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Changing Jobs to Fight Inflation: Labor Market Reactions to Inflationary Shocks*

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Abstract: We argue that inflationary shocks affect allocative efficiency by changing the rate and the characteristics of workers' job-to-job transitions. First, using monetary policy shocks and survey data on search effort, we empirically show that a one percentage point rise in inflation increases job-to-job transitions by up to 4.5%, and workers with higher inflation expectations are more likely to search and do so more effectively. Second, we build a general equilibrium model of directed on-the-job search to quantify the aggregate implications of labor market reactions. Higher-than-expected inflation reduces real wages, prompting workers to search more actively and aim lower. This increases job-to-job transitions but lowers the efficiency gains per transition. Therefore, the effect on output is ambiguous. Last, we calibrate the model to the U.S. economy. Inflationary shocks increase reallocation rates, yet allocative efficiency and output decline. Small deflationary shocks (e.g., 2%) increase output in the short run, while others decrease it.

Key Words: Inflation, Job-to-job Flows, Worker Reallocation
JEL codes: E24, E31, J31

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1 Introduction

Reallocating workers across firms is crucial for raising aggregate productivity. Theoretically, reallocation can raise efficiency as firms enter, exit, and experience shifts in productivity. Empirically, job-to-job transitions, on average, come with wage increases, which suggests improvements in match productivity.[1] In this paper, we identify a novel channel that affects the nature of job-to-job transitions: inflation. If wages are not indexed to inflation, higher-than-expected inflation decreases real wages, increases gains from a fresh contract, and a new offer through job search becomes more valuable.[2] Workers could respond by increasing their search effort, thus making a new job offer more likely, and by being less selective, i.e., looking for offers with smaller wage increases. Both responses would increase the rate of job-to-job transitions (quantity channel), while the second response decreases the associated productivity boost for each switch (quality channel). Hence, the impact of inflationary shocks on output is ambiguous and potentially depends on the size of the shock.

In the first part of the paper, we provide three main pieces of evidence that suggest a causal link from inflationary shocks to J2J rates. First, we run simple vector autoregressions on the aggregate U.S. data. While inflation helps predict future J2J rates, J2J rates do not help predict future inflation movements. Second, we use various estimates of structural monetary policy shocks as instruments for inflation. Our results suggest that a 1 p.p. shock to inflation causes an increase in the J2J rates by 2.9 to 4.2%. Third, we provide indirect evidence of the mechanism using individual-level survey data on inflation expectations and on-the-job search behavior. We find that a one standard deviation increase in yearly inflation expectations is associated with a 4.3% higher probability of searching. Furthermore, it is associated with 11.6% more hours spent searching and 24.1% more of-

[1]See, e.g., Fallick and Fleischman (2004). Under various models, job changes come with increases in both wage and productivity, e.g., Postel-Vinay and Robin (2002) and Menzio and Shi (2011).

[2]Job switchers' wage gain relative to job stayers is higher when inflation is higher than expected in the U.S. See Figure 9 in Appendix F.

fers received within the next month among searchers.

In the second part, to account for how the firms and workers react to an inflationary shock, we build a dynamic game between a worker (she) who searches for a new job and a firm that can unilaterally increase her wage to influence her search behavior. The firm commits to continue paying the current wage forever, but cannot commit to future wage increases. We characterize the Markov-Perfect equilibria of the game. Under some restrictions on the parameter space, after a sudden decline in real wages, the firm does not adjust the wage back to its original level, and the worker responds by searching for less valuable outside options (quality channel) that are attained with a higher probability (quantity channel). In other words, the downward wage rigidity endogenously generates upward wage rigidity.

For our quantitative analysis, we integrate this dynamic game into a general equilibrium model of directed on-the-job search with aggregate shocks as in Menzio and Shi (2011). We further augment the model by introducing ex-ante firm heterogeneity and endogenous search effort. Firms optimally increase wages after an unanticipated inflationary shock but fall short of offsetting the full decline. The workers respond by increasing their search efforts and searching in markets with lower posted wages as their current situation deteriorates.[3] Hence, they trade a higher wage for a higher probability of finding a new job. Both responses lead to more frequent J2J transitions (quantity channel), which, *ceteris paribus*, would increase aggregate productivity and output. However, the reduced asking wage makes these transitions less productivity-enhancing (quality channel), creating a force that decreases average productivity. In short, inflationary shocks lead to more J2J transitions, while their effect on productivity is ambiguous.

We provide a novel solution algorithm that greatly simplifies the solution of a directed

[3] See Faberman et al. (2022) for evidence on search effort decreasing with income and Christensen et al. (2005) and Mueller (2010) for evidence on job search effort decreasing as workers move up the job ladder. See Pilossoph and Ryngaert (2024) for workers with higher inflation expectations reporting smaller reservation wages.

on-the-job search model with aggregate shocks under inefficient contracting. It relies on a backward-induction solution that iterates over a wage grid. We further introduce a novel estimation algorithm that endogenously selects a vacancy cost distribution consistent with a given wage distribution. The algorithm simplifies the estimation of directed search models with ex-ante firm heterogeneity.

We calibrate the model by targeting the aggregate job flows, average wage gain in a J2J transition, and the labor share of output, among other aggregate moments. Furthermore, we target the J2J rate response to an inflationary shock that we estimated using the monetary policy shocks. Hence, the calibration ensures a realistic increase in the J2J rates and a realistic change in the average productivity gains from such transitions. Without explicitly targeting it, the model generates an empirically plausible productivity distribution and broadly captures the cyclical co-movement of aggregates.

We subject the calibrated model to unanticipated inflationary shocks of various magnitudes. The incumbent firms are broadly unresponsive to the decrease in real wages. The search effort increases while the workers target smaller wages in their on-the-job search. J2J rate increases, yet the average productivity gain decrease dominates: output declines in the short run, and the decline is larger for larger shocks. In contrast, deflationary shocks lead to fewer transitions with an increase in the average productivity gain. The quality channel dominates for small deflationary shocks (e.g., -2%), and the output increases in the short run, despite fewer transitions. When the size of the deflationary shock is larger (e.g., -5%), the quantity channel starts to dominate, and the output decreases in the short run. Although the size of the J2J rate and productivity gain responses are monotone in the size of the shock, the output response is not monotone.

Inflationary shocks also narrow the wage distribution, consistent with the post-COVID patterns documented by Autor et al. (2023). Furthermore, they reduce the predictive power of job tenure for wages, match productivity, and search efforts.

Lastly, we simulate counterfactual recessions with and without inflationary and deflationary shocks. The recession with an inflationary shock significantly increases J2J rates, yet leads to a slow output recovery. On the other hand, the recession with a deflationary shock generates large declines in J2J rates but a fast output recovery post-recession. These results demonstrate a caveat in equating fast reallocation with increased allocative efficiency. Inflation can grease the wheels by encouraging J2J transitions, yet may lead to short-run declines in productivity. Therefore, our model helps explain why deflationary episodes do not correlate with slower growth (Atkeson and Kehoe, 2004) as predicted by Keynesian theory.[4]

Our primary contribution is to the literature on the efficiency of job reallocation. Following varying paths of allocative efficiency documented across recessions (see Mukoyama (2014) and Foster et al. (2016)), the literature asks when reallocation is productivity-enhancing and when it is not. Caballero and Hammour (1994), Barlevy (2003), and Ouyang (2009) discuss adjustment costs, increased credit market frictions, and early exits, respectively, as reasons for the 'sullying' effect of the recessions. Like ours, Barlevy (2002) analyzes the role of J2J transitions during recessions. He shows that decreasing J2J transitions during recessions can generate an effect large enough to offset the 'cleansing' effect of recessions. Our model encompasses this channel yet shows that decreased reallocation rates do not guarantee a worsening allocation. The productivity gains associated with reallocation depend on the characteristics of transitions, hence, whether the recession is inflationary or deflationary. Martellini and Menzio (2020) and Birinci et al. (2024) also suggest a similar quality-quantity distinction: following improvements in matching technology, the matching rates can remain constant while match quality improves.

A contemporaneous paper by Afrouzi et al. (2024) proposes a model linking inflationary shocks and labor market responses. It argues that inflation leads to welfare losses

[4]The idea that inflation helps reduce labor market frictions and increase productivity was proposed by Tobin (1972) and empirically tested by Card and Hyslop (1997). According to this idea, a positive inflation rate prevents nominal downward wage rigidity from translating to real rigidity. In our baseline model, we shut this channel down to flesh out our novel channel.

by triggering inefficient search activity. While their outcome of interest is the dynamics of aggregate labor market variables, ours is allocative efficiency and output response.[5] Faberman et al. (2022) similarly investigates how endogenous search effort plays a role in a random search model with aggregate shocks. Our model endogenizes some differences in the search behavior of the unemployed and the employed via directed search. Our empirical analysis of the relationship between inflation expectations and search behavior helps explain the search heterogeneity across survey respondents that they document. Another contemporaneous paper by Pilossoph and Ryngaert (2024) also documents a positive correlation between inflation expectations and job search activities. We independently reach similar results.[6]

Some recent work focuses on the reverse causality: how the labor markets influence the path of inflation. Moscarini and Postel-Vinay (2023) incorporates a random on-the-job search framework into a New Keynesian DSGE model. In their model, when the workers are concentrated at the top of the job ladder, many of the offers they receive are matched by their employers. Matched offers are essentially cost shocks to the incumbent firm, followed by increased prices. Hence, on-the-job search can create inflationary pressure, and its magnitude depends on the allocation of workers across firms. Birinci et al. (2022) extends Moscarini and Postel-Vinay (2023) into a heterogeneous-agent incomplete-markets environment and characterizes the changes in MPC to discipline aggregate demand response. Faccini and Melosi (2023) allows shocks to on-the-job search intensity in a random search environment. We endogenize the search effort and the effectiveness of J2J transi-

[5]Beyond the differences in our key outcome variables, there are three key differences in our model structure. First, while they model worker heterogeneity, we focus on the firm heterogeneity to generate a realistic productivity distribution. Second, we model the lack of commitment in the firm-worker relationship through a firm that can unilaterally increase wages to discourage search. In contrast, they model it through a worker who can unilaterally trigger a bargaining game. Hence, we prioritize a J2J transition as a threat point for the worker, rather than a quit to unemployment. Third, our model is in discrete time and poses distinct computational challenges. Their model is better suited for understanding vacancy and unemployment dynamics, while ours is better for understanding misallocation and output dynamics.

[6]We find similar results using the Survey of Consumer Expectations on the likelihood of search. While we look at a broader set of search effort and outcome variables, they look at reservation wages and utilize additional data from the Real-Time Population Survey.

tions to respond endogenously to the economic environment. We provide a theory and quantitative evidence that the output response to an inflationary shock is non-monotonic in the magnitude of the shock.

Lastly, our mechanism suggests an important role for labor markets in determining the output response to monetary policy shocks. Olivei and Tenreyro (2007) shows that the effects of monetary policy shocks depend on their timing during the year, which is consistent with many firms renegotiating wage contracts at the end of the year. Björklund et al. (2019), using data on collective wage agreements in Sweden, find that the output response to monetary policy is bigger when a larger fraction of wage contracts are nominally fixed. We provide a theory of job search that links labor markets and output responses to inflationary shocks. The estimated model quantifies output responses to inflationary shocks of various magnitudes.

We proceed with the description of the data used. Section 2 provides the reduced-form analysis. Section 3 lays down the dynamic game between a firm and a worker, while Section 4 presents the quantitative general equilibrium model. Our calibration strategy and the quantitative results are presented in Sections 5 and 6, respectively. Section 7 concludes.

2 Empirical Analysis

Figure 1 shows the recent movements in the job-to-job transition rate (J2J rate) and CPI inflation for the U.S. Interestingly, the J2J rate took a big hit in all three recessions in our sample. While it took several years for the rate to recover after the 2001 and 2008 recessions, it immediately recovered in the 2020 recession. The 2020 recession was also the only inflationary recession: while the inflation rate decreased after the previous recessions, it went up to historical levels after the 2020 recession. These patterns raise questions about

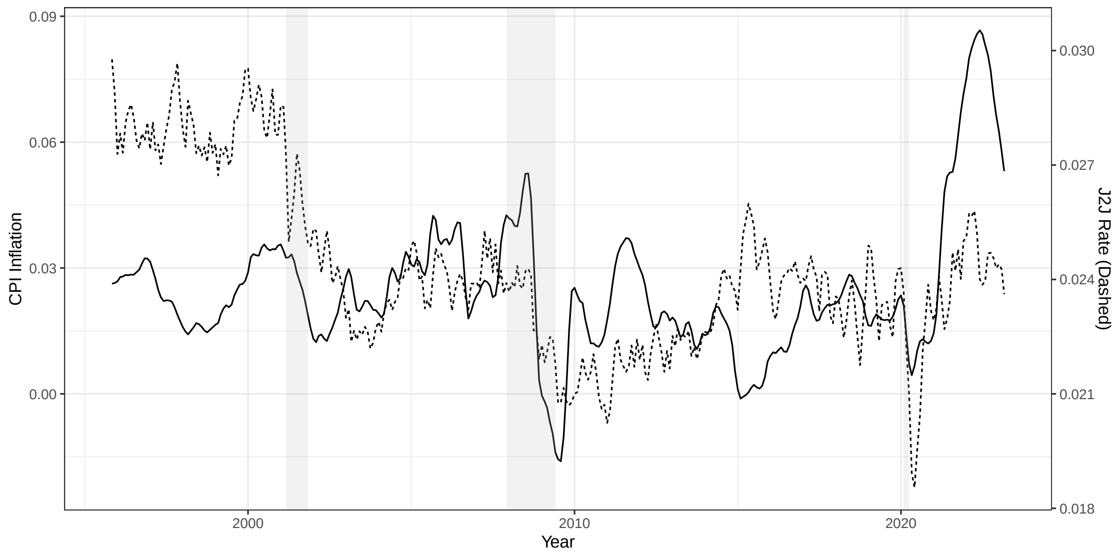

Figure 1: CPI Inflation and Monthly Job-to-job Transition Rates 10/1995 to 06/2022 The dashed line represents the three-month moving average of the seasonally adjusted monthly J2J rate (Fujita et al., 2024). The solid line represents the CPI inflation from the U.S. Bureau of Labor Statistics. The shaded regions represent NBER recessions.

the role played by inflation in determining the J2J rate.[7] Acknowledging that both J2J rates and inflation are equilibrium outcomes, we move on to unpack their co-movement.

This section presents two main pieces of evidence to argue that inflationary shocks influence workers' search behavior. First, Section 2.1 uses estimates of monetary policy and global oil shocks as instruments to get a causal estimate of the effect of inflation on job-to-job transitions. We later use the estimates from this subsection to discipline the structural model. Second, Section 2.2 uses survey data to argue a link between inflation and job search behavior by comparing workers with different inflation expectations.[8]

[7]Unexpected inflation movements in the U.S. have led to large drops in real wages as they accumulated. Figure 10 in Appendix F presents the real wage losses of a worker who signed a contract according to SPF inflation forecasts. The losses during the post-Covid inflation period reach 9% while they approach 2% several times after 1981. See Figure 11 for the same plot with the Michigan Survey of Consumers (MSC) inflation forecasts.

[8]In Appendix C.1, we use time-series data from the U.S. in a simple Vector-Auto-Regression to show that unexpectedly high inflation today predicts a higher J2J rate in the future. See Appendix C.2 and C.3 for analyses utilizing state-level and country-level variation in J2J rates. Although both state and country-level analyses are suggestive of the role of our channel, we don't have state-level data on inflation expectations, and the country-level data is too infrequent (yearly) to track changes in job transitions.

2.1 Instrumental Variable Analysis with Monetary Policy Shocks

We use various monetary policy shock estimates from the literature. The first measure is computed from narrative records of FOMC meetings and internal forecasts of the Federal Reserve by Romer and Romer (2004) and updated further by Wieland and Yang (2020). The second measure is by Sims and Zha (2006), who use structural VAR estimates to identify shocks to monetary policy. The third, fourth, fifth, sixth, and seventh measures are by Barakchian and Crowe (2013), Gertler and Karadi (2015), Nakamura and Steinsson (2018), Bauer et al. (2021), and Bauer and Swanson (2023) who use high-frequency movements in financial series during policy events to identify monetary policy shocks.[9]

In our main specification, we estimate the following equations in the first and the second stages:

$$Infl_t = \gamma_0 + \sum_{i=1}^{24} \gamma_i MPS_{t-i} + \epsilon_t \tag{1}$$

$$J2J_t = \beta_0 + \beta_1 Infl_{t-1} + \beta_2 Infl_{t-12} + \epsilon_t. \tag{2}$$

where t denotes a month, $J2J$ are monthly J2J rates, $Infl_t$ is the percentage growth of CPI from $t-12$ to t, and MPS is one of the monetary policy shock measures we have.

