted GWG are computed in the same way, omitting industry and occupation controls. The figure shows 12-month moving averages to smooth the volatility of the series, allowing a cleaner comparison.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unadjusted and Adjusted GWG: CPS IPUMS, own calculations.

same regions of the covariate space, this approach enforces common support by construction and limits the scope for composition-driven bias. Moreover, unlike regression-based decompositions such as the KOB decomposition, nearest-neighbor matching does not require estimating counterfactual wage equations or extrapolating beyond observed matches and therefore avoids uncertainty arising from functional-form assumptions. We therefore use matching-based estimates as a complementary measure of the adjusted gender wage gap.

These methods yield monthly time series of demographically adjusted, intra-industry, intra-occupation gender wage gaps. Figure 2.1 plots the resulting adjusted gender wage gaps constructed using both the baseline Kitagawa–Oaxaca–Blinder (KOB) decomposition and the nearest-neighbor matching approach together with the corresponding unadjusted gap and year-on-year CPI inflation. Adjusted gaps have declined systematically since the 1980s, although the pace of convergence has slowed in recent years, consistent with Blau & Kahn (2017), Goldin (2014) and Olivetti & Petrongolo (2016). Adjusted gaps are smaller in level but exhibit stronger cyclical

fluctuations than their unadjusted counterparts, which omit industry and occupation controls. Figure B.1 in the Appendix additionally compares the KOB measure to alternative measures of the gender wage gap, including the coefficient on the female dummy from a pooled linear regression (Penner et al. 2022) and the official raw gaps published by the U.S. Census Bureau (Guzman & Kollar 2024). Because these alternative measures are expressed as female-minus-male earnings, their trends appear inverted relative to ours: when the KOB measure declines, the others rise. Aside from this sign convention, the series display broadly similar dynamics, and both the KOB and nearest-neighbor measures appear to provide conservative lower bounds on the overall magnitude of gender wage disparities.

2.1.2 Gender wage gap response to inflationary shocks

We rely on a flexible time-series model in order to study the response of the adjusted gender wage gap to inflationary demand and supply shocks. Consider the standard reduced-form VAR model with n variables and p lags:

$$Y_t = C + A_1 Y_{t-1} + A_2 Y_{t-2} + \cdots + A_p Y_{t-p} + u_t$$

where Y_t is a $n \times 1$ vector of endogenous variables, $u_t \sim N(0_n, \Sigma)$ is a $n \times 1$ vector of reduced-form innovations, $A_1, ..., A_p$ are n x n coefficient matrices associated with lagged variables, and C is a n x 1 vector of constants. The reduced-form innovations u_t are linear combinations of structural, economic shocks: $u_t = B_0^{-1}\varepsilon_t$. B_0 is the $n \times n$ matrix of contemporaneous relationships between the endogenous variables in the system and $\varepsilon_t \sim N(0_n, I_n)$ is the $n \times 1$ vector of structural shocks, normalized to be of unit variance without loss of generality.

Y_t contains the following variables in levels, at the monthly frequency: CPI inflation, the unemployment rate and a trailing three-month moving average of the adjusted gender wage gap.[5] This is arguably the simplest system of variables to identify the effects of demand and supply shocks on the GWG. We adopt this specification as

[5]We use a moving average of the original series to smooth its short-term volatility and improve model stability. Later in this section, we also report results using the original (non-smoothed) series and find the results to be virtually identical, indicating that the main conclusions are not sensitive to this smoothing choice.

our baseline given its simplicity and interpretability. We include $p = 3$ lags of the dependent variable as suggested by the BIC criterion and estimate the VAR model using Bayesian methods specifying standard NIW priors for reduced-form parameters (see Arias et al. 2018). We estimate the VAR in levels because our analysis focuses on explaining short- to medium-run fluctuations rather than long-run patterns. Johansen's trace test indicates two cointegrating relationships among the variables included in the VAR at the 5% significance level (see Table B.1 in the Appendix). In this setting, estimating the VAR in levels is appropriate and does not entail misspecification: as shown by Sims et al. (1990), VARs estimated in levels yield consistent inference for impulse responses even in the presence of cointegration, while avoiding distortions that may arise from unnecessary differencing or detrending. Monthly data on CPI inflation and unemployment are obtained from the Bureau of Labor Statistics (BLS) and the Federal Reserve Economic Data (FRED), respectively. We exclude the COVID-19 period from our baseline analysis, as prior research has shown that the pandemic affected female labor markets in atypical ways, largely due to its asymmetric impact on different sectors and increased demands for home production (Albanesi & Kim 2021). Therefore, we estimate the baseline VAR model on the sample spanning January 1982 - February 2020. Nonetheless, we assess the robustness of our findings to alternative specifications of the baseline model, including different measures of inflation, the business cycle, and the gender wage gap, as well as higher-dimensional VARs with additional variables and lags, and including the COVID-19 period. As shown later in this section, these extensions yield consistent results, indicating that our baseline conclusions about the effects of inflationary demand and supply shocks on the GWG are not sensitive to alternative specifications of the VAR model.

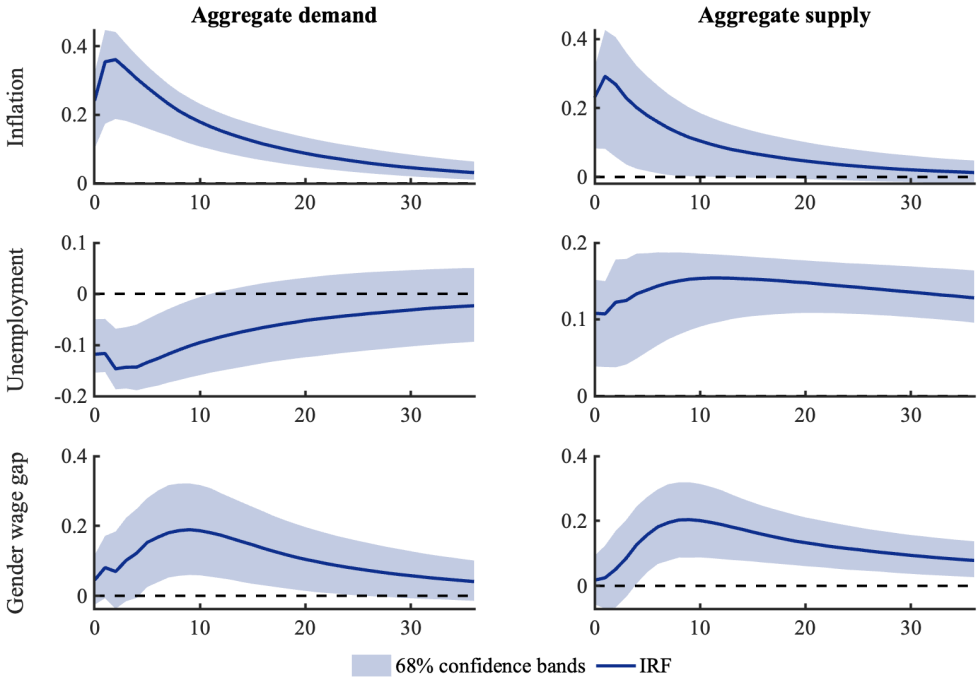
To identify the SVAR, we impose sign and zero restrictions on the matrix of contemporaneous responses B_0 (see Arias et al. 2018). Specifically, we restrict the signs of inflation and unemployment responses to demand and supply shocks. Following standard practice in the literature, we impose that demand shocks generate a contemporaneous negative co-movement between inflation and unemployment, while supply shocks generate a positive co-movement. We normalize both demand and supply shocks to be inflationary, that is, with a positive sign on inflation. As our

Table 2.1. Impact sign and zero restrictions in the SVAR

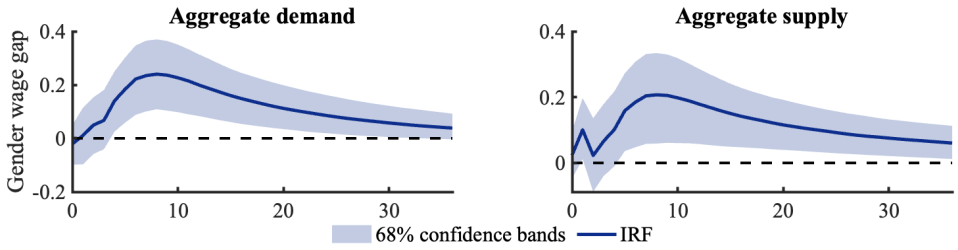
	Demand	**Supply**	**Residual**
Inflation	+	+	0
Unemployment	−	+	0
Gender wage gap	?	?	+

primary interest lies in the response of the GWG to these shocks, we leave its contemporaneous response unrestricted. Any observed movement in the GWG in response to demand and supply shocks is thus an outcome of the estimated model. However, sign restrictions alone generally result in partial (set) identification, meaning the structural shocks are not uniquely determined. This limits the interpretability of the impulse responses and the attribution of observed dynamics to specific shocks. To achieve separate identification of all three shocks, we introduce a third, residual shock using additional zero restrictions, setting certain elements of B_0 to zero to imply no contemporaneous effect. The residual shock is defined as an innovation to the GWG that has no contemporaneous effect on inflation and unemployment. While it is not assigned a structural interpretation, its inclusion is necessary to fully identify the model. This approach is also justified by the fact that the GWG, constructed from micro-level hourly earnings from the CPS data, may be influenced by idiosyncratic or institutional factors, such as changes in workplace policies or discrimination, that are unlikely to have immediate effects on aggregate macroeconomic outcomes within a month. Table 2.1 summarizes the restrictions for the structural identification. Nonetheless, we show in the robustness below that alternative identification strategies for inflationary shocks deliver the same results.

Panel (a) of Figure 2.2 presents the estimated impulse response functions to inflationary demand and supply shocks. The x-axis indicates time in months following the shock, while the y-axis reports the impulse response functions of the variables in percentage point terms. For each horizon, the solid line shows the point-wise median response based on 10000 draws from the posterior distribution of impulse responses, while the shaded areas represent the 68% credible intervals. An inflationary demand shock leads to a persistent increase in inflation and a decline in unemployment. In contrast, an inflationary supply shock results in a persistent rise in both inflation and the unemployment rate. Although the sign restrictions are imposed only on



a Baseline with KOB decomposition



b Baseline with nearest-neighbor matching

Figure 2.2. Impulse responses in the SVAR

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time. Adjusted GWGs computed using monthly data from January 1982–February 2020, 3-month trailing moving average.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

impact, these effects persist over time.

The novel contribution lies in the response of the adjusted gender wage gap (GWG), which increases significantly and persistently following both types of inflationary shocks. Quantitatively, a demand-driven inflationary shock that raises inflation by about 0.25 percentage points on impact leads to an increase in the GWG of approximately 0.19 percentage points after one year. Similarly, a supply-driven inflationary shock that increases inflation by about 0.22 percentage points on impact results

in an increase in the GWG of roughly 0.18 percentage points after one year. The estimated impulse responses indicate that these effects are persistent at monthly frequency, remaining economically and statistically significant for roughly three years. However, the responses gradually attenuate at longer horizons, with the GWG converging back toward its pre-shock level. Since the GWG is adjusted for individual characteristics, industry, and occupation, the observed response cannot be explained by sectoral reallocation, occupational sorting, or differences in worker demographics. Instead, it captures gender differences in how wages respond to inflationary shocks within similar jobs, sectors, and individual characteristics. The increase in the adjusted GWG following demand shocks suggests that inflation leads to asymmetric wage responses by gender even in comparable roles. The increase after inflationary supply shocks reinforces this interpretation and highlights the role of inflation itself as the common underlying mechanism. This finding suggests that gender asymmetries in wage-setting mechanisms are key. One possible explanation is that women may be less likely to renegotiate wages compared to men. This asymmetry would imply that inflation, whether demand- or supply-driven, reduces real wages more for women, thereby widening the adjusted GWG. To corroborate this explanation, we re-estimate the baseline SVAR including the gender wage gap for unionized workers only (see Figure B.3 in the Appendix), where wages are typically subject to collective bargaining, and observe little to no significant effect to inflationary demand and supply shocks. This suggests that wage-setting institutions that mitigate individual negotiation frictions can attenuate the inflation-induced widening of the gender wage gap.

One might be concerned that the KOB decomposition, even when conditioning on observables and using the sample on employed full-time workers, does not fully rule out differential selection into employment by gender over the business cycle. If inflationary shocks differentially affect which women versus men remain employed (or enter/exit employment), the observed wage gap dynamics could reflect composition effects rather than a gender gap in within-person wage adjustments. To directly address this concern, we construct gender-balanced samples using nearest-neighbor matching (Ñopo 2008) as an alternative measure. As highlighted in the previous subsection, this procedure ensures that men and women are comparable on key de-

mographic and job-related characteristics that may jointly affect employment and wages. Unlike regression-based decompositions, this matching-based approach relies exclusively on observed wage comparisons among observationally similar workers and therefore does not hinge on parametric assumptions used to construct counterfactual wages. We then define the gender wage gap as the ratio of mean hourly earnings on the matched sample and substitute the adjusted gender wage gap with this measure in the baseline SVAR with zero and sign restrictions. The matched-sample GWG displays the same responses to inflationary shocks as in our baseline specification, as shown in Panel (b) of Figure 2.2.[6] If anything, the estimated effects are slightly stronger. This indicates that our core results are not driven by differential selection of women and men into employment over the business cycle, but instead reflect genuine differences in wage adjustment among comparable workers.

Figure 2.3 shows that the response of the unadjusted GWG is more muted, especially following supply shocks. This suggests that sectoral reallocation and exposure effects may offset part of the inflation-induced wage asymmetry in aggregate terms, but the underlying gender-based difference in wage adjustment remains visible once those factors are controlled for. To further investigate this mechanism, we augment the baseline VAR with the unemployment gap between men and women as a direct measure of differential exposure (Bredemeier et al. 2017, Albanesi & Şahin 2018). As shown in Figures B.5 and B.6, the adjusted GWG response to both demand and supply shocks remains robust and largely unchanged, while the response of the unadjusted GWG to supply shocks becomes positive and statistically significant. These results confirm that explicitly accounting for gender-specific exposure in the VAR reveals the inflation-induced widening of the GWG, even in unadjusted specifications, and further supports the interpretation that differences in wage-setting behavior across gender are central to the observed dynamics.

2.1.2.1 Alternative model and variable specifications

In addition, we perform a battery of robustness exercises to assess the sensitivity of our baseline finding – the widening of the gender wage gap after inflationary

[6]The full set of impulse responses and comparison with our baseline SVAR is presented in Figure B.4 in the Appendix. The responses of inflation and unemployment are essentially identical to those in the baseline specification for both shocks.

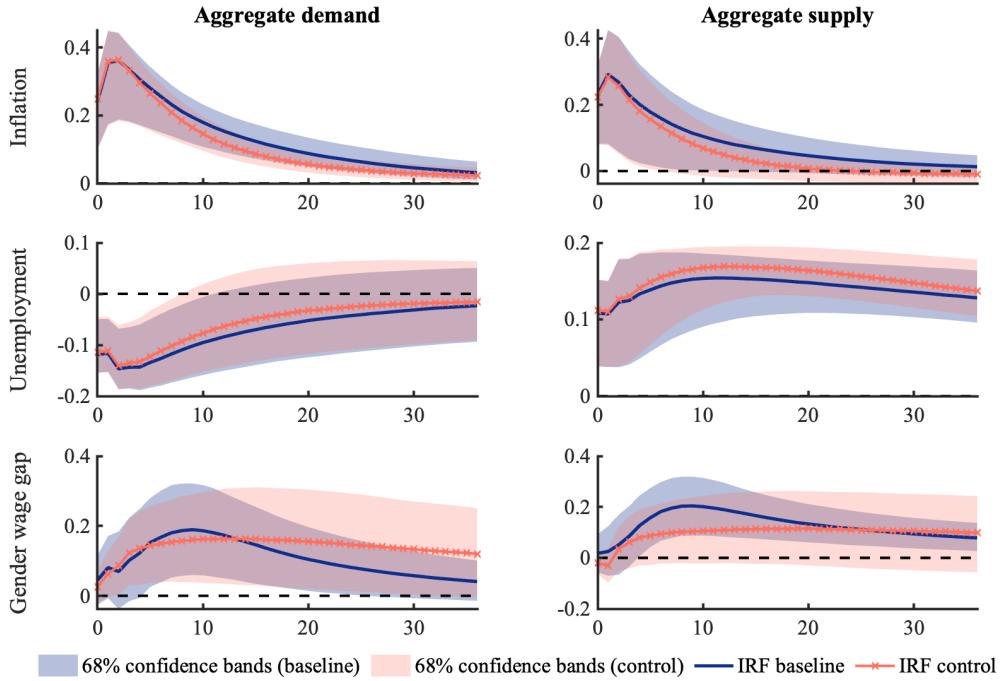


Figure 2.3. Impulse responses in the SVAR of adjusted and unadjusted GWGs

Notes: Adjusted (solid blue line) and undjusted (crossed orange line) GWGs computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted and unadjusted GWG: CPS IPUMS, own calculations.

shocks – to alternative specifications of the VAR model. For clarity of exposition, all corresponding figures are reported in the Appendix.

First, we assess the robustness to alternative identification strategies for inflationary shocks. In our baseline, we focus on inflationary demand and supply shocks because this distinction allows us to differentiate between shocks that increase inflation while either decreasing (demand) or increasing (supply) unemployment. This framing is informative for understanding the macroeconomic context in which the GWG evolves. However, the specific identification strategy is not central to our main results. In particular, while sign restrictions provide a clear macroeconomic interpretation, they imply set identification rather than point identification of the shocks. For this reason, we complement our baseline analysis with an alternative approach that identifies inflationary shocks as those explaining the largest share of the unexplained variation in inflation over business-cycle frequencies, following the

"max-share" approach of Angeletos et al. (2020). This strategy yields a uniquely identified inflationary shock and allows us to isolate the role of inflation per se, albeit without imposing restrictions on the response of unemployment and therefore without the same macroeconomic context as in our baseline. Figure B.7 shows the impulse response of the adjusted GWG (Panel (a)) and matched GWG (Panel (b)) to a positive inflationary shock. In line with our baseline findings, an unexpected increase in inflation leads to a significant and persistent widening of the gender wage gap under both measures. If anything, the resulting increase in the gender wage gap is even stronger than for the baseline and is estimated with greater precision, as reflected in substantially narrower confidence bands around the impulse response functions.

Second, we test whether our results depend on the specific definitions of the key variables in the VAR. The co-movement between inflation and the GWG remains robust when we use alternative measures of inflation, including the PCE price index (Figure B.8) and core CPI excluding food and energy (Figure B.9). Similarly, we find consistent results when replacing the baseline business cycle indicator with industrial production (Figure B.13). In this exercise, inflationary demand shocks are identified by the positive co-movement between inflation and industrial production, while inflationary supply shocks are identified by their negative co-movement. We also explore alternative constructions of the GWG commonly used in the literature. These include computing the gap based on predicted women's wages using men's characteristics in the KOB decomposition (Figure B.16), using median instead of mean wages (Figure B.17), and estimating the gap as the coefficient on a female dummy in a wage regression with detailed controls following Penner et al. (2022) (Figure B.18). In these cases, the GWG is defined as female-minus-male, in contrast to our baseline definition of male-minus-female. As such, the impulse responses should be interpreted with the opposite sign. Across all these variations, the underlying positive relationship between inflation and the widening of the gender wage gap between men and women remains stable. If anything, the effects of inflationary demand shocks are even greater using these alternative measures. The results are also robust to using weekly earnings, rather than hourly, to compute the adjusted GWG (see Figure B.14), suggesting that our findings are not sensitive to whether

the wage measure captures intensive or extensive margin adjustments.

Third, we assess the robustness of our results to changes in model specification. We show that the results are not driven by the application of the trailing moving average filter (Figure B.11) or by lag selection, with similar findings when including additional lags as suggested by the AIC criterion (Figure B.12). Moreover, our findings remain qualitatively unchanged when extending the sample to include the COVID-19 period (Figure B.10), suggesting that the inflation-GWG relationship does not break if we include the pandemic period.

Fourth, we examine gender wage gaps within demographic groups, assessing how the adjusted GWG varies across and responds to shocks within categories such as age, parental and marital status. Figure B.2 shows that adjusted GWGs are larger among older workers but have been declining more rapidly over time. In the SVAR, younger workers (Figure B.19) exhibit a weaker response of the GWG to inflationary shocks, while the response is stronger among older workers (Figure B.22), consistent with the idea that older cohorts of women may have had less bargaining power. Additionally, GWGs are more volatile for workers with young children (Figure B.23), suggesting greater responsiveness to shocks, potentially reflecting reduced bargaining capacity among women with caregiving responsibilities, or heightened wage responsiveness among men with young children. We also estimate GWG responses separately for married individuals (Figure B.24) and singles (Figure B.25). While the response of the GWG is larger among married workers, the co-movement of the GWG with inflationary shocks is also present among singles, indicating that the inflation–GWG relationship is not driven solely by marital status. In what follows, in Section 1.2.2, we analyze more in detail gender differences in characteristics between groups, using the KOB decomposition to examine how observable attributes differ between men and women and how these differences contribute to the overall GWG's response.

A natural question that follows is how much of the variation in the gender wage gap can be attributed to inflationary shocks. To address this, we examine the forecast error variance decomposition (FEVD) of the adjusted gender wage gap across our different SVAR model specifications and measurement approaches of the gap. We consider both the baseline SVAR with zero and sign restrictions and the alternative

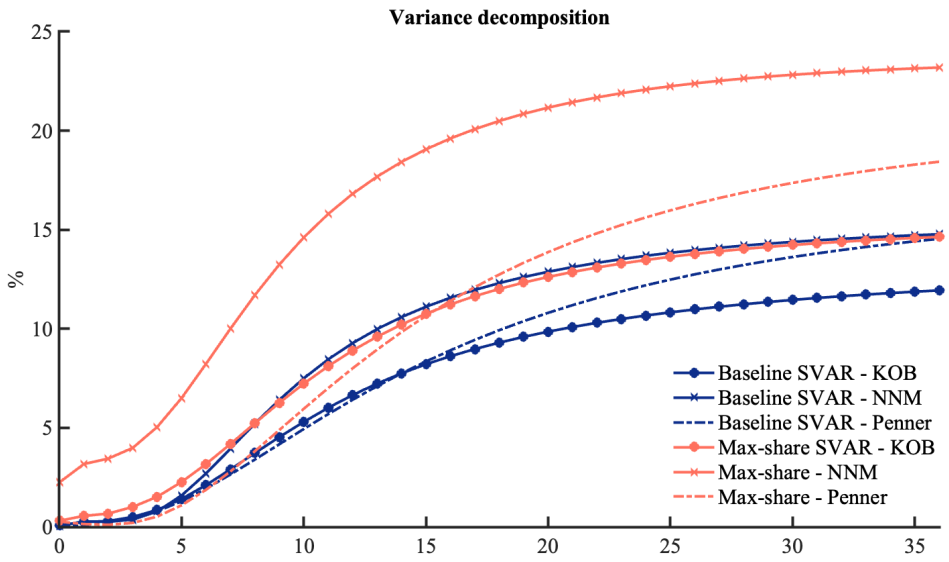


Figure 2.4. Forecast error variance decompositions

Notes: Forecast error variance decompositions constructed based on pointwise median estimates. The median is defined at each point in time.
Sources: Adjusted and matched GWG: CPS IPUMS, own calculations.

"max-share" identification of inflationary shocks, and we perform this exercise using adjusted gender wage gaps constructed with the baseline Kitagawa–Oaxaca–Blinder decomposition (Blau & Kahn 2017), the nearest-neighbor matching approach (Ñopo 2008), and using the coefficient on the female dummy from a pooled linear regression (Penner et al. 2022). In the baseline SVAR, we aggregate the contributions of inflationary demand and inflationary supply shocks in order to measure their combined contribution to gender wage gap fluctuations, making the results directly comparable to those obtained under the single max-share inflationary shock. Figure 2.4 presents the corresponding forecast error variance decompositions. The x-axis indicates time in months following the inflationary shocks, while the y-axis reports the percentage of forecast error variance explained by these shocks. Across specifications, we find that inflationary shocks account for a substantial share of fluctuations in the gender wage gap, ranging from approximately 12 to 25 percent of the forecast error variance. This magnitude is sizable given that the gender wage gap is constructed from micro-level wage data and is therefore influenced by a wide range of idiosyncratic and institutional factors – such as firm-level wage-setting practices, changes in workplace policies, discrimination, and other unmodeled factors – that are not explicitly captured in the VAR and are expected to explain a large portion

of residual variation. Against this backdrop, the fact that a single macroeconomic shock can account for up to one quarter of the variation in the adjusted gender wage gap underscores the quantitative importance of inflation for GWG dynamics. Consistent with this interpretation, the share of variance explained by inflationary shocks is systematically larger under the max-share identification, which is designed to capture inflationary disturbances in a broader sense and is therefore more directly interpretable as the contribution of inflation per se, abstracting from the specific macroeconomic channels emphasized in the baseline sign-restricted framework. Taken together, these results indicate that inflationary shocks are a quantitatively meaningful driver of fluctuations in the gender wage gap, even when measured using alternative constructions of the gap and across a range of identification strategies.

2.1.2.2 Whose wages respond?

Having established that inflationary shocks lead to a significant widening of the adjusted gender wage gap, we next investigate whose real wage response is driving this effect. To do so, we compute men's wages as $\hat{Y}_{mm}$ and women's wages as $\hat{Y}_{mm}$ from the KOB decomposition in Equation (2.1). This can be interpreted as comparing men to individuals with the same characteristics as men but being treated like women. We then replace the adjusted gender wage gap in our baseline VAR with $\hat{Y}_{mm}$ and $\hat{Y}_{mf}$, maintaining the same lag structure and identification strategy. This allows us to trace the response of each group's real wages to inflationary demand and supply shocks, conditional on identical observable characteristics, industries and occupations.

Figure 2.5 reveals that the entire response of the adjusted GWG to both supply- and demand-side inflationary shocks can be traced to women's weaker protection of real earnings. Holding industry and occupation composition constant as before, women's nominal pay does not sufficiently increase following inflationary episodes, so that women experience real wage losses in either case. In both shocks, consumer prices surge immediately, but men partially offset the loss in purchasing power by renegotiating higher nominal wages within the first months such that their real wages do not respond, or mildly increase over time. Women's nominal wage growth, by contrast, remains virtually flat, implying a sizeable real-wage loss and a widening of

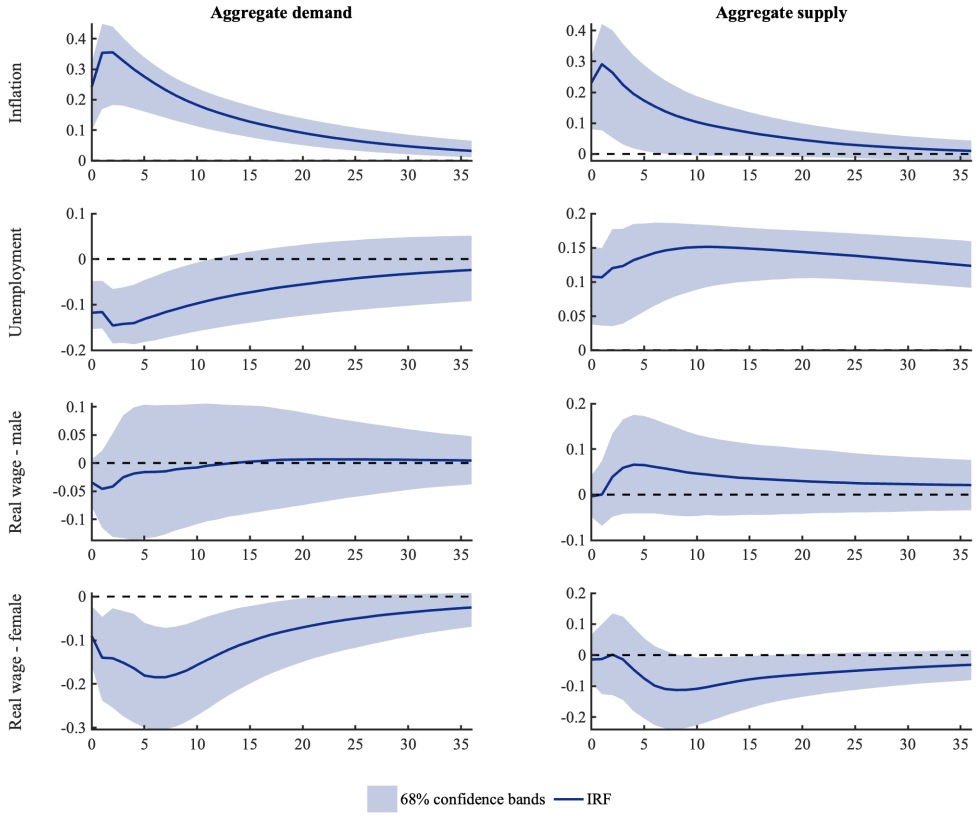


Figure 2.5. Impulse responses in the SVAR, GWG decomposed

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid blue line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time. Real wages computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Real wages are adjusted for industry, occupation and other demographics.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Real wages: CPS IPUMS, own calculations.

the adjusted GWG. These findings dovetail with micro-evidence that women are less likely to negotiate for raises (Caldwell et al. 2025, Biasi & Sarsons 2022, Exley et al. 2020, Card et al. 2016, Leibbrandt & List 2015, Babcock & Laschever 2003, Azmat & Petrongolo 2014) and thus cost-of-living adjustments. Taken together, the results suggest that real-wage preservation through renegotiation, and not sectoral exposure, might be the dominant channel linking macroeconomic shocks to the gender wage gap.

2.1.2.3 Which characteristics drive the response?

To better understand which characteristics contribute most to the response of the aggregate adjusted gender wage gap (GWG) to inflationary demand and supply

shocks, we decompose the gap into its underlying sources by examining the dynamics of coefficient differences across genders in the KOB decomposition. Specifically, we estimate separate VARs for each element of the wage structure – including differences in returns to education, experience (age), race, marital status, occupation, and industry – where the dependent variables are the time series of estimated coefficient differences between men and women. This approach allows us to trace the response of each gender-specific return to inflationary shocks and assess how each component contributes to the evolution of the adjusted GWG over time. The analysis reveals whether the widening of the adjusted GWG is primarily driven by diverging returns to human capital (e.g., education), differences in occupational or sectoral wage premia, or other observed characteristics. By isolating these contributions, we identify the specific wage-setting channels through which inflation affects men and women differently.

We begin by examining gender differences in the estimated coefficients on individual characteristics, as shown in Figures B.26 and B.27. The results indicate that several individual characteristics contribute meaningfully to the inflation-induced widening of the adjusted GWG. In particular, the gender gap in returns to age and education (both general schooling and college) widens significantly following supply shocks, indicating that men's wages respond more strongly to inflation along these dimensions than women's, even conditional on observables. Similar patterns are also present following demand shocks, especially for age. In contrast, the coefficient gaps for Black workers respond negatively to both types of shocks, suggesting that women in these groups experience relatively more favorable wage dynamics than their male counterparts. Coefficient gaps associated with marital status are positive for both married and single individuals, implying that both groups contribute to the overall inflation-induced widening of the adjusted GWG. By contrast, the contribution of household income is negative following supply shocks, indicating that the widening of the gender wage gap in response to supply shocks is smaller for individuals in higher-income households. Taken together, these results indicate that the aggregate response of the adjusted GWG to inflationary shocks is primarily driven by gender asymmetries in how the labor market rewards experience and education, while race and household income partially offset these effects.

For different industries (see Figures B.28 and B.29), the effects of inflationary shocks on the adjusted gender wage gap are heterogeneous, both in magnitude and direction, and often differ across demand and supply shocks. In sectors like Business, Manufacturing, Mining, Public, Retail, Transport and Wholesale, the gender gap decreases following both types of shocks, suggesting a relative improvement in women's wage outcomes. By contrast, in Construction, the gap increases in response to both demand and supply shocks, pointing to a disproportionate negative impact on women. Other sectors, such as Entertainment and Finance, show more muted or short-lived effects, with generally negative but modest responses. These findings highlight that, unlike the consistent effects observed for individual characteristics such as education and experience, industry-level responses to inflation are more variable and can either exacerbate or narrow gender wage disparities depending on sector-specific labor dynamics.

To understand why wage renegotiation might differ across genders, we examine how men and women form and update expectations about labor-market conditions.

2.2 Inflation and Labor Market Expectations

We next document our second new empirical fact: women interpret unexpected inflation as a signal of deteriorating labor-market conditions, while men perceive mild improvement. The relationship between inflation and labor-market beliefs is central to understanding gender-specific economic behavior. To analyze it, we use data from the New York Fed Survey of Consumer Expectations (SCE, Federal Reserve Bank of New York 2024).[7] We study how male and female expectations about unemployment, job-finding prospects, and earnings growth respond to inflationary demand and supply shocks using the same Structural VAR with zero and sign restrictions. This approach extends the existing literature on consumer expectations, which typically relies on micro-level revisions or survey experiments (e.g., Andre et al. 2022). Instead, we exploit exogenous macroeconomic shocks to examine how average beliefs evolve over time, allowing us to capture transmission lags that panel revisions may

[7]Disclaimer: FRBNY did not participate in or endorse this work, and FRBNY disclaims any responsibility or legal liability for the administration of the survey and the analysis and interpretation of data collected.

miss.

2.2.1 Construction of time series of beliefs

We construct a time series of mens' and womens' inflation and labor market beliefs from the SCE survey that controls for differences in demographics and industry sorting. The SCE is a large and well-established survey of consumers in the US with around 1200 participants every month in a rotating panel since August 2013 (details of the survey can be found in Armantier et al. 2017). As before, we restrict our sample to the pre-Covid period. The survey elicits inflation and unemployment expectations over a 12 months horizon, job finding probabilities over a 3 month horizon and earnings growth expectations over a 12 months horizon. All questions used here are shown in Appendix B.2. We restrict the sample to workers in full-time employment, excluding self-employed as for the analysis on the adjusted gender wage gap. While the main survey does not capture the industry of the employee, we derive this information from the Labor Market Survey initiated in July 2014 and available every four months. For months in which the Labor Market Survey is not available we assume industries to remain constant. There are 18 industry codes, thus the industry allocation is less granular than the CPS. Further, there are no occupation controls available.

Our method resembles the Kitagawa-Oaxaca-Blinder decomposition employed in Section 2.1, however, this time we are not interested in the gap and instead recover a series for men and women. For any month t, we estimate separately male (m) and female (f) weighted ordinary least squares (OLS) expectations regressions for individual i (again, the i and t subscripts are suppressed to simplify notation):

$$Y_m = X_m B_m + \zeta_m IND18_m + u_m$$
$$Y_f = X_f B_f + \zeta_f IND18_f + u_f,$$

where Y is the expectation about a given variable such as inflation, unemployment, job finding and earnings growth, X is a vector of demographic controls which includes age, age squared, education, numeracy, race, and region, and IND18 is a vector of 18 industry dummies and u is an error term.

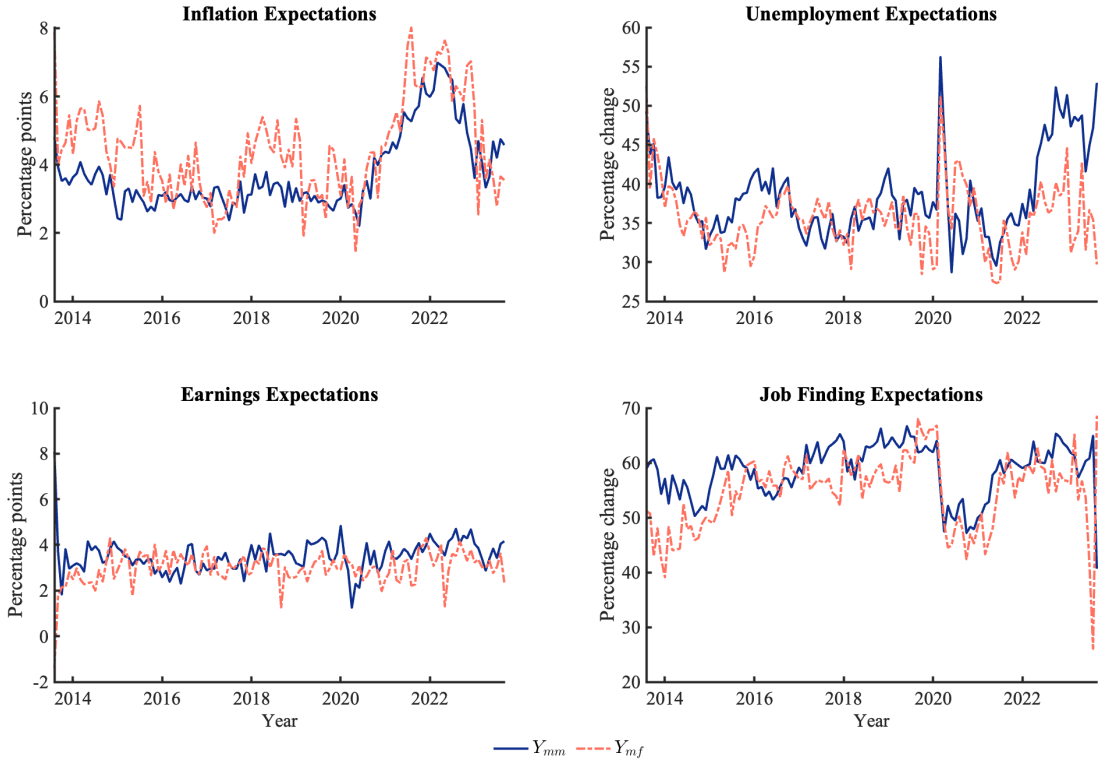


Figure 2.6. Survey expectations in the SCE

Notes: Women's expectations are plotted in dashed orange and men's expectations are plotted in dark blue. Monthly data from August 2013-December 2023.
Sources: NYFED SCE, own calculations.

Denote with a hat the predicted coefficients from the regressions above and define:

$$\hat{Y}_{mm} = X_m \hat{B}_m + \hat{\zeta}_m IND18_m$$
$$\hat{Y}_{mf} \equiv X_m \hat{B}_f + \hat{\zeta}_f IND18_m.$$

where $\hat{Y}_{mm}$ represents predicted expectations of men and $\hat{Y}_{mf}$ represents the counterfactual expectations of men if evaluated under women's expectation coefficients. This allows us to compare how men and women behave abstracting from the fact that they might be exposed differently to the economy through sorting in different industries.

Figure 2.6 shows the time series of both series for inflation, unemployment, job finding and earnings growth expectations. Our series replicates the well-known gender gap in inflation expectations, namely women having higher inflation expectations (Reiche 2025, D'Acunto, Malmendier & Weber 2021), and confirms that women also on average have lower earnings growth expectations. Overall, we find a general

co-movement between male and female beliefs, but some cyclical differences.

2.2.2 Belief responses to inflationary shocks

We estimate a structural VAR with the same sign and zero restrictions as in Section 2.1, replacing the adjusted GWG with the time series of expectations of interest. Lag length and prior specifications are identical to those in the baseline model.

Figure 2.7 summarizes the impulse responses of men's predicted expectations, $\hat{Y}_{mm}$ (in blue), and the counterfactual $\hat{Y}_{mf}$ under women's expectations coefficients (in orange), to supply and demand shocks. The full set of impulse responses for all variables is provided in the Appendix. The results reveal a striking pattern of gender asymmetry in belief formation. If men behaved like women, their inflation expectations would be more volatile and would react more strongly to inflationary supply shocks. For labor-market beliefs, women consistently display pessimistic responses to inflation, interpreting it as a signal of deteriorating labor-market conditions (supply-side interpretation of inflation). Men, on the other hand, display optimistic responses, viewing inflation as a sign of mild improvement (demand-side interpretation of inflation). Specifically, women revise unemployment expectations upward and job-finding beliefs downward following both supply- and demand-driven inflationary shocks. Men, in contrast, revise job-finding and earnings expectations upward after expansionary demand shocks and leave them largely unchanged for job-finding and upward for earnings after contractionary supply shocks. These results hold even after controlling for demographics, numeracy, and industry, highlighting a robust and systematic difference in how men and women interpret inflation and its implications for labor-market prospects.

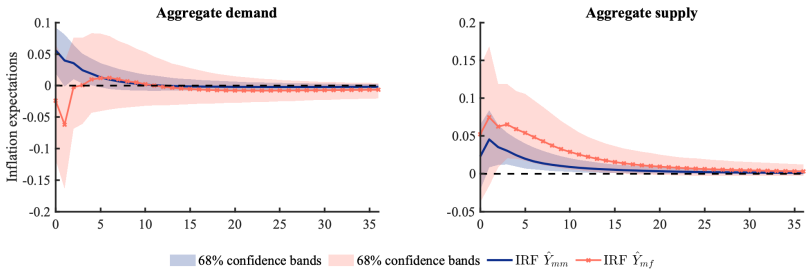
As for our first empirical fact, we re-estimate the SVAR model using an alternative identification strategy and an alternative adjusted measure of men's and women's expectations. First, we identify the shock that explains the largest share of unexplained variation in inflation over business-cycle frequencies. Figures B.34, B.35, B.36, and B.37 in the Appendix present the corresponding impulse responses. The baseline results remain virtually unchanged under this alternative specification. If anything, the gender asymmetries become even more pronounced: the differences

between men's and women's belief responses are larger, yet they continue to move in the same direction as before. Second, we construct gender-balanced samples for each expectation variable at each point in time in which each employed woman is matched to the most similar employed man using nearest-neighbor matching. Similarity is defined using Mahalanobis distance on the raw covariates, while requiring exact matches on region and industry. Figure B.38 in the Appendix shows that the results are robust to this alternative specification. As for the max-share inflationary shock, the differences are even starker and more significant compared to our baseline.

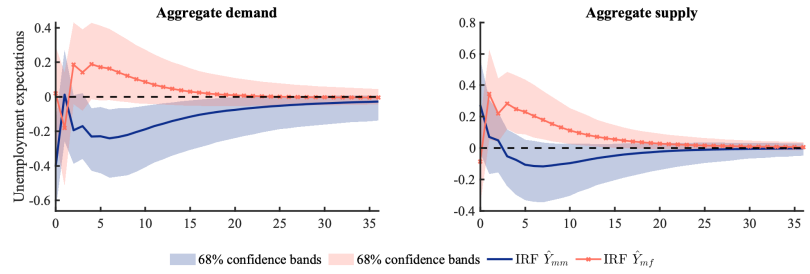
Together, our two empirical findings in Sections 2.1 and 2.2 reveal that the gender wage gap widens during inflationary surges and that men and women update their beliefs about labor market conditions differently in response to inflation. These asymmetries in expectations provide a plausible mechanism for women's reduced propensity to renegotiate wages during high-inflation periods, consistent with observed renegotiation behavior. To further explore and rationalize this mechanism, we now turn to a structural model that incorporates belief heterogeneity and wage-renegotiation frictions, allowing us to formally examine how informational biases can generate the gendered wage dynamics documented in the data.

2.3 Theoretical Model

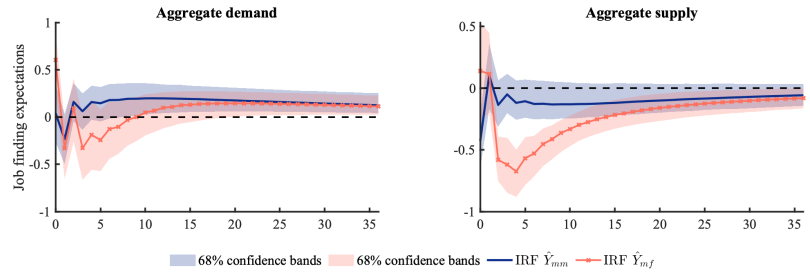
In this section, we present a model that extends the standard New Keynesian framework with search and match frictions a la Diamond (1982), Mortensen (1982), Pissarides (1985) (DMP), as developed in Thomas (2008), Faia (2008), Galí (2010), Blanchard & Galí (2010), Christiano et al. (2016), by incorporating two agents within the household and introducing belief frictions in a second step. We first introduce the benchmark model (the Gender-NKSM) with full information rational expectations. In this model, we compare the effects of pure taste-based discrimination, statistical discrimination, lower bargaining power of women and stickier wages of women on the response of the GWG to supply and demand shocks. We find that none of these sources of gender differences replicates the empirical results on the cyclicality of the adjusted GWG.



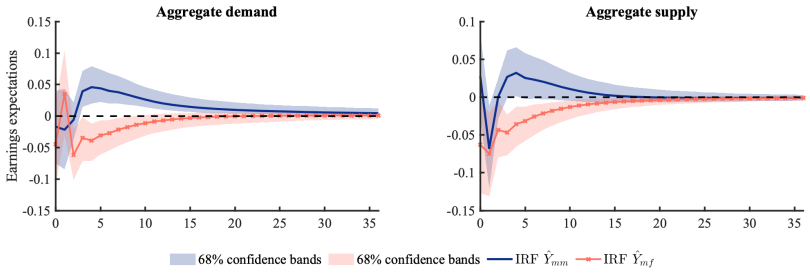
a Inflation (12 months)



b Unemployment (12 months)



c Job Finding (3 months)



d Earnings Growth (12 months)

Figure 2.7. Impulse responses of expectations in the SVAR

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) are based on 10,000 draws and defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

In a second step, motivated by our empirical evidence on labor market expectations, we assume that wage setting unions depart from FIRE. They do not observe the true nature of the shock and must form beliefs.[8] We introduce the observed pessimism of women as relative ambiguity aversion of women's unions modeled using the robust control framework of (Hansen & Sargent 2001) and assume that unions representing women are more ambiguity averse than unions representing men. This results in the representative women's union to overweight the possibility of a supply-driven disturbance and therefore to expect deteriorating labor market conditions for any type of inflationary shock. We show that under such beliefs the model generates a gender wage gap response to inflationary shocks in line with our empirical evidence.

2.3.1 The Gender-NKSM

The baseline NKSM framework effectively models labor market frictions and the interaction between inflation, output, and unemployment as in Galí (2010), Blanchard & Galí (2010), Christiano et al. (2016). However, to analyze the gender-specific effects of inflation expectations and job-finding perceptions, we introduce a two-agent structure in which both male and female agents co-exist within the same household. Both agents consume collectively, reflecting shared economic well-being, but negotiate wages independently through a men's and a women's union, allowing for divergent wage-renegotiation behavior influenced by their respective beliefs and expectations. We assume that the firm produces using inputs from both worker types.

Household

The representative household consists of two representative members, one agent of type f (female) and one agent of type m (male). There are not many papers in macroeconomics looking inside families despite their importance in explaining macroeconomic trends (Doepke & Tertilt 2016). Browning & Chiappori (1998) introduce a collectivist view of households which Knowles (2013) applies to household bargaining and female labor supply to show how intra-family bargaining affects women's but not men's labor supply. Mankart & Oikonomou (2017) show that there may be insurance effects between a primary and a secondary breadwinner when in-

[8] The setup resembles Erceg et al. (2024), where agents do not observe the true persistence of the shock.

complete markets are present in a similar NKSM setup as ours and Neyer & Stempel (2021) show the effect of unpaid domestic labor and discrimination in a standard New Keynesian model on female labor market participation.

Our household setup resembles most closely that of Albanesi (2025). We abstract from domestic labor and incomplete financial markets though we maintain the perfect insurance setup. Since we are interested in the pure renegotiation effects of inflation and unemployment on the GWG, men and women start out identical in our benchmark model. They have joint preferences over consumption of a CES aggregate C_t of consumption goods $C_t(i)$ with elasticity of substitution ϵ and labor effort $L_{g,t}$, where $g = f, m$:

$$U_t = (\ln C_t - \frac{\chi L_{m,t}^{1+\varphi}}{1+\varphi} - \frac{\chi L_{f,t}^{1+\varphi}}{1+\varphi}) Z_t.$$

We do not explicitly model intra-household bargaining, instead we assume that the household consumes together but supplies two types of labor as in Ashenfelter & Heckman (1974). However, this is equivalent to members bargaining with equal weights over an aggregated consumption good when preferences are identical. We include a preference shock Z_t to model demand shocks in the economy, where $\ln Z_t = \rho_z \ln Z_{t-1} + \varepsilon_z$ and $\varepsilon_z \sim N(0, \sigma_z^2)$. Labor effort is defined as $L_{g,t} = N_{g,t} + \psi U_{g,t}$, where $N_{g,t}$ denotes the fraction of employed workers, $U_{g,t}$ the fraction of unemployed workers and ψ denotes the relative disutility generated by an unemployed household member. It must be that $0 \leq N_{g,t} + U_{g,t} = F_{g,t} \leq 1$ and household members not part of the labor force don't generate any positive or negative utility.

The household maximizes the expected lifetime utility cooperatively. Employed workers receive a nominal wage $W_{g,t}$ from their employer, which may differ by type. The household is smoothing consumption through the purchase of bonds priced at Q_t and receives a lump-sum payment (i.e. from dividends or taxes) Π_t. The maximization problem of the houshold is described by:

$$\max \mathbf{E}_0 \sum_{t=0}^{\infty} \beta^t U(C_t, L_{m,t}, L_{f,t}; Z_t)$$

$$\text{subject to } P_t C_t + Q_t B_t \leq B_{t-1} + W_{f,t} N_{f,t} + W_{m,t} N_{m,t} + \Pi_t$$

This yields the standard Euler equation for intertemporal consumption:

$$Q_t = \beta \mathbf{E}_t \Big\{ \frac{C_t}{C_{t+1}} \frac{P_t}{P_{t+1}} \frac{Z_{t+1}}{Z_t} \Big\}. \tag{2.2}$$

Final good firms

There is a continuum of monopolistically competitive firms indexed by $i \in [0,1]$. Each firm produces good $Y_t(i)$ according to

$$Y_t(i) = X_t(i)$$

and purchases the competitively produced intermediate goods $X_t(i)$ at price P_t^I.[9] The firm's price setting is assumed to be subject to Calvo frictions, where only fraction $1-\theta^p$ of the producers can reset their prices in a given period. We introduce a cost-push shock to aggregate inflation given by $\ln u_t = \rho_u \ln u_{t-1} + \varepsilon_u$ and $\varepsilon_u \sim N(0, \sigma_u^2)$

Intermediate goods firms

Intermediate inputs are produced by a continuum of identical, perfectly competitive firms indexed by $j \in [0,1]$ according to a CES production function that aggregates male and female labor with relative productivity ζ_m, ζ_f and the elasticity of substitution between male and female labor σ:

$$X_t(j) = A_t \left[\zeta_f \cdot N_{f,t}(j)^{\frac{\sigma-1}{\sigma}} + \zeta_m \cdot N_{m,t}(j)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{(1-\alpha)\sigma}{\sigma-1}} \quad \text{where } 1 = \zeta_m + \zeta_f.$$

Technology A_t is assumed common across all firms and its log follows an AR(1) process with autoregressive coefficient ρ_a and variance σ_a^2. Employment for both types of workers $g = f, m$ in each firm evolves according to:

$$N_{g,t}(j) = (1-\delta) N_{g,t-1}(j) + H_{g,t}(j). \tag{2.3}$$

where δ refers to exogenous job separation. $N_{g,t-1} \equiv \int_0^1 N_{g,t-1}(j)dj$ denotes aggregate employment and $H_{g,t-1} \equiv \int_0^1 H_{g,t-1}(j)dj$ denotes aggregate hiring for workers

[9] Perfect competition of intermediate goods implies that $P_t^I = MC_t(j)$

of type g. Firms hire out of a pool of jobless workers $U_{g,t}$. We assume full participation and that workers start working in the period they are hired. The firm incurs a cost-per-hire:

$$G_{g,t} = \Gamma x_{g,t}^{\gamma}, \tag{2.4}$$

which depends on the job finding rate:

$$x_{g,t} \equiv \frac{H_{g,t}}{U_{g,t}}. \tag{2.5}$$

Vacancies are filled immediately upon payment of the hiring costs. This is a simplification of the original DMP framework which abstracts from explaining vacancies but shares the same characteristics of the original framework (Galí 2010, Blanchard & Galí 2010).

