# Flexible Jobs in Macroeconomic Stabilization*

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June 21, 2026

**Abstract**

Can flexible jobs stabilize aggregate demand? Using euro area data, I document that a larger flexible employment sector is associated with significantly lower consumption and inflation volatility. I explain this finding in a heterogeneous agent New Keynesian model with a dual labor market. After adverse shocks, firms substitute toward flexible vacancies because they are cheaper to create and their wages adjust faster. This shortens unemployment spells and weakens precautionary saving. A larger flexible sector reduces consumption and inflation volatility but increases employment volatility and reduces welfare. For a 5 percentage point increase in the flexible employment share, the welfare loss is approximately 0.8% of consumption. Thus, flexible jobs stabilize aggregate demand by concentrating employment risk on the workers least able to self-insure.

**Keywords**: flexible jobs, unemployment risk, business cycle, welfare analysis, temporary-contracts
**JEL Codes**: E12, E24, E52, J41.

*Acknowledgments: For their suggestions and comments I would like to thank to Burak Uras, Harry Huizinga, Florian Sniekers, Jeffrey Campbell, Basile Grassi, Ata Can Bertay, Hugo van Buggenum, Michal Kobielarz, Corina Boar, Javiera de la Quintana, Giulio Fella, Gadi Barlevy, Franck Portier, Has van Vlokhoven, Guzman Ourens, Vincent Sterk, Nathanael Vellekoop, Jierui Yang, Pedro Roje, Raul Santaeulalia-Llopis, Lex Meijdam, Bas Werker, Dajan Xhani and seminar participants at ERMAS 2023, Tilburg University. Results include my own calculations based on microdata made available by Statistics Netherlands. The views expressed here are solely those of the author and do not necessarily reflect the views of the Central Bank of Chile. Any remaining errors are my own.

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# 1 Introduction

A large literature has studied how flexible employment arrangements affect labor-market outcomes (Boeri and Garibaldi, 2024). Much less is known about how they interact with aggregate demand. In European labor markets, flexible employment refers to a range of non-standard contractual arrangements, including fixed-term contracts, temporary agency work, and zero-hour contracts.[1] Despite differences in wage and hours flexibility across these arrangements, they generally share weaker employment protection, higher turnover, and greater earnings volatility. This paper argues that flexible jobs can stabilize the macroeconomy by shortening unemployment spells after adverse shocks, reducing the persistence of uninsured income risk and weakening households' precautionary-saving motives. This stabilization, however, carries distributional costs borne disproportionately by flexible workers themselves.

The mechanism operates as follows. When a negative shock reduces the profitability of regular matches, rigid regular wages amplify the revenue decline for firms, causing regular vacancy creation to contract sharply. Flexible wages adjust contemporaneously and absorb part of the shock, keeping flexible matches profitable[2]. Because flexible jobs are also cheaper to create, firms substitute vacancy creation toward the flexible submarket. This preserves the aggregate probability that a separated worker finds employment, even if the job is temporary. For households that cannot fully insure against labor-market risk, a smaller decrease in the probability of rapid reemployment weakens the precautionary-saving motive and stabilizes aggregate consumption. The mechanism operates for regular workers as well as flexible workers, because the unemployment risk of a currently employed regular worker depends on the aggregate reemployment probability, which rises whenever flexible vacancies partially offset the decline in regular vacancy creation.

Five features of European labor-market data support this mechanism. Using the share of employees on temporary contracts as the broadest consistently available measure of flexible employment, together with macroeconomic indicators from the euro area, I document facts on both sides of the trade-off. On the stabilization side, the temporary employment share rises countercyclically and involuntarily, temporary employment gains partially offset permanent employment losses, and countries with an above-average tem-

[1]The specific form varies across countries. In Spain, flexibility takes the form primarily of fixed-term contracts. In the Netherlands, it includes fixed-term contracts, temporary agency work, and zero-hour contracts.

[2]The quantitative strength of this channel depends on wage rigidity asymmetry, not merely on the coexistence of two contract types. If regular wages were equally flexible, the surplus-sensitivity differential would shrink substantially.

porary employment share experience significantly smaller unemployment increases than their cyclical position alone would predict. A larger temporary-employment sector is also associated with lower consumption and inflation volatility. On the cost side, employment volatility rises with the temporary employment share, and moving into a flexible job is associated with substantially higher wage and hours volatility and an elevated probability of unemployment in the following year. Together, these patterns suggest that the forces described above are quantitatively relevant in practice.

To quantify these forces, I build a one-asset heterogeneous-agent New Keynesian (HANK) model with a frictional labor market in which regular and flexible jobs coexist. Workers face uninsurable employment risk and save in a liquid asset subject to a borrowing constraint, so that changes in unemployment risk feed directly into precautionary saving and aggregate demand. Firms post vacancies in two submarkets that differ in vacancy cost, separation rate, productivity, and wage rigidity. Workers in flexible jobs can search on the job for regular positions, creating a stepping-stone channel from flexible to regular employment. I calibrate the model to European labor-market data and household-balance-sheet moments. The data require flexible jobs to be worse than regular jobs in productivity, wages, and separation risk, so any stabilization effect must arise entirely from the faster reemployment margin that flexible vacancies create.

The quantitative analysis delivers four main results. First, impulse responses to a negative productivity shock confirm the core mechanism. Regular vacancy creation contracts on impact while flexible vacancy creation expands. The aggregate job-finding rate falls by less than in a comparable one-job counterfactual, and the rise in unemployment is both smaller and less persistent. Second, comparing 50 model economies that share the same steady-state targets but differ in their flexible-employment share reveals a clear stabilization-insurance trade-off. Moving from a near-zero-flex economy to one with a 40% flexible-employment share reduces consumption volatility by approximately 13% and inflation volatility by approximately 7%, but employment volatility rises substantially because a larger flexible sector scales up gross transitions between employment and unemployment. Comparing the baseline economy against a representative-agent counterpart with the same dual labor market confirms that the firm-side reallocation channel operates under both complete and incomplete markets, but incomplete markets amplify both sides of the trade-off, reducing consumption volatility further while also raising employment volatility relative to the complete-markets benchmark.

Third, the aggregate increase in employment volatility is a composition effect. When volatility is scaled by the employment stock of each group, both regular and flexible workers face lower per-capita employment risk as the flexible sector expands. Consumption volatility falls not because flexible workers accumulate large precautionary buffers but because flexible jobs compress the expected duration of income losses after separation, weakening the precautionary-saving motive for the majority of employed households. Fourth, flexible employment is welfare-decreasing. For a 5 percentage point increase in the flexible employment share, a change within the range of cross-country variation observed in the euro area, the welfare loss is approximately 0.8% of consumption. Regular workers gain because a larger flexible submarket improves their reemployment prospects. Flexible workers lose because they face high separation rates while holding limited liquid buffers. The stabilization gains are positive but insufficient to offset the distributional costs that flexible workers bear.

These findings provide a new rationale for combining labor-market flexibility with social insurance. Flexible contracts stabilize aggregate demand not by protecting workers but by concentrating frequent transitions on them. The stabilization benefit does not disappear if unemployment insurance is strengthened, but the welfare cost does. Flexibility and insurance are therefore complements. One provides the reemployment margin that compresses income losses, the other protects the workers who bear the adjustment.

**Related Literature.** This paper contributes to four strands of work. First, it builds on research on dual labor markets. Acemoglu (2001) develops a good jobs/bad jobs framework in which employment composition affects welfare. Krause and Lubik (2006, 2007) embed this structure in business cycle models with search frictions and on-the-job search, and Tuzemen (2017) extends it to endogenous participation. Boeri and Garibaldi (2024), Cahuc and Postel-Vinay (2002), and Carreño and Uras (2024) show that two-tier systems concentrate adjustment on flexible workers. This literature studies the supply side properties of dual markets, typically under complete markets assumptions. I embed the same structure in an incomplete markets environment so that employment composition feeds back into aggregate demand through precautionary saving, and study a margin this literature has not examined: whether the cyclical reallocation of vacancies toward flexible jobs stabilizes aggregate demand. Second, the paper draws on evidence that unemployment generates large consumption losses and that reemployment probabilities over the business cycle (Ahn and Crane, 2020; Carrillo-Tudela and Visschers, 2023; Ganong and Noel, 2019). Flexible jobs matter for aggregate demand because they compress the duration of income interruptions.

Third, the paper contributes to HANK models with unemployment risk (Challe, 2020; Kaplan et al., 2018; McKay and Reis, 2016; Ravn and Sterk, 2017, 2021). I make contract composition an endogenous determinant of unemployment risk persistence rather than relying on a single matching margin or exogenous process. Finally, the paper relates to work on automatic stabilizers. McKay and Reis (2016) and Kekre (2023) show that unemployment insurance stabilizes demand in incomplete markets economies. This paper identifies a different stabilizer: the decentralized reallocation of vacancy creation toward flexible jobs. Unlike unemployment insurance, this mechanism stabilizes demand by concentrating risk on workers with limited capacity to self-insure, reinforcing the case that flexibility and social insurance are complements.

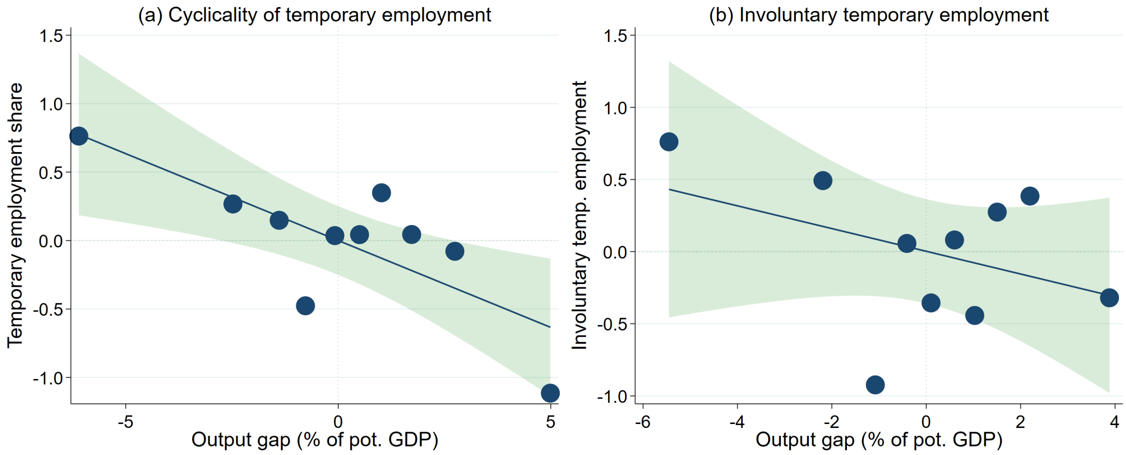
## 2 Empirical Motivation

This section documents five empirical facts that provide support for the mechanism described above. The empirical analysis measures flexible employment using the share of employees on temporary contracts, which is the broadest consistently available measure of non-standard employment across EU countries. This measure captures the contractual arrangements described above and is the natural empirical counterpart of the model's flexible-employment category. Using data from Eurostat and the European Commission's AMECO database for 27 EU countries, together with Dutch administrative microdata, I establish that temporary employment is countercyclical and involuntary, that temporary employment gains partially offset permanent employment losses and cushion unemployment, that economies with a larger temporary-employment sector exhibit lower consumption and inflation volatility but modestly higher employment volatility, and that flexible jobs expose workers to substantially greater idiosyncratic risk.[3]

**Fact 1: The share of temporary employment is countercyclical.** Panel (a) of Figure 1 shows the within-country relationship between the temporary-employment share and the output gap for 27 EU countries over 2009–2025, excluding 2020–2021. Both variables are demeaned at the country level. The negative slope indicates that deteriorations in cyclical conditions are associated with a higher share of workers on temporary contracts. This pattern is consistent with firms reallocating vacancy creation away from regular positions and toward flexible arrangements during downturns, which is the firm-side substitution channel at the center of the model.

[3]Although the analysis focuses on European labor markets, the patterns documented here are consistent with a broader cross-country literature showing that dual employment structures, wage penalties for non-standard workers, and firm-level adjustment through flexible contracts are features of many advanced economies (Katz and Krueger, 2019).

**Figure 1:** Cyclicality of temporary employment in the EU.

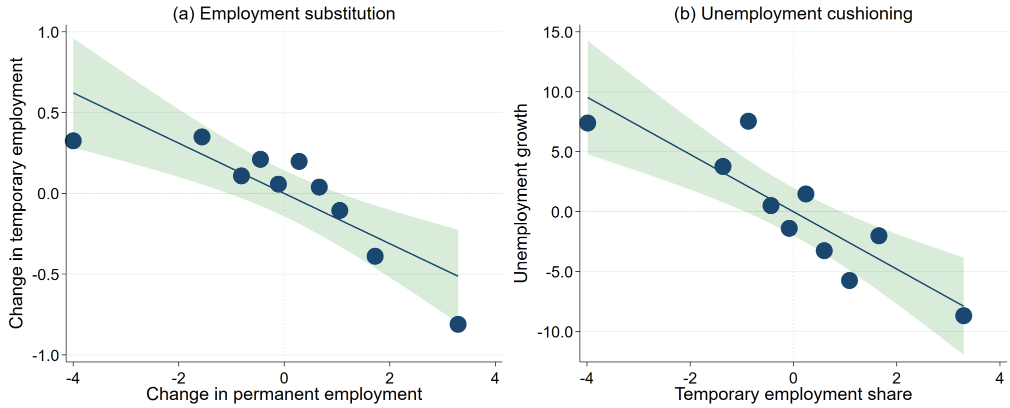



**Notes:** This figure shows the within-country relationship between temporary employment and the output gap for 27 EU countries. In Panel (a), the x-axis reports the country-demeaned output gap (as a percentage of potential GDP) and the y-axis reports the country-demeaned share of employees on temporary contracts (as a percentage of total employees, age 20–64), using data over 2009–2025, excluding 2020–2021. In Panel (b), the y-axis reports the country-demeaned involuntary temporary employment share (employees on temporary contracts because they could not find a permanent position, as a percentage of all employees, age 15–64), using data over 2016–2025, excluding 2020–2021. Both panels demean variables at the country level to absorb country fixed effects. Each point is the mean of both variables within an equal-frequency bin (10 quantiles) of the demeaned output gap. The solid line is the OLS fit on the bin means. The shaded area is the associated 95% confidence interval. Data from Eurostat (tesem110, lfsa_etgar) and the European Commission's AMECO database (AVGDGP).

**Fact 2: The cyclical increase in temporary employment is involuntary.** A key question is whether the cyclical rise in temporary work reflects workers' preferences for flexible arrangements or the disappearance of regular opportunities. Panel (b) of Figure 1 plots involuntary temporary employment against the output gap, where involuntary temporary employment is defined as the share of employees on temporary contracts because they could not find a permanent position. Both variables are demeaned at the country level and at the year level. The negative slope shows that involuntary temporary employment rises when the economy operates below potential. This pattern is not unique to Europe. Katz and Krueger (2019) document that a substantial share of workers in alternative arrangements in the United States would prefer traditional employment, and that this preference intensifies during economic downturns.

**Fact 3: Temporary employment partially offsets permanent employment losses and cushions unemployment.** Facts 1 and 2 establish that firms shift toward temporary contracts in downturns and that this reallocation is involuntary from the workers' perspective. A natural question is whether the shift is large enough to affect aggregate labor market outcomes. Figure 2 investigates this in two steps. Panel (a) plots the within-country relationship between year-over-year changes in permanent and temporary

**Figure 2:** Employment substitution and unemployment cushioning.




**Notes:** This figure documents the within-country relationship between changes in permanent and temporary employment (Panel a) and the unemployment cushioning associated with a larger temporary-employment sector (Panel b) for 27 EU countries over 2010–2025, excluding 2020–2021. Both panels use country-demeaned variables to absorb country fixed effects. Each point is the mean of both variables within an equal-frequency bin (10 quantiles) of the x-axis variable. The solid line is the OLS fit on the bin means. The shaded area is the associated 95% confidence interval. In Panel (a), the x-axis reports the country-demeaned year-over-year change in permanent employment and the y-axis reports the country-demeaned year-over-year change in temporary employment, both expressed as a percentage of lagged total employment. In Panel (b), the y-axis reports the residual from a regression of country-demeaned unemployment growth on the country-demeaned output gap, and the x-axis reports the country-demeaned temporary employment share. Data from Eurostat (tesem110, lfsa_epgaed) and the European Commission's AMECO database (AVGDGP).

employment, both expressed as a percentage of lagged total employment. The negative slope indicates that periods of permanent employment contraction are associated with temporary employment expansion, consistent with firm-side substitution across contract types. Because temporary employment accounts for a smaller share of total employment than permanent employment, the offset is partial rather than complete. A one percentage-point decline in permanent employment as a share of total employment is associated with approximately a 0.17 percentage-point increase in temporary employment.

Panel (b) asks whether this partial substitution translates into a measurable cushioning of unemployment. The y-axis plots the residual from a regression of country-demeaned unemployment growth on the country-demeaned output gap, and the x-axis reports the country-demeaned temporary employment share. The negative slope indicates that periods in which a country's temporary employment share is above its own historical mean are associated with unemployment increases that are significantly smaller than the output gap alone would predict. Flexible vacancies do not prevent labor-market conditions from deteriorating, but they compress the magnitude of the unemployment response to adverse shocks.

**Fact 4: A larger temporary-employment sector is associated with lower consumption and inflation volatility but higher employment volatility.** The previous facts establish the labor-market channel through which flexible contracts operate. Figure 3 asks whether this channel has measurable aggregate consequences. Each panel plots the within-country relationship between the temporary employment share and a measure of macroeconomic volatility, defined as the three-year rolling standard deviation of the corresponding annual growth rate.