Table 1 shows that inflation has a significant and positive impact on J2J transitions. Inflation in the previous month has a positive coefficient in all specifications and is always significant at the 1% level. Furthermore, the magnitude of the effect is similar across specifications. In particular, a one percentage point increase in inflation leads to an increase in J2J transitions by 5.5 to 10.9 basis points, which translates to a 2.2%-4.5% increase on average. These results further add to the evidence in support of our theory, that is, inflationary

[9] See Appendix B for a more detailed explanation of each series and Table 16 in Appendix F for the summary statistics.

Table 1: IV Estimates

	BC	GK	BLM	NS	NSFFR	RR	SZ	BS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Infl_{t-1}$	0.109***	0.055***	0.072***	0.095***	0.058***	0.093***	0.081***	0.061***
	(0.034)	(0.015)	(0.015)	(0.020)	(0.020)	(0.029)	(0.027)	(0.014)
$Infl_{t-12}$	0.076**	0.035	0.043***	0.030	0.018	0.046*	0.034	0.025*
	(0.031)	(0.023)	(0.015)	(0.021)	(0.023)	(0.027)	(0.035)	(0.014)
Range	'95-'08	'95-'12	'95-'20	'95-'14	'95-'14	'95-'08	'95-'03	'95-'23
Obs	131	179	278	200	200	125	68	308
Adj R^2	−0.000	0.102	0.030	−0.077	0.094	0.095	0.105	0.055

Notes: Each column represents a monetary policy shock source. The instruments are 1 to 24-month lags of the shocks. All variables are seasonally adjusted and HP-filtered. *p<0.1; **p<0.05; ***p<0.01. Source: Fujita et al. (2024); U.S. Bureau of Labor Statistics, CPI; authors' calculations.

shocks lead to higher job-to-job transition rates.[10]

2.2 Survey Evidence on Search Effort

This section supplements the previous analyses by providing evidence at the individual level using survey data. Since there is no variation in inflation surprise across individuals, we use inflation expectations as a proxy.

We use the publicly available micro-data from the Federal Reserve Bank of New York Survey of Consumer Expectations (SCE) between 2013 and 2022. The core survey in the SCE is a 12-month panel and asks individuals about their inflation expectations each month.[11] The Labour Survey supplement is administered in April, July, and November and asks respondents about their work status and basic questions on their job search activity. Lastly, the Job Search supplement is administered in October and asks more detailed questions on job search activities. We combine these surveys to measure how

[10] The results are qualitatively and quantitatively robust to controlling for UE rates and adding oil price shocks estimated by Känzig (2021) as additional instruments. See Table 17 and Table 18 in Appendix F.

[11] The wording in the survey is: "What do you expect the rate of ... inflation/deflation ... to be over the next 12 months?"

inflation expectations are related to job search activities and outcomes.

In our main specification, we regress measures of job search activities and outcomes on inflation expectations of respondents. We run regressions of the form:

$$y_{jt} = \alpha \hat{i}_{jt} + \gamma_t + \vec{\beta} \vec{X}_{jt} + \epsilon_{jt} \tag{3}$$

where j indexes respondents, t indexes survey dates, y_{jt} and $\hat{i}_{jt}$ represent job search activities (or outcomes) and inflation expectations, respectively, for respondent j measured at survey t. Lastly, the vector X represents additional controls and always includes survey fixed effects. In our main specification, we also control for demographic and job-related variables (natural logarithms of age, tenure, and annual earnings, dummies for sex and marital status, five dummies for race, four dummies for education, and fixed effects for state, and two-digit industries) that can correlate with both inflation expectations and job search behavior.[12] We exclude respondents who are, at the time of the survey, not between the ages 18 and 64, non-employed or self-employed.

Table 2a shows the results on various measures of job search effort. In particular, respondents with higher inflation expectations are more likely to have searched in the past month. A one standard deviation increase in inflation expectations is associated with 1 p.p. (4.3%) higher likelihood of search. Furthermore, conditional on having searched, they spent 0.4 (11.6%) more hours searching in the past week, tried 0.2 (5.8%) more methods, and applied to 0.3 (11%) more employers in the past month. Table 2b shows the results on various measures of job search outcomes conditional on having searched. Respondents with higher inflation expectations have received 0.04 (12.9%) more interviews and 0.07 (24.1%) more offers in the past month. We find no significant impact on the number of employers respondents heard from. Adding several available controls reduces the

[12]See Appendix B.4 for details on how we estimate tenure for each individual. See Table 19 in Appendix F for summary statistics on search-related variables.

magnitude of the coefficients, yet the qualitative results are broadly robust.

Even though there is a robust relationship between inflation expectations and job search behavior, the former might be capturing the agent's expectations on the broader state of the economy and be unrelated to the real wage erosion mechanism we propose. We re-estimate (3), replacing the inflation expectations with three alternative expectation measures regarding stock markets, interest rates, and unemployment rates.[13] The results are summarized in Figure 13 in Appendix F. In short, none of these alternate measures consistently predict job search behavior as inflation expectations do.

The evidence in this section supports a causal link between inflationary shocks and job-to-job transitions. In the next sections, we build and estimate a structural model that allows us to quantify the aggregate impact of this channel.

3 A Simple Model of Wage Adjustment

This section presents a dynamic game between a worker (she) who searches for a new job and a firm that can unilaterally increase her wage to influence her search behavior. We characterize the Markov-perfect equilibria of the game and show how the worker and the firm would react to unexpected inflation: a sudden decline in the real wage. This simple model shows that both the quantity and quality channels are operational when the workers can direct their search. Later, in Section 4, we present a model that endogenizes the job opportunities of the worker through the free entry of profit-maximizing firms and allows workers to choose their search effort.

[13]These variables represent the answers to the following questions: "What do you think is the percent chance that 12 months from now, on average, X will be higher than they are now?" where X varies between "stock prices in the U.S. stock market", "average interest rate on saving accounts", and "the unemployment rate in the U.S.". See Table 20 in Appendix F for summary statistics on the relevant expectation measures.

Table 2: Direct Evidence on Search Effort

(a) Inflation Expectations and Job Search Activities

	Search(1M)	Search(1M)	Hours(1W)	Hours(1W)	Methods(1M)	Methods(1M)	Apply(1M)	Apply(1M)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\hat{i}$	0.34***	0.17**	12.55***	7.80***	3.84***	4.02***	7.50***	5.55**
	(0.09)	(0.08)	(2.41)	(2.49)	(0.88)	(0.87)	(2.79)	(2.53)
Survey FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Obs	20,654	18,912	4,742	4,336	4,748	4,342	1,163	1,130
R^2	0.00	0.05	0.03	0.12	0.04	0.10	0.02	0.16

(b) Inflation Expectations and Job Search Outcomes

	Heard(1M)	Heard(1M)	Interviews(1M)	Interviews(1M)	Offers(1M)	Offers(1M)	Offers(4M)	Offers(4M)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\hat{i}$	0.155	0.156	0.788	0.753**	1.662***	1.269***	1.589***	0.298
	(1.631)	(1.636)	(0.543)	(0.382)	(0.612)	(0.491)	(0.548)	(0.502)
Survey FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Obs	1,164	1,131	1,107	1,084	1,019	990	3,248	2,935
R^2	0.001	0.134	0.018	0.162	0.033	0.168	0.008	0.105

Notes: Each column pair represents a different measure of job search activity as the dependent variable, with and without additional controls. The main independent variable is the inflation expectation for the next 12 months. All regressions have survey date fixed effects. The additional controls are natural logarithms of age, tenure, and annual earnings, dummies for sex and marital status, five dummies for race, four dummies for education, and fixed effects for state, and two-digit industries. The standard errors are clustered at the individual level. See Appendix B for the data sources and details of how each variable is constructed. $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

3.1 Environment

Preferences and Technology Time is discrete with an infinitely lived firm and a worker. They both maximize the present value of their income with joint discount factor β. The firm and the worker produce a random amount of $y \in \{y^0, ..., y^N\}$, which follows a Markov chain with transition matrix Π. The worker can also apply for a continuum of outside jobs with value $V \in \mathcal{V} = [\underline{V}, \overline{V}]$. Each application succeeds with probability $p(V) > 0$ where p is twice continuously differentiable with p' and p'' representing first and second derivatives. We assume applications for higher-value jobs are less likely to succeed $p' < 0$. The worker can only apply for one job each period. We assume the outside jobs are strictly preferred to the highest wage the firm could offer, that is, $\underline{V} > \frac{\max_i\{y^i\}}{1-\beta}$.

Contract Space The firm commits to paying any current wage w^- as long as the worker stays. The firm can increase the wage but cannot commit to future increases. Lastly, the firm needs to pay a cost for adjusting wages from w^- to w that equals $\frac{\xi}{\tau}(w - w^-)^\tau$ where $\xi > 0$, $\tau > 1$.[14]

Timing Each period starts with the realization of y. First, the firm chooses the continuation wage $w \geq w^-$, and then, the worker chooses which V to apply for after observing w. The worker leaves for the outside job if successful; if not, the production happens, and the firm pays w to the worker.

3.2 Markov Perfect Equilibrium

We limit our attention to Markov Perfect Equilibria (MPE), in which the firm's and workers' strategies depend only on the payoff-relevant states: current productivity y and wage rate w^-. We denote a Markov strategy for the firm with $w^*(y, w^-)$ and for the worker with $V^*(y, w^-)$.

[14]We introduce the adjustment cost here to ensure the differentiability of the firm's objective function for analytical results. We shut it down in the general equilibrium model.

The firm's problem can be represented by the following Bellman Equation evaluated right before production:

$$F(y, w^-) = y - w^- + \beta \sum_{y'} \Pi_{y,y'} \left[\max_{w \geq w^-} \left(1 - p(V^*(y', w))\right) F(y', w) - \frac{\xi}{\tau}(w - w^-)^\tau \right], \quad (4)$$

with the associated policy function $w^*(y', w^-)$. Here, $(1 - p(V^*(y', w)))$ represents the probability that the worker's application does not succeed and the firm continues to operate. The worker's problem can be represented as:

$$A(y, w^-) = w^- + \beta \sum_{y'} \Pi_{y,y'} \left[\max_{V \in \mathcal{V}} p(V) \left(V - A(y', w^*(y', w^-))\right) + A(y', w^*(y', w^-)) \right], \quad (5)$$

with the associated policy function $V^*(y', w^-)$. Importantly, both the worker and the firm take each other's strategies into account (w^* and V^*, respectively).

Definition 1. *$F(y, w^-)$, $A(y, w^-)$, $w^*(y', w^-)$, and $V^*(y', w^-)$ constitute a Markov Perfect Equilibrium where*

1. *$F(y, w^-)$ and $w^*(y', w^-)$ solve the firm's problem in (4) given $V^*(y', w^-)$, and*
2. *$A(y, w^-)$ and $V^*(y', w^-)$ solve the worker's problem in (5) given $w^*(y', w^-)$.*

3.3 Comparative Statics

Now, we characterize the policy functions of the firm and the worker. In particular, we provide sufficient conditions for the policy functions to increase with the current wage w^-.

Proposition 1. *Let $\tau < 2$, ξ be sufficiently large, and p'' be sufficiently small. Then, $w^*(y, w^-)$ and $V^*(y, w^-)$ are strictly increasing in w^-.*

Proof. See Appendix A. □

Proposition 1 provides insights into how an individual worker and firm would respond to an inflationary shock, i.e., an unexpected drop in the real wage w^{-}. The firm would not respond to an inflationary shock by bringing the wage to its original level: a strictly increasing w^{*} implies $w^{*}(y,(1-\pi_1)w) > w^{*}(y,(1-\pi_2)w)$ for $\pi_2 > \pi_1$. Hence, the inflationary shock can have a lasting impact on the worker's real wage. The worker would respond by targeting outside jobs that provide less value. In other words, she would be less selective and more likely to leave for an outside job. Our main insight is present in this simple firm-worker structure: following an inflationary shock, the worker would target less desirable jobs and be more likely to switch. The next section introduces this game to a general equilibrium model to quantify the aggregate implications of our insight.

4 The General Equilibrium Model

This section presents a directed search model that maps inflationary shocks, worker allocation, and aggregate output while encapsulating the dynamic game in Section 3. We use the model to quantify the short-run output response to an unexpected inflationary shock: a sudden permanent decline in existing real wages. The model exhibits monetary neutrality in the long run: the economy goes back to its original stochastic steady state as firms increase incumbent workers' wages and workers switch jobs. However, depending on the size of the inflationary shock, aggregate productivity and output can increase or decrease in the short run.

4.1 Environment

Preferences The economy consists of a continuum of workers with measure one and a continuum of firms with positive measure. Workers' utility is linear in their income, and they dislike searching for jobs. Firms are risk-neutral and want to maximize their discounted profits. Time is discrete, and both parties use the same discount factor, $\beta \in (0, 1)$.

Production Technology There is a single consumption good in the economy. Unemployed workers produce b units of output. When a worker and a firm match, they produce $y + z$ units of output. The first component, y, is the aggregate productivity. It follows a Markov process, and it is identical across firms. Let $\mathbb{Y} \subset \mathbb{R}_+$ denote the set of possible aggregate states. The second component, z, is the firm productivity. It is chosen by firms before they enter the market. The cost of choosing productivity z is given by $\kappa(z)$, which is strictly increasing and strictly convex, i.e., $\kappa' > 0$ and $\kappa'' > 0$. Once chosen, z remains constant throughout the worker's tenure at the firm. Let $\mathbb{Z} \subset \mathbb{R}_+$ denote the set of possible firm productivity levels.

Lastly, in each period, firms pay an operating cost that depends on the aggregate state ψ and firm productivity z: $\phi(\psi, z)$. We use the operating cost as a reduced-form representation of capital expenditures. We assume that this payment, along with firm profits, is distributed across workers equally. Since workers' utility is quasilinear, their non-labor income does not impact their decisions and is ignored going forward.

Meeting Technology Workers and firms must find each other to produce output. Search is directed, meaning workers and firms target specific submarkets indexed by a wage promise and market tightness. The wage is considered a promise because firms can raise it later based on the state of the economy, but they cannot reduce it. Let $w \in \mathbb{R}_+$ denote the real wage rate offered by the firm and the associated submarket.

Both unemployed and employed workers can search for a job. After selecting a submarket, workers choose their search effort, e. The utility cost of exerting effort is given by $c(e)$, and it is a strictly increasing and convex function with the following properties: $c(0) = 0$, $c'(0) = 0$. On the other side, each firm selects a submarket to post a vacancy and pays the cost $\kappa(z)$ associated with its chosen productivity level.

The matches happen through a constant-returns-to-scale matching function. The market tightness θ is defined as the vacancy-to-total search effort ratio and is a sufficient statistic for the matching probabilities. A worker who exerts e units of effort in a submarket with tightness θ finds a job with probability $ep(\theta)$, where $p : \mathbb{R} \to [0, 1]$ is a strictly increasing and concave function with the following properties: $p(0) = 0$, $p(x) \to 1$ as $x \to \infty$. Meanwhile, a vacancy posted in a submarket with tightness θ matches a worker with probability $q(\theta)$, where $q : \mathbb{R} \to [0, 1]$ is a strictly decreasing function that satisfies the following condition: $\theta q(\theta) = p(\theta)$.

Timeline Each period is divided into four sub-periods. In the first sub-period, aggregate productivity y is realized. In the second sub-period, exogenous separations occur with probability $\delta \in (0, 1)$. For surviving matches, the firms adjust their wages upward if they find it optimal. In the third sub-period, entrants choose their productivity level z, pay the cost, and choose where to post their vacancy. In the meantime, workers choose where to search and how much effort to exert. In the last sub-period, production takes place, and wages are paid.

Discussion of the Model Elements While setting the environment, we make some simplifications. First, we express all variables in real terms as a limiting case of a New Keynesian model where pricing frictions are reduced to zero and conceptualize inflation as an unexpected reduction in real wages. This approach isolates the effects of inflation on the labor market. Second, firms cannot make counteroffers to employees who are poached by other firms. While this could theoretically result in workers moving to less productive jobs, such behavior does not occur with the calibrated parameters. Including an explicit pricing decision or allowing counteroffers would rule out block-recursive equilibria, making the model intractable.

Third, we do not model the deterministic part of the inflation process, yet this is without loss of generality. When the inflation process is deterministic, firms and workers could design wage contracts to adjust nominal wages over time, keeping real wages constant in the absence of shocks.

The model has monetary non-neutrality due to two key frictions: non-state-contingent contracts and search frictions. Because contracts are not state-contingent,[15] an inflationary shock lowers the real wages of workers. To restore their real wages, workers must find a new firm and sign a new contract. However, search frictions prevent them from doing so immediately, delaying the adjustment. As a result, inflation affects labor reallocation through workers' search behavior and, in turn, impacts the real economy. Our model would exhibit monetary neutrality if all labor contracts were inflation-adjusted or if labor markets were competitive.

4.2 Problem of a Firm

Let us start by describing the problem of a firm that already has a worker. Let $K(w, z, \psi)$ be the value function of a filled vacancy with match productivity z, current wage w, and aggregate state ψ.