Intermediate goods firms maximize profit, taking their price and the wage as given. Optimality requires that the marginal revenue product of labor must equal the total cost to the firm of employing the worker:

$$\frac{P_t^I}{P_t} MPN_{g,t} = A_t mc_t \zeta_g (1-\alpha) N_{g,t}^{\frac{-1}{\sigma}} N_t^{-\alpha+\frac{1}{\sigma-1}} (1-d_g) \tag{2.6}$$

$$= w_{g,t} + G_{g,t} - \beta(1-\delta)\mathbf{E}_t\Big\{\frac{C_t}{C_{t+1}}\frac{P_{t+1}}{P_t}G_{g,t+1}\Big\}. \tag{2.7}$$

Gender wage gaps in equilibrium can be introduced in two ways in our model. The first is taste-based discrimination (Becker 1971, Black 1995, Charles & Guryan 2008, Neyer & Stempel 2021) where $d_f > d_m = 0$. In contrast to standard models, we assume that the distaste is proportional to output rather than employment in the profit function to account for the effect of a general expansion on the distaste. An alternative way to model equilibrium gender wage gaps is statistical wage discrimination (Arrow 2015, Phelps 1972, Aigner & Cain 1977, Altonji & Pierret 2001) which results in lower perceived productivity of women such that $\zeta_m > \zeta_f$. There are also alternative ways to model gender wage gaps. For instance, women's greater preference for amenities (Wiswall & Zafar 2018, Goldin 2014, Bolotnyy & Emanuel 2022) and personality traits such as risk aversion (Azmat & Petrongolo 2014, Cortés et al. 2023, Flinn et al. 2025). However, there is evidence for prejudice dominat-

ing statistical differences between men and women estimated in Flabbi (2010) and recent evidence in favor of the (Black 1995) model of taste-based discrimination in Maloney & Neumark (2025). Further, while amenities and personality differences may play a significant role, seminal work by Goldin & Rouse (2000) and Bertrand & Mullainathan (2004) shows that they cannot explain all of the differences observed. In fact, more recent evidence suggests that distaste and statistical discrimination remain prevalent in women's evaluation (Reuben et al. 2014, Hengel 2022) though initial biases can be overcome after repeated observation of performance (Bohren et al. 2019).

Wage bargaining

Wages are determined as Nash bargaining outcome between workers and firms. We assume sticky wages (Barattieri et al. 2014, Gertler & Trigari 2009, Hall 2005), such that only a fraction of workers renegotiates their wages in a given period. The share of female workers able to readjust their wage is denoted by θ_f^w and the share of male workers θ_m^w. This Calvo-like setup implies that the expectations of households and firms matter in the bargaining process. The bargaining here follows exactly the bargaining in Blanchard & Galí (2010) for both agents. This differs from Mankart & Oikonomou (2017) where agents only differ in their search effort but wages are bargained jointly. The value of an employment relationship to a worker of type g is given by their wage minus the disutility of labor plus the continuation value of keeping the job at the same wages or renegotiated wages:

$$V_{g,t+k|t}^N = \frac{W_{g,t}^*}{P_{t+k}} - MRS_{gt,t+k}$$
$$+\mathbb{E}_{t+k}\left[\Lambda_{t+k,t+k+1}\left((1-\delta)\left((1-\theta_g^w)V_{g,t+k+1|t}^N + \theta_g^w V_{t+k+1|t+k+1}^N\right) + \delta V_{g,t+k+1}^U\right)\right].$$

Similarly, the value of an unemployment spell to a worker of type g is given by:

$$V_{g,t}^U = x_{g,t}\int_0^1 \frac{H_{g,t}(z)}{H_{g,t}} V_{g,t}^N(z)dz + (1-x_{g,t})\left(-\psi MRS_{g,t} + \mathbb{E}_t\left[\Lambda_{t,t+1}V_{g,t+1}^U\right]\right)$$

The surplus of a worker who's wages are currently being reset is given by:

$$S^H_{g,t|t} = \mathbb{E}_t \sum_{k=0}^{\infty}((1-\delta)(1-\theta^w_g))^k \Lambda_{t,t+k} \left(\frac{W^*_{g,t}}{P_{t+k}} - MRS_{g,t+k}\right)$$

$$+\theta^w_g(1-\delta)\mathbb{E}_t \sum_{k=0}^{\infty}((1-\delta)(1-\theta^w_g))^k \Lambda_{t,t+k+1} S^H_{g,t+k+1|t+k+1}.$$

Because optimal participation requires $V^U_{g,t} = 0$, we get the optimal participation condition:

$$\psi MRS_t = \frac{x_{g,t}}{1-x_{g,t}} \int_0^1 \frac{H_{g,t}(z)}{H_{g,t}} S^H_{g,t}(z)dz. \tag{2.8}$$

For firms, the surplus of a match is given by the marginal revenue product minus wages and plus the continuation value of the match, which saves the hiring costs of the firm in the next period:

$$S^F_{g,t|t} = \mathbb{E}_t \sum_{k=0}^{\infty}((1-\delta)(1-\theta^w_g))^k \Lambda_{t,t+k} \left(\left(\frac{P^I_t}{P_t} - d_g\right) MPN_{g,t+k|t} - \frac{W^*_{g,t}}{P_{t+k}}\right)$$

$$+\theta^w_g(1-\delta)\mathbb{E}_t \sum_{k=0}^{\infty}((1-\delta)(1-\theta^w_g))^k \Lambda_{t,t+k+1} S^F_{t+k+1|t+k+1}$$

Workers and firms engage in Nash bargaining. We assume that female and male workers can have different bargaining powers relative to the firm denoted by $1-\xi_f$ and $1-\xi_m$ respectively. The Nash bargaining rule:

$$\xi_g S^H_{g,t|t} = (1-\xi_g) S^F_{t|t},$$

yields the following condition for the newly set nominal wage:

$$\mathbb{E}_t \sum_{k=0}^{\infty}((1-\delta)(1-\theta^w_g))^k \Lambda_{t,t+k} \left(\frac{W^*_{g,t}}{P_{t+k}} - \Omega^{\text{tar}}_{g,t+k|t}\right) = 0.$$

The target wage k periods ahead $\Omega^{tar}_{f,t+k|t}$ shares the surplus of the match between the worker and the firm and is thus a weighted average of the marginal rate of

substitution of labor and consumption and the marginal revenue product of labor:

$$\Omega^{tar}_{g,t+k|t} \equiv \xi_g \frac{C_{t+k}}{\chi L^{\varphi}_{g,t+k}} + (1-\xi_g)\frac{P^I_t}{P_t} MPN_{g,t+k|t} \tag{2.9}$$

Market clearing

We define aggregate output as $Y_t \equiv \left(\int_0^1 Y_t(i)^{\frac{\epsilon-1}{\epsilon}} di\right)^{\frac{\epsilon}{\epsilon-1}}$ and the demand for each final good as $Y_t(i) = \left(\frac{P_t(i)}{P_t}\right)^{-\epsilon}(C_t + G_{f,t}H_{f,t} + G_{m,t}H_{m,t})$. Thus the aggregate goods market clearing condition is

$$Y_t = C_t + G_{f,t}H_{f,t} + G_{m,t}H_{m,t}. \tag{2.10}$$

Since wage and price dispersion is assumed close to unity around a zero-inflation steady-state we approximate further:

$$Y_t = A_t \left[\zeta_f \cdot N_{f,t}^{\frac{\sigma-1}{\sigma}} + \zeta_m \cdot N_{m,t}^{\frac{\sigma-1}{\sigma}}\right]^{\frac{(1-\alpha)\sigma}{\sigma-1}}. \tag{2.11}$$

Finally, the model is closed through a monetary policy rule:

$$\frac{1+i_t}{1+\bar{i}_t} = \left(\frac{1+i_{t-1}}{1+\bar{i}_t}\right)^{\rho_i} \left[\left(\frac{1+\pi^p_t}{1+\bar{\pi}^p_t}\right)^{\phi_\pi}\left(\frac{1+\pi^w_{m,t}}{1+\bar{\pi}^w_t}\right)^{\phi_{w_m}}\left(\frac{1+\pi^w_{f,t}}{1+\bar{\pi}^w_t}\right)^{\phi_{w_f}}\left(\frac{U_{m,t}}{\bar{U}_{m,t}}\right)^{\phi_{u_m}}\left(\frac{U_{f,t}}{\bar{U}_{f,t}}\right)^{\phi_{u_f}}\left(\frac{Y_t}{\bar{Y}_t}\right)^{\phi_y}\right]^{1-\rho_i}\nu_t. \tag{2.12}$$

The full set of equilibrium equations can be found in the Appendix Section B.3.

2.3.2 Calibration

We calibrate the model to the US economy using standard parameter values. Each period corresponds to a quarter. Following convention, we assign $\beta = 0.99$, set a Frisch elasticity of 0.5 ($\varphi = 2$), and assume prices are set for about one year on average such that $\theta^p = 0.75$. Assuming around 60% employment rate, 0.06% unemployment[10] and a 0.7 job finding rate (Gertler & Trigari 2009) we arrive at a quarterly separation rate of 0.23, slightly higher than empirical estimates in Hall

[10]Data from BLS - on average no differences between men and women.

(2005) and Gertler & Trigari (2009). Following Galí (2010) and Blanchard & Galí (2010) we set $\gamma = 1$ to align the framework with the matching function approach in DMP style models and assign $\Gamma = 0.013$ to match empirical results that the average cost of hiring a worker is 4.5% of the quarterly wage (Silva & Toledo 2009). For the production function, we assume $\alpha = 1/3$ to allow for a labor share of 2/3. Further, we assume the elasticity of substitution of men and women to be $\sigma = 4.3$ in line with empirical estimates (Albanesi 2025, Acemoglu et al. 2004). We assume a monetary authority that responds to inflation and unemployment with $\phi^p = 2$, $\phi_y = 0$, $\phi_{w,g} = 0.005$ and $\phi_{u,g} = -0.0125$. The values are taken from Faia (2008) who argues that central banks should not respond to output when labor market frictions are present to avoid excess volatility of unemployment. Further we assume persistence in monetary policy given by $\rho_i = 0.95$.

In our baseline calibration, we assume no differences between male and female workers. Hence, in the production function, $\zeta_m = \zeta_f = 0.5$, male and female wage-stickiness $\theta_m^w = \theta_f^w = 0.75$ and firms bargaining power relative to men and women $\xi_m = \xi_f = 0.6$. Wage stickiness is set to assume wages are being reset annually (Taylor 1998, Gottschalk 2005, Barattieri et al. 2014) and the average bargaining weight is taken from estimates in Flinn (2006), who finds strikingly small differences between men and women. We choose equal values as baseline not to match reality but to be able to single out the effects of varying parameters individually. We also start with assuming $d_f = 0$ such that there is no gender gap in equilibrium. We show the effect of a more realistic, gender divergent calibration in a second step.

Finally, we include standard parameters for the shock processes, $\rho_z = 0.9$, $\sigma_z = 0.001$, $\rho_u = 0.9$ and $\sigma_u = 0.001$. For simplicity of presentation we assume $\sigma_a^2 = 0$ and $\sigma_\nu^2 = 0$ such that technology is assumed constant and there are no monetary policy shocks.[11] The full set of parameters and their calibration can be found in Appendix Table B.3.

[11] We also include robustness checks with a standard technology shock and a standard monetary policy shock calibrated as $\rho_a = 0.9$, $\sigma_a = 0.25$, $\rho_\nu = 0.9$, $\sigma_\nu = 1$ as alternatives for a supply- and a demand-shock.

2.3.3 GWG dynamics under non-belief-frictions

In the baseline model, assuming no discrimination, symmetric bargaining power and symmetric wage rigidities across genders, no gender wage gap (GWG) emerges. The black line in Figure 2.8 reports impulse responses to demand (preference) and supply (cost-push) shocks. As expected, inflationary demand shocks raise output, employment, and wages, whereas inflationary supply shocks reduce them. By construction, men and women respond identically, abstracting from differential exposure or wage renegotiation.[12]

Introducing taste-based discrimination ($d_f = 0.1$), generating a steady-state GWG of roughly 11% in line with empirical data, produces negligible changes in the cyclical response of the GWG (lightest blue lines, +marker). This is expected, as the additional cost of hiring women is scaled with output. The discrimination parameter d_f is retained in all subsequent models to ensure consistent steady-state GWGs.

Next, we calibrate relative productivity weights following Albanesi (2025) ($\zeta_f = 0.375 < 0.5$), amplifying the equilibrium GWG and generating weak cyclical patterns (denoted with marker $*$). Statistical discrimination against women, interpreted as lower perceived productivity, makes the GWG slightly countercyclical: it declines under demand shocks and rises under supply shocks. This occurs because rising output reduces the relative cost of employing women, increasing their wages relative to men. Therefore, we rule out this channel as the primary driver of observed GWG cyclicality.

We then explore three alternative mechanisms linked to women's labor market behavior, each in isolation. First, higher female Frisch elasticity ($\varphi_f = 0.8 < 2 < \varphi_m = 2.399$) is considered (Albanesi 2025, Blundell & Macurdy 1999). Second, we allow for women's bargaining weights to be lower. While (Flinn 2006) does not find large differences for men and women, he does for race. We use his bargaining weights estimated for non-whites as lower bound for women and bargaining weights for whites as upper bound for men such that $\xi_m = 0.56 < 0.6 < \xi_f = 0.67$. Finally, we also include women's wages to be stickier. We are not aware of any literature that has calibrated women's wages as stickier than men's. For illustration we set

[12] Further impulse responses are shown in Appendix Figure B.39.

$\theta_m^w = 0.6 < 0.75 < \theta_f^w = 0.9$. Across all three cases, the GWG widens during inflationary expansions (demand shocks) but narrows during inflationary contractions (supply shocks). Larger female Frisch elasticity has the strongest effect, yet fails to replicate the observed response to supply shocks. These results suggest that during downturns, stickier wages, lower renegotiation capacity, or higher labor supply elasticity can mitigate the impact on women, partially shielding them from cyclical wage declines.

Since all five mechanisms fail to replicate the observed cyclical patterns of the gender wage gap, we turn to our second empirical fact. Evidence suggests that women and men may perceive inflationary shocks differently: women appear to interpret shocks more like supply (cost-push) shocks, while men perceive them as demand-driven. We formalize this relative pessimism a framework of ambiguity aversion (Bhandari et al. 2025). Women facing uncertainty over the nature of shocks may overweight adverse scenarios, generating gender-specific responses in wages and employment. By incorporating differential shock perception, the model can capture how identical aggregate disturbances produce divergent outcomes across genders.

2.3.4 The model with ambiguity aversion

To account for gender differences in the perception of inflationary, macroeconomic shocks, we implement a framework in which women and men interpret identical shocks differently. There is some recent literature on biases in workers perceived job finding and job separation rates (Spinnewijn 2015, Menzio 2023, Mueller et al. 2021, Mueller & Spinnewijn 2023, Balleer et al. 2026). Our empirical evidence suggests that women perceive inflationary shocks primarily as *supply-driven* (cost-push), while men perceive them as *demand-driven*. We formalize this intuition using the *Hansen-Sargent robust control* approach (Hansen & Sargent 2001), which introduces ambiguity-averse beliefs into the baseline model. This setup differs slightly from the multiple prior preferences (Ilut & Schneider 2014, Masolo & Monti 2021, Baqaee 2020) as our agents are not ambiguity averse about one shock but about the type of shock. Our model resembles most closely Bhandari et al. (2025) who introduce pessimism (and pessimistic shocks) into a NK model with search and match frictions. Unlike their model which features ambiguity aversion in all economic agents,

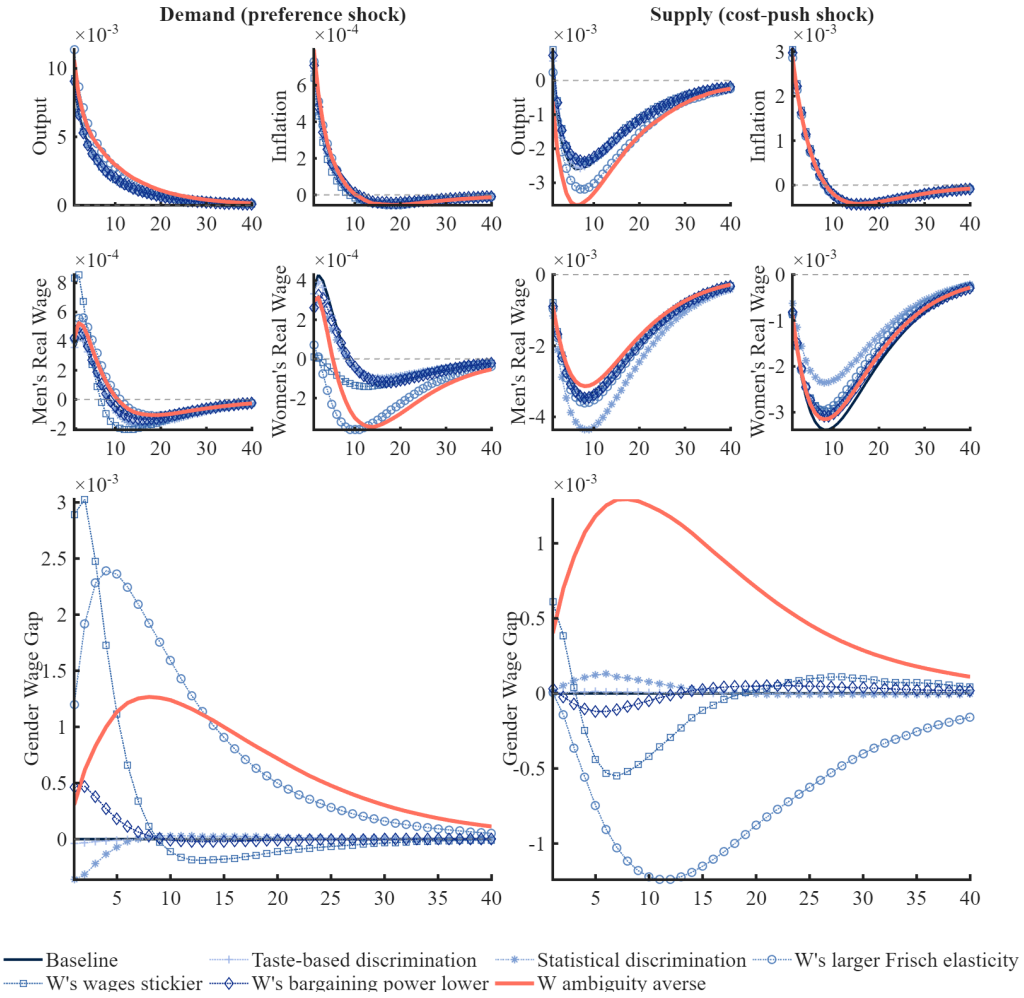


Figure 2.8. Impulse responses from the model

we introduce ambiguity aversion only for the wage-setting unions (one for men and one for women). This allows us to maintain full information rational expectations for the household problem and avoid aggregating women's and men's beliefs within the household. The unions do not observe the true nature of the shock and form expectations on the economy after observing a signal.

Ambiguity aversion

Before forming expectations, each union $g \in \{m, f\}$ evaluates the continuation value of the representative household under each possible realization of the aggregate shocks, denoted $V_{s,t}$ for $s \in \{z, u\}$, where z represents a demand (preference) shock and u a cost-push (supply) shock. Let p_s denote the objective (prior) probability of shock s. Following the robust control framework (Hansen & Sargent 2001), we model ambiguity aversion as a smooth soft-min distortion of prior beliefs. The distorted

(unnormalized) weights are given by

$$m_g^s = p_s \exp\left(-\frac{V_{s,t}}{\lambda_g}\right), \tag{2.13}$$

and the normalized subjective probabilities become

$$w_g^s = \frac{m_g^s}{\sum_{s' \in \{z,u\}} m_g^{s'}}. \tag{2.14}$$

The parameter $\lambda_g \in \mathbb{R} \setminus \{0\}$ governs the degree and direction of belief distortion. Smaller absolute values of λ_g imply stronger sensitivity to adverse outcomes. We interpret $\lambda_m < 0$ as *optimism* (overweighting favorable states) and $\lambda_f > 0$ as *pessimism* (overweighting unfavorable states). The normalization in w_g^s ensures $\sum_s w_g^s = 1$, such that $\{w_g^s\}$ defines a valid subjective probability measure. At the beginning of period t, prior to observing the realization of shocks, each union evaluates these distorted continuation values and forms beliefs about the likely nature of current disturbances.

Signal extraction

Both unions observe a common but noisy composite signal that aggregates the underlying shocks:

$$s_t = \varepsilon_t^u + \varepsilon_t^z. \tag{2.15}$$

The signal reflects that agents cannot perfectly identify whether contemporaneous fluctuations originate from demand or supply disturbances. This informational friction is similar in spirit to Erceg et al. (2024), who model agents as unable to distinguish between persistent and transitory shocks. While both unions receive the same s_t, they do not exchange information and thus form beliefs independently, based on their gender-specific ambiguity attitudes.

Belief updating

Let $\tilde{\mathbb{E}}_{g,t}[\cdot]$ denote the conditional expectation operator of union g under its ambiguity-distorted beliefs, computed using weights $\{w_g^s\}$. Unions use these beliefs to infer the

expected realizations of the latent shocks:

$$\tilde{\varepsilon}^z_{g,t} = w^z_g \, s_t, \tag{2.16}$$

$$\tilde{\varepsilon}^u_{g,t} = w^u_g \, s_t. \tag{2.17}$$

Subjective expectations about the underlying state variables evolve according to the perceived laws of motion:

$$\tilde{\mathbb{E}}_{g,t}[z_t] = \rho_z \, \tilde{\mathbb{E}}_{g,t-1}[z_{t-1}] + \tilde{\varepsilon}^z_{g,t}, \tag{2.18}$$

$$\tilde{\mathbb{E}}_{g,t}[u_t] = \rho_u \, \tilde{\mathbb{E}}_{g,t-1}[u_{t-1}] + \tilde{\varepsilon}^u_{g,t}. \tag{2.19}$$

The union's information set at time t excludes the true realizations of ε^z_t and ε^u_t, but includes all observable endogenous variables up to $t-1$ and the current composite signal s_t. Thus, while households, firms, and the monetary authority observe the actual shocks, unions operate under subjective and gender-specific belief distortions.

Wage bargaining and labor participation

The optimal labor participation decision for each gender $g \in \{m, f\}$ is determined by equating the marginal disutility of labor with its expected marginal benefit. Formally, the participation condition (2.8) can be rewritten as

$$\psi_g \, \chi_g L_g^{\varphi_g} \frac{C_t}{Z_t} = \frac{x_g}{1 - x_g} \left[\frac{1 - \xi_g}{\xi_g} G_g - \pi^w_g \frac{\theta^w_g}{1 - \theta^w_g} \omega_{g,t-1} Q_g \right], \tag{2.20}$$

where

$$Q_g = 1 + \theta^w_g (1 - \delta_g) \beta \frac{\tilde{\mathbb{E}}_{g,t}[Z_{t+1}]}{Z_t} \frac{C_t}{\tilde{\mathbb{E}}_{g,t}[C_{t+1}]} \frac{\tilde{\mathbb{E}}_{g,t}[Q_{g,t+1}]}{1 + \pi^p_t}. \tag{2.21}$$

Ambiguity aversion enters this condition indirectly through Q_g, which depends on subjective expectations about future productivity and consumption. Since $\tilde{\mathbb{E}}_{m,t}[\cdot] \neq \tilde{\mathbb{E}}_{f,t}[\cdot]$ whenever $\lambda_m \neq \lambda_f$, the perceived present value of expected wages differs across genders, even under identical institutional settings. Consequently, equilibrium labor participation rates may diverge between men and women as a function of their respective ambiguity attitudes.

This structure implies that gender differences in labor market outcomes can emerge endogenously from heterogeneity in ambiguity aversion rather than from structural

or policy asymmetries. Male unions, being relatively optimistic ($\lambda_m < 0$), place higher subjective weight on favorable states and thus anticipate stronger future wage growth, whereas female unions, being relatively pessimistic ($\lambda_f > 0$), overweigh adverse shocks and anticipate weaker wage prospects. These divergent expectations alter wage demands and participation incentives, leading to persistent differences in labor supply even in symmetric macroeconomic environments.

The model with ambiguity aversion generates gender wage gaps that are sensitive to macroeconomic conditions, particularly inflation. In Figure 2.8 we calibrate $\lambda_m = -0.1$ and $\lambda_f = 0.1$ reflecting men's relative optimism and women's relative pessimism. This yields a weight on supply shocks for women of $w_f^u = 0.97 > w_m^u = 0.03$. Under this calibration, an inflationary shock increases the expected present value of future wages differently for men and women due to gender-specific beliefs. This divergence translates into lower expected outside options in the next period and thus lower target wages for women relative men, widening the gender wage gap. Importantly, the gap does not immediately revert to its pre-shock level; instead, it remains elevated for an extended period as expectations adjust gradually. This persistence arises because Q_g, the discounted value of expected future wages, embeds forward-looking beliefs that evolve slowly over time, causing the wage differential to co-move with inflation and to display lasting effects after the initial shock. In conclusion, our model highlights that a belief-driven mechanism such as ambiguity aversion, motivated by survey expectations, can replicate our empirical findings on the cyclicality of the GWG while other, more static explanations cannot.

2.4 Conclusion

This paper establishes a new link between inflation dynamics and gender wage inequality. Using U.S. data, we show that the gender wage gap systematically widens following both supply- and demand-driven inflationary shocks, even after accounting for worker characteristics, industry, and occupation. Inflation not only erodes purchasing power but also redistributes income across groups, amplifying gender disparities in the labor market. We trace this widening to gender differences in how workers interpret inflationary surprises: women perceive inflation as signaling

weaker labor market conditions, while men interpret it as mild improvement. These asymmetric beliefs translate into unequal wage bargaining, with women negotiating smaller nominal wage increases and experiencing slower wage growth than men.

We formalize this mechanism within a two-agent New Keynesian search-and-matching model, where women's ambiguity-averse beliefs explain women's pessimistic interpretation of inflation and successfully replicate the empirical widening of the gender wage gap observed after inflationary shocks. The model links belief heterogeneity to aggregate wage dynamics, showing how differences in perceptions can transform symmetric inflationary shocks into asymmetric distributional outcomes.

Our findings contribute to several strands of the literature. First, we add to the growing body of research on the distributional consequences of inflation (e.g., Auclert 2019, Kaplan et al. 2018, Cloyne et al. 2020, Doepke & Schneider 2006) by documenting a gender dimension of inflation's redistributive effects. Second, we connect to recent evidence on inflation narratives (Kamdar & Rey 2025, Candia et al. 2020, Andre et al. 2025, 2022, Shiller 2017, Stantcheva 2024) suggesting that narratives of inflation matter for macroeconomic outcomes and differ systematically across genders. Finally, we complement the literature on gender wage gaps (e.g., Goldin 2014, Blau & Kahn 2017, Biasi & Sarsons 2022, Card et al. 2016, Olivetti & Petrongolo 2016, Azmat & Petrongolo 2014) by showing how inflation and the subsequent bargaining response can affect the cyclical evolution of gender wage gaps.

By linking inflation dynamics to gendered belief formation, the paper identifies a behavioral channel through which macroeconomic shocks shape inequality. In particular, our framework highlights how heterogeneity in expectations across demographic groups can generate persistent and systematic distributional effects of inflation. This mechanism has implications for both monetary policy design, by revealing hidden inequality trade-offs of inflation stabilization, and labor market policy, by emphasizing the importance of expectation management and communication in mitigating gendered outcomes of macroeconomic fluctuations.

Chapter 3

Does the Bank of England need Gendered Communication?

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National Institute Economic Review, No. 269, Vol. Autumn 2024, Pages: 29-46.

This study examines gender differences in inflation expectations, attitudes, and responses using the UK Inflation Attitudes Survey. It finds minimal gender disparity in inflation perceptions and expectations, but highlights greater uncertainty and inflation aversion among women. During inflationary periods, women are more likely to increase savings whereas men typically push for higher wages. Gender gaps in financial knowledge and trust in the Bank of England (BoE) suggest tailored communication strategies may enhance engagement. While BoE policies effectively anchor expectations, improved outreach and diverse messaging could address women's lower satisfaction and financial understanding. The findings underscore the role of inclusivity in effective monetary communication.

We thank Ben Caswell for his discussion of the paper, as well as other workshop participants for their helpful comments, questions and suggestions on the paper. Michael McMahon gratefully acknowledges financial support from the European Research Council (Consolidator Grant Agreement 819131). All errors are our own.

3.1 Introduction

An objective of central banks trying to keep inflation close to their targets is to manage inflation expectations (King et al. 2008). The idea is that when expectations remain anchored, decision makers in the economy take actions (such as price setting and wage demands) that are consistent with inflation at the target and, as a result, inflation is close to target. To manage expectations, the central bank tries to communicate to a broad cross-section of society ranging from technical financial market specialists to the broader public (Haldane & McMahon 2018).

A central bank ideally has different constituents credibly expecting inflation to be close to the target rate. While this has been broadly true on average in many OECD economies in the last decades (including the UK), it is often found that women have higher inflation expectations than men (D'Acunto, Malmendier & Weber 2021, Reiche 2025). Such gender differences may hamper the effectiveness of monetary policy communication and could have important economic implications given that women tend to control the lion's share of consumer spending; Silverstein & Sayre (2009) estimate that about two-thirds of all spending decisions in the UK are made by women. Differential understanding and attitudes to inflation may also have consequences for women on a micro-level by impacting investment and savings behavior (Lusardi & Mitchell 2008).

In this paper, we use the Inflation Attitudes Survey (IAS) to examine UK gender differences in inflation expectations, uncertainty and attitudes about inflation, and how these translate into satisfaction with Bank of England's (BoE) policies. We also explore whether gender differences relate to differences in information sources. Ultimately, we want to know whether the BoE (and potentially other central banks) need gendered communication to more effectively manage inflation expectations and retain public support for independent monetary policy.

Such a policy would be a natural response to the growing evidence of ingroup effects in information acquisition and processing meaning that information tends to resonate more strongly when the sender shares a common prominent characteristic with the receiver (Malmendier & Veldkamp 2022). These characteristics include

nationality (Wabitsch 2024), but also gender (D'Acunto et al. 2022). Given that the policy committees tend to be dominated by male decision makers, communication that more actively targeted women might be helpful to policy outcomes, and the UK may be well-placed to implement such a strategy as since July 2024, with Clare Lombardelli's appointment as Deputy Governor, the BoE Monetary Policy Committee (MPC) has a female majority for the first time in its 25-year history.

Our analysis results in eight claims with implications for how central banks should think about their communication. A main takeaway of our results is that we don't see a need for a gendered communication along the lines of the distinction between the traditional communication aimed at financial markets and the layered content for the wider public. However, we do identify specific communication challenges that suggest careful policies aimed to ensure better engagement and education for women with lower financial knowledge and understanding. This includes ensuring that a wide range of communication channels are used and that the Bank ensures a diverse range of senior speakers spreading the message on policy decisions and institutional set up.

Turning to our specific results, our first contribution relates to the literature on gender gaps in inflation beliefs. It has been observed that women tend to have different inflation expectations from men; Jonung (1981) made the observation for Sweden, D'Acunto, Malmendier & Weber (2021) examine US data, and evidence for the UK can be found for example in Blanchflower & MacCoille (2009) and Arioli et al. (2017) where the gender gap is estimated about 4 percentage points in the period 2001 to 2009 controlling for other demographics such as education and income. A prominent explanation for the gender gap relates to gender roles in grocery shopping and high food prices (Jonung 1981, D'Acunto, Malmendier & Weber 2021, D'Acunto, Malmendier, Ospina & Weber 2021). We, however, find little difference in inflation perceptions and expectations (Claim 1). We argue that this is because of the design of the IAS and thus our results support the argument in Reiche (2025) that differential expectations in level may be driven by higher uncertainty and lower financial confidence of women. Given the survey, we are indeed able to show that women, on average, are less certain in their answers (Claim 2).

Despite the similarities on expectations and perceptions, we find that women dislike inflation more than men (Claim 3) and, relatedly, they react differently to high inflation (Claim 4). Women are more likely to increase saving when inflation is high while men are more willing to ask their employer for a higher wage. This means that, despite similarities in expectations, there may still be consequences for gender gaps in income and wealth. And these findings contribute to the literature on gender gaps in trust and satisfaction with the Bank of England. Garriga (2026) highlights that women trust the Bank less, a fact that we connect to the negative attitudes about inflation.

Also of consequence for the BoE, we find that women have lower knowledge of the institutions of monetary policy (Claim 5). Such knowledge has been shown to correlate with trust in the institution (Haldane et al. 2021). Our results show that the aversion to inflation and the lower knowledge gives rise to a greater sense of dissatisfaction with the Bank amongst females even after controlling for the direct effect of these drivers on satisfaction (Claim 6). And we also find that the link between knowledge and satisfaction is especially strong for women.

Finally, we investigate whether the observed gender differences might be driven by gender differences in information sources about the bank and inflation. While we find similarities in sources about inflation, and no persistent differences in those sources (Claim 7), we find that women and men choose to inform themselves from somewhat different sources about the BoE. This shows that for gender gaps in monetary policy understanding and interpretation, the role of messenger may in fact be important as women are more likely to opt out of receiving financial news from traditional news channels in line with the "News is for men"-Hypothesis (Toff & Palmer 2018). These findings present a challenge for policy makers: It is not enough to appear in traditional news media to distribute communication, but central banks need to investigate more closely where the population is looking for information and target audiences more directly. Improved female representation in central banks may help (D'Acunto et al. 2022).

Our paper is related to the growing literature about communication with the wider public. There is growing acceptance that monetary policy makers should pay at-

tention to the public's perceptions and expectations of inflation (Yellen 2018) and central banks have increased their attempts to communicate directly with the public (see Blinder et al. (2008) and Haldane (2017) for a historical summary, and McMahon (2024) for a recent summary). This is to increase credibility and trust (Ehrmann et al. 2021) which helps anchoring expectations (Van Der Cruijsen et al. 2015). Istrefi & McMahon (2025) discuss the effects of communication on expectations. Furthermore, as technocratic institutions in a democratic landscape central banks have to be accountable for their actions (Draghi 2014, Jeanneau 2009, Fridriksson 2000, Stiglitz 1998).

Haldane et al. (2021) highlight the challenges from explanation, engagement and education. There have been recent proposals for more effective design focusing on clarity of messages and simplicity of language (Ferrara & Angino 2022, Haldane et al. 2021, Bholat et al. 2019, Haldane & McMahon 2018). However, despite semantic complexity decreasing, McMahon & Rholes (2023) show that conceptual complexity of the Bank's communication has been increasing. Experimental results for example in Coibion et al. (2022*a*) show however, that engagement is often low. A remaining question in this literature is what is driving the low public engagement. On the other hand, satisfaction with policy may also be driven by the choice of messenger. Blinder & Krueger (2004) show how individuals receive political and economic information mostly through TV. On the other hand Coibion et al. (2022*b*) find little evidence of differences in expectations between participants in an experiment who received central bank statements directly, versus those who were presented newspaper articles.

3.2 Data

We make use of the BoE Inflation Attitudes Survey (IAS) which is a quarterly survey conducted since Q1 2001. We use data until Q3 2024. In the survey, respondents are asked about inflation perceptions and expectations as well as beliefs and attitudes about inflation and the policy response, knowledge about policy institutions and information sources they use to make these assessments; all of the survey questions we use are reported in Tables C.1 to C.10. The survey records a range of demographics,

the focus of this paper are gaps between men and women. Gender in the survey is based on self-assessment. Respondents are given the options "Male", "Female" as well as "In another way/Non-binary"[1] and the option to refuse an answer ("Prefer not to say"). We focus only on the 99.91% of respondents who self-identify as either male or female for the purpose of this paper. The share of women in our sample is close to 53%.

Respondents to the Inflation Attitudes Survey (IAS) report their inflation perceptions and expectations through a sequence of structured categorical intervals. Initially, participants select from a set of discrete options: 0%, 1-percentage-point bins ranging from 0–1% to 4–5%, or boundary categories for "lower than 0%" and "higher than 5%." If a boundary category is selected, the survey branches into more extreme intervals, with lower and upper limits of -5% and 15%, respectively. This interval-coded elicitation distinguishes the IAS from open-ended designs, such as the Michigan Survey of Consumers, and potentially induces an anchoring effect toward the provided partitions (Bruine de Bruin et al. 2017). To derive continuous point forecasts from these ordinal responses, we adopt a conservative approach by utilizing the bin endpoint furthest from zero (e.g., the 3–4% interval is mapped to a point forecast of 4%). For the most extreme open-ended categories, we assign values of -6% and +16%.

While this structured design may perturb the raw point estimates through framing, it serves as a robust mechanism to minimize the prevalence of uninformative outliers which are shown to drive the inflation expectations of men and women in other surveys (Reiche 2025). Importantly, the IAS is not limited to point elicitation; it includes a comprehensive suite of questions regarding consumers' qualitative attitudes, subjective knowledge of the Bank of England's mandate, and the perceived impact of inflation on household welfare. These multidimensional measures allow us to move beyond potentially biased point estimates and instead capture a more granular latent construct of inflation literacy and central bank credibility. Consequently, the IAS provides a unique vantage point to analyze how policy communication filters through to consumer sentiment, even if the elicitation framework itself provides a

[1] Wording changed in November 2023

degree of guidance to the respondent.

For every question, the survey gives respondents the option to choose "Don't know". We will use this question as a metric of a genuine uncertainty as in Giavazzi & McMahon (2012). However, in the time-series analysis of the "Don't know" option, it is important to note a break in the series. In 2020 Q2 (survey conducted in May) the survey mode went online due to the pandemic. In the initial online survey the "Don't know" answer only appeared when respondents attempted to continue without selecting another option. This initial unavailability reduces the use of the option (though perhaps makes it an even truer measure of the uncertainty). The effect is visible in all plots shown in this analysis and the respective quarter will be marked with a red, dashed line throughout.

3.3 Gender Differences in Views on Inflation

3.3.1 Inflation perceptions and expectations

Claim 1 *The gender gaps in inflation perceptions and expectations in the Bank of England's Inflation Attitudes Survey are small (or even zero).*

Figure 3.1 shows the average inflation perceptions and expectations for men and women over time. Both men and women's inflation expectations co-move with CPI inflation, with expectations reducing quicker after inflationary periods than perceptions, consistent with an anchoring effect of current inflation. There is no gender gap in inflation expectations in the IAS — on average women and men both had inflation expectations of 3.4% over the full period.

Our finding that gender gaps do not appear important in the IAS is also confirmed via a simple baseline regression which allows us to control for other demographic variables including income, education, age, employment, housing status and region (see Table 3.1).[2] Column (1) shows that there is no evidence of a gender gap in inflation expectations and Column (3) shows that the gender gap for perceptions is

[2]Earlier studies, Blanchflower & MacCoille (2009), Arioli et al. (2017), D'Acunto, Malmendier & Weber (2021), Reiche (2025), show that the gender gap in inflation expectations is robust to demographic controls.

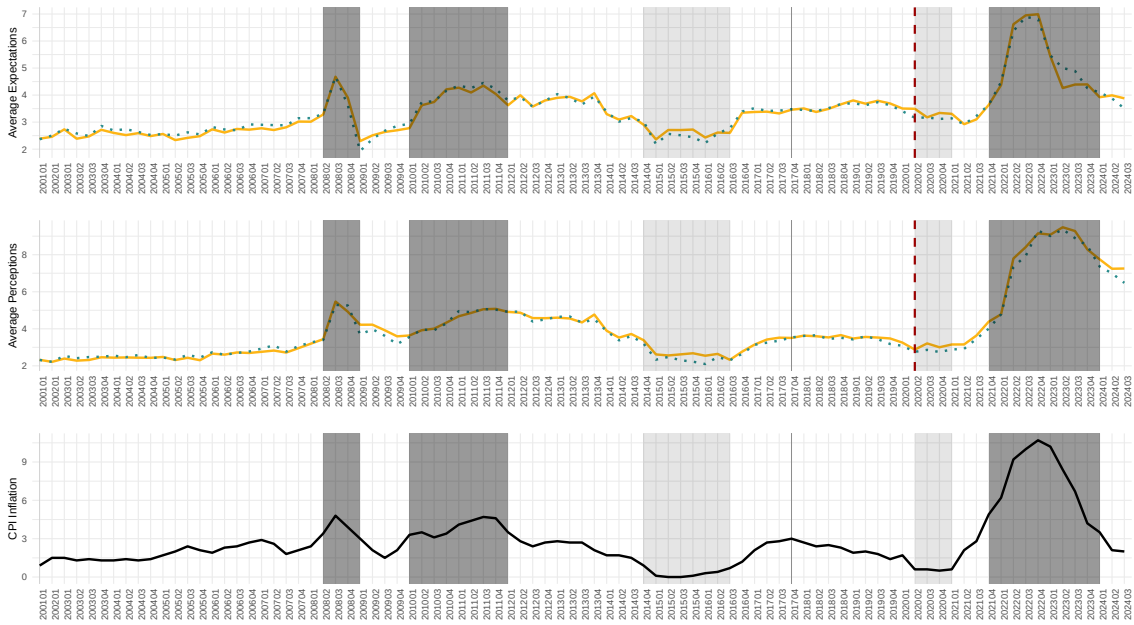


Figure 3.1. Historical inflation expectations and perceptions for men and women

Note: The figure shows the mean inflation expectations and perceptions for men (in green, dotted) and women (in yellow) since Q1 2001. The red, dashed line marks 2020 Q2 when the survey went online due to the pandemic and the "Don't know" response was removed from the initially presented options. The black line below shows actual CPI Inflation in a given period. Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.
Sources: Office for National Statistics CPI Annual Rate; BoE Inflation Attitudes Survey; authors' own calculations.

positive (i.e. women having higher perceptions on average) and significant but small in magnitude.

However, despite the small gender differences, other demographics do appear important in determining expectations. For instance, living in Northern England or Northern Ireland as well as in council housing is significantly positive while those in employment have significantly lower perceptions and expectations.

Some demographics interact with the female coefficient. This can be seen in Table C.2.1 where conditioning on these interactions raises the gender gap in inflation expectations but then interactions reduce the gap. For instance, Column (2) shows that women having a mortgage reduces the gap between men and women. This is also true for perceptions (column (4)). Women with higher income tend to have lower expectations but higher perceptions than men. Younger women also have larger inflation perceptions than men their age but this gap reduces as they become older.

The fact that the IAS has no gender gap in inflation perceptions and expectations is important *because* it is different to other surveys in comparable economies. This helps us to understand the source of a perceived gender gap and how it is mitigated by the specific IAS survey design. Reiche (2025) points out that in surveys with open expectation elicitation gender gaps are caused by extreme outliers that can be classified as low financial confidence. These outliers are likely less prominent when respondents are given bins from 0 to 5% initially as this anchors expectations. Those who were very uncertain about possible values are now suggested to remain within this range, while in an open field are likely to indicate higher values. Extreme outliers (i.e. beyond 15%) are not reported at all in the IAS but quite common in other surveys such as the Michigan Survey of Consumers or the NY Fed SCE. In contrast, surveys that elicit point forecasts as open questions without suggested bins feature rounding (i.e. choosing an expectation that is a multiple of 5 or even 10) which can be used as a proxy for uncertainty (Binder 2017*b*, Reiche & Meyler 2022). In these surveys women are found to round more frequently which biases their expectations upwards (Reiche & Meyler 2022, Reiche 2025).

Table 3.1. Drivers of inflation perceptions, expectations and uncertainty

	Inflation Expectation	Inflation Perception	Don't Know		
	(1)	(2)	(3)	(4)	(5)
female	-0.01	0.13***	0.34***	0.25***	0.15*
	(0.02)	(0.02)	(0.02)	(0.03)	(0.09)
age	0.14***	0.25***	-0.003	0.05***	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.04)
educ	0.08***	0.06***	-0.24***	-0.17***	-0.22***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.07)
employed	0.001	0.02	-0.06***	0.02	-0.003
	(0.02)	(0.02)	(0.02)	(0.03)	(0.11)
income_high	-0.06***	-0.02	-0.24***	-0.21***	-0.29**
	(0.02)	(0.02)	(0.02)	(0.04)	(0.12)
income_low	-0.02	-0.11***	0.30***	0.26***	0.43***
	(0.03)	(0.03)	(0.02)	(0.04)	(0.12)
own_house	-0.28***	-0.36***	-0.32***	-0.25***	-0.16
	(0.03)	(0.03)	(0.03)	(0.04)	(0.14)
mortgage	-0.16***	0.05**	-0.24***	-0.17***	-0.46***
	(0.02)	(0.03)	(0.03)	(0.04)	(0.14)
council_house	0.06**	0.10***	0.02	-0.07*	-0.08
	(0.03)	(0.03)	(0.03)	(0.04)	(0.14)
scotland	0.02	0.19***	-0.07*	-0.10*	-0.31
	(0.03)	(0.03)	(0.04)	(0.05)	(0.19)
north	0.06***	0.19***	0.04*	0.07*	0.01
	(0.02)	(0.02)	(0.02)	(0.04)	(0.12)
wales	0.02	0.20***	0.23***	0.24***	0.38***
	(0.03)	(0.03)	(0.03)	(0.04)	(0.14)
midlands	0.04	0.16***	0.18***	0.18***	0.28**
	(0.02)	(0.02)	(0.03)	(0.04)	(0.12)
BoE knowledge				-0.52***	
				(0.02)	
Constant	1.87***	1.13***	-1.70***	-1.52***	-1.61***
	(0.09)	(0.09)	(0.10)	(0.11)	(0.31)
Time fixed effects	Yes	Yes	Yes	Yes	Yes
BoE information source	No	No	No	No	Yes
Observations	110,130	110,787	124,414	54,346	8,306
R^2	0.13	0.35			

Notes: The table shows the result of a linear regression of inflation expectations or perceptions point estimates on a range of demographics in columns 1-2. Columns 3-5 shows the logistic regression of ticking the "Don't know" box on the same demographics. Significance levels are indicated by stars: $^{***}p < 0.01$, $^{**}p < 0.05$, and $^{*}p < 0.1$. Standard errors are reported in parentheses below the coefficient estimates.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

3.3.2 Uncertainty

The fact that the IAS shows demographic gaps consistent with the existing literature[3], but not a gender gap, suggests that gender gaps may be caused by uncertainty as suggested by Reiche (2025) and thus, they disappear in the IAS where the survey design eliminates such uncertainty biases. We test this by examining uncertainty about inflation using the "Don't know" responses.

Claim 2 *Women are less certain than men over their answers to questions on inflation perceptions and expectations.*

While inflation expectations move closely together for men and women, with no obvious gender gap, Figure 3.2 shows that the share of women who respond "Don't know" to either perceptions or expectations is much larger.[4] This indicates that women are either less certain about inflation or trust their own forecasting ability less (Bucher-Koenen et al. 2025) which supports the claim in Reiche (2025).[5] In Table 3.1, column (3) - (5), we report the coefficients from a simple logistic regression on the probability of answering "Don't know" and find a significant uncertainty gender gap but this, unlike in other surveys, doesn't reflect in inflation expectations which is likely because of the IAS survey design.

3.3.3 Attitude to inflation

Despite having the same point forecast as men, women have a different attitude towards inflation. Most respondents believe the economy would become weaker if prices were to rise faster.

Claim 3 *On average, men and women think inflation is bad for the economy.*

[3]See for example Arioli et al. (2017) for a good overview for the EU including the UK which was an EU member in the sample used in the paper

[4]It is also interesting that the share does not seem to vary significantly with actual CPI inflation rates.

[5]Figure C.3.1 in the Appendix shows the difference between CPI inflation and inflation perceptions in the survey; we call this measure *misperceptions* of inflation. The figure shows that while there are occasions where female respondents have greater misperception than male respondents, these are relatively rare and more generally the series are very similar. Notably, women tend to have greater misperceptions when inflation is low. Perhaps unsurprisingly, misperceptions are inversely related to the actual level of inflation. This is in line with the predictions of attention models (Haldane et al. 2021, Pfäuti 2024) and suggests that attention, especially that of women, increases in times when communication matters.

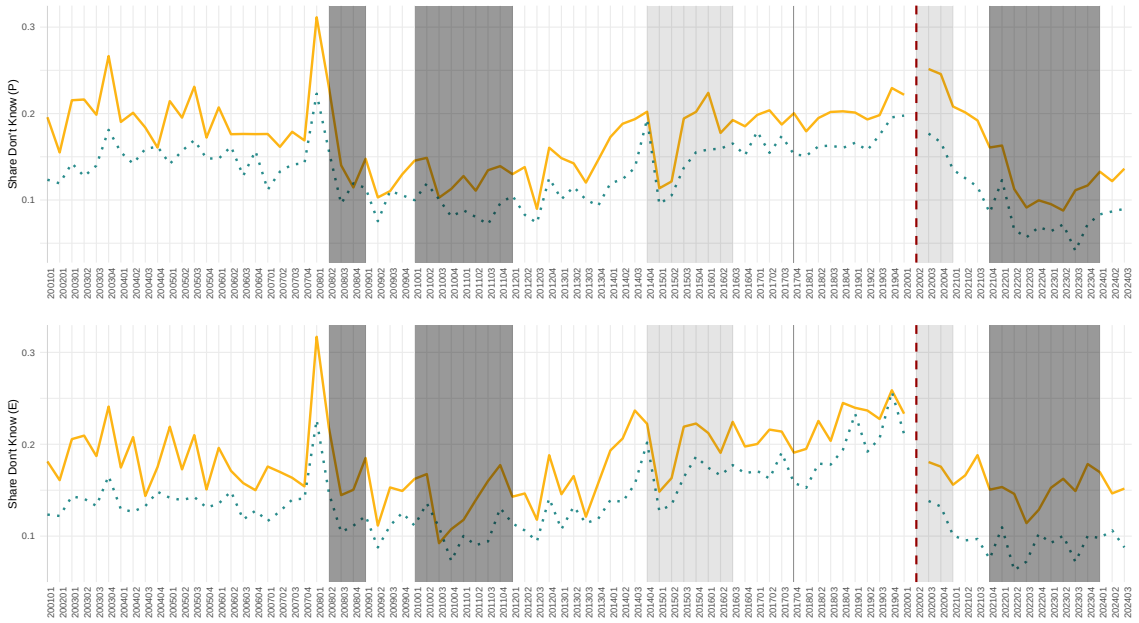


Figure 3.2. Inflation uncertainty for men and women

Note: The figure shows the share of "Don't know" answers for perceptions (P) and expectations (E) for men (in green, dotted) and women (in yellow) since Q1 2001. The red, dashed line marks 2020 Q2 when the survey went online due to the pandemic and the "Don't know" response was removed from the initially presented options. Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

Women general think it is worse for the economy. There is time-variation for both genders that is consistent with an optimal level of moderate inflation.

Figure 3.3 shows the share of respondents who believe that higher inflation worsens the economy for men and women for each quarter since 2001 Q1.[6] The share of those believing that high inflation would be detrimental to the economy is higher when inflation is at a higher level, consistent with agents perceiving an optimal level of inflation at a low level. For instance, during the Financial Crisis of 2008 almost 85% of women and 80% of men believed that higher inflation would be bad. In contrast, in the low inflation period after 2015 the shares dropped to 60% for women and 50% of men. Since the onset of the COVID-pandemic and inflation rising at higher levels than in previous years, the share of those thinking that higher inflation will make the economy weaker has again risen significantly to over 80% and 75% respectively in Q3 2023. Hence, the co-movement with actual inflation can be observed for both

[6] An interesting feature of the time series is that in Q2 2020 the "Don't know" response was removed. This caused a clear spike in women choosing "little difference" which indicates that it may be interpreted as a substitute and reflect a similar level of uncertainty.

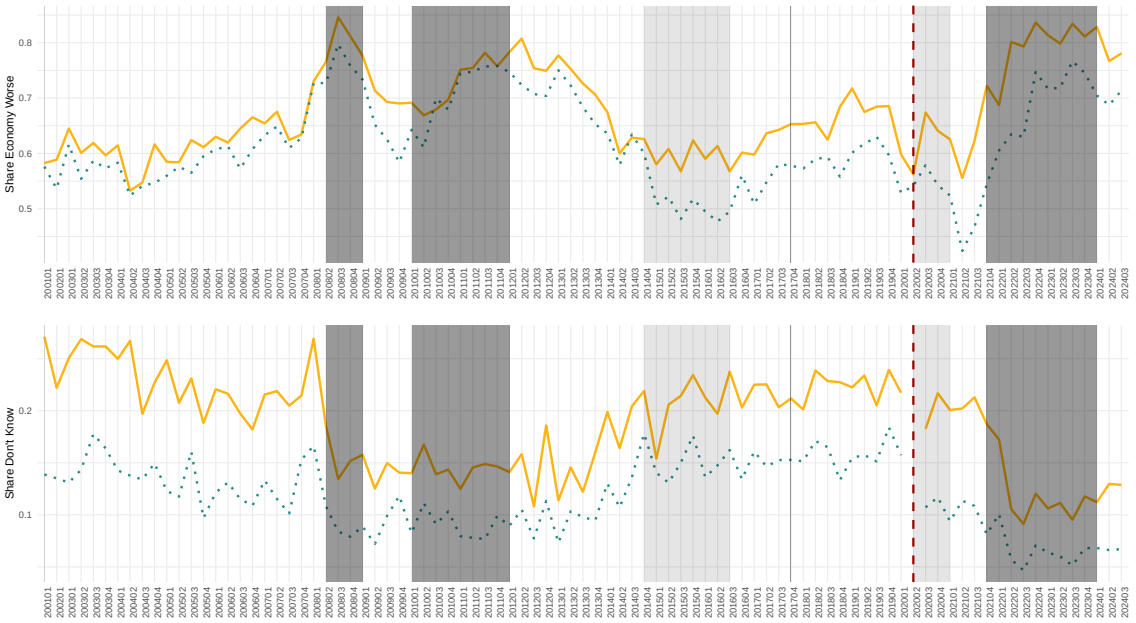


Figure 3.3. Expected effect of inflation on British economy for men and women

Note: The figure shows average assessment and share of "Don't know" responses for men (in green, dotted) and women (in yellow) since Q1 2001. The red, dashed line marks 2020 Q2 when the survey went online due to the pandemic and the "Don't know" response was removed from the initially presented options. Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

men and women while women are always more negative about inflation.