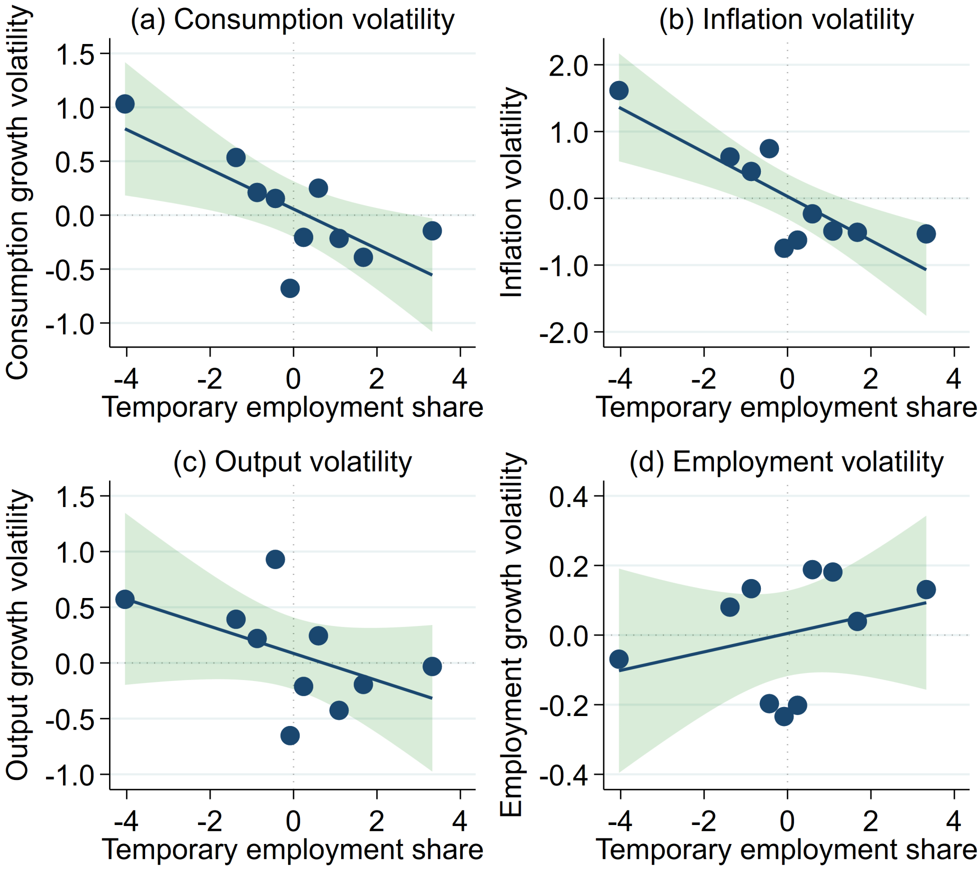
Panels (a) and (b) document the stabilization side. Periods in which a country's temporary employment share is above its own historical mean are associated with significantly lower consumption growth volatility and significantly lower inflation volatility. Panels (c) and (d) document the cost side. Output growth volatility declines modestly with the temporary employment share, but the relationship is not statistically significant. Employment growth volatility, by contrast, increases with the temporary employment share, consistent with a larger flexible sector scaling up the volume of gross labor-market transitions.

**Fact 5: Flexible jobs provide an adjustment margin but expose workers to greater risk.** The first four facts document the aggregate channels through which flexible employment operates. Table 1 uses Dutch administrative microdata covering more than 41 million worker-year observations to characterize the microeconomic features of flexible jobs.[4] Exploiting within-worker variation through worker fixed effects and firm fixed effects, the table shows that moving into a flexible job is associated with substantially higher volatility of worked hours (15.5 percentage points, relative to a mean of 0.198), higher gross wage volatility (1.3 percentage points, relative to a mean of 0.436), and a 1.7 percentage-point increase in the probability of being unemployed the following year, roughly a 35% increase relative to the baseline rate of 4.9%. These patterns are not specific to the Dutch institutional context. Wage penalties, hours instability, and elevated unemployment risk for non-standard workers are consistently documented across countries and identification strategies.[5]

[4] An extended version of these results is discussed by Carreño et al. (2024).

[5] Booth et al. (2002) find significant earnings discounts for temporary workers in the United Kingdom even after controlling for observable characteristics. Autor and Houseman (2010) show that temporary-help employment in the United States is associated with persistently lower earnings and higher employment instability relative to comparable direct-hire workers. Goldschmidt and Schmieder (2017) document large wage losses from domestic outsourcing in Germany, concentrated among workers in routine tasks who transition to non-standard arrangements.

**Figure 3:** Contractual flexibility and macroeconomic volatility: within-country evidence.




**Notes:** This figure shows the within-country relationship between the temporary employment share and four measures of macroeconomic volatility for 27 EU countries over the period 2009–2025, excluding 2020–2021. Volatility is measured as the three-year rolling standard deviation of the corresponding annual growth rate. Panel (a) reports consumption growth volatility (final consumption expenditure of households, chain-linked volumes, Eurostat indicator P3_S14). Panel (b) reports inflation volatility (Harmonised Index of Consumer Prices, annual average rate of change, Eurostat indicator prc_hicp_aind). Panel (c) reports GDP growth volatility. Panel (d) reports total employment growth volatility. All variables are demeaned at the country level to absorb country fixed effects. Each point is the mean of both variables within an equal-frequency bin (10 bins) of the demeaned temporary employment share. The solid line is the OLS fit on the bin means. The shaded area is the associated 95% confidence interval. Data from Eurostat (tesem110, nama_10_gdp, prc_hicp_aind, lfsa_epgaed) and the European Commission's AMECO database.

# 3 Model

I build a one-asset heterogeneous-agent New Keynesian model with a frictional labor market in which regular and flexible jobs coexist. Workers consume, save in a liquid asset, and face uninsurable employment risk. Firms produce under monopolistic competition and nominal rigidities, and post vacancies in two submarkets that differ in posting cost, separation rate, productivity, and wage rigidity. Workers in flexible jobs search on the job for regular positions.

The model is designed to capture the empirical regularities documented in Section 2.

**Table 1:** Characterization of flexible jobs in the Netherlands.

| | Volatility worked hours (1) | Volatility gross wage (2) | Unemp. (next year) (3) |
|---|---|---|---|
| Flexible Jobs | 0.155*** | 0.0133*** | 0.0165*** |
| | (0.000279) | (0.000191) | (0.000311) |
| Mean (dependent variable) | 0.198 | 0.436 | 0.049 |
| Controls: | | | |
| Worker FE | Yes | Yes | Yes |
| Firm FE | Yes | Yes | Yes |
| Industry × year FE | Yes | Yes | Yes |
| Polynomial term age | Yes | Yes | Yes |
| *Observations* | 41,059,546 | 41,059,546 | 34,772,891 |
| *R2* | 0.611 | 0.717 | 0.327 |

**Notes:** This table characterizes flexible jobs. I run the regression $Q_{i,t} = \phi \mathbf{1}_{it}^{Flex} + \boldsymbol{X\beta} + \alpha_i + \epsilon_{i,t}$, where $Q_{i,t}$ may be the volatility of worked hours within a year, the volatility of the gross wage within a year, or a dummy for being unemployed next year; $\mathbf{1}_{it}^{Flex}$ is a dummy for flexible employment at the end of year; $\boldsymbol{X}$ includes a polynomial term on age (normalized to 40 years old), number of months under a flexible job within a year, and industry-year fixed effects; $\alpha_i$ are worker fixed effects; $\epsilon_{i,t}$ is the error term. I consider workers from 25 to 55 years old and drop extreme values. Robust standard errors at the worker level. t-statistics in parentheses.

Flexible jobs have more responsive wages and lower vacancy costs, which is why firms substitute toward them when aggregate conditions deteriorate (Fact 1). That substitution is involuntary from the workers' perspective, driven by the scarcity of regular vacancies rather than by any change in preferences (Fact 2). The resulting reallocation partially offsets permanent employment losses and cushions unemployment (Fact 3), dampening precautionary saving and stabilizing aggregate consumption and inflation (Fact 4). The higher wage volatility of flexible jobs, documented in Fact 5, disciplines the key asymmetry on the wage side of the model. At the same time, a larger flexible sector scales up gross labor market flows, raising employment volatility (Fact 4), and flexible workers themselves face greater hours instability and a higher probability of unemployment in the following year (Fact 5). The model therefore features a stabilization-insurance trade-off at its core. The same contractual flexibility that lowers macroeconomic volatility exposes individual workers to greater idiosyncratic risk and lower job quality.

## 3.1 Households

A unit measure of workers, indexed by $i \in [0, 1]$, differ in employment status $q_{i,t} \in \{r, f, u\}$, idiosyncratic productivity $e_{i,t}$, and liquid assets $b_{i,t}$. Productivity follows a Markov chain with transition matrix $Q$, where $Q_{e,e'}$ denotes the probability of moving from idiosyncratic productivity state $e$ to $e'$. Employment status follows a time-varying chain $\Pi_t^q$ whose entries are determined by the labor-market block. At the beginning of each period, the worker's post-matching status and productivity are known. The worker then chooses consumption and savings. A worker in state $(b, e, q)$ solves

$$V_t^q(e,b) = \max_{c,b'} \left\{ u(c) + \beta\, \mathbb{E}_t \left[ \sum_{q' \in \{r,f,u\}} [\Pi_{t+1}^q]_{q,q'} \sum_{e'} Q_{e,e'} V_{t+1}^{q'}(e',b') \right] \right\}, \tag{1}$$

subject to

$$c + b' = y_t^q(e) + R_t^b b + \mathcal{T}_t(e), \tag{2}$$

$$b' \geq \underline{b}, \qquad c \geq 0, \tag{3}$$

where $R_t^b$ is the gross real return on the liquid asset and $\mathcal{T}_t(e)$ is a lump-sum transfer. The expectation integrates over future employment status and idiosyncratic productivity: transitions across employment states are governed by $\Pi_t^q$, while productivity evolves according to an independent Markov process with transition matrix $Q_{e,e'}$, capturing heterogeneity in individual earnings. Labor income depends on employment status:

$$y_t^q(e) = \begin{cases} w_t^r\, e, & \text{if } q = r, \\ w_t^f\, e, & \text{if } q = f, \\ \delta_t\, e, & \text{if } q = u, \end{cases} \tag{4}$$

where $w_t^r$ and $w_t^f$ are real wages and $\delta_t$ is unemployment income. The idiosyncratic component $e$ has unit mean and acts as a within-type redistribution scheme. Outside the borrowing constraint, the Euler equation is

$$u'(c_{i,t}) = \beta\, \mathbb{E}_t \left[ R_{t+1}^b \sum_{q' \in \{r,f,u\}} [\Pi_{t+1}^q]_{q,q'} \sum_{e'} Q_{e,e'} u'(c_{i,t+1}) \right]. \tag{5}$$

When the constraint binds, (5) holds with inequality. The transition matrix $\Pi_{t+1}^q$ enters the Euler equation directly. Any change in the job-finding or separation probabilities of flexible jobs therefore alters the precautionary-saving motive of all workers, including those currently in regular jobs who have never held a flexible contract. This is the household-side channel through which labor-market flexibility affects aggregate demand: not through the assets held by flexible workers, but through the expectations of the employed majority. Aggregates are obtained by integrating against the cross-sectional distribution $\mu_t(e, b, q)$:

$$C_t = \int c_{i,t}\, d\mu_t, \qquad B_t^H = \int b_{i,t+1}\, d\mu_t. \tag{6}$$

**Capitalists.** A measure $\Lambda > 0$ of capitalists own firms, receive profits, and face no labor-income risk.[6] They solve

$$V_t^C(b_t^C) = \max_{c_t^C, b_{t+1}^C} \left\{ \tilde{u}(c_t^C) + \beta\, \mathbb{E}_t \left[ V_{t+1}^C(b_{t+1}^C) \right] \right\}, \tag{7}$$

subject to

$$c_t^C + b_{t+1}^C = \frac{\Pi_t^W + \Pi_t^I + \Omega_t + \mathcal{T}_t^C}{\Lambda} + R_t^b b_t^C, \tag{8}$$

where $\Pi_t^W$ and $\Pi_t^I$ are wholesale and intermediate profits, $\Omega_t$ is non-labor income, and $\mathcal{T}_t^C$ is a lump-sum transfer. The capitalist stochastic discount factor is

$$\Lambda_{t,t+1}^C \equiv \beta \frac{\tilde{u}'(c_{t+1}^C)}{\tilde{u}'(c_t^C)}. \tag{9}$$

## 3.2 Production

**Final-good firms.** A competitive final-good firm aggregates wholesale varieties:

$$Y_t = \left( \int_0^1 Y_{h,t}^{\frac{\mu-1}{\mu}}\, dh \right)^{\frac{\mu}{\mu-1}}, \tag{10}$$

with demand schedule $Y_{h,t} = Y_t\, p_{h,t}^{-\mu}$, where $\mu > 1$ governs the markup.

**Wholesale firms.** Wholesale firms face Rotemberg price-adjustment costs, which generate a forward-looking Phillips curve. Let $\varphi_t$ denote real marginal cost and $\pi_t$ inflation. Aggregate wholesale profits are

$$\Pi_t^W = Y_t \left[ (1 + \tau^W) - \varphi_t - \frac{\mu}{\mu - 1} \frac{1}{2\kappa_p} \left[ \log(1 + \pi_t) \right]^2 \right], \tag{11}$$

and optimal pricing yields the Phillips curve

$$\kappa_p \left( \varphi_t - \frac{1 + \tau^W}{\mu/(\mu - 1)} \right) + \mathbb{E}_t \left[ \Lambda_{t,t+1}^C \frac{Y_{t+1}}{Y_t} \log(1 + \pi_{t+1}) \right] = \log(1 + \pi_t), \tag{12}$$

with steady-state marginal cost $\bar{\varphi} = (1 + \tau^W)(\mu - 1)/\mu$.

**Intermediate-goods firms.** A match with a type-$s \in \{r, f\}$ worker produces

$$y_{j,t}^s = Z_t \chi^s, \tag{13}$$

[6] As in Challe (2020) and Ravn and Sterk (2021), I use capitalists to absorb fiscal transfers (including firm rents) that may affect the cyclicality of income risk and thus the implied savings response of workers to unemployment risk (see, e.g., Acharya and Dogra, 2020).

where $\chi^r > \chi^f = 1$ and aggregate productivity follows $\log Z_t = (1-\rho_Z)\log \bar{Z} + \rho_Z \log Z_{t-1} + \varepsilon_{Z,t}$. Regular and flexible jobs differ along three dimensions that mirror Fact 5. Regular jobs are more productive ($\chi^r > \chi^f$), more stable ($\rho^r < \rho^f$), and more costly to create ($\eta^r > \eta^f$).

## 3.3 Labor Market and On-the-Job Search

The labor market consists of two submarkets, one for regular positions and one for flexible positions, which are distinct but connected through directed search and on-the-job transitions. Unemployed workers direct a fraction $\psi_t$ of search effort toward regular jobs and $1 - \psi_t$ toward flexible jobs. Workers in flexible jobs search on the job for regular positions with intensity $s \in [0, 1]$; workers in regular jobs do not search. On-the-job search is restricted to the upward flexible-to-regular direction, consistent with the evidence that temporary employment functions as an entry point into stable work rather than as a destination (Booth et al., 2002; Cahuc et al., 2022). After exogenous separations, the searching pool is

$$U_t = 1 - (1 - \rho^r)N^r_{t-1} - (1 - \rho^f)N^f_{t-1}, \tag{14}$$

with total employment $N_t = N^r_t + N^f_t$.[7] The effective search pools are

$$E^r_t = \psi_t U_t + s(1 - \rho^f)N^f_{t-1}, \tag{15}$$

$$E^f_t = (1 - \psi_t)U_t. \tag{16}$$

Matching in each submarket is Cobb–Douglas:

$$M^r_t = m^r(V^r_t)^{1-\gamma}(E^r_t)^{\gamma}, \tag{17}$$

$$M^f_t = m^f(V^f_t)^{1-\gamma}(E^f_t)^{\gamma}, \tag{18}$$

with tightness $\theta^s_t = V^s_t/E^s_t$, job-finding rates $p^s_t = m^s(\theta^s_t)^{1-\gamma}$, and vacancy-filling rates $\lambda^s_t = m^s(\theta^s_t)^{-\gamma}$. I restrict parameters so that $\psi_t p^r_t + (1 - \psi_t)p^f_t \leq 1$ and $sp^r_t \leq 1$. Hiring flows from unemployment to regular jobs, from unemployment to flexible jobs, and from flexible to regular jobs (the stepping-stone channel) are

$$H^{u\to r}_t = p^r_t \psi_t U_t, \qquad H^{u\to f}_t = p^f_t(1 - \psi_t)U_t, \qquad H^{f\to r}_t = p^r_t s(1 - \rho^f)N^f_{t-1}. \tag{19}$$

[7]The common search pool is standard in dual labor market models with search frictions (Krause and Lubik, 2006).