Once the match is formed, the only decision the firm makes is whether to increase the wage. Specifically, the problem of a filled vacancy is:

$$K(w, z, \psi) = y + z - w - \phi(\psi, z) + \beta(1-\delta)\mathbb{E}\left[\max_{w' \geq w}(1 - \bar{p}(w', z, \psi'))K(w', z, \psi')\right]. \quad (6)$$

The first component is the flow profit, $y + z - w - \phi(\psi, z)$. The second component is the discounted value of the firm. With probability δ, the worker separates exogenously, leaving the vacancy with zero value. With probability $1 - \delta$, exogenous separation does not occur and the firm chooses a new wage that is weakly larger than the current one. After the wage adjustment, the worker can search for a new job and leave the firm with probability $\bar{p}(w', z, \psi')$. This probability is determined in equilibrium. With the remain-

[15] See Appendix D for a broad overview of the evidence regarding the (lack of) wage indexation.

ing probability $1 - \bar{p}(w', z, \psi')$, the worker remains at the firm, and the value of the firm becomes $K(w', z, \psi')$.

Without on-the-job search, the current wage would always bind for the firm. When workers search on-the-job, however, the firm might be willing to pay more to distort the worker's job search behavior. Let $w^\star(w, z, \psi)$ be the optimal wage policy.

Let us now describe the problem of an entrant. Due to free entry, in equilibrium, the expected profit of posting a vacancy with productivity z and wage w must be non-positive:

$$\kappa(z) \geq q(\theta(w, z, \psi))K(w, z, \psi). \tag{7}$$

The left-hand side is the cost, and the right-hand side is the expected value of the vacancy, which is the product of the probability of finding a worker and the value of a filled vacancy. For this condition to hold with equality, there must be a positive mass of workers searching for a job in submarket w.

Let $\bar{\theta}(w, z, \psi)$ be the solution to equation (7). Among those offering the same wage, only the market with the highest $\bar{\theta}(w, z, \psi)$ can attract workers by providing the highest job finding probability. Therefore, the relevant market tightness for each wage is determined by the upper envelope of $\bar{\theta}(w, z, \psi)$ values.[16] Then, define $\theta(w, \psi)$ and $z^\star(w, \psi)$ as

$$\theta(w, \psi) = \max_{z \in \mathbb{Z}} \bar{\theta}(w, z, \psi), \quad z^\star(w, \psi) = \arg\max_{z \in \mathbb{Z}} \bar{\theta}(w, z, \psi). \tag{8}$$

[16]Note that the above reasoning breaks down if vacancy costs vary sufficiently across z levels. In that scenario, a worker may prefer to search in a less tight market if the associated z level is larger, with possibly higher future wages. This scenario substantially complicates the exposition and the solution algorithm. We restrict our analysis to the parameter space where this does not happen and later confirm that our calibrated parameters are in this space.

4.3 Problem of a Worker

Let $H(w, z, \psi)$ be the lifetime value of a worker employed at a firm with productivity z with wage w when the aggregate state is ψ. Similarly, let $U(\psi)$ be the lifetime value of an unemployed worker when the aggregate state is ψ.

Consider a worker with a current lifetime utility of V. The worker chooses where to search for a job and how much effort to exert. With probability $e \cdot p(\theta(w, \psi))$ the worker finds a job at a firm with productivity $z^\star(w, \psi)$, and her lifetime utility becomes $H(w, z^\star(w, \psi), \psi)$. With the remaining probability, she does not find a job, and her lifetime utility stays at V. The worker incurs a search effort cost $c(e)$ independent of the outcome. Thus, her job search problem can be expressed as:

$$\max_{w,e} ep(\theta(w, \psi))H(w, z^\star(w, \psi), \psi) + (1 - ep(\theta(w, \psi)))V - c(e).$$

This problem can be decomposed into two parts:

$$R(\psi, V) = \max_{w} p(\theta(w, \psi))(H(w, z^\star(w, \psi), \psi) - V), \tag{9}$$

$$\max_{e} eR(\psi, V) - c(e). \tag{10}$$

The first part involves choosing the optimal wage w to search for, considering the difference between the lifetime value of a new job and the current lifetime value. The second part involves selecting the optimal search effort e to maximize the expected gain from the search, net of the search cost $c(e)$. We use $m(V, \psi)$ to denote the solution to (9).

An unemployed worker consumes b in the current period. In the next period, the worker decides where to search for a job and how much effort to exert. Thus, the value function of an unemployed worker is:

$$U(\psi) = b + \beta\mathbb{E}\left[\max_{e} eR(\psi', U(\psi')) - c(e) + U(\psi')\right]. \tag{11}$$

An employed worker consumes w in the current period. In the next period, with probability δ, the worker becomes unemployed. If she remains employed, the firm adjusts the wage after the aggregate state is realized. At that point, the worker's lifetime utility becomes $H(w^\star(w,z,\psi'),z,\psi')$, and she decides where to search and how much effort to exert. Thus, the value function of an employed worker is given by:

$$H(w,z,\psi) = w + \beta\mathbb{E}\Big[\delta U(\psi') + (1-\delta)\max_e\{eR(\psi', H(w^\star(w,z,\psi'),z,\psi')) - c(e) + H(w^\star(w,z,\psi'),z,\psi')\}\Big]. \tag{12}$$

4.4 Market Equilibrium

Following Menzio and Shi (2011), we consider block-recursive equilibria where policy functions do not depend on the distribution of workers, thus, $\psi \equiv y$. Matched workers and firms play a Markov Perfect Equilibrium similar to the one in Definition 1.

Definition 2. *A block-recursive equilibrium consists of a market tightness* $\theta : \mathbb{R}\times\mathbb{Y}\to\mathbb{R}_+$*, the associated firm productivity* $z^\star : \mathbb{R}_+\times\mathbb{Y}\to\mathbb{Z}$*, endogenous job separation probability* $\bar{p} : \mathbb{R}_+\times\mathbb{Z}\times\mathbb{Y}\to[0,1]$*, workers' value functions* $U : \mathbb{Y}\to\mathbb{R}$ *and* $H : \mathbb{R}_+\times\mathbb{Z}\times\mathbb{Y}\to\mathbb{R}$*, the firm's value function* $K : \mathbb{R}_+\times\mathbb{Z}\times\mathbb{Y}\to\mathbb{R}$*, the worker's policy functions* $m : \mathbb{R}\times\mathbb{Y}\to\mathbb{R}$ *and* $e^* : \mathbb{R}\times\mathbb{Y}\to[0,1]$*, and the firm's policy function* $w^\star : \mathbb{R}_+\times\mathbb{Z}\times\mathbb{Y}\to\mathbb{R}_+$ *such that*

1. $H(w,z,\psi)$ *satisfies* (12), $U(\psi)$ *satisfies* (11), $K(w,z,\psi)$ *satisfies* (6)
2. $\bar{p}(w,z,\psi)$ *satisfies* $\bar{p}(w,z,\psi) = e^*(H(w,z,\psi),\psi)p(\theta(m(H(w,z,\psi),\psi),\psi))$,
3. $e^*(V,\psi)$ *and* $m(V,\psi)$ *solve worker's problem in* (9) *and* (10),
4. $w^\star(w,z,\psi)$ *solves firm's problem in* (6),
5. $\theta(w,\psi)$ *and* $z^\star(w,\psi)$ *are given by* (8).

4.5 Impact of an Inflationary Shock

As we defined our model in real terms, an inflationary shock can be represented by a decline in wages without a change in match productivity. In other words, an inflationary shock alters the share of surplus that goes to firms and workers.

A decline in wages generates three responses: firms adjust wages upwards, workers search for lower wages, and exert more search effort. The first two responses follow from the firm-worker game presented in Section 3. Firms can increase wages to distort workers' search, but this would only partially offset the impact of the initial shock. Workers search for jobs in submarkets with lower wages than they did before: as the workers' current situation deteriorates, the return to finding a job increases. Hence, the workers search in submarkets with a higher probability of finding a job. The third response is through the search effort. Since the return to search increases, workers exert higher effort.

These responses together imply more job-to-job transitions after an inflationary shock, consistent with the facts we documented in Section 2. Because workers move to more productive jobs on average, an increase in the number of transitions, *ceteris paribus*, increases aggregate output. However, because workers direct their search to lower wages than they did before, the productivity gain associated with each job-to-job transition will be lower compared to transitions before the shock. In other words, while the 'quantity' of job-to-job transitions increases, their 'quality' decreases. Therefore, the aggregate output can increase or decrease based on the magnitudes of these responses. In the next section, we calibrate our model to quantify the impact of inflationary shocks on aggregate output through labor market adjustment.

5 Quantitative Analysis

This section calibrates the model to the U.S. economy around 2005. The calibration ensures that the model accurately replicates key features of the labor market, including flow rates and the surplus sharing between firms and workers under typical business cycle conditions. We then assess the aggregate impact of an unanticipated inflationary shock.

For the model predictions on output response to be accurate, two implied elasticities must be plausible: (1) the response of job-to-job transitions to an inflationary shock and (2) the response of aggregate output to job-to-job transitions. We measure the former elasticity from an instrumental variable analysis with inflationary shocks in Section 2. The latter can be inferred from wage increases following job switches and a measure of how surplus is shared between firms and workers.

5.1 Functional Forms and Externally Calibrated Parameters

We assume y follows an $AR(1)$ process of the form $ln(y_t) = \rho_y ln(y_{t-1}) + \varepsilon_t$ where $\varepsilon_t \sim N(0, \sigma_y^2)$. We adopt a CES matching function as in Menzio and Shi (2011) which leads to job finding probability $p(\theta) = \theta\left(1+\theta^{\gamma}\right)^{-1/\gamma}$. We define the search cost for employed as $c(e) = ((1-e)^{-\eta} - \eta e - 1)$ and for unemployed as $\nu c(e)$. This functional form ensures that $c(0) = 0$, $\lim_{x \to 1} c(x) = \infty$, and $\partial c(x)/\partial x$ is invertible; hence, the effort choice problem is well-behaved. We choose the operating cost function, $\phi(\psi, z)$, based on the labor shares across firm productivity distribution, estimated by Gouin-Bonenfant (2022). Specifically, we set $\phi(y, z) = \tilde{\phi}(z) \cdot (z + y)$, and set $1 - \tilde{\phi}(z)$ to the labor share. $\tilde{\phi}(z)$ is given by Table 3.

We also introduce a one-time job transition cost for workers, $\lambda(w - w^{-})^2$, which is paid if the worker successfully lands a new job. This cost is not necessary for the model to generate the discussed mechanisms, but it helps smooth the worker's job search problem. It can be interpreted as the adjustment a worker needs to make to settle in an unfamiliar environment. We assume the transition cost of moving to a smaller real wage is prohibitively large. This greatly simplifies the model computation by allowing the use of backward induction (see Appendix E).

Table 3: Operating Cost

z Percentile	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
$\tilde{\phi}$	0	0	0.064	0.089	0.142	0.198	0.239	0.258	0.333	0.561

Note: The values for $\tilde{\phi}(z)$ are extracted from Table D.II of the Online Appendix of Gouin-Bonenfant (2022) with the labor share capped at 1.

We discretize the aggregate productivity process using Rouwenhorst (1995) with levels $\{y_L, y_H\}$. We also discretize the firm productivity levels as $z \in \{z_1, ..., z_{\mathcal{Z}}\}$ and accordingly, $\kappa \in \{\kappa_1, ..., \kappa_{\mathcal{Z}}\}$ where $\mathcal{Z} = 40$.

The full set of parameters necessary to compute the model is the vector:

$$\Omega = \{b, \gamma, \beta, \delta, \eta, \nu, \lambda, \{z_i, \kappa_i\}_{i=1}^{\mathcal{Z}}, \rho_y, \sigma_y\} \tag{13}$$

We set the model period to one month and normalize unemployment benefits to the average level of aggregate productivity. The exogenous separation rate is pinned down by the unemployment rate in 2004 as $\delta = 0.015$ given the targeted UE rate. We set $\beta = 0.95^{1/12}$ and $\rho_y = 0.788^{1/3}$, which equals the implied monthly persistence of the logged and HP-filtered GDP series from the U.S. data. We set $\gamma = 0.4$ as in Eeckhout and Sepahsalari (2024).[17] Lastly, following the evidence presented in Appendix D, we assume 20% of the workers are subject to automatic inflation.

The remaining parameters are calibrated internally to ensure the model replicates key labor market features. The internal calibration is performed in the presence of aggregate

[17] A common practice in the literature is to set γ to the elasticity of job finding rate to market tightness. The presence of effort in our model creates a wedge between the two values.

shocks, as these shocks influence both job transitions and wage dynamics.

5.2 Calibration of the Productivity Parameters

For our quantitative analysis, it is important for our model to generate a realistic productivity distribution. Ideally, we would choose $\{z_i, \kappa_i\}_{i=1}^{\mathcal{Z}}$ to generate the desired productivity distribution. However, with directed search, the productivity levels that firms have access to and those that emerge in equilibrium differ: (1) a productivity level is only observed if it can generate the highest expected profits (net of vacancy costs) for some observed wage and (2) a wage is only observed if it is the ideal wage to target for some workers. As a result, estimating the model can take a long time if we do a naive search for the $\{z_i, \kappa_i\}_{i=1}^{\mathcal{Z}}$ values.

Our strategy is based on the efficient search of productivity and vacancy cost levels to avoid these challenges. In particular, we use a heuristic that transforms the problem of picking $\{z_i, \kappa_i\}_{i=1}^{\mathcal{Z}}$ and comparing the resulting wage distribution to data to picking a data-consistent wage grid and choosing $\{z_i, \kappa_i\}_{i=1}^{\mathcal{Z}}$ to divide the wage grid between firms of different productivities.

We set the middle of the wage grid to be 2.5 times the unemployment benefit, b, which is the average replacement rate reported by the U.S. Department of Labor in 2005. The width of the wage grid (w_{wid}) is internally calibrated. For each guess of w_{wid}, we divide the wage space into $\mathcal{Z}$ equal pieces and associate each piece with a particular productivity level. Let $w_0, w_1, ..., w_{\mathcal{Z}}$ be denote the edges of these grid pieces, where w_0 and $w_{\mathcal{Z}}$ are the lower and the upper bounds of the grid, respectively. We set z_i such that the period payoff with high y becomes zero at w_{i+2}, guaranteeing a positive period payoff for wages in piece i. Then, the problem boils down to appropriately choosing κ levels.

We set $\{\kappa_i\}_{i=1}^{\mathcal{Z}}$ in two steps. First, we set $\kappa_{\mathcal{Z}} = K(w_{max}, \mathcal{Z}, y_H)$, i.e., $\kappa_{\mathcal{Z}}$ makes the value of posting a vacancy at w_{max} zero when the probability of meeting a worker is 1. Second, for each guess of κ_1, other κ_i are determined according to:

$$\kappa_i = \kappa_1 + (\kappa_{\mathcal{Z}} - \kappa_1) \left(\frac{z_i - z_1}{z_{\mathcal{Z}} - z_1} \right)^2 .$$

Hence, the problem of choosing $\{z_i, \kappa_i\}_{i=1}^{\mathcal{Z}}$ boils down to choosing two parameters: the width of the wage grid (w_{wid}) and the vacancy cost for the least productive firm (κ_1). Yet, our heuristic creates a well-balanced productivity distribution for any $\{w_{wid}, \kappa_1\}$ guess.

5.3 Calibration of the Remaining Parameters

We use the method of moments to calibrate the six remaining parameters $\{\eta, \nu, \kappa_1, w_{wid}, \lambda, \sigma_y\}$ to match six moments. The calibration uses all moments to discipline all parameters since general equilibrium effects through market tightness prevent isolating individual channels. Here, we provide intuition on how the used moments are helpful for particular parameters.

Two parameters, ν and κ_1, jointly determine the firm productivity and the tightness associated with each wage level. A larger κ_1 (which increases all κ_i) reduces the average tightness across markets, making both the J2J and UE transitions more difficult. A larger unemployed effort cost (ν) similarly makes UE transitions more difficult, but it has no direct effect on the J2J rates. Therefore, for a given J2J rate, a smaller ν implies a larger UE rate. Hence, the J2J and UE rates help distinguish ν and κ_1.

Two parameters, w_{wid} and λ, both impact the labor share in the same direction. As w_{wid} grows, the wage distribution and the productivity distribution become more dispersed, while as λ grows, job switches become more costly. Hence, for a given J2J rate, both a larger w_{wid} and a larger λ make it more difficult for workers to reach firms with top productivity levels where the labor share is significantly lower. The average wage gain from job-to-job transitions helps separately pin down these parameters. A higher λ, holding the J2J rate constant, induces the workers to climb the job ladder with smaller steps, reducing the average wage gain. In contrast, w_{wid} does not have a direct impact on the average wage gain beyond the general equilibrium response through changing tightness. Hence, the labor share and average wage gain help pin down $\{w_{wid}, \lambda\}$.

We use the J2J rate response to an unanticipated inflationary shock to pin down the search cost elasticity η. A larger η makes it difficult for a worker to increase her search effort when her existing situation deteriorates. We target the IV results we have from Section 2 to help discipline the search cost elasticity.