The gap between men and women has widened over time. Compared to women indicating more frequently that they don't know if the economy will be weaker or stronger, men are more likely to choose stronger and little difference, thus women have a higher share of respondents who expect the economy to deteriorate with higher inflation. For instance, in 2021, up to 15% of men thought higher price increases would make the economy stronger while only 5% of women agreed. We confirm these results in a linear regression framework of the inflation assessment on a range of demographics.[7]

3.3.4 Responses to inflation

We hypothesize that a gendered response to inflation can explain why women are more negative towards inflation. Once a year, the IAS survey elicits how individuals

[7]For this we compute an inflation assessment score where +1 indicates the belief the economy will be better, -1 worse and 0 little or no difference. The analysis and results are reported in Table C.2.2 in the Online Appendix the female coefficient is significantly negative.

respond to their inflation expectations. They are given the options (1) *Bring forward major purchases*; (2) *Cut back spending and save more*; (3) *Shop around more for better value goods and services*; (4) *Push for increased pay with current employer*; (5) *Look to increase income in other ways*; (6) *Move savings out of banks or building societies into other assets*; (7) *Take no action* and (8) *None/Don't know.*

Claim 4 *Men and women claim that they would react to inflation in different ways. Men are more likely to reallocate assets and push for higher wages. Women are more likely to shop around, and save extra.*

Figure 3.4 shows the responses to the question. Since the pandemic, the share of respondents who report taking no action has decreased while all other actions have increased in share. There are no clear gender gaps in the "Don't know" response, but women are less likely to take no action. They tend to shop around more and increase savings. In contrast, men are more likely to ask for wage increases or move their assets if they take action. The differences between men and women for saving more and asking for higher wages increased in the pandemic substantially. Therefore, it appears that women feel more financially squeezed while men may try to proactively avoid financial losses due to inflation.

One interesting dimension is that in the most recent data, the differences have become more apparent; this is true in the initial Covid period and also when inflation was actually very high. Before the recent period, the differences, while present, are mostly quantitatively small.

It might be tempting to think that these differential responses to dealing with inflation are the reason that there is a gendered response on how costly inflation is seen to be. However, we find that including inflation response controls in the regressions of inflation attitude does not alter the gender gap in attitude to inflation (Table C.2.2, column (2) and (4)).

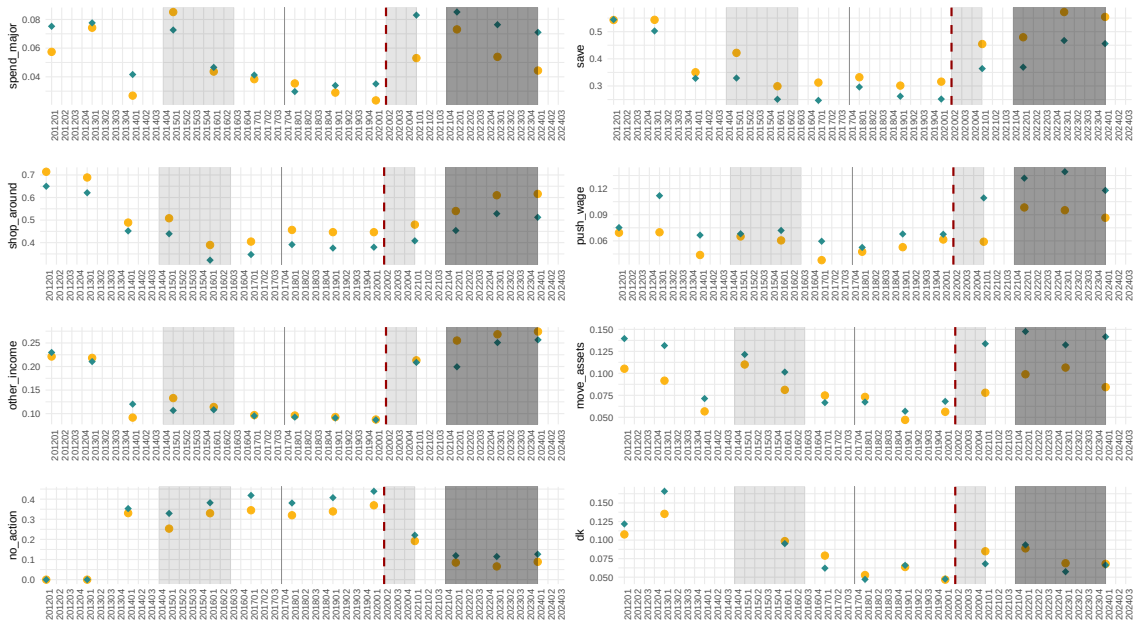


Figure 3.4. Actions in response to inflation for men and women

Note: The figure shows the share of responses to each answer (see Appendix for full details) for men (in green, dotted) and women (in yellow) since Q1 2012. The question is asked anually in the first quarter opnly. The red, dashed line marks 2020 Q2 when the survey went online due to the pandemic and the "Don't know" response was removed from the initially presented options. Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

3.4 Satisfaction with and Knowledge of the Bank of England

The consistently negative attitudes of women towards inflation in the UK could have consequences for their view of the Bank of England. We therefore test whether there is a gender dimension to satisfaction with the Bank which would mean that targeted communication would be warranted even in the absence of a difference in inflation expectations.

The survey allows us to explore satisfaction with the Bank in terms of monetary policy. The specific question asks *Overall, how satisfied or dissatisfied are you with the way the Bank of England is doing its job to set interest rates in order to control inflation?* (see Appendix Table C.9) with answers ranging from very satisfied to very dissatisfied. We compute a satisfaction score from -1 to 1 for each individual were -1 expresses very dissatisfied, 0 neither satisfied nor dissatisfied and 1 very satisfied. Answers in between are marked as $\pm$ 0.5.

3.4.1 Knowledge about the Monetary Policy Committee

Before turning to satisfaction, it is worth noting that Haldane & McMahon (2018) highlight a systematic correlation between an individual's understanding of central bank's policy objective, their trust in the institution and satisfaction with the institution's performance, and the degree to which their expectations are likely to be close to the inflation target. Therefore we first explore whether there exist gender gaps in knowledge about policy makers associated with controlling inflation. We can then explore satisfaction taking account of any knowledge differences.

The IAS includes three questions that allow us to measure knowledge about the MPC. All questions are shown in Table C.7. We use the answers to these questions to compute an MPC Knowledge Score where each correct answer adds a points to a respondents score ("Don't know" and wrong answers equally provide zero points).[8]

Claim 5 *Women, on average, have lower knowledge of the monetary policy committee. Nonetheless, everyone displays more knowledge when inflation is high and monetary policy becomes more prominent.*

Figure 3.5 shows that women have lower scores on average. This is also confirmed in a linear regression of the knowledge score on a range of demographics, including the female dummy (see Table 3.2). In a baseline specification in column (1) women appear to have a score that is lower than men by 0.18 points on average, even when controlling for other demographics.[9] Further, women choose "Don't know" to at least one question at a higher frequency than men, which explains the smaller (though still significant) gender gap in the two alternative measures of knowledge (columns (4) and (5)).[10]

Figure 3.5 reveals that the recent spike in inflation has coincided with the knowledge

[8]Of course there are alternative ways to aggregate these scores. In the Appendix we replicate all results with one such alternative measure used in Haldane et al. (2021) where correct answers add two points and "Don't know" adds one point. Another alternative removes all "Don't know" respondents to see how much of the effect in our score is driven by these. All findings presented here are robust to the computational method.

[9]As in Haldane & McMahon (2018), other demographics that increased inflation expectations and perceptions are decreasing knowledge about the BoE.

[10]Women's lower knowledge about the BoE can (at least partially) explain their higher uncertainty about inflation. Column (6) in Table 3.1 shows that when the test score is controlled for, the female propensity to answer "Don't know" is substantially lower.

Table 3.2. Drivers of knowledge about the BoE

	Test Score			(as in 3E)	(excl. DK)
	(1)	(2)	(3)	(4)	(5)
female	-0.18***	-0.05***	-0.23***	-0.07***	-0.09***
	(0.01)	(0.01)	(0.05)	(0.01)	(0.01)
age	0.09***	0.01**	0.06***	0.12***	0.08***
	(0.002)	(0.01)	(0.02)	(0.004)	(0.004)
educ	0.17***	0.10***	0.22***	0.18***	0.13***
	(0.005)	(0.01)	(0.04)	(0.01)	(0.01)
employed	0.02**	-0.02	-0.15**	-0.01	-0.003
	(0.01)	(0.02)	(0.06)	(0.01)	(0.01)
income_high	0.11***	0.08***	0.15**	0.14***	0.08***
	(0.01)	(0.02)	(0.06)	(0.01)	(0.01)
income_low	-0.15***	-0.03	-0.18**	-0.15***	-0.10***
	(0.01)	(0.02)	(0.07)	(0.02)	(0.02)
own_house	0.14***	0.06***	0.16*	0.07***	0.03*
	(0.01)	(0.02)	(0.08)	(0.02)	(0.01)
mortgage	0.19***	0.04**	0.29***	0.20***	0.11***
	(0.01)	(0.02)	(0.08)	(0.02)	(0.01)
council_house	-0.11***	-0.06***	0.03	-0.16***	-0.12***
	(0.01)	(0.02)	(0.08)	(0.02)	(0.02)
scotland	-0.06***	0.04*	-0.07	-0.03	0.01
	(0.01)	(0.02)	(0.10)	(0.02)	(0.02)
north	-0.05***	0.02	-0.15**	-0.05***	-0.03**
	(0.01)	(0.02)	(0.07)	(0.02)	(0.01)
wales	-0.04***	0.05***	-0.11	0.01	0.02
	(0.01)	(0.02)	(0.08)	(0.02)	(0.01)
midlands	-0.03***	0.04**	-0.03	0.02	0.01
	(0.01)	(0.02)	(0.07)	(0.02)	(0.01)
Constant	0.53***	1.11***	0.49***	2.33***	0.93***
	(0.03)	(0.04)	(0.14)	(0.05)	(0.04)
Time fixed effects	Yes	Yes	No	Yes	Yes
BoE Information Source	No	Yes	No	No	No
Inflation Information Source	No	No	Yes	No	No
Observations	54,346	8,306	905	54,346	26,531
R^2	0.14	0.06	0.24	0.06	0.07

Note: The table shows the results of a linear regression of the computed knowledge score about the BoE's Monetary Policy Committee on a range of demographics. Columns 4 and 5 use alternative measures of knowledge; in 4 DK answers yield half a point, in 5 they are excluded. Significance levels are indicated by stars: $^{***}p < 0.01$, $^{**}p < 0.05$, and $^{*}p < 0.1$. Standard errors are reported in parentheses below the coefficient estimates.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

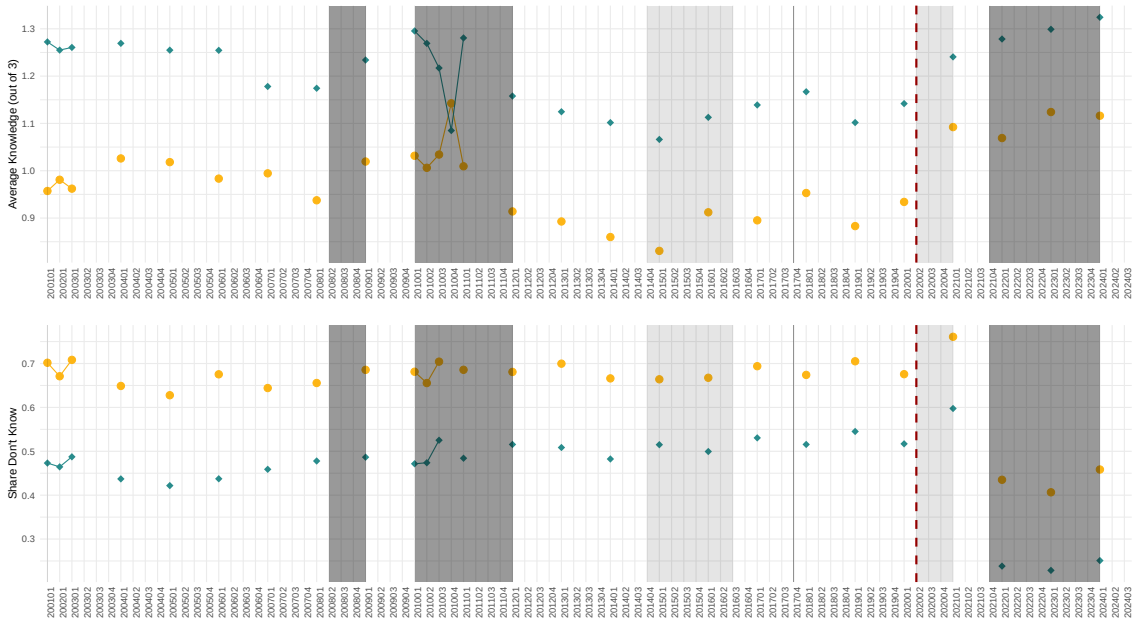


Figure 3.5. Knowledge about the BoE Monetary Policy Committee

Note: The figure shows the computed knowledge score about the BoE's Monetary Policy Committee for men (in green, squares) and women (in yellow, circles) since Q1 2001. The data is only annually available. The red, dashed line marks 2020 Q2 when the survey went online due to the pandemic and the "Don't know" response was removed from the initially presented options. Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

scores for both men and women increasing substantially. And the "Don't know" answers drastically reduce. This is consistent with periods of low inflation being associated with engagement with issues of monetary policy (and correspondingly low consumers' knowledge about the BoE and monetary policy).[11] These findings make clear that engagement with the public is a double-edged sword; when central banks most need to be able to communicate with the public, they have chosen to become more aware of what the central bank does, but they become interested precisely at the time when the central bank is failing to achieve its mandate (see McMahon & Rholes (2023) for an illustration of the detrimental effects of such attention).

3.4.2 Satisfaction with the Bank

Claim 6 *Women are generally less satisfied with the Bank of England than men. The recent high inflation has reduced satisfaction with the Bank for both genders.*

[11] Using the alternative measure in Haldane et al. (2021), this is not the case as with that measure "Don't know" yields more points than a false response (see Appendix Figure C.3.2).

Claim 6 emerges in Figure 3.6 which shows that for both men and women dissatisfaction with the BoE has increased significantly since the rise of inflation in recent years.[12] Column (1)-(3) of Table 3.3 shows that being female significantly reduces the BoE satisfaction while controlling for various demographics in a linear regression. The coefficient on the female dummy is slightly attenuated when the different response to inflation is controlled for (Column (2)). But Column (4) and (5) show that the negative attitude women have towards inflation reduces their satisfaction with the Bank.

Controlling for the differences in knowledge does not change the negative gender effect on satisfaction. As expected, greater knowledge about the bank is associated with greater satisfaction (column (6) and (7)). Moreover, the positive effect of knowledge on satisfaction is stronger for women than for men (column (7)). This suggests that improving knowledge about the Bank might help reduce the negative sentiment women on average appear to have towards it.

3.5 Sources of Information

Finally, we explore whether different sources of information are a key cause of gender gaps in survey responses about knowledge about a concept such as inflation or about an institution such as the BoE. For instance, gender gaps in inflation expectations have been attributed to women being the prime grocery shopper and groceries shopping having typically higher (or at least more volatile) inflation (D'Acunto, Malmendier & Weber 2021). While this has been questioned by showing how the gender gaps don't disappear when focusing on single-person households (Reiche 2025), by occasionally asking which resources individuals use to form their inflation forecasts, the IAS allows us to directly investigate this information source hypothesis.

Claim 7 *There is no persistent difference in the source of information for forming inflation expectations between men and women.*

In two survey waves, 2017 Q1 and 2023 Q1, the IAS included the question *What were the most important factors that led you to your expectation of prices in the*

[12] The mean response is also significantly lower for women across all periods omitting the "Don't know" responses.

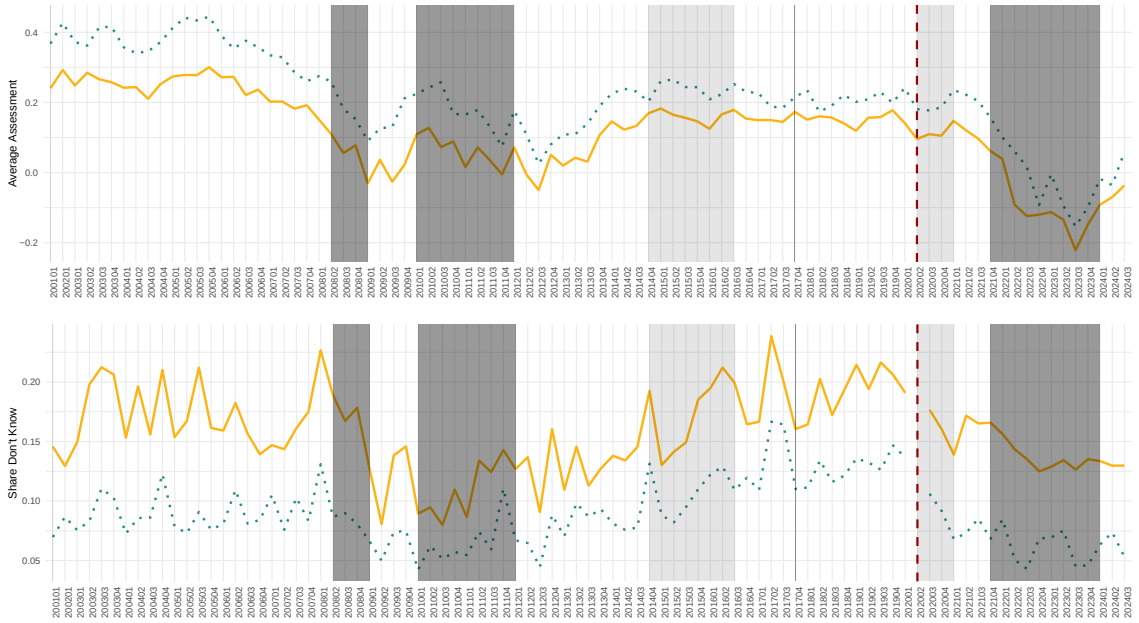


Figure 3.6. Satisfaction with the Bank of England

Note: The figure shows the mean score to the question *Overall, how satisfied or dissatisfied are you with the way the Bank of England is doing its job to set interest rates in order to control inflation?* as well as the share of "Don't know" responses for men (in green, dotted) and women (in yellow) since Q1 2001. Satisfaction is computed from 1 (satisfied) to -1 (dissatisfied). The red, dashed line marks 2020 Q2 when the survey went online due to the pandemic and the "Don't know" response was removed from the initially presented options. Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.

Sources: BoE Inflation Attitudes Survey; authors' own calculations.

Table 3.3. Drivers of BoE satisfaction

	Satisfaction with the Bank						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
female	-0.09***	-0.07***	-0.09***	-0.08***	-0.10***	-0.09***	-0.11***
	(0.003)	(0.01)	(0.01)	(0.003)	(0.004)	(0.004)	(0.01)
inflation bad				0.09***	0.10***		
				(0.002)	(0.003)		
BoE knowledge						0.05***	0.04***
						(0.003)	(0.004)
female x inflation bad					-0.03***		
					(0.005)		
female x BoE knowledge							0.02***
							(0.01)
age	0.02***	0.02***	0.03***	0.02***	0.02***	0.02***	0.02***
	(0.001)	(0.002)	(0.005)	(0.001)	(0.001)	(0.002)	(0.002)
educ	0.03***	0.03***	0.05***	0.04***	0.04***	0.03***	0.03***
	(0.002)	(0.004)	(0.01)	(0.002)	(0.002)	(0.003)	(0.003)
employed	0.02***	0.02***	0.03**	0.02***	0.02***	0.01**	0.01*
	(0.003)	(0.01)	(0.01)	(0.004)	(0.004)	(0.01)	(0.01)
income_high	0.05***	0.06***	0.03**	0.05***	0.05***	0.05***	0.05***
	(0.004)	(0.01)	(0.01)	(0.004)	(0.004)	(0.01)	(0.01)
income_low	-0.03***	-0.03***	-0.04**	-0.03***	-0.03***	-0.02***	-0.02***
	(0.004)	(0.01)	(0.02)	(0.005)	(0.005)	(0.01)	(0.01)
own_house	0.10***	0.10***	0.07***	0.09***	0.09***	0.09***	0.09***
	(0.005)	(0.01)	(0.02)	(0.005)	(0.005)	(0.01)	(0.01)
mortgage	0.07***	0.07***	0.14***	0.08***	0.08***	0.08***	0.08***
	(0.004)	(0.01)	(0.02)	(0.005)	(0.005)	(0.01)	(0.01)
council_house	0.002	0.01	-0.01	0.001	0.001	-0.0003	-0.0002
	(0.005)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
scotland	-0.12***	-0.12***	-0.13***	-0.11***	-0.11***	-0.12***	-0.12***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
north	-0.06***	-0.05***	-0.07***	-0.05***	-0.05***	-0.05***	-0.05***
	(0.004)	(0.01)	(0.01)	(0.004)	(0.004)	(0.01)	(0.01)
wales	-0.05***	-0.05***	-0.02	-0.04***	-0.04***	-0.05***	-0.05***
	(0.005)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
midlands	-0.04***	-0.02**	-0.03**	-0.04***	-0.04***	-0.03***	-0.03***
	(0.004)	(0.01)	(0.02)	(0.004)	(0.004)	(0.01)	(0.01)
Constant	0.19***	0.05*	0.03	0.22***	0.23***	0.13***	0.14***
	(0.01)	(0.02)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Response to Inflation	No	Yes	No	No	No	No	No
BoE Information Source	No	No	Yes	No	No	No	No
Observations	112,787	26,925	8,040	101,986	101,986	49,560	49,560
R^2	0.11	0.10	0.08	0.13	0.13	0.12	0.12

Notes: The table shows the result of a linear regression of the satisfaction with the BoE, i.e. if the respondent is very satisfied with the bank (1), neutral (0) or very dissatisfied (-1) on a range of demographics. Significance levels are indicated by stars: $^{***}p < 0.01$, $^{**}p < 0.05$, and $^{*}p < 0.1$. Standard errors are reported in parentheses below the coefficient estimates.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

Table 3.4. Sources of inflation forecast

	2017 Q1		2023 Q1	
	Women	Men	Women	Men
Groceries (last 12 months)	29	25	53	40
Groceries (last few years)	12	15	31	28
Media (on current inflation)	11	14	15	16
Media (on prospective inflation)	21	24	10	13
UK Economy	24	19	19	19
UK Expectations	14	15	17	20
Exchange Rate	8	9	9	11
Interest Rates	28	25	42	41
Inflation Target	23	28	23	26
None	9	8		
Energy			51	45
Petrol			31	28
Other	9	9	1	3
Average number of boxes used	2	2	3	3
Total answers	1407	1261	1418	1247

Note: The table compares the share of men and women that ticked the respective answer as a source for their inflation forecast. Up to 4 answers were allowed. The question was asked in 2017 Q1 and 2023 Q1, the latter included the additional options of energy and petrol prices.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

shops over the next 12 months?. Respondents are given a range of options including grocery prices, discussions of inflation in the media, interest and exchange rates, the inflation target and the strength of the UK economy as well as the options to select none or say "Don't know". In 2023 they could also choose prices of energy and petrol/diesel (further details in Appendix Table C.5). Table 3.4 summarizes the responses to the question. Groceries (both options) are about the same in the 2017 wave, though women put slightly higher weight on groceries in the 2023 wave. Men put more weight on media in the 2017 wave, but the gap closes for the 2023 wave. This shows that while over time the information sources change, there is no clear persistent difference between men and women. This is reassuring given that they then converge on similar inflation expectations (with the constraints of the survey design described earlier), and further reinforces that other potential differences between men and women are not caused solely by differential shopping behavior.

The survey also asks where they gather their information about the Bank. The

Table 3.5. Sources of BoE information

	Women	Men
Newspapers and magazines	33	39
TV and radio	53	58
The BoE's website	3	4
Other websites and search engines	5	9
BoE publications	2	2
The BoE's public enquiries desk	1	1
None of these	32	25
Don't know	3	2
Number of boxes used	1	1
Total answers	101112	88580

Note: The table compares the share of men and women that ticked the respective answer as a source for information about the BoE.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

survey question is *Have you got information about the Bank of England from any of the sources on this card?*, and the options include newspapers and magazines, TV and radio, the BoE website, other websites and search engines, BoE publications, and BoE enquiries desk. There are also options to select none or say "Don't know" (further details in Appendix Table C.8).

Claim 8 *Men and women both predominantly get their information about the Bank of England from the media. But women are more likely to use non-traditional sources for information on the Bank.*

Table 3.5 shows that the most common source of information is TV and radio followed closely by newspapers and magazines in usage by both men and women. All other sources are used less. In contrast, around 32% of woemn use none of the given options to inform themselves (compared to 25% for men). While there is little variation in information sources over time (see Appendix Figure C.3.3), there are significant gender gaps present. Women are less likely to answer the question in the first place and are more likely to choose none of the options and "Don't know". This is in line with the "News are for men" hypothesis in Toff & Palmer (2018).

Sources about BoE information may be a driver of gender gaps in uncertainty about inflation and knowledge about the BoE and the MPC. In column (2) of Table 3.2 above, we include the BoE information sources as controls and the gender gap on

knowledge about the BoE reduces (though it remains negative and statistically significant).[13] By contrast, including controls for inflation information sources has no impact on the gender gap in knowledge about the Bank.

Controlling for informational sources about the BoE can eliminate the gender gap on inflation uncertainty measured by the likelihood of saying "Don't know". Column (7) in Table 3.1 shows that in a logistic regression when controlling for informational source, the female coefficient reduces by about 50% and drops in significance (though the smaller sample size makes comparison harder). This highlights the key role that engagement and education can play in building understanding about the central bank and monetary policy, and the positive impact that this can have on the wider public's satisfaction.

3.6 Conclusion

We document eight observations about gender gaps from the Bank of England Attitudes to Inflation Survey. Our results show that different information sources are important and that the composition and prior understanding of the audiences matters for central bankers. We identify specific communication challenges that suggest careful policies aimed to ensure better engagement and education for women with lower financial knowledge and understanding. Widening the range of channels to new forms of media seems a promising avenue for future research given our results above. For example, knowledge gaps can be addressed with media designed by women for women. Further, contextualizing policy decisions with greater justification of the logic of the decision might help for gaining trust among females who dislike inflation more.

However, we cannot completely explain the gaps in attitudes about inflation and the BoE. These may be rooted in a generally more pessimistic view of women on various issues (Jacobsen et al. (2014) on consumer sentiment and stock market performance, Garbarino & Strahilevitz (2004) on online shopping, Lin & Raghubir

[13] Appendix Table C.2.3 highlights that all sources other than BoE publications and public enquiries desk have a positive effect on the test score compared to "Don't know". The largest effect is by information through other websites and search engines followed by TV and radio.

(2005) on marriage, Lyons et al. (2009) on health and Gwartney-Gibbs & Lach (2016) and Stevens et al. (2021) on war and security threats). Interestingly, Stevens et al. (2021) find that a key driver of this phenomenon is that women often identify security threats "due to a greater capacity to consider security from perspectives beyond their own". It could be a plausible explanation that these gender gaps in sentiment about inflation and BoE reflect a more general concern for others who may be affected by higher inflation and monetary policy. This is an avenue for future research, though since there is little conclusive evidence on what causes gender gaps in political news participation (see Benesch (2012) for evidence on socialization, cognitive costs as well as opportunity costs as potential drivers), it will be difficult to close the gender gap in central bank communication fully.

Chapter 4

Five Facts About Inflation Expectations: Evidence from Four Different Groups of Agents

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We provide five facts about the inflation expectations of households, firms, social partners, and economists from harmonized data spanning more than two decades: (i) Households' mean expectations were highest pre-inflation surge, but firms' expectations were highest since 2021 due to differential energy price movements. (ii) Disagreement displays similar patterns. (iii) Short-term shape medium-term forecasts, with magnitudes differing across groups and regimes. (iv) The pass-through from inflation to wage expectations is below one, strongest for business leaders and weakest for social partners. (v) Electricity price shocks causally raise inflation expectations. Taken together, the unanchoring of inflation expectations is pervasive across time and groups but the threat of price-wage spirals remains limited.

This paper should not be reported as representing the views of Norges Bank. The views expressed are those of the authors and do not necessarily reflect those of Norges Bank. We are grateful to Oliver Coibion, Stefano Eusepi, Brent Meyer, Aysegul Sahin and participants at various conferences and seminars, and an anonymous referee of the Norges Bank working paper series for useful comments and discussions.

4.1 Introduction

Subjective expectations of different groups of agents play a central role in modern macroeconomic models. For instance, households' inflation expectations influence their perceived real returns on savings, thereby shaping their current consumption decisions (Bachmann et al. 2015, Coibion et al. 2022*b*, D'Acunto et al. 2022). Similarly, firms' beliefs about inflation will determine their pricing strategies, labor demand, investment, and financing choices (Coibion et al. 2018, Ropele et al. 2022) and, consequently, current inflation. The inflation expectations of employer organizations and trade unions (the social partners) influence nominal wage setting. While a growing literature studies how households and firms form inflation expectations alongside professional forecasters,[1] no systematic evidence exists on (a) the similarities and differences between the expectations of households, firms, and economists over time and across economic environments and (b) the expectations of social partners. Moreover, once one steps outside the disciplining framework of full-information rational expectations (FIRE), one is in the wild with a plethora of possible deviations in how agents form expectations in non-rational ways, and many different models exist in which attention is time varying and information is incomplete or noisy.

We address these gaps by using unique surveys of Norwegian households, business leaders, social partners and economists conducted quarterly since 2002 to provide robust facts across agents and over time that can inform theorists and applied macroeconomists when developing models that deviate from the paradigm of FIRE and are informed by empirical facts. The Norges Bank Expectations' Survey (NBES) includes data on inflation and wage expectations across various horizons and has two distinct and novel features. First, it is harmonized, ensuring all agents are surveyed during the same time period using identical questions, under a unified survey design. This harmonization facilitates direct comparisons by exposing all respondents to the same macroeconomic environment and the same information set.[2] Crucially, all agents face similar question designs and forms, so that questionnaire features do

[1] Bachmann et al. 2023 provides a recent overview of this fast growing body of work.

[2] The surveys are in the field over a period of three weeks that does not coincide with releases of inflation, national accounts or Norges Bank's policy rate decisions. We provide more details in the next Section.

not affect survey responses (Becker et al. 2023, Bruine de Bruin et al. 2011, D'Acunto et al. 2023). This feature differs from the comparisons presented in Candia, Coibion & Gorodnichenko (2023) for which households and firms are interviewed independently of each other with often different forecast horizons, types and modes of elicitation, wordings, and localities with heterogeneous institutional settings. Second, the NBES uniquely includes social partners – a critical group given their significant role in wage setting and economic coordination – and economists, offering an unparalleled and comprehensive view of economic expectations. Spanning over two decades, this dataset covers a significantly longer time horizon than most existing surveys, allowing for consistent and rigorous comparisons across agents and over periods characterized by potentially different macroeconomic environments, such as periods of low and high inflation.[3] The survey meets all the criteria outlined in Coibion et al. (2020) for achieving high quality, benefiting from its large and representative cross-sections, high frequency, long time span, as well as the quantitative formulation of its questions.

Leveraging these unique features, we revisit five stylized facts about inflation expectations, offering new insights into how different agents form and adjust their expectations over time. In particular, we highlight that these facts are not necessarily static, but vary in response to changing macroeconomic conditions, notably in periods of low versus high inflation. The five facts are:

(1) **Level Differences**. The literature suggests firms' expectations typically fall between those of professional forecasters and households (Candia, Coibion & Gorodnichenko 2023), with households' and firms' average expectations systematically exceeding median expectations due to a long right tail (D'Acunto et al. 2023). Our results confirm the findings of Candia, Coibion & Gorodnichenko (2023) for the period spanning 2002–2021 but reveal a notable shift thereafter. Following the inflationary period in 2021, firms' inflation expectations, both short- and medium-term, exceeded those of households and remained higher until Q4 2024, the latest survey wave in our sample. Firms and households faced different energy-price shocks due to partial energy subsidies for households, suggesting differences in inflation

[3]The inflation environment can shape the attention agents pay to inflation, see Bracha & Tang (2025), Cavallo et al. (2017), Korenok et al. (2023), Pfäuti (2024), Weber et al. (2025).

expectations across agents may depend on both the overall inflation level and the specific shocks they are exposed to, consistent with the evidence for households (D'Acunto, Malmendier, Ospina & Weber 2021), though evidence for firms remains limited. Furthermore, social partners form expectations similarly to economists, but their expectations became more skewed in the post-2021 period. During times of heightened inflation, trade unions (representing employees) raise their inflation expectations by more than employer organizations, though in most periods, both groups exhibit similar expectations.

(2) **Cross-Sectional Disagreement**. Under FIRE, all agents form identical inflation expectations and no dispersion should arise; however, empirical evidence shows substantial disagreement (Mankiw et al. 2004). Cross-sectional dispersion of expectations is typically largest for households, followed by firms and professional forecasters (Candia, Coibion & Gorodnichenko 2023). It is time-varying for all agents (Fofana et al. 2024), and systematically related to household and firm characteristics (Baumann et al. 2024, Bruine De Bruin et al. 2010, Candia, Weber, Gorodnichenko & Coibion 2023, D'Acunto et al. 2023, Piccolo et al. 2025, Reiche 2025). So far, no systematic evidence exists on whether the dispersion in forecasts differs across different subsets of experts (Clements et al. 2023) and no evidence exists regarding the disagreement among social partners. Until 2021, the disagreement among households, firms and professional forecasters in Norway resembles that of other surveys. Similarly to the level of inflation expectations, the disagreement among firms rises substantially after 2021 and even exceeds the disagreement among households. Similar to previous work, gender, income and age systematically impact households' inflation expectations. For firms, we find large heterogeneity across sectors driven mostly by expectations of sales and purchasing prices. Both professional forecasters and social partners show low levels of dispersion throughout the sample.

(3) **Term Structure**. A growing body of evidence suggests inflation expectations of both households and firms are largely explained by their perceptions (Candia, Weber, Gorodnichenko & Coibion 2023, D'Acunto & Weber 2024*b*, Huber et al. 2023, Weber et al. 2022). However, the relationship between short-term and longer-term inflation expectations – referred to as the term structure of inflation expectations –

is less well studied. Candia, Coibion & Gorodnichenko (2023) and D'Acunto et al. (2023, 2024) suggest both firms' and households' long-term expectations are related to short-term expectations, but evidence for other agents remains limited. Our survey includes inflation perceptions and expectations at the individual level across the different groups of agents and for three time horizons: 12 months ahead (short-term), 2-3 years ahead (medium-term), and 5 years ahead (long-term). This setting allows us to analyze short-to-medium-term pass-throughs across different agents and inflation environments. For all agents, short-term expectations significantly shape medium-term expectations. During the period of low and stable inflation, the pass-through is strongest for social partners (above 1), followed by business leaders, households and economists. After 2021, when inflation surged, the pass-through increased for firms but declined for households and economists, suggesting that firms perceived inflation as more persistent, whereas other agents expected faster mean reversion. This heterogeneity in perceived persistence may play a role in how quickly inflation shocks feed into prices and wages, with potential implications for the persistence of inflation and the transmission of monetary policy. Together, these results reveal distinct patterns of expectations anchoring across agents and inflation environments.

(4) **Correlation with Wage Expectations**. Agents often form their expectations about different macroeconomic variables jointly (Andre et al. 2022, Buchheim et al. 2023, Coibion, Georgarakos, Gorodnichenko & Weber 2023). For instance, firms, households and trade unions may link their wage expectations to expectations about changes in the nominal price level. This connection influences how households perceive their real wage growth, how firms expect their costs to rise, and, ultimately, how they set prices. Some evidence points towards a weak link between firms' inflation expectations and their expected wage bills (Abberger et al. 2025, Baumann et al. 2024, Buchheim et al. 2023, Coibion et al. 2018, Savignac et al. 2024), potentially due to industry-specific expectations (Andrade et al. 2022). Similarly, the effect of inflation expectations on own income expectations for households appears low, with some differences between high- and low-income earners and men and women (Hajdini et al. 2023, Jain et al. 2024, Reiche & Maffei-Faccioli 2025, Stantcheva 2024). The existing evidence comes largely from one-off experiments or small sam-

ples, with Jain et al. (2024) being one exception. We explore time-variation in the pass-through of inflation expectations and document the pass-through for social partners, key actors in the wage-setting process in Norway. Specifically, we examine how inflation expectations influence personal income expectations (for households), wage bill expectations (for firms), and wage growth expectations (for professional forecasters and trade unions). The pass-through is highest for firms and lowest for households. Whereas the pass-through is positive and significant for all agents, it remains substantially below one, limiting concerns of wage-price spirals. We also document time variation in the pass-through: during the recent inflationary surge, it increased for social partners, firms and economists, but decreased for households.

(5) **Response to energy shock**. While previous studies establish a link between household inflation expectations and oil prices (Binder 2018, Coibion & Gorodnichenko 2015, Kilian & Zhou 2022), little is known about the effect of electricity prices. In a recent paper, Patzelt & Reis (2024) estimate a 1% increase in electricity prices increases inflation expectations of European households by 1.0 to 1.3 basis points. On the firm side, Hensel et al. (2024) show inflation expectations of French firms rise in response to carbon policy shocks, whereas Wehrhoefer (2023) finds a positive pass-through of electricity prices to own sales prices, but not to aggregate inflation expectations for German firms. We exploit an electricity price shock that affected Norway differently across its North and South regions. In 2021Q2, energy prices in the South began to diverge significantly from those in the North due to factors exogenous to the Norwegian economy. Prior to this event, inflation expectations of firms in the North and South were aligned but began to diverge following the shock. We estimate that, on average, over the quarters when electricity prices in the South diverged from those in the North, firms in the South had 12-month-ahead inflation expectations that exceeded those of firms in the North by more than 1 percentage point. The response is even stronger for two-year (medium-run) expectations, suggesting that firms viewed the shock as persistent. This reaction is consistent with the broader pattern observed for the term structure, where firms' expectations exhibited higher perceived persistence than those of the other groups during the high-inflation period. In contrast, when we repeat the analysis for households, we find no significant difference in their inflation expectations across regions.

This pattern can be rationalized by the Norwegian government's electricity support package for households, introduced in 2021Q4, which kept electricity bills in the South close to those in the North for households.

Documenting these stylized facts is important for several reasons. First, previous comparisons in the literature were not able to compare responses across groups of agents using the same degree of survey harmonization and did not include social partners, who play a central role in wage setting and thus in analyzing the wage-inflation pass-through. Moreover, prior comparisons often focused primarily on data collected post-2020, a period marked by a very different inflationary environment. We show the time dimension of our dataset is a key factor, because stylized facts are not necessarily static, rather they evolve based on the macroeconomic environment. Indeed, many of these facts depend on the level of inflation (Bracha & Tang 2025, Korenok et al. 2023, Pfäuti 2024, Weber et al. 2025).

The paper is organized as follows. Section 2 describes the surveys. Section 3 revisits five key stylized facts in the literature on inflation expectations and Section 4 concludes.

4.2 Data

The Norges Bank Expectations Survey is a nationally representative longitudinal dataset covering four groups of relevant agents: households, business leaders, social partners (labor and employer organizations) and professional economists (in academia and in financial institutions). While the survey was inaugurated in 2002Q1, anonymized micro-level observations are available starting in 2009Q1. An external survey company administers the survey on behalf of Norges Bank.[4]

Respondents are explicitly informed that the data are commissioned by Norges Bank. This transparency raises potential concerns regarding strategic reporting or experimenter demand effects (de Quidt et al. 2018). However, the empirical distribution of the data suggests that such incentives do not systematically bias results toward the central bank's objectives. First, regarding inflation, if respondents were motivated

[4]The survey has been conducted by Ipsos since 2020Q3. The survey was previously carried out by Epinion, Opinion and TNS Gallup.

by social desirability or a desire to signal confidence in the monetary authority, one would expect a downward bias toward the inflation target. Instead, we observe inflation expectations that are consistently and significantly higher than realized inflation. Further, the bias is smallest for professional forecasters who could have the largest incentive for strategic reporting. Second, for wage growth, household expectations are systematically lower than realized outcomes. While this is consistent with a strategic incentive to underreport wage pressure to discourage contractionary policy, the coexistence of upward-biased inflation expectations suggests that these patterns are more likely driven by genuine economic perceptions or asymmetric loss functions rather than a coordinated strategic effort to influence the central bank.

The survey is designed to be representative of the Norwegian population, and the dataset contains a limited number of characteristics about the interviewed households and firms. About 1,000 households are surveyed in each wave and interviews are conducted via telephone.[5] Respondents are recruited randomly from Norway's population of age fifteen and above. They are asked about their gender, age, employment status and location. With regards to the employment status, respondents can choose among student, employed in the private sector, employed in the public sector, unemployed or retired. Finally, they are asked about their region of residence: North Norway, Mid-Norway, East Norway, West Norway, South Norway. Oslo, Norway's capital and its largest city, is identified as a separate region, though it is located in Eastern Norway.

Firms' expectations are collected through an online survey of at least 500 respondents, consisting of CEOs, CFOs and purchasing managers in Norwegian businesses with 20 or more employees. The sample comes from a pre-recruited panel. These business leaders belong to the following sectors: manufacturing, building and construction, services and retail.[6] Business leaders are also asked about their geographical location, with the same options as for households. Finally, firms are classified as small or large based on the number of employees, with a cut-off value of 50.

[5]This sample size corresponds to interviewing one in 5,500 households compared to one in 560,000 households for the Michigan Survey of Consumers and one in 258,000 for the New York FED Survey of Consumer Expectations.

[6]Public, oil or financial sector are excluded from the survey.

Economists consist of 40 experts in the financial industry and academia. The former group is therefore comparable to the forecasters included in the Survey of Professional Forecasters of the Federal Reserve Bank of Philadelphia or the European Central Bank. Economists in academia are professors of economics or finance employed by Norwegian universities.

Social partners refer to representatives of employers and employees who work in employer organizations and trade unions. The survey includes about 40 respondents and distinguishes between representatives from employer organizations and those from employee organizations. The surveyed representatives hold key positions in their organizations, such as chief economists, general secretaries and managers. For both economists and social partners, the survey mode is online and respondents stay in the survey for several waves. However, individuals are not linked from survey to survey so the dataset does not have a panel component, but rather a repeated cross-section structure.

All interviews are conducted over a period of about 20 days, from the middle of the first month in the quarter to the beginning of the second month. The start and end dates of the interview period are chosen such that no new CPI or National Account release or monetary policy decision takes place during the field phase. For example, in the 2024Q2 wave, respondents were surveyed between April 11 and May 2, the monetary policy decision was announced on May 3, and the National Accounts figures for 2024Q1 were released on May 16. It is important to stress that all groups of agents are interviewed over the same period, and because no major scheduled announcements about the Norwegian economy are made during the interview period, agents have access to comparable information about the domestic macroeconomic environment.

All agents are asked about expected changes in prices twelve months ahead. The question is formulated as follows: "What do you think the general rise in prices for goods and services will be in 12 months, as measured by the 12-month change in the consumer price index (CPI)?".[7] Thus, respondents are asked specifically about the change in the overall price level, as measured by the CPI. Other surveys ask either

[7]The questionnaire is available in section D.1 of the Appendix.

about the *inflation rate*, e.g., as in the New York Fed and the Bank of Canada Survey of Consumer Expectations, or about the *general increase in prices*, like in the European Central Bank Consumer Expectations Survey or the Michigan Survey of Consumers. Both alternative formulations have possible downsides: consumers might not understand the concept of inflation. When asked about prices, consumers might extrapolate from the change in prices of more recently or more frequently purchased goods (D'Acunto, Malmendier, Ospina & Weber 2021, Bruine de Bruin et al. 2011). The Norges Bank formulation refers explicitly to prices of goods included in the CPI basket, so even if agents are aware that different price indices exists, they are directly guided to think about overall consumer price inflation (Weber et al. 2022). All agents are asked the same questions, again easing comparisons across groups. The answers are not probed. The only difference across groups is that households are asked a qualitative question, that is, whether they expect prices to increase, decrease or remain unchanged, before the quantitative question, similarly to the Michigan Consumer Survey. Finally, the same question regarding expected price changes is also asked for horizons of two and five years. The latter question was introduced only in 2023Q1 for households and business leaders. Before then, respondents were asked about their inflation perceptions, namely the percentage change in prices over the past twelve months. The question on perceptions was reintroduced for business leaders in 2024Q4.

Expectations are also elicited for other variables, most notably wages. However, the definition of wages and the forecast horizons differ across groups. Households and business leaders are asked about expected growth in their personal wages or their company's wages, respectively, whereas economists and social partners are asked about expected average wage growth in the overall economy. Whereas households report their expectations for wage growth over the past and the next twelve months, all other groups provide fixed-event forecasts, referring to the current and next year. Finally, economists and social partners are also asked about expected wage growth five years ahead.

Inflation in Norway follows similar dynamics as in other advanced economies. Over the sample covered by the survey, CPI All Items inflation in Norway averaged 2.4%,

with a minimum of -1.3% in 2004Q1 and a maximum of 6.7% in 2022Q3. These values are comparable to those for US CPI inflation, where the average was 2.5% and the minimum and maximum were -1.6% and 8.6%, respectively.

4.3 Five Stylized Facts for Four Groups of Agents

In this section, we document five facts about the inflation expectations of different groups of agents using the NBES surveys.

4.3.1 Differences in level

We start by documenting differences in the level of inflation expectations across different types of agents and time horizons. Figure 4.1a shows the average 12-month-ahead (short-term) inflation forecast for households, business leaders, economists and social partners made in quarter t, together with the year-over-year CPI inflation realized in that same quarter, i.e. the inflation rate between quarter $t-4$ and t. The expectations of all agents co-move with actual CPI inflation (grey line). On average, economists have the lowest average expectations, followed closely by social partners.[8] Among economists, those based in academic institutions tend to report higher inflation forecasts, especially since 2021, see Figure 4.1b. Similarly, when separating social partners in employer organizations and trade unions, trade unions representing employees tend to report higher forecasts, particularly when inflation is rising. When inflation is low, no systematic difference between the two groups arises, as highlighted in Figure 4.1b.

For households and business leaders, the ranking is less clear. Until 2021Q1, households' expectations exceeded those of business leaders. The gap narrowed after 2015, possibly due to a slight change in the survey design. From 2015 onward, the question for households directly asked about price changes for CPI inflation, whereas previously it referred to general prices (business leaders, however, were always asked about CPI inflation). This change in wording has the potential to lower households' inflation expectations on average (Bruine de Bruin et al. 2011, 2017). Since 2021Q1,

[8]The two-year-ahead (medium-term) inflation forecasts in Figure D.3.1 in the Appendix displays similar patterns. For households, the question specifies a forecast horizon of 2-3 years ahead.

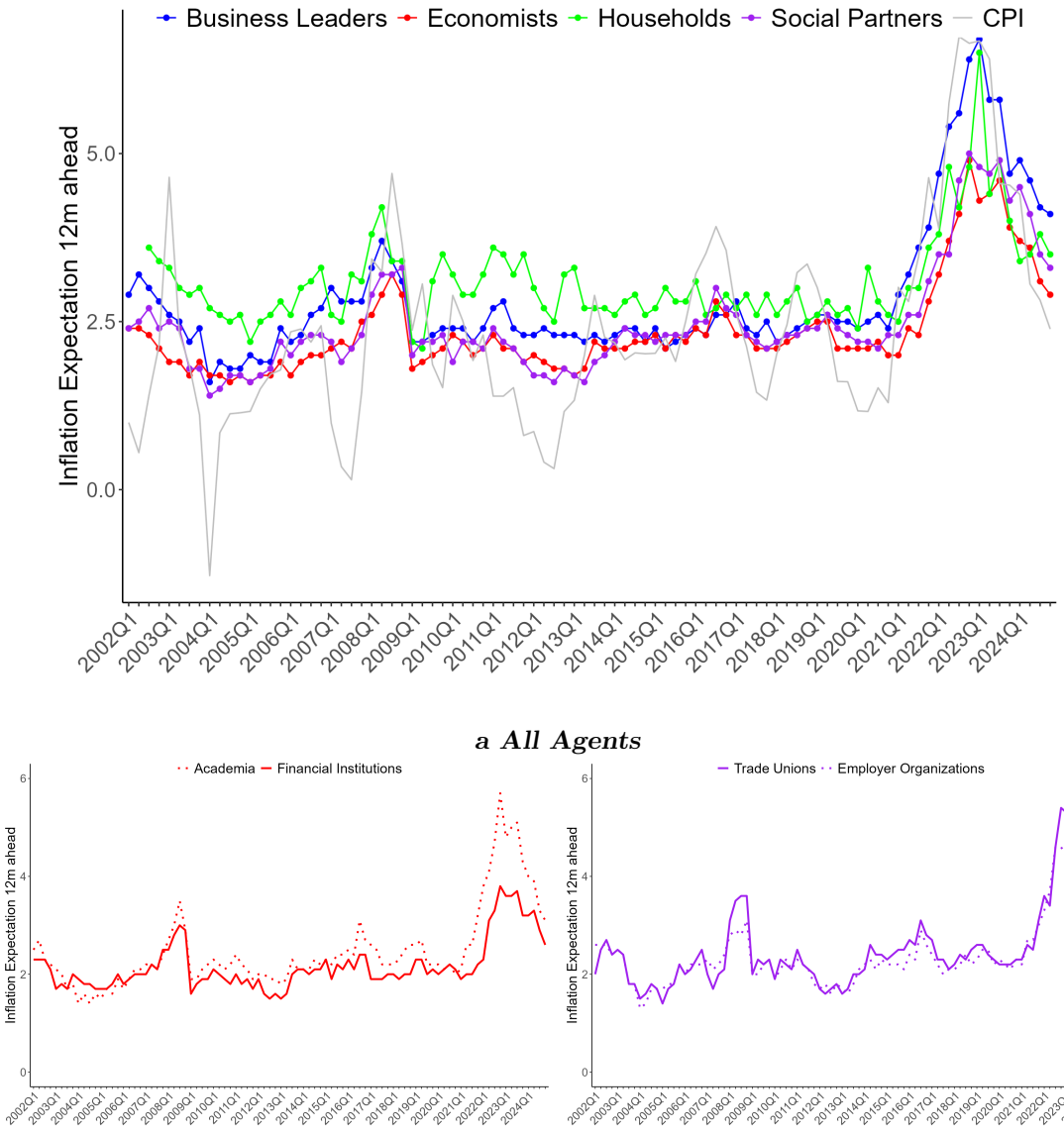


Figure 4.1. Timeseries of average inflation expectations (12 months ahead) since 2002

Note: The bottom left hand side graph plots academics and financial institutions, the bottom right hand side graph plots employer organizations and trade unions. The grey line in (a) indicates CPI inflation in Norway. The medium-term horizon can be found in the Appendix Figure D.3.1.
Source: Norges Bank, authors' own calculations.

business leaders' expectations have increased beyond those of households.

After discussing differences in the levels of short-term inflation forecasts, a natural question is how well different agents forecast inflation and whether their accuracy varies over time. Table 4.1 reports the forecast accuracy for the different groups of agents and forecast horizons measured as the root mean squared forecast error (RMSFE) and the relative RMSFE relative to the forecast errors of economists.

The upper panel presents results for observations prior to the recent inflationary episode, up to 2021Q2, whereas the lower panel covers the more recent period, from 2021Q3 to 2024Q4.[9] During the period of low and stable inflation (2002Q1–2021Q2), households exhibit the least accurate forecasts, whereas economists provide the most accurate ones, both at the one- and two-year-ahead horizons. For the one-year horizon, social partners and business leaders rank second and third, respectively. Their accuracy is close to that of economists, although the differences are statistically significant. The accuracy of all agents worsens substantially during the last fourteen quarters, but proportionally more for economists and social partners than for households. In fact, households and business leaders perform best over the second sample, and the ranking among the other groups reverses. This shift reflects the fact that households and business leaders had higher inflation expectations during the post-pandemic inflation period. However, the differences in accuracy are not statistically significant, most likely due to the short span of the high-inflation period. Because households constantly forecast high inflation, it is not surprising that their expectations are highly inaccurate during low inflation periods but become better aligned with actual inflation during high-inflation periods.