Employment evolves according to

$$N_t^r = (1-\rho^r)N_{t-1}^r + H_t^{u\to r} + H_t^{f\to r}, \tag{20}$$

$$N_t^f = (1-\rho^f)N_{t-1}^f - H_t^{f\to r} + H_t^{u\to f}. \tag{21}$$

The transition matrix $\Pi_t^q$ fed into the household block is constructed from these flows. For unemployed workers,

$$\Gamma_t^{u\to r} = \psi_t p_t^r, \qquad \Gamma_t^{u\to f} = (1-\psi_t)p_t^f, \qquad \Gamma_t^{u\to u} = 1 - \psi_t p_t^r - (1-\psi_t)p_t^f. \tag{22}$$

For regular workers,

$$\Gamma_t^{r\to r} = (1-\rho^r) + \rho^r\Gamma_t^{u\to r}, \qquad \Gamma_t^{r\to f} = \rho^r\Gamma_t^{u\to f}, \qquad \Gamma_t^{r\to u} = \rho^r\Gamma_t^{u\to u}. \tag{23}$$

For flexible workers,

$$\Gamma_t^{f\to r} = (1-\rho^f)sp_t^r + \rho^f\Gamma_t^{u\to r}, \tag{24}$$

$$\Gamma_t^{f\to f} = (1-\rho^f)(1-sp_t^r) + \rho^f\Gamma_t^{u\to f}, \tag{25}$$

$$\Gamma_t^{f\to u} = \rho^f\Gamma_t^{u\to u}. \tag{26}$$

Because $\Pi_t^q$ varies with aggregate tightness, the distribution of workers across employment states responds endogenously to shocks. This endogeneity is what connects the firm-side vacancy decisions to the household-side Euler equation: any change in labor-market tightness immediately feeds back into the transition probabilities that govern how households discount future income risk.

## 3.4 Vacancy Creation

The value of a filled regular job is

$$J_t^r = (1-\tau_t^{I,r})\left(\varphi_t Z_t \chi^r - w_t^r\right) + \mathbb{E}_t\left[\Lambda_{t,t+1}^C(1-\rho^r)J_{t+1}^r\right], \tag{27}$$

and the value of a filled flexible job is

$$J_t^f = (1-\tau_t^{I,f})\left(\varphi_t Z_t \chi^f - w_t^f\right) + \mathbb{E}_t\left[\Lambda_{t,t+1}^C(1-\rho^f)(1-sp_{t+1}^r)J_{t+1}^f\right]. \tag{28}$$

Flexible jobs have lower continuation value because they face both exogenous separations and endogenous quits through on-the-job search. Free entry requires

$$\eta^r = \lambda_t^r J_t^r, \tag{29}$$

$$\eta^f = \lambda_t^f J_t^f. \tag{30}$$

Aggregate intermediate profits are

$$\Pi_t^I = N_t^r(1-\tau_t^{I,r})(\varphi_t Z_t \chi^r - w_t^r) + N_t^f(1-\tau_t^{I,f})(\varphi_t Z_t \chi^f - w_t^f) - \eta^r V_t^r - \eta^f V_t^f. \tag{31}$$

## 3.5 Wage Setting

Regular wages are sluggish as in Challe (2020). Flexible wages adjust freely. I adopt a reduced-form surplus-sharing block consistent with the household problem. The Nash wage targets are

$$w_t^{r,N} = (1-\alpha)\delta_t + \alpha\varphi_t Z_t \chi^r, \tag{32}$$

$$w_t^{f,N} = (1-\alpha)\delta_t + \alpha\varphi_t Z_t \chi^f - \nu sp_t^r, \tag{33}$$

where $\alpha$ is the worker's bargaining weight and $\nu sp_t^r$ captures the option value of flexible employment through the stepping-stone channel: flexible workers accept a wage discount in exchange for access to on-the-job search. Regular wages adjust gradually toward their Nash target:

$$\log w_t^r = \phi_w \log w_{t-1}^r + (1-\phi_w)\log w_t^{r,N}, \qquad \phi_w \in [0,1), \tag{34}$$

while flexible wages equal their target

$$w_t^f = w_t^{f,N} \tag{35}$$

This asymmetry is disciplined directly by Fact 5: the Dutch microdata show substantially higher within-worker wage volatility for flexible employment, consistent with flexible wages that absorb aggregate shocks contemporaneously. Combined with the lower posting cost $\eta^f$, the pair $(\eta^f, \phi_w)$ generates a labor-demand margin whose responsiveness to aggregate conditions exceeds that of the regular-job margin.

## 3.6 Monetary Policy

The central bank follows a Taylor rule:

$$1 + i_t = (1+\bar{i})^{1-\mu_i}(1+i_{t-1})^{\mu_i}\left(\frac{1+\pi_t}{1+\bar{\pi}}\right)^{\phi_\pi(1-\mu_i)}\xi_t, \tag{36}$$

with the real return given by the Fisher equation:

$$1 + r_t = \frac{1+i_{t-1}}{1+\pi_t}, \qquad R_t^b \equiv 1 + r_t. \tag{37}$$

## 3.7 Government

The government issues liquid bonds, levies vacancy-creation wedges $\tau_t^{I,r}$ and $\tau_t^{I,f}$, and provides transfers. The wedge $\tau_t^{I,f}$ offers a tractable way to model labor-market flexibility as a policy instrument, enabling counterfactual comparisons across economies with different contractual structures while holding other steady-state targets fixed. Net revenues are

$$\mathcal{R}_t = \tau_t^{I,r} N_t^r (\varphi_t Z_t \chi^r - w_t^r) + \tau_t^{I,f} N_t^f (\varphi_t Z_t \chi^f - w_t^f) - \tau^W Y_t, \tag{38}$$

and the budget constraint is

$$B_t^G = R_t^b B_{t-1}^G + G_t + T_t + \mathcal{T}_t^C - \mathcal{R}_t. \tag{39}$$

Transfers follow a fiscal rule that stabilizes debt:

$$T_t = \bar{T} - \phi_B (B_{t-1}^G - \bar{B}^G), \qquad \phi_B > 0, \tag{40}$$

with $|\bar{R}^b - \phi_B| < 1$.

## 3.8 Aggregation, Distribution, and Equilibrium

The liquid-asset market clears when

$$B_t^H + \Lambda b_{t+1}^C = B_t^G. \tag{41}$$

Aggregate output is

$$Y_t = Z_t \chi^r N_t^r + Z_t \chi^f N_t^f, \tag{42}$$

and the resource constraint is

$$C_t + \Lambda c_t^C + \eta^r V_t^r + \eta^f V_t^f + G_t = Y_t + (1 - N_t)\delta_t + \Omega_t - \frac{\mu}{\mu - 1} \frac{1}{2\kappa_p} \left[\log(1 + \pi_t)\right]^2 Y_t. \tag{43}$$

The cross-sectional distribution $\mu_t(e, b, q)$ evolves according to

$$\mu_{t+1}(e', b', q') = \sum_{q \in \{r,f,u\}} \sum_e \left[\Pi_{t+1}^q\right]_{q,q'} Q_{e,e'} \int \mathbf{1}\left\{b' = g_t^{b,q}(e, b)\right\} d\mu_t(e, b, q), \tag{44}$$

where $g_t^{b,q}$ is the saving policy function. This distribution determines both the mass of constrained households and the strength of the precautionary-saving channel: the aggregate consumption response to unemployment-risk fluctuations depends critically on how many workers are close to their borrowing limit, and therefore on the joint distribution of employment status and liquid wealth.

**Equilibrium.** An equilibrium consists of policy functions, prices, allocations, and government policies such that: (i) workers solve (1)–(5); (ii) capitalists optimize; (iii) the Phillips curve (12) holds; (iv) labor-market flows satisfy (14)–(21); (v) free entry holds with (29)–(30); (vi) wages satisfy (32)–(35); (vii) policy follows (36)–(40); (viii) $\mu_t$ evolves by (44); and (ix) markets clear.

### 3.9 Stabilization Mechanism

Flexible jobs stabilize the economy by reducing fluctuations in unemployment risk and, through incomplete insurance, precautionary saving. The key mechanism is that they raise the probability of rapid reemployment, shortening the duration of income losses without improving households' ability to self-insure. The formal analysis in this section makes the mechanism precise and characterizes the conditions under which it operates. The key object is the re-employment probability of a separated worker:

$$P_t \equiv \psi_t p_t^r + (1 - \psi_t) p_t^f. \tag{45}$$

Using the transition matrix, the probability that a current regular worker becomes unemployed next period is

$$\Gamma_t^{r \to u} = \rho^r (1 - P_t). \tag{46}$$

Thus, flexible jobs affect aggregate demand not only through the workers who hold them, but also through the expectations of regular workers. A regular worker who separates takes into account the probability of finding either a regular or a flexible job. Therefore, changes in flexible job-finding rates directly affect the unemployment risk perceived by the largest group of workers in the economy, and it is this group, not the minority in flexible positions, that drives the consumption-stabilization result.

**Lemma 1** (Regular-match surpluses are more exposed to adverse shocks)**.** *Let $x_t \equiv \varphi_t Z_t$ denote real revenue per efficiency unit, and let $\mathcal{S}_t^s \equiv x_t \chi^s - w_t^s$ with $s \in \{r, f\}$, be the current operating surplus of a type-s match. Around the deterministic steady state, holding $\delta_t$ and $p_t^r$ fixed, the direct surplus sensitivities are*

$$\left. \frac{\partial \mathcal{S}_t^r}{\partial x_t} \right|_{SS} = \left[ (1 - \alpha) + \alpha \phi_w \right] \chi^r, \tag{47}$$

*and*

$$\left. \frac{\partial \mathcal{S}_t^f}{\partial x_t} \right|_{SS} = (1 - \alpha) \chi^f. \tag{48}$$

*Since $\chi^r > \chi^f > 0$ and $\phi_w \geq 0$, regular-match surpluses are more exposed to adverse aggregate shocks:*

$$d\mathcal{S}_t^r < d\mathcal{S}_t^f < 0 \qquad \textit{for } dx_t < 0. \tag{49}$$

*Proof.* See Appendix B.

The lemma isolates the direct wage-setting force. Regular wages adjust sluggishly, so a larger fraction of the revenue decline is absorbed by the firm's surplus. Flexible wages adjust contemporaneously, so part of the shock is absorbed by wages instead. This makes flexible matches relatively more resilient in downturns and it is the reason why wage rigidity ($\phi_w$) and flexible wage responsiveness jointly determine the size of the firm-side substitution that drives the results.

**Proposition 1** (Flexible vacancies become relatively more attractive in downturns)**.** *Suppose the surplus ranking in Lemma 1 is inherited by filled-job values, so that after a sufficiently small adverse aggregate shock, $d\log J_t^r < d\log J_t^f < 0$. Then free entry implies*

$$d\log\left(\frac{\theta_t^f}{\theta_t^r}\right) > 0. \tag{50}$$

*Hence, a downturn raises flexible labor-market tightness relative to regular labor-market tightness.*

*Proof.* See Appendix B.

This result formalizes the firm-side substitution channel. When regular-match values fall more than flexible-match values, vacancy creation shifts toward the flexible submarket. The lower vacancy cost of flexible jobs, $\eta^f < \eta^r$, reinforces this force by making flexible vacancies profitable in a wider range of aggregate states.

**Proposition 2** (Flexible jobs dampen unemployment-risk fluctuations)**.** *The unemployment risk of a regular worker satisfies*

$$d\Gamma_t^{r\to u} = -\rho^r dP_t, \tag{51}$$

*where $P_t$ is defined in (45). Therefore, any adjustment of the flexible margin that makes $P_t$ less volatile also makes regular workers' unemployment risk less volatile. In particular, after a negative aggregate shock, if flexible vacancies cushion the fall in $P_t$, then the increase in $\Gamma_t^{r\to u}$ is dampened.*

*Proof.* See Appendix B.

The stabilizing effect is not automatic. Flexible jobs stabilize unemployment risk only if the flexible margin compensates, at least partially, for the decline in regular hiring.

**Proposition 3** (Unemployment-risk dampening stabilizes aggregate demand)**.** *Let*

$$\mathcal{Y}_t^{r,\text{sep}} = \delta_t + \psi_t p_t^r (w_t^r - \delta_t) + (1 - \psi_t) p_t^f (w_t^f - \delta_t) \tag{52}$$

*denote the expected labor income of a separated regular worker after re-entering the search pool. Holding wages, unemployment income, and search direction fixed, the direct effect of changes in job-finding probabilities on the consumption of regular workers is approximately*

$$dC_t^r \approx N_t^r \overline{\mathcal{M}}_t^r \rho^r \left[ \psi_t (w_t^r - \delta_t) dp_t^r + (1 - \psi_t)(w_t^f - \delta_t) dp_t^f \right], \tag{53}$$

*where* $\overline{\mathcal{M}}_t^r > 0$ *is the average consumption exposure of regular workers to expected labor income in the separation state. If* $w_t^r > w_t^f > \delta_t$ *and the flexible margin makes the bracketed term less negative after an adverse shock, then the fall in aggregate consumption is dampened.*

*Proof.* See Appendix B.

Equation (53) makes three forces visible. The stabilization effect is stronger when regular employment $N_t^r$ is large (the majority of workers are exposed through the aggregate reemployment probability), when the income loss from separation is large relative to unemployment income, and when regular workers' consumption is sensitive to expected labor income, which depends on the cross-sectional distribution of liquid wealth.

**Corollary 1** (Macroeconomic stabilization)**.** *Suppose Propositions 1, 2, and 3 hold. Then flexible jobs reduce the volatility of unemployment risk, precautionary saving, and aggregate consumption. Through goods-market clearing and the Phillips curve, this lowers the volatility of output and inflation.*

*Proof.* See Appendix B.

**Corollary 2** (Stabilization–insurance trade-off)**.** *Although flexible jobs can stabilize aggregate fluctuations, the welfare effect is generally ambiguous. Flexible jobs have lower productivity, lower wages, and higher separation rates than regular jobs:*

$$\chi^f < \chi^r, \qquad w_t^f < w_t^r, \qquad \rho^f > \rho^r.$$

*Therefore, labor-market flexibility can reduce macroeconomic volatility while also lowering job quality and increasing worker-level risk.*

*Proof.* See Appendix B.

# 4 Calibration

I solve the model using the sequence-space Jacobian approach, following (Auclert et al., 2021), and calibrate it at a quarterly frequency to a representative euro area economy. The calibration draws on euro-area aggregates and cross-country averages. The calibration proceeds in three steps. A first set of parameters is assigned externally. A second set is backed out from steady-state conditions to match five targets. A third set of untargeted validation moments is reported in Panels B through D of Table 2 and serves as a calibration check.[8]

**Step 1: Externally assigned parameters.** Relative risk aversion is $\sigma = 2$. The idiosyncratic productivity process has persistence $\rho_e = 0.975$ and innovation standard deviation $\sigma_e = 0.350$, within the range estimated for persistent quarterly earnings shocks (Storesletten et al., 2004). The borrowing limit is $\underline{b} = -0.050$ (five percent of quarterly income). The matching-function elasticity is $\gamma = 0.50$ (Petrongolo and Pissarides, 2001), with symmetric matching efficiencies $m^r = m^f = 0.65$. Setting $\alpha = \gamma = 0.50$ ensures the Hosios condition holds in each submarket (Hosios, 1990). Regular-job productivity is $\chi^r = 1.15$ relative to the normalization $\chi^f = 1$.[9] The regular separation rate is $\rho^r = 0.0455$ (annual separation rate of 17%) and the flexible separation rate is $\rho^f = 0.1500$ (annual separation rate of 48%). The ratio $\rho^f/\rho^r \approx 3.3$ is disciplined by the Dutch microdata in Fact 5.[10] Flexible workers search on the job with intensity $s = 0.15$. Regular-wage inertia is $\phi_w = 0.850$, consistent with Druant et al. (2012). Unemployment income is $\delta = 0.55$, within the range of euro-area net replacement rates. Standard monetary and fiscal parameters complete this step ($\phi_\pi = 1.5$, $\mu_i = 0.8$, $G/Y = 0.20$, $\phi_B = 0.05$).

**Step 2: Target-implied parameters.** Four parameters are backed out from the steady-state labor-market system to exactly match four targets. The search split $\psi = 0.5566$[11],

[8] In Appendix C, I present the steady-state version of the model. Appendix D provides full discussion of individual parameter choices and the data mapping.

[9] This 15% productivity wedge ensures that regular jobs pay more (consistent with the wage-ratio target and the evidence on contract-type wage penalties in Fact 5), that regular jobs are more costly to create (the firm-side counterpart of stronger employment protection), and that regular employment constitutes the majority of the labor force in steady state.

[10] Fact 5 documents a 1.7 percentage-point increase in the annual probability of unemployment following a transition into flexible employment, roughly a 35% increase relative to the baseline rate of 4.9%. The separation-rate ratio governs the size of the employment-volatility amplification in Section 5.

[11] The search split $\psi$ is held fixed across the business cycle and across the 50 economies. In principle, workers could redirect search toward regular jobs when regular job-finding falls, partially offsetting the firm-side substitution channel.