Lastly, we use the variance of the HP-filtered log output to discipline the variance of the aggregate productivity shock σ_y.

5.4 Calibration Results and Validation

The exogenously and endogenously calibrated parameters, together with the matched moments, are given in Tables 4 and 5.

Table 4: Exogenously set parameters

Parameter	**Role**	**Value**	**Source**
b	Unemployed Endowment	1.0	Normalized
β	Discount Factor	$0.95^{1/12}$	Common
δ	Separation Rate	0.013	Unemployment Rate
ρ_y	Agg Shock Persistence	$0.788^{1/3}$	US GDP Persistence
$\tilde{\phi}(z)$	Operating Cost	Table 3	Gouin-Bonenfant (2022)
γ	Matching Function Elasticity	0.4	Eeckhout and Sepahsalari (2024)

Table 5: Internally Calibrated parameters

Parameter	**Value**	**Moment**	**Data**	**Model**	**Source**
κ_1 Vacancy Cost	0.1	UE Rate	27.7%	25.3%	Fujita et al. (2024)
ν Effort Cost Multiplier	0.02	J2J Rate	2.4%	2.3%	Fujita et al. (2024)
λ Transition Cost	90	J2J Response	4.5%	5%	Section 2.1
η Effort Cost Elasticity	4.5	Labor Share	0.6	0.59	Common
w_{wid} Wage Width	0.18	Avg Wage Gain	9%	9.7%	Birinci et al. (2022)
y_{var} Var(Agg Shock)	0.035	Var(Output)	10^{-4}	10^{-4}	Authors' Calculation

Note: All parameters in the table are jointly calibrated in the stochastic steady state to match all the moments. J2J Response corresponds to the percentage change in J2J rates following a 1 p.p. unanticipated inflationary shock.

The calibrated parameters imply an expected cost of hiring a worker that ranges up to 10% of the average yearly wage in our simulated economy. The average job transition cost implied by our calibration is roughly equal to 15% of the average yearly wage. The average monthly effort cost is 2.8% of the average monthly wage for the employed and 11% for the unemployed. The calibrated wage grid leads to a wage dispersion where the top wage is 40% larger than the bottom wage.

The model does a good job of matching the empirical productivity distribution, which is important for quantifying output responses. In particular, we validate the model using the moments of producer-level productivity distribution in the U.S. manufacturing sector reported by Syverson (2004). In our calibration, we don't target any moments related to productivity, and we only indirectly target the wage distribution through the average wage gain in transitions. However, the calibrated model does a remarkable job of generating an empirically plausible productivity distribution. Table 6 summarizes the results. The simulated percentile ratios fall within the bounds of the estimates for plantand industry-specific input elasticities.[18]

Table 6: Productivity Distribution, Model vs. Data

	Model	Plant-Specific Input Elasticities	Industry Specific Input Elasticities
90/10 ratio	1.73	1.86	1.44
95/15 ratio	1.86	2.41	1.71
50/10 ratio	1.20	1.30	1.18
75/25 ratio	1.21	1.32	1.18

Note: The ratios in the first column are calculated from the simulated model. The ratios in the second and third columns are calculated from the estimates in Table 1 in Syverson (2004), assuming a symmetric distribution.

We also look at the implied persistence, variances, and cross-correlations between model aggregates at the business cycle frequency. In particular, we construct series for aggregate consumption, J2J and UE rates, unemployment rate, and number of vacancies. We take a 3-month moving average of these series before taking logs and applying the HP filter to isolate the cyclical part. We compare the model-implied statistics with empirical statistics as documented in Moscarini and Postel-Vinay (2023). Table 7 presents the results.

The model generates empirically plausible time series persistence for all aggregates. However, the model generates a lower variance for the labor market aggregates. The lack of variation in J2J, UE, and unemployment rates is due to the high elasticity of search costs, which is necessary to match the empirical response of J2J rates to inflationary shocks. As a result, the unemployed do not respond aggressively to declining job creation by firms. Anticipating this, the firms do not respond aggressively to aggregate shocks.

Our model matches the signs of all cross-correlations and is broadly consistent with the empirical magnitudes. On average, our model generates stronger correlations among

[18] An indirect method to verify the productivity distribution is employed by Menzio and Shi (2011), which relies on comparing the simulated and empiric distributions of job tenures. Figure 12 in Appendix F shows that our model broadly does a good job but understates the average tenure. In the absence of worker-level heterogeneity, our model cannot account for a small number of workers being responsible for the majority of job-to-job transitions.

Table 7: Business Cycle Statistics

	Panel A: Variance and Auto-Correlation				Panel B: Cross-Correlations							
	Variance		AC		Data				Model			
	Data	Model	Data	Model	u	UE	v	EE	u	UE	v	EE
u	0.049	0.0001	0.99	0.98								
UE	0.018	0.0001	0.97	0.96	-0.94				-0.93			
v	0.032	0.0033	0.96	0.96	-0.85	0.8			-0.89	0.99		
EE	0.003	0.002	0.89	0.97	-0.71	0.7	0.79		-0.86	0.97	0.99	
C	0.0001	0.0003	0.89	0.96	-0.72	0.76	0.68	0.64	-0.82	0.96	0.98	0.99

Note: Panel A summarizes variance and auto-correlation statistics, while Panel B shows cross-correlations between variables in the data and the model. Data from Moscarini and Postel-Vinay (2023).

aggregates. Additional shocks would help reduce the correlation by creating wedges, at the cost of added complexity. The only force in our model that prevents perfect correlations is the slow movement of the allocation of workers across firms.

6 Counterfactual Analyses

In this section, we investigate the impact of unanticipated inflationary and deflationary shocks using our calibrated economy. For demonstrative purposes, we hit the economy with positive and negative inflation shocks of 2% and 4% and present the responses in Figures 2 and 3.

Let's start with analyzing the response of our economy to a 2% inflation shock (dotted line) in Figure 2. The first panel shows the average real wage declines by 1.6% (with the 20% automatic indexation) as firms' endogenous response to offset the real wage decline is minimal. The low response is because the elasticity of quit probability to wages is not large enough to dissuade firms from enjoying lower wages.[19] While the initial posted wage by the firm needs to be high enough to attract the worker to a market, the firm enjoys monopoly power over the worker after hiring. Hence, firm's ideal wage becomes

[19] Our estimates indicate a 20% increase in quit rate with a 10% decline in real wages, which is in line with the 20-30% range reported using a lab experiment by Naidu and Carr (2022).

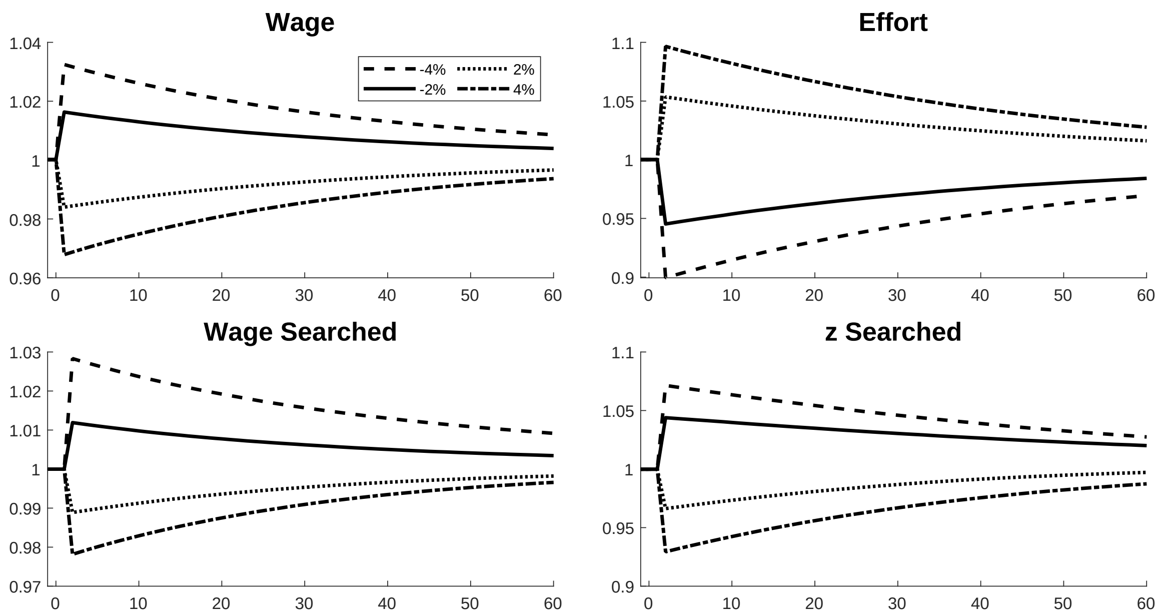

Figure 2: Agents' Responses to Unanticipated Inflationary Shocks

Responses to unanticipated positive and negative 2 and 4 p.p. inflationary shocks. For each plot, the y-axis values indicate the index relative to the baseline value.

smaller after the match.

The workers respond by increasing their search effort by 5%. The average wage they search for declines by roughly 1%, yet the productivity of the firms in the markets they search decreases by about 3%. In other words, the inflationary shock triggers the quality channel. Figure 3 shows how the aggregates respond to the changing policies. The J2J rate goes up by 10% while the average productivity gain in a transition decreases by about 18% on impact. We observe a decrease in output despite increasing job-to-job transition rates. The decrease in output reaches as high as 0.2% while the decrease in welfare (output net of vacancy, effort, and transition costs) reaches as high as 0.9%.

When the inflationary shock increases to 4% (dashed-dotted line), the effort response becomes gradually stronger, as well as the decline in the wages searched. The J2J rate increases around 20% with the 4% shock, yet the average productivity gain in transitions declines by almost 40%. The decline in gross output reaches 1%, and the decline in welfare

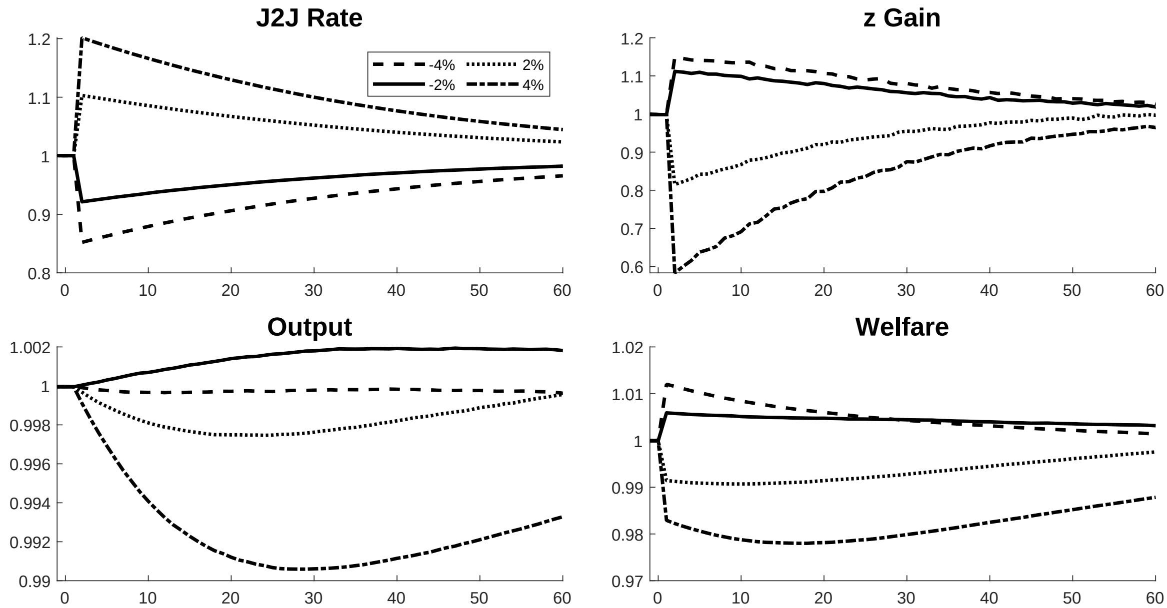

Figure 3: Responses for Aggregate Outcomes to Unanticipated Inflationary Shocks
Responses to unanticipated positive and negative 2 and 4 p.p. inflationary shocks. For each plot, the y-axis values indicate the index relative to the baseline value.

exceeds 2%.

The impact of a deflationary -2% shock (solid line) is almost symmetric to the inflationary 2% shock, with a decline in the search effort and an increase in the wage searched. J2J rates go down by about 8%, yet the average productivity gain in each transition goes up by as much as 10%. The quality channel dominates the quantity channel: output goes up by 0.2%, and the welfare goes up by 0.5%.

As the deflationary shock increases in magnitude, however, the output response starts to exhibit non-monotonicity. A -4% shock leads to a bigger decline in J2J rates and a bigger increase in productivity gains than a -2% shock. Yet the additional productivity gain it brings is not sufficient to make up for the additional decline it causes in J2J rates. As a result, the output roughly stays the same. The welfare increase is larger in the short run thanks to reduced vacancy creation and effort. Yet, the reduced allocative efficiency leads to smaller welfare in the medium and long run.

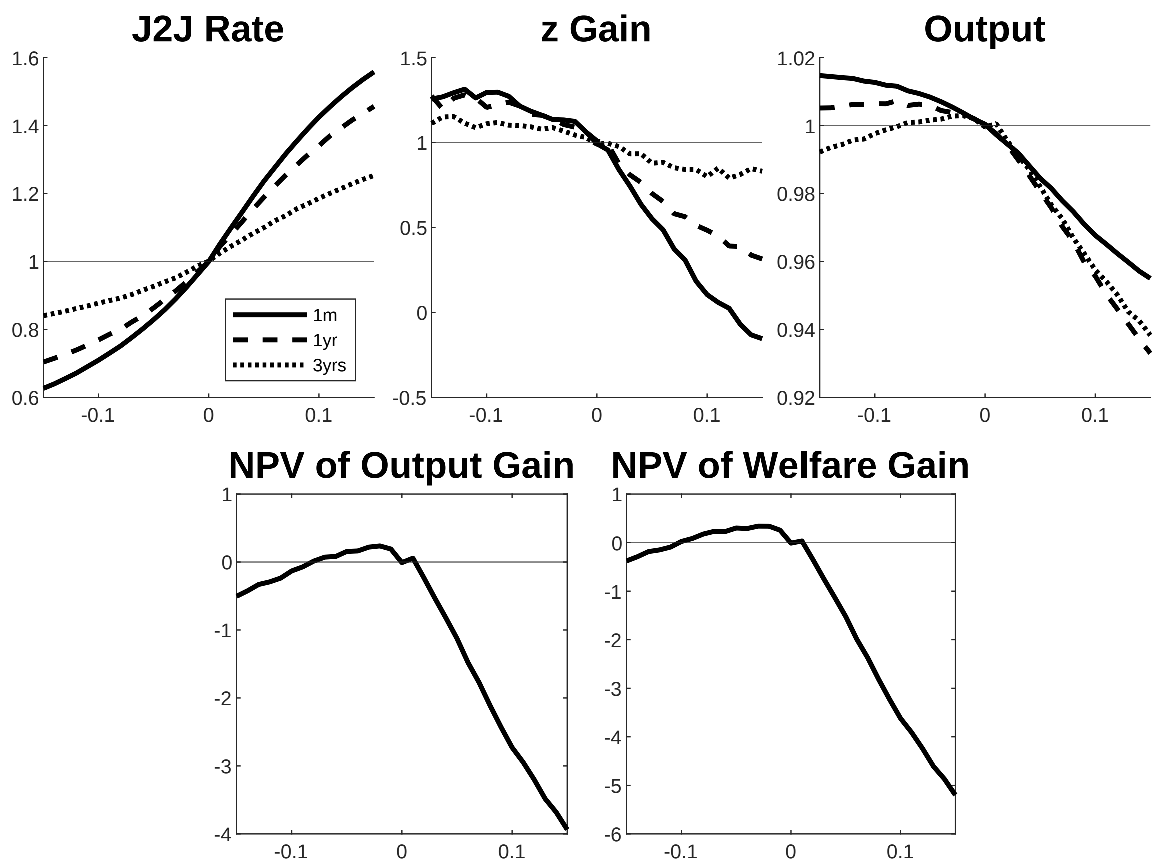

Figure 4: Inflationary Shock Magnitude vs Aggregate Responses at Fixed Horizons
For each plot, the x-axis values indicate the shock magnitude, and the y-axis values indicate the index relative to the baseline value. The figures in the top row depict responses to unanticipated positive and negative inflationary shocks at 1-month, 1-year, and 3-year horizons. The figures in the bottom row depict the net present value of output and welfare gains in units of the monthly average values of each.

We investigate a broader set of shocks at fixed horizons in Figure 4. As expected, the J2J rate and the productivity gain from each transition are monotonic in the size of the inflationary shock. However, the output response is non-monotonic. The bottom two figures calculate the Net Present Value (NPV) of output and welfare gains in units of their monthly averages. The magnitude of the inflationary shock that maximizes the net present value of output and welfare is around -2% and leads to around a quarter of a month of output increase (2% of the annual output) in net present value terms. As we move away in either direction, we see smaller short-run output increases and, eventually, short-run output (and welfare) losses.