We now turn to the role of sociodemographic and firm characteristics for subjective inflation expectations. Table 4.2 presents summary statistics of 12-months-ahead inflation expectations by household groups for the period of low and high inflation, 2009Q1-2021Q2 and 2021Q3-2024Q4, respectively. Across both periods, women have higher inflation expectations than men (Jonung 1981, Bryan & Venkatu 2001, D'Acunto, Malmendier & Weber 2021, Reiche 2025), though the gender gap narrows during the high-inflation period. The relationship between age and inflation expectations also changes markedly across periods. During the low-inflation regime, expectations display a mild U-shape, with both younger and older households reporting higher expected inflation than middle-aged respondents. In contrast, during the high-inflation period, expectations decline monotonically with age: younger respondents report the highest expected inflation, while the oldest group reports the lowest. This shift might suggest that inflation salience and recent experience matter

[9] The sample refers to the corresponding forecast errors. Specifically, the second sample includes four-quarter-ahead forecasts made between 2020Q3 and 2023Q4, and eight-quarter-ahead forecasts made between 2019Q3 and 2022Q4.

Table 4.1. Accuracy of inflation forecasts

	Households	Business leaders	Social partners	Economists
		Panel A: 2002Q1-2021Q2		
$h = 4$	1.47	1.14	1.10	1.02
	1.45***	1.12*	1.08**	
$h = 8$	2.24	1.57	1.17	1.10
	2.04***	1.43***	1.06**	
		Panel B: 2021Q3-2024Q4		
$h = 4$	2.08	2.19	2.38	2.46
	0.85	0.89	0.97	
$h = 8$	1.94	2.28	2.67	2.91
	0.67	0.78	0.92	

Note: RMSFE (first row) and relative RMSFE (second row) of inflation expectations with respect to the economist groups. 'hh': households, 'bl': business leaders, 'sp': social partners, 'ec': all economists. 'h' denotes the forecasts horizon in quarters. '*', '**' and '***' indicate significance levels of the Diebold and Mariano test of equal accuracy between each group with respect to the economist group, at the 10, 5 and 1 percent significance respectively.
Source: Norges Bank, authors' own calculations.

more for younger cohorts, who tend to update their expectations more strongly when inflation rises. Differences across labor-force status arise in both periods. Students and the unemployed, groups typically characterized by lower income and weaker attachment to the labor market, consistently expect higher inflation. Nonetheless, as inflation rose, expectations increased across all labor-force categories, narrowing the relative dispersion across groups. Finally, little systematic regional variation in household expectations is observed, consistent with evidence for the United States (D'Acunto et al. 2023). Although mean expectations increased across all Norwegian regions during the high-inflation period, their relative ranking remained essentially unchanged.

For business leaders, Table 4.3 shows that the level and dispersion of inflation expectations rose sharply in the high-inflation period. Average 12-month-ahead expectations increased from 2.7 percent in 2009Q1–2021Q2 to just above 7 percent in 2021Q3–2024Q4, with a much wider distribution of responses in the latter period. Sectoral heterogeneity is substantial and changes meaningfully across periods. During the low-inflation period, expectations were relatively similar across sectors. In the high-inflation period, however, dispersion widened markedly: business leaders of manufacturing firms reported the highest expectations, followed closely by firms in the construction sector. This shift indicates that inflation expectations among producers of goods and energy-intensive sectors rose more strongly once inflation pressures intensified. Larger firms have higher inflation expectations in the high-inflation period, whereas their expectations are similar to those of small firms in the low-inflation sample. Regional patterns also change across low- and high-inflation periods. Before 2021, inflation expectations were virtually identical across regions. By contrast, in the high-inflation period, business leaders in Oslo and South Norway reported the highest expectations. This divergence likely reflects regional variation in energy prices after 2021Q3, as we discuss in Section 4.3.5.[10] Finally, business leaders' expectations are closely related to their own price assessments. Across both periods, business leaders anticipating higher sales or purchasing prices also report higher expected inflation. These relationships strengthen markedly in the high-

[10]Regional energy price differentials widened significantly after 2021, with southern regions experiencing much higher electricity costs than northern regions.

inflation period, consistent with evidence that business leaders extrapolate from their own cost and pricing conditions (Andrade et al. 2022).

Table 4.2. Summary statistics of inflation expectations 12 months ahead by household group

	2009 Q1 - 2021 Q2			2021 Q3 - 2024 Q4		
Group	Mean	SD	Obs	Mean	SD	Obs
All	3.02	5.07	50,609	4.93	7.9	14,070
Age						
$<$ 35 years	3.37	6.52	10,886	5.49	9.11	4,181
35 to 54 years	2.79	4.42	17,904	5.02	7.83	4,728
55 to 64 years	2.91	4.53	9,005	4.60	7.07	2,234
$\geq$ 65 years	3.17	4.95	12,814	4.27	6.70	2,927
Sex						
Man	2.79	4.91	35,510	4.90	7.99	8817
Woman	3.32	5.25	29,169	4.98	7.74	5253
Labor force						
Public_sector	2.94	4.64	19,511	4.81	6.87	3,016
Private_sector	2.69	4.89	22,931	4.96	7.96	6,236
Retired	3.26	5.55	20,683	4.66	7.48	3,285
Unemployed	3.75	9.08	9,659	5.46	11.43	179
Student	3.66	7.18	12464	5.56	10.00	1,227
Region						
North	3.04	5.03	11,905	5.07	8.45	3,303
South	3.03	5.07	32,048	4.97	7.83	8,239
Oslo	2.99	5.15	6,656	4.63	7.39	2,528

Source: Norges Bank, authors' own calculations.

The findings of this subsection largely confirm existing evidence on level differences in inflation expectations among different agents during periods of low and stable inflation. Specifically, we confirm that households tend to have the highest expectations and are the least accurate, whereas economists generally exhibit the lowest expectations and the highest accuracy. Business leaders fall in between, and social partners, our newly analyzed group, closely resemble economists in both levels and accuracy. However, our analysis also highlights notable differences during the recent period of high inflation: the rankings of accuracy among agents shift, with households and business leaders performing better relative to economists and social partners. Additionally, disaggregating social partners reveals trade unions

Table 4.3. Summary statistics of inflation expectations 12 months ahead by firm group

	2009 Q1 - 2021 Q2			2021 Q3 - 2024 Q4		
Group	Mean	SD	Obs	Mean	SD	Obs
All	2.68	2.99	28755	7.03	9.41	8164
Number of employees						
Less than 50	2.71	2.97	13703	6.69	8	2928
Greater than 50	2.74	3.28	12136	7.21	10.11	5235
Sector						
Manufacturing	2.58	2.58	7296	7.82	11.41	1763
Retail and trade	2.78	2.94	5443	6.57	7.72	1697
Building and construction	2.85	3.34	4023	7.66	10.06	1395
Services	2.66	3.13	11959	6.56	8.67	3312
Price Expectations						
↑ Sales	3.12	3.36	4095	8.78	11.41	2448
↓ or = Sales	2.6	2.91	24662	6.3	8.33	5716
↑ Purchasing	3.15	3.25	5139	8.85	11.61	3087
↓ or = Purchasing	2.57	2.91	23618	5.95	7.64	5077
Region						
North	2.69	2.58	5868	6.09	6.68	1640
South	2.67	3	17846	7.09	9.3	4477
Oslo	2.72	3.35	5050	7.62	11.23	2047

Source: Norges Bank, authors' own calculations.

report systematically higher expectations during high-inflation periods, a pattern not observed in periods of low inflation (see Figure 4.1b). The same figure shows that economists have higher short-term expectations than professional forecasters, though the wedge is much larger in high-inflation periods. Regarding households, expectations increased proportionally more for men, respondents aged between 35 to 44 and those working in the private sector. Similarly, business leaders' expectations have become increasingly heterogeneous according to firm size, sector and region (Table 4.3). These findings highlight the importance of considering the role of varying inflation levels when interpreting survey results and comparing expectations across different agents.

We replicate the summary statistics and accuracy comparison for wage expectations at a 12-month horizon in Appendix Tables D.2.1 (Accuracy), D.2.2 (Household summary statistics) and D.2.3 (Business leaders summary statistics). The overall patterns of heterogeneity in wage expectations broadly mirror those observed for inflation expectations, although some differences emerge across periods and groups. Similar to inflation expectations, younger households and students tend to have higher wage growth expectations in both periods, possibly due to expected improvements in their employment situation. In contrast to inflation, the relationship between age and wage expectations remains monotonic in both pre- and post-inflation surge periods. Men tend to have higher wage expectations than women in both periods, and private-sector workers have higher wage expectations than workers in the public sector. The highest wage expectations for households by region are for Oslo, where most economic activity is concentrated.

Focusing on business leaders, we observe small differences in terms of size and sector of the firm for the low-inflation sample, whereas we observe somewhat higher expectations for larger firms and firms in the manufacturing sector for the high-inflation period. Business leaders in the South and Oslo regions display the highest wage expectations, the latter in line with households. Interestingly, we don't observe differences in wage expectations based on business leaders' own sales or purchase prices in the low-inflation period, whereas in the high-inflation period, business leaders expecting an increase in own sales or purchasing prices also expect higher

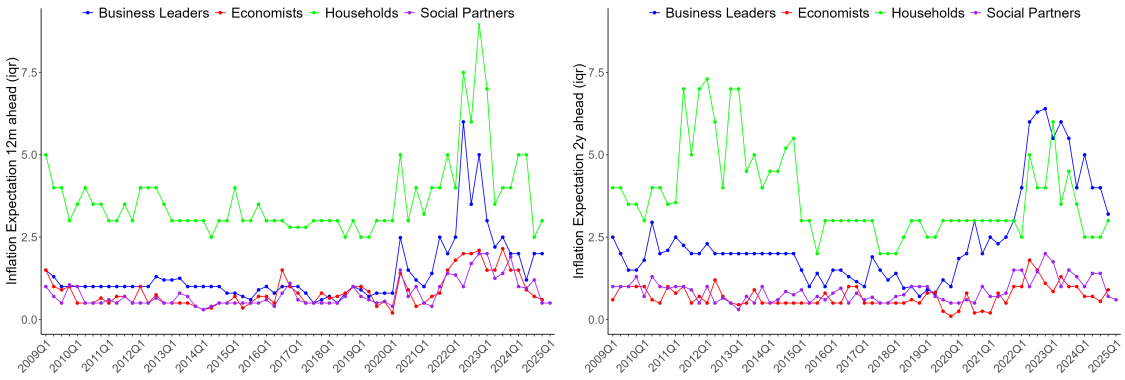


Figure 4.2. Timeseries of interquartile range of inflation expectations since 2009

Note: The left hand side graphs plot short-term expectations (over the next 12 months) and the right hand side graphs plot medium-term expectations (over the next 2 years).
Source: Norges Bank, authors' own calculations.

wages. The findings on forecasting accuracy are in line with those for inflation expectations. During the pre-pandemic period, economists provide the most accurate forecasts followed closely by social partners, business leaders perform slightly worse, and households display the largest forecast errors. Differently from inflation, we do not observe the reversal in accuracy in the post-pandemic sample: on the contrary, the relative forecast accuracy of households and business leaders is unchanged, or even deteriorates.

Overall, the comparison between inflation and wage expectations reveals the pass-through from inflation to wage-growth expectations might be incomplete and heterogeneous. Agents do not adjust one-for-one: even during the high-inflation period, expected wage growth rises by substantially less than expected inflation. This muted response suggests that nominal wage expectations remain only partially indexed to inflation. We analyze this inflation–wage expectations pass-through more rigorously in Section 4.3.4.

4.3.2 Cross-sectional disagreement

In addition to differences in the levels of inflation expectations, we are also interested in the dispersion of agents' expectations and their skewness, particularly because the right tail may provide predictive power for future inflation (Reis 2021).

Figure 4.2 displays the interquartile range of inflation expectations of households,

business leaders, social partners and economists at short- and medium-term horizons. Households have the highest dispersion of forecasts at the short-term horizon, more than twice as high as the dispersion of the other agents until the onset of the inflation surge, followed by business leaders. Economists and social partners show similarly low levels of disagreement throughout the sample. With the onset of the rise of inflation, the dispersion among households and business leaders increases sharply, nearly doubling, whereas both social partners and economists display relatively little change in their disagreement about the inflation outlook. We observe similar patterns at the medium-term horizon until about 2021Q4 with households and business leaders having the largest disagreement in their inflation outlook. Starting in 2022, business leaders' dispersion increased more than the dispersion of households. Again, at the medium-term horizon, little disagreement exists for social partners and economists even during the time period of high inflation.

One way to look at the risk of rising inflation due to a fat right tail of inflation expectations is to focus on the skewness in expectations. We measure skewness as the difference between the average and median forecasts, with a positive value indicating a fat right tail and report it in Figure 4.3. Typically, household expectations exhibit the highest skewness, followed by those of business leaders, social partners, and economists. Notably, the latter two groups show virtually no skewness before the pandemic. However, after 2021, the mean forecasts of business leaders exceeded the median more than those of any other agent, indicating a pronounced right skew for both short-term and medium-term expectations. Households and social partners follow, whereas economists exhibit no significant change.

Compared to the other agents, both economists and social partners exhibit a mild and similar increase in dispersion during the post-pandemic inflation surge but the two groups differ sharply in their skewness. While economists observe an increase in dispersion and no change in skewness, social partners' distribution of inflation expectations becomes wider and more right-skewed after 2020, suggesting the share of respondents who predicted high inflation increased somewhat more among social partners than among economists.

Similarly to the evidence on the level of inflation expectations, we observe a rank-

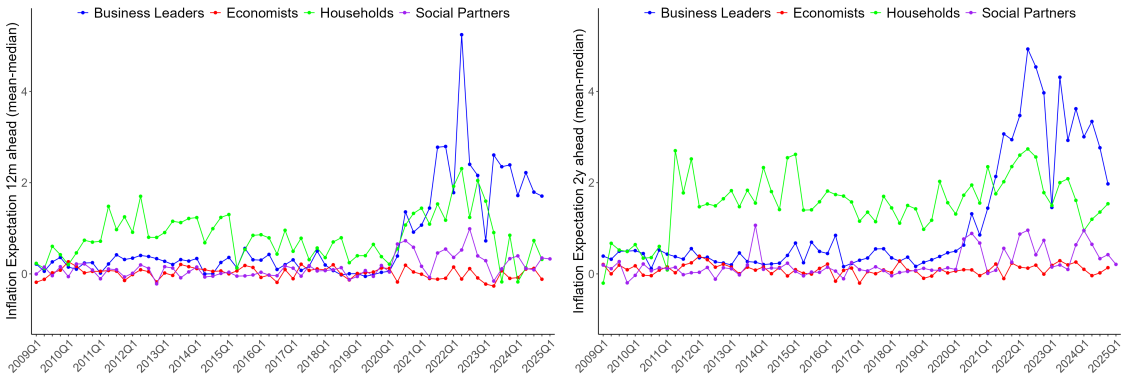


Figure 4.3. Timeseries of difference between mean and median inflation expectations since 2009

Note: The left hand side plots short-term expectations (over the next 12 months) and the right hand side plots medium-term expectations (over the next 2 years)
Source: Norges Bank, authors' own calculations.

ing in terms of skewness and dispersion among the inflation expectation of different groups of agents. During the sample period of low inflation, households exhibit the highest dispersion in inflation expectations, followed by business leaders, economists and social partners. Households also display substantial right skewness as do business leaders but to a lesser extent. The rankings substantially change after the pandemic. Business leaders' inflation expectations exhibit the highest degree of skewness and uncertainty at the two-year horizon, followed by households.

4.3.3 Term structure

A central issue for central banks is the degree to which inflation expectations are anchored, which measures trust in the institution and helps the bank to stir inflation towards the target. The inflation target of central banks is typically defined as an inflation number that the central bank aims to achieve over the intermediate horizon. Hence, one way to test whether inflation expectations are anchored is to test whether longer-term inflation expectations are centered at the inflation target of the central bank (level anchoring). Complementary, if inflation expectations are well anchored, it should be the case that short-term inflation expectations can fluctuate due to shocks hitting the economy, but agents should understand that the central bank will take the appropriate actions to bring inflation back to target so that variation in longer-term inflation expectations should be unresponsive to variation in short-term expectations (sensitivity anchoring) (Weber et al. 2022, D'Acunto et al. 2024).

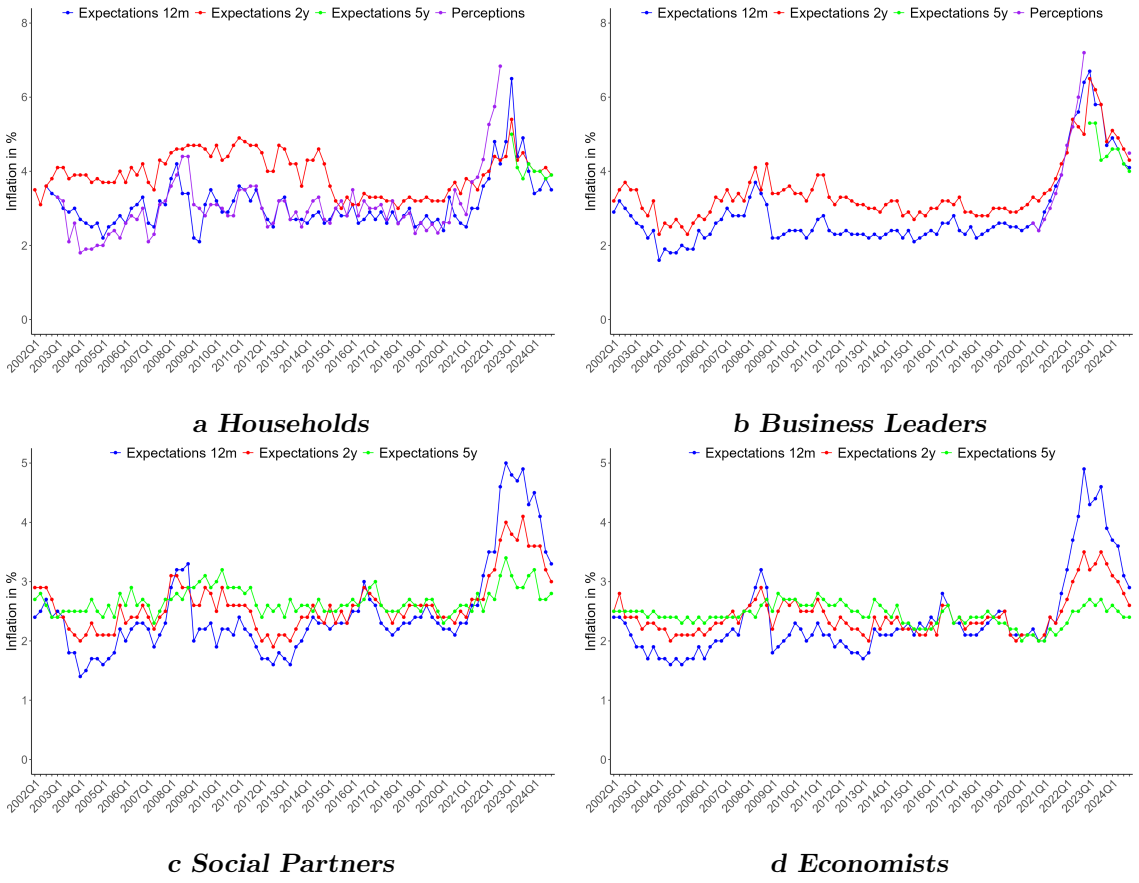


Figure 4.4. Timeseries of term structure

Source: Norges Bank, authors' own calculations.

While previous research has studied the sensitivity of medium-term expectations to short-term expectations for households and firms, evidence for other agents and across inflation environments remains limited. In particular, little is known about how social partners, the actors directly involved in collective wage bargaining, form expectations across horizons, or how their behavior compares with that of other groups and across time. By combining harmonized data across these four agent types, we provide a comprehensive comparison of the pass-through from short- to medium-term inflation expectations, both in periods of low and stable inflation and during the recent inflation surge, allowing us to assess how expectations anchoring varies across different agents and inflation environments.

Figure 4.4 plots the inflation expectations of all four agents across different forecasting horizons. For the pre-pandemic sample, we find that, for both households and business leaders, medium-term inflation expectations are typically higher than 12-month-ahead expectations (or inflation perceptions for households), thus exhibiting

an upward sloping term structure. For households, the result of an upward sloping term structure of inflation expectations resembles the findings from the New York Fed SCE (Armantier et al. 2013). The pass-through from inflation perceptions to short-term expectations is very high before the pandemic, but it declines substantially afterwards, when perceptions exceed one-year-ahead expectations. For all agents, the term structure of expectations shifts from sloping upward to downward after the pandemic. In general, for all groups, the longer the forecast horizon, the less volatile the inflation expectation. Again, social partners behave very similarly to economists. However, a notable difference lies in their long-term inflation expectation. Whereas economists lowered their long-term forecasts following the announcement in March 2018 of the central bank to lower the inflation target from 2.5% to 2%, social partners did not revise their forecasts downward. This divergence might have had significant implications for wage-setting processes.

We next aim to understand how these aggregate results are related to the pass-through at the forecaster level, by estimating the degree to which short-term expectations drive medium-term inflation expectations. In line with the analysis in Jonung (1981) for households and Candia, Weber, Gorodnichenko & Coibion (2023) for firms, we estimate term structure regressions:

$$\mathbf{E}_{i,t}\pi_{t+8} = \alpha + \beta_1 \mathbf{E}_{i,t}\pi_{t+4} + \beta_2 \pi_t + \delta Y_t + \gamma X_i + \epsilon_{i,t} \tag{4.1}$$

where $\mathbf{E}_{i,t}\pi_{t+k}$ denotes the expectations of agent i of inflation over the next k quarters elicited at time t, π_t denotes realized inflation at time t over the previous 12 months, X_i is a vector of individual control variables. We also include other macro controls Y_t: the year-on-year growth rate of GDP and of the Brent oil price as well as the exchange rate (I44, in levels). Table 4.4 summarizes the pass-through of short-term inflation expectations into medium-term expectations. Panel A shows the results for the period of low and stable inflation and panel B for the post-pandemic inflation period. For sake of exposition, we report the full set of controls in Tables D.2.4-D.2.9 in the Appendix, together with alternative specifications of regression (4.1) which exclude macroeconomic controls, include time fixed effects or estimate the regression on the full sample. Our findings are robust to these alternative specifications.

Short-term expectations significantly influence medium-term forecasts for all agents, but the magnitude and dynamics of the pass-through vary sharply across groups and inflation regimes. In the low-inflation period, the pass-through is strongest for social partners (1.30) and business leaders (0.82), and lowest for households (0.70) and economists (0.71). During the high-inflation period, the pattern shifts: the pass-through substantially falls for households (0.44) and economists (0.56) but rises for business leaders (0.94), while it remains above one for social partners (1.20). These results indicate business leaders' medium-term expectations have become more sensitive to short-term expectations, whereas households and economists increasingly expect mean reversion. Social partners consistently exhibit an extrapolative component in their expectations, possibly reflecting their role in wage bargaining and reliance on recent inflation when forming medium-term views about inflation and wages. Taken together, the findings reveal substantial heterogeneity in expectations anchoring across groups of agents and across inflation regimes.

Although medium-term forecasts are less volatile than short-term ones, they respond strongly to revisions in short-term expectations. Because short-term expectations are shaped by perceptions (Huber et al. 2023), which themselves reflect recent inflation outcomes, agents appear to interpret inflation shocks as relatively persistent. The decline in pass-through for most groups during the high-inflation period suggests expectations of faster mean reversion and limited risks of de-anchoring. In contrast, business leaders' rising pass-through indicates they perceive inflation shocks as more persistent, likely reflecting heightened sensitivity to input cost pressures and pricing dynamics. For social partners, a persistently high pass-through might reflect the salience of recent inflation in wage negotiations. Differences in perceived persistence are economically significant because they influence how expectations feed into price and wage setting. When business leaders and social partners expect inflation shocks to last, they are more likely to preemptively raise prices or negotiate higher wages, potentially amplifying inflation dynamics (Abberger et al. 2025). Conversely, households' and economists' stronger belief in mean reversion hints towards more anchored expectations, which possibly support monetary policy credibility and helps stabilize inflation outcomes. Recognizing this heterogeneity is therefore crucial for central banks aiming to assess anchoring, to communicate effectively, and to cali-

Table 4.4. Term structure at the individual level

	$\mathbf{E}_{i,t}\pi_{t+8}$			
	Households	Business Leaders	Economists	Social Partners
Panel A: 2009 Q1 - 2021 Q2				
$\mathbf{E}_{i,t}\pi_{t+4}$	0.695***	0.824***	0.710***	1.297***
	(0.006)	(0.007)	(0.016)	(0.023)
Micro Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Observations	30,008	18,452	2,918	1,563
R^2	0.311	0.467	0.463	0.675
Panel B: 2021 Q3 - 2024 Q4				
$\mathbf{E}_{i,t}\pi_{t+4}$	0.442***	0.941***	0.556***	1.200***
	(0.008)	(0.008)	(0.022)	(0.028)
Micro Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Observations	10,353	6,481	603	489
R^2	0.246	0.687	0.656	0.800

*p<0.1; **p<0.05; ***p<0.01

Note: Regression from model (4.1) for households, business leaders, economists and social partners. All models include individual level controls. For households, controls include age, sex and occupational status; for business leaders sector and size; for economists a dummy for employment at financial institution and for social partners a dummy for employer organizations. Macro controls include CPI inflation (YoY), GDP growth (YoY) computed from Statistics Norway GDP Mainland, the exchange rate (I44 in levels) and the annual change in the Brent oil price (North Sea Brent Sport Price) - all contemporaneously.
Source: Norges Bank and Statistics Norway, authors' own calculations.

brate policy responses across different economic agents.

4.3.4 Pass-through of inflation expectations to wage expectations

Having established how short-term inflation expectations shape medium-term expectations across agents, we next examine how these expectations feed into wage growth forecasts. The NBES provides a unique setup to study this wage–inflation pass-through in expectations, because it collects expected wage growth for all groups, in addition to inflation expectations. Households are asked about their personal wage growth over the past 12 months and their expected personal wage growth over

the same horizon. For business leaders, economists, and social partners, the survey focuses on expected wage growth for the current and next year. Business leaders are specifically asked about wage growth in their own business, whereas the other two groups are asked about expected aggregate wage growth.

Social partners significantly affect actual wage growth, as they set the wage norm for each sector, which in turn forms the basis for individual wage negotiations. This role of social partners in shaping actual wage growth reflects the broader institutional framework of wage setting in Norway. While wage negotiations are formally decentralized, they are coordinated through the so-called *frontfagsmodellen*, in which the manufacturing sector negotiates first and sets a wage norm that guides settlements in other sectors. The rationale for this model is that the wage settlements should ensure competitiveness of the trading sector, that is, the manufacturing industries exposed to international market competition. This coordination gives social partners an important influence in anchoring wage growth across the economy, making their expectations especially informative. In terms of collective bargaining coverage, Norway reaches about 70%, which places it broadly in line with several European countries.[11] Unlike many other European countries, Norway achieves this coverage primarily through voluntary coordination rather than legal extension of agreements. Thus, while the Norwegian model is distinct in its reliance on a negotiated wage norm and voluntary diffusion, it is not an outlier in terms of overall bargaining coverage. This institutional context helps explain why wage expectations, particularly those of social partners and business leaders, are closely linked to actual wage outcomes (see Table D.2.1 in the Appendix), and why they provide a valuable perspective on the wage-inflation pass-through.

We first plot the time series of nominal wage growth and inflation expectations over a 12-month horizon in Figure 4.5. Between 2002 and 2008, all agents expected nominal wage growth to exceed inflation. Following the Great Financial Crisis, households' wage growth expectations fell markedly and remained below inflation expectations for most of the subsequent period. In contrast, business leaders, social partners,

[11] The coverage is somewhat lower than in the other Nordic countries (Sweden, Denmark, and Finland) where coverage typically exceeds 85%, but it is similar to or slightly below levels in Italy, France, Spain, and the Netherlands (ranging from 75–90%), and higher than in Germany, where coverage is closer to 45%.

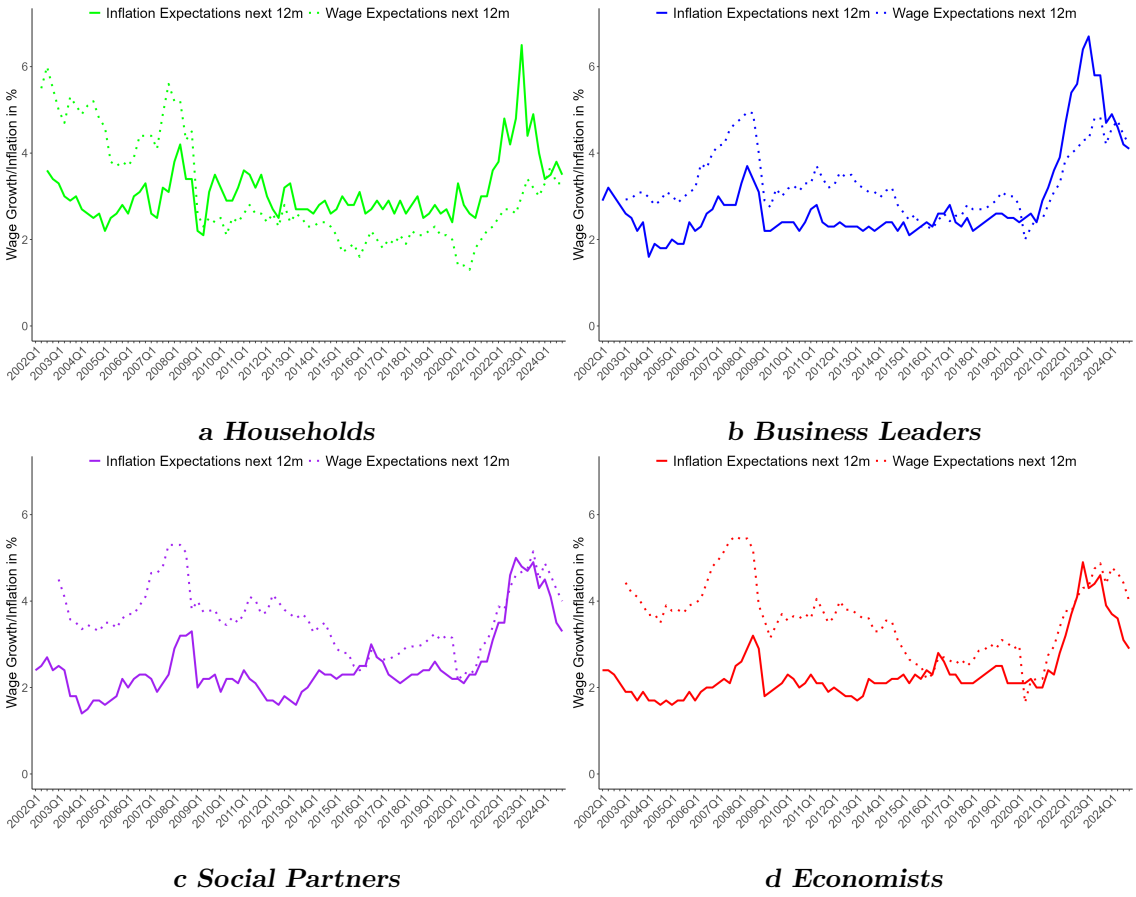


Figure 4.5. Timeseries of wage and inflation expectations (12m ahead)

Note: For business leaders, unions and experts the 12 months ahead forecast is computed as a weighted average of current year and next year forecast where the weights are determined by the current quarter. Business leaders and households forecast individual wage growth, unions and experts wage growth in the aggregate economy.
Source: Norges Bank.

and economists continued to expect real wage gains until the onset of the Covid-19 pandemic. Since then, business leaders, like households, anticipated a decline in real wages, whereas social partners and economists expect wage growth and inflation to move more closely together. These patterns suggest the expected wage-inflation pass-through might differ across agents and respond to changing economic conditions. This time variation may have important implications for price-wage dynamics, complementing recent work focusing mainly on the post-2020 period (Hajdini et al. 2023, Savignac et al. 2024, Abberger et al. 2025, Baumann et al. 2024, Buchheim et al. 2023).

To analyze how inflation expectations shape wage expectations more formally, we

follow Jain et al. (2024) and estimate the following regression:

$$\mathbf{E}_{i,t}w_{i,t+4} = \alpha_0 + \beta_1 \mathbf{E}_{i,t}w_{i,t} + \beta_2 \mathbf{E}_{i,t}\pi_{t+4} + \delta Y_t + \gamma X_i + \epsilon_{i,t}, \tag{4.2}$$

where $\mathbf{E}_{i,t}w_{i,t+k}$ is agent i's survey response for the expectation about (personal) wage growth over the next k quarters. Inflation expectations are defined as before. On the right hand side, $\mathbf{E}_{i,t}w_{i,t}$ is agent i's perceived (personal) wage growth over the past 12 months (capturing persistence in wage growth expectations). Because the question is asked in terms of current and next calendar year for business leaders, economists and social partners, we construct the fixed horizon forecast for the next twelve months as a weighted average of the forecasts for the current and next year, with weights given by the proportion in forecasting horizon, following Dovern et al. (2012). To approximate wage growth perceptions of business leaders and experts, we use a weighted average of individual current year expectations and lagged nominal wages of the past year that are publicly available. We include the same set of macroeconomic and individual controls as for the term structure regression.

We acknowledge that the relationship between inflation and wage expectations in Equation 4.2 is subject to identification challenges, as beliefs about prices and wages are likely determined endogenously within a general equilibrium framework. Specifically, the coefficient β_2 may capture both the effect of inflation expectations on wage bargaining and the reverse pass-through from expected labor costs to prices. In the absence of an exogenous instrument for individual-level inflation beliefs, we interpret β_2 not as a structural causal parameter, but as a measure of the *perceived degree of indexation* or the "expectations-to-wage" pass-through common in the literature (see, e.g., Jain et al. 2024). A pass-through coefficient $\beta_2 < 1$ is consistent with standard theory, as nominal wage growth expectations also incorporate perceptions of real productivity growth. If agents expect productivity gains to contribute to their real wage, the link between inflation and nominal wages need not be one-to-one. By including macroeconomic controls Y_t and individual-level wage perceptions $\mathbf{E}_{i,t}w_{i,t}$, we attempt to proxy for these underlying real factors and persistence, isolating the marginal correlation between expected price changes and nominal wage demands.

Table 4.5 reports the results. For sake of exposition, we report the coefficients on

Table 4.5. Inflation-wage expectations pass-through

	$\mathbf{E}_{i,t}w_{t+4}$			
	Households	Business Leaders	Economists	Social Partners
Panel A: 2009 Q1 - 2021 Q2				
$\mathbf{E}_{i,t}w_t$	0.228***	0.354***	0.081***	0.046***
	(0.007)	(0.005)	(0.007)	(0.009)
$\mathbf{E}_{i,t}\pi_{t+4}$	0.062***	0.305***	0.221***	0.116***
	(0.015)	(0.005)	(0.020)	(0.019)
Micro Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Observations	11,906	18,629	2,911	1,551
R^2	0.102	0.448	0.389	0.359
Panel B: 2021 Q3 - 2024 Q1				
$\mathbf{E}_{i,t}w_t$	0.067***	0.761***	−0.007	0.057***
	(0.008)	(0.010)	(0.010)	(0.016)
$\mathbf{E}_{i,t}\pi_{t+4}$	0.052***	0.329***	0.233***	0.189***
	(0.013)	(0.007)	(0.026)	(0.022)
Micro Controls	Yes	Yes	Yes	Yes
Macro Controls	Yes	Yes	Yes	Yes
Observations	7,058	6,203	610	485
R^2	0.033	0.738	0.378	0.310

*p<0.1; **p<0.05; ***p<0.01

Note: Regression from model (4.2) for households, business leaders, economists and social partners. All models include individual level controls. For households, controls include age, sex and occupational status; for business leaders sector and size; for economists a dummy for employment at financial institution and for social partners a dummy for employer organizations. Macro controls include CPI inflation (YoY), GDP growth (YoY) computed from Statistics Norway GDP Mainland, the exchange rate (I44 in levels) and the annual change in the Brent oil price (North Sea Brent Sport Price) - all contemporaneously.
Source: Norges Bank and Statistics Norway, authors' own calculations.

inflation expectations and nominal wages (perceptions/lagged wages) only.[12] We observe a positive and significant pass-through of inflation to wage expectations for all agents but the magnitude differs across types and time periods. In the pre-pandemic sample, business leaders exhibit the highest pass-through (0.31), followed by economists (0.22), social partners (0.12) and households (0.06). After the inflation surge, the pass-through is higher for business leaders (0.33), economists (0.23), and social partners (0.19), but lower for households (0.05), who have the lowest pass-through of all agents. Overall, despite this heterogeneity, the pass-through is incomplete, in that there is less than a one-for-one relationship for all agents and both sub-samples.

We compute a similar regression as (4.2) using realized data, to estimate the effective pass-through from inflation to wages and to benchmark the subjective expectations results. We estimate a coefficient associated with lagged wage growth of 0.7 and one associated with either contemporaneous or lagged inflation of about 0.17 and 0.12, respectively, and non-statistically significant (see Table D.2.22). Therefore, all agents, except business leaders in high-inflation periods, seem to underestimate the persistence of wage growth and the more muted role of (future) inflation in determining future wage growth.

Several recent studies have estimated the pass-through of inflation expectations to households' and business leaders' wage expectations, mostly using randomized controlled trials during the high-inflation period. Our estimated pass-through for households is in line with the findings in the literature, which range between 0 and 0.2 (Jain et al. 2024, Buchheim et al. 2023, Hajdini et al. 2023). We also confirm the estimates of the inflation-wage pass-through for firms in Coibion et al. (2018), Savignac et al. (2024), Baumann et al. (2024), Abberger et al. (2025), Buchheim et al. (2023), Gautier et al. (2025), which report point estimates between 0.1 and 0.3. Yet, so far no estimates have existed for the pass-through among social partners and

[12]We report the coefficients for the full set of controls in Tables D.2.10-D.2.17 in the Appendix, where we also report alternative specifications of regression (4.2) which exclude macroeconomic controls, include time fixed effects, use only Q1 responses and exclude wage growth perceptions. Because wage expectations are reported for a fixed horizon (the current and the following year), focusing on Q1 respondents ensures that 'next year' uniformly corresponds to the first quarter of the subsequent year. Tables D.2.18-D.2.21 in the Appendix provide estimates for the full sample. Overall, our results are robust across alternative specifications.

economists, nor for the increase in pass-through for these agents during the recent surge in inflation.

4.3.5 Pass-through of electricity prices

In 2022, the Norwegian economy, like most European countries, experienced a shock in electricity prices. However, what set Norway apart was that this shock was confined to the southern regions (Vestlandet, Østlandet, Sørlandet, Oslo), leaving the northern regions (Nord Norge and Midt Norge) largely unaffected. The southern price spike was exogenous to domestic macroeconomic conditions, but reflected the interaction of external demand pressures and local supply constraints. On the demand side, high electricity prices reflected a substantial increase in electricity exports of southern Norway towards Europe due to the energy crisis. On the supply side, record low levels of water reservoirs in southern Norway throughout most of the year restricted hydroelectric production. Given that 96% of Norway's electricity supply is hydro-based and the fact that transmission capacity between the northern and southern regions is severely limited due to insufficient infrastructure, the supply shortages in the south put significant upward pressure on electricity prices.

As a result, electricity prices in Norway began diverging sharply between the two regions starting in 2021Q2. Before, prices across the two regions were virtually identical, see Figure 4.6a. Only firms, however, faced this divergence: starting in 2021Q4, the government introduced a household support scheme that largely offset the price increase in the south.[13] The regional price divergence creates an ideal framework for evaluating the effects of electricity prices on business leaders' expectations. By exploiting the geographical granularity of the NBES survey, we study the impact of energy prices on business leaders' and households' inflation expectations.

We estimate the pass-through of electricity prices to inflation expectations for business leaders using the following single difference regression in the spirit of Jo &

[13]Nearly all household electricity contracts (98%) are spot-priced, whereas firms' exposure varies by sector: 94% in services, 87% in non–energy-intensive manufacturing, and 100% in energy-intensive manufacturing.

Klopack (2025) and Wehrhoefer (2023):

$$\mathbf{E}_{i,r,s,t}\pi_{t+k} = \alpha_0 + \beta D_{r,t} + \gamma_1 X_i + \gamma_2 T_t + \gamma_3 S_i + \epsilon_{i,r,s,t} \tag{4.3}$$

where $\mathbf{E}_{i,r,s,t}\pi_{t+k}$ denotes business leader i's inflation expectations k quarters ahead elicited at time t, residing in part of country r and belonging to sector s, $D_{r,t}$ is a dummy variable which takes value one during the periods in which the South region experiences higher electricity prices relative to the North (2021:Q2 until 2024:Q4). The dummy captures the effect of experiencing different energy prices on agents' expectations. We also include industry and firm size controls for business leaders, demographic controls for households, quarter-time fixed-effects, T_t, which account for changes in domestic or international macroeconomic conditions, such as monetary policy changes, fiscal policy interventions, shocks to commodity prices or supply chain disruptions, as well as a dummy for residing in the South, S_i, to capture constant differences across the two regions.

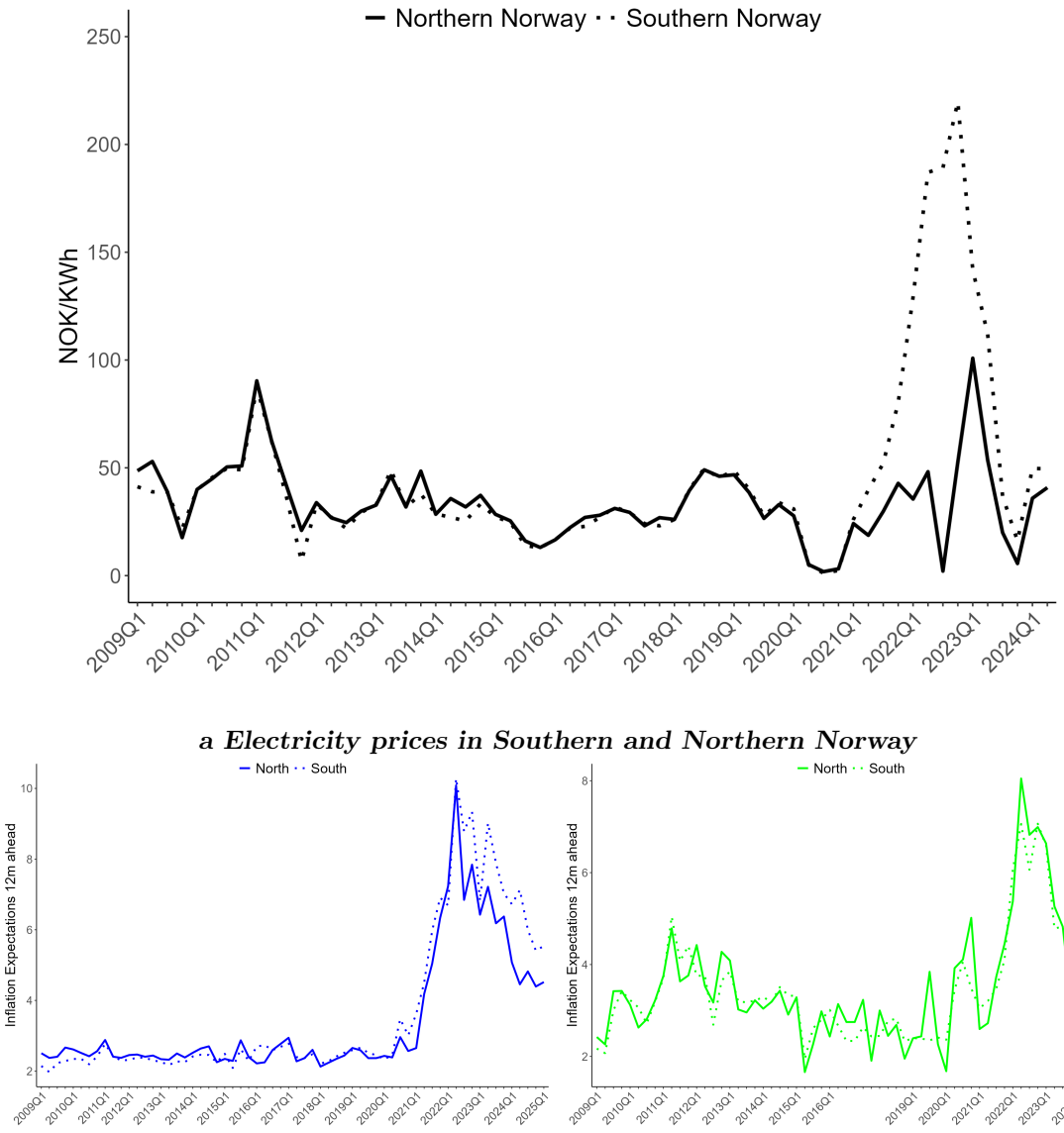
The identification strategy relies on two key assumptions. First, in the absence of the electricity price shock, business leaders' inflation expectations in the South and North would have followed parallel trends. While this assumption is inherently not testable, we can verify that before the shock, inflation expectations for business leaders across the two regions were on similar trends. Our identification assumption then boils down to assuming that absent the shock, the parallel trends had continued. Figure 4.6b shows mean expectations in both regions evolved nearly identically prior to 2021Q2 for both business leaders and households, supporting the plausibility of parallel trends. Second, the price increase in the southern region was exogenous to Norwegian macroeconomic conditions. Electricity prices rose due to external demand pressures from Europe's energy crisis combined with region-specific hydrological constraints, not because of domestic economic developments.

The parameter of interest in regression (4.3) is the coefficient associated with the shock dummy, β, which measures the average difference in inflation expectations between the North and the South due to the electricity price shock during the period for which electricity prices diverged. The first column of Table 4.6 presents the regression results for business leaders' overall inflation expectations for the whole

Norwegian economy over the next 12 months, while the second column reports the results for expectations over the next two years. The estimates reveal a significant positive effect of $D_{r,t}$ on the inflation expectations of business leaders. On average, during the quarters when electricity prices diverged (2021Q2–2024Q4), business leaders in the South expected approximately 1.05 to 1.3 percentage points higher inflation than business leaders in the North. The stronger response for two-year-ahead inflation expectations to a temporary electricity shock is striking. Business leaders appear to perceive the electricity price shock to result in persistent inflationary pressures. This finding aligns with the earlier evidence on a large pass-through from short- to medium-term inflation expectation for business leaders during the inflationary surge: both patterns indicate that business leaders perceive inflation shocks as persistent and adjust their medium-term views accordingly.

We next compare these results to households. Figure 4.6 shows household inflation expectations in the North and South evolved almost identically throughout the sample period. To confirm this formally, we re-estimate equation (4.3) using household data. Table 4.6 shows the regional divergence in electricity prices did not translate into a corresponding divergence in household inflation expectations. This null result is unsurprising given the government's compensation scheme, which largely offset the increase in electricity costs for households in the South. Consequently, households across regions faced similar effective electricity prices. In the Appendix (Table D.2.23), we interact the treatment dummy with the log price differential between regions and find consistent results: a significant positive effect on business leaders' inflation expectations, but none for households.

As a robustness check, we conduct a placebo test using a moving-window approach to assess whether the estimated treatment effects are specific to the actual intervention period. Specifically, we re-estimate our main regression model using placebo treatment dummies defined over all possible 3-year windows across the sample period. In each iteration, we define a placebo dummy variable equal to one for observations in the "South" region during the respective window and zero otherwise. We then regress the outcome on this placebo dummy, along with the full set of controls used in the main specification (4.3). Appendix Figure D.3.3 plots the estimated



a Electricity prices in Southern and Northern Norway

b Business leaders (left) and households (right)

Figure 4.6. Timeseries of electricity prices and average inflation expectations split by region (12 months ahead) since 2009

Source: Norges Bank and Statistics Norway, authors' own calculations.

coefficients and their 95% confidence intervals for each window. We assess whether significant effects are detected outside the actual treatment period. The results show no consistent or systematic effects prior to the intervention, supporting the validity of the causal interpretation of our main findings.

Recent papers by Patzelt & Reis (2024) and Wehrhoefer (2023) show a significant and positive pass-though from electricity prices to inflation expectations. In our case, we see a generalized increase in inflation expectations when electricity prices increase. However, expectations of households located in the South do not respond

Table 4.6. Effect of energy prices on inflation expectations

	Firms		Households	
	$\mathbf{E}_{i,r,s,t}\pi_{t+4}$	$\mathbf{E}_{i,r,s,t}\pi_{t+8}$	$\mathbf{E}_{i,r,s,t}\pi_{t+4}$	$\mathbf{E}_{i,r,s,t}\pi_{t+8}$
$D_{r,t}$	1.051***	1.287***	−0.067	0.0005
	(0.131)	(0.155)	(0.113)	(0.151)
Time FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	45,521	44,079	83,031	73,323
R^2	0.176	0.130	0.045	0.037

*p<0.1; **p<0.05; ***p<0.01

Note: Regression from model (4.3) for business leaders and households. All models include time fixed effects, a dummy for living in the south and individual-level controls. For households, controls include age, sex and occupational status, while sector and size for business leaders.
Sources: Norges Bank, authors' own calculations.

differently than those of households located in the North, because agents are not exposed to different electricity prices (in contrast to the cited studies above). Regarding firms, Wehrhoefer (2023) finds a positive and significant pass-through from electricity prices to own output prices, but documents that firms do not seem to extrapolate from individual prices to inflation for the overall economy. The divergence with respect to our results might be due to the fact that in Germany electricity contracts are usually fixed contracts, whereas in Norway the overwhelming majority is based on spot prices. Therefore, firms in Norway might anticipate that all other firms will be exposed to the same increase in input cost and be forced to raise sales prices, which will ultimately results in a generalized increase in inflation.

4.4 Conclusion

We document new evidence on heterogeneity in inflation expectations across households, business leaders, social partners, and economists, using harmonized Norwegian survey data spanning the pre- and post-inflation surge periods. Several features make the survey ideal for a cross-agent comparison: first, the time span is relatively long compared to alternative surveys in the literature, as it has been running since 2002 at the quarterly frequency. Second, it surveys social partners, who are the key players in the determination of wages. Third, it elicits expectations about inflation

and wages at multiple horizons. Fourth, the information sets available to agents when making their forecasts are directly comparable across groups and individuals, as respondents are surveyed in the same period, which does not include monetary policy decisions nor releases of national accounts. Finally, expectations are elicited in homogeneous ways ensuring that different wordings of questions can not drive heterogeneity across agents. These features allow us to study the evolution of expectations for both inflation and wages over the business cycle and in response to large shocks, and to compare it among different agents.

Consistent with other studies, we find that until 2021, households expectations were higher than business leaders, and economists (professional forecasters) had the lowest expectations. As a novel result, we document that social partners behave very similarly to economists. After the inflation surge, this ranking reversed: business leaders' expectations rose above those of households and remained elevated through 2024, reflecting both higher exposure to energy-price shocks and changing perceptions of inflation persistence.

Disagreement in short-term expectations was stable before the pandemic but rose sharply during the inflation surge, especially for households and business leaders. Across most of the sample, disagreement was largest for households, followed by business leaders, and lowest for social partners and economists. However, after 2021, business leaders' disagreement increased markedly and temporarily exceeded that of households, reflecting heightened uncertainty. Social partners and economists consistently displayed low and stable dispersion.

Turning to the term structure of expectations, short-term expectations play a central role in shaping medium-term expectations for all groups. During the low-inflation period, this short-to-medium-term pass-through was strongest for social partners (above 1), followed by business leaders, households, and economists. After 2021, the pass-through increased notably for business leaders, suggesting they perceived inflation as more persistent, but declined for households and economists, who anticipated faster mean reversion. This heterogeneity in perceived persistence helps explain how different groups adjusted to the new inflation regime and has potential implications for the speed at which shocks feed into prices and wages.

Regarding the relationship between wage and inflation expectations, we find expected inflation positively affects expected wages for all groups, though its magnitude remains well below one. The strength of this link differs across agents and over time: it is highest for business leaders, followed by economists and social partners, and it is lowest for households. During the recent inflation surge, the pass-through increased for business leaders, social partners, and economists, whereas it decreased for households.

Finally, we exploit a regional electricity-price shock to study the causal effect on inflation expectations. Business leaders exposed to higher energy prices revised their inflation expectations upward, especially for the two-year horizon, suggesting they viewed the shock as somewhat persistent. Households, in contrast, exhibited no significant response, reflecting the mitigating effects of government energy-support measures.

Taken together, these results highlight that the formation of inflation expectations differs systematically across agents and inflation environments. The heterogeneity we document, across households, business leaders, social partners, and economists, varies with the broader inflation regime, suggesting potential implications for inflation dynamics and the transmission of monetary policy.