**Table 2:** Targeted and Validation Moments

| Moment | Target | Model | Discipline / interpretation |
|---|---|---|---|
| **Panel A: Targeted moments** | | | |
| Annualized real interest rate | 2.0% | 2.0% | Imposed through $\bar{R}^b = 1.005$ |
| End-of-period unemployment rate | 6.5% | 6.5% | Steady-state unemployment |
| Flexible employment share | 0.20 | 0.20 | Size of flexible-employment sector |
| Job-finding probability into flexible jobs, $p^f$ | 0.65 | 0.65 | Flexible-job finding rate |
| Regular/flexible wage ratio, $w^r/w^f$ | 1.15 | 1.15 | Regular-job wage premium |
| **Panel B: Household validation moments** | | | |
| Mean quarterly MPC | 0.20 | 0.175 | Average consumption response |
| MPC: unemployed workers | 0.35–0.50 | 0.630 | High sensitivity of low-income workers |
| MPC: regular workers | 0.10–0.20 | 0.128 | Lower sensitivity of stable workers |
| MPC: flexible workers | 0.20–0.35 | 0.207 | Between regular and unemployed workers |
| Share near zero liquid wealth, $b < 0.01$ | 0.20–0.25 | 0.223 | Hand-to-mouth liquidity position |
| Mean liquid wealth / quarterly income | 0.30 | 0.300 | Scale of liquid asset holdings |
| Median liquid wealth / quarterly income | 0.10–0.30 | 0.130 | Median household balance sheet |
| **Panel C: Labor-market validation moments** | | | |
| Job-finding probability into regular jobs, $p^r$ | – | 0.360 | Implied by matching and tightness |
| Regular separation rate, $\rho^r$ | – | 0.0455 | Stable regular jobs |
| Flexible separation rate, $\rho^f$ | – | 0.1500 | High-turnover flexible jobs |
| Regular employment, $N^r$ | – | 0.748 | End-of-period stock |
| Flexible employment, $N^f$ | – | 0.187 | End-of-period stock |
| Search pool, $U$ | – | 0.127 | Beginning-of-period search pool |
| **Panel D: Quarterly labor-market transition matrix** | | | |
| $\Gamma^{u \to u}$ | – | 0.511 | Persistence in unemployment |
| $\Gamma^{u \to r}$ | – | 0.200 | Unemployment to regular employment |
| $\Gamma^{u \to f}$ | – | 0.288 | Unemployment to flexible employment |
| $\Gamma^{r \to u}$ | – | 0.023 | Unemployment risk of regular workers |
| $\Gamma^{r \to r}$ | – | 0.964 | Persistence in regular employment |
| $\Gamma^{r \to f}$ | – | 0.013 | Regular to flexible emp. after separation |
| $\Gamma^{f \to u}$ | – | 0.077 | Unemployment risk of flexible workers |
| $\Gamma^{f \to r}$ | – | 0.076 | Stepping-stone transition |
| $\Gamma^{f \to f}$ | – | 0.847 | Persistence in flexible employment |

**Notes:** The search pool $U$ includes workers who begin the period unemployed plus workers who separate from regular and flexible jobs before matching. Household MPCs are computed from the slope of the consumption policy with respect to liquid assets, weighted by the stationary distribution. Panel D reports quarterly transition probabilities across unemployment ($u$), regular employment ($r$), and flexible employment ($f$) evaluated at the calibrated steady state. Rows sum to one.

the vacancy costs $\eta^r = 5.888$ and $\eta^f = 0.815$, and the stepping-stone wage parameter $\nu = 0.6645$ are jointly determined by the steady-state unemployment rate (6.5%), the flexible-employment share (20%), the job-finding probability into flexible jobs ($p^f = 0.65$), and the regular-to-flexible wage ratio ($w^r/w^f = 1.15$).[12] The fifth target is the annualized real interest rate of 2%, which pins down $\bar{R}^b = 1.005$.

**Step 3: Asset-market clearing.** The discount factor $\beta$ is calibrated to clear the liquid-asset market at the targeted real return, yielding $\beta = 0.9646$. The product

[12] The implied vacancy-cost ratio $\eta^r/\eta^f \approx 7.2$ reflects the full resource cost of creating each employment relationship, including screening, training, and contractual commitments. This asymmetry ensures that flexible vacancies remain profitable in a wider range of aggregate conditions, generating the firm-side substitution that drives the stabilization results. The stepping-stone wage parameter implies a steady-state flexible-wage deduction of $\nu s p^r = 0.036$, capturing the option value that flexible workers derive from on-the-job search for regular positions.

$\beta\bar{R}^b = 0.969 < 1$ ensures a stationary wealth distribution, consistent with the range used in quantitative heterogeneous-agent models with realistic hand-to-mouth shares.

**Validation.** Table 2 reports both targeted and validation moments. The five targets in Panel A are matched exactly by construction. The discipline of the calibration comes from Panels B through D, which report untargeted moments. The mean quarterly MPC of 0.175 is close to the empirical benchmark of approximately 0.20 (Fagereng et al., 2021), and the hand-to-mouth share of 22.3% is consistent with euro-area estimates (Kaplan et al., 2014). More importantly for the mechanism, the model generates an MPC ordering across employment states that is not targeted. Unemployed workers display the highest MPCs (0.630), regular workers the lowest (0.128), and flexible workers lie in between (0.207). This ordering emerges from the interaction of income levels, employment risk, and borrowing constraints.[13] The median liquid-wealth-to-income ratio of 0.130 is consistent with the lower tail of euro-area balance-sheet evidence, so that a realistic share of households adjusts consumption in response to changes in unemployment risk.

Panel C reports the labor-market stocks and flow rates from which the transition matrix in Panel D is constructed. The separation rates ($\rho^r = 0.0455$, $\rho^f = 0.1500$) and the on-the-job search intensity ($s = 0.15$) are preset. The employment shares ($N^r = 0.748$, $N^f = 0.187$), the job-finding probability into regular jobs ($p^r = 0.360$), and the search pool ($U = 0.127$) are implied by the steady-state system given the targets in Panel A.

Panel D reports the quarterly transition matrix across unemployment, regular employment, and flexible employment. The aggregate flows are consistent with the evidence on European unemployment dynamics. Petrongolo and Pissarides (2008) estimate quarterly job-finding rates of 0.15 to 0.35 and separation rates of 0.02 to 0.05 for France, Spain, and the United Kingdom. The model's aggregate quarterly job-finding rate, $P = \psi p^r + (1-\psi)p^f = 0.489$, lies above this range because it includes the flexible submarket, which offers a high finding rate ($p^f = 0.65$) to a substantial fraction of searchers. The implied aggregate separation rate, computed as the employment-weighted average of $\rho^r$ and $\rho^f$, is 0.065, within the range reported by Elsby et al. (2013) for euro-area economies with non-trivial temporary-employment sectors.

[13] If the model compressed this hierarchy, the precautionary-saving channel would be quantitatively negligible regardless of how the transition matrix moved. The model overstates the MPC of unemployed workers relative to the empirical range of 0.35–0.50, because the tight borrowing limit pushes unemployed households closer to the constraint than micro estimates suggest. This overshoot is conservative for the mechanism. It assigns a larger consumption response to the employment state whose prevalence the flexible margin reduces, working against the stabilization result rather than in its favor.

The contract-type-specific transitions are harder to validate directly because most labor-force surveys do not distinguish permanent from temporary employment in their flow data. The closest benchmark is Bentolila et al. (2012), who calibrate a dual labor market model to French and Spanish data and report quarterly permanent job destruction rates of approximately 3.2% for France and 7.1% for Spain, and quarterly temporary-to-permanent conversion rates of 8.5% for France and 6.8% for Spain during the pre-crisis expansion. The regular separation rate $\rho^r = 0.0455$ lies between the French and Spanish permanent destruction rates, consistent with a euro-area economy that is more dual than France but less so than Spain.[14] The stepping-stone rate $\Gamma^{f\to r} = 0.076$ falls between the French (8.5%) and Spanish (6.8%) values, consistent with a representative euro-area calibration. The flexible-to-unemployment rate $\Gamma^{f\to u} = 0.077$ lies below the Spanish permanent destruction rate, consistent with an economy exhibiting less pronounced duality than Spain.[15] Table A1 reports all baseline parameter values.

# 5 Results

This section quantifies how flexible jobs affect aggregate fluctuations. The analysis proceeds in four steps. First, impulse responses to a negative productivity shock isolate the labor-market mechanism. Second, a comparison of 50 model economies that differ only in their flexible-employment share reveals a stabilization-insurance trade-off. Third, I decompose both sides of this trade-off. Fourth, I evaluate the welfare consequences.

## 5.1 The Labor-Market Mechanism

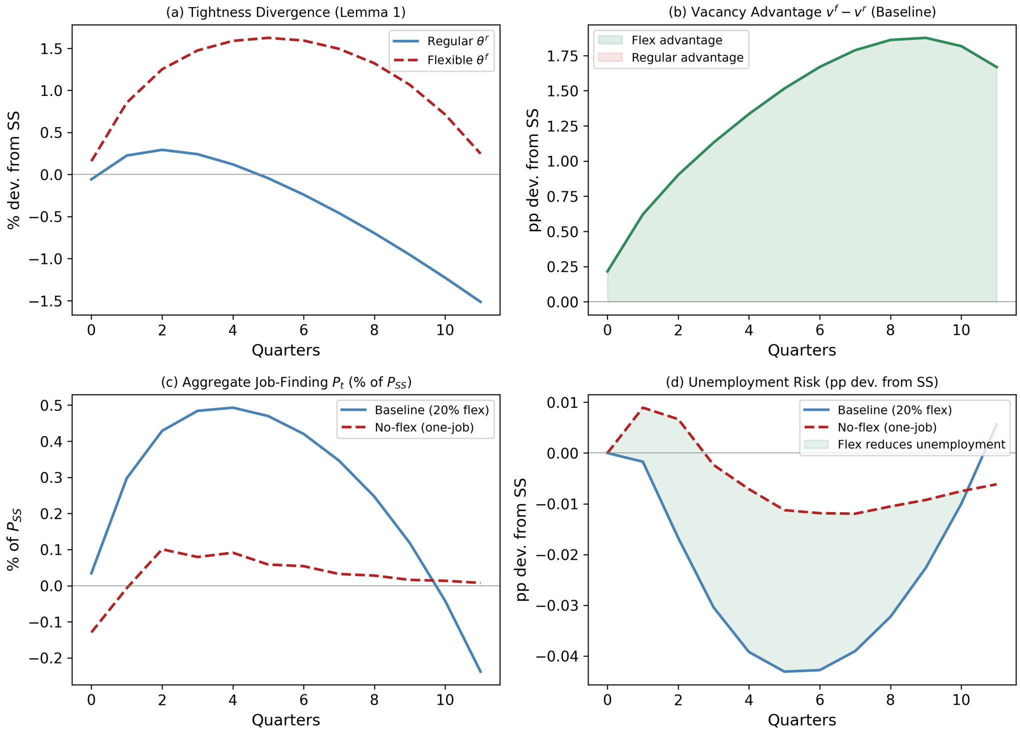
Figure 4 presents the central labor-market result. The experiment compares the baseline dual-labor-market economy (HANK-2J) against a structurally comparable one-job counterfactual (HANK-1J). The counterfactual removes the flexible margin by setting $\psi = 1$, $s = 0$, and $\nu = 0$, and re-calibrates the regular-job vacancy cost $\eta^r$ so that both economies share the same steady-state unemployment rate (6.5%) and annualized real interest rate (2%). This design isolates the macroeconomic contribution of the flexible margin from differences in long-run labor-market conditions or household wealth. The impulse responses follow a $-1\%$ AR(1) total factor productivity shock with persistence $\rho_z = 0.55$, which is economically negligible by approximately twelve quarters.[16]

[14] The net quarterly transition $\Gamma^{r\to u} = 0.023$ is lower than $\rho^r$ because a fraction $P = 0.489$ of separated workers find employment within the quarter.

[15] The stepping-stone rate of 7.6% per quarter lies between the values calibrated by Bentolila et al. (2012) for Spain (6.8%) and France (8.5%) during the pre-crisis expansion, consistent with a representative euro-area economy with less pronounced duality than Spain.

[16] This three-year window corresponds to the standard horizon over which monetary policy and fiscal automatic stabilizers are typically understood to have their primary effects on output and employment

**Figure 4:** Labor-market mechanism: impulse responses to a negative productivity shock.




**Notes:** The figure reports the impulse responses to a $-1\%$ AR(1) total factor productivity shock ($\rho_z = 0.55$) in the baseline heterogeneous-agent New Keynesian model with a dual labor market (HANK-2J, blue solid line) and in a structural one-job counterfactual economy (HANK-1J, red dashed line, panels b and c only). The HANK-2J economy has a flexible employment share of 20% in steady state. The one-job counterfactual (HANK-1J) is a *comparable* economy in which the flexible margin is structurally removed ($\psi = 1$, $s = 0$, $\nu = 0$) and the regular-market vacancy-cost parameter $\eta^r$ is re-calibrated to reproduce the same steady-state unemployment rate (6.5%) and annualized real interest rate (2%) as the baseline. Panel (a) shows percentage deviations from steady state of regular ($\theta^r$) and flexible ($\theta^f$) market tightness in the baseline economy. Panel (b) shows the vacancy advantage $v^f - v^r$ in the baseline economy (firm-side reallocation). Panel (c) plots the aggregate job-finding rate $P_t$ as a percentage of its steady-state value $P_{SS}$ in both economies. Panel (d) shows unemployment deviations from steady state in both economies. The shaded area indicates quarters in which the flexible margin reduces unemployment.

Panel (a) shows that the productivity shock generates a sharp divergence in market tightness across the two submarkets. Regular market tightness drops substantially on impact while flexible market tightness rises. This divergence follows from the surplus-sensitivity result in Lemma 1. When aggregate productivity falls, rigid regular wages prevent the surplus of a regular match from adjusting, so a larger fraction of the revenue decline is absorbed by the firm. Flexible wages adjust contemporaneously and absorb part of the shock, keeping flexible matches relatively profitable. Combined with lower posting costs

(Galí and Monacelli, 2005; McKay and Reis, 2016). Even though the shock has dissipated by quarter twelve, some labor-market variables continue to adjust beyond that point. This reflects two sources of endogenous propagation. Employment stocks $N_t^r$ and $N_t^f$ are predetermined state variables that adjust gradually through hiring and separation flows, and the stepping-stone structure adds a further layer of slow adjustment. The cross-sectional distribution of liquid wealth $\mu_t(e, b, q)$ also shifts during the downturn, and rebuilding depleted buffers sustains precautionary-saving pressure beyond the life of the shock.

($\eta^f < \eta^r$), the flexible margin remains attractive precisely when regular vacancy creation contracts. Panel (b) confirms the resulting firm-side reallocation. The vacancy advantage of flexible over regular jobs is positive throughout the adjustment period, indicating that firms shift vacancy creation toward the flexible submarket, as formalized in Proposition 1.

This reallocation has direct consequences for workers. Panel (c) plots the aggregate job-finding rate $P_t \equiv \psi p_t^r + (1-\psi)p_t^f$ as a share of its steady-state value in both the baseline and the one-job counterfactual. The regular component of job-finding falls after the shock, in line with the contraction in regular vacancies. The flexible component moves in the opposite direction and partially offsets the decline. The aggregate job-finding path in HANK-2J therefore remains above that of HANK-1J throughout the adjustment period. The flexible margin does not prevent labor-market conditions from deteriorating, but it compresses the magnitude and duration of the deterioration. This is precisely the mechanism described in Proposition 2.

Panel (d) shows the net effect on unemployment. The rise in unemployment is both smaller and less persistent in HANK-2J than in the one-job counterfactual. The shaded area marks the quarters during which the flexible margin actively reduces unemployment. This dampening of unemployment persistence is the key link between the firm-side substitution in Panels (a)–(b) and the household-side demand channel. By shortening unemployment spells, the flexible margin reduces the duration of uninsured income losses and limits the rise in precautionary saving. The empirical counterpart of this result is Fact 3, which documents that countries with an above-average temporary-employment share experience significantly smaller unemployment increases than their cyclical position alone would predict.

**Takeaway.** The mechanism operates on both sides of the market simultaneously. For firms, flexible jobs provide an additional vacancy-creation margin when aggregate conditions deteriorate. For households, they provide an extensive-margin form of self-insurance by reducing the expected duration of unemployment. This mechanism does not require workers to be in flexible jobs for it to matter. Equation (46) makes this explicit. The unemployment risk of a current regular worker is $\Gamma_t^{r\to u} = \rho^r(1-P_t)$, which depends on the aggregate re-employment probability $P_t$, a quantity that rises whenever flexible vacancies partially offset the decline in regular vacancy creation. Flexible employment therefore compresses unemployment-risk fluctuations for regular workers, the largest group in the economy, and stabilizes aggregate demand even when the flexible sector accounts for only 20% of total employment in steady state.

**Robustness.** Figures A1 and A2 confirm that the mechanism is robust to alternative values of shock persistence ($\rho_z \in \{0.40, 0.55, 0.70\}$) and wage rigidity ($\phi_w \in \{0.70, 0.85, 0.95\}$). The qualitative pattern is preserved across all specifications. The buffer grows with shock persistence and with the degree of regular-wage rigidity. More rigid regular wages and more persistent shocks amplify the surplus differential between the two submarkets, strengthening firms' incentive to reallocate vacancy creation toward the flexible margin.