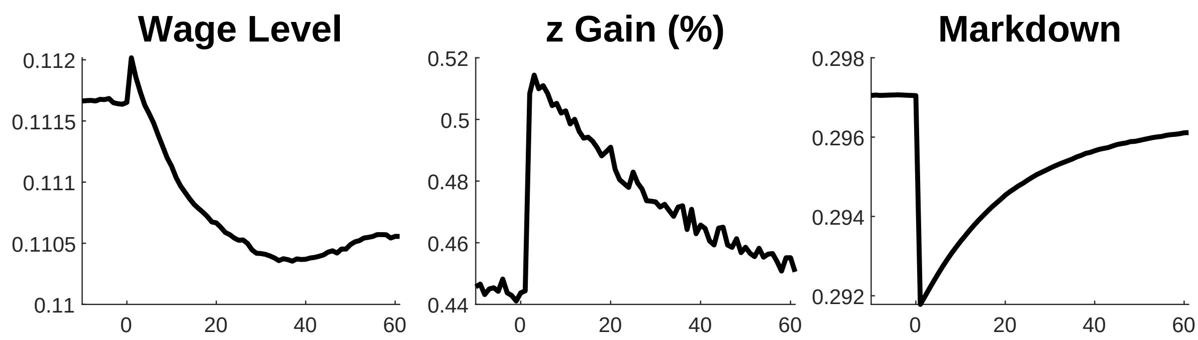

Figure 5: Coefficient of Variation Responses to a 4% Inflationary Shock

Lastly, since the wages of new hires are perfectly flexible, job switches undo the effects of the one-time inflation shocks. Therefore, the model exhibits money neutrality in the long run, even though the effect of shocks can last for more than 5 years. Overall, the exercise confirms our theoretical analysis of the channels in Section 4. Quantitatively, we find a minimal role for the endogenous response of firms to offset inflationary shocks.

6.1 Distributional Implications of the Inflationary Shocks

Now, we shift our attention from aggregate variables to heterogeneity across workers and matches. Figure 5 presents the response of a measure of dispersion, the coefficient of variation, to the inflationary shock. We restrict attention to a 4% shock to make distributional changes easier to spot.

The first panel in Figure 5 shows the response of the wage dispersion. On impact, wage dispersion increases as (1) inflationary shock is iid across workers, and (2) the high-productivity firms (who pay higher wages on average) respond by increasing wages more aggressively. However, the wage dispersion shrinks as workers change their search behavior: low-wage workers react more aggressively to their initial wage decline and climb back to their original wages faster than high-wage workers. Our findings suggest an alternative channel that can explain the post-COVID-19 wage compression documented by

Autor et al. (2023). The productivity-gain dispersion increases as the lowest-wage workers reduce the productivity they aim for the most.[20] Lastly, the dispersion of the markdowns decreases on impact as high-wage firms, on average, have higher productivity and markdowns and do a more aggressive inflation correction.

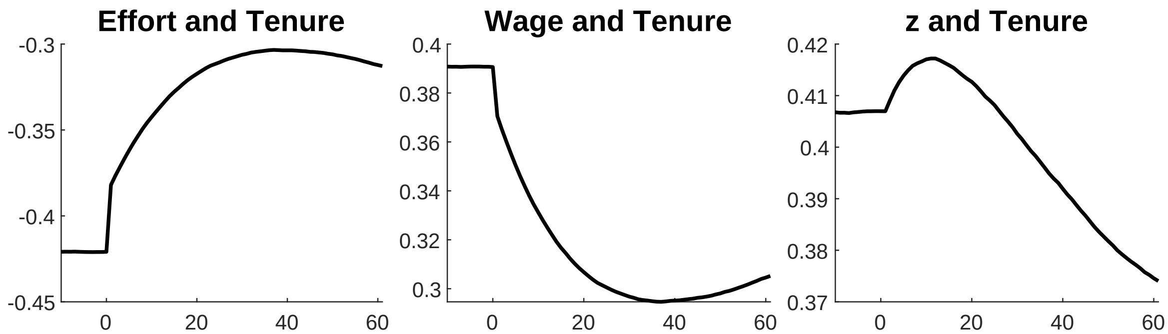

Figure 6: Cross Sectional Correlation Responses to a 4% Inflationary Shock

Figure 6 shows how, in the cross-section, tenure becomes a weaker predictor of worker and match characteristics after an inflationary shock. The workers with higher tenures tend to work for high-wage and productive jobs and exert less search effort in the steady state. These patterns weaken with an inflationary shock. Workers with high tenure become those stuck at the old wage levels. Workers with low tenure who have signed their contracts after the inflationary shock tend to have higher wages. This leads to high-tenure workers being less satisfied with their situation than their low-tenure counterparts. Lastly, the inflationary shock initially strengthens the correlation between productivity and tenure as workers at low-productivity matches are the first to find another job and restart their tenure. However, after around 15 months, the productivity-tenure connection weakens as workers of all productivity levels complete their moves and reset their tenure clocks.

[20]This is due to the nature of the worker transitions in our models: while the wage gains are larger for the low-wage workers, the productivity gains are smaller. The decreasing labor share towards the top prevents wages from increasing 1-1 with productivity.

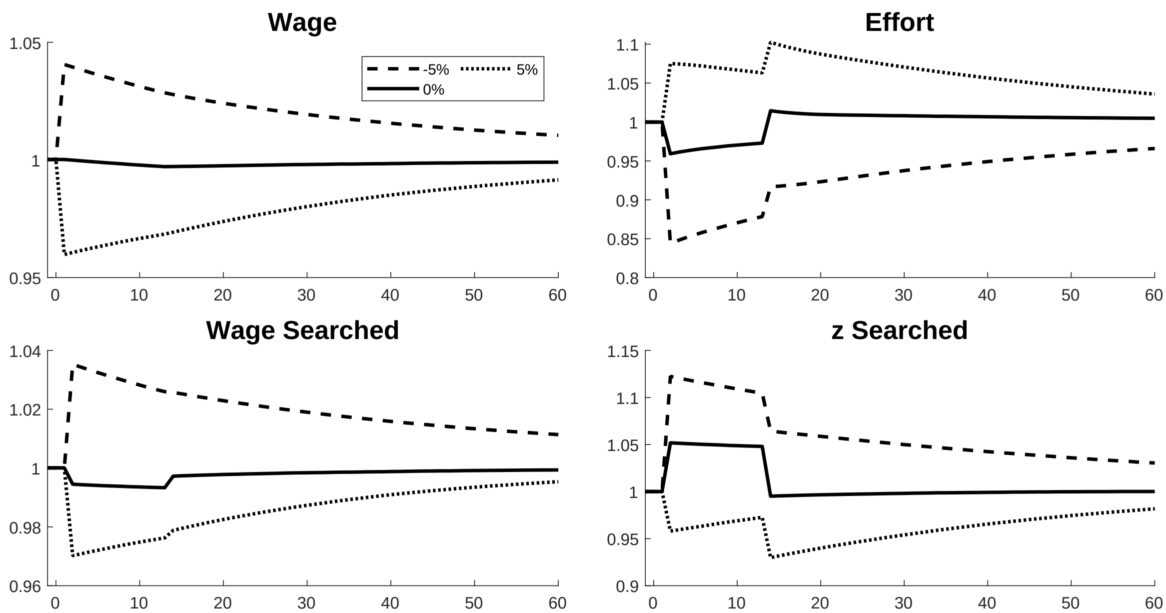

Figure 7: Agents' Responses to Various Recessions

Responses to an aggregate productivity shock accompanied with and without unanticipated 5 p.p. and -5 p.p. inflationary shocks. For each plot, the y-axis values indicate the index relative to the baseline value.

6.2 Inflationary and Deflationary Recessions

In this section, we simulate three counterfactual recessions. First, we simulate the impulse response to an aggregate productivity shock on its own, which corresponds to low y realizations for one year before the economy goes back to the high y realizations forever. In the second and the third counterfactuals, we couple the productivity shock with a 5% inflationary shock and a 5% deflationary shock, respectively.[21] We document how the impact of the productivity shock on the labor market is attenuated or exacerbated by the unanticipated price movements.

Figure 7 shows how firms and workers respond to various shock bundles. In the absence of an inflationary shock (solid line), the aggregate productivity decline leads to a decline in search efforts due to worsening job opportunities. This leads to a small decline

[21] During the COVID crisis, the realized inflation exceeded the 1-yr ahead SPF forecast by 6% at its peak. During the Great Recession, the SPF forecast exceeded the realized inflation by 4% at its peak. See Figure 10 in Appendix F.

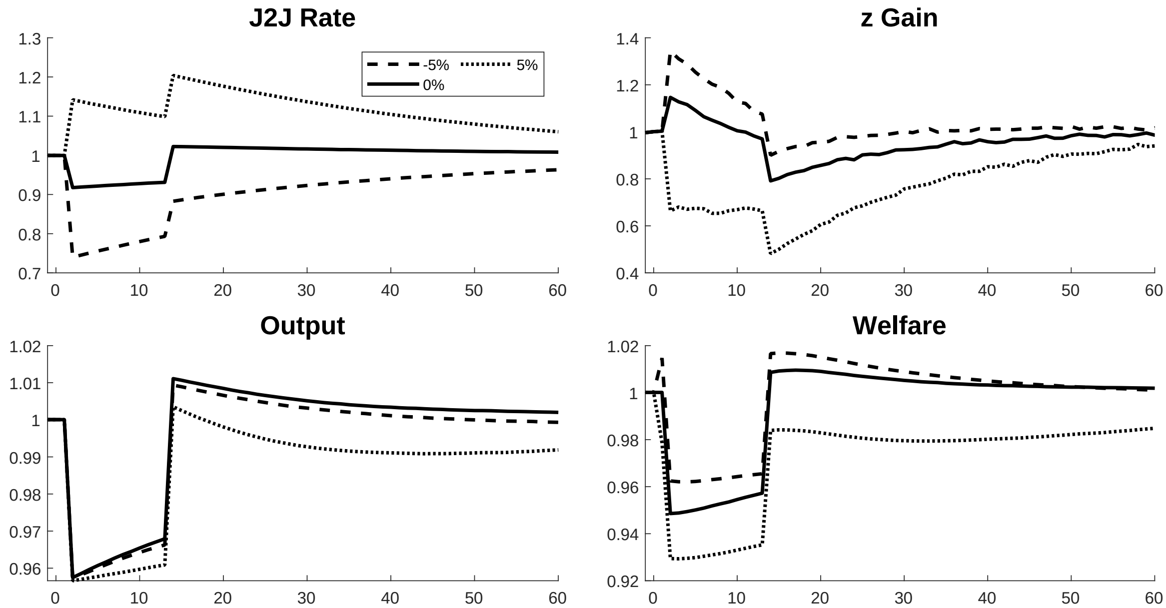

Figure 8: Aggregate Outcomes with Various Recessions
Responses to an aggregate productivity shock accompanied with and without unanticipated 5 p.p. and -5 p.p. inflationary shocks. For each plot, the y-axis values indicate the index relative to the baseline value.

in real wages as well. The average target wage and productivity go up as lower y forces low z firms out. As a result of the firm and worker responses, the J2J rate goes down, and the average productivity gain from transitions goes up, as shown in Figure 8. Both net output and welfare remain low for the duration of the recession, with a small post-recession bump thanks to the cleansing effects of the recession through the selection of higher productivity firms.

The dotted line presents the results when the same aggregate productivity shock is accompanied by an unanticipated inflationary shock. The inflation leads to a decline in the targeted wage, which more than offsets the decline in the effort. Furthermore, inflation largely offsets the increase in selection brought about by the decline in aggregate productivity, leading to a decrease in the average productivity of the firms targeted. As a result, the J2J rate increases instead of decreasing, and the average productivity gain in transitions decreases instead of increasing. The decline in net output and welfare for the duration of the recession is sharper, and recovery takes longer.

Lastly, the dashed line presents the results from a combination of the aggregate productivity shock and an unanticipated deflationary shock. The deflation exacerbates the decline in effort and the increase in the wage and productivity levels that workers target. These lead to a larger J2J rate decline but also a larger average productivity gain in transitions. The increase in productivity gain is relatively small: both the initial decline in output is sharper, and the post-recession levels are lower. However, the welfare is higher throughout the recession episode thanks to smaller vacancy and effort costs.

We abstract from some key characteristics of past recessions, yet our analysis sheds light on some puzzling patterns of past recessions. The Great Depression led to theories linking deflation and recession (e.g., Tobin (1972), Tobin (1975)). However, Atkeson and Kehoe (2004) analyzes 17 countries over 100 years and finds no correlation between the change in price levels and output growth. We argue deflation improves worker allocation, which can offset its other recessionary effects. Furthermore, while the J2J rate declined and remained low after the deflationary Great Recession, it recovered quickly after the inflationary COVID-19 recession, consistent with our exercise.

7 Conclusion

This paper explores how inflation impacts allocative efficiency by changing the workers' job search behavior. We start by providing reduced-form evidence supporting a causal link between inflationary shocks and a higher job-to-job transition rate. First, we find that inflation shocks precede shocks to job-to-job transition rates: inflation lags are good predictors of job-to-job transitions, while the opposite is not true. Second, using monetary policy and oil price shocks as instruments, we show a causal link from unexpected inflation to job-to-job transition rates. Third, using survey data, we show that individuals with higher than average inflation expectations are (1) more likely to search and (2) exert more effort and get better results conditional on searching.

We proceed by constructing a model that captures two primary channels through which unexpected inflation impacts worker behavior. Higher-than-expected inflation rates increase the benefit of receiving a new offer in a setting with rigid wages. Hence, workers respond to inflationary shocks by searching more intensively and targeting lower-wage jobs that are easier to attain. As a result, more job-to-job transitions occur. However, because workers are less selective than before, each transition leads to a smaller boost in aggregate productivity. Hence, labor allocation across firms might improve or deteriorate in the short run.

We estimate the model to quantify the regions of monetary policy shock magnitudes that lead to a positive versus a negative output response in the short run. The model confirms the non-monotonic response of output to inflationary shocks in the short run: small recessionary shocks lead to short-run output increases, while others lead to short-run output declines. A recession with a large inflationary shock, similar to the 2020 recession, would bring a sharper output decline even though job-to-job transition rates would be high. A recession with a large deflationary shock, similar to the 2008 crisis, would recover much faster, even though the reallocation is slow.

The proposed mechanism has important implications. Most importantly, it provides a novel channel explaining why some recessions are associated with a more pronounced 'cleansing' effect than others: the size of the unexpected price movement affects both the speed and the effectiveness of job reallocation during recessions. Second, it explains how output response may be non-monotonic in the size of the inflation shock. Thus, it provides a bridge between seemingly disparate estimates of the literature on the real effects of monetary policy shocks.[22] Third, it provides a novel mechanism for how monetary policy can affect the real economy in the short run. The monetary authority can improve labor allocation in the short run through monetary policy shocks and influence the experience of a recession.

[22] See Wolf (2020) for an overview of these findings.

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Appendices

A Proof of Proposition 1

Proof. Notice that both $F(y, w^-)$ and $A(y, w^-)$ are bounded and continuous in w^- since their Bellman equations map the set of bounded and continuous functions into itself. This follows from the theorem of the maximum as (1) the choice sets are compact-valued and continuous,[23] and (2) the objective functions in the maximization problems are bounded and continuous if the value functions are bounded and continuous. To simplify the proof, we will assume the value functions are also twice differentiable with respect to w^-, even though the main idea would go through with non-differentiable value functions.

$w^*(y, w^-)$ behaves differently based on whether the constraint binds or not. In the regions where the constraint is binding, w^* is trivially increasing in w^- since $\frac{\partial w^*}{\partial w^-} = 1 > 0$. The more interesting case is when the constraint isn't binding, where w^* satisfies the firm's first-order condition:

$$\frac{\partial F(y', w^*)}{\partial w^*} - \xi(w^* - w^-)^{\tau-1} = 0.$$

Differentiating both sides with respect to w^- and rearranging terms would give

$$\frac{\partial w^*}{\partial w^-} = \frac{\xi(\tau-1)(w^* - w^-)^{\tau-2}}{-\frac{\partial^2 F(y', w^*)}{\partial (w^*)^2} + \xi(\tau-1)(w^* - w^-)^{\tau-2}}$$

As ξ grows, the term from the menu cost grows without bound for $\tau < 2$ and eventually dominates the term with partial derivative as the latter would decline in magnitude.[24] Hence, for a sufficiently large ξ, $\frac{\partial w^*}{\partial w^-}$ becomes positive.

$V^*(y, w^-)$ satisfies the worker's first-order condition:

$$(V^* - A(w^*(w^-)))p'(V^*) + p(V^*) = 0.$$

[23] Without loss of generality, we can bound the wage choice of the firm: $w^*(y, w^-) \in [w^-, \max_i\{y^i\}]$.

[24] As an extreme version of this idea, as ξ approaches infinity, $\frac{\partial w^*}{\partial w^-}$ would approach one since the constraint would bind everywhere.