Conclusion

This thesis has examined heterogeneity in macroeconomic expectations across different groups of agents, with a particular focus on gender differences, and their implications for economic behavior and policy transmission. By leveraging detailed microdata from surveys and combining empirical analysis with theory, the chapters highlight how differences in beliefs can be explained and play a meaningful role in shaping labor market outcomes and monetary policy effectiveness.

While the findings offer new insights, they also open up several avenues for further research.

The first chapter focuses on German households and the gender gap in inflation expectations. It challenges the conventional explanation of exposure to food prices and shows that differences in forecast confidence fully account for women's higher inflation expectations. A Bayesian learning model illustrates how lower confidence leads to reliance on noisy price signals. However, more work is needed to understand the sources of confidence in forecasts and how they can be shaped through education at early age, improvements of financial literacy throughout the life-cycle, or exposure to economic information, i.e. media and policy communication. It appears that financial literacy (or at least our measure thereof) contributes to confidence but is not enough to lift confidence on its own. Exploring interventions (i.e. survey experiments or in the lab) that enhance confidence without increasing overconfidence could prove valuable both for individual decision-making and for improving aggregate expectation accuracy.

Chapter 2, coauthored with Nicolò Maffei-Faccioli, shows that inflationary shocks can increase the gender wage gap in the U.S. due to differing interpretations of infla-

tion. Women interpret any inflation as supply-driven which lowers their willingness to engage in wage (re)negotiation, restraining nominal wage growth. The link between belief heterogeneity and wage-setting deserves further investigation beyond the gender dimension. Differences across age, education, income, and occupation could all yield important insights, especially in times of high uncertainty or structural change in the labor market. Further, we could explore the role of unionization in explaining our outcomes. Strong unions may help overcome the inequalities that arise through belief heterogeneity. A cross-country analysis would be the preferred method for this.

Chapter 3, with Michael McMahon, examines gender differences in expectations, uncertainty, and trust in the Bank of England. Despite similar headline expectations here, women show greater aversion to inflation and stronger precautionary behavior, highlighting the need for more inclusive central bank communication. Future research could evaluate which types of messages, messengers, or media are most effective for reaching underrepresented or more skeptical groups—potentially improving the inclusiveness and credibility of monetary policy. This could be done by using survey experiments in line with previous literature on the topic.

Finally, Chapter 4, with Eleonora Granziera, Nicolò Maffei-Faccioli, Michael Weber and Tuva Marie Fastbø documents five key facts about inflation expectations across agent types in Norway, revealing persistent differences in levels, dispersion, and responsiveness to shocks such as electricity prices. Expanding cross-country comparisons using harmonized data would help assess the generalizability of these findings and better identify institutional features that shape how expectations are formed and acted upon. We could rely on data from the European Commission for such comparisons. Further, the project could explore a range of natural experiments: While we exploit the oil price shock in Norway in 2022, we omit the oil price shock of 2014 and a change in the central bank inflation target in 2018. Both shocks could have interesting effects on the beliefs of different agents.

Overall, this thesis underscores the importance of recognizing and studying heterogeneity in expectations and invites future work that continues to bridge the gap between micro-level belief formation and macro-level outcomes.

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Appendix A

Beyond Groceries: Forecast Confidence and the Gender Gap in Inflation Expectations

A.1 Additional Material for Bayesian Framework

Algebraic manipulations to derive the log-normal posterior

The prior is defined as

$$\log\theta \sim \mathcal{N}\left(\mu_0, \frac{1}{\tau_0}\right),$$
$$p(\theta) = \frac{\sqrt{\tau_0}}{\theta\sqrt{2\pi}} \exp\left(-\frac{\tau_0(\log\theta - \mu_0)^2}{2}\right).$$

The unbiased signal is defined as

$$\log x = \log\theta + \epsilon,$$
$$\text{where } \epsilon \sim \mathcal{N}\left(0, \frac{1}{\tau_x}\right),$$
$$p(x|\theta) = \frac{\sqrt{\tau_x}}{x\sqrt{2\pi}} \exp\left(-\frac{\tau_x(\log x - \log\theta)^2}{2}\right)$$

I compute the posterior following Bayesian updating:

$$
\begin{aligned}
&p(\theta|x) \propto p(\theta)p(x|\theta) \\
&= \frac{\sqrt{\tau_0}}{\theta\sqrt{2\pi}} \exp\left(-\frac{\tau_0(\log\theta - \mu_0)^2}{2}\right) \frac{\sqrt{\tau_x}}{x\sqrt{2\pi}} \exp\left(-\frac{\tau_x(\log x - \log\theta)^2}{2}\right) \\
&= \frac{\sqrt{\tau_0}\sqrt{\tau_x}}{\theta x 2\pi} \exp\left(-\frac{1}{2}\left[\tau_0\left((\log\theta)^2 - 2\mu_0\log\theta + \mu_0^2\right)\right.\right. \\
&\left.\left. + \tau_x\left((\log x)^2 - 2\log x\log\theta) + (\log\theta)^2\right)\right]\right) \\
&\propto \frac{1}{\theta}\exp\left(-\frac{1}{2}\left[(\tau_0+\tau_x)(\log\theta)^2 - 2(\tau_0\mu_0 + \tau_x\log x)\log\theta\right]\right).
\end{aligned}
$$

This is proportional to a log-normal distribution,

$$p(\theta|x) \propto \frac{1}{\theta}\exp\left(-\frac{\hat{\tau}(\log\theta - \hat{\mu})^2}{2}\right),$$

where

$$\hat{\mu} = \frac{\mu_0\tau_0 + \tau_x\log x}{\tau_x + \tau_0},$$

$$\text{and } \hat{\tau} = \tau_0 + \tau_x.$$

Comparative statics

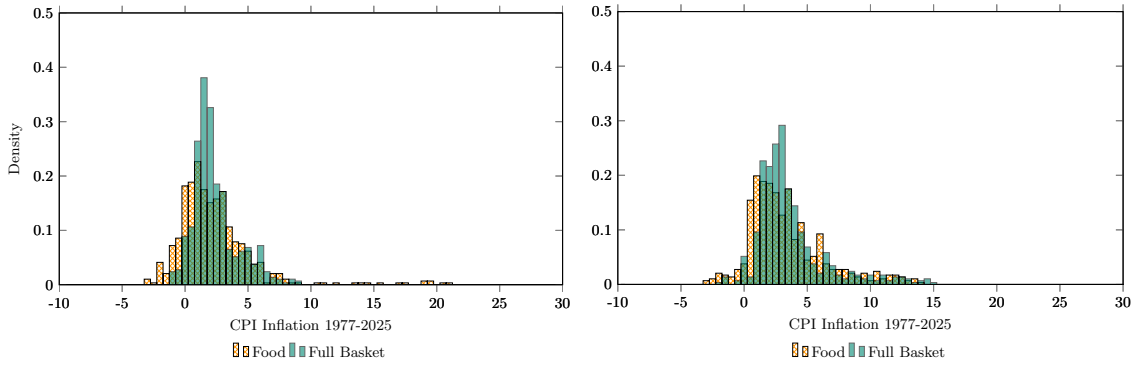
The effect of increasing signal volatility

$$
\begin{aligned}
\mathbb{E}(\theta|x) &= \exp\left(\hat{\mu} + \frac{1}{2\hat{\tau}}\right) \\
&= \exp\left(\frac{\tau_0\mu_0 + \tau_x \log x + \frac{1}{2}}{\tau_x + \tau_0}\right) \\
\frac{d\mathbb{E}(\theta|x)}{d\tau_x} &= \left(\frac{2\tau_0(\log x - \mu_0) - 1}{2(\tau_x + \tau_0)^2}\right) \times \mathbb{E}(\theta|x) \\
&< 0 \text{ whenever } 2\tau_0(\log x - \mu_0) - 1 < 0 \Rightarrow \log x - \mu_0 < \frac{1}{2\tau_0} \\
\mathbb{V}ar(\theta|x) &= \left[\exp\left(\frac{1}{\tau_0 + \tau_x}\right) - 1\right] \exp\left(\frac{2\tau_0\mu_0 + 2\tau_x \log x + 1}{\tau_0 + \tau_x}\right) \\
\frac{d\mathbb{V}ar(\theta|x)}{d\tau_0} &= \frac{2(\log x - \mu_0)\tau_0 - 2}{(\tau_0 + \tau_x)^2} \exp\left(\frac{2\tau_0\mu_0 + 2\tau_x \log x + 2}{\tau_0 + \tau_x}\right) \\
&- \frac{2(\log x - \mu_0)\tau_0 - 1}{(\tau_0 + \tau_x)^2} \exp\left(\frac{2\tau_0\mu_0 + 2\tau_x \log x + 1}{\tau_0 + \tau_x}\right) \\
&< 0 \text{ whenever } \log x - \mu_0 < \frac{1}{2\tau_0} \underbrace{\frac{2\exp\frac{1}{\tau_0+\tau_x} - 1}{\exp\frac{1}{\tau_0+\tau_x} - 1}}_{>1}
\end{aligned}
$$

The effect of decreasing prior precision

$$
\begin{aligned}
\frac{d\mathrm{E}(\theta|x)}{d\tau_0} &= \left(\frac{2\tau_x(\mu_0 - \log x) - 1}{2(\tau_x + \tau_0)^2}\right) \times \mathrm{E}(\theta|x) \\
&< 0 \text{ whenever } 2\tau_x(\mu_0 - \log x) - 1 < 0 \Rightarrow \mu_0 - \log x < \frac{1}{2\tau_x} \\
\frac{d\mathbb{V}ar(\theta|x)}{d\tau_0} &= \frac{2(\mu_0 - \log x)\tau_x - 2}{(\tau_0 + \tau_x)^2} \exp\left(\frac{2\tau_0\mu_0 + 2\tau_x \log x + 2}{\tau_0 + \tau_x}\right) \\
&- \frac{2(\mu_0 - \log x)\tau_x - 1}{(\tau_0 + \tau_x)^2} \exp\left(\frac{2\tau_0\mu_0 + 2\tau_x \log x + 1}{\tau_0 + \tau_x}\right) \\
&< 0 \text{ whenever } \mu_0 - \log x < \frac{1}{2\tau_x} \underbrace{\frac{2\exp\frac{1}{\tau_0+\tau_x} - 1}{\exp\frac{1}{\tau_0+\tau_x} - 1}}_{>1}
\end{aligned}
$$

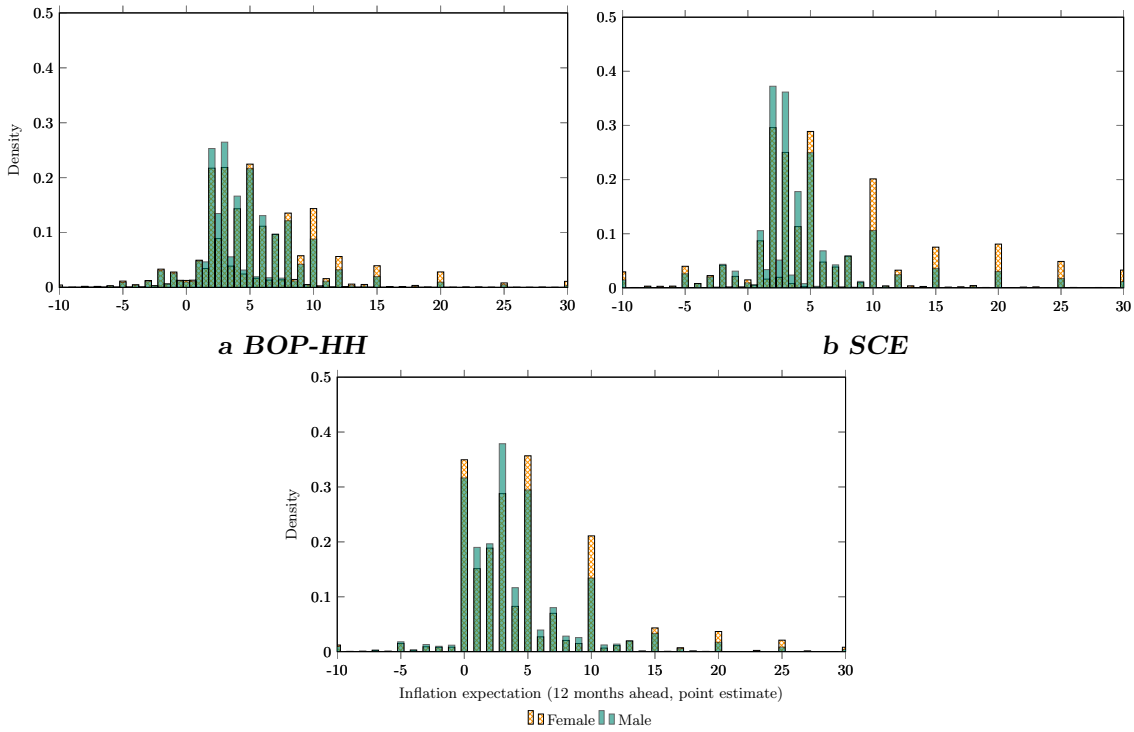
A.2 Additional Figures



a Germany ***b United States***

Figure A.1. Histogram of CPI inflation

Sources: OECD, Prices: Consumer prices, Main Economic Indicators (database), January 1977 - July 2025; own calculations



a BOP-HH ***b SCE***

c MSC

Figure A.2. Histogram of inflation expectation point forecasts of men and women

Notes: Distribution of male and female inflation expectations (measured as point forecasts over 12 months) pooled across all time periods. There is one plot per survey. The figures show that the distribution is more right skewed for women and rounded numbers (i.e. multiples of 5 or 10) are chosen more frequently.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

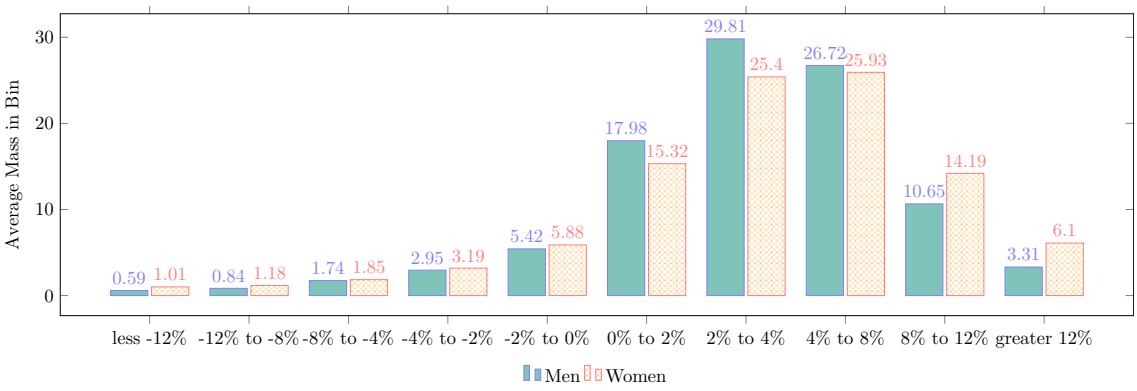


Figure A.3. Average density forecast of inflation 12 months ahead in the BOP-HH

Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; own calculations

A.3 Additional Tables

Table A.1. Predicting confidence through rounding

	round_inflexp_point					
	BOP-HH		SCE		MSC	
	(1)	(2)	(3)			
infquali	0.63***		-0.06***		-2.79***	
	(0.01)		(0.01)		(0.02)	
round_exphp_point	0.17***		0.36***			
	(0.02)		(0.02)			
qeasy	-0.004					
	(0.02)					
qinterest	-0.03		-0.01			
	(0.02)		(0.02)			
decide_finance	-0.11**		-0.28***			
	(0.05)		(0.03)			
Constant	-2.35***	-1.34***	-1.01***	0.56***	2.58***	0.13
	(0.15)	(0.09)	(0.09)	(0.08)	(0.10)	(0.09)
McFadden R^2	0.08	0.049	0.181	0.096	0.161	0.038
Observations	210,225	229,869	145,452	171,607	277,093	277,093

*p<0.1; **p<0.05; ***p<0.01

Notes: Mundlak CRE specification; Huber-robust regression. All regressions include demographic controls, regional controls and time dummies. `infquali` is a dummy for increasing inflation expectations, `round_exphp_point` is a rounding dummy for point estimates for house price growth 12 months ahead, `decide_finance` measures involvement in financial decision making.

Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; ; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - November 2020; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

Table A.2. The gender gap and demographic controls

	Inflation expectation (12 months ahead, point estimate)					
	BOP-HH		SCE		MSC	
	(1)	(2)	(3)	(4)	(5)	(6)
female	0.50***	0.68***	1.01***	2.61***	0.33***	1.57***
	(0.01)	(0.05)	(0.02)	(0.12)	(0.01)	(0.06)
age	0.01	0.01	-0.11	-0.10	-0.02***	-0.02**
	(0.01)	(0.01)	(0.33)	(0.33)	(0.01)	(0.01)
age:female		-0.0001		0.01***		-0.01***
		(0.001)		(0.001)		(0.001)
hhinc	-0.004***	-0.01***	-0.25***	-0.22***	-0.0000	0.0000
	(0.0003)	(0.0004)	(0.01)	(0.01)	(0.0000)	(0.0000)
female:hhinc		0.004***		-0.08***		-0.0000***
		(0.0003)		(0.01)		(0.0000)
educ	0.01	0.02	-0.32***	-0.19***	-0.08	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.05)	(0.05)
female:educ		-0.02***		-0.31***		-0.14***
		(0.003)		(0.02)		(0.01)
single	0.05	0.04	-0.10***	-0.30***	-0.05***	-0.02
	(0.04)	(0.04)	(0.03)	(0.04)	(0.02)	(0.02)
female:single		0.01		0.32***		-0.03
		(0.02)		(0.06)		(0.03)
full_time	-0.01	-0.01	0.08	0.08		
	(0.05)	(0.05)	(0.08)	(0.08)		
part_time	0.004	0.003	0.06	0.06		
	(0.05)	(0.05)	(0.07)	(0.07)		
retired	-0.06	-0.06	-0.10	-0.10		
	(0.05)	(0.05)	(0.10)	(0.10)		
homemaker	0.07	0.07	0.12	0.12		
	(0.09)	(0.09)	(0.11)	(0.11)		
unemployed	-0.03	-0.04	0.20**	0.20**		
	(0.08)	(0.08)	(0.10)	(0.10)		
refresher	-0.04**	-0.04**	-0.92***	-0.92***		
	(0.02)	(0.02)	(0.04)	(0.04)		
Constant	2.80***	2.76***	6.52***	5.89***	5.76***	5.22***
	(0.12)	(0.12)	(0.15)	(0.16)	(0.15)	(0.16)
Observations	210,225	210,225	145,452	145,452	277,092	277,092
Residual SE	1.76	1.76	3.25	3.20	3.17	3.17

*p<0.1; **p<0.05; ***p<0.01
Standard errors in parentheses below.

Notes: Mundlak CRE specification; Huber-robust regression. All regressions include regional controls and time dummies.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

Table A.3. Confidence and experience with alternative measures

	Inflation expectation (12 months ahead, point estimate)			
	(1)	(2)	(3)	(4)
female	0.47***	0.47***	0.37***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)
shop_groceries	0.11***	0.10***	-0.002	
	(0.02)	(0.02)	(0.02)	
round_inflexppoint			1.34***	
			(0.02)	
round_inflexppoint:shop_groceries			0.62***	
			(0.03)	
qeasy	0.03			
	(0.04)			
qeasy:shop_groceries	-0.003			
	(0.05)			
qinterest		-0.002		
		(0.03)		
qinterest:shop_groceries		0.01		
		(0.04)		
prob_confident				-11.22***
				(0.06)
single				-0.11
				(0.07)
prob_confident:single				0.11
				(0.09)
Constant	2.83***	2.88***	2.68***	11.69***
	(0.20)	(0.20)	(0.19)	(0.12)
Observations	155,202	155,202	155,202	210,224
Residual E	1.72	1.72	1.51	1.69

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors in parentheses.

Notes: Replication of Table 1.5 with alternative measures. Mundlak CRE specification; Huber-robust regression. All regressions include demographic controls, regional controls and time dummies.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; own calculations

Table A.4. Effect of confidence and grocery shopping on the gender gap

	Inflation expectation (12 months ahead, point estimate)								
	BOP-HH				SCE			MSC	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
female	0.49***	0.26***	0.51***	0.53***	0.88***	-0.04*	0.80***	0.35***	-0.11***
	(0.01)	(0.01)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)
single	0.05***				-0.39***			-0.02	
	(0.01)				(0.04)			(0.02)	
single:female	0.01				0.54***			-0.05	
	(0.02)				(0.05)			(0.03)	
round_π^E_point		1.38***				3.36***			0.24***
		(0.02)				(0.03)			(0.02)
round_π^E_point:female		0.82***				1.60***			1.00***
		(0.02)				(0.04)			(0.03)
qinterest			0.02				-0.11***		
			(0.02)				(0.03)		
qinterest:female			-0.04				-0.03		
			(0.03)				(0.04)		
qeasy				0.10***					
				(0.02)					
qeasy:female				-0.10***					
				(0.04)					
Constant	2.81***	2.69***	2.92***	2.90***	6.63***	4.44***	6.09***	3.71***	3.60***
	(0.12)	(0.19)	(0.20)	(0.20)	(0.15)	(0.13)	(0.15)	(0.18)	(0.20)
Observations	210,225	155,203	155,203	155,203	145,452	108,961	108,961	78,076	63,638
Residual SE	1.76	1.53	1.71	1.71	3.24	2.36	2.76	2.84	2.36

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors in parentheses.

Notes: Replication of Table 1.4 with alternative measures. Mundlak CRE specification; Huber-robust regression. All regressions include demographic controls, regional controls and time dummies.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

Table A.5. Quantile regression

	Inflation expectations (12 months ahead, point estimate)				
	Bottom 20%	Bottom 40%	Bottom 60%	Bottom 80%	Full Sample
Survey: BOP-HH					
female	-0.12***	-0.10***	-0.004	0.16***	0.50***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
single	0.04	0.03	0.03	0.01	0.05
	(0.06)	(0.03)	(0.03)	(0.04)	(0.04)
age	0.04***	0.04***	0.03***	0.06***	0.01
	(0.01)	(0.005)	(0.01)	(0.01)	(0.01)
educ	0.01	0.01*	0.02**	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
hhinc	-0.001	-0.001	-0.001	0.001***	-0.004***
	(0.01)	(0.005)	(0.01)	(0.0004)	(0.0003)
Observations	41,192	79,904	129,691	175,103	210,225
Residual SE	0.96	0.84	1.10	1.40	1.76
Survey: SCE					
female	-0.53***	-0.29***	-0.04***	0.24***	1.01***
	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
single	-0.05*	-0.03*	-0.07***	-0.04**	-0.10***
	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
age	0.11	0.04	0.05	-0.02	-0.11
	(0.32)	(0.21)	(0.21)	(0.23)	(0.33)
educ	0.19***	0.10***	0.03***	-0.07***	-0.32***
	(0.01)	(0.005)	(0.005)	(0.01)	(0.01)
hhinc	0.11***	0.07***	0.01***	-0.05***	-0.25***
	(0.01)	(0.003)	(0.003)	(0.004)	(0.01)
Observations	47,398	71,259	102,115	125,646	145,452
Residual SE	1.80	1.43	1.68	2.20	3.25
Survey: MSC					
female	0.00***	-0.11***	0.04***	-0.01	0.33***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
single	-0.00**	-0.06***	-0.07***	-0.07***	-0.05***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.02)
age	0.00	-0.001	-0.01	-0.002	-0.02***
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
educ	0.00	0.01	-0.01	-0.04	-0.08
	(0.00)	(0.03)	(0.03)	(0.03)	(0.05)
hhinc	0.00	-0.0000	-0.0000	0.0000	-0.0000
	(0.00)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Observations	55,326	152,224	211,099	226,143	277,093
Residual SE	0.0000	1.79	2.45	2.67	3.17

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors in parentheses.

Notes: Mundlak CRE specification; Huber-robust regression. All regressions include regional controls and time dummies. For BOP-HH and SCE also unemployment, full time, part time and homemaker dummies.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; own calculations

Table A.6. Microlevel effects of high inflation

	Inflation expectation (12 months ahead, point estimate)				
	BOP-HH		SCE		MSC
	High conf.	Low conf.	High conf.	Low conf.	All
female	0.13***	0.34***	0.18***	1.12***	0.59***
	(0.02)	(0.05)	(0.03)	(0.10)	(0.02)
CPI_t^{total}	0.58***	0.63***	0.37***	0.44***	0.50***
	(0.003)	(0.01)	(0.005)	(0.02)	(0.003)
female x CPI_t^{total}	-0.02***	0.01*	-0.04***	0.10***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.004)
$\rho_{t,6}^{total}$	0.02***	0.01	0.001	-0.01	-0.03***
	(0.004)	(0.01)	(0.005)	(0.03)	(0.01)
female x $\rho_{t,6}^{total}$)	-0.01	0.01	0.0005	-0.01	0.02
	(0.01)	(0.01)	(0.01)	(0.04)	(0.01)
Constant	1.38***	3.44***	2.04***	7.89***	2.29***
	(0.04)	(0.07)	(0.06)	(0.20)	(0.04)
Observations	98,571	104,853	72,726	72,726	277,092
Residual SE	1.33	2.66	1.74	6.01	3.21

*p<0.1; **p<0.05; ***p<0.01
Robust standard errors in parentheses.

Notes: Mundlak CRE specification; Huber-robust regression. All regressions include demographic and regional controls.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; University of Michigan, Survey Research Center, MSC, January 1978 - January 2025; OECD, Prices: Consumer prices, Main Economic Indicators (database), January 1978 - January 2025; own calculations

Table A.7. Confidence and other heterogeneities

	BOP-HH			SCE		
	Inflation expectations		prob_confident	Inflation expectations		prob_confident
female	0.50***	-0.06***	-0.05***	1.00***	0.16***	-0.16***
	(0.01)	(0.01)	(0.0004)	(0.02)	(0.02)	(0.001)
age	0.03***	0.02***	-0.002***	0.04***	0.03***	-0.002***
	(0.002)	(0.002)	(0.0001)	(0.001)	(0.001)	(0.0001)
age^2	-0.0003***	-0.0001***	0.0000***	-0.0001***	-0.0001***	0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
educ	-0.06***	-0.003*	0.01***	-0.32***	-0.10***	0.04***
	(0.001)	(0.001)	(0.0001)	(0.01)	(0.01)	(0.0003)
hhinc	-0.0002	-0.0000	0.0001***	-0.25***	-0.10***	0.03***
	(0.0001)	(0.0001)	(0.0000)	(0.005)	(0.01)	(0.0002)
prob_confident		-11.09***			-5.79***	
		(0.05)			(0.07)	
Constant	2.23***	11.20***	0.81***	6.18***	9.02***	0.40***
	(0.12)	(0.13)	(0.005)	(0.15)	(0.15)	(0.01)
Observations	210,225	210,225	210,225	145,452	145,452	145,452
Residual SE	1.76	1.69	0.08	3.25	3.16	0.18

*p<0.1; **p<0.05; ***p<0.01

Notes: Mundlak CRE specification; Huber-robust regression. All regressions include regional controls and time dummies and unemployment, full time, part time and homemaker dummies.
Sources: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, BOP-HH, April 2020 - June 2025; Federal Reserve Bank of New York (FRBNY), SCE, June 2013 - October 2024; own calculations

A.4 Financial Literacy Questionnaire (SCE)

QnumIntro. Next, we would like to ask you five questions to see how people use numbers in everyday life. Please answer the following questions by filling in the blank.

QNUM2. Let's say you have $200 in a savings account. The account earns ten percent interest per year. Interest accrues at each anniversary of the account. If you never withdraw money or interest payments, how much will you have in the account at the end of two years?

$\underline{\$\ \ }$

No answer

QNUM8. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, how much would you be able to buy with the money in this account?

1. More than today
2. Just as much as today
3. Less than today

No answer

QNUM9. Please tell me whether this statement is true or false: Buying a single company's stock usually provides a safer return than a stock mutual fund.

1. True
2. False

No answer

Appendix B

Divergent Perceptions, Divergent Pay: Inflation and the Gender Wage Gap

B.1 GWG Supplementary Material

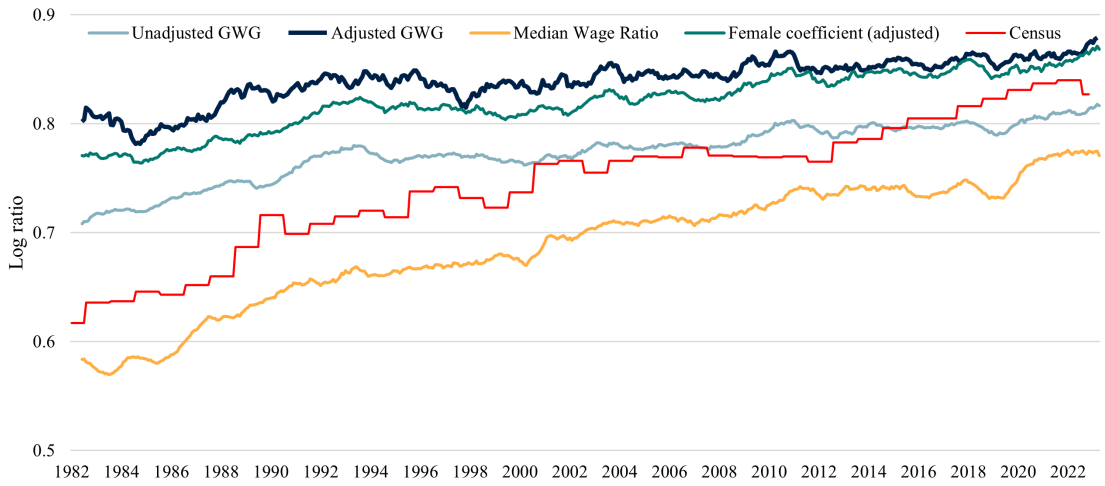


Figure B.1. Different measures of GWG (1982-2023) measured as female to male ratio

Notes: Adjusted GWGs are computed using a traditional Oaxaca–Blinder decomposition of female/male differences in log wages controlling for worker characteristics, industry and occupation computed as in Equation 2.1. The figure shows 12-month moving averages to smooth the volatility and seasonality. Unadjusted GWG are computed in the same way omitting industry and occupation controls. Female coefficient describes 1 minus the female coefficient in a linear model on log wages with the same controls as the adjusted series. Median wage ratio is computed using weekly log earnings while the Census data uses the median annual wage ratio of year-round workers.
Sources: Unadjusted and Adjusted GWG, Median Wage Ratio and Female coefficient: CPS IPUMS, own calculations. Census: U.S. Census Bureau (Guzman & Kollar 2024).

Table B.1. Johansen cointegration (trace) test

No. of cointegrating relations r	test statistic	p-value	eigenvalue
$r = 0$	53.9461	0.0010	0.0792
$r = 1$	16.5835	0.0342	0.0225
$r = 2$	6.2743	0.0125	0.0138

Notes: The test assesses the null of at most r cointegrating relations for the baseline set of variables: CPI inflation, the unemployment rate and the adjusted gender wage gap. The test includes 3 lags as in the baseline VAR specification.

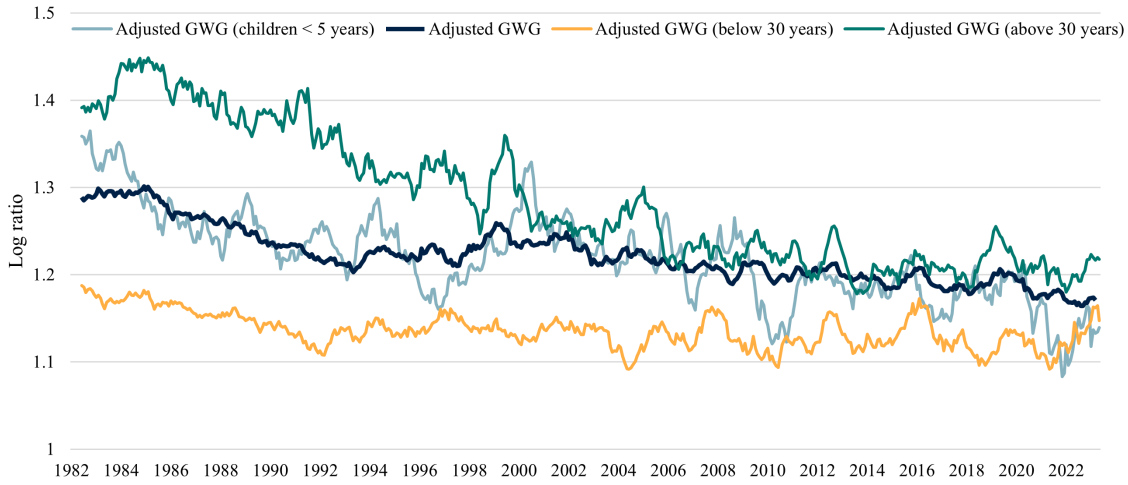


Figure B.2. Adjusted GWG (1982-2023) for different demographic groups

Notes: Adjusted GWGs are computed using a traditional Oaxaca–Blinder decomposition of male/female differences in log wages controlling for worker characteristics, industry and occupation computed as in Equation 2.1. The figure shows 12-month moving averages to smooth the volatility and seasonality.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unadjusted and Adjusted GWG: CPS IPUMS, own calculations.

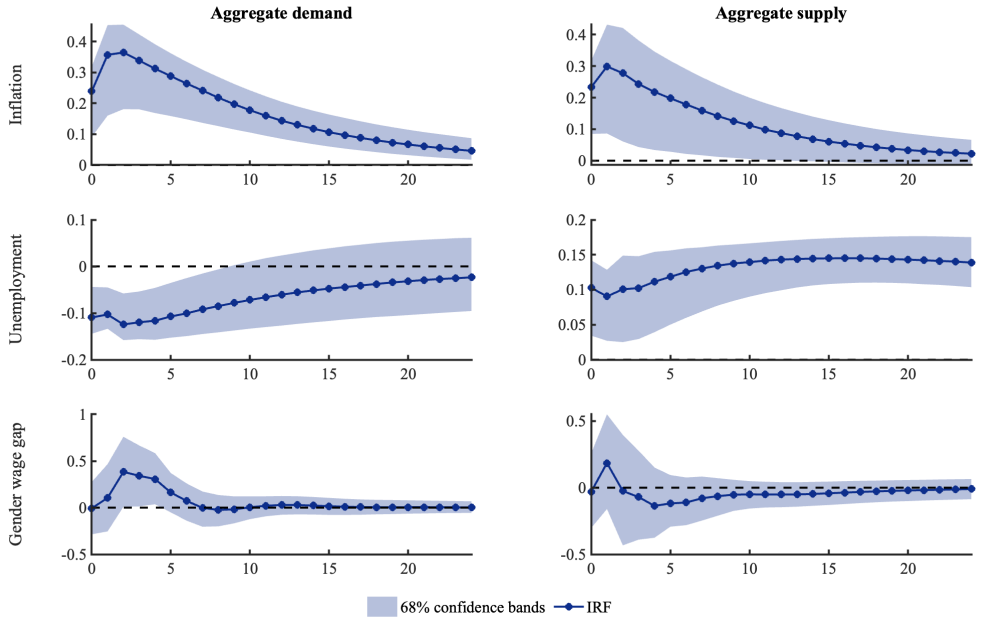


Figure B.3. Impulse responses in the SVAR for unionised workers

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time. Adjusted GWGs for unionised workers computed using monthly data from January 1982 - February 2020.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

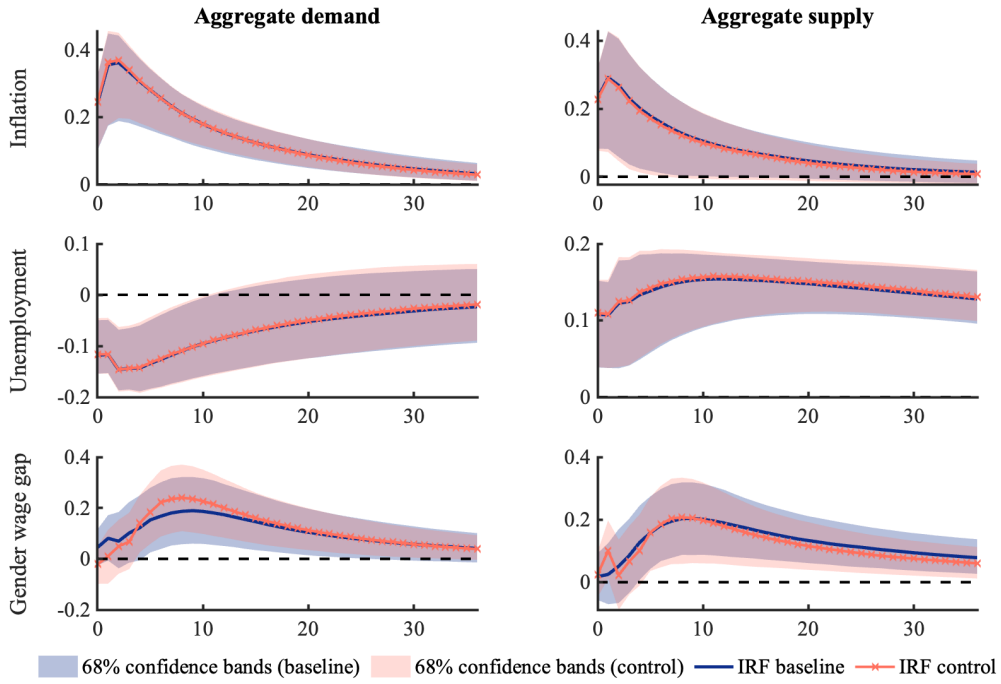


Figure B.4. Impulse responses in the SVAR - baseline and nearest-neighbor matching

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid blue and crossed orange lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time. Adjusted and matched GWGs are computed using monthly data from January 1982 - February 2020.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

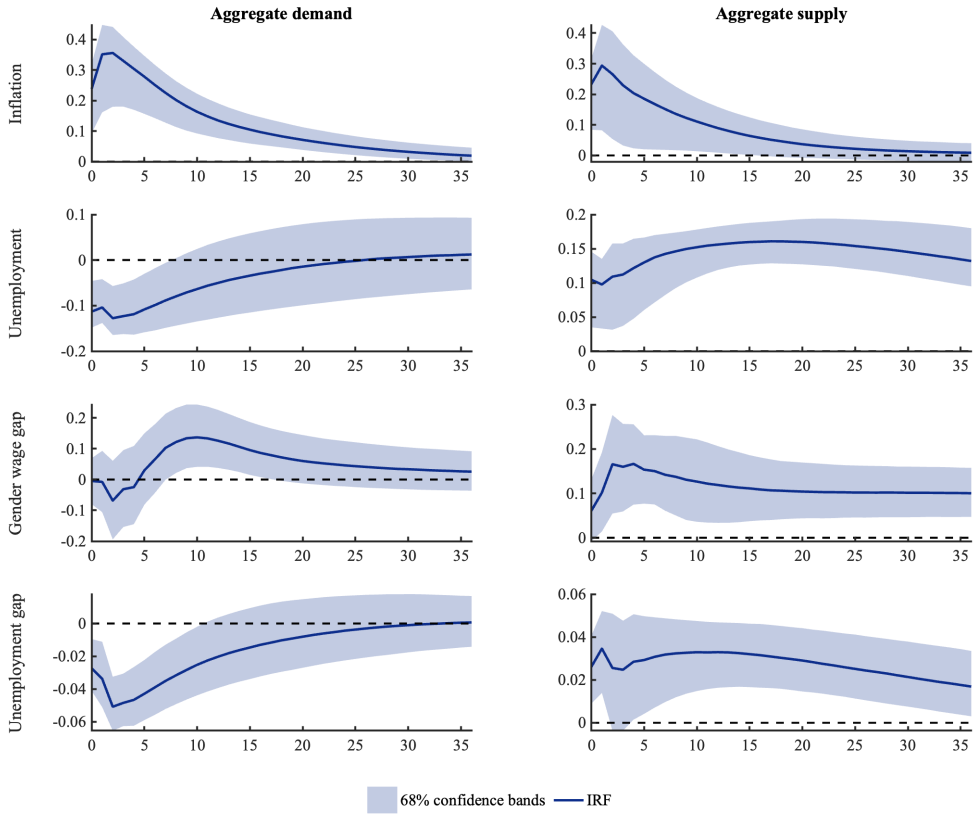


Figure B.5. Impulse responses in the SVAR including unemployment gap

Notes: Adjusted GWGs computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid blue line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations; Unemployment rate men: FRED LNS14000001, Percent, Seasonally adjusted; Unemployment rate women: FRED LNS14000002, Percent, Seasonally adjusted.

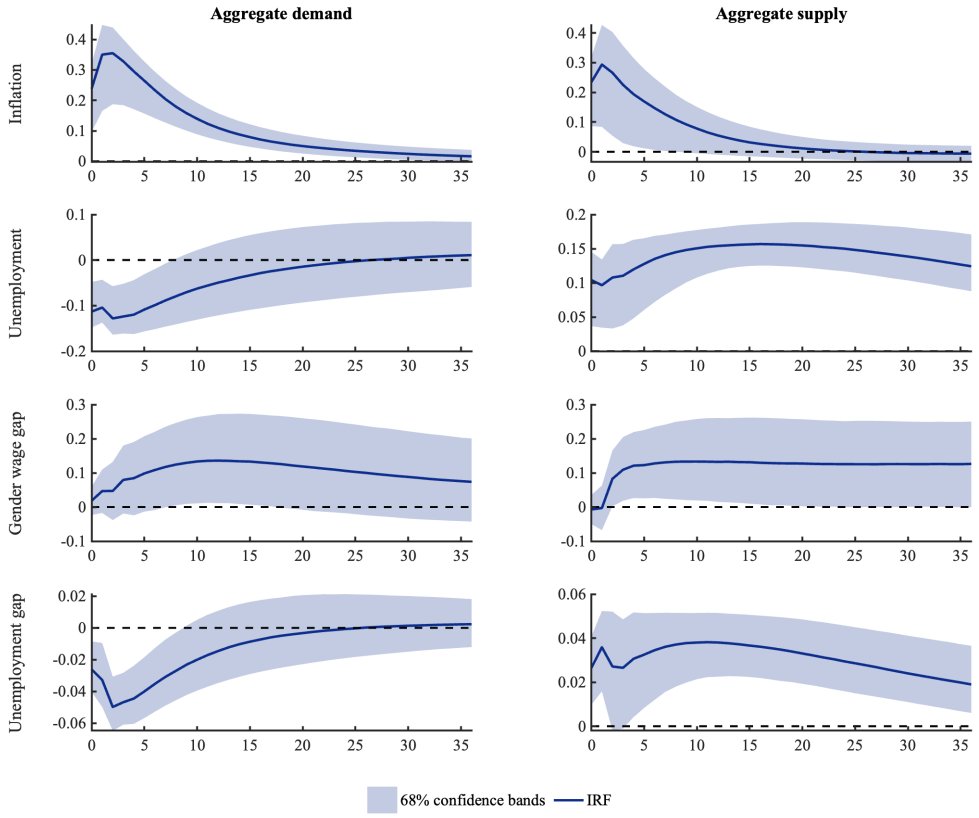
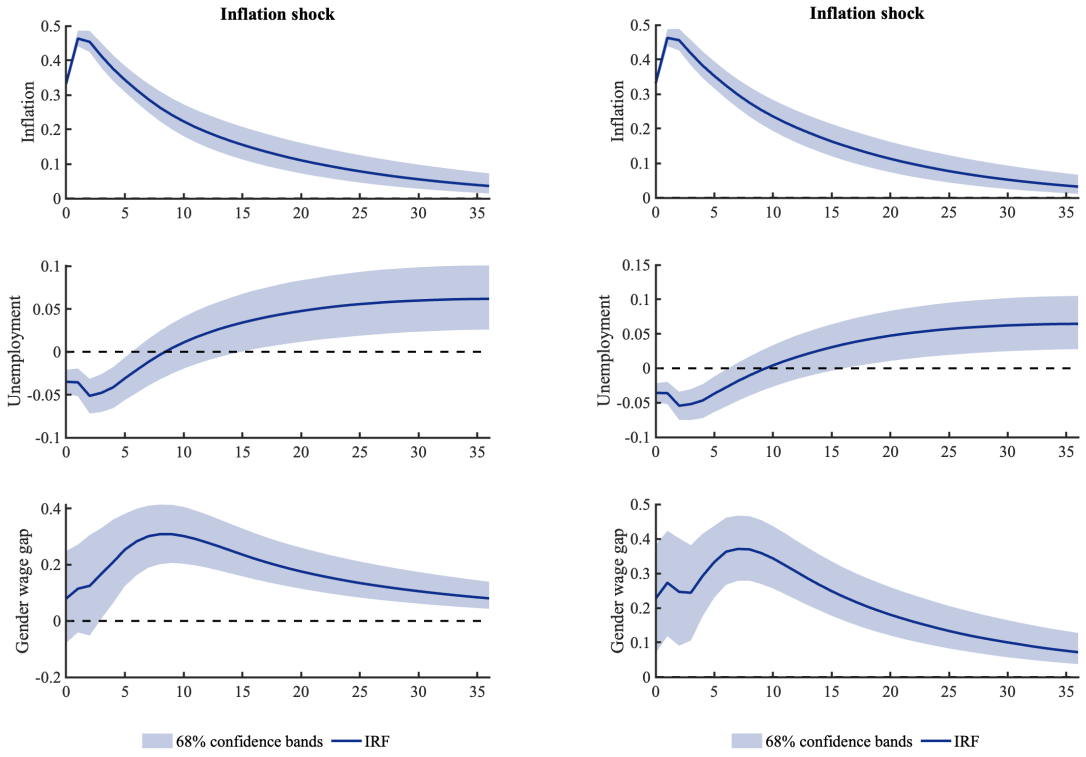


Figure B.6. Impulse responses in the SVAR including unemployment gap

Notes: Unadjusted GWGs computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid blue line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations; Unemployment rate men: FRED LNS14000001, Percent, Seasonally adjusted; Unemployment rate women: FRED LNS14000002, Percent, Seasonally adjusted.



a KOB decomposition ***b Nearest-neighbor matching***

Figure B.7. Impulse responses in the SVAR using max-share identification

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid blue line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time. Adjusted GWGs are computed using monthly data from January 1982 – February 2020. *Sources:* Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

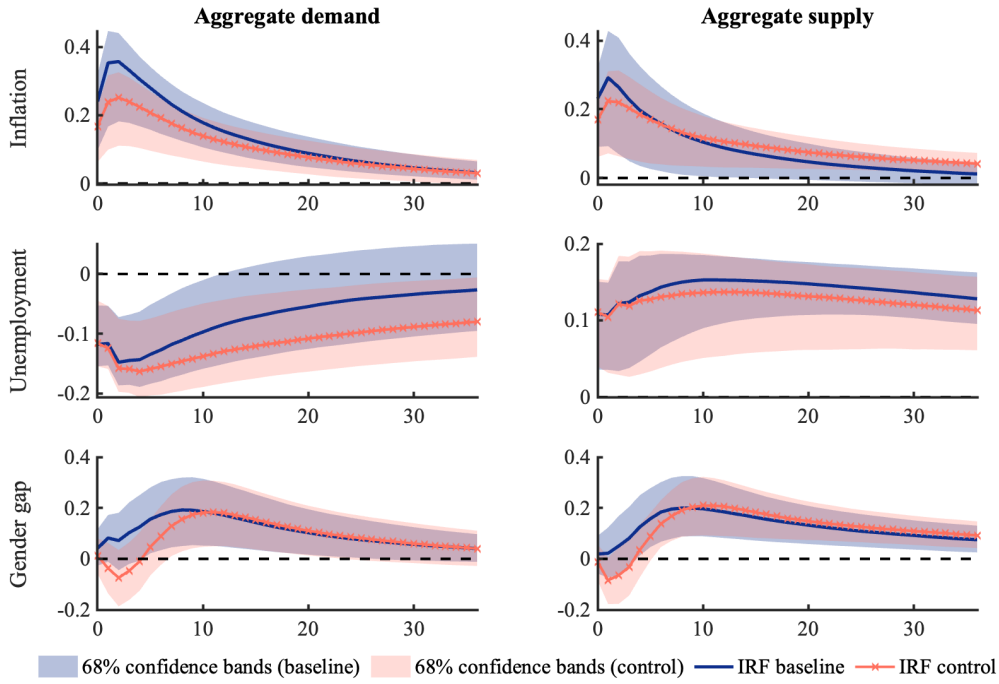


Figure B.8. Impulse responses in the SVAR using PCE inflation

Notes: Adjusted GWGs computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: FRED PCEPILFE, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

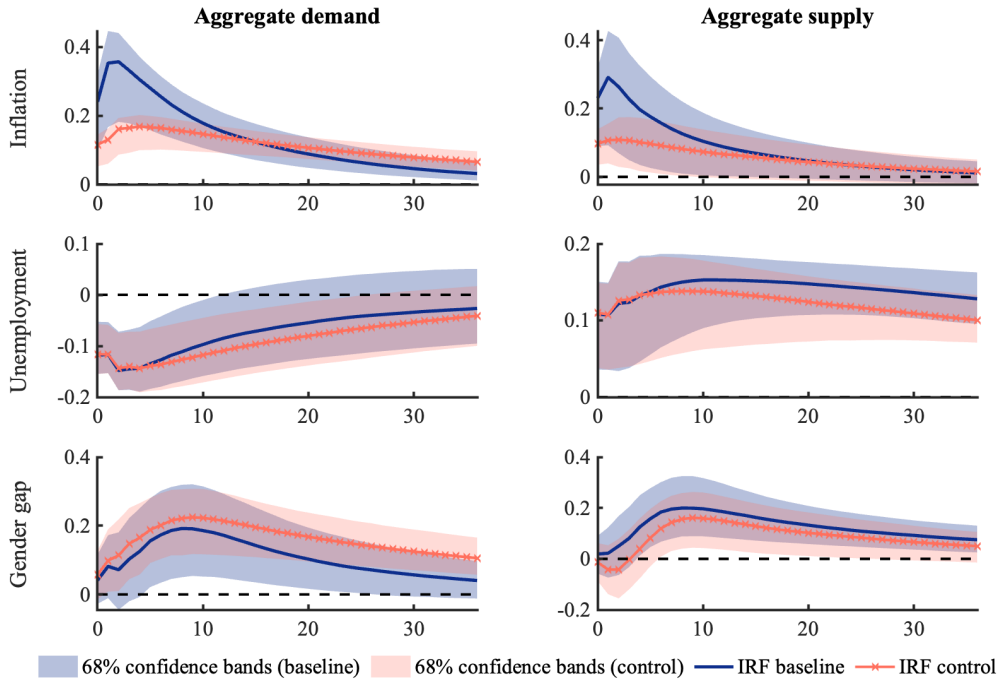


Figure B.9. Impulse responses in the SVAR using CPI inflation excluding food and energy

Notes: Adjusted GWGs computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: FRED CPILFESL, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

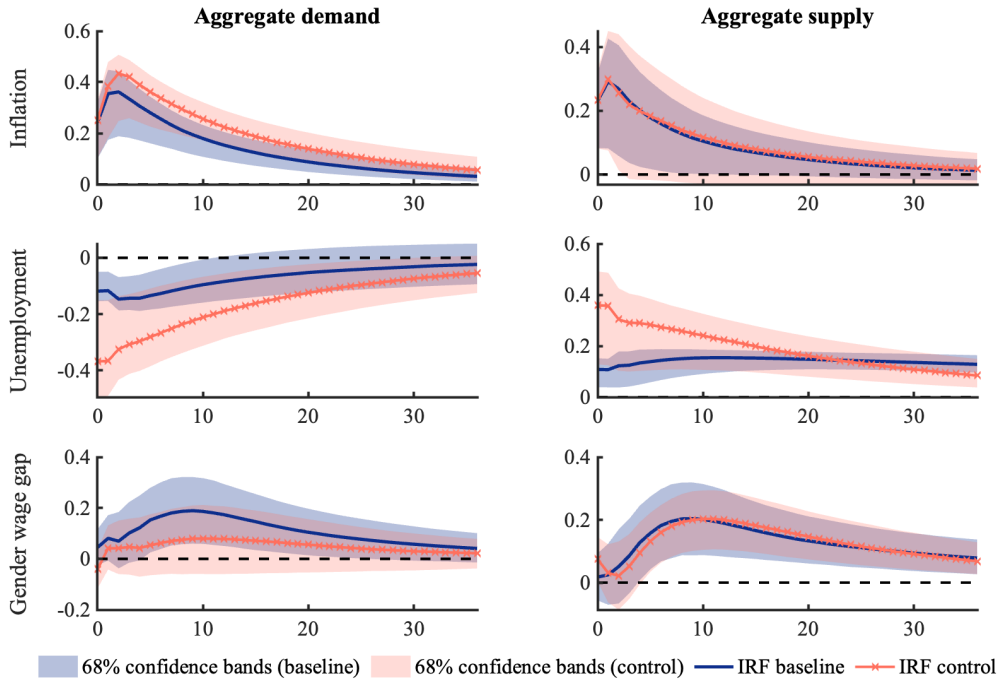


Figure B.10. Impulse responses in the SVAR including Covid

Notes: Adjusted GWGs computed using monthly data from January 1982 - March 2023, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