## 5.2 Macroeconomic Consequences of Flexible Employment

The impulse responses in Figure 4 suggest that economies with a structurally larger flexible sector may be better insulated against aggregate shocks. To quantify this, I compare 50 model economies that share the same steady-state targets (unemployment rate, real interest rate, regular job-finding probability, and wage ratio) but differ in their flexible-employment share, which ranges from approximately 0% to 40%.[17] For each economy, aggregate volatility is computed using the ABRS statistic, which sums squared impulse responses to a productivity shock and a monetary policy shock over a twelve-quarter horizon.[18]

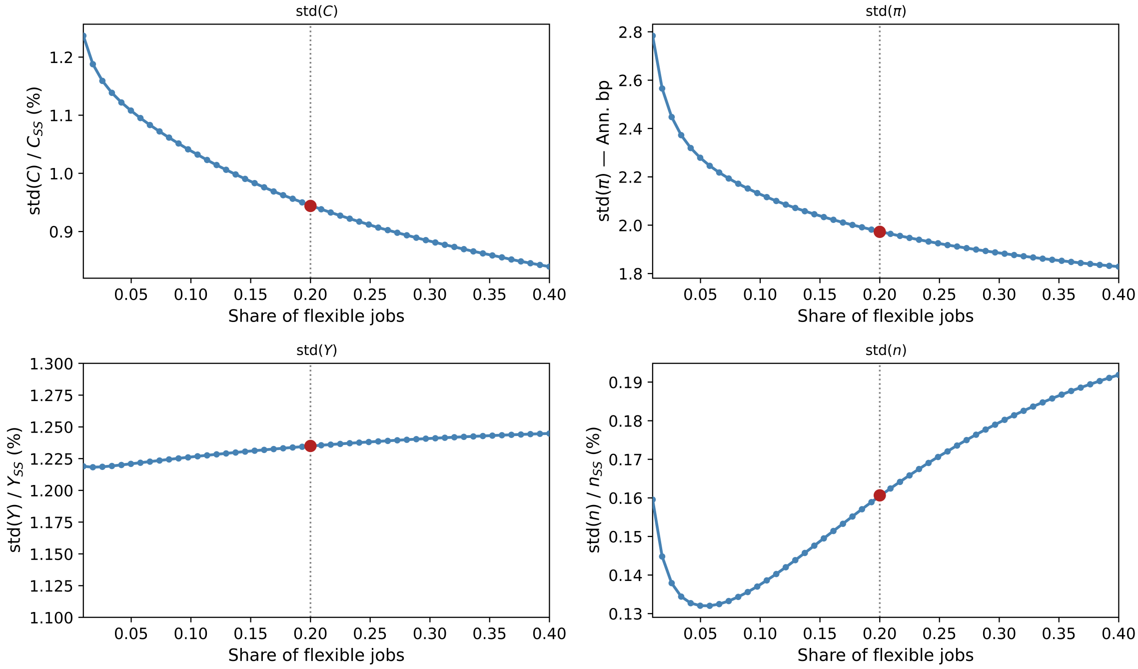
Figure 5 presents the main quantitative result, a clear stabilization-insurance trade-off. Panels (a) and (b) document the stabilization side. Moving from the near-zero-flex economy to the high-flex end of the grid reduces consumption volatility by approximately 13% and inflation volatility by roughly 7%. These results match the empirical patterns documented in Fact 4. They indicate that the flexible margin changes how the aggregate economy responds to shocks, not merely how workers are distributed across contract types. The mechanism is the one established in Figure 4. When conditions deteriorate, firms reallocate vacancy creation toward the flexible submarket, preserving part of the aggregate job-finding margin. This shortens expected unemployment spells, reduces the persistence of income risk for households with incomplete insurance, and dampens precautionary saving. Lower precautionary saving translates, through goods-market clearing and the Phillips curve, into more stable consumption and a more stable price level.[19]

[17] See Figure A8 for the key validation moments across the simulated economies.

[18] By holding the main steady-state aggregates fixed across economies, the exercise isolates the effect of labor-market composition on macroeconomic fluctuations, abstracting from differences in long-run employment and income levels.

[19] The mechanism operates symmetrically for positive shocks. During expansions, rigid regular wages prevent regular-match surpluses from adjusting upward immediately, making regular vacancies relatively more attractive and drawing vacancy creation away from the flexible submarket. The flexible margin therefore dampens the boom as well as the bust. The ABRS volatility statistic captures both directions because it sums squared impulse responses. The quantitative symmetry is a consequence of the linear approximation used to solve the model. In a fully nonlinear solution, the borrowing constraint would

**Figure 5:** The stabilization-insurance trade-off: aggregate volatility across economies with different flexible employment shares.




**Notes:** The figure plots the stabilization-insurance trade-off. Each point corresponds to one of 50 model economies. Economies are identical in calibration targets (unemployment rate, annual real interest rate, flexible job-finding probability, and the regular-to-flex wage ratio), and differ only in the steady-state flexible-employment share, which ranges from approximately 0% to 40%. For each economy, aggregate volatility of consumption ($C$), inflation ($\pi$), output ($Y$), and total employment ($n$) is measured by $\sigma_X = \left(\sum_{t=0}^{T-1} h^2_{X,z,t} + \sum_{t=0}^{T-1} h^2_{X,\xi_{\text{mp}},t}\right)^{1/2}$, where $h_{X,s,t}$ is the period-$t$ impulse response of variable $X$ to shock $s \in \{z, \xi_{\text{mp}}\}$ and $T = 12$ quarters. Inflation is reported in annualized basis points ($400\,\sigma_\pi$). The vertical dotted line marks the benchmark economy (approximately 20% flexible-employment share; red dot). Shock persistence is set to $\rho_z = 0.55$ for TFP and $\rho_{\text{mp}} = 0.70$ for monetary policy.

Panel (c) shows that output volatility increases slightly as the flexible-employment share rises. The higher gross employment flows associated with a larger flexible sector translate into somewhat larger fluctuations in the effective labor composite. Quantitatively, however, this increase is modest relative to the stabilization of consumption and inflation. The main channel through which flexible jobs affect aggregate volatility operates on the demand side, through the persistence of income risk and the precautionary-saving motive, not through supply-side volatility.

Panel (d) shows the cost side. Total employment volatility rises strongly and approximately monotonically with the flexible-employment share. Flexible jobs separate at roughly three times the rate of regular jobs ($\rho^f = 0.1500$ versus $\rho^r = 0.0455$), so a larger flexible sector increases the volume of transitions between employment and un-

bind more frequently during downturns, potentially making the precautionary-saving channel stronger for negative shocks than for positive ones.

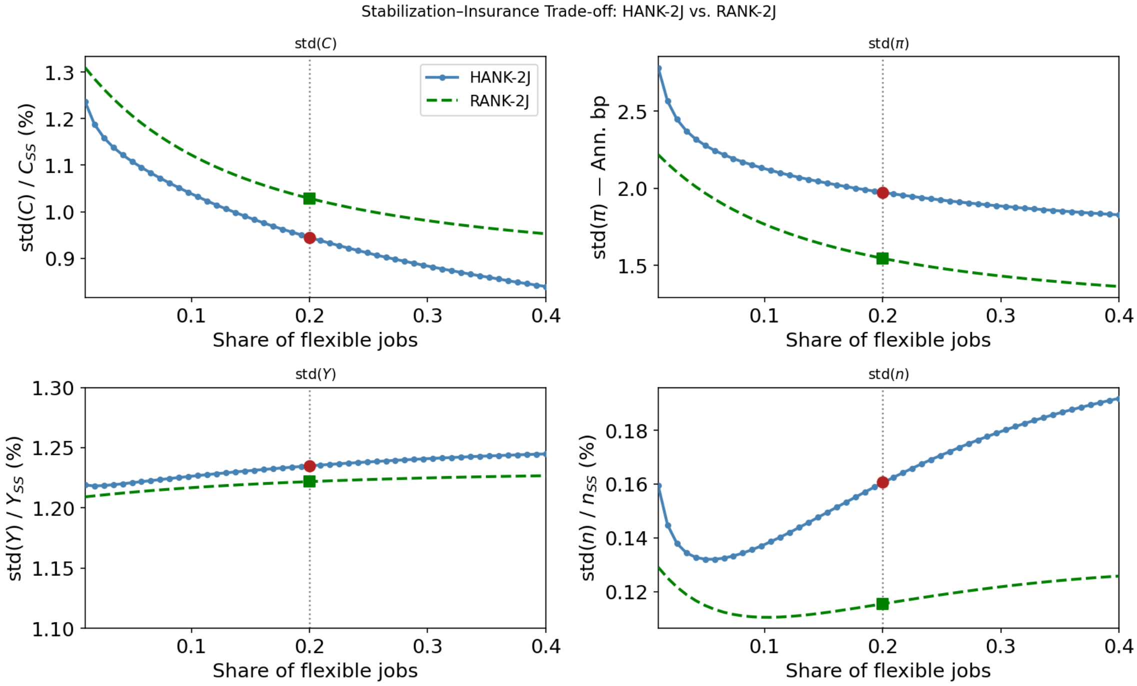
employment in every period. The same margin that compresses income losses exposes a larger fraction of workers to frequent job changes. The empirical evidence in Fact 4, Panel (d) is consistent with this prediction.

**Robustness.** Figures A3 and A4 confirm that the trade-off is robust to alternative vacancy-cost ratios and type of shocks. The first exercise varies $\eta^r/\eta^f$ by targeting $p^f \in \{0.50, 0.65, 0.80\}$ (implied ratios of approximately 4.5, 7.2, and 9.8). The consumption-volatility decline is present across all three scenarios. Lower ratios attenuate it and higher ratios amplify it, consistent with the firm-side substitution in Proposition 1 being driven by the relative profitability of flexible vacancies. The second exercise replaces the baseline TFP and monetary policy shocks with a reduced-form government-demand shock. Consumption volatility declines monotonically with the flexible-employment share and employment volatility rises.

**Isolating the incomplete-markets channel.** The stabilization mechanism documented above has two components that can be separated analytically. The first is firm-side vacancy reallocation. After negative shocks, firms shift vacancy creation toward the flexible submarket because flexible match surpluses are less exposed to revenue declines (Propositions 1 and 2). This channel operates through the production side of the economy and does not require household heterogeneity or borrowing constraints. The second is the precautionary-saving channel. By shortening unemployment spells, the flexible margin reduces expected income losses and weakens the saving motive of employed households near their borrowing constraint (Proposition 3). This channel requires incomplete markets. Under complete insurance, changes in the composition of employment across contract types affect aggregate consumption only through aggregate income, not through the distributional margin that connects individual employment risk to individual saving decisions.

To quantify the contribution of each component, Figure 6 compares the baseline heterogeneous-agent economy (HANK-2J) against a representative-agent counterpart (RANK-2J). The RANK-2J economy replaces the household block with a standard representative-agent Euler equation while preserving the two-job labor market, matching technology, vacancy-creation structure, wage setting, and all firm-side parameters. The representative-agent discount factor $\beta_{\text{RA}}$ is recalibrated so that both economies share the same steady-state real interest rate. Any difference in consumption-volatility dynamics between the two models is therefore attributable to the household-side channels that incomplete markets introduce: MPC heterogeneity across employment states, the precautionary-saving mo-

**Figure 6:** The stabilization-insurance trade-off for two models: HANK-2J versus RANK-2J




**Notes:** The figure plots the stabilization-insurance trade-off for two models: HANK-2J versus RANK-2J. Each point corresponds to one of 50 model economies that are identical in all aggregate targets, including the unemployment rate, real interest rate, regular job-finding probability, and wage ratio, but differ in the steady-state share of flexible employment, which ranges from approximately 0% to 40%. For each economy, aggregate volatility is measured by the ABRS statistic $\sigma_X = \left(\sum_t h_{X,z}^2 + \sum_t h_{X,\xi}^2\right)^{1/2}$, where $h_{X,s}$ is the period-$t$ impulse response of variable $X$ to shock $s \in \{z, \xi_{\text{mp}}\}$, and the sum runs over $T =$ 12 quarters. The vertical dotted line marks the benchmark calibration (20% flexible employment share). HANK-2J is the baseline heterogeneous-agent economy with incomplete asset markets and idiosyncratic earnings risk. RANK-2J replaces the household block with a representative-agent Euler equation, $C_t^{-1/\sigma} = \beta_{\text{RA}}\, R_{t+1}\, C_{t+1}^{-1/\sigma}$, closed by goods-market clearing. The two-job labor market, matching technology, vacancy-creation structure, wage setting, and all firm-side parameters are identical across the two models. The TFP shock has persistence $\rho_z = 0.55$ and the monetary policy shock follows $\rho_{\text{mp}} = 0.50$.

tive, and the endogenous evolution of the wealth distribution.

I highlight three results. First, consumption volatility declines with the flexible-employment share in both models, confirming that the firm-side vacancy reallocation channel operates independently of household heterogeneity. Even under complete markets, the cyclical substitution toward flexible vacancies preserves the aggregate job-finding rate and dampens the consumption response to adverse shocks. Second, the decline is steeper in HANK-2J than in RANK-2J across the entire grid, and the level of consumption volatility in HANK-2J lies below that of RANK-2J at every point. At the benchmark calibration of 20% flexible employment, consumption volatility in HANK-2J is approximately 24% lower than in the near-zero-flex economy, compared with approximately 21% in RANK-2J. At the same benchmark point, consumption volatility in HANK-2J is approximately 8% below that of RANK-2J.[20]

[20]The gap between the two curves reflects the combined contribution of MPC heterogeneity, the

Third, comparing the baseline economy against a representative-agent counterpart with the same dual labor market confirms that the firm-side reallocation channel operates under both complete and incomplete markets. Employment volatility rises at the same rate in both models. The higher separation rate of flexible jobs scales up gross employment flows regardless of whether markets are complete or incomplete. Incomplete markets, however, amplify both sides of the trade-off, reducing consumption volatility further while also raising employment volatility relative to the complete-markets benchmark. The comparison establishes the main contribution of the paper relative to the complete-markets literature. The firm-side reallocation channel is necessary for stabilization in both models. The incomplete-markets channel is not necessary for stabilization to occur, but it is necessary for it to operate through the demand-side margin that connects labor-market composition to aggregate consumption and prices.

## 5.3 Why Does Consumption Volatility Fall?

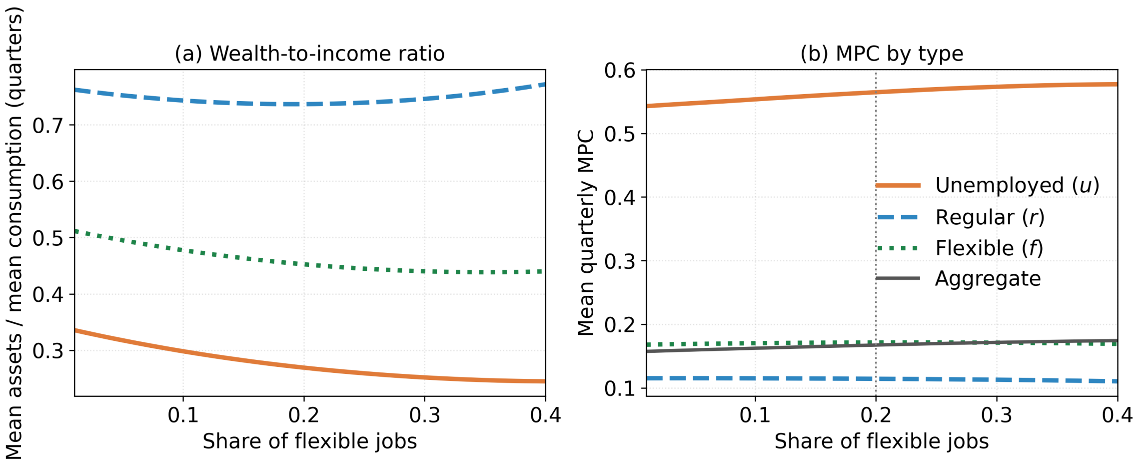
The decline in consumption volatility could, in principle, reflect a standard buffer-stock mechanism. If flexible workers accumulated larger precautionary buffers in response to higher separation risk, their marginal propensities to consume would fall and aggregate consumption would become less sensitive to income shocks. Under this channel, a larger flexible sector would stabilize consumption by shifting the wealth distribution toward better-insured households. Figure 7 shows that this channel is not operative.

Panel (a) shows that flexible workers hold systematically smaller liquid buffers than regular workers across the entire range of flexible-employment shares. Flexible workers earn lower wages ($w^r/w^f = 1.15$), which limits their capacity to accumulate precautionary wealth even though their employment risk is higher. A larger flexible sector does not shift the economy toward better-insured, low-MPC households. Panel (b) confirms this. Flexible workers display higher quarterly marginal propensities to consume than regular workers throughout the grid ($\overline{\text{MPC}}_r = 0.128$, $\overline{\text{MPC}}_f = 0.207$). The aggregate MPC declines slightly as the flexible-employment share rises, but this reflects a compositional shift away from unemployment (where MPCs are highest at 0.630) and toward employment, not a reduction in the spending sensitivity of flexible workers themselves.

The operative channel is the one formalized in Propositions 2 and 3. Flexible jobs smooth

precautionary-saving motive, and the endogenous wealth-distribution response. The exercise does not decompose these three forces individually, but their joint effect is the object that distinguishes the present paper from the complete-markets dual labor-market literature.

**Figure 7:** Testing the precautionary-saving channel: wealth buffers and marginal propensities to consume by worker type.




**Notes:** The figure plots the precautionary-saving channel. Each point corresponds to one of 50 model economies that differ only in their steady-state flexible employment share, ranging from approximately 2% to 30%. Panel (a) reports the mean asset-to-consumption ratio $W_j/C_j$ for unemployed ($u$), regular ($r$), and flexible ($f$) workers, normalizing assets and consumption by their respective group means. The ratio measures the size of the buffer stock held by each type relative to its own spending level, controlling for wage heterogeneity across groups. Panel (b) reports the mean quarterly marginal propensity to consume, computed as the one-period consumption response to a unit windfall transfer, for each worker type and for the aggregate economy. The vertical dotted line marks the benchmark calibration (20% flexible employment share).