Differentiating both sides with respect to w^- and rearranging terms would give

$$\frac{\partial V^*}{\partial w^-} = \frac{p'(V^*)\frac{\partial A}{\partial w^*}\frac{\partial w^*}{\partial w^-}}{2p'(V^*) + (V^* - A(y', w^*(y', w^-)))p''(V^*)}.$$

By assumption, p is strictly decreasing in V. It is straightforward to show A is strictly increasing in its second argument. The first part of the proof established that w^* is strictly increasing in w^-. Hence, the numerator is always negative. Furthermore, for an initial wage w_0, $V^* - A(y', w^*(y', w^-))$ is bounded above by $\bar{V} - w_0/(1-\beta)$. Then, $\frac{\partial V^*}{\partial w^-} > 0$ if for all $V \in \mathcal{V}$,

$$\frac{d^2p/dV^2}{dp/dV} > -\frac{2}{\bar{V} - w_0/(1-\beta)}.$$

□

B Data Sources

B.1 Monthly Data

Job-to-Job Transitions: In sections C.1 and 2.1, we use the series made available by Fujita et al. (2024). It corrects the monthly job-to-job transition rates computed from the Current Population Survey (CPS) for survey attrition.

Inflation: We use Consumer Price Index (CPI) inflation from the Bureau of Labor Statistics. As an alternative measure of inflation, we also use Personal Consumption Expenditures (PCE) inflation from the Bureau of Economic Analysis (BEA). Both measures describe year-over-year inflation, which is reported monthly.

Inflation Forecasts: To construct the measures of inflation shocks, we use quarterly data from the Survey of Professional Forecasters (SPF) by the Philadelphia Fed. Professional forecasters are surveyed quarterly and asked to predict various statistics of the economy, including inflation. We use the one-year-ahead inflation forecast (INFCPI1YR) and take the linear interpolation of quarterly forecasts to construct monthly forecasts. We then take the difference between realized inflation and the corresponding forecast to construct our shock measure. For robustness, we also use inflation expectations from the Survey of Consumers from the University of Michigan. These are the median expected price changes for the next 12 months.

Monetary Policy Shocks: In our instrumental variable analysis in section 2.1, we use various monetary policy shock estimates as instruments for inflation. The first estimate we use is constructed by Romer and Romer (2004) and extended by Wieland and Yang (2020). They first obtain a series of intended federal funds rate changes from meetings of the Federal Open Market Committee (FOMC) and the Weekly Report of the Manager of Open Market Operations. They then regress these intended changes on the Federal Reserve's internal forecasts of inflation to account for changes to monetary policy in anticipation of future economic developments. The residuals from this regression should reflect idiosyncratic changes in monetary policy. This series is available from January 1969 to December 2007.

The second measure is from Sims and Zha (2006), who use a regime-switching structural VAR model. In particular, they use the residuals for the federal funds rate series to estimate monetary policy shocks. This series is available monthly from January 1959 to March 2003.

The remaining estimates all utilize high-frequency financial data to measure unexpected changes in monetary policy. The third estimate is from Barakchian and Crowe (2013). They measure the difference in private sector beliefs about the Fed's policy stance before and after FOMC meetings, implied by the federal funds futures contracts, as a measure of monetary policy shocks. This series is available from December 1988 to June 2008. The fourth measure is from Gertler and Karadi (2015) and uses futures rate surprises on FOMC dates. They study one-month and three-month Fed Funds future rates, as well as six-month, nine-month, and one-year ahead futures on three-month Eurodollar deposits. It is available monthly from November 1988 through June 2012. The fifth and sixth measures are from Nakamura and Steinsson (2018) and similarly use federal funds and Eurodollar futures to estimate monetary policy shocks but with a more flexible functional form. The first series is available from January 1995 to March 2014. The second excludes unscheduled meetings and those around the height of the Financial Crisis and is available from February 2000 to September 2019. The seventh measure is from Bauer et al. (2021), who again use Eurodollar futures around FOMC meetings. Unlike the previous papers, they isolate the part of the monetary policy surprises that are not correlated with economic and financial data. This series is available from January 1994 to September 2020. The eighth and final measure is from Bauer and Swanson (2023). They extend the monetary policy events to include the Federal Reserve Chair's speeches. This series is available from January 1988 to December 2023.

Oil Shocks: We also use oil price shocks from Känzig (2021) as an instrument in section 2.1. He constructs oil price shocks by observing the difference in oil futures prices surrounding OPEC announcements. These shocks are available from January 1974 to December 2017.

Controls: We use unemployment-to-employment transition rates (UE) and the unemployment rate (U) as controls in the regressions in Appendix F. The UE rates are from Fujita et al. (2024). The unemployment rate series is from the U.S. Bureau of Labor Statistics (LNS14000000).

B.2 Quarterly Data

Job-to-Job Transitions: In our state-level analysis in Appendix C.2, we use job-to-job transition measures from the Longitudinal Employer Household Dynamics (LEHD) data by the U.S. Census. They provide the number of hires to (J2JHire) and separations from

(J2JSep) jobs in each state through job-to-job transitions. We transform these numbers into rates using the state's labor force. These series are available from 2000 Q2 to 2022 Q1.

Inflation: For our measure of state-level inflation rates, we use the estimates by Hazell et al. (2022). They construct quarterly inflation measures for 34 states from 1978 to 2017. We focus on annual inflation (pi in the dataset), but we also repeat our analysis using annual inflation in the non-tradeable and annual inflation in the tradeable sector (pi.nt and pi.t, respectively).

Inflation Expectations: We use the quarterly inflation expectations from SPF. We assume inflation expectations are uniform across states because state-level inflation expectations are unavailable.

Controls: We use the state unemployment to employment transition rate (NEHire) from the LEHD as a control in our state-level regressions. We construct this measure by dividing the number of individuals transitioning to employment from unemployment by the state's labor force. We also use state-level unemployment rates from Local Area Unemployment Statistics (LAUS) from the BLS as a control variable. These are available monthly from January 2000 to April 2022. To convert the data from monthly to quarterly, we take the value from the first month of each quarter. Statewide labor force data also come from LAUS.

B.3 Annual Data

Job-to-Job Transitions: In our country-level analysis in Appendix C.3, we use yearly job-to-job transition measures from Donovan et al. (2023). They construct two variables: wage-to-wage transitions (WW) and employment-to-employment (EE) transitions. The former considers only transitions from wage employment to wage employment, whereas the latter also considers transitions to and from self-employment. The data spans 41 countries from 1994 to 2020.

Inflation Surprise: To construct our measure of inflation shocks, we use inflation forecast data from the IMF (Fall 1-yr ahead forecasts) and the OECD (Total, Annual growth rate (%)). Inflation shocks are defined as the difference between the realized inflation and its forecast.

The IMF forecasts span 200 countries from 1990 to 2024. We restrict attention to countries in upper-middle-income and high-income groups and country-year pairs with less than 20% inflation and more than -10% inflation. The former is to minimize informality, and the latter is to minimize automatic wage indexation, which would counteract the mechanisms we focus on in this paper.

We use the World Bank forecasts for robustness. They are annual and span 45 countries from 1961 to 2023. We supplement it with annual realized CPI inflation from the World Bank to construct the inflation surprise.

B.4 Job Search Survey Data

Inflation Expectations: The respondents are asked what they expect the inflation to be over the next 12 months (question Q8v2part2 in the survey). We use the response to this question as our measure of inflation expectations.

For robustness checks, we use expectations on other macroeconomic aggregates reported by the respondents. In particular, we use binary responses to questions asking whether the respondent expects the unemployment rate, the average interest rate on saving accounts, and the average stock prices (questions Q4new, Q5new, and Q6new, respectively) to be higher than the previous year.

Job Search Activities: We use one job search activity question from the Labor Survey Supplement: ”Have you done anything in the last four weeks to look for new work?” (question L6). We code a positive response as a one and a no as a zero. The remainder of our job search variables come from the annual Job Search Supplement. These are the number of hours spent searching for work in the last four weeks (question JS7), the number of methods used to look for a job in the last four weeks (constructed from question JS6), and the number of applications sent to potential employers in the last four weeks (question JS14).

Job Search Outcomes: All but one job search outcome come from the Job Search Supplement of the SCE. These are the number of potential employers that have contacted the individual (question JS15), the number of job interviews attended (question JS18b), and the number of offers received (question JS19) in the last four weeks. Lastly, we get the number of offers received in the last four months (question NL1) from the Labor Survey supplement.

Tenure Calculations: There are two potential ways to identify job switches: (1) through changes in reported primary job start dates and (2) through the binary response of whether the respondent is still working for the same employer as the previous month. We found the latter to be more reliable: in about half of the cases where the start date changed, yet the worker claimed they worked for the same main employer, the change in start dates was illogical: the worker would claim an earlier start date at a later survey. Using the binary response, we apply a correction to the reported start dates. This correction matters for calculating job tenure, which is a control variable. Of the 12570 eligible observations, we could establish 449 as associated with switching jobs since the previous survey, 11888 as no job switches, and 233 as indeterminate. We discard the indeterminate observations in exercises that require tenure information.

Control Variables: We use several control variables from the SCE in our analysis. These are the natural logarithms of age (Q32 in the survey), tenure (Q37), and annual earnings (Q47), dummies for sex (Q33) and marital status (Q38), five dummies for race (Q35), four dummies for education (Q36), and fixed effects for the state (D5). Other controls from the Labor Survey supplement are dummies for job start-year (L1), and two-digit industries (LMtype and Lmind).

C Additional Empirical Analyses

C.1 Predictive Regressions

In this exercise, we ask whether the shocks to the J2J rate precede the shocks to inflation or follow them. For J2J and unemployment-to-employment (UE) transition rates, we use the series by Fujita et al. (2024) that runs from September 1995 to June 2022.[25] We utilize three measures of inflation: (1) over-the-year changes in the Consumer Price Index (CPI), (2) inflation expectations from the Survey of Professional Forecasters, and (3) the 'inflation surprise', i.e., the discrepancy between the forecasted and the realized inflation for a twelve-month period. At time t, this is the accumulated unexpected price moves since $t-12$. We seasonally adjust and HP filter all variables with a smoothing parameter 1600×3^4.

In our main specification, we run a VAR(2) with a measure of inflation and J2J transition rate:

$$y_t = \beta_{y,1} y_{t-1} + \beta_{x,1} x_{t-1} + \beta_{y,2} y_{t-12} + \beta_{x,2} x_{t-12} + \epsilon_t \tag{14}$$

where $y_t : [Infl_t, J2J_t]$ and x represents additional controls. Table 8 presents the results from a VAR(2) exercise with one-month and one-year lags. The one-month lag of all three inflation-related measures has a significant positive coefficient for predicting subsequent J2J transition rates. On the other hand, the coefficients for J2J transition rates for predicting inflation-related variables are insignificant. Although the predictive relationship is suggestive, the mechanism might be through the demand side, i.e., the inflation might be changing the hiring incentives of firms rather than the search behavior of work-

[25]See Appendix B for details on the data sources used throughout the empirical analysis.

ers. We add UE rates as a control for demand side channels. Table 12 in Appendix F shows that the results are similar.[26]

Table 8: VAR(2) Estimates

	J2J Rate	CPI Infl	J2J Rate	SPF Infl Surprise	J2J Rate	SPF 1-yr Ahead Infl
	(1)	(2)	(3)	(4)	(5)	(6)
$Infl_{t-1}$	0.03***	0.92***	0.03***	0.92***	0.20***	0.97***
	(0.01)	(0.03)	(0.01)	(0.03)	(0.04)	(0.02)
$Infl_{t-12}$	0.00	−0.13***	0.01	−0.13**	−0.01	−0.05*
	(0.01)	(0.05)	(0.01)	(0.05)	(0.04)	(0.03)
$J2J_{t-1}$	0.22***	0.04	0.22***	0.01	0.18***	0.00
	(0.07)	(0.15)	(0.07)	(0.17)	(0.06)	(0.03)
$J2J_{t-12}$	0.03	−0.07	0.04	−0.15	−0.01	−0.03
	(0.04)	(0.14)	(0.04)	(0.15)	(0.05)	(0.03)
Obs	319	319	319	319	319	319
Adj. R^2	0.13	0.88	0.13	0.88	0.16	0.93

Notes: $Infl$ is CPI year-to-year inflation in columns (1) and (2), inflation surprise from SPF forecasts in columns (3) and (4), and SPF forecasts in columns (5) and (6). Columns (1), (3), and (5) have the J2J rate at time t while the others have the inflation measures as the dependent variable. All variables are seasonally adjusted and HP-filtered. *p<0.1; **p<0.05; ***p<0.01. Source: Fujita et al. (2024); U.S. Bureau of Labor Statistics, CPI; authors' calculations.

C.2 Quarterly Analysis, State Level

Here, we utilize the Longitudinal Employer Household Dynamics (LEHD) data by the US Census Bureau, which provides J2J rates in quarterly frequency at the state level. For inflation, we use the series by Hazell et al. (2022), which constructs quarterly inflation measures for 34 states from 1978 to 2017. State-level inflation forecasts are unavailable; hence, we assume inflation expectations are uniform across states. We seasonally adjust and HP filter all variables with a smoothing parameter of 1600.

[26]The results are also robust to excluding the COVID period, adding a third lag, using Personal Consumption Expenditures (PCE) Deflator or core PCE Deflator (excluding food and energy) for price index instead of CPI, and using Michigan Survey of Consumers (MSC) instead of SPF for inflation forecasts. See Tables 12, 13, 14 and 15 in Appendix F.

In our main specification, we run a fixed-effects regression with a measure of inflation and J2J transition rate:

$$y_{it} = \beta_x x_{i,t-1} + \beta_z z_{i,t-1} + \gamma_i + \eta_t + \epsilon_{it} \tag{15}$$

where i and t represent state and quarter, y and x are the J2J rate and SPF inflation surprise, γ_i and η_t are state and quarter fixed effects, and z represents additional controls. The results are in Table 9. Again, a positive inflation surprise predicts higher inflation in the next quarter across various specifications. Unlike the VAR analysis with monthly aggregate data, higher job-to-job transition rates also predict larger inflation surprises in the next quarter.

Table 9: State-Level Estimates

	$J2J_t$				$Infl_t$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Infl_{t-1}$	0.069***	0.014**	0.035***	0.014**				
	(0.007)	(0.006)	(0.007)	(0.006)				
NE_{t-1}			0.625***	0.141***			0.637***	−0.196***
			(0.097)	(0.038)			(0.177)	(0.051)
$J2J_{t-1}$					0.645***	0.411*	0.324***	0.549**
					(0.067)	(0.225)	(0.106)	(0.228)
State-Quarter FE	No	Yes	No	Yes	No	Yes	No	Yes
Obs	2,162	2,162	2,162	2,162	2,129	2,129	2,129	2,129

Notes: The measure used for $Infl$ is inflation surprise from SPF forecasts. Columns (1)-(4) have the job-to-job transition rate at time t as the dependent variable, while the others have the inflation measures at time t. All variables are seasonally adjusted and HP-filtered. The standard errors are clustered at the state level. *p<0.1; **p<0.05; ***p<0.01. Source: Hazell et al. (2022); U.S. Census Bureau, LEHD; authors' calculations.

C.3 Yearly Analysis, Country Level

Here, we utilize the yearly cross-country J2J data from Donovan et al. (2023) kindly made available to us by the authors. The data is from a panel of 41 countries from 1994 to 2020.

We focus on wage employment to wage employment (WW) transitions. We supplement the transition rates with CPI inflation data from the World Bank and inflation forecast data from the IMF. In our main specification, we run a fixed-effects regression with a measure of inflation and WW transition rate:

$$y_{it} = \beta_x x_{i,t} + \gamma_i + \eta_t + \epsilon_{it} \tag{16}$$

where i and t represent country and year, y is a measure of J2J rate, x is the inflation surprise, and γ_i and η_t are country and year fixed effects. The results are in Table 10. There is a positive correlation between inflation surprise and both the WW rates. Controlling for the country and year fixed effects does not change the sign of the correlation, yet reduces the magnitude. Table 11 shows that using OECD forecasts leads to qualitatively similar conclusions.