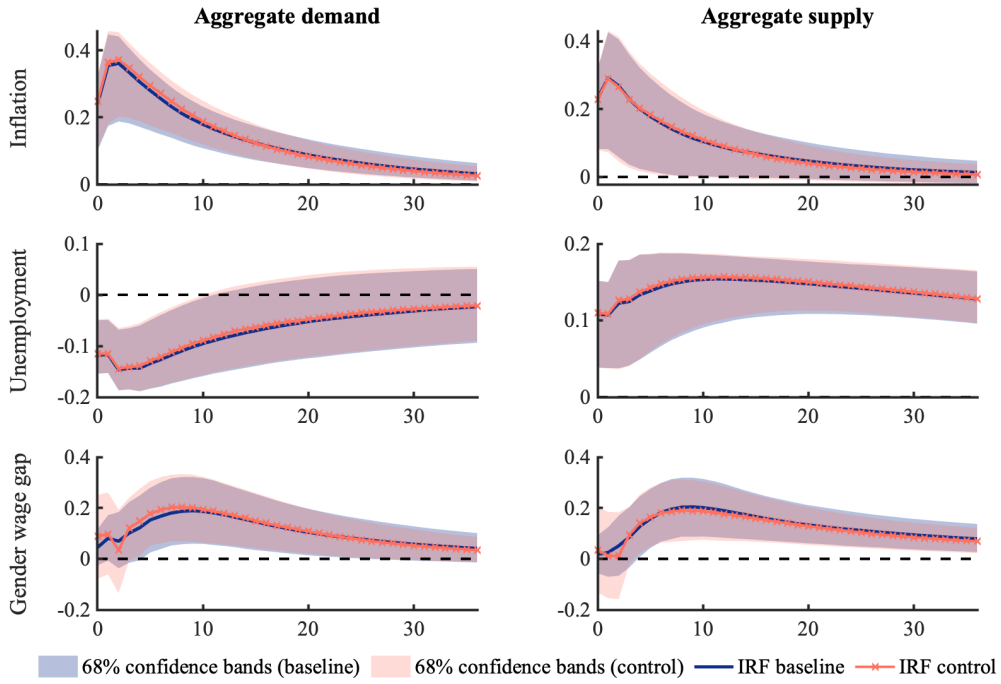


Figure B.11. Impulse responses in the SVAR without moving average

Notes: Adjusted GWGs computed using monthly data from January 1982 - February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

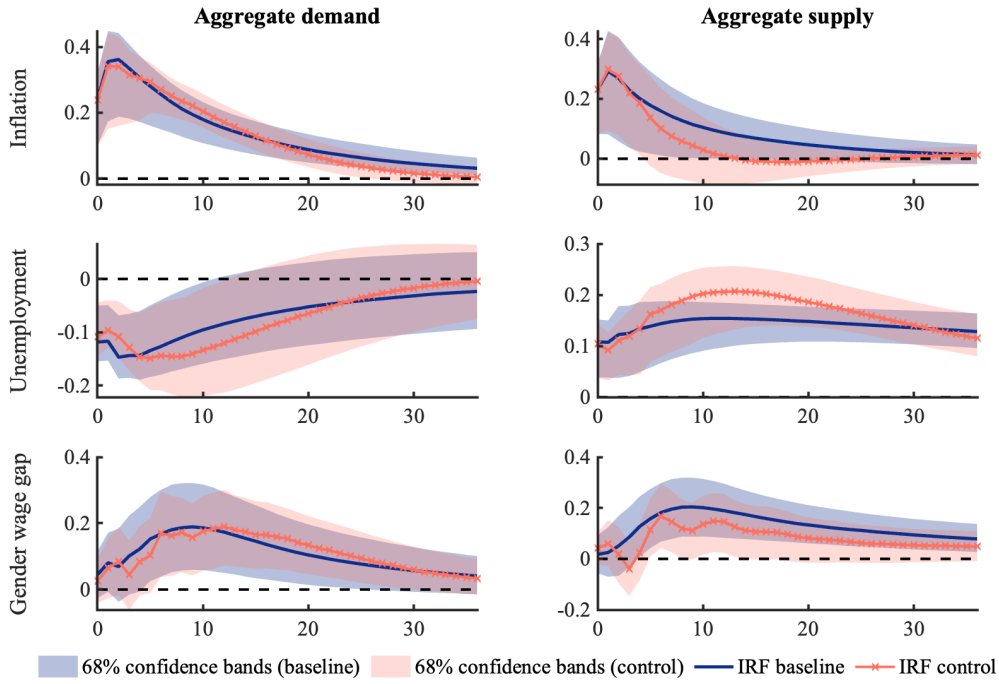


Figure B.12. Impulse responses in the SVAR with 6 lags

Notes: Adjusted GWGs computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

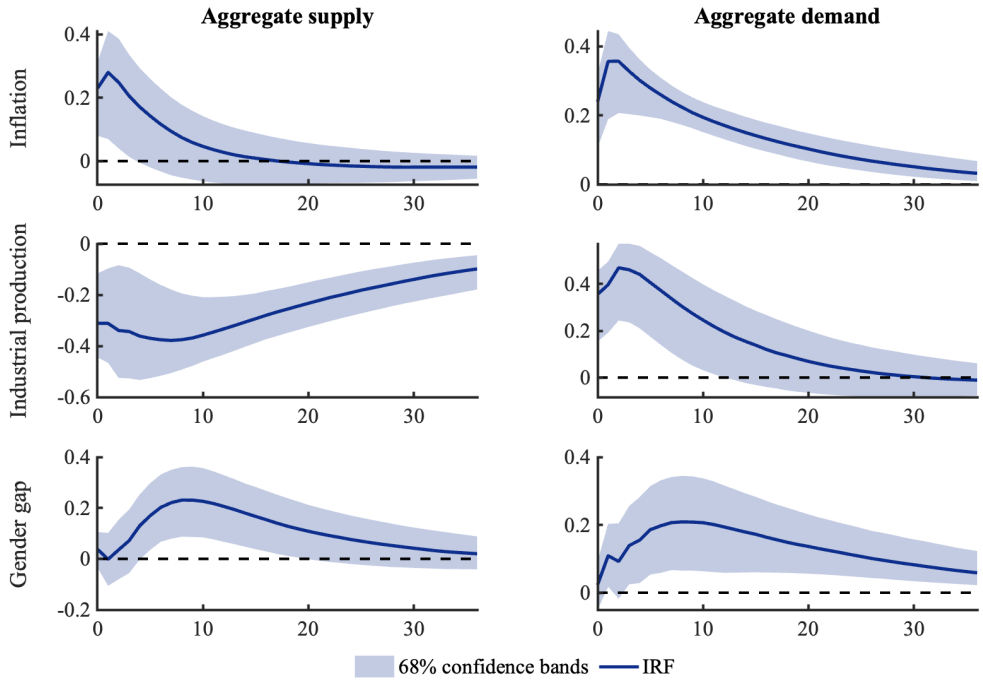


Figure B.13. Impulse responses in the SVAR with Industrial Production

Notes: Adjusted GWGs computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid blue line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Industrial production: FRED INDPRO, Percent change, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

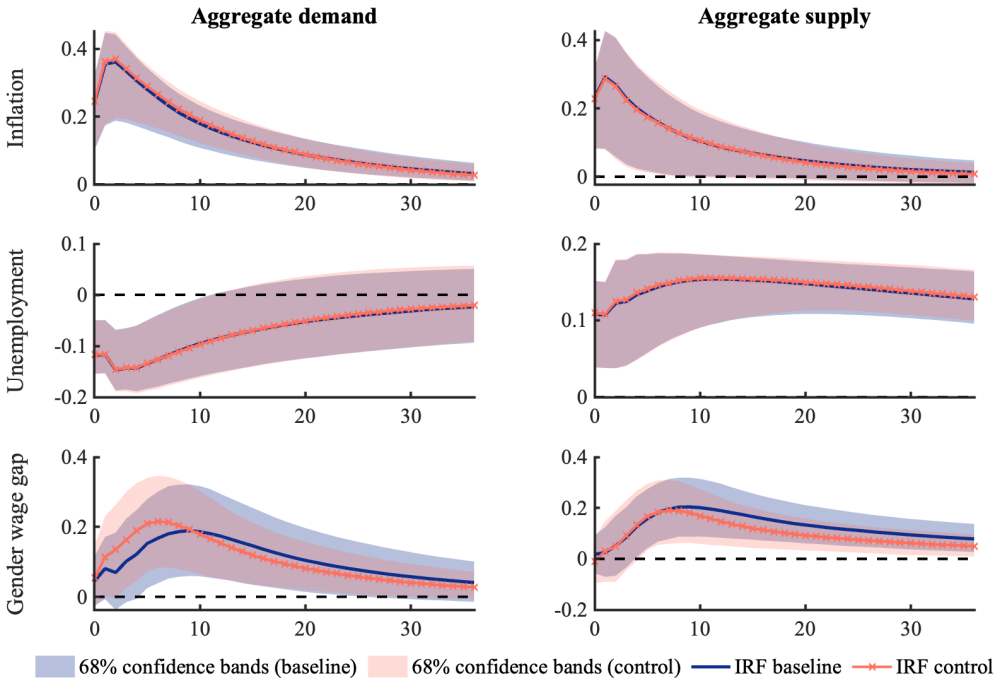


Figure B.14. Impulse responses in the SVAR, weekly earnings

Notes: Adjusted GWG in hourly wages and weekly earnings computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

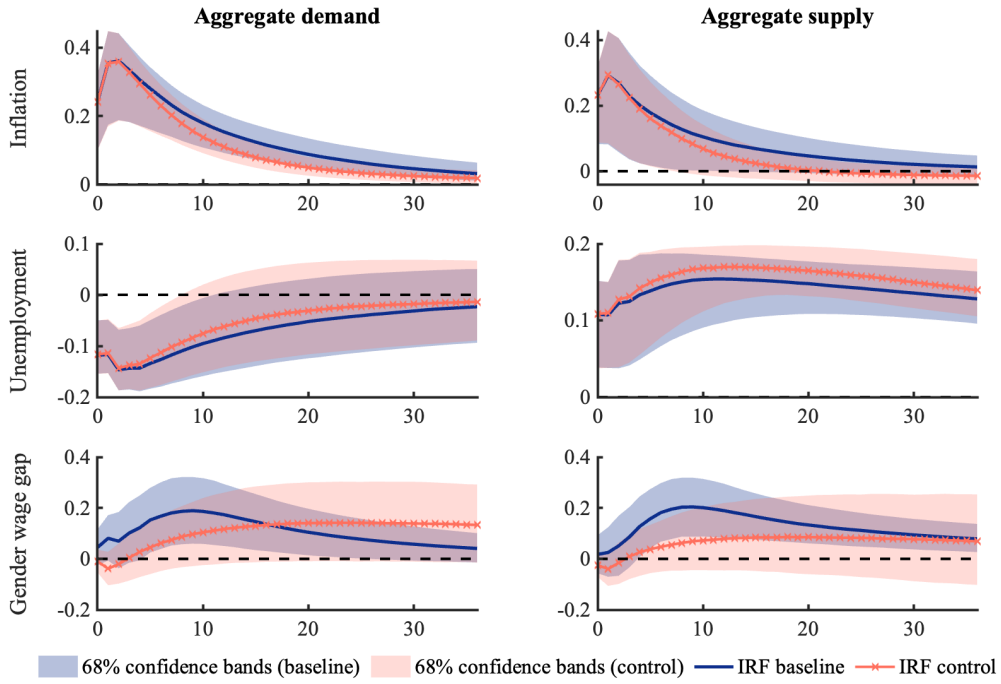


Figure B.15. Impulse responses in the SVAR with raw GWG

Notes: Raw GWGs computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted and raw GWG: CPS IPUMS, own calculations.

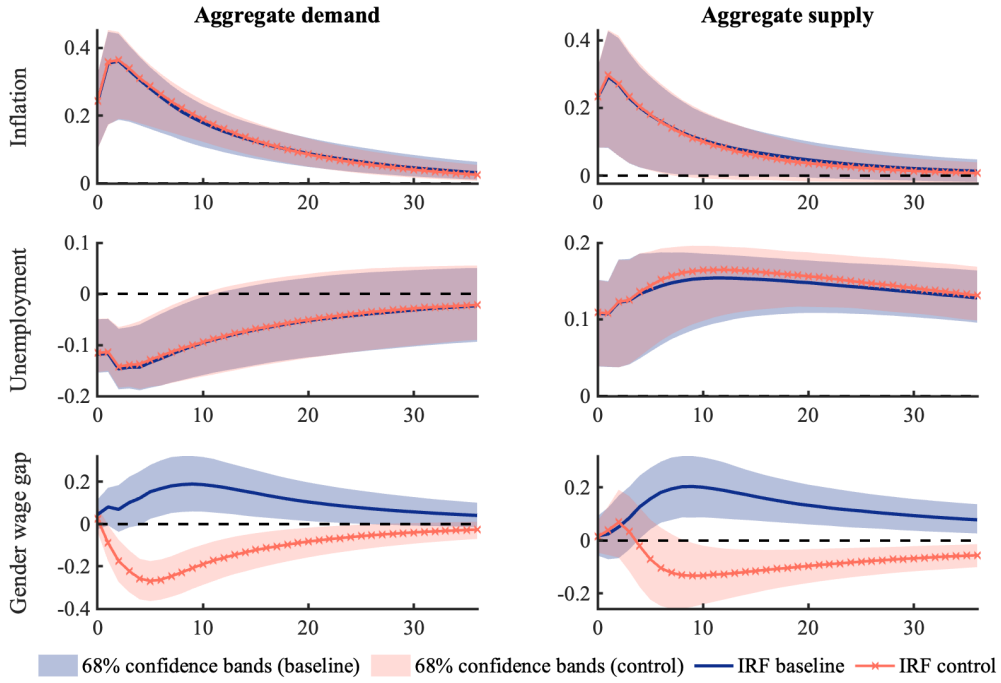


Figure B.16. Impulse responses in the SVAR with inverted GWG

Notes: Adjusted GWGs (men's wages with female characteristics as in Blau & Kahn (2017)) computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

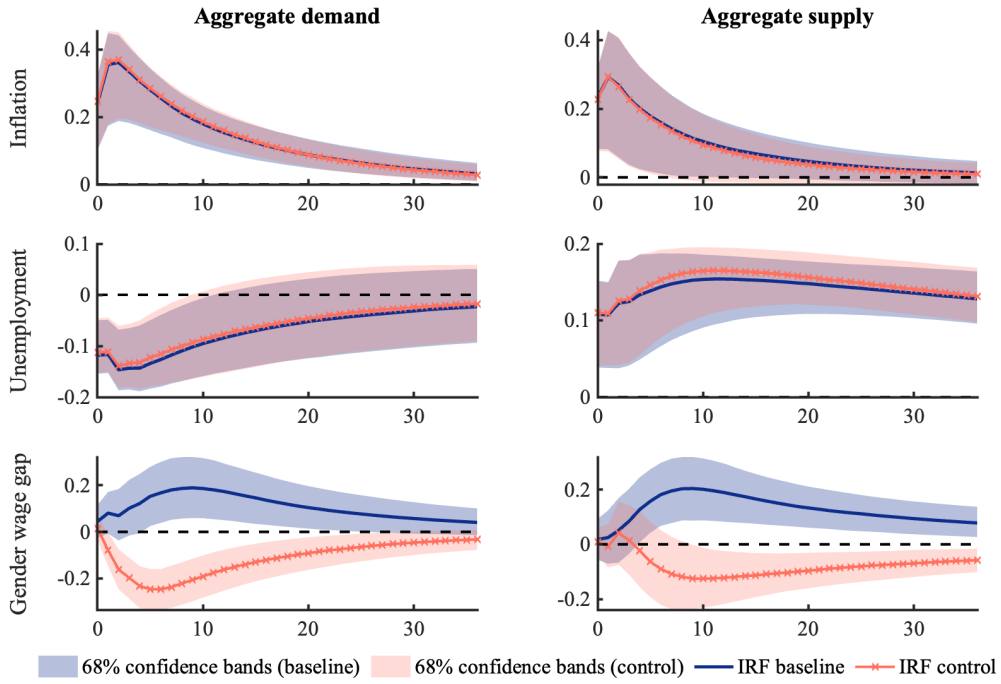


Figure B.17. Impulse responses in the SVAR using Median

Notes: Adjusted GWGs (median) computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

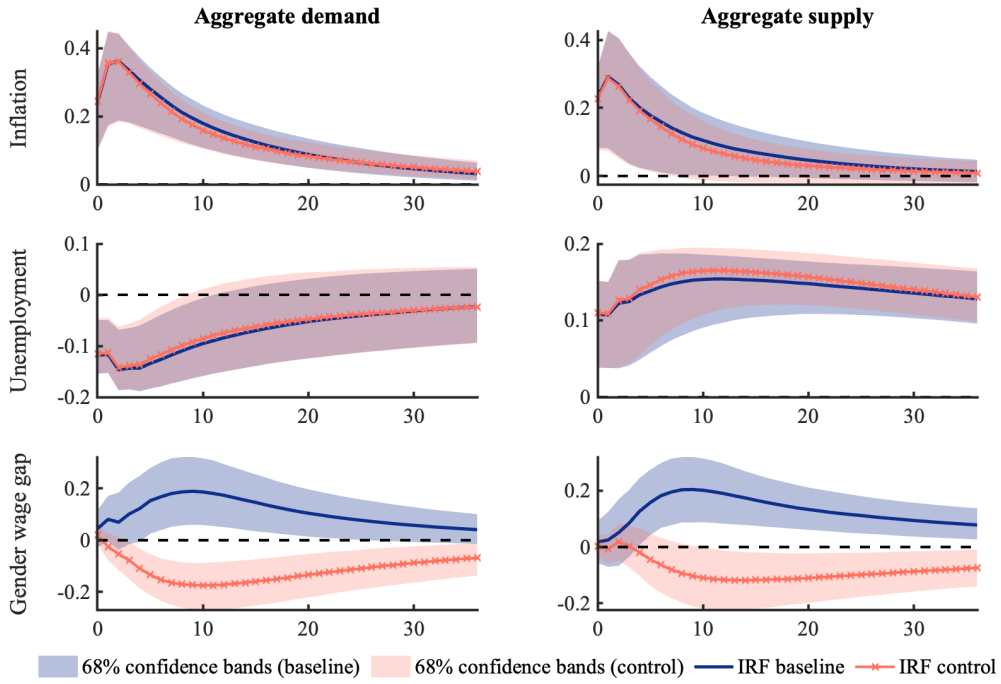


Figure B.18. Impulse responses in the SVAR with Alternative GWG

Notes: Adjusted GWGs as in Penner et al. (2022) computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

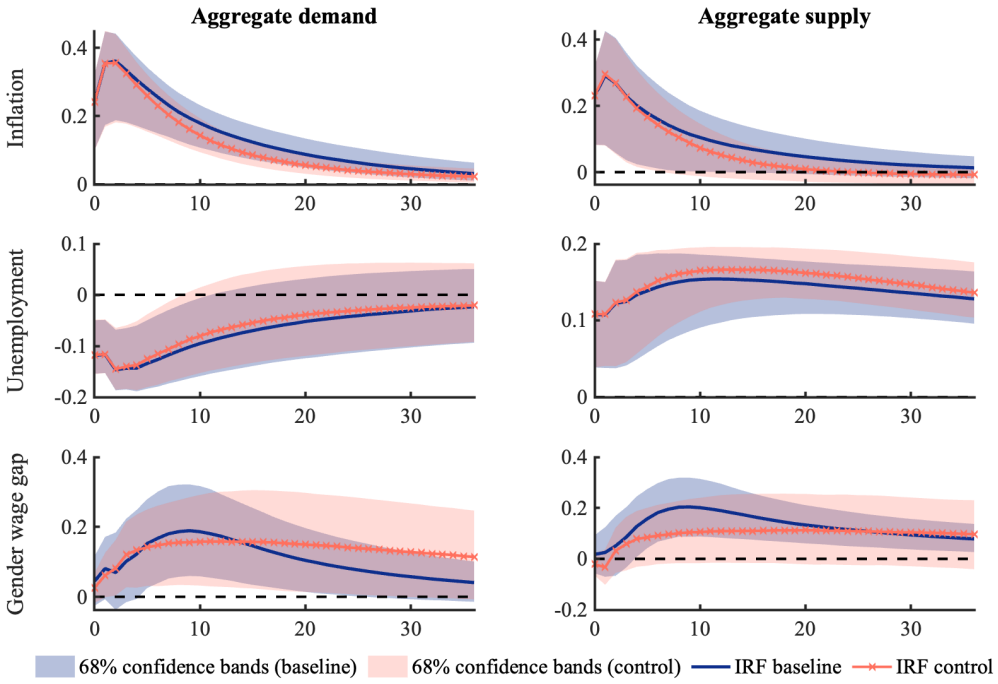


Figure B.19. Impulse responses in the SVAR, workers below 30

Notes: Adjusted GWGs of employees below 30 years computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

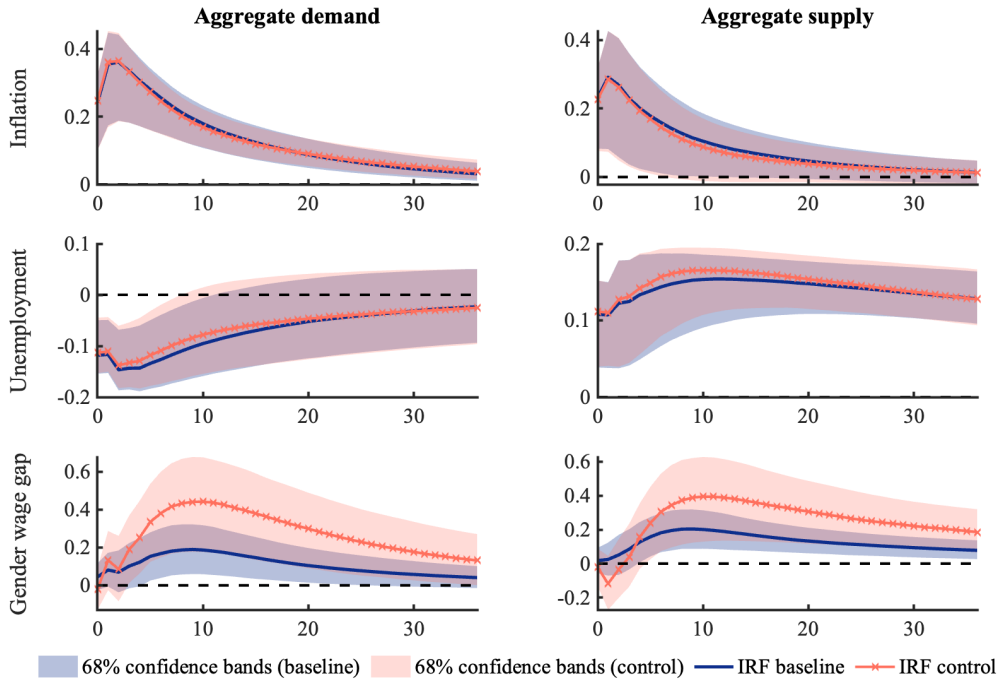


Figure B.20. Impulse responses in the SVAR, workers above 30

Notes: Adjusted GWGs of employees above 30 years computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

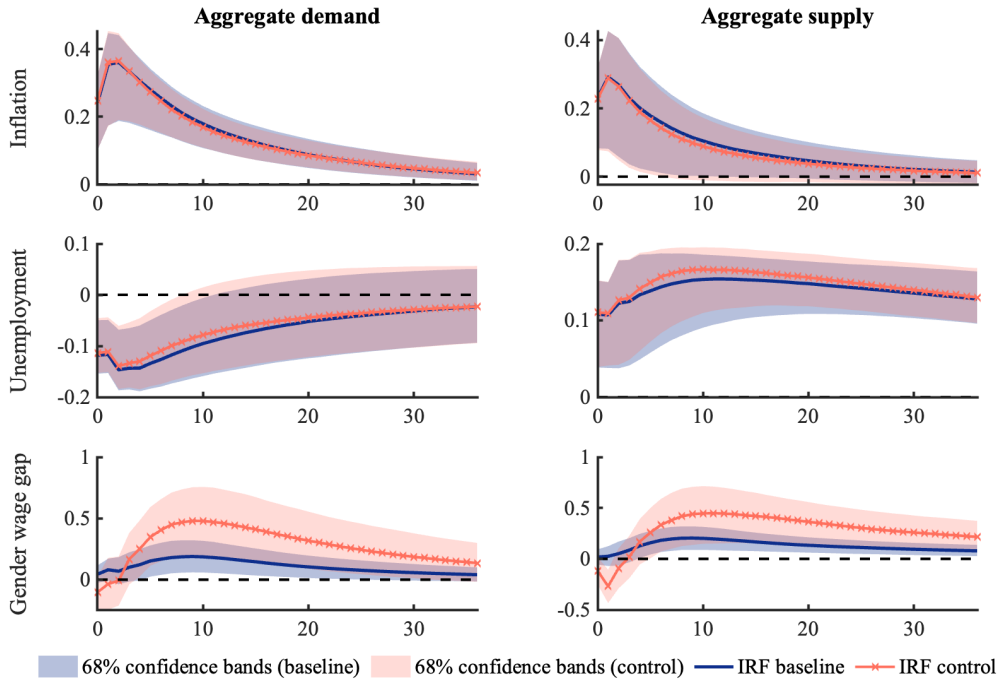


Figure B.21. Impulse responses in the SVAR, workers above 40

Notes: Adjusted GWGs of employees above 40 years computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

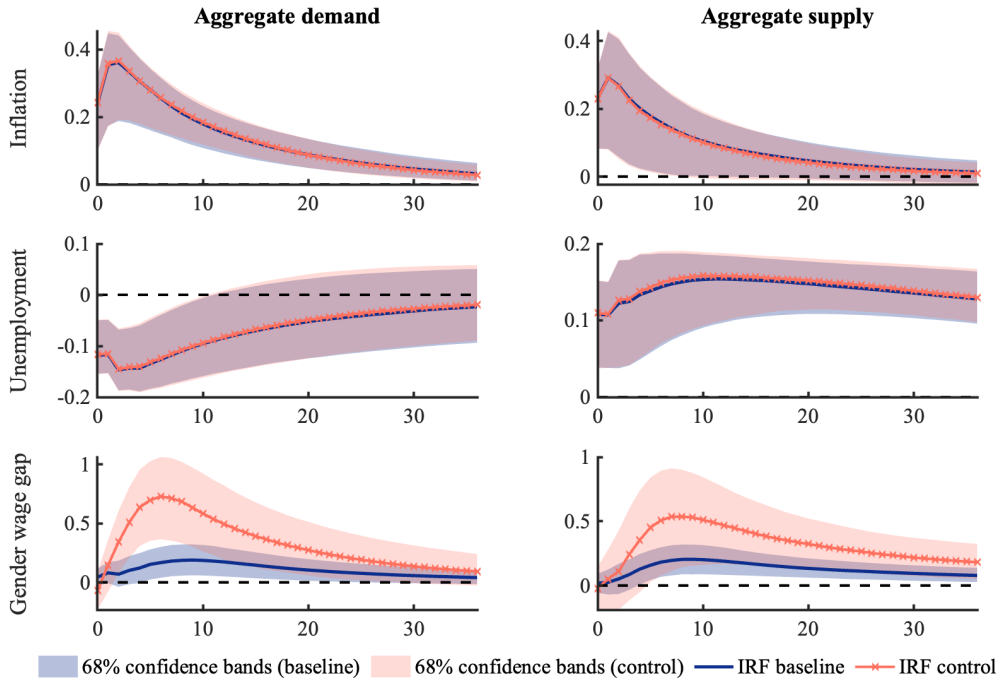


Figure B.22. Impulse responses in the SVAR, workers above 50

Notes: Adjusted GWGs of employees above 50 years computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

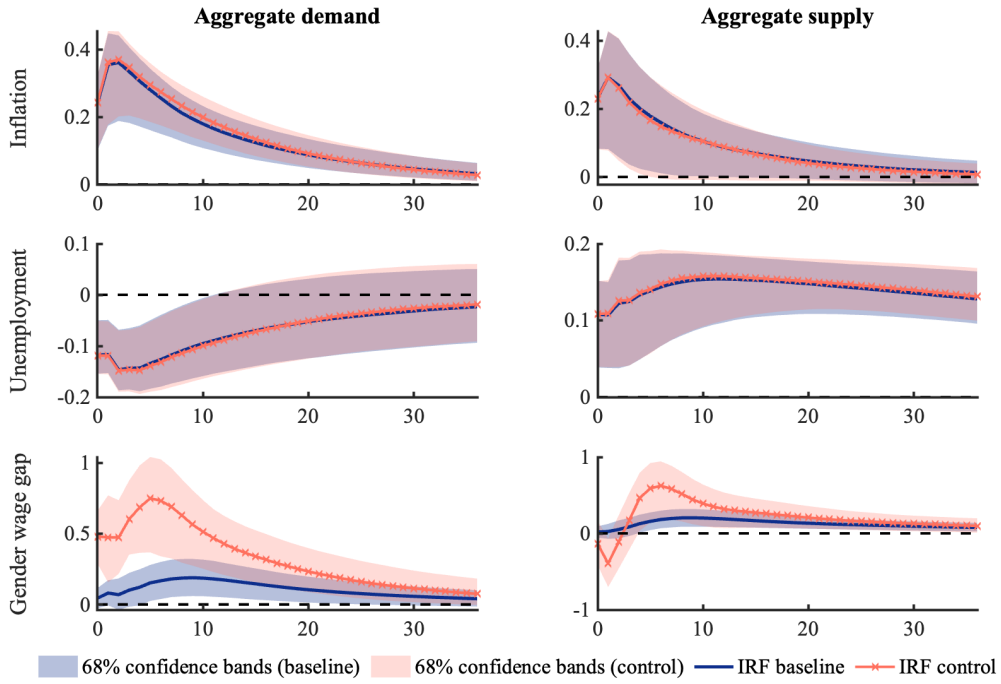


Figure B.23. Impulse responses in the SVAR, workers with children below 5 years old

Notes: Adjusted GWGs of employees with children below 5 years computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

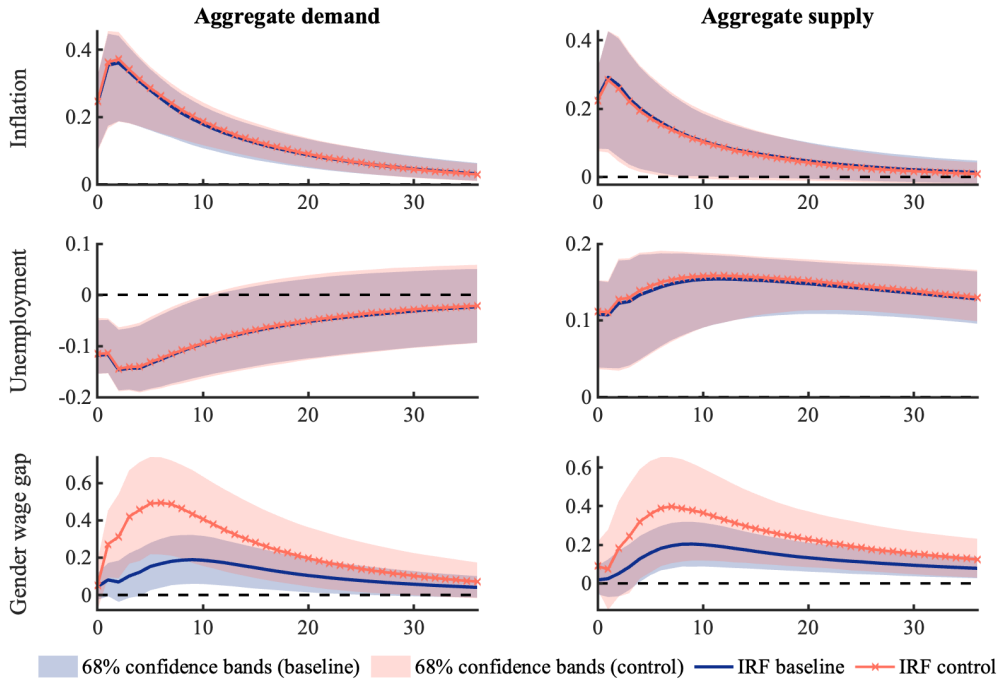


Figure B.24. Impulse responses in the SVAR, married workers

Notes: Adjusted GWGs of married employees computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

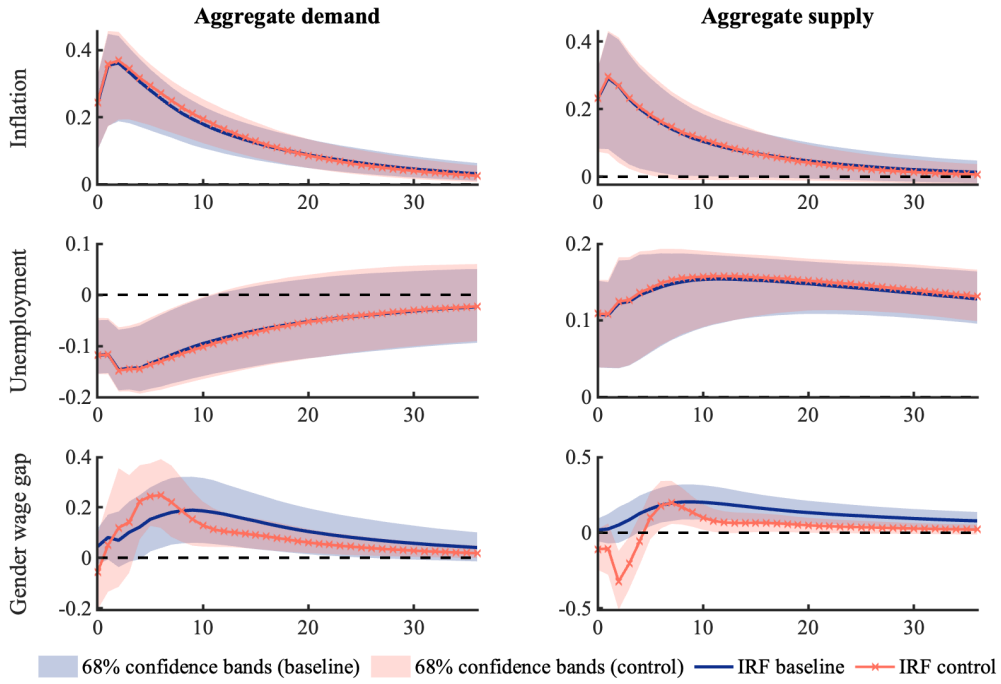


Figure B.25. Impulse responses in the SVAR, single workers

Notes: Adjusted GWGs of single employees computed using monthly data from January 1982 - February 2020, 3-month trailing moving average. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

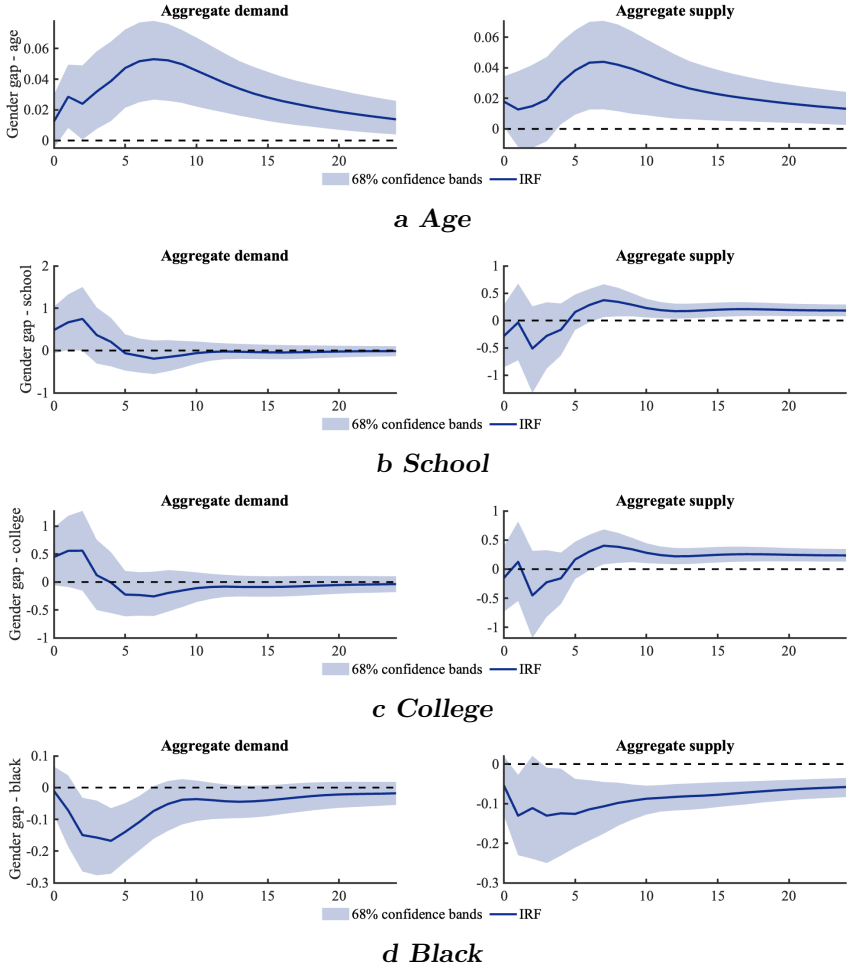
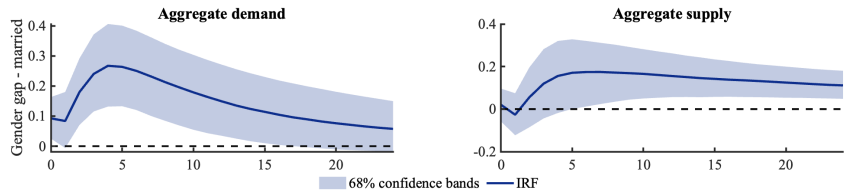


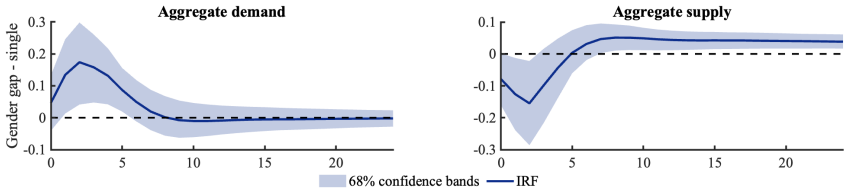
Figure B.26. Impulse responsesof the coefficients of the KOB decomposition in the SVAR

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.

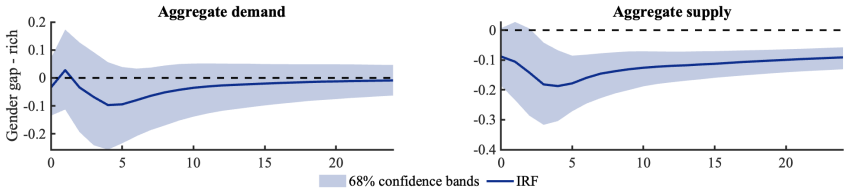
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.



a Married



b Single



c Household income

Figure B.27. Impulse responses of the coefficients of the KOB decomposition in the SVAR

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.

Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

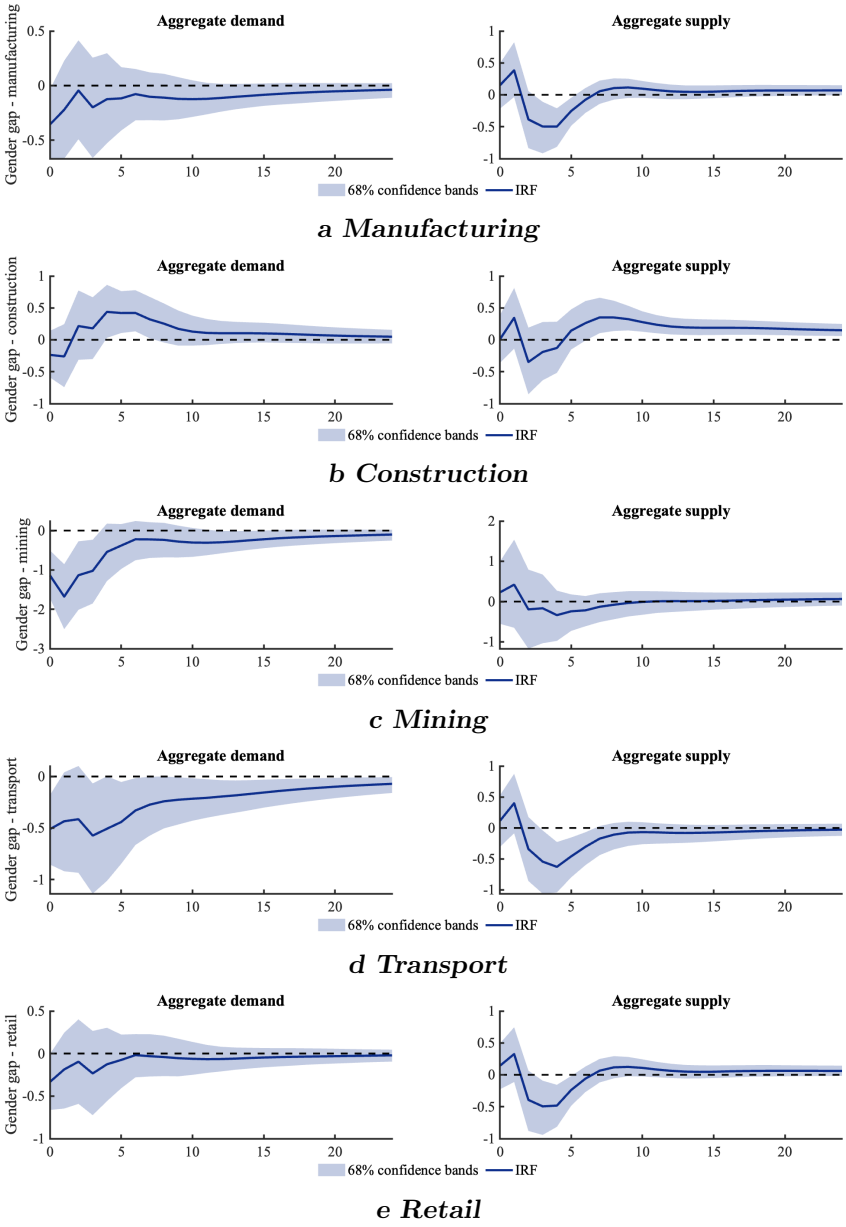


Figure B.28. Impulse responses of the coefficients of the KOB decomposition in the SVAR

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.

Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

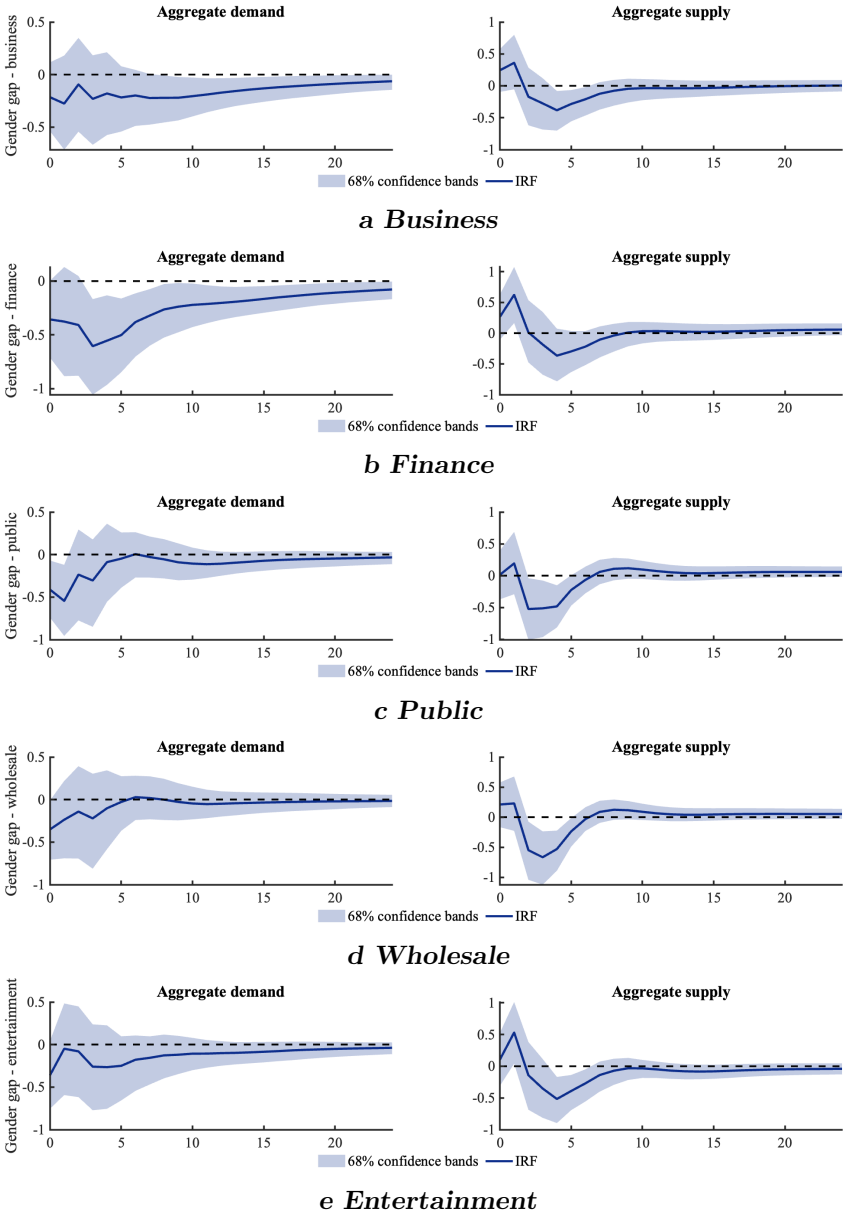


Figure B.29. Impulse responses of the coefficients of the KOB decomposition in the SVAR

Notes: Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid line) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.

Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Adjusted GWG: CPS IPUMS, own calculations.