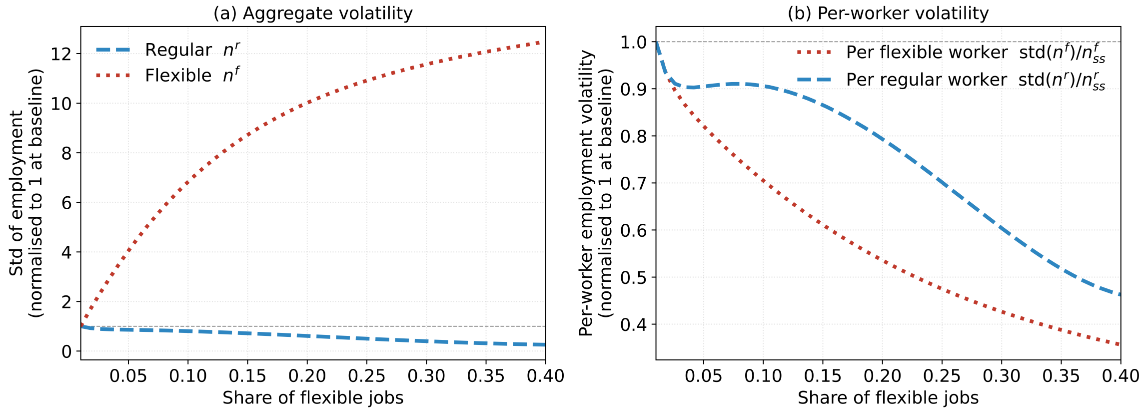
income risk not by enabling workers to build larger buffers, but by increasing the probability that a separated worker exits unemployment quickly. As the flexible-employment share rises, the aggregate re-employment probability $P_t$ (equation (45)) falls by less after adverse shocks. From equation (46), the unemployment risk of a regular worker is $\Gamma_t^{r\to u} = \rho^r(1 - P_t)$. A more stable $P_t$ reduces the fluctuations in expected income losses that regular workers must insure against, dampening their precautionary-saving motive even when they are not themselves in flexible jobs. Because regular workers make up the majority of employed households and because their consumption is sensitive to expected labor income when liquid wealth is limited, this reduction in uncertainty stabilizes aggregate demand.

## 5.4 Why Does Employment Volatility Increase?

Figures 8, 9, and 10 explain why employment volatility rises even though flexible jobs reduce the persistence of unemployment risk faced by individual workers.

Panel (a) of Figure 8 shows that aggregate employment volatility rises strongly as the flexible-employment share increases. Taken at face value, this suggests that a larger flexible sector destabilizes the labor market. Panel (b) shows that this interpretation is incorrect. When employment volatility is scaled by the steady-state employment stock of

**Figure 8:** Aggregate versus per-worker employment volatility across flexible employment shares.



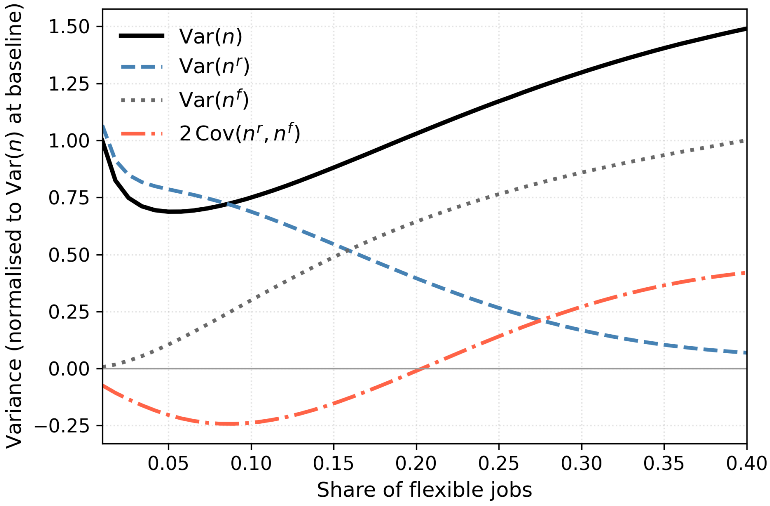

**Notes:** The figure contrasts two measures of employment volatility computed from ABRS impulse responses across 50 model economies that differ only in the flexible employment share $\alpha$. Panel (a) reports aggregate employment standard deviations std$(n^r)$ and std$(n^f)$, each normalized to 1 at the near-zero-flex baseline economy. Panel (b) reports the per-worker counterparts std$(n^r)/n^r_{ss}$ and std$(n^f)/n^f_{ss}$, also normalized to 1 at the baseline. The vertical dotted line marks the benchmark calibration (20% flexible employment share).

each group, both regular and flexible workers face lower per-capita employment risk as the flexible sector expands. For flexible workers, the steady-state stock $n^f_{ss}$ grows faster than the standard deviation of flexible employment. For regular workers, the regular sector contracts in size and absolute volatility declines proportionally. The aggregate increase in employment volatility is therefore a composition effect. A larger share of the workforce cycles through the labor market at any given time, but each individual worker faces a shorter expected unemployment spell.

Figure 9 decomposes the aggregate accounting. The variance of total employment satisfies $\mathrm{Var}(n) = \mathrm{Var}(n^r) + \mathrm{Var}(n^f) + 2\,\mathrm{Cov}(n^r, n^f)$. The $\mathrm{Var}(n^f)$ term rises monotonically and becomes the dominant source of aggregate employment variance. The covariance term exhibits a sign reversal that reflects the interplay of two structural forces. At low flexible-employment shares, the firm-substitution channel dominates. Adverse shocks reduce regular hiring while expanding flexible hiring, so the two employment stocks move in opposite directions and the covariance is negative. This creates a diversification effect. At higher flexible-employment shares, the stepping-stone channel dominates. A substantial fraction of regular hiring flows through $H_t^{f\to r} = s(1-\rho^f)N^f_{t-1}p^r_t$, causing regular employment to co-move with flexible employment rather than move against it. The covariance turns positive, and the diversification benefit disappears.

To identify the flow-level source of the volatility increase, note that combining the laws of motion for regular and flexible employment (equations (20)–(21)) eliminates the internal

**Figure 9:** Variance decomposition of total employment across flexible employment shares.




**Notes:** The figure decomposes total employment variance using the exact identity $\mathrm{Var}(n) = \mathrm{Var}(n^r) + \mathrm{Var}(n^f) + 2\,\mathrm{Cov}(n^r, n^f)$, computed from ABRS impulse responses across 50 model economies that differ only in the flexible employment share. Each variance component is plotted in levels, normalized by $\mathrm{Var}(n)$ at the near-zero-flex baseline economy. The TFP shock has persistence $\rho_z = 0.55$; the monetary policy shock follows $\rho_{\mathrm{mp}} = 0.50$.

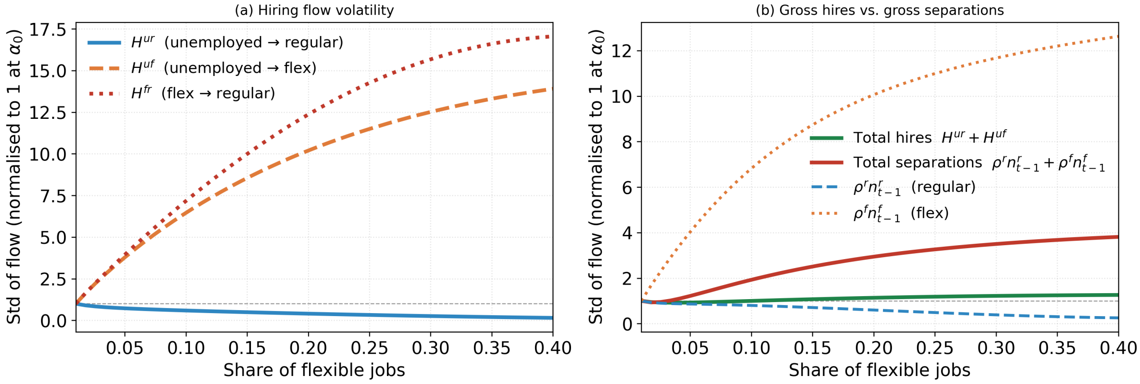
stepping-stone flow:

$$n_t = (1 - \rho^r)n^r_{t-1} + (1 - \rho^f)n^f_{t-1} + H^{u\to r}_t + H^{u\to f}_t. \tag{54}$$

Aggregate employment volatility is driven entirely by flows between unemployment and employment, not by the internal flexible-to-regular transitions. Figure 10 confirms this. Panel (a) shows that the stepping-stone flow $H^{f\to r}$ becomes more volatile as the flexible sector grows, but because it is internal to employment, it does not amplify total employment variance. Panel (b) shows that gross hires from unemployment and gross separations into unemployment both increase strongly and at approximately the same rate. A larger flexible sector scales up both inflows and outflows in proportion to the stock $n^f_{ss}$. This is the fundamental tension at the core of the trade-off. The same mechanism that compresses individual income losses at the micro level generates higher gross-flow volatility at the aggregate level.

**Robustness**. Figures A5 and A6 in the Appendix confirm that these results are robust. The key driver is the separation-rate gap between flexible and regular jobs. Amplification requires a churn differential meaningfully above unity and grows with it. A higher stepping-stone probability $s$, by contrast, acts as a net stabilizer for total employment volatility, because faster upgrading into regular employment reduces the average time workers spend in the high-churn state.

**Figure 10:** Gross hiring and separation flow volatility across flexible employment shares.




**Notes:** The figure plots the gross hiring and separation flow volatility across flexible employment shares. ABRS volatility of individual employment flows, normalized to one at the near-zero-flex baseline, across the same 50 model economies. Panel (a) reports the volatility of each hiring flow: $H^{ur}$, unemployed to regular; $H^{uf}$, unemployed to flexible; and $H^{fr}$, flexible to regular. Panel (b) reports the volatility of total gross hires $H^{ur} + H^{uf}$ and total gross separations $\rho^r n^r_{t-1} + \rho^f n^f_{t-1}$, together with the individual regular and flexible separation components.

## 5.5 Welfare Consequences

Whether the stabilization gains documented above are sufficient to offset the distributional costs is a quantitative question. To answer it, I evaluate welfare across the grid of economies using the social welfare measure

$$W_t = \int V_t^q(e,b)\, d\mu_t(e,b,q) + \Lambda\Theta V_t^C, \tag{55}$$

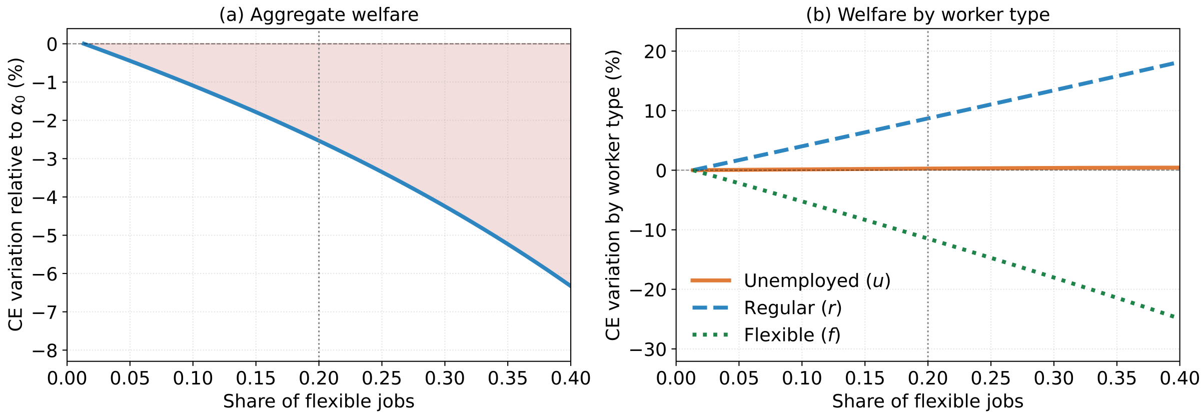
where $\Theta$ is the Pareto weight on capitalists. This criterion internalizes both the stabilization gain from lower aggregate volatility and the insurance cost borne by workers in lower-quality, higher-turnover jobs. I convert differences in $W_t$ across economies into consumption equivalent units. For each economy $i$, the consumption equivalent variation relative to the near-zero-flex reference economy is

$$\xi_i = \frac{(W_i - W_{\text{ref}})(1-\beta)}{u'(\bar{C})\bar{C}} \times 100, \qquad u'(\bar{C})\bar{C} = \bar{C}^{1-\sigma}, \tag{56}$$

where $W_i$ denotes unconditional lifetime welfare, computed by integrating the household value function over the stationary distribution and adding a second-order correction for aggregate volatility.[21] Panel (a) of Figure 11 reports $\xi_i$ across the grid. The relationship is

[21]For each economy $i$, unconditional welfare is computed as $W_i = W_i^{SS} + \Omega_i^{\text{vol}}$ and $W_i^{SS} = \sum_{q\in\{u,r,f\}} \omega_i^q W_i^q + \Lambda\Theta V_i^C$, where $W_i^q = \int V_i^q(e,b)\, d\mu_i^q(e,b)$ is the average steady-state welfare of workers in employment state $q \in \{u,r,f\}$, $\mu_i^q$ is the conditional steady-state distribution of $(e,b)$ among workers of type $q$, and $\omega_i^q$ is the corresponding population share. The term $\Omega_i^{\text{vol}}$ is the second-order correction for aggregate volatility, obtained by perturbing the social welfare function of economy $i$ around its deterministic steady state: $\Omega_i^{\text{vol}} = \frac{1}{2}\sum_{s\in\{z,\xi_{\text{mp}}\}} \sigma_s^2 \left.\frac{d^2\mathcal{W}_i}{d\epsilon_s^2}\right|_{SS_i}$. The shocks $z$ and $\xi_{\text{mp}}$ are the productivity and monetary-policy innovations used in the ABRS volatility statistic.

**Figure 11:** Welfare consequences of flexible employment.




**Notes:** The figure plots the welfare consequences of flexible employment. Panel (a) reports the consumption-equivalent welfare variation across 50 model economies that differ only in the steady-state flexible employment share, ranging from approximately 1% to 40%. Welfare is measured relative to the near-zero-flex reference economy at $\approx 0.01$. Panel (b) decomposes the consumption-equivalent welfare variation by household employment state: unemployed ($u$), regular ($r$), and flexible ($f$). Each series applies the CE formula to the type-specific component of aggregate welfare, $W^q = \int V^q(e, b)\, d\mu^q(e, b)$, relative to its value at the reference economy. The aggregate CE variation in Panel (a) equals the population-weighted sum of the three series shown in Panel (b). All other parameters are set at their benchmark values.

strictly decreasing. Moving from the reference economy to one with a 40% flexible employment share reduces welfare by approximately 6.5% in consumption equivalent terms, or roughly 0.16 percentage points per additional percentage point of flexible employment. In the empirically relevant range for European economies, where the temporary employment share varies by roughly 5 percentage points across countries and over time, the implied welfare cost amounts to approximately 0.8% of consumption.

The two closest references help quantify the welfare effects of flexible employment. Hopenhayn and Rogerson (1993) find that the steady-state welfare cost of firing restrictions exceeds 2% of consumption in a model with heterogeneous establishments. Krebs (2007) shows that displacement risk raises the welfare cost of business cycles to between 4 and 9% of consumption in an incomplete-markets framework, depending on the degree of risk aversion and the method used to eliminate business cycle variation. These estimates confirm that structural features of labor markets and the displacement risk they generate can produce welfare effects of the size documented here, but neither paper features the aggregate demand channel that drives my results.

Panel (b) reveals a sharp difference between regular and flexible workers. Regular workers gain unambiguously. A larger flexible submarket raises the aggregate job finding probability $P_t$, lowering the expected duration of any future unemployment spell and widening the stepping stone route back to regular employment. From the perspective of a currently employed regular worker, a larger flexible sector reduces the expected cost of future job loss. Flexible workers, by contrast, are unambiguously worse off. They face separation rates roughly three times higher than regular workers, earn lower wages, and hold limited liquid buffers. These workers provide the adjustment margin that stabilizes aggregate demand for the rest of the economy through the mechanism in Propositions 2 and 3. Unemployed workers are approximately unaffected, because unemployment income and the transition probabilities out of unemployment change only modestly.

The aggregate loss is driven by two forces. The per worker losses borne by flexible workers are large and do not diminish as the sector expands, because flexible jobs continue to carry high separation risk and limited liquid buffers. The population weight of the flexible state rises mechanically with the sector's share. Even holding the per worker loss constant, aggregate welfare declines as employment shifts toward the state with the largest welfare cost. Figure A7 in the Appendix confirms that this result is robust to variation in the churn ratio, stepping stone intensity, unemployment income, and risk aversion.[22]

# 6 Concluding Remarks

This paper asks whether flexible jobs can stabilize aggregate demand. Using euro area data, I document that economies with a larger flexible employment sector exhibit lower consumption and inflation volatility. I explain this finding in a heterogeneous agent New Keynesian model with a dual labor market. The central mechanism is that flexible jobs provide a margin of adjustment in downturns. When regular vacancies become less profitable, firms shift vacancy creation toward flexible jobs, preserving reemployment opportunities and shortening unemployment spells. With incomplete insurance, this dampens precautionary saving and stabilizes aggregate demand.

The quantitative analysis delivers a clear stabilization and insurance trade-off. A larger flexible sector reduces consumption and inflation volatility but increases employment volatility and lowers welfare. For a 5 percentage point increase in the flexible employment share, a change within the range observed across European countries, the welfare loss is approximately 0.8% of consumption. This cost is comparable in magnitude to the welfare effects of unemployment insurance reforms and employment protection changes studied in the literature. The stabilization gains are positive but insufficient to offset the distributional costs borne by flexible workers, who face high separation rates, low wages, and limited liquid buffers.