Table 10: Country-Level Estimates, IMF Forecasts

	WW			
	(1)	(2)	(3)	(4)
$InflS_t$	0.066***	0.067***	0.039**	0.039**
	(0.016)	(0.016)	(0.019)	(0.019)
Country FE	No	Yes	No	Yes
Year FE	No	No	Yes	Yes
Observations	450	450	450	450

Notes: The measure used for $Infl$ is constructed using the inflation surprise from IMF forecasts. The WW transition rate at time t is the dependent variable. All variables are HP-filtered. The standard errors are clustered at the country level. *p<0.1; **p<0.05; ***p<0.01

D Evidence on the Extent of Wage Indexation

Explicit measures of what fraction of wage contracts are indexed to inflation are unavailable for the US economy. Measures that are based on the actual contract terms are re-

Table 11: Country-Level Estimates, OECD Forecasts

	WW			
	(1)	(2)	(3)	(4)
$InflS_t$	0.048***	0.049***	0.019	0.019*
	(0.011)	(0.011)	(0.012)	(0.012)
Country FE	No	Yes	No	Yes
Year FE	No	No	Yes	Yes
Obs	361	361	361	361

Notes: The measure used for $Infl$ is constructed using the inflation surprise from OECD forecasts. WW transition rate at time t is the dependent variable. All variables are HP-filtered. The standard errors are clustered at the country level. *p<0.1; **p<0.05; ***p<0.01

stricted to collective agreements, which vary in coverage over the years and do not represent a random sample of workers. Measures based on changes in the nominal wages confound several other factors affecting the wage process. However, even the most conservative estimates imply a very low level of wage indexation (less than 25%) in developed countries. Here, we discuss the implications of prior research on the extent of wage indexation.

D.1 Evidence Based on Contract Terms

The papers here investigate the prevalence of 'cost-of-living adjustment' (COLA) terms in contracts. Card (1990) looks at the universe of manufacturing union contracts in Canada (with more than 500 employees) signed between 1968 and 1983. He finds that 26% of them have an 'escalation clause' while the explicit indexation is very rare. The fraction with 'escalation clause' peaks at 65% in a period where the inflation is over 10%. Ragan Jr and Bratsberg (2000) use BLS data on collective bargaining settlements. They document that even though 61% of the settlements had COLA provisions back in 1976, it has fallen all the way down to 22% in 1996, the last year the data is available. Even though these numbers may seem large, the COLA provisions are known to be much less prevalent among non-union workers. Furthermore, with the decline in unionization, collective agreements cover a smaller fraction of the labor force in either country today. Druant et al. (2012) utilize a firm-level survey conducted in 17 European countries regarding wage adjustment practices. Across 15,000 firms from all industries, they document that only 11.5 % of the firms employ any formal indexation clause while only 10.9% report any informal inflation considerations in wage setting. The survey also asks about the frequency of wage adjustments. This gives us a back-of-the-envelope mapping between the degree of indexation and the frequency of wage adjustments. Wage adjustments happen either yearly or more frequently for 74.4% of the firms. Thus, even when firms adjust wages frequently, this does not imply an implicit wage indexation.

D.2 Evidence Based on Wage Movements

McLaughlin (1994), using PSID data, finds that the effect of unanticipated inflation on nominal wage growth is consistent with 42% indexation between 1970 and 1986. Hofmann et al. (2012), using a DSGE model, infers the extent of wage indexation in the economy from the time variation in U.S. wage dynamics. They estimate a degree of wage indexation to be 0.17 in 2000, compared to 0.91 in 1974, which is consistent with the time path of COLA coverage in collective bargaining agreements. More recently, Grigsby et al. (2021), using data from a payroll processing company in the U.S., finds that approximately 36% of job stayers experience no nominal wage changes in a one-year period.

Consistent with the lack of wage indexation, workers do not expect their wage income to catch up with price inflation. Using the U.S. and Canadian survey data, respectively, Hajdini et al. (2023) and Jain et al. (2022) report low levels of pass-through (ranging from 0.1 to 0.2) from price inflation expectations to expectations of their own wage growth.

E Solution Algorithm

We discretize the distribution of z with 50 grid points, y with two grid points, and w with 100 grid points. Our algorithm consists of two main stages. The first stage solves for the policy functions of the firms and the employed, while the second stage solves for the policy functions of the unemployed.

We start the first stage with an arbitrary $U_0(y)$.[27] Then, we apply an algorithm based on backward induction to solve the employed and the firm's problems. We use the following idea: if we know $H_0(w_j, ., .), K(w_j, ., .)$ and $\theta(w_j, ., .)$ $\forall j > i$ for some i, then we can solve for the value and the policy functions for w_i since workers will never search for a smaller wage given the prohibitive transition cost. Let us start with the highest wage on the grid, $\bar{w}$. $H_0(\bar{w}, ., .)$ and $K(\bar{w}, ., .)$ are simply the present value of the period payoff with an exogenous discount rate. This is because, in a match where $\bar{w}$ is agreed upon, the worker will not leave for another firm (i.e., $\bar{p}(\bar{w}, ., .) = 0$). Using the free entry condition, we can also pin down $\theta(\bar{w}, ., .)$. Then, for wage each w_i, we do the following:

1. Start with a guess for the probability that a worker will leave for another job: $\bar{p}^g(w_i, ., .)$.
2. Solve for $K(w_i, ., .)$ and $w^*(w_i, ., .)$ using the firm's problem.
3. Solve for $H_0(w_i, ., .), m(H_0(w_i, ., .), .), e(H_0(w_i, ., .), .)$ given $w^*(w_i, ., .)$ using value function iteration on the worker's problem.
4. Compute $\bar{p}(w_i, ., .)$ implied by $m(H_0(w_i, ., .), .), e(H_0(w_i, ., .), .)$ and compare with $\bar{p}^g(w_i, ., .)$.
5. If the implied value is not close enough to the guess, start again with another guess. If they are close enough, then, set $\bar{p}(w_i, ., .) = \bar{p}^g(w_i, ., .)$ and compute $\theta(w_i, ., .)$ using $K(w_i, ., .)$ in the free entry condition.

[27] Although $U_0(y)$ linearly scales the employed value function $H()$, it is irrelevant to the policy functions of the employed and the firm.

In the second stage, we start with an initial guess $U_1^g(y)$, and use value function iteration. In particular, at step s, we do the following:

1. Solve for $H_s(w_i, ., .), m(H_s(w_i, ., .), .)$, and $e(H_s(w_i, ., .), .)$ given $U_s^g(.)$ using the employed problem.
2. Solve for $m(U_s^g(.), .), e(U_s^g(.), .)$ using the unemployed problem.
3. Compute the $U_s(.)$ given $m(U_s^g(.), .), e(U_s^g(.), .)$, and $H_s(w_i, ., .)$.
4. If $U_s(.)$ is not close enough to the guess, then set $U_{s+1}^g(.) = U_s(.)$ and start again. If they are close enough, stop.

F Additional Figures and Tables

Table 12: VARX(2) Estimates

	J2J Rate	CPI Infl	J2J Rate	SPF Infl Surprise	J2J Rate	SPF 1-yr Ahead Infl
	(1)	(2)	(3)	(4)	(5)	(6)
$Infl_{t-1}$	0.03***	0.91***	0.03***	0.91***	0.20***	0.97***
	(0.01)	(0.04)	(0.01)	(0.03)	(0.04)	(0.02)
$Infl_{t-12}$	−0.00	−0.14***	0.00	−0.13***	−0.05	−0.05*
	(0.01)	(0.04)	(0.01)	(0.05)	(0.04)	(0.03)
$J2J_{t-1}$	0.17*	−0.07	0.17*	−0.07	0.14	−0.00
	(0.10)	(0.16)	(0.10)	(0.17)	(0.09)	(0.03)
$J2J_{t-12}$	−0.04	−0.16	−0.04	−0.21	−0.07	−0.03
	(0.06)	(0.17)	(0.06)	(0.18)	(0.06)	(0.04)
UE_{t-1}	0.00	0.02*	0.00	0.01	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
UE_{t-12}	0.01*	0.01	0.01*	0.00	0.01*	−0.00
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Obs	319	319	319	319	319	319
Adj. R^2	0.15	0.88	0.15	0.88	0.18	0.93

Notes: The measure used for $Infl$ is CPI year-to-year inflation in columns (1) and (2), inflation surprise from SPF forecasts in columns (3) and (4), and SPF forecasts in columns (5) and (6). Columns (1), (3), and (5) have the J2J rate at time t while the others have the inflation measures at time t as the dependent variable. All variables are seasonally adjusted and HP-filtered. *p<0.1; **p<0.05; ***p<0.01. Source: Fujita et al. (2024); U.S. Bureau of Labor Statistics, CPI; authors' calculations.

Table 13: VAR(2) Estimates with Dummies for the COVID Period

	J2J Rate	CPI Infl	J2J Rate	SPF Infl Surprise	J2J Rate	SPF 1-yr Ahead Infl
	(1)	(2)	(3)	(4)	(5)	(6)
$Infl_{t-1}$	0.02***	0.89***	0.02***	0.90***	0.20***	0.97***
	(0.01)	(0.04)	(0.01)	(0.04)	(0.04)	(0.02)
$Infl_{t-12}$	0.01	−0.12*	0.01	−0.10*	0.00	−0.03
	(0.01)	(0.06)	(0.01)	(0.06)	(0.04)	(0.02)
$COVID$	−0.00	−0.00*	−0.00	−0.00*	−0.00	−0.00**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
$J2J_{t-1}$	0.18***	−0.10	0.18***	−0.15	0.14**	−0.03
	(0.06)	(0.17)	(0.06)	(0.19)	(0.06)	(0.03)
$J2J_{t-12}$	0.05	0.02	0.06	−0.03	0.01	−0.04
	(0.05)	(0.14)	(0.05)	(0.15)	(0.06)	(0.03)
$Infl_{t-1} \times COVID$	0.02	0.06	0.02	0.07	−0.05	−0.04
	(0.02)	(0.07)	(0.02)	(0.07)	(0.07)	(0.04)
$Infl_{t-12} \times COVID$	−0.02	−0.09	−0.02	−0.11	−0.10	−0.18***
	(0.02)	(0.07)	(0.01)	(0.07)	(0.11)	(0.06)
$J2J_{t-1} \times COVID$	0.11	0.46	0.12	0.48	0.21	0.17*
	(0.18)	(0.60)	(0.18)	(0.67)	(0.18)	(0.09)
$J2J_{t-12} \times COVID$	−0.04	−0.09	−0.04	−0.24	−0.04	0.15
	(0.14)	(0.42)	(0.14)	(0.45)	(0.17)	(0.10)
Obs	319	319	319	319	319	319
Adj. R^2	0.13	0.89	0.13	0.89	0.16	0.93

Notes: We designate the COVID period as March 2020 onward. The measure used for $Infl$ is CPI year-to-year inflation in columns (1) and (2), inflation surprise from SPF forecasts in columns (3) and (4), and SPF forecasts in columns (5) and (6). Columns (1), (3), and (5) have the J2J rate at time t while the others have the inflation measures at time t as the dependent variable. All variables are seasonally adjusted and HP-filtered. *p<0.1; **p<0.05; ***p<0.01. Source: Fujita et al. (2024); U.S. Bureau of Labor Statistics, CPI; authors' calculations.

Table 14: VAR(3) Estimates

	J2J Rate (1)	CPI Infl (2)	J2J Rate (3)	SPF Infl Surprise (4)	J2J Rate (5)	SPF 1-yr Ahead Infl (6)
$Infl_{t-1}$	0.03***	0.90***	0.03***	0.89***	0.22***	0.96***
	(0.01)	(0.04)	(0.01)	(0.03)	(0.04)	(0.02)
$Infl_{t-12}$	0.00	−0.15***	0.01	−0.15***	−0.01	−0.04
	(0.01)	(0.04)	(0.01)	(0.04)	(0.04)	(0.02)
$Infl_{t-24}$	−0.00	−0.04	0.00	−0.05	0.03	−0.05
	(0.01)	(0.03)	(0.01)	(0.03)	(0.03)	(0.04)
$J2J_{t-1}$	0.24***	0.04	0.25***	0.03	0.19***	0.00
	(0.07)	(0.16)	(0.07)	(0.17)	(0.06)	(0.03)
$J2J_{t-12}$	0.01	−0.03	0.02	−0.11	−0.04	−0.03
	(0.04)	(0.13)	(0.05)	(0.14)	(0.05)	(0.04)
$J2J_{t-24}$	−0.01	−0.10	0.00	−0.15	−0.02	0.01
	(0.05)	(0.18)	(0.05)	(0.20)	(0.05)	(0.02)
Obs	307	307	307	307	307	307
Adj. R^2	0.14	0.88	0.14	0.89	0.19	0.93

Notes: The measure used for $Infl$ is CPI year-to-year inflation in columns (1) and (2), inflation surprise from SPF forecasts in columns (3) and (4), and SPF inflation forecasts in columns (5) and (6). The columns (1), (3), and (5) have the job-to-job transition rate at time t as the dependent variable, while the others have the inflation measures at time t. All variables are seasonally adjusted and HP-filtered. *p<0.1; **p<0.05; ***p<0.01. Source: Fujita et al. (2024); U.S. Bureau of Labor Statistics, CPI; authors' calculations.

Table 15: VAR(2) Estimates with Alternative Measures

	J2J Rate	PCE Deflator	J2J Rate	PCE exc. FE	J2J Rate	MSC 1-yr Ahead	J2J Rate	MSC Surprise
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Infl_{t-1}$	0.03***	0.93***	0.08***	0.93***	0.07***	0.78***	0.02***	0.88***
	(0.01)	(0.03)	(0.02)	(0.04)	(0.01)	(0.05)	(0.01)	(0.04)
$Infl_{t-12}$	0.00	−0.13***	−0.00	−0.12***	−0.00	−0.02	0.00	−0.13**
	(0.01)	(0.05)	(0.01)	(0.03)	(0.01)	(0.04)	(0.00)	(0.06)
$J2J_{t-1}$	0.26***	−0.03	0.25***	0.03	0.27***	0.08	0.29***	−0.13
	(0.07)	(0.11)	(0.06)	(0.06)	(0.07)	(0.12)	(0.07)	(0.21)
$J2J_{t-12}$	0.08	−0.00	0.07	0.05	0.07	−0.18	0.08*	−0.04
	(0.05)	(0.09)	(0.05)	(0.06)	(0.05)	(0.16)	(0.05)	(0.17)
Obs	319	319	319	319	319	319	319	319
Adj R^2	0.15	0.90	0.17	0.88	0.16	0.61	0.14	0.82

Notes: The measure used for $Infl$ is PCE deflator inflation in columns (1) and (2), PCE deflator inflation excluding food and energy in columns (3) and (4), inflation surprise from MSC forecasts in columns (5) and (6), and MSC inflation forecasts in column (7) and (8). Columns (1), (3), (5), and (7) have the job-to-job transition rate at time t as the dependent variable, while the others have the inflation measures at time t. All variables are seasonally adjusted and HP-filtered. *p<0.1; **p<0.05; ***p<0.01. Source: Fujita et al. (2024); U.S. BEA, PCE; authors' calculations.

Table 16: Summary Statistics on Monetary Policy and Oil Price Shocks

Variable	Mean	SD	Min	Median	Max
BC	0.031	0.716	-2.931	0.000	3.260
GK	-0.013	0.052	-0.345	-0.002	0.112
BLM	-0.001	0.064	-0.537	0.000	0.367
NS	0.000	0.036	-0.243	0.000	0.099
NSFFR	-0.009	0.056	-0.413	0.000	0.125
RR	-0.004	0.143	-0.588	0.000	0.437
SZ	-0.131	1.111	-4.813	0.118	1.974
Oil Surprise	-0.002	1.378	-9.901	0.000	7.906

Notes: Each row represents the source used for the monetary policy and oil price shocks. The values are before the HP filtering. See Table 17 for the time coverage of each variable.

Table 17: IV Estimates, with Controls

	BC	GK	BLM	NS	NSFFR	RR	SZ	BS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Infl_{t-1}$	0.095***	0.057***	0.076***	0.104***	0.080***	0.090***	0.070**	0.072***
	(0.031)	(0.015)	(0.015)	(0.021)	(0.020)	(0.029)	(0.028)	(0.015)
$Infl_{t-12}$	0.067*	0.017	0.022	−0.006	−0.011	0.021	0.007	0.013
	(0.034)	(0.033)	(0.018)	(0.030)	(0.034)	(0.030)	(0.041)	(0.017)
UE_{t-12}	0.004	0.014*	0.015***	0.017**	0.019**	0.012*	0.014	0.012***
	(0.007)	(0.007)	(0.005)	(0.007)	(0.007)	(0.006)	(0.011)	(0.004)
Range	'95-'08	'95-'12	'95-'20	'95-'14	'95-'14	'95-'08	'95-'03	'95-'23
Obs	131	179	278	200	200	125	68	308
Adj R^2	0.054	0.168	0.088	−0.139	0.033	0.138	0.125	0.061

Notes: Each column represents the source used for the monetary policy shock. The instruments are 1 to 24-month lags of monetary policy shocks. $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$. Source: Fujita et al. (2024); U.S. Bureau of Labor Statistics, CPI; authors' calculations.