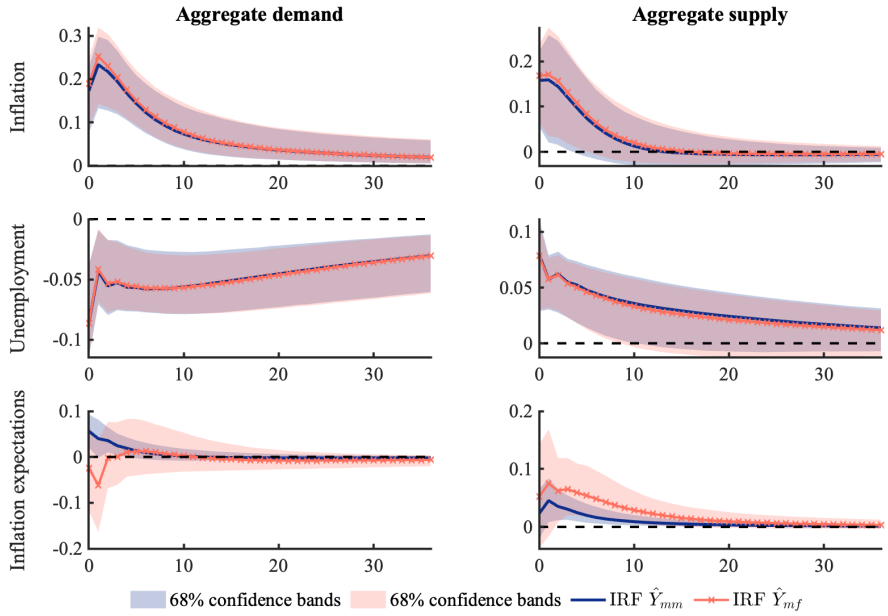


Figure B.30. Impulse responses of inflation expectations in the SVAR

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

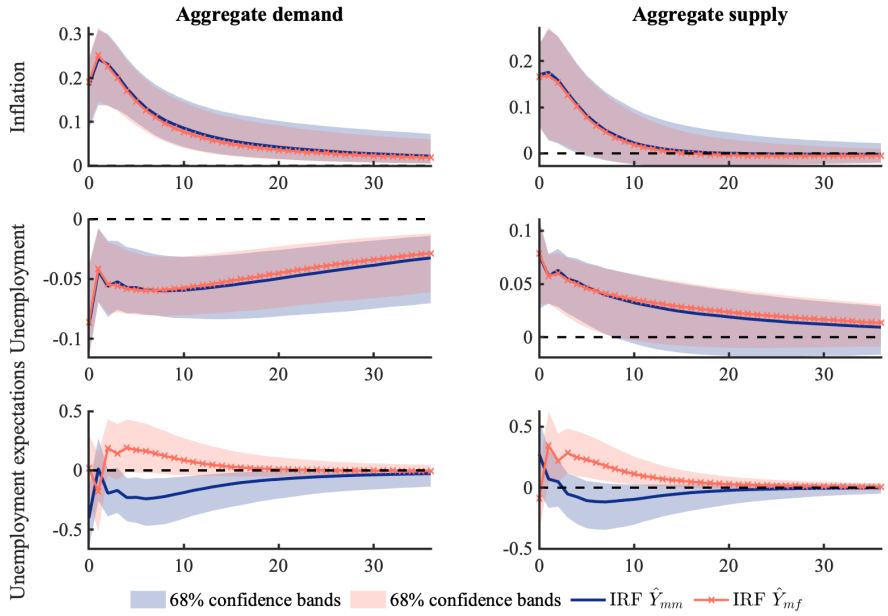


Figure B.31. Impulse responses of unemployment expectations in the SVAR

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

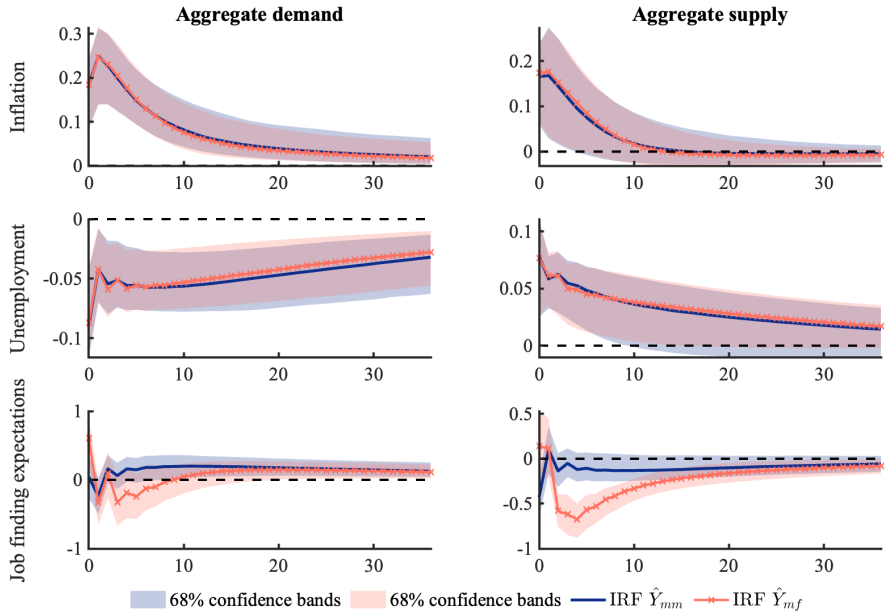


Figure B.32. Impulse responses of job-finding expectations in the SVAR

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

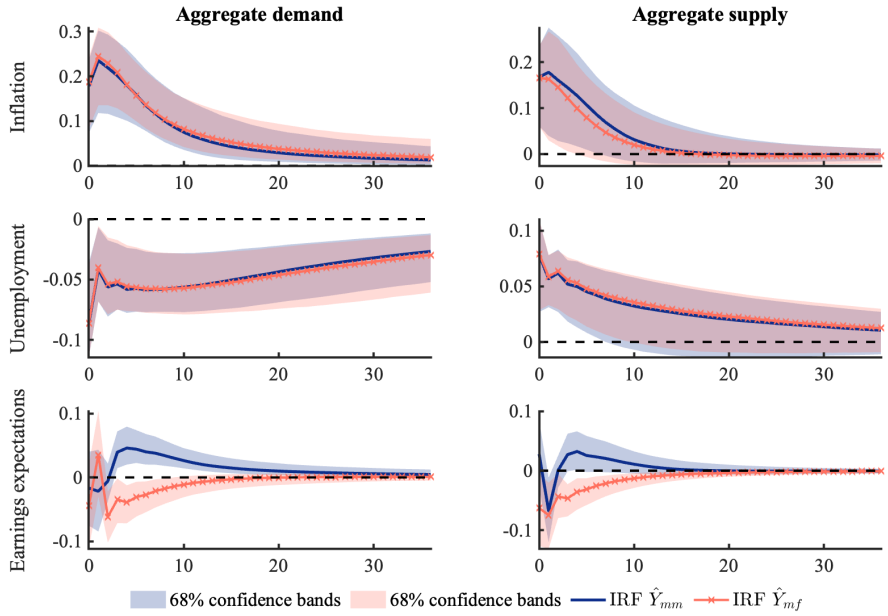


Figure B.33. Impulse responses of earnings expectations in the SVAR

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

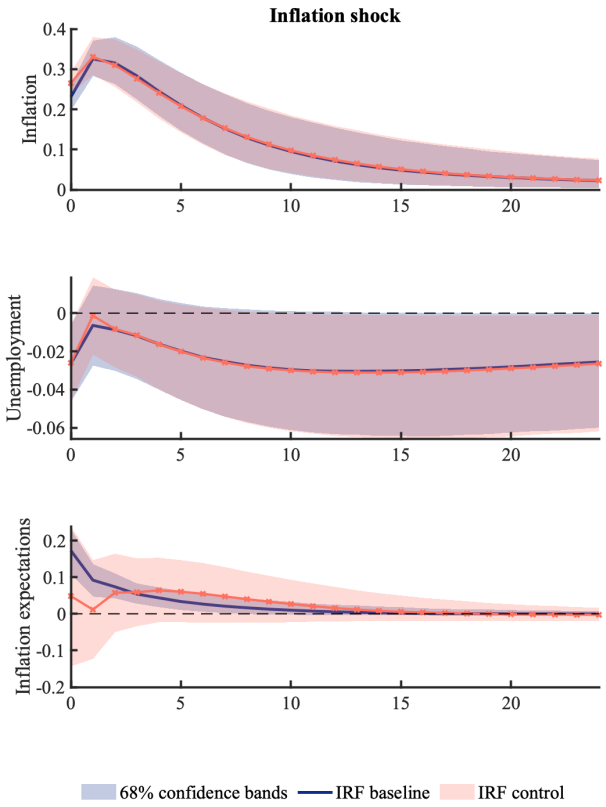


Figure B.34. Impulse responses of inflation expectations to inflation shocks

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

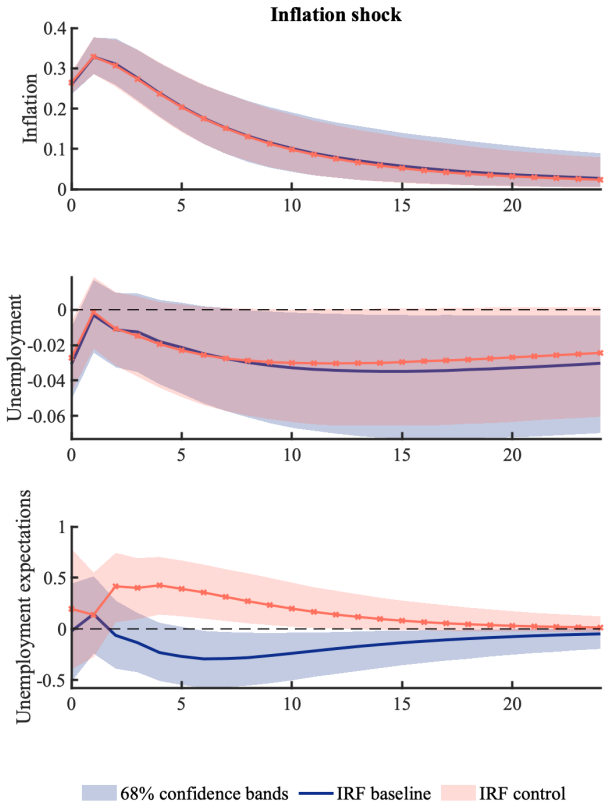


Figure B.35. Impulse responses of unemployment expectations to inflation shocks

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

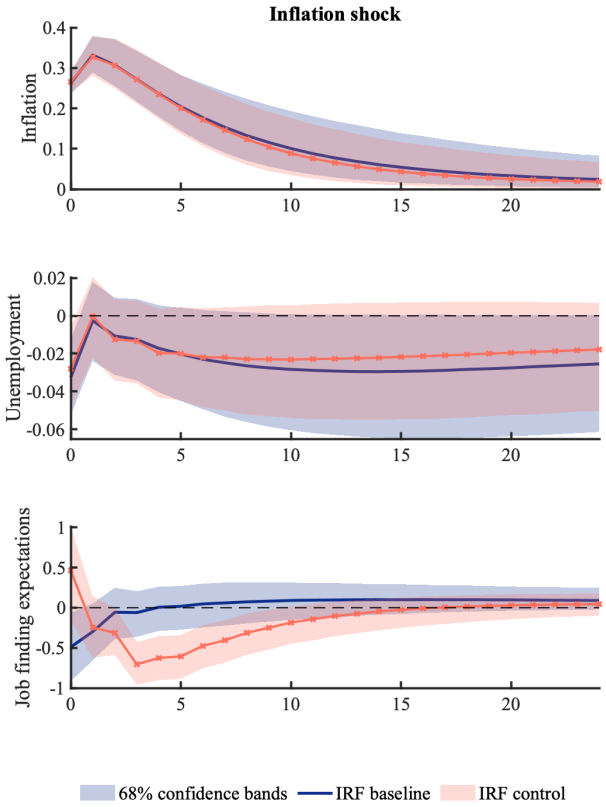


Figure B.36. Impulse responses of job-finding expectations to inflation shocks

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

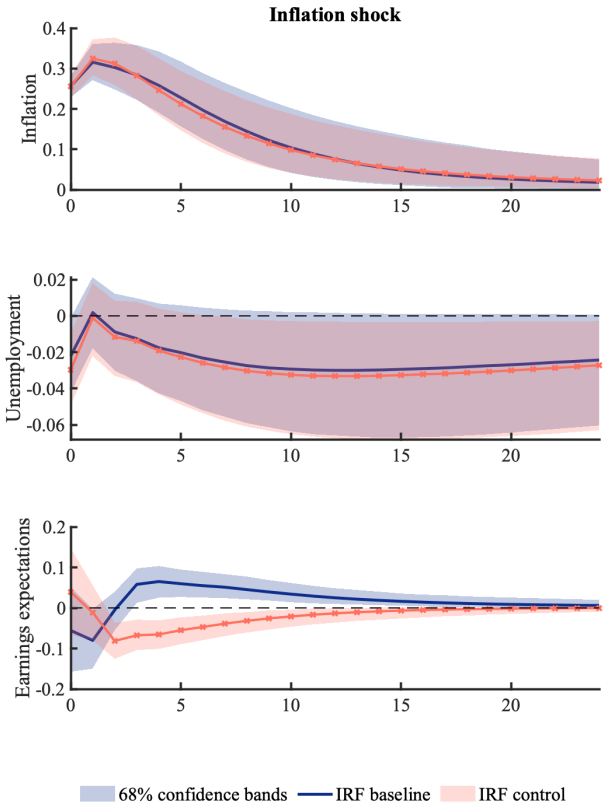
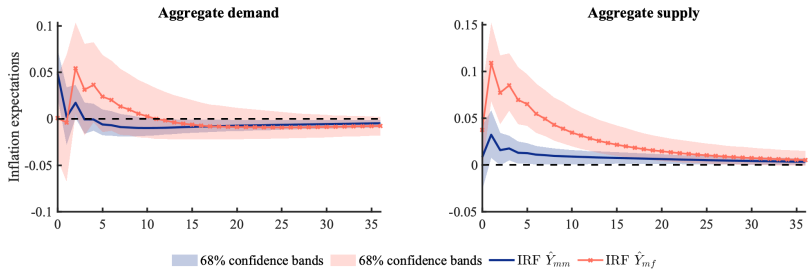
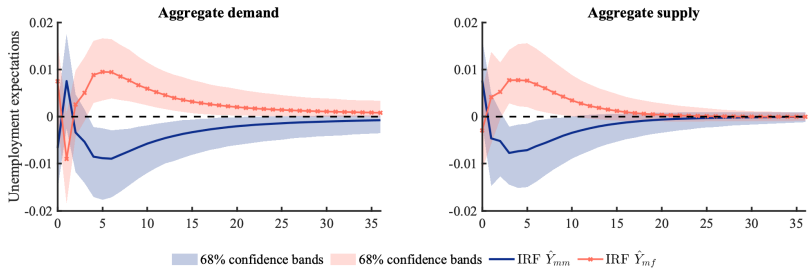


Figure B.37. Impulse responses of earnings expectations to inflation shocks

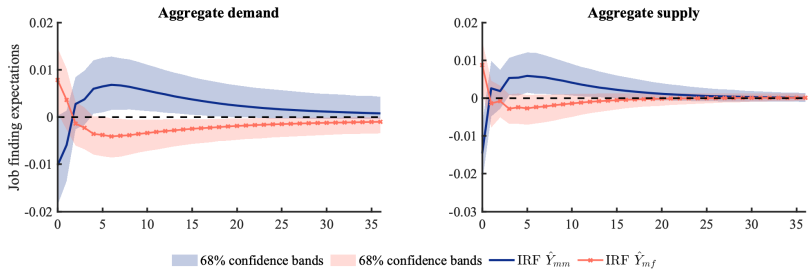
Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.



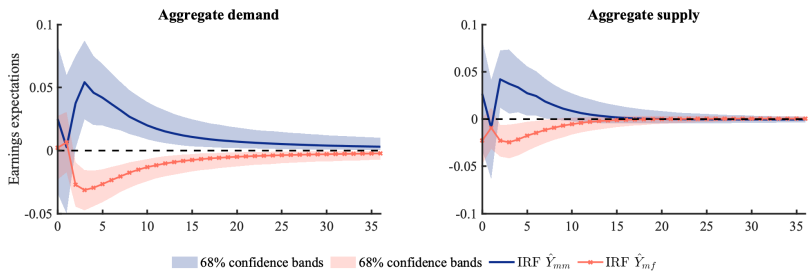
a Inflation (12 months)



b Unemployment (12 months)



c Job Finding (3 months)



d Earnings Growth (12 months)

Figure B.38. Impulse responses of expectations in the SVAR using nearest-neighbor matching

Notes: Women's (orange crossed line) and men's (blue solid line) expectations computed using monthly data from August 2013-February 2020. Posterior distributions of impulse responses to estimated demand and supply shocks of one standard deviation. Median (solid and crossed lines) and 68% probability density intervals (shaded areas) based on 10,000 draws. The median and the percentiles are defined at each point in time.
Sources: Inflation: BLS CPI-U, 12-Month Percent Change; Unemployment: FRED UNRATE, Percent, Seasonally Adjusted; Expectations: NYFED SCE, own calculations.

B.2 SCE Supplementary Material

Q8v2

The next few questions are about inflation. Over the next 12 months, do you think that there will be inflation or deflation? (Note: deflation is the opposite of inflation)

- Inflation
- Deflation (the opposite of inflation)

Q8v2part2

What do you expect the rate of [inflation (if Q8v2=inflation)/deflation (if Q8v2=deflation)] to be over the next 12 months? Please give your best guess.
Over the next 12 months, I expect the rate of [inflation/deflation] to be __ %

Q22new

Suppose you were to lose your ["main" if more than one] job this month. What do you think is the percent chance that within the following 3 months, you will find a job that you will accept, considering the pay and type of work?
Ruler & box

Q23v2

Please think ahead to 12 months from now. Suppose that you are working in the exact same ["main" if more than one] job at the same place you currently work, and working the exact same number of hours. What do you expect to have happened to your earnings on this job, before taxes and deductions?
Twelve months from now, I expect my earnings to have...

- increase by 0% or more
- decrease by 0% or more

Q23v2part2

By about what percent do you expect your earnings to have [increased/decreased as in Q23]? Please give your best guess. Twelve months from now, I expect my earnings to have [increased/decreased] by __ %

B.3 Model Supplementary Material

Table B.2. Parameter Values

Parameter	Value	Description
α	0.333	exponent of labor in the production function
ζ	0.500	relative product of women in production
σ	4.300	elasticity of substitution between men and women in production
δ_m	0.233	separation rate men
δ_f	0.233	separation rate women
γ	1.000	coefficient of hiring cost function
ψ_m	0.045	coefficient of unemployment in the labor market effort men
ψ_m	0.050	coefficient of unemployment in the labor market effort women
β	0.990	discount rate
ρ_i	0.950	autocorrelation monetary policy
ρ_u	0.900	autocorrelation cost push shock
ρ_z	0.900	autocorrelation demand shock
φ_m	2.000	inverse Frisch elasticity of labor effort men
φ_f	2.000	inverse Frisch elasticity of labor effort women
ξ_m	0.600	bargaining power of firms over male workers
ξ_f	0.600	bargaining power of firms over female workers
θ_m^w	0.750	wage rigidities men
θ_f^w	0.750	wage rigidities women
θ_p	0.750	price rigidities
ϕ_π	2.000	Taylor rule coeff of inflation
ϕ_{w_m}	0.005	Taylor rule coeff of male wage inflation
ϕ_{w_f}	0.005	Taylor rule coeff of female wage inflation
ϕ_{u_m}	-0.013	Taylor rule coeff of male unemployment
ϕ_{u_f}	-0.013	Taylor rule coeff of female unemployment
ϕ_y	0.000	Taylor rule coeff of inflation
Γ_m	0.013	proportionality coefficient hiring cost men
Γ_f	0.013	proportionality coefficient hiring cost women
χ_m	1.220	labor disutility parameter men

Table B.2 – Continued

Parameter	Value	Description
χ_f	1.095	labor disutility parameter women
d_f	0.100	discrimination against women
$\bar{\pi}^p$	0.000	steady state price inflation
$\bar{\pi}^w$	0.000	steady state wage inflation
$\bar{U}_m$	0.060	steady state unemployment men
$\bar{U}_f$	0.060	steady state unemployment women
$\bar{N}_m$	0.600	steady state employment men
$\bar{N}_m$	0.600	steady state employment women
$\bar{Y}$	0.711	steady state output
$\bar{x}_m$	0.700	steady state job finding men
$\bar{x}_f$	0.700	steady state job finding women
h	0.000	habits in household utility
ϵ	6.000	elasticity of substitution
$\bar{i}$	0.010	steady state nominal interest rate

Shock processes

$$\log(Z_t) = \rho_z \log(Z_{t-1}) + \varepsilon_{zt} \tag{B.1}$$

$$\log(u_t) = \rho_u \log(u_{t-1}) + \varepsilon_{at} \tag{B.2}$$

Union receives signal

$$s_t = \varepsilon_{ut} + \varepsilon_{zt} \tag{B.3}$$

Union applies ambiguity loving/averse weights

$$\tilde{\mathbb{E}}_{m,t}\varepsilon^z{}_t = s_t w_m^z \tag{B.4}$$

$$\tilde{\mathbb{E}}_{f,t}\varepsilon^z{}_t = s_t w_f^z \tag{B.5}$$

$$\tilde{\mathbb{E}}_{m,t}\varepsilon_{u_t} = s_t w_m^u \tag{B.6}$$

$$\tilde{\mathbb{E}}_{f,t}\varepsilon_{u_t} = s_t w_f^u \tag{B.7}$$

Union forms beliefs about state variables

$$\log\left(\tilde{\mathbb{E}}_{m,t} Z_t\right) = \tilde{\mathbb{E}}_{m,t}{\varepsilon^z}_t + \rho_z \log\left(Z_{t-1}\right) \tag{B.8}$$

$$\log\left(\tilde{\mathbb{E}}_{f,t} Z_t\right) = \tilde{\mathbb{E}}_{f,t}{\varepsilon^z}_t + \rho_z \log\left(Z_{t-1}\right) \tag{B.9}$$

$$\log\left(\tilde{\mathbb{E}}_{m,t} u_t\right) = \tilde{\mathbb{E}}_{m,t}\varepsilon_{u_t} + \rho_u \log\left(u_{t-1}\right) \tag{B.10}$$

$$\log\left(\tilde{\mathbb{E}}_{f,t} u_t\right) = \tilde{\mathbb{E}}_{f,t}\varepsilon_{u_t} + \rho_u \log\left(u_{t-1}\right) \tag{B.11}$$

Euler equation

$$1 = \beta \frac{\frac{Z_{t+1}}{Z_t}\left(C_t - h\, C_{t-1}\right)}{C_{t+1} - C_t\, h}\left(1 + r_t\right) \tag{B.12}$$

Fisherian equation

$$1 + r_t = \frac{1 + i_t}{1 + {\pi^p}_{t+1}} \tag{B.13}$$

Price dispersion

$${v^p}_t = \left(\left(1-\theta^p\right)\left(1+\tilde{\mathbb{E}}_{m,t}{\pi^{p,*}}_t\right)^{\frac{(-\epsilon)}{1-\alpha}}\left(1+{\pi^p}_t\right)^{\frac{\epsilon}{1-\alpha}} + \theta^p\left(1+{\pi^p}_t\right)^{\frac{\epsilon}{1-\alpha}}{v^p}_{t-1}^{\frac{1}{1-\alpha}}\right)^{1-\alpha} \tag{B.14}$$

Aggregate inflation

$$\left(1 + {\pi^p}_t\right)^{1-\epsilon} = \theta^p + \left(1-\theta^p\right)\left(1+{\pi^{p,*}}_t\right)^{1-\epsilon} \tag{B.15}$$

Reset price inflation

$$\left(1+{\pi^{p,*}}_t\right)^{1+\frac{\epsilon\,\alpha}{1-\alpha}} = u_t \frac{\epsilon}{\epsilon - 1}\frac{x1_t}{x2_t}\left(1+{\pi^p}_t\right)^{1+\frac{\epsilon\,\alpha}{1-\alpha}} \tag{B.16}$$

$$x1_t = \frac{Z_t\, mc_t\, Y_t}{C_t - h\, C_{t-1}} + \beta\, \theta^p\, \left(1 + {\pi^p}_{t+1}\right)^{\epsilon + \frac{\epsilon\, \alpha}{1-\alpha}}\, x1_{t+1} \tag{B.17}$$

$$x2_t = \frac{Z_t\, Y_t}{C_t - h\, C_{t-1}} + \beta\, \theta^p\, \left(1 + {\pi^p}_{t+1}\right)^{\epsilon - 1}\, x2_{t+1} \tag{B.18}$$

Goods market clearing

$$Y_t = C_t + G_{mt}\, H_{mt} + G_{f_t}\, H_{f_t} \tag{B.19}$$

Labor index

$$N_t = \left(\zeta_f\, {N_{f_t}}^{\frac{\sigma-1}{\sigma}} + \zeta_m\, {N_{m_t}}^{\frac{\sigma-1}{\sigma}}\right)^{\frac{\sigma}{\sigma-1}} \tag{B.20}$$

Aggregate production

$$Y_t = \frac{A_t\, N_t^{1-\alpha}}{{v^p}_t} \tag{B.21}$$

Aggregate hiring and employment

$$N_{mt} = H_{mt} + (1 - \delta_m)\, N_{mt-1} \tag{B.22}$$

$$N_{f_t} = H_{f_t} + (1 - \delta_f)\, N_{f_{t-1}} \tag{B.23}$$

Hiring costs

$$G_{mt} = \Gamma_m\, {x_m}_t^{\gamma} \tag{B.24}$$

$$G_{f_t} = \Gamma_f\, {x_f}_t^{\gamma} \tag{B.25}$$

Job finding rate

$$x_{mt} = \frac{H_{mt}}{U_{mt}^0} \tag{B.26}$$

$$x_{f_t} = \frac{H_{f_t}}{U_{f_t}^0} \tag{B.27}$$

Effective market effort

$$L_{mt} = N_{mt} + \psi_m \, U_{mt} \tag{B.28}$$

$$L_{f_t} = N_{f_t} + \psi_m \, U_{f_t} \tag{B.29}$$

Unemployment

$$U_{mt} = U_{mt}^0 \, (1 - x_{mt}) \tag{B.30}$$

$$U_{f_t} = U_{f_t}^0 \left(1 - x_{f_t}\right) \tag{B.31}$$

Marginal revenue product

$$MRPN_{mt} = (1 - \alpha) \, (1 - \zeta) \, A_t \, mc_t \, N_{mt}^{\frac{(-1)}{\sigma}} \, N_t^{\frac{1}{\sigma - 1} - \alpha} \tag{B.32}$$

$$MRPN_{f_t} = N_t^{\frac{1}{\sigma - 1} - \alpha} \, (1 - \alpha) \, \zeta \, A_t \, mc_t \, N_{f_t}^{\frac{(-1)}{\sigma}} \, (1 - d_f) \tag{B.33}$$

Optimal hiring condition

$$MRPN_{mt} = \omega_{mt} + B_{mt} \tag{B.34}$$

$$MRPN_{f_t} = \omega_{f_t} + B_{f_t} \tag{B.35}$$

$$B_{mt} = G_{mt} - \frac{\frac{Z_{t+1}}{Z_t} \, (C_t - h \, C_{t-1})}{C_{t+1} - C_t \, h} \, \beta \, (1 - \delta_m) \, G_{mt+1} \tag{B.36}$$

$$B_{f_t} = G_{f_t} - \frac{\frac{Z_{t+1}}{Z_t} \, (C_t - h \, C_{t-1})}{C_{t+1} - C_t \, h} \, \beta \, (1 - \delta_f) \, G_{f_{t+1}} \tag{B.37}$$

Optimal participation condition

$$\frac{(C_t - h \, C_{t-1}) \, \psi_m \, \chi_m \, L_{mt}^{\varphi_m}}{Z_t} = \frac{x_{mt}}{1 - x_{mt}} \left(G_{mt} \, \frac{1 - \xi_m}{\xi_m} - \pi_{mt}^w \, \frac{\theta_m^w}{1 - \theta_m^w} \, \omega_{mt-1} \, Q_{mt} \right) \tag{B.38}$$

$$\frac{(C_t - h\,C_{t-1})\;\psi_m\,\chi_f\,{L_f}_t^{\varphi_f}}{Z_t} = \frac{x_{f_t}}{1-x_{f_t}}\left(G_{f_t}\,\frac{1-\xi_f}{\xi_f} - \pi^w_{f\,t}\,\frac{\theta^w_f}{1-\theta^w_f}\,\omega_{f_{t-1}}\,Q_{f_t}\right) \tag{B.39}$$

$$Q_{mt} = 1 + \frac{\frac{\frac{Z_{t+1}}{Z_t}\,(C_t - h\,C_{t-1})}{C_{t+1} - C_t\,h}\,\beta\;(1-\delta_m)\;\theta^w_m}{1+\pi^p{}_t}\,\tilde{\mathbb{E}}_{m,t}Q_{m_{t+1}} \tag{B.40}$$

$$Q_{f_t} = 1 + \frac{\frac{\frac{Z_{t+1}}{Z_t}\,(C_t - h\,C_{t-1})}{C_{t+1} - C_t\,h}\,\beta\;(1-\delta_f)\;\theta^w_f}{1+\pi^p{}_t}\,\tilde{\mathbb{E}}_{f,t}Q_{f_{t+1}} \tag{B.41}$$

Evolution of real wage

$$\omega_{mt} = \frac{\omega_{mt-1}\;(1+\pi^w_{mt})}{1+\pi^p{}_t} \tag{B.42}$$

$$\omega_{f_t} = \frac{\omega_{f_{t-1}}\left(1+\pi^w_{f\,t}\right)}{1+\pi^p{}_t} \tag{B.43}$$

Target (flex) wage

$$\omega^{tar}_{m\;t} = \frac{(C_t - h\,C_{t-1})\;{L_{mt}}^{\varphi_m}\,\chi_m\,\xi_m}{Z_t} + MRPN_{mt}\;(1-\xi_m) \tag{B.44}$$

$$\omega^{tar}_{f\;t} = \frac{(C_t - h\,C_{t-1})\;{L_f}_t^{\varphi_f}\,\chi_f\,\xi_f}{Z_t} + MRPN_{f_t}\;(1-\xi_f) \tag{B.45}$$

Reset wage

$$\omega^*_{mt} = \frac{h1_{mt}}{h2_{mt}} \tag{B.46}$$

$$\omega^*_{f_t} = \frac{h1_{f_t}}{h2_{f_t}} \tag{B.47}$$

$$h1_{mt} = \frac{Z_t\,\omega^{tar}_{m\;t}}{C_t - h\,C_{t-1}} + (1-\delta_m)\;\theta^w_m\,\beta\;\Big\{\xi_m\left(1+\tilde{\mathbb{E}}_{m,t}{\pi^p}_{t+1}\right)\;\tilde{\mathbb{E}}_{m,t}h1_{m_{t+1}} + (1-\xi_m)\,(1+{\pi^p}_{t+1})\;h1_{mt+1}\Big\} \tag{B.48}$$

$$h2_{mt} = \frac{Z_t}{C_t - h\,C_{t-1}} + (1-\delta_m)\;\theta_m^w\,\beta\;\Big\{\xi_m\left(1+\tilde{\mathbb{E}}_{m,t}{\pi^p}_{t+1}\right)\;\tilde{\mathbb{E}}_{m,t}h2_{mt+1} + (1-\xi_m)\,(1+{\pi^p}_{t+1})\;h2_{mt+1}\Big\} \tag{B.49}$$

$$h1_{f_t} = \frac{Z_t\,{\omega_f^{tar}}_t}{C_t - h\,C_{t-1}} + (1-\delta_f)\;\theta_f^w\,\beta\;\Big\{\xi_f\left(1+\tilde{\mathbb{E}}_{f,t}{\pi^p}_{t+1}\right)\;\tilde{\mathbb{E}}_{f,t}h1_{f_{t+1}} + (1-\xi_f)\,(1+{\pi^p}_{t+1})\;h1_{f_{t+1}}\Big\} \tag{B.50}$$

$$h2_{f_t} = \frac{Z_t}{C_t - h\,C_{t-1}} + (1-\delta_f)\;\theta_f^w\,\beta\;\Big\{\xi_f\left(1+\tilde{\mathbb{E}}_{f,t}{\pi^p}_{t+1}\right)\;\tilde{\mathbb{E}}_{f,t}h2_{f_{t+1}} + (1-\xi_f)\,(1+{\pi^p}_{t+1})\;h2_{f_{t+1}}\Big\} \tag{B.51}$$

Real wage inflation

$$\omega_{mt} = \theta_m^w\;\frac{\omega_{mt-1}}{1+{\pi^p}_t} + (1-\theta_m^w)\;\omega_{mt}^* \tag{B.52}$$

$$\omega_{f_t} = \theta_f^w\;\frac{\omega_{f_{t-1}}}{1+{\pi^p}_t} + \left(1-\theta_f^w\right)\;\omega_{f_t}^* \tag{B.53}$$

Interest rate rule

$$\frac{1+i_t}{1+\bar{i}} = \nu_t\left(\frac{1+i_{t-1}}{1+\bar{i}}\right)^{\rho_i}\left(\left(\frac{1+{\pi^p}_t}{1+\bar{\pi}^p}\right)^{\phi_\pi}\left(\frac{1+\pi_{mt}^w}{1+\bar{\pi}^w}\right)^{\phi_{w,m}}\left(\frac{1+\pi_{f\,t}^w}{1+\bar{\pi}^w}\right)^{\phi_{w,f}}\left(\frac{U_{mt}}{\bar{U}_m}\right)^{\phi_{u,m}}\left(\frac{U_{ft}}{\bar{U}_f}\right)^{\phi_{u,f}}\left(\frac{Y_t}{\bar{Y}}\right)^{ph} \tag{B.54}$$

Definition of GWG

$$GWG_t = \frac{\omega_{mt}}{\omega_{f_t}} \tag{B.55}$$

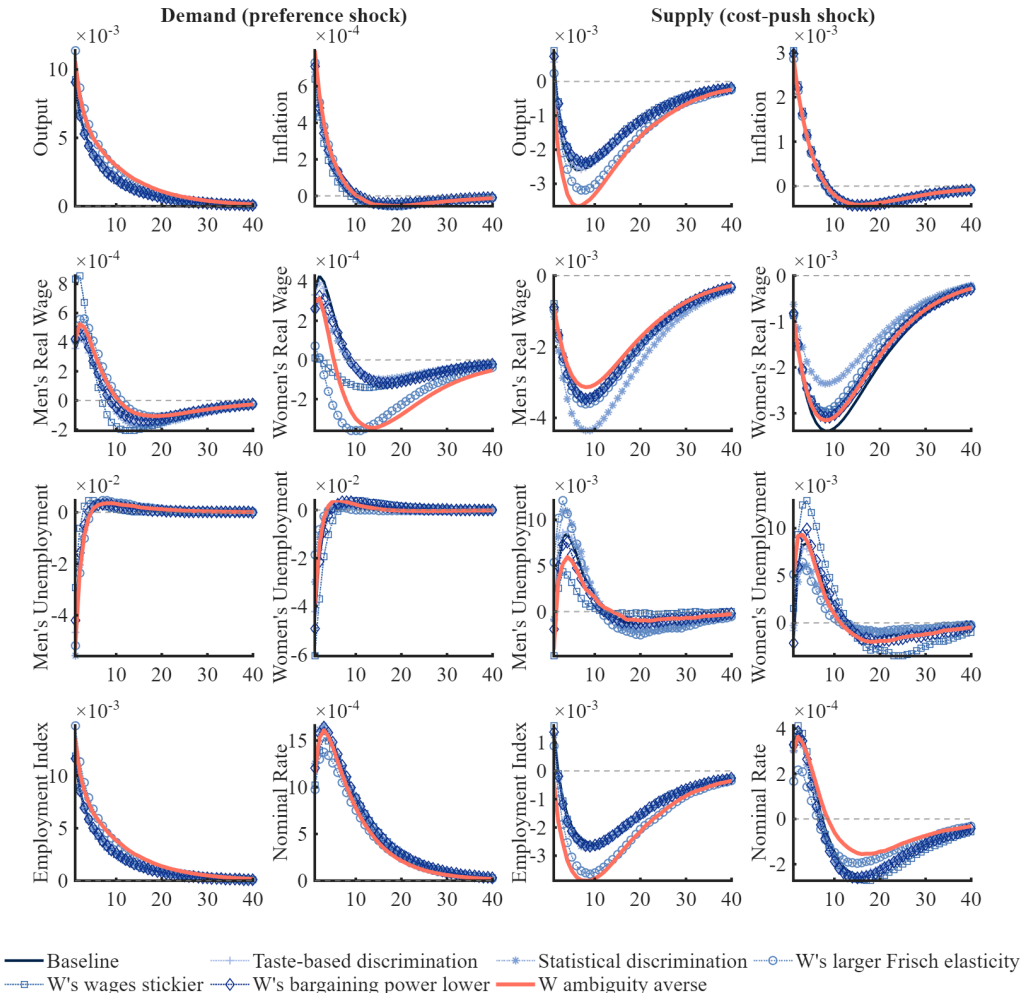


Figure B.39. Further impulse responses of the model

Appendix C

Does the Bank of England need Gendered Communication?

Table C.1. Demographics (Part 1)

Questions in the Bank of England / Ipsos Inflation Attitudes survey			**Notes**
sex	Gender		Compute dummy $female = sex - 1$ Remove all $sex > 2$
	1	Male	
	2	Female	
	3	In another way [option added 2022 Feb and removed in 2023 Nov] / Non-binary [option added 2023 Nov]	
	4	Prefer not to answer [option added 2022 Feb and removed in 2023 Nov] / My gender is not listed [option added 2023 Nov]	
	995	Prefer not to say [option added 2023 Nov]	
age	Age		
	1	15-24 (since 2022 Q1, 16-24)	
	2	25-34	
	3	35-44	
	4	45-54	
	5	55-64	
	6	65+ (since 2022 Q1, 65-75)	
work	Employment status		Compute dummy $employed = \mathbb{1}_{work==1}$
	1	Full or Part time	
	2	Not working	
income	Income		Compute $income_low = \mathbb{1}_{income==1,7}$, $income_med = \mathbb{1}_{income==2,3,8,9}$, $income_high = \mathbb{1}_{income==4,5,10}$
	1	<9500 [option removed 2022 Feb]	
	2	9500-17499 [option removed 2022 Feb]	
	3	17500-24999 [option removed 2022 Feb]	
	4	>25000 [option removed from 2016 Feb]	
	5	25000-39999 [option added 2016 Feb, option removed 2022 Feb]	
	6	>40000 [option added 2016 Feb, option removed 2022 Feb]	
	7	<9999 [option added 2022 Feb]	
	8	10000-19999 [option added 2022 Feb]	
	9	20000-34999 [option added 2022 Feb]	
	10	35000-44999 [option added 2022 Feb]	
	11	>45000 [option added 2022 Feb]	
	12	Prefer not to answer [option added 2022 Feb]	
educ	Education		
	1	low (GCSE)	
	2	medium (A-level)	
	3	high (degree)	

C.1 Survey Questionnaire

Table C.2. Demographics (Part 2)

Questions in the Bank of England / Ipsos Inflation Attitudes survey		Notes
sreg	Region	Compute dummies for each region
	1 Scotland 2 North & NI 3 Midlands 4 Wales and West 5 South East	
tenure	Housing status	Compute dummies for each type
	1 Owned outright 2 Mortgage & NI 3 Council Rent 4 Other	

Table C.3. Inflation perceptions

	Questions in the Bank of England / Ipsos Inflation Attitudes survey	First	Last	Feb Only	Current	Notes
1a	Which of these options best describes how prices have changed over the last 12 months?	2001 Feb	Latest	No	Yes	
(q1)	1 Gone down 2 Not changed 3 Up by 1% or less 4 Up by 1% but less than 2% 5 Up by 2% but less than 3% 6 Up by 3% but less than 4% 7 Up by 4% but less than 5% 8 Up by 5% or more 9 Don't know					
1a1	You say that prices have gone up by 5% or more over the last 12 months. By how much do you think they have risen?	2008 Aug	Latest	No	Yes	Asked to those who answered '8' to question 1a.
(q1a)	1 Up by 5% but less than 6% 2 Up by 6% but less than 7% 3 Up by 7% but less than 8% 4 Up by 8% but less than 9% 5 Up by 9% but less than 10% 6 Up by 10% or more					
1a3	You say that prices have gone up by 10% or more over the last 12 months. By how much do you think they have risen?	2022 May	Latest	No	Yes	Asked to those who answered '6' to question 1a.
(q1a4)	1 Up by 10% but less than 11% 2 Up by 11% but less than 12% 3 Up by 12% but less than 13% 4 Up by 13% but less than 14% 5 Up by 14% but less than 15% 6 Up by 15% or more					
1a2	You say that prices have gone down over the last 12 months. By how much do you think they have gone down?	2009 Feb	Latest	No	Yes	Asked to those who answered '1' to question 1a.
(q1a2)	1 Down by 1% or less 2 Down by 1% but less than 2% 3 Down by 2% but less than 3% 4 Down by 3% but less than 4% 5 Down by 4% but less than 5% 6 Down by 5% or more					

Table C.4. Inflation expectations

	Questions in the Bank of England / Ipsos Inflation Attitudes survey	First	Last	Feb Only	Current	Notes
2a	How much would you expect prices in the shops generally to change over the next twelve months?	2001 Feb	Latest	No	Yes	
(q2)	1 Go down 2 Not change 3 Up by 1% or less 4 Up by 1% but less than 2% 5 Up by 2% but less than 3% 6 Up by 3% but less than 4% 7 Up by 4% but less than 5% 8 Up by 5% or more 9 Don't know					
2a1	You say you expect prices will rise by 5% or more over the next 12 months. By how much do you think they will rise?	2008 Aug	Latest	No	Yes	Asked to those who answered '8' to question 1a.
(q2a)	1 Up by 5% but less than 6% 2 Up by 6% but less than 7% 3 Up by 7% but less than 8% 4 Up by 8% but less than 9% 5 Up by 9% but less than 10% 6 Up by 10% or more					
2a3	You say you expect prices will rise by 10% or more over the next 12 months. By how much do you think they will rise?	2022 May	Latest	No	Yes	Asked to those who answered '6' to question 1a.
(q2a4)	1 Up by 10% but less than 11% 2 Up by 11% but less than 12% 3 Up by 12% but less than 13% 4 Up by 13% but less than 14% 5 Up by 14% but less than 15% 6 Up by 15% or more					
2a2	You say that prices will go down over the next 12 months. By how much do you think they will go down?	2009 Feb	Latest	No	Yes	Asked to those who answered '1' to question 1a.
(q2a2)	1 Down by 1% or less 2 Down by 1% but less than 2% 3 Down by 2% but less than 3% 4 Down by 3% but less than 4% 5 Down by 4% but less than 5% 6 Down by 5% or more					

Table C.5. Inflation information sources

	Questions in the Bank of England / Ipsos Inflation Attitudes survey	First	Last	Feb Only	Current	Notes
2aiv	What were the most important factors that led you [INSERT RESPONSE FROM QUESTION 2aiii (change)] to your expectation of prices in the shops over the next 12 months? Please select up to 4.	2017 Feb	2024 Feb	Yes	No	Asked to those who answered '1-5' to question 2aiii.
(q2aiv#)	1 How prices have changed in the shops recently, over the last 12 months 2 How prices have changed in the shops, on average, over the longer term i.e the last few years 3 Reports of current inflation in the media 4 Discussion of the prospects for inflation in the media 5 The level of interest rates 6 The inflation target set by the government 7 The current strength of the UK economy 8 Expectations about how economic conditions in the UK are likely to evolve 9 The level of the exchange rate (the value of sterling) 10 Other factors 11 None 12 How the price of energy (e.g. gas, electricity or liquid fuel bills) has changed recently, over the last 12 months [Option added 2023 Feb] 13 How the price of petrol or diesel has changed recently, over the last 12 months [Option added 2023 Feb]					

Table C.6. Inflation assessment

	Questions in the Bank of England / Ipsos Inflation Attitudes survey	First	Last	Feb Only	Current	Notes
3(a)	If prices started to rise faster than they do now, do you think Britain's economy would end up stronger, weaker or would it make little difference?	2001 Feb	2024 May	No	Yes	Question number in survey was 3a on february surveys from 2004 to 2006. All responses under q3 in dataset.
(q3)	1 Stronger 2 Little difference 3 Weaker 4 Don't know					

Table C.7. BoE knowledge

	Questions in the Bank of England / Ipsos Inflation Attitudes survey	First	Last	Feb Only	Current	Notes
11	Each month a group of people meets to set Britain's basic interest rate level. Do you know what this group is?	2001 Feb	2024 Feb	Yes	No	
(q11)	1 Monetary Policy Committee 2 Bank of England 3 The Government 4 The Treasury 5 Parliament 6 Other 7 Don't know					
12	Which of these groups do you think sets the interest rates?	2001 Feb	2024 Feb	Yes	No	
(q12)	1 Government ministers 2 Civil Servants 3 Bank of England 4 High street banks 5 European Central Bank 6 Don't know					
13	In fact the decisions are taken by the Monetary Policy Committee of the Bank of England. Which of these do you think best describes the Monetary Policy Committee?	2001 Feb	2024 Feb	Yes	No	
(q13)	1 Part of the Government 2 A quango, wholly appointed by the government 3 An independent body, partly appointed by the government 4 A completely independent body 5 Don't know					

Table C.8. BoE information sources

	Questions in the Bank of England / Ipsos Inflation Attitudes survey	First	Last	Feb Only	Current	Notes
12a	Have you got information about the Bank of England from any of the sources on this card? Any others?	2010 May	2015 Feb	No	No	Asked to those who answered '3' to question 12
(q12a#)	1 Newspapers and magazines 2 TV and radio 3 The Bank of England's website 4 Other websites and search engines 5 Bank of England publications 6 The Bank of England's public enquiries desk 7 None of these 8 Don't know					

Table C.9. BoE satisfaction

	Questions in the Bank of England / Ipsos Inflation Attitudes survey	First	Last	Feb Only	Current	Notes
14	Overall, how satisfied or dissatisfied are you with the way the Bank of England is doing its job to set interest rates in order to control inflation?	2001 Feb	Latest	No	Yes	
(q14)	1 Very satisfied 2 Fairly satisfied 3 Neither satisfied nor dissatisfied 4 Fairly dissatisfied 5 Very dissatisfied					

Table C.10. Inflation response

	Questions in the Bank of England / Ipsos Inflation Attitudes survey	First	Last	Feb Only	Current	Notes
17	Which, if any, of the following actions are you taking, or planning to take, in the light of your expectations of price changes over the next twelve months? You can choose up to three.	2011 Feb	2015 Feb	Yes	No	Question responses spread across 8 dummy variables
(q17_#)	1 Bring forward major purchases such as furniture or electrical goods 2 Cut back spending and save more 3 Shop around more for better value goods and services 4 Push for increased pay with currently employer 5 Look to increase income in other ways (e.g. change jobs, take on second job, work more hours with current employer) 6 Move savings out of banks or building societies into other assets such as shares, bonds, housing or gold 7 Take no action 8 None/Don't know					

C.2 Additional Tables

Table C.2.1. Drivers of inflation perceptions and expectations

	Inflation Expectation		Inflation Perception	
	(1)	(2)	(3)	(4)
female	-0.01	0.35***	0.13***	0.47***
	(0.02)	(0.08)	(0.02)	(0.09)
age	0.14***	0.16***	0.25***	0.29***
	(0.01)	(0.01)	(0.01)	(0.01)
educ	0.08***	0.09***	0.06***	0.06***
	(0.01)	(0.02)	(0.01)	(0.02)
educ	0.08***	0.09***	0.06***	0.06***
	(0.01)	(0.02)	(0.01)	(0.02)
employed	0.001	0.02	0.02	0.03
	(0.02)	(0.03)	(0.02)	(0.03)
income_high	-0.06***	-0.05	-0.02	0.005
	(0.02)	(0.03)	(0.02)	(0.03)
income_low	-0.02	0.01	-0.11***	-0.09**
	(0.03)	(0.04)	(0.03)	(0.04)
own_house	-0.28***	-0.27***	-0.36***	-0.39***
	(0.03)	(0.04)	(0.03)	(0.04)
mortgage	-0.16***	-0.08**	0.05**	0.13***
	(0.02)	(0.04)	(0.03)	(0.04)
council_house	0.06**	0.03	0.10***	0.03
	(0.03)	(0.04)	(0.03)	(0.04)
female x age		-0.04***		-0.08***
		(0.01)		(0.01)
female x educ		-0.04		-0.004
		(0.02)		(0.03)
female x employed		-0.03		-0.01
		(0.04)		(0.04)
female x income_high		-0.02		-0.05
		(0.04)		(0.04)
female x income_low		-0.06		-0.02
		(0.05)		(0.05)
female x own_house		-0.02		0.07
		(0.05)		(0.06)
female x mortgage		-0.15***		-0.15***
		(0.05)		(0.05)
female x council_house		0.05		0.12*
		(0.06)		(0.06)
Constant	1.87***	1.68***	1.13***	0.95***
	(0.09)	(0.10)	(0.09)	(0.10)
Time fixed effects	Yes	Yes	Yes	Yes
Observations	110,130	110,130	110,787	110,787
R^2	0.13	0.13	0.35	0.35

Notes: The table shows the result of a linear regression of inflation expectations or perceptions point estimates on a range of demographics as well as their interaction terms. Average age is 4 (45-54), the most frequent income category is medium, the base category. Significance levels are indicated by stars: $^{***}p < 0.01$, $^{**}p < 0.05$, and $^{*}p < 0.1$. Standard errors are reported in parentheses below the coefficient estimates.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

Table C.2.2. Drivers of inflation assessment

	Inflation Assessment			
	(1)	(2)	(3)	(4)
female	-0.10***	-0.11***	-0.04***	-0.10***
	(0.004)	(0.01)	(0.01)	(0.03)
age	-0.03***	-0.03***	0.01**	0.001
	(0.002)	(0.003)	(0.01)	(0.01)
educ	-0.02***	-0.02***	-0.01	0.004
	(0.003)	(0.01)	(0.01)	(0.02)
employed	0.01***	0.02**	-0.04**	-0.04
	(0.005)	(0.01)	(0.02)	(0.03)
income_high	-0.02***	-0.02**	0.02	-0.02
	(0.01)	(0.01)	(0.02)	(0.03)
income_low	0.04***	0.03**	-0.001	0.0002
	(0.01)	(0.01)	(0.02)	(0.04)
own_house	0.13***	0.15***	0.03	0.07
	(0.01)	(0.01)	(0.02)	(0.04)
mortgage	-0.02***	0.003	-0.07***	-0.04
	(0.01)	(0.01)	(0.02)	(0.04)
council_house	0.02***	0.05***	-0.06**	-0.03
	(0.01)	(0.01)	(0.03)	(0.05)
scotland	-0.07***	-0.11***	-0.02	0.04
	(0.01)	(0.02)	(0.03)	(0.05)
north	-0.06***	-0.05***	-0.05***	-0.04
	(0.01)	(0.01)	(0.02)	(0.03)
wales	-0.08***	-0.08***	-0.06**	-0.02
	(0.01)	(0.01)	(0.02)	(0.05)
midlands	-0.05***	-0.03***	-0.03	-0.07*
	(0.01)	(0.01)	(0.02)	(0.04)
Constant	-0.32***	-0.40***	-0.43***	-0.63***
	(0.02)	(0.03)	(0.05)	(0.10)
Time Fixed Effects	Yes	Yes	Yes	Yes
Response to Inflation	No	Yes	No	Yes
BoE Information Source	No	No	Yes	Yes
Observations	109,660	26,452	7,609	2,297
R^2	0.04	0.09	0.05	0.07

Notes: The table shows the result of a linear regression of the inflation assessment, i.e. if the respondent thinks inflation is good for the economy (1), neutral (0) or bad for the economy (-1) on a range of demographics. Significance levels are indicated by stars: $^{***}p < 0.01$, $^{**}p < 0.05$, and $^{*}p < 0.1$. Standard errors are reported in parentheses below the coefficient estimates.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

Table C.2.3. Drivers of knowledge about the BoE

	Test Score
	(3)
Newspapers and magazines	0.08***
	(0.01)
TV and radio	0.11***
	(0.02)
The BoE's website	0.08**
	(0.03)
Other websites and search engines	0.14***
	(0.02)
BoE publications	-0.002
	(0.05)
The BoE's public enquiries desk	0.02
	(0.09)
None of these	0.08***
	(0.02)
Time fixed effects	Yes
Inflation Information Source	No
Observations	8,306
R^2	0.07

Note: The table shows the results of a linear regression of the computed knowledge score about the BoE's Monetary Policy Committee on a range of demographics and sources of information about the BoE. The demographics are shown in Table 3.2 column (2). Significance levels are indicated by stars: $^{***}p < 0.01$, $^{**}p < 0.05$, and $^{*}p < 0.1$. Standard errors are reported in parentheses below the coefficient estimates.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

Table C.2.4. Drivers of choosing an informational source

	Newspapers	TV/radio	BoE website	Other website	BoE pubs	BoE enquiries	None	Don't know
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
female	-0.06***	-0.04***	-0.01***	-0.05***	-0.001	-0.0000	0.05***	0.01**
	(0.01)	(0.01)	(0.004)	(0.01)	(0.003)	(0.002)	(0.01)	(0.003)
age	0.03***	0.04***	-0.01***	-0.01***	-0.003**	-0.002**	-0.02***	-0.001
	(0.004)	(0.005)	(0.002)	(0.003)	(0.001)	(0.001)	(0.004)	(0.001)
educ	0.10***	0.05***	0.01***	0.04***	0.01***	0.002	-0.05***	-0.01***
	(0.01)	(0.01)	(0.004)	(0.005)	(0.002)	(0.001)	(0.01)	(0.003)
employed	-0.04***	0.01	-0.001	0.003	-0.001	-0.01***	0.01	0.002
	(0.01)	(0.01)	(0.01)	(0.01)	(0.004)	(0.002)	(0.01)	(0.004)
income_high	0.06***	0.02	0.01	0.03***	-0.002	-0.002	-0.02*	-0.01***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.004)	(0.002)	(0.01)	(0.004)
income_low	-0.03*	-0.03*	0.002	0.01	-0.01*	-0.0003	0.02	0.01
	(0.02)	(0.02)	(0.01)	(0.01)	(0.005)	(0.003)	(0.01)	(0.01)
own_house	0.02	0.02	0.01	-0.01	-0.003	0.002	0.003	-0.005
	(0.02)	(0.02)	(0.01)	(0.01)	(0.005)	(0.003)	(0.02)	(0.01)
mortgage	-0.01	0.03*	0.01	-0.01	-0.01	0.003	0.01	-0.003
	(0.02)	(0.02)	(0.01)	(0.01)	(0.004)	(0.002)	(0.01)	(0.01)
council_house	-0.04*	-0.01	0.01	-0.02	0.01	0.005	0.06***	-0.01
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.003)	(0.02)	(0.01)
scotland	0.01	0.05***	-0.03***	-0.01	-0.01***	-0.01**	-0.01	0.0004
	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.003)	(0.02)	(0.01)
north	-0.06***	-0.01	-0.03***	-0.03***	-0.02***	-0.01***	0.04***	0.002
	(0.01)	(0.01)	(0.01)	(0.01)	(0.004)	(0.002)	(0.01)	(0.004)
wales	-0.07***	-0.01	-0.02***	-0.03***	-0.02***	-0.01***	0.04**	-0.002
	(0.02)	(0.02)	(0.01)	(0.01)	(0.005)	(0.003)	(0.02)	(0.01)
midlands	-0.11***	-0.04**	-0.02**	-0.03***	-0.01***	-0.005*	0.06***	0.02***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.004)	(0.002)	(0.01)	(0.005)
BoE knowledge	0.06***	0.06***	0.01***	0.03***	0.003	0.001	-0.04***	-0.01***
	(0.01)	(0.01)	(0.004)	(0.01)	(0.003)	(0.001)	(0.01)	(0.003)
Constant	0.01	0.22***	0.03**	0.01	0.03**	0.01**	0.49***	0.06***
	(0.04)	(0.04)	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)	(0.01)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,306	8,306	8,306	8,306	8,306	8,306	8,306	8,306
R^2	0.07	0.04	0.02	0.05	0.01	0.01	0.04	0.02

Note: The table shows the results of a linear regression of different sources of BoE information on a range of demographics. Significance levels are indicated by stars: $^{***}p < 0.01$, $^{**}p < 0.05$, and $^{*}p < 0.1$. Standard errors are reported in parentheses below the coefficient estimates. *Sources:* BoE Inflation Attitudes Survey; authors' own calculations.

C.3 Additional Figures

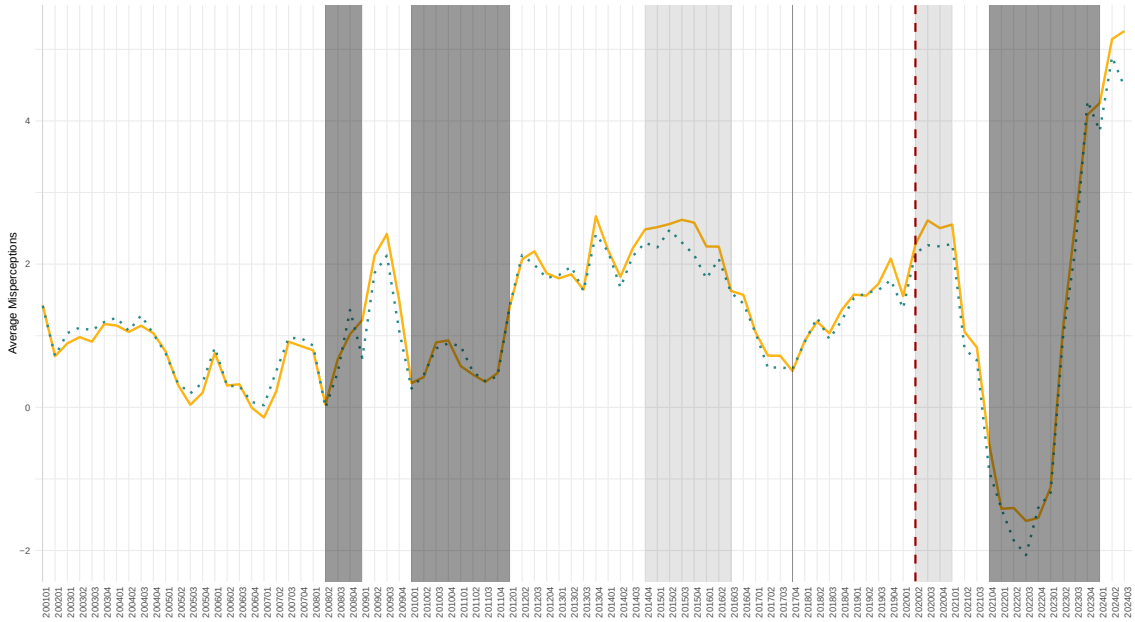


Figure C.3.1. Inflation misperceptions for men and women

Note: The figure shows the misconceptions (i.e. the difference between perceptions of inflation and actual CPI inflation) for men (in green, dotted) and women (in yellow) since Q1 2001. The red, dashed line marks 2020 Q2 when the survey went online due to the pandemic and the "Don't know" response was removed from the initially presented options. Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.