[22] A higher churn ratio $\rho^f/\rho^r$ steepens the aggregate welfare loss. A stronger stepping stone mechanism mitigates it but is quantitatively insufficient to overturn the result. Lower unemployment income $\delta$ and higher risk aversion $\sigma$ both amplify the loss.

**Declaration of generative AI and AI-assisted technologies in the writing process.**

During the preparation of this work the author used ChatGPT and Claude in order to check the spelling and grammar. After using these tools/services, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

# 7 Bibliography


Acemoglu, D. (2001). Good jobs versus bad jobs. *Journal of Labor Economics*, 19(1):1–21. 4

Acharya, S. and Dogra, K. (2020). Understanding hank: Insights from a prank. *Econometrica*, 88(3):1113–1158. 12, 64

Ahn, H. J. and Crane, L. D. (2020). Dynamic beveridge curve accounting. 4

Auclert, A., Bardóczy, B., Rognlie, M., and Straub, L. (2021). Using the sequence-space jacobian to solve and estimate heterogeneous-agent models. *Econometrica*, 89(5):2375–2408. 20

Autor, D. H. and Houseman, S. N. (2010). Do temporary-help jobs improve labor market outcomes for low-skilled workers? Evidence from Work First. *American Economic Journal: Applied Economics*, 2(3):96–128. 8, 63

Bentolila, S., Cahuc, P., Dolado, J. J., and Le Barbanchon, T. (2012). Two-tier labour markets in the great recession: France versus Spain. *The Economic Journal*, 122(562):F155–F187. 23

Blundell, R., Pistaferri, L., and Preston, I. (2008). Consumption inequality and partial insurance. *American Economic Review*, 98(5):1887–1921. 62

Boeri, T. and Garibaldi, P. (2024). Temporary employment in markets with frictions. *Journal of Economic Literature*, 62(3):1143–1185. 2, 4, 62

Booth, A. L., Francesconi, M., and Frank, J. (2002). Temporary jobs: Stepping stones or dead ends? *The Economic Journal*, 112(480):F189–F213. 8, 13, 63

Cahuc, P., Carry, P., Malherbet, F., and Martins, P. S. (2022). Employment effects of restricting fixed-term contracts: Theory and evidence. 13, 63

Cahuc, P. and Postel-Vinay, F. (2002). Temporary jobs, employment protection and labor market performance. *Labour economics*, 9(1):63–91. 4

Carreño, J., Huizinga, H., and Uras, B. (2024). *Flexible Labor Contracts, Firm-specific Pay, and Wages*. CentER, Tilburg University. 8

Carreño, J. G. and Uras, B. (2024). Macro welfare effects of flexible labor contracts. *European Economic Review*, 161:104633. 4

Carrillo-Tudela, C. and Visschers, L. (2023). Unemployment and endogenous reallocation over the business cycle. *Econometrica*, 91(3):1119–1153. 4

Challe, E. (2020). Uninsured unemployment risk and optimal monetary policy in a zero-liquidity economy. *American Economic Journal: Macroeconomics*, 12(2):241–83. 5, 12, 15, 61, 64

Druant, M., Fabiani, S., Kezdi, G., Lamo, A., Martins, F., and Sabbatini, R. (2012). Firms' price and wage adjustment in europe: Survey evidence on nominal stickiness. *Labour Economics*, 19(5):772–782. 20, 64

Elsby, M. W. L., Hobijn, B., and Şahin, A. (2013). Unemployment dynamics in the OECD. *Review of Economics and Statistics*, 95(2):530–548. 22

Eurofound (2020). Labour market change: Trends and policy approaches towards flexibilisation. Eurofound report, Publications Office of the European Union, Luxembourg. 62

Fagereng, A., Holm, M. B., Moll, B., and Natvik, G. J. (2021). Mpc heterogeneity and household balance sheets. *American Economic Journal: Macroeconomics*, 13(4):1–54. 22, 62

Galí, J. and Monacelli, T. (2005). Monetary policy and exchange rate volatility in a small open economy. *The Review of Economic Studies*, 72(3):707–734. 24

Ganong, P. and Noel, P. (2019). Consumer spending during unemployment: Positive and normative implications. *American Economic Review*, 109(7):2383–2424. 4

Goldschmidt, D. and Schmieder, J. F. (2017). The rise of domestic outsourcing and the evolution of the german wage structure. *The Quarterly Journal of Economics*, 132(3):1165–1217. 8, 63

Hopenhayn, H. and Rogerson, R. (1993). Job turnover and policy evaluation: A general equilibrium analysis. *Journal of Political Economy*, 101(5):915–938. 35

Hosios, A. J. (1990). On the efficiency of matching and related models of search and unemployment. *The Review of Economic Studies*, 57(2):279–298. 20, 62

Kaplan, G., Moll, B., and Violante, G. L. (2018). Monetary policy according to hank. *American Economic Review*, 108(3):697–743. 5

Kaplan, G., Violante, G. L., and Weidner, J. (2014). The wealthy hand-to-mouth. *Brookings Papers on Economic Activity*, 2014(1):77–138. 22

Katz, L. F. and Krueger, A. B. (2019). The rise and nature of alternative work arrangements in the united states, 1995–2015. *ILR review*, 72(2):382–416. 5, 6

Kekre, R. (2023). Unemployment insurance in macroeconomic stabilization. *Review of Economic Studies*, 90(5):2439–2480. 5

Krause, M. U. and Lubik, T. A. (2006). The (ir)relevance of real wage rigidity in the New Keynesian model with search frictions. *Journal of Monetary Economics*, 53(3):706–727. 4, 13

Krause, M. U. and Lubik, T. A. (2007). On-the-job search and the cyclical dynamics of the labor market. *Labour Economics*. 4

Krebs, T. (2007). Job displacement risk and the cost of business cycles. *American Economic Review*, 97(3):664–686. 35

McKay, A. and Reis, R. (2016). The role of automatic stabilizers in the us business cycle. *Econometrica*, 84(1):141–194. 5, 24, 61

Petrongolo, B. and Pissarides, C. A. (2001). Looking into the black box: A survey of the matching function. *Journal of Economic Literature*, 39(2):390–431. 20, 62

Petrongolo, B. and Pissarides, C. A. (2008). The ins and outs of european unemployment. *American Economic Review*, 98(2):256–262. 22

Ravn, M. O. and Sterk, V. (2017). Job uncertainty and deep recessions. *Journal of Monetary Economics*, 90:125–141. 5

Ravn, M. O. and Sterk, V. (2021). Macroeconomic fluctuations with hank & sam: An analytical approach. *Journal of the European Economic Association*, 19(2):1162–1202. 5, 12, 61, 64

Storesletten, K., Telmer, C. I., and Yaron, A. (2004). Cyclical dynamics in idiosyncratic labor market risk. *Journal of Political Economy*, 112(3):695–717. 20

Tuzemen, D. (2017). Labor market dynamics with endogenous labor force participation and on-the-job search. *Journal of Economic Dynamics and Control*. 4

# APPENDIX

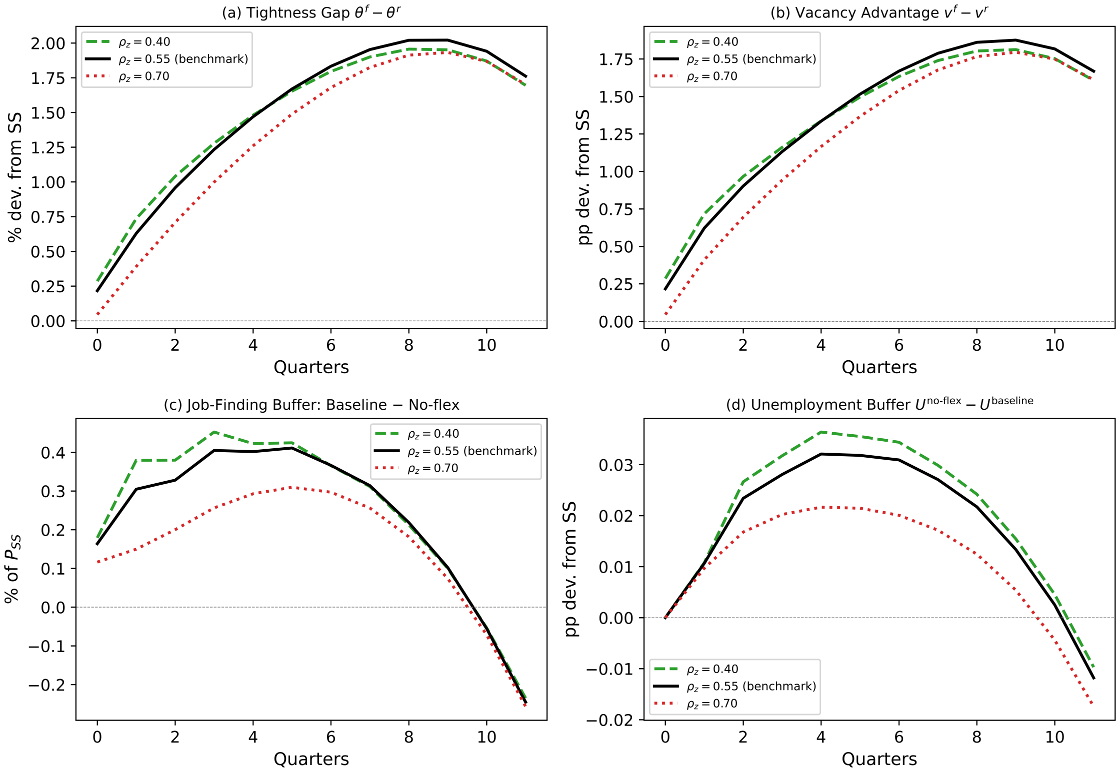
# A Tables and Figures

**Table A1:** Baseline Parameter Values

| Parameter | Description | Value | Choice |
|---|---|---|---|
| **Households and asset market** | | | |
| $\beta$ | Discount factor | 0.9646 | Jointly calibrated |
| $\sigma$ | Relative risk aversion | 2.000 | Preset |
| $\underline{b}$ | Borrowing limit | $-0.050$ | Preset |
| $\bar{B}^G$ | Liquid bond supply | 0.300 | Preset |
| $\bar{R}^b$ | Gross quarterly real return | 1.005 | Target-implied |
| $\rho_e$ | Persistence of idiosyncratic productivity | 0.975 | Preset |
| $\sigma_e$ | Innovation s.d. of idiosyncratic productivity | 0.350 | Preset |
| $n_e$ | Productivity grid points | 11 | Numerical |
| **Labor market** | | | |
| $\gamma$ | Matching-function elasticity | 0.500 | Preset |
| $m^r$ | Matching efficiency, regular submarket | 0.650 | Preset |
| $m^f$ | Matching efficiency, flexible submarket | 0.650 | Preset |
| $\chi^r$ | Regular-job productivity | 1.150 | Preset |
| $\chi^f$ | Flexible-job productivity | 1.000 | Normalization |
| $\rho^r$ | Regular separation rate | 0.0455 | Preset |
| $\rho^f$ | Flexible separation rate | 0.1500 | Preset |
| $\psi$ | Search share directed to regular jobs | 0.5566 | Target-implied |
| $s$ | On-the-job search intensity of flexible workers | 0.1500 | Preset |
| $\eta^r$ | Regular vacancy cost | 5.888 | Target-implied |
| $\eta^f$ | Flexible vacancy cost | 0.815 | Target-implied |
| $\alpha$ | Worker bargaining weight | 0.500 | Preset |
| $\phi_w$ | Regular-wage inertia | 0.850 | Preset |
| $\nu$ | Stepping-stone wage parameter | 0.6645 | Target-implied |
| $\delta$ | Unemployment income flow | 0.550 | Preset |
| **Policy and aggregation** | | | |
| $\phi_\pi$ | Taylor-rule inflation response | 1.500 | Preset |
| $\mu_i$ | Interest-rate smoothing | 0.800 | Preset |
| $\bar{\pi}$ | Steady-state inflation | 0.000 | Normalization |
| $\kappa_p$ | Phillips-curve slope | 0.100 | Preset |
| $G/Y$ | Government spending share | 0.200 | Preset |
| $\phi_B$ | Fiscal feedback coefficient | 0.050 | Preset |
| $\Lambda$ | Capitalist mass | 0.050 | Preset |
| $\Theta$ | Capitalist welfare weight | 1.000 | Preset |

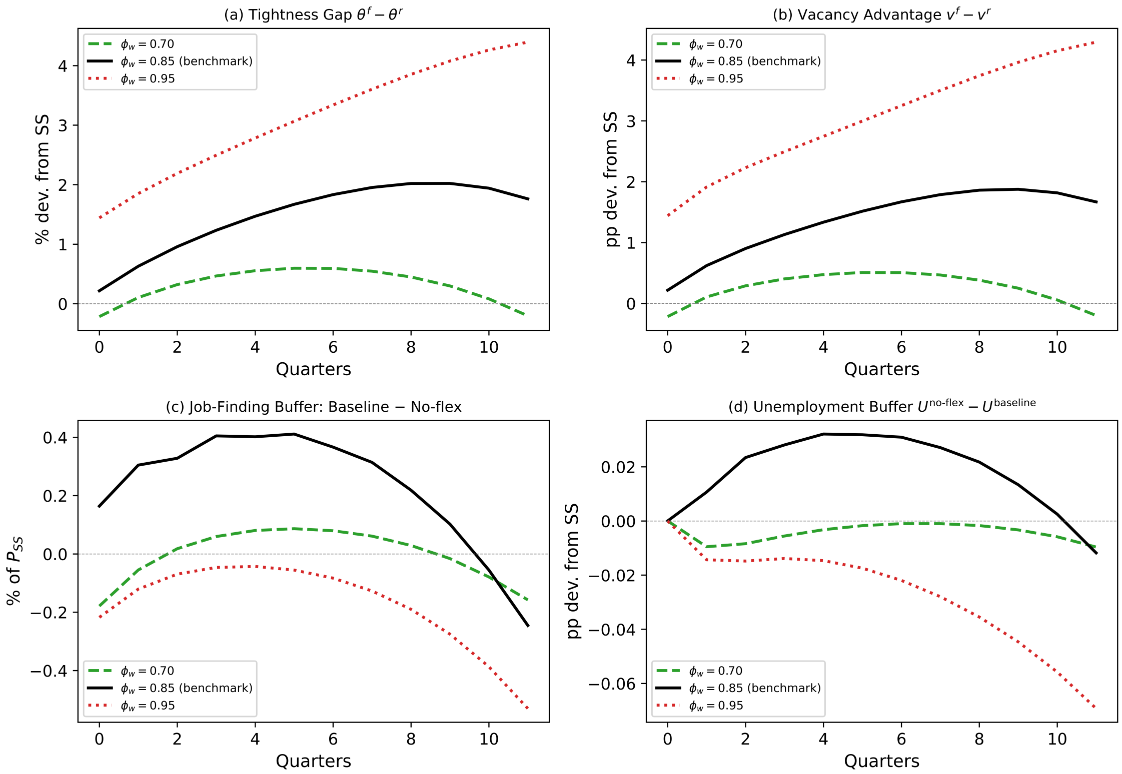
**Notes**: "Preset" denotes parameters chosen externally from standard values or normalizations. "Target-implied" denotes parameters backed out from the steady-state calibration system. "Jointly calibrated" denotes parameters chosen to clear an equilibrium condition of the full steady state.

**Figure A1:** Robustness 1: labor-market mechanism under alternative shock persistence.



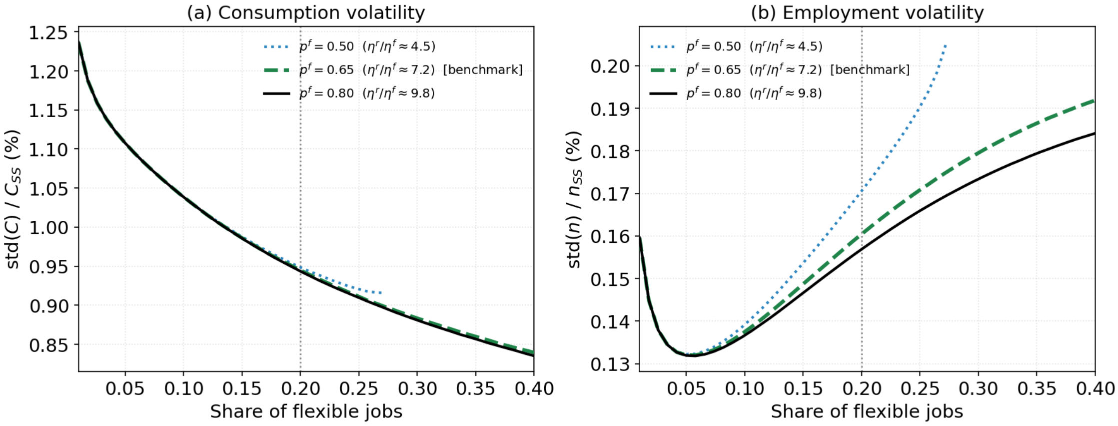

**Notes:** The figure reports the impulse responses to a $-1\%$ AR(1) total factor productivity shock under three values of shock persistence, $\rho_z \in \{0.40, 0.55, 0.70\}$ (green dashed, black solid, red dotted, respectively), in the baseline heterogeneous-agent New Keynesian model with a dual labor market (HANK-2J). The HANK-2J economy has a flexible employment share of 20% in steady state. All series are computed relative to a structural one-job counterfactual (*comparable* HANK-1J economy) in which the flexible margin is structurally removed ($\psi = 1$, $s = 0$, $\nu = 0$) and the regular-market vacancy-cost parameter $\eta^r$ is re-calibrated to reproduce the same steady-state unemployment rate (6.5%) and annualized real interest rate (2%) as the baseline. The Jacobians are held fixed at the benchmark calibration across persistence values and only the shock path changes. Panel (a) plots the tightness gap $\theta^f - \theta^r$ in percentage deviations from steady state. Panel (b) shows the vacancy advantage $v^f - v^r$ in percentage-point deviations from steady state. Panel (c) plots the job-finding buffer, defined as the difference between the HANK-2J and HANK-1J aggregate job-finding rates, expressed as a percentage of the steady-state job-finding rate $P_{SS}$. Panel (d) shows the unemployment buffer $U^{\text{no-flex}} - U^{\text{baseline}}$ in percentage points.