Table 18: IV Estimates with MPS and Oil Price Shocks

	BC	GK	BLM	NS	NSFFR	RR	SZ	BS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Infl_{t-1}$	0.057***	0.050***	0.040***	0.062***	0.038**	0.055**	0.073***	0.036**
	(0.020)	(0.014)	(0.012)	(0.016)	(0.018)	(0.022)	(0.024)	(0.014)
$Infl_{t-12}$	0.034	0.035**	0.039***	0.047***	0.034**	0.035*	0.025	0.041***
	(0.023)	(0.016)	(0.012)	(0.014)	(0.015)	(0.020)	(0.026)	(0.014)
Range	'95-'08	'95-'12	'95-'18	'95-'14	'95-'14	'95-'08	'95-'03	'95-'18
Obs	131	179	245	200	200	125	68	245
Adj R^2	0.133	0.106	0.027	0.029	0.081	0.121	0.110	0.020

Notes: Each column represents the source used for the monetary policy shock. The controls are the unemployment rate and the unemployment-to-employment transition rate. The instruments are 1 to 24-month lags of monetary policy shocks. See Appendix B for the data sources and details of how each variable is constructed. $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Table 19: Summary Statistics for Search Effort and Outcomes

Variable	N	Mean	SD	Min	Median	Max
SearchedM	20709	0.23	0.42	0.00	0.00	1.00
HoursSearchedW	4752	3.44	4.52	0.00	2.00	25.00
NMethodsTried	4758	3.45	2.38	0.00	3.00	12.00
EmpApplied1M	1167	2.71	3.64	0.00	1.00	15.00
EmpHeardFrom1M	1168	1.25	2.05	0.00	1.00	10.00
NInterviews1M	1111	0.31	0.60	0.00	0.00	2.00
NOffersReceived1M	1023	0.29	0.63	0.00	0.00	3.00
NOffersReceived4M	3254	0.51	1.00	0.00	0.00	5.00

Notes: Each row represents a different measure of job search activity. See Appendix B for details on how each measure is constructed.

Table 20: Summary Statistics for Macroeconomic Expectations

Variable	N	Mean	SD	Min	Median	Max
inflrate	20680	0.05	0.05	-0.03	0.03	0.20
higherstock	20704	0.42	0.23	0.00	0.49	1.00
higherint	20702	0.33	0.26	0.00	0.30	1.00
higherunemploy	20702	0.37	0.23	0.00	0.38	1.00

Notes: Each row presents expectations of a different economic aggregate. The inflation expectations are continuous, while the rest are binary, indicating whether the economic aggregate is expected to be higher (=1) or lower(=0) than the previous year. See Appendix B for details on how each measure is constructed.

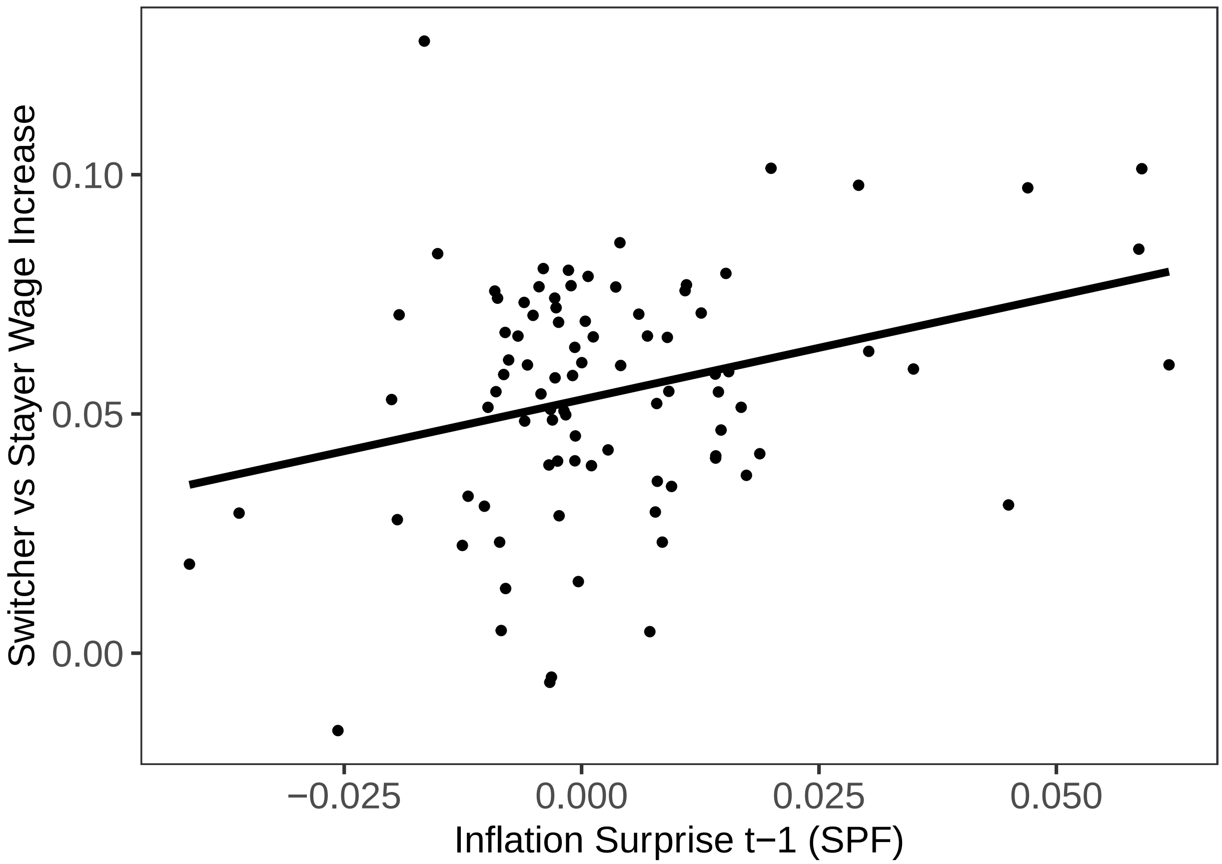

Figure 9: J2J Wage Increase and Inflation Surprises Each point represents a quarter in the U.S. from 2000 Q3 to 2023 Q1. The solid line represents the linear regression line, with a correlation coefficient of 0.3. The switcher and stayer wage gains are from the Longitudinal Employer-Household Dynamics (LEHD) explorer by the U.S. Census Bureau. Inflation Surprises are constructed as the discrepancy between the realized inflation and the 1-year ahead Survey of Professional Forecasters (SPF) forecasts.

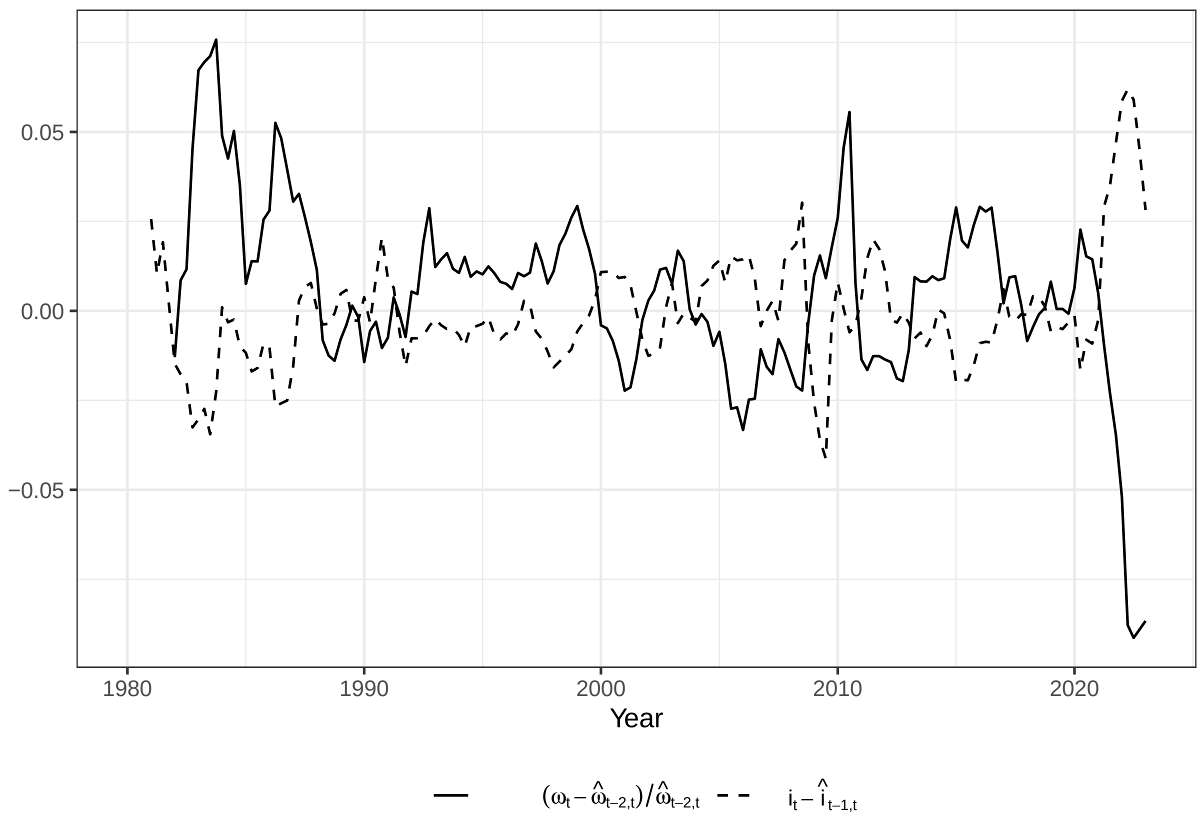

Figure 10: The Discrepancy Between the SPF Forecast and Realized Inflation The dashed red line represents the difference between the realized inflation (i_t) and the 1-year ahead SPF forecast ($\hat{i}_{t-1,t}$) in percentage points. The solid line represents the cumulative real wage loss (as a fraction of the intended wage ($\hat{w}_{t-2,t}$)) for a worker who signed his contract two years ago according to the SPF forecasts.

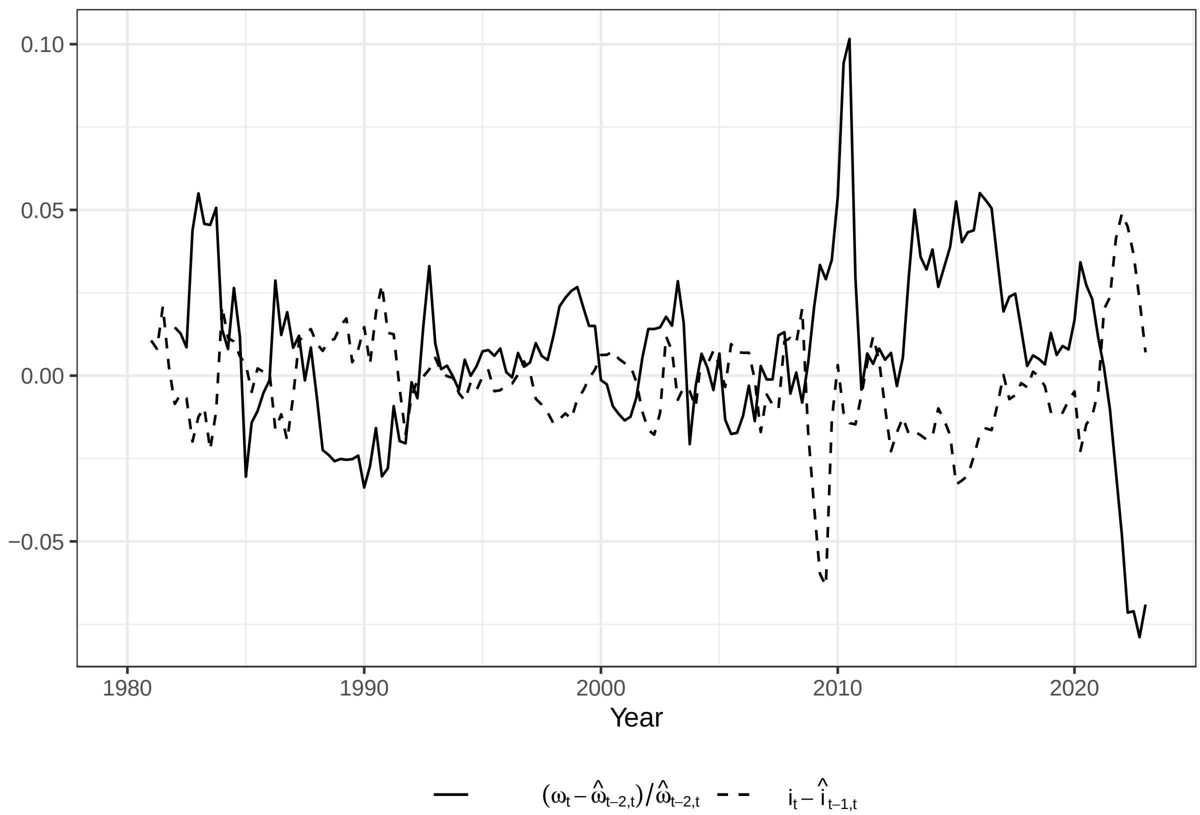

Figure 11: The Discrepancy Between the MCS Forecast and Realized Inflation The dashed red line represents the difference between the realized inflation (i_t) and the 1-year ahead forecasts by the Michigan Survey of Consumers ($\hat{i}_{t-1,t}$) in percentage points. The solid line represents the cumulative real wage loss (as a fraction of the intended wage ($\hat{w}_{t-2,t}$)) for a worker who signed his contract two years ago according to the Michigan forecasts.

Figure 12: Job Tenure Distribution in the Model and the Data

Note The lines represent job tenure distributions of the employed. The solid line is the distribution calculated from the 2005 Current Population Survey Occupational Mobility and Job Tenure Supplement. The dashed line is the distribution simulated from our calibrated model.

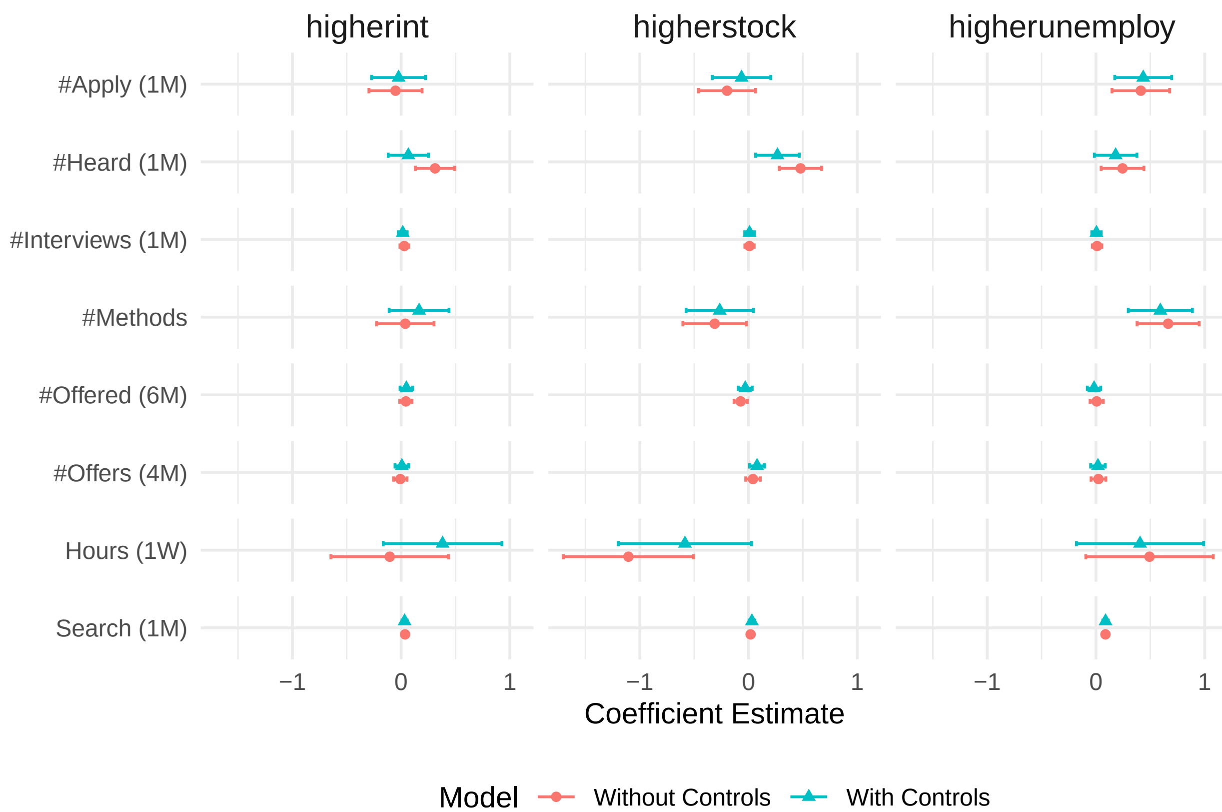

Figure 13: Job Search and Expectations of Other Economic Conditions Notes: Each column of plots represents expectations of a different economic aggregate. Each expectation is binary, indicating whether the economic aggregate is expected to be higher (=1) or lower(=0) than the previous year. The independent variables are represented by rows and include job search activities and outcomes. The bars indicate 99% confidence intervals. All regressions have survey date fixed effects. The additional controls are natural logarithms of age, tenure, and annual earnings, dummies for sex and marital status, five dummies for race, four dummies for education, and fixed effects for state, job start-year, and two-digit industries. The standard errors are clustered at the individual level. See Appendix B for the data sources and details of how each variable is constructed.

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