Sources: BoE Inflation Attitudes Survey; authors' own calculations.

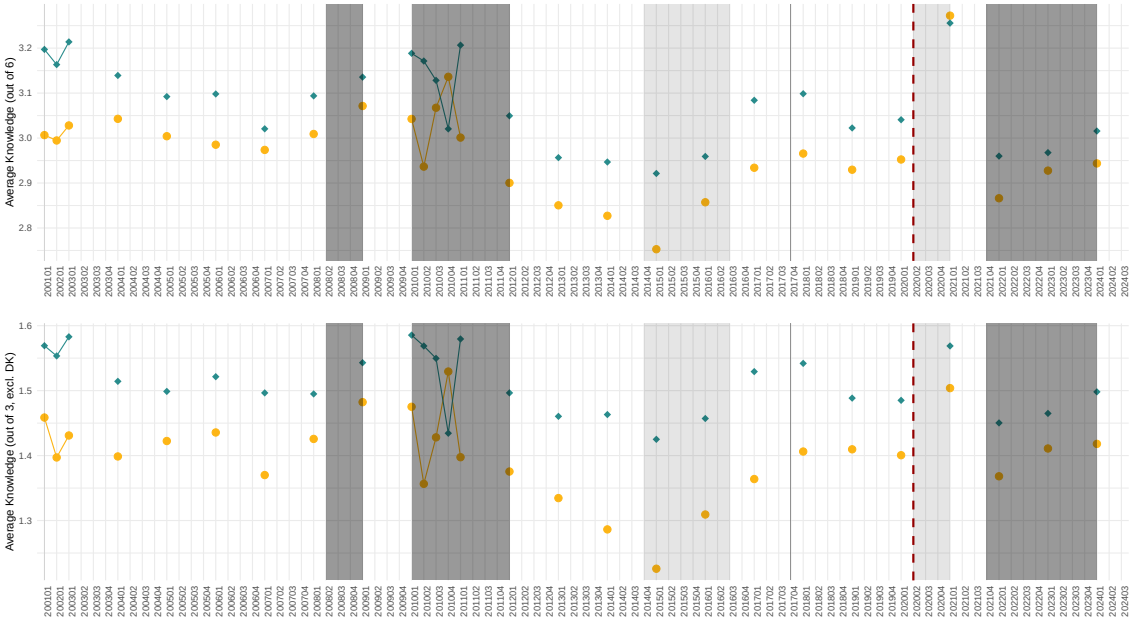


Figure C.3.2. Knowledge about the Bank of England Monetary Policy Committee

Note: The figure shows the computed knowledge score about the BoE's Monetary Policy Committee for men (in red) and women (in blue) since Q1 2001. The data is only annually available. The top graph shows the knowledge score as computed in Haldane et al. (2021), the second graph uses our method but omits those who indicate "Don't know". This shows that while a lot of the difference between men and women is driven by women indicating "Don't know" more frequently, the existence of the gap is robust to this effect. The red, dashed line marks 2020 Q2 when the survey went online due to the pandemic and the "Don't know" response was removed from the initially presented options. Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

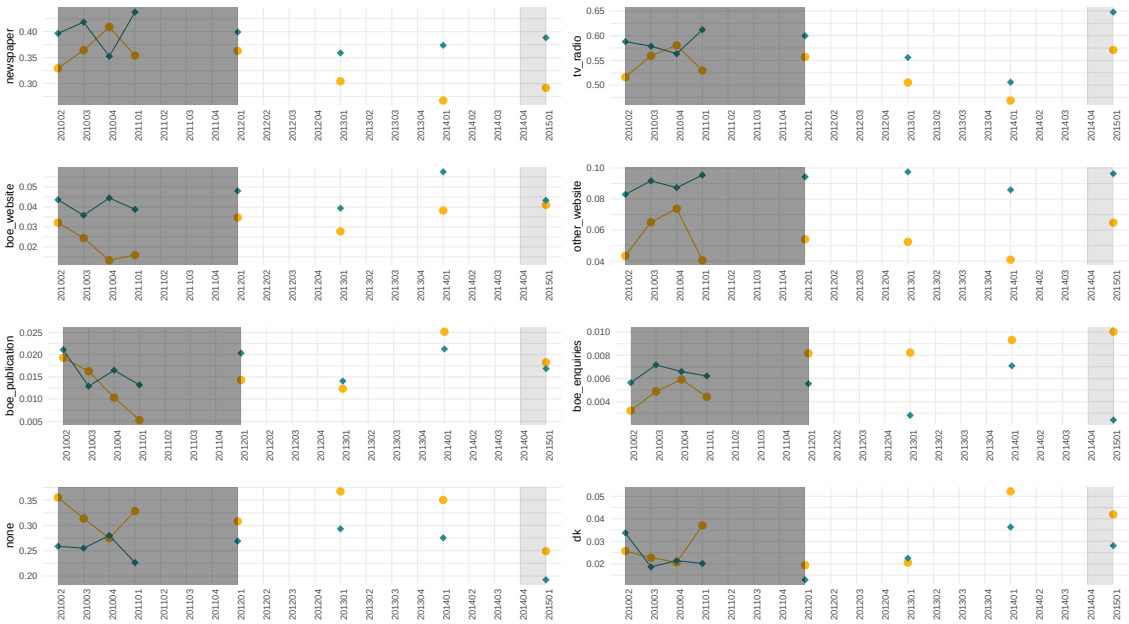


Figure C.3.3. Have you got information about the Bank of England from any of the sources on this card?

Note: The figure shows the share of responses to each option to the question *Have you got information about the Bank of England from any of the sources on this card?* as well as the share of "Don't know" responses for men (in red) and women (in blue) since Q1 2001 Periods when CPI inflation exceeded 3% are shaded dark, periods when CPI inflation was below 1% are shaded light.
Sources: BoE Inflation Attitudes Survey; authors' own calculations.

Appendix D

Five Facts About Inflation Expectations: Evidence from Four Different Groups of Agents

D.1 Survey Questionnaire

Survey questions for inflation and wage expectations for households (hh), firms (bl), social partners (sp) and economists (ec).

Perceptions

- [hh] Compared to 12 months ago, do you think the prices of goods and services, as measured by the consumer price index, are higher, about the same or lower now?
- [hh] Approximately how much do you think prices have changed in percentage terms? (average)
- [bl] What do you think the general rise in prices for goods and services has been the last 12 months, as measured by the 12-month change in the consumer price index (CPI)?

Expectations

- [hh] Do you think that the prices of goods and services, as measured by the con-

sumer price index, will be higher, unchanged or lower than today over the next 12 months?

- [hh] Approximately how much higher/lower, measured in percentage?

- [bl, sp, ec] What do you think the general rise in prices for goods and services will be in 12 months, as measured by the 12-month change in the consumer price index (CPI)?

- [hh] How much do you think the prices of goods and services, measured by the consumer price index, will increase annually in 2-3 years, measured in percentage?

- [bl, sp, ec] What do you think the general rise in prices for goods and services will be in two years, as measured by the 12-month change in the consumer price index (CPI)?

- [hh, bl, sp, ec] What do you think the general price increase on goods and services is in 5 years, as measured by the 12-month change in the consumer price index (CPI)?

Purchasing/Sale Prices

- [bl] Do you expect that over the next 12 months your business's purchase prices will increase more than, increase at approximately the same pace as or increase less than in the past 12-month period?

- [bl] Do you expect that over the next 12 months your business's selling prices will increase more than, increase at approximately the same pace as or increase less than in the past 12-month period?

Wages

- [hh] Compared with 12 months ago, by how much do you think your wages or pension has changed in percent?

- [bl] What do you expect the annual wage growth in your company will be this current year?

- [sp, ec] What do you think the average yearly growth in wages will be this current year?

- [hh] By approximately how much do you think your wages or pension will change in per cent over the next 12 months? - [bl] What do you expect the average annual

wage growth in your company will be next year?

- [sp, ec] What do you think the average yearly growth in wages will be next year?

D.2 Additional Tables

Table D.2.1. Accuracy of wage forecasts

	households	*business leaders*	*social partners*	*economists*
		2002Q1-2021Q2		
current year	1.19	0.58	0.42	0.45
	2.67***	1.29***	0.94**	
next year	1.09	0.61	0.60	0.59
	1.84***	1.02	1.02	
		2021Q3-2024Q4		
current year	1.73	0.62	0.48	0.47
	3.71	1.32	1.03	
next year	2.38	1.19	1.13	1.28
	1.87	0.94	0.88	

Note: RMSFE for inflation expectations, computed only for observations where expectations of all agents are available. Households report perceptions over the past twelve months (cy) and expectations over the next twelve month (ny) of their own wage. Business leaders, social partners and economists are asked about fixed date forecasts: current year or next year wage. Business leaders are asked about their own wage bills, while social partners and economists are asked about aggregate wages.
Source: Norges Bank, authors' own calculations.

Table D.2.2. Summary statistics of wage perceptions and expectations by household group

	2002 Q1 - 2021 Q2			2021 Q3 - 2024 Q4		
Group	Mean	SD	Observations	Mean	SD	Observations
All	3.16	NA	38604	4.43	NA	14070
Age						
$<$ 35 years	6.04	15.68	8906	7.07	16.03	4181
35 to 54 years	3.07	7.34	13118	4.01	7.12	4728
55 to 64 years	2.29	6.14	6517	3.47	6.85	2234
$\geq$ 65 years	1.58	3.94	10063	2.37	4.43	2927
Sex						
Man	3.59	10.07	20352	4.76	10.39	8817
Woman	2.66	7.91	18252	3.85	9.82	5253
Labor force						
Public sector	2.68	6.05	9698	3.46	6.83	3016
Private sector	3.67	9.15	13047	4.88	9.35	6236
Retired	1.6	3.81	10783	2.37	3.68	3285
Unemployed	7.18	20.4	614	17	32.24	179
Student	8.21	20.97	3271	9.7	22.37	1227
Region						
Nord Norge	3.04	8.95	3676	4.27	11.11	1289
Midt Norge	3.04	8.92	5360	4.5	10.18	2014
Østlandet	3.12	8.95	13966	4.01	8.81	4457
Vestlandet	3.13	8.87	8078	4.68	11.24	2925
Sørlandet	3.04	8.75	2308	4.04	8.04	857
Oslo	3.59	10.57	5216	5.05	11.29	2528

Source: Norges Bank, authors' own calculations.

Table D.2.3. Summary statistics of own wage expectations next year by firm group

	2002 Q1 - 2021 Q2			2021 Q3 - 2024 Q4		
Group	Mean	SD	Observations	Mean	SD	Observations
All	3.05	3	22319	5.45	8.3	7687
Number of employees						
Less than 50	3.04	2.77	10675	5.01	6.83	2752
Greater than 50	3.05	3.25	9989	5.7	9.02	4934
Sector						
Manufacturing	2.97	2.98	4995	6.09	10.11	1644
Retail and trade	3	2.88	4513	4.95	7.24	1587
Building and construction	3.18	3.45	3311	5.48	7.8	1312
Services	3.07	2.88	9466	5.35	7.92	3147
Price Expectations						
↑ Sales	3.3	4.11	3019	6.55	9.86	2320
↓ or = Sales	3	2.74	19301	4.98	7.5	5367
↑ Purchasing	3.09	3.67	3878	6.51	10.52	2951
↓ or = Purchasing	3.04	2.8	18442	4.81	6.54	4736
Region						
Nord Norge	3.01	2.9	9865	4.87	6.8	493
Midt Norge	2.89	2.61	10687	4.81	6.11	1046
Østlandet	3.01	3.18	13006	5.14	7.43	2513
Vestlandet	2.97	4.39	11834	4.85	5.27	1399
Sørlandet	2.97	3.11	9965	6.97	13.34	317
Oslo	3.04	3.75	11772	6.52	10.93	1919

Source: Norges Bank, authors' own calculations.

Table D.2.4. Term structure on the individual level — 2009 Q1–2021 Q2

	$\mathbf{E}_{i,t}\pi_{t+8}$					
	Households			Business Leaders		
π_t	−0.359***	−0.118***		0.029	0.052**	
	(0.040)	(0.044)		(0.024)	(0.026)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.700***	0.695***	0.691***	0.823***	0.824***	0.787***
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)
Female	0.664***	0.649***	0.675***			
	(0.071)	(0.071)	(0.071)			
Age	−0.015***	−0.015***	−0.016***			
	(0.002)	(0.002)	(0.002)			
Private_sector	−3.099***	−2.874***	−2.882***			
	(0.828)	(0.824)	(0.823)			
Public_sector	−2.931***	−2.785***	−2.791***			
	(0.829)	(0.825)	(0.824)			
Retired	−2.500***	−2.327***	−2.323***			
	(0.830)	(0.826)	(0.824)			
Self_employed	−2.081**	−2.565***	−2.722***			
	(0.864)	(0.860)	(0.859)			
Stay_at_home	−0.517	−0.420	−0.429			
	(0.890)	(0.886)	(0.884)			
Student	−0.892	−0.634	−0.611			
	(0.836)	(0.832)	(0.831)			
Unemployed	−1.876**	−1.692*	−1.721**			
	(0.875)	(0.870)	(0.869)			
Manufacturing				−0.244***	−0.252***	−0.228***
				(0.066)	(0.066)	(0.066)
Retail_trade				−0.177**	−0.178**	−0.159**
				(0.071)	(0.071)	(0.071)
Services				−0.345***	−0.337***	−0.296***
				(0.061)	(0.061)	(0.062)
Size > 50				−0.229***	−0.212***	−0.128***
				(0.041)	(0.041)	(0.047)
GDP		0.026			−0.017	
		(0.029)			(0.015)	
I44		−0.071***			−0.009***	
		(0.004)			(0.002)	
Oil		−0.002**			0.001	
		(0.001)			(0.001)	
Constant	6.863***	13.310***	7.319***	1.559***	2.395***	1.937***
	(0.834)	(0.927)	(0.854)	(0.075)	(0.241)	(0.139)
Time FE	No	No	Yes	No	No	Yes
Observations	30,008	30,008	30,008	18,452	18,452	18,452
R^2	0.303	0.311	0.315	0.467	0.467	0.475

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.5. Term structure on the individual level — 2021 Q3–2024 Q4

	$\mathbf{E}_{i,t}\pi_{t+8}$					
	Households			Business Leaders		
π_t	0.121***	0.071		−0.003	0.037	
	(0.043)	(0.074)		(0.051)	(0.086)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.443***	0.442***	0.445***	0.941***	0.941***	0.936***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Female	0.415***	0.416***	0.413***			
	(0.134)	(0.134)	(0.134)			
Age	−0.050***	−0.050***	−0.050***			
	(0.005)	(0.005)	(0.005)			
Private_sector	−3.528***	−3.529***	−3.511***			
	(1.188)	(1.188)	(1.189)			
Public_sector	−3.250***	−3.246***	−3.234***			
	(1.192)	(1.192)	(1.193)			
Retired	−1.858	−1.858	−1.846			
	(1.199)	(1.199)	(1.199)			
Stay_at_home	−0.878	−0.885	−0.904			
	(1.561)	(1.562)	(1.562)			
Student	−2.518**	−2.507**	−2.486**			
	(1.210)	(1.210)	(1.210)			
Unemployed	−2.344*	−2.332*	−2.265*			
	(1.320)	(1.321)	(1.321)			
Manufacturing				−0.621***	−0.621***	−0.672***
				(0.241)	(0.241)	(0.230)
Retail_trade				−0.582**	−0.577**	−0.609***
				(0.241)	(0.241)	(0.230)
Services				−0.682***	−0.672***	−0.716***
				(0.213)	(0.213)	(0.204)
Size > 50				−0.117	−0.117	−0.096
				(0.156)	(0.156)	(0.149)
GDP		0.052			0.236*	
		(0.104)			(0.123)	
I44		−0.035			0.054	
		(0.045)			(0.053)	
Oil		−0.008			0.002	
		(0.008)			(0.009)	
Constant	8.090***	12.420**	8.175***	1.645***	−5.276	1.587***
	(1.222)	(5.628)	(1.226)	(0.311)	(6.486)	(0.310)
Time FE	No	No	Yes	No	No	Yes
Observations	10,353	10,353	10,353	6,481	6,481	6,907
R^2	0.246	0.246	0.247	0.686	0.687	0.687

*p<0.1; **p<0.05; ***p<0.01.

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.6. Term structure on the individual level - 2009 Q1 - 2024 Q4

	$\mathbf{E}_{i,t}\pi_{t+8}$					
	Households			Business Leaders		
π_t	−0.198***	0.019		0.045***	0.051**	
	(0.020)	(0.025)		(0.017)	(0.020)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.597***	0.595***	0.590***	0.915***	0.915***	0.906***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)
Female	0.655***	0.621***	0.656***			
	(0.063)	(0.063)	(0.063)			
Age	−0.018***	−0.019***	−0.019***			
	(0.002)	(0.002)	(0.002)			
Private_sector	−3.144***	−3.039***	−3.007***			
	(0.682)	(0.680)	(0.678)			
Public_sector	−2.934***	−2.904***	−2.868***			
	(0.683)	(0.681)	(0.679)			
Retired	−2.381***	−2.330***	−2.274***			
	(0.684)	(0.682)	(0.681)			
Self_employed	−1.986***	−2.553***	−2.836***			
	(0.728)	(0.727)	(0.725)			
Stay_at_home	−0.317	−0.372	−0.335			
	(0.753)	(0.750)	(0.748)			
Student	−1.090	−1.003	−0.901			
	(0.690)	(0.688)	(0.686)			
Unemployed	−1.827**	−1.778**	−1.699**			
	(0.729)	(0.726)	(0.725)			
Manufacturing				−0.337***	−0.338***	−0.345***
				(0.080)	(0.080)	(0.080)
Retail_trade				−0.299***	−0.297***	−0.303***
				(0.084)	(0.084)	(0.083)
Services				−0.443***	−0.435***	−0.419***
				(0.073)	(0.073)	(0.073)
Size > 50				−0.198***	−0.193***	−0.111**
				(0.050)	(0.050)	(0.055)
GDP		0.040			0.013	
		(0.027)			(0.019)	
I44		−0.058***			−0.003	
		(0.004)			(0.003)	
Oil		−0.004***			0.0004	
		(0.001)			(0.001)	
Constant	6.997***	12.426***	8.059***	1.373***	1.665***	1.778***
	(0.687)	(0.772)	(0.719)	(0.080)	(0.277)	(0.191)
Time FE	No	No	Yes	No	No	Yes
Observations	40,361	40,361	40,361	24,933	24,933	25,359
R^2	0.276	0.281	0.286	0.655	0.655	0.657

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.7. Term structure on the individual level — 2009 Q1–2021 Q2

	$\mathbf{E}_{i,t}\pi_{t+8}$					
	Economists			Social Partners		
π_t	-0.046^{***}	0.010		-0.130^{***}	-0.082^{***}	
	(0.013)	(0.013)		(0.026)	(0.027)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.683^{***}	0.710^{***}	0.721^{***}	1.272^{***}	1.297^{***}	1.310^{***}
	(0.016)	(0.016)	(0.016)	(0.023)	(0.023)	(0.023)
Financial sector	-0.232^{***}	-0.204^{***}	-0.190^{***}			
	(0.022)	(0.022)	(0.022)			
Employer organization				0.078^{*}	0.081^{*}	0.090^{**}
				(0.042)	(0.042)	(0.041)
GDP		-0.006			-0.023	
		(0.008)			(0.016)	
I44		-0.017^{***}			-0.015^{***}	
		(0.001)			(0.003)	
Oil		0.0001			-0.0004	
		(0.0003)			(0.001)	
Constant	1.058^{***}	2.559^{***}	0.958^{***}	-0.093	1.282^{***}	-0.068
	(0.042)	(0.123)	(0.074)	(0.074)	(0.249)	(0.154)
Time FE	No	No	Yes	No	No	Yes
Observations	2,918	2,918	2,918	1,563	1,563	1,563
R^2	0.428	0.463	0.490	0.668	0.675	0.693

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.8. Term structure on the individual level — 2021 Q3–2024 Q4

	$\mathbf{E}_{i,t}\pi_{t+8}$					
	Economists			Social Partners		
π_t	-0.047^{***}	-0.051^{*}		-0.228^{***}	-0.212^{***}	
	(0.017)	(0.027)		(0.039)	(0.062)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.550^{***}	0.556^{***}	0.556^{***}	1.176^{***}	1.200^{***}	1.202^{***}
	(0.020)	(0.022)	(0.022)	(0.028)	(0.028)	(0.027)
Financial sector	-0.228^{***}	-0.220^{***}	-0.211^{***}			
	(0.050)	(0.051)	(0.049)			
Employer organization				0.294^{***}	0.247^{**}	0.238^{**}
				(0.109)	(0.107)	(0.099)
GDP		0.038			0.082	
		(0.038)			(0.089)	
I44		0.002			0.019	
		(0.016)			(0.038)	
Oil		-0.0005			0.009	
		(0.003)			(0.007)	
Constant	1.311^{***}	1.033	1.099^{***}	-0.315	-2.938	-0.606^{***}
	(0.093)	(1.982)	(0.106)	(0.201)	(4.711)	(0.228)
Time FE	No	No	Yes	No	No	Yes
Observations	603	603	643	489	489	531
R^2	0.655	0.656	0.664	0.786	0.800	0.807

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.9. Term structure on the individual level - 2009 Q1 - 2024 Q4

	$\mathbf{E}_{i,t}\pi_{t+8}$					
	Economists			Social Partners		
π_t	-0.073^{***}	-0.028^{***}		-0.308^{***}	-0.247^{***}	
	(0.008)	(0.009)		(0.017)	(0.019)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.614^{***}	0.645^{***}	0.660^{***}	1.167^{***}	1.198^{***}	1.246^{***}
	(0.012)	(0.012)	(0.013)	(0.016)	(0.016)	(0.016)
Financial sector	-0.234^{***}	-0.205^{***}	-0.188^{***}			
	(0.021)	(0.020)	(0.020)			
Employer organization				0.134^{***}	0.133^{***}	0.125^{***}
				(0.042)	(0.042)	(0.040)
GDP		0.002			-0.005	
		(0.008)			(0.018)	
I44		-0.014^{***}			-0.020^{***}	
		(0.001)			(0.002)	
Oil		0.0002			0.0003	
		(0.0003)			(0.001)	
Constant	1.250^{***}	2.407^{***}	1.067^{***}	0.418^{***}	2.285^{***}	0.042
	(0.027)	(0.102)	(0.072)	(0.053)	(0.235)	(0.167)
Time FE	No	No	Yes	No	No	Yes
Observations	3,521	3,521	3,561	2,052	2,052	2,094
R^2	0.526	0.548	0.571	0.732	0.742	0.766

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.10. Determinants of wage growth expectations - households - 2009Q1 - 2021Q2

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.228***	0.227***	0.163***	0.228***	
	(0.007)	(0.007)	(0.013)	(0.007)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.062***	0.063***	0.086***	0.183***	0.069***
	(0.015)	(0.015)	(0.031)	(0.049)	(0.012)
$\mathbf{E}_{i,t}\pi_{t+4}$:Female				0.010	
				(0.032)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Age				−0.003***	
				(0.001)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Public_sector				0.037	
				(0.032)	
π_t	−0.053		0.091	−0.047	−0.084
	(0.102)		(0.241)	(0.102)	(0.072)
Female	−0.611***	−0.612***	−0.382	−0.630***	−0.655***
	(0.149)	(0.149)	(0.271)	(0.169)	(0.117)
Age	−0.051***	−0.051***	−0.057***	−0.042***	−0.026***
	(0.006)	(0.006)	(0.011)	(0.006)	(0.003)
Public_sector	−0.564***	−0.570***	−0.396	−0.653***	−0.803***
	(0.150)	(0.151)	(0.273)	(0.170)	(0.118)
Oil	0.003		0.008*	0.003	0.002
	(0.002)		(0.005)	(0.002)	(0.002)
GDP	0.005		−0.266	0.004	0.052
	(0.051)		(0.225)	(0.051)	(0.047)
I44	−0.006		0.054	−0.005	−0.012*
	(0.020)		(0.034)	(0.020)	(0.007)
Constant	5.677**	4.394***	−0.612	5.193**	6.304***
	(2.325)	(0.462)	(3.945)	(2.331)	(0.711)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	11,906	11,906	3,337	11,906	19,379
R^2	0.102	0.103	0.067	0.103	0.013

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.11. Determinants of wage growth expectations - households - 2021Q3 - 2024Q4

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.067***	0.067***	0.040**	0.065***	
	(0.008)	(0.008)	(0.020)	(0.008)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.052***	0.050***	0.086***	0.279***	0.049***
	(0.013)	(0.013)	(0.033)	(0.041)	(0.013)
$\mathbf{E}_{i,t}\pi_{t+4}$:Female				−0.004	
				(0.028)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Age				−0.005***	
				(0.001)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Public_sector				−0.010	
				(0.029)	
CPI	−0.286**			−0.284**	−0.297***
	(0.112)			(0.112)	(0.113)
Female	−0.645***	−0.639***	−0.345	−0.619**	−0.761***
	(0.209)	(0.209)	(0.500)	(0.248)	(0.210)
Age	−0.057***	−0.057***	−0.083***	−0.031***	−0.070***
	(0.007)	(0.007)	(0.018)	(0.009)	(0.007)
Public_sector	−0.983***	−0.964***	−1.437***	−0.938***	−1.108***
	(0.210)	(0.210)	(0.504)	(0.251)	(0.211)
Oil	−0.009		0.027	−0.009	−0.008
	(0.012)		(0.033)	(0.012)	(0.012)
GDP	0.005		−0.412	0.014	−0.008
	(0.158)		(0.988)	(0.158)	(0.159)
I44	−0.030			−0.034	−0.037
	(0.068)			(0.068)	(0.069)
Constant	11.651	6.343***	8.381***	10.978	13.572
	(8.417)	(0.503)	(1.269)	(8.400)	(8.488)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	7,058	7,058	1,534	7,058	7,427
R^2	0.033	0.035	0.034	0.037	0.025

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.12. Determinants of wage growth expectations - business leaders - 2009Q1 - 2021Q2

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}\pi_{t+4}$	0.305***	0.229***	0.073***	0.470***	0.467***
	(0.005)	(0.005)	(0.004)	(0.012)	(0.005)
$\mathbf{E}_{i,t}\pi_{t+4}$:Size > 50				−0.051***	
				(0.010)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Manufacturing				−0.105***	
				(0.015)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Retail_trade				−0.077***	
				(0.016)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Services				−0.221***	
				(0.013)	
π_t	0.073***		0.012	0.085***	−0.026
	(0.018)		(0.014)	(0.018)	(0.021)
$\mathbf{E}_{i,t}w_t$	0.354***	0.550***	2.964***	0.357***	
	(0.005)	(0.006)	(0.023)	(0.005)	
Size > 50	−0.011	−0.021	0.073***	0.138***	0.026
	(0.029)	(0.032)	(0.018)	(0.039)	(0.033)
Manufacturing	−0.098**	−0.076*	−0.002	0.212***	−0.065
	(0.047)	(0.044)	(0.029)	(0.062)	(0.053)
Retail_trade	−0.081	−0.071	−0.001	0.151**	−0.043
	(0.050)	(0.047)	(0.031)	(0.067)	(0.057)
Services	0.039	0.003	0.075***	0.662***	0.107**
	(0.044)	(0.041)	(0.027)	(0.056)	(0.049)
Oil	0.002***		0.008***	0.002***	0.001
	(0.0004)		(0.0003)	(0.0004)	(0.0005)
GDP	−0.011		0.185***	−0.012	0.011
	(0.011)		(0.007)	(0.010)	(0.012)
I44	−0.014***		0.047***	−0.015***	−0.032***
	(0.002)		(0.001)	(0.002)	(0.002)
Constant	2.086***	1.171***	−6.978***	1.704***	4.978***
	(0.177)	(0.094)	(0.142)	(0.178)	(0.194)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	18,629	18,629	5,174	18,629	18,629
R^2	0.448	0.523	0.788	0.460	0.302

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.13. Determinants of wage growth expectations - business leaders - 2021Q3 - 2024Q4

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}\pi_{t+4}$	0.329***	0.206***	0.050***	0.230***	0.625***
	(0.007)	(0.006)	(0.005)	(0.016)	(0.008)
$\mathbf{E}_{i,t}\pi_{t+4}$:Size > 50				0.078***	
				(0.013)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Manufacturing				0.001	
				(0.016)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Retail_trade				0.063***	
				(0.019)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Services				0.083***	
				(0.016)	
π_t	−0.074			−0.067	−0.161*
	(0.061)			(0.060)	(0.083)
$\mathbf{E}_{i,t}w_t$	0.761***	1.084***	3.828***	0.769***	
	(0.010)	(0.010)	(0.023)	(0.010)	
Size > 50	0.200*	0.100	−0.021	−0.333**	0.328**
	(0.109)	(0.085)	(0.045)	(0.139)	(0.148)
Manufacturing	−0.033	−0.099	0.062	−0.036	0.500**
	(0.168)	(0.132)	(0.069)	(0.208)	(0.230)
Retail_trade	−0.039	0.023	0.084	−0.482**	−0.040
	(0.169)	(0.133)	(0.069)	(0.217)	(0.231)
Services	0.241	0.209*	0.054	−0.346*	0.417**
	(0.149)	(0.117)	(0.061)	(0.187)	(0.203)
Oil	−0.030***		−0.061***	−0.029***	0.004
	(0.007)		(0.003)	(0.007)	(0.009)
GDP	0.282***		2.235***	0.292***	−0.001
	(0.085)		(0.099)	(0.085)	(0.117)
I44	−0.205***			−0.205***	0.098*
	(0.037)			(0.037)	(0.051)
Constant	21.860***	−3.310***	−6.684***	22.457***	−9.946
	(4.581)	(0.175)	(0.119)	(4.554)	(6.230)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	6,203	6,203	1,372	6,203	6,203
R^2	0.738	0.839	0.983	0.741	0.510

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.14. Determinants of wage growth expectations - economists - 2009Q1 - 2021Q2

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.081***	1.070***	1.899***	0.081***	
	(0.007)	(0.019)	(0.059)	(0.007)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.221***	0.083***	0.161***	0.219***	0.231***
	(0.020)	(0.014)	(0.025)	(0.024)	(0.020)
$\mathbf{E}_{i,t}\pi_{t+4}$:ec_fi				0.005	
				(0.042)	
π_t	−0.055***		−0.182***	−0.055***	−0.091***
	(0.017)		(0.024)	(0.017)	(0.017)
ec_fi	0.121***	0.017	0.113***	0.109	0.123***
	(0.028)	(0.019)	(0.034)	(0.090)	(0.028)
Oil	0.001**		0.005***	0.001**	0.001
	(0.0004)		(0.001)	(0.0004)	(0.0004)
GDP	−0.009		0.069***	−0.009	−0.009
	(0.010)		(0.013)	(0.010)	(0.010)
I44	−0.052***		0.017***	−0.052***	−0.057***
	(0.002)		(0.003)	(0.002)	(0.002)
Constant	7.523***	0.716***	−1.858***	7.527***	8.425***
	(0.173)	(0.076)	(0.360)	(0.176)	(0.159)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	2,911	2,911	743	2,911	2,911
R^2	0.389	0.725	0.727	0.389	0.360

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.15. Determinants of wage growth expectations - economists - 2021Q3 - 2024Q4

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	−0.007	0.821***	3.535***	−0.008	
	(0.010)	(0.045)	(0.078)	(0.010)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.233***	0.140***	0.023	0.245***	0.232***
	(0.026)	(0.020)	(0.015)	(0.030)	(0.025)
$\mathbf{E}_{i,t}\pi_{t+4}$:ec_fi				−0.033	
				(0.045)	
π_t	−0.041			−0.041	−0.040
	(0.031)			(0.031)	(0.031)
ec_fi	0.273***	0.103**	−0.022	0.386**	0.271***
	(0.059)	(0.045)	(0.030)	(0.168)	(0.059)
Oil	−0.008**		−0.060***	−0.008**	−0.008**
	(0.003)		(0.003)	(0.003)	(0.003)
GDP	−0.018		2.143***	−0.019	−0.015
	(0.044)		(0.094)	(0.044)	(0.044)
I44	0.010			0.011	0.007
	(0.019)			(0.019)	(0.019)
Constant	2.507	−1.303***	−5.759***	2.342	2.760
	(2.335)	(0.225)	(0.242)	(2.348)	(2.306)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	610	610	131	610	610
R^2	0.378	0.656	0.963	0.379	0.378
Adjusted R^2	0.371	0.647	0.962	0.370	0.372
Residual Std. Error	0.641	0.480	0.145	0.641	0.640
F Statistic	52.313***	70.751***	650.972***	45.802***	61.003***

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.16. Determinants of wage growth expectations - social partners - 2009Q1 - 2021Q2

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.046***	0.989***	1.465***	0.046***	
	(0.009)	(0.049)	(0.069)	(0.009)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.116***	0.066***	0.116***	0.147***	0.120***
	(0.019)	(0.016)	(0.032)	(0.043)	(0.019)
$\mathbf{E}_{i,t}\pi_{t+4}$:sp_er				−0.038	
				(0.047)	
π_t	−0.094***		−0.136***	−0.097***	−0.118***
	(0.023)		(0.026)	(0.023)	(0.022)
sp_er	−0.225***	−0.111***	−0.164***	−0.138	−0.232***
	(0.034)	(0.029)	(0.034)	(0.112)	(0.034)
Oil	0.001		0.004***	0.001	0.001
	(0.001)		(0.001)	(0.001)	(0.001)
GDP	−0.036***		0.006	−0.036***	−0.034**
	(0.013)		(0.015)	(0.013)	(0.013)
I44	−0.048***		0.004	−0.048***	−0.051***
	(0.002)		(0.003)	(0.002)	(0.002)
Constant	7.880***	1.337***	0.494	7.831***	8.374***
	(0.226)	(0.162)	(0.393)	(0.234)	(0.205)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	1,551	1,551	430	1,551	1,551
R^2	0.359	0.556	0.742	0.359	0.348

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.17. Determinants of wage growth expectations - social partners - 2021Q3 - 2024Q4

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.057***	0.939***	3.838***	0.056***	
	(0.016)	(0.039)	(0.088)	(0.016)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.189***	0.092***	0.050***	0.143***	0.195***
	(0.022)	(0.015)	(0.010)	(0.043)	(0.022)
$\mathbf{E}_{i,t}\pi_{t+4}$:sp_er				0.060	
				(0.048)	
π_t	0.017			0.022	0.007
	(0.049)			(0.049)	(0.049)
sp_er	−0.233***	−0.168***	0.078*	−0.486**	−0.230***
	(0.083)	(0.055)	(0.039)	(0.218)	(0.084)
Oil	−0.014***		−0.071***	−0.015***	−0.013**
	(0.005)		(0.003)	(0.005)	(0.005)
GDP	−0.034		2.542***	−0.040	−0.050
	(0.070)		(0.111)	(0.070)	(0.070)
I44	−0.054*			−0.055*	−0.036
	(0.030)			(0.030)	(0.030)
Constant	9.731***	−1.685***	−6.996***	10.123***	8.072**
	(3.698)	(0.218)	(0.289)	(3.708)	(3.713)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	485	485	103	485	485
R^2	0.310	0.705	0.964	0.313	0.292

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.18. Determinants of wage growth expectations - households - 2009Q1 - 2024Q4

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.161***	0.160***	0.120***	0.160***	
	(0.005)	(0.005)	(0.011)	(0.005)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.055***	0.055***	0.093***	0.216***	0.066***
	(0.010)	(0.010)	(0.022)	(0.031)	(0.009)
$\mathbf{E}_{i,t}\pi_{t+4}$:Female				0.00002	
				(0.021)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Age				−0.004***	
				(0.001)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Public_sector				0.005	
				(0.021)	
π_t	−0.028		0.037	−0.025	−0.014
	(0.042)		(0.092)	(0.042)	(0.040)
Female	−0.628***	−0.624***	−0.389	−0.623***	−0.704***
	(0.122)	(0.122)	(0.243)	(0.140)	(0.103)
Age	−0.053***	−0.053***	−0.065***	−0.039***	−0.031***
	(0.005)	(0.005)	(0.009)	(0.005)	(0.002)
Public_sector	−0.717***	−0.707***	−0.689***	−0.734***	−0.896***
	(0.123)	(0.123)	(0.244)	(0.141)	(0.103)
Oil	0.003*		0.010**	0.003**	0.002
	(0.002)		(0.005)	(0.002)	(0.002)
GDP	0.040		0.011	0.040	0.083*
	(0.047)		(0.169)	(0.047)	(0.043)
I44	0.047***		0.054**	0.047***	0.013**
	(0.010)		(0.025)	(0.010)	(0.006)
Constant	0.454	4.897***	−0.040	−0.128	3.990***
	(1.122)	(0.435)	(2.689)	(1.126)	(0.589)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	18,964	18,964	4,871	18,964	26,806
R^2	0.069	0.072	0.053	0.070	0.016

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.19. Determinants of wage growth expectations - business leaders - 2009Q1 - 2024Q4

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.537***	0.850***	3.161***	0.535***	
	(0.005)	(0.005)	(0.017)	(0.005)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.361***	0.256***	0.109***	0.329***	0.590***
	(0.004)	(0.004)	(0.004)	(0.009)	(0.004)
$\mathbf{E}_{i,t}\pi_{t+4}$:Size > 50				0.061***	
				(0.007)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Manufacturing				0.002	
				(0.009)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Retail_trade				0.005	
				(0.011)	
$\mathbf{E}_{i,t}\pi_{t+4}$:Services				−0.031***	
				(0.009)	
π_t	−0.026*		−0.322***	−0.021	−0.063***
	(0.015)		(0.011)	(0.015)	(0.018)
Size > 50	0.050	0.032	0.057**	−0.172***	0.104**
	(0.036)	(0.035)	(0.023)	(0.044)	(0.044)
Manufacturing	−0.008	−0.021	0.082**	−0.020	0.097
	(0.058)	(0.050)	(0.036)	(0.068)	(0.071)
Retail_trade	−0.078	−0.056	0.033	−0.104	−0.040
	(0.061)	(0.052)	(0.038)	(0.074)	(0.074)
Services	0.125**	0.043	0.143***	0.234***	0.172***
	(0.053)	(0.046)	(0.033)	(0.063)	(0.065)
Oil	0.0004		0.006***	0.0003	−0.002**
	(0.001)		(0.0004)	(0.001)	(0.001)
GDP	−0.028*		0.170***	−0.025*	0.030*
	(0.014)		(0.009)	(0.014)	(0.017)
I44	−0.019***		0.037***	−0.019***	−0.010***
	(0.002)		(0.002)	(0.002)	(0.003)
Constant	1.895***	0.382***	−5.778***	1.981***	2.435***
	(0.201)	(0.120)	(0.147)	(0.202)	(0.245)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	24,832	24,832	6,546	24,832	24,832
R^2	0.648	0.740	0.918	0.649	0.475

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.20. Determinants of wage growth expectations - economists - 2009Q1 - 2024Q4

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.143***	1.030***	1.860***	0.143***	
	(0.006)	(0.017)	(0.040)	(0.006)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.335***	0.101***	0.159***	0.320***	0.408***
	(0.017)	(0.011)	(0.020)	(0.019)	(0.018)
$\mathbf{E}_{i,t}\pi_{t+4}$:ec_fi				0.060**	
				(0.030)	
π_t	0.100***		−0.100***	0.100***	0.086***
	(0.013)		(0.017)	(0.013)	(0.015)
ec_fi	0.183***	0.028	0.112***	0.046	0.210***
	(0.029)	(0.018)	(0.032)	(0.074)	(0.031)
Oil	0.001**		0.004***	0.001**	0.001**
	(0.0004)		(0.0005)	(0.0004)	(0.0005)
GDP	0.001		0.070***	0.001	0.009
	(0.011)		(0.012)	(0.011)	(0.012)
I44	−0.030***		0.011***	−0.030***	−0.031***
	(0.002)		(0.002)	(0.002)	(0.002)
Constant	4.618***	0.781***	−1.363***	4.663***	5.137***
	(0.146)	(0.074)	(0.231)	(0.148)	(0.156)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	3,521	3,521	874	3,521	3,521
R^2	0.320	0.759	0.777	0.320	0.206

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.21. Determinants of wage growth expectations - social partners - 2009Q1 - 2024Q4

	$\mathbf{E}_{i,t}w_{t+4}$				
$\mathbf{E}_{i,t}w_t$	0.147***	0.957***	1.699***	0.146***	
	(0.008)	(0.029)	(0.046)	(0.008)	
$\mathbf{E}_{i,t}\pi_{t+4}$	0.216***	0.081***	0.094***	0.271***	0.260***
	(0.015)	(0.011)	(0.017)	(0.026)	(0.016)
$\mathbf{E}_{i,t}\pi_{t+4}$:sp_er				−0.072***	
				(0.028)	
π_t	0.178***		−0.015	0.168***	0.173***
	(0.017)		(0.020)	(0.017)	(0.018)
sp_er	−0.232***	−0.127***	−0.154***	−0.037	−0.255***
	(0.037)	(0.026)	(0.035)	(0.084)	(0.040)
Oil	0.0004		0.004***	0.0004	0.0002
	(0.001)		(0.001)	(0.001)	(0.001)
GDP	−0.042***		0.030*	−0.040**	−0.029*
	(0.016)		(0.015)	(0.016)	(0.017)
I44	−0.026***		0.006**	−0.026***	−0.023***
	(0.002)		(0.003)	(0.002)	(0.002)
Constant	4.588***	1.396***	−0.372	4.515***	4.812***
	(0.209)	(0.127)	(0.272)	(0.211)	(0.226)
Time FE	No	Yes	No	No	No
Period	All	All	Q1	All	All
Observations	2,036	2,036	533	2,036	2,036
R^2	0.343	0.701	0.811	0.346	0.229

*p<0.1; **p<0.05; ***p<0.01

Source: Norges Bank and Statistics Norway, authors' own calculations.

Table D.2.22. Inflation-wage pass-through

	w_{t+1}		
w_t	0.70***	0.70***	0.69***
	(0.16)	(0.16)	
π_{t+1}		0.17	
		(0.13)	
π_t			0.12
			(0.13)
Observations	22	22	22
R^2	0.47	0.49	0.47

*p<0.1; **p<0.05; ***p<0.01

Note: Regression of actual wage growth, w_{t+1}, on lagged wage growth, w_t, contemporaneous inflation, π_{t+1}, or past inflation, π_t, annual frequency, 2000-2024.
Source: Norges Bank and Statistics Norway, authors' own calculations.

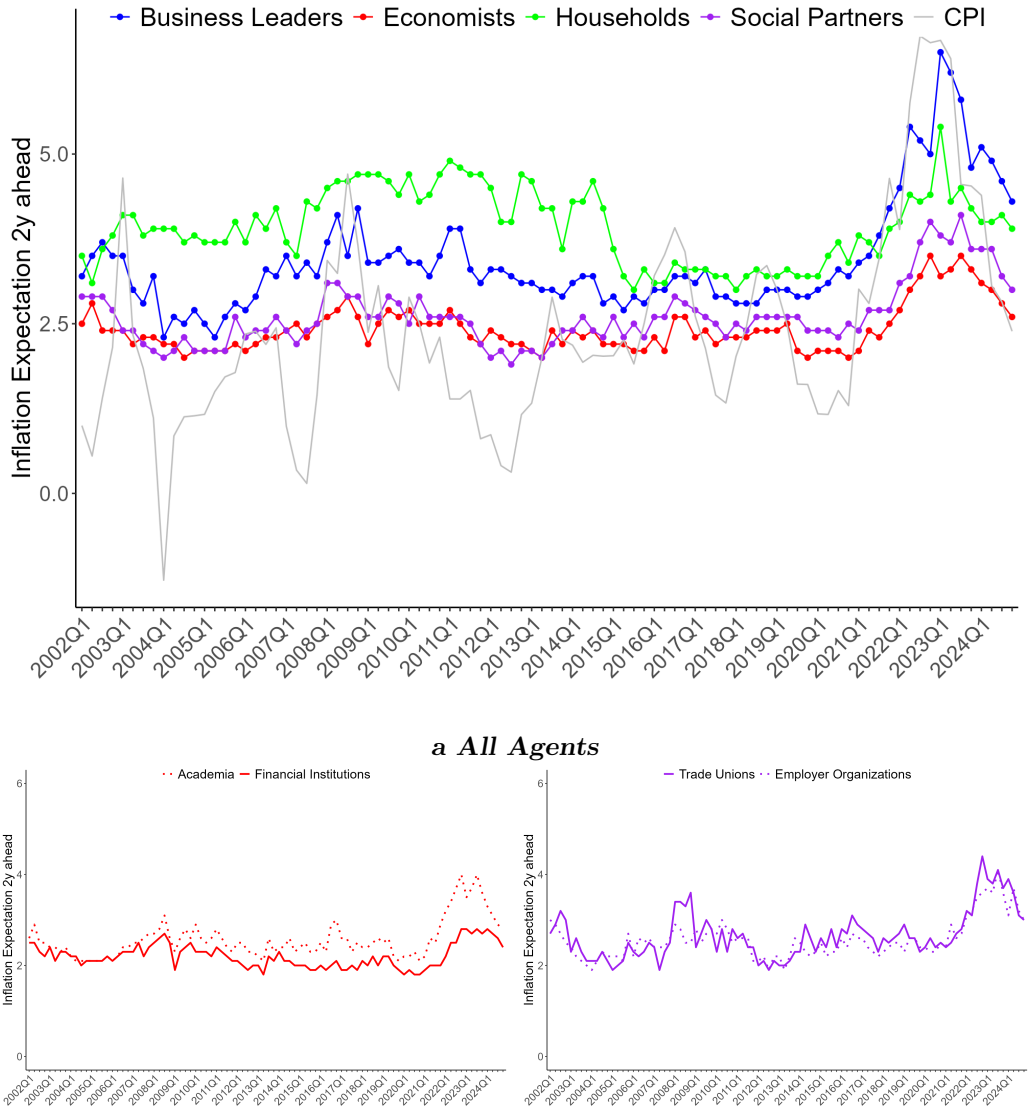
Table D.2.23. Effect of energy prices on inflation expectations

	Firms		**Households**	
	$\mathbf{E}_{i,r,s,t}\pi_{t+4}$	$\mathbf{E}_{i,r,s,t}\pi_{t+8}$	$\mathbf{E}_{i,r,s,t}\pi_{t+4}$	$\mathbf{E}_{i,r,s,t}\pi_{t+8}$
$D_{r,t} \times \Delta P$	0.008^{***}	0.012^{***}	-0.002	-0.001
	(0.003)	(0.003)	(0.002)	(0.002)
Time FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	22,590	21,852	42,240	39,626
R^2	0.166	0.128	0.044	0.040

*p<0.1; **p<0.05; ***p<0.01

Note: Regression from model (4.3) for households, business leaders, economists and social partners. All models include time fixed effects, a dummy for living in the south and individual level controls. For households, controls include age, sex and occupational status; for business leaders sector and size.
Source: Norges Bank and Statistics Norway, authors' own calculations.

D.3 Additional Figures



a All Agents

b Economists and Social Partners

Figure D.3.1. Timeseries of average inflation expectations (2 years ahead) since 2002

Note: The bottom left hand side graph plots academics and financial institutions, the bottom right hand side graph plots employer organizations and trade unions. The black line in (a) indicates CPI inflation in Norway.
Source: Norges Bank, authors' own calculations.

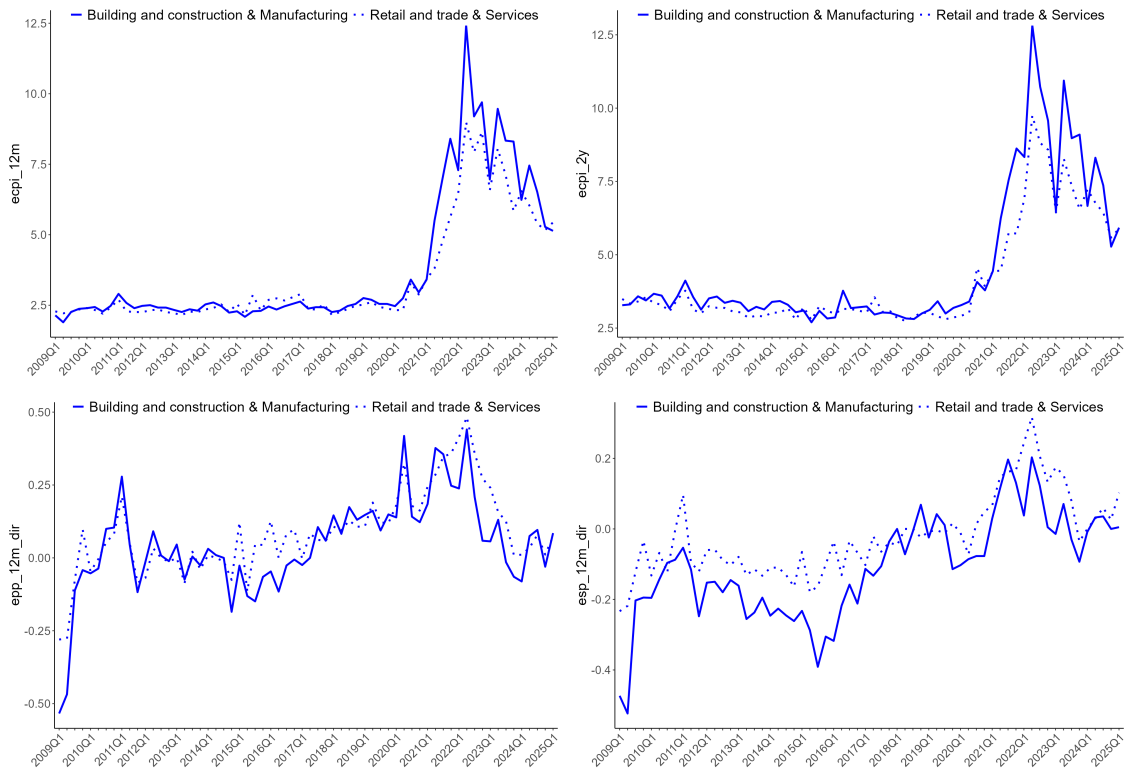
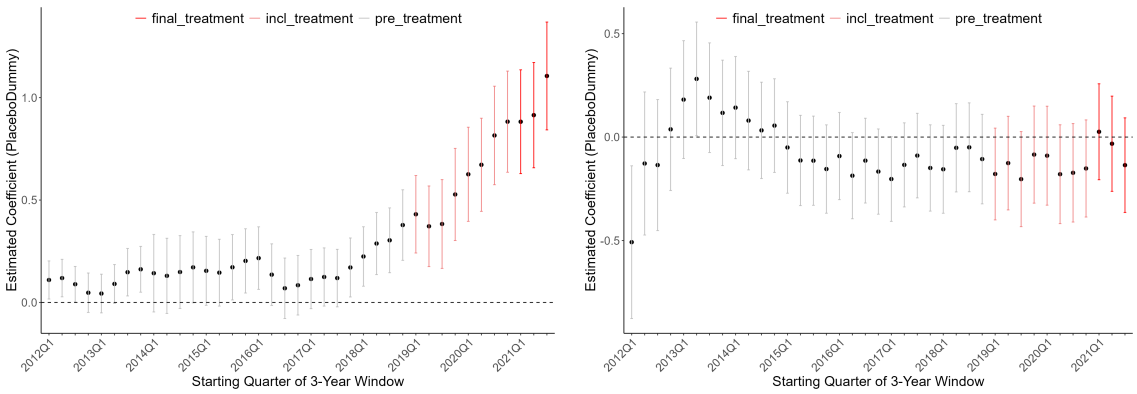


Figure D.3.2. Timeseries of business leaders' expectations by sector since 2012

Note: The top left hand side graphs plot short-term expectations (over the next 12 months) and the top right hand side graphs plot medium-term expectations (over the next 2 years). The bottom left hand side graphs plot the balance statistic for purchasing prices, the bottom right hand side or sales prices.
Source: Norges Bank, authors' own calculations.



a Business Leaders ***b Households***

Figure D.3.3. Placebo test using rolling 3 year treatment windows

Note: The placebo test re-estimates the main regression (4.3) using moving 3-year windows (keeping the first 3 years as baseline) as artificial treatment periods. For each window, a placebo dummy is defined for the treated region, and the resulting coefficients are plotted together with the 95% confidence interval to check for spurious effects outside the actual intervention period. The gray windows are estimated over the pre-treatment period, the pink windows include some months of the treatment period and the red windows include only our final treatment window in the dummy.
Source: Norges Bank and Statistics Norway, authors' own calculations.