**Figure A2:** Robustness 2: labor-market mechanism under alternative wage rigidity.



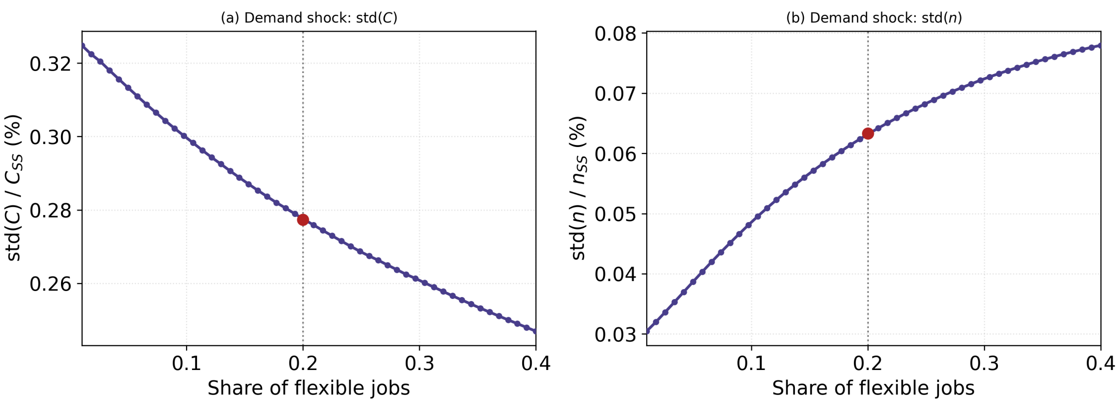

**Notes:** The figure reports the impulse responses to a $-1\%$ AR(1) total factor productivity shock ($\rho_z = 0.55$) under three values of the wage-rigidity parameter, $\phi_w \in \{0.70, 0.85, 0.95\}$ (green dashed, black solid, red dotted, respectively), in the baseline heterogeneous-agent New Keynesian model with a dual labor market (HANK-2J). The HANK-2J economy has a flexible employment share of 20% in steady state. For each value of $\phi_w$, the steady state and Jacobians are re-computed from scratch. The shock path is held fixed at the benchmark ($\rho_z = 0.55$). All series are constructed relative to a *comparable* structural one-job counterfactual (HANK-1J) in which the flexible margin is removed ($\psi = 1$, $s = 0$, $\nu = 0$) and $\eta^r$ is re-calibrated to reproduce the same steady-state unemployment rate (6.5%) and annualized real interest rate (2%) as the baseline; for non-benchmark $\phi_w$ values, the one-job counterfactual is also re-solved at the same $\phi_w$. Panel (a) plots the tightness gap $\theta^f - \theta^r$ in percentage deviations from steady state. Panel (b) shows the vacancy advantage $v^f - v^r$ in percentage-point deviations from steady state. Panel (c) plots the job-finding buffer, defined as the difference between the HANK-2J and HANK-1J aggregate job-finding rates, expressed as a percentage of $P_{SS}$. Panel (d) shows the unemployment buffer $U^{\text{no-flex}} - U^{\text{baseline}}$ in percentage points.

**Figure A3:** Robustness of the stabilization–insurance trade-off under alternative vacancy-cost ratios.



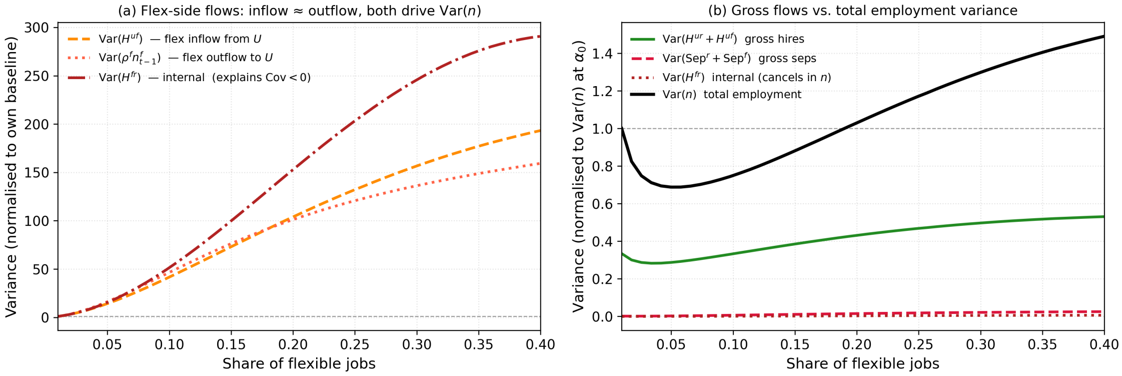

**Notes:** The figure reports cross-economy ABRS volatilities in the HANK-2J model for three values of the flexible job-finding target, $p^f \in \{0.50, 0.65, 0.80\}$ (blue dotted, green dashed, black solid; benchmark at $p^f = 0.65$). These scenarios imply benchmark vacancy-cost ratios of approximately $\eta^r/\eta^f \in \{4.5, 7.2, 9.8\}$. For each $p^f$ scenario, we compute a grid of 50 economies with flexible employment share $\alpha \in [0.01, 0.40]$. At each grid point, the 4-anchor calibration is re-solved to match the unemployment rate (6.5%), wage ratio ($w^r/w^f = 1.15$), annual real interest rate (2%), and the scenario-specific $p^f$. Volatility is measured by $\sigma_X = \left(\sum_t h^2_{X,z,t} + \sum_t h^2_{X,\xi_{\text{mp}},t}\right)^{1/2}$ over $T = 12$ quarters. The TFP shock has persistence $\rho_z = 0.55$ and the monetary policy shock follows $\rho_{\text{mp}} = 0.70$ with innovation size $\sigma_{\text{mp}} = 0.005$. Panel (a) shows $\text{std}(C)/C_{SS}$ and panel (b) shows $\text{std}(n)/n_{SS}$ as functions of $\alpha$. The vertical dotted line marks the benchmark flexible-employment share ($\alpha \approx 0.20$).

**Figure A4:** Demand-shock robustness of the stabilization–insurance trade-off.



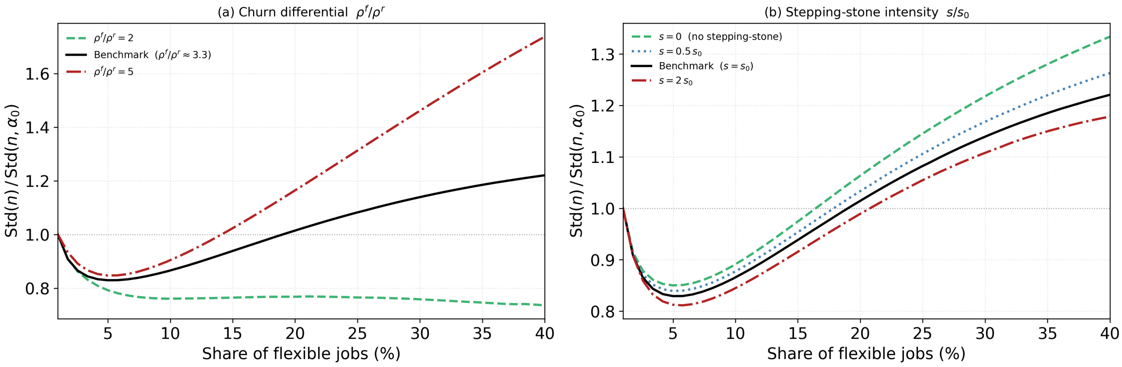

**Notes:** The figure reports cross-economy ABRS volatilities in the HANK-2J model under a reduced-form government-demand disturbance: a +1% AR(1) shock to government absorption $G$ in each economy's own steady state. We compute a grid of 50 economies with flexible employment share $\alpha \in [0.01, 0.40]$, using the same cross-economy calibration as in the benchmark trade-off exercise so that only the shock environment changes. Transition Jacobians are computed under goods-market closure so that the $G$ shock enters equilibrium. The exercise should therefore be interpreted as a reduced-form demand-shock robustness check rather than a fully structural fiscal-policy experiment, since government-budget balance is not imposed period by period. Volatility is measured by $\sigma_X = \left(\sum_t h^2_{X,G,t}\right)^{1/2}$ over $T = 12$ quarters. The shock persistence is $\rho_G = \rho_z = 0.55$, and the innovation size is set to $0.01 \times G_{SS}$ in each economy. Panel (a) shows $\text{std}(C)/C_{SS}$ and panel (b) shows $\text{std}(n)/n_{SS}$ as functions of $\alpha$. The vertical dotted line marks the benchmark flexible-employment share ($\alpha \approx 0.20$), and the red marker identifies the benchmark economy.

**Figure A5:** Flex-side gross flows and employment variance: a reconciliation.



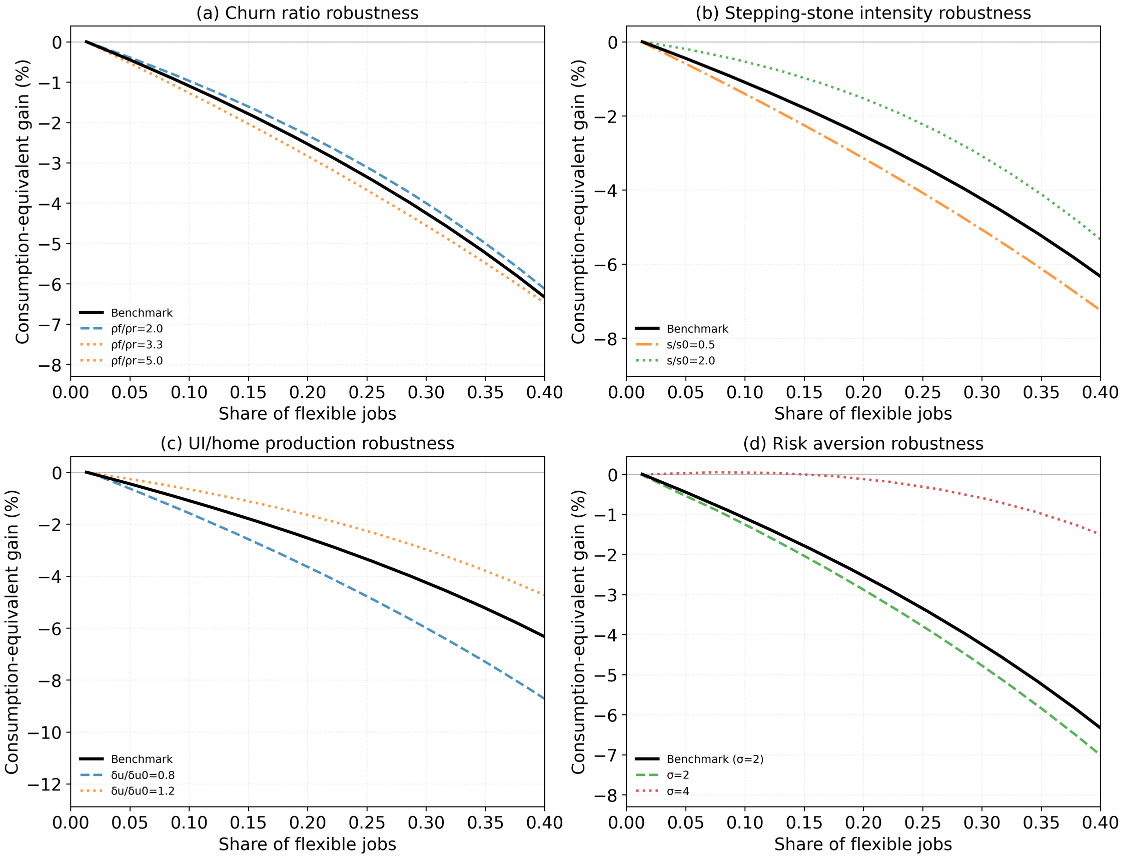

**Notes:** The figure decomposes the rise in employment variance as the flexible employment share $\alpha$ increases, using the ABRS unconditional variance of each flow evaluated at the steady state of each economy on the grid. All series in Panel (a) are normalised to their own value at the benchmark share $\alpha_0 = 20\%$. All series in Panel (b) are normalised to $\mathrm{Var}(n)$ at $\alpha_0$. The horizontal dashed line at 1 marks the benchmark. Panel (a) shows the three flexible-side flow variances as a function of $\alpha$: the flex inflow from unemployment, $\mathrm{Var}(H^{uf})$; the flex outflow to unemployment, $\mathrm{Var}(\rho^f n^f_{t-1})$; and the internal stepping-stone flow, $\mathrm{Var}(H^{fr})$. Panel (b) plots gross hires $\mathrm{Var}(H^{ur} + H^{uf})$, gross separations $\mathrm{Var}(\mathrm{Sep}^r + \mathrm{Sep}^f)$, the internal $f \to r$ flow $\mathrm{Var}(H^{fr})$ (which cancels in the employment stock), and total employment variance $\mathrm{Var}(n)$, all relative to $\mathrm{Var}(n)$ at the benchmark.

**Figure A6:** Employment volatility amplification: robustness to churn differential and stepping-stone intensity.



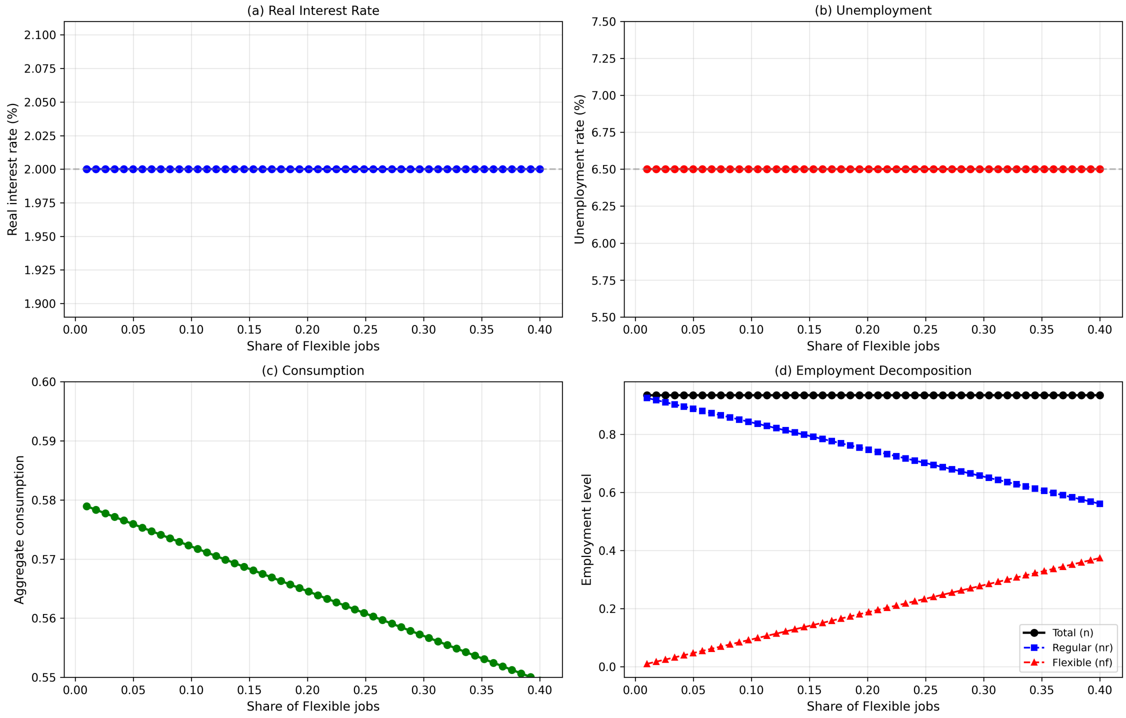

**Notes:** The figure decomposes the employment volatility amplification. Both panels plot $\mathrm{Std}(n)/\mathrm{Std}(n, \alpha_0)$, which is total employment volatility normalized by its value in the benchmark calibration, against the share of flexible jobs $\alpha$ (percent). The dotted grey line at unity marks the benchmark economy. All other parameters are held at their calibrated values in each economy unless otherwise stated. Panel (a) plots employment volatility for different values of the churn differential. The stepping-stone probability $s$ is fixed at its calibrated value in each economy; the separation-rate ratio $\rho^f/\rho^r$ is varied across three values: $\rho^f/\rho^r = 2$ (green, dashed), the empirically calibrated benchmark $\rho^f/\rho^r \approx 3.3$ (black, solid), and $\rho^f/\rho^r = 5$ (red, dash–dot). Panel (b) plots employment volatility for different values of the stepping-stone intensity. The churn ratio $\rho^f/\rho^r$ is fixed at its calibrated value; the stepping-stone probability $s$ is scaled to $\{0,\ 0.5\,s_0,\ s_0,\ 2\,s_0\}$ (green dashed, blue dotted, black solid, and red dash–dot, respectively).

**Figure A7:** Robustness of the welfare cost to structural parameter variation.




**Notes:** The figure reports the consumption equivalent welfare variation across 50 model economies that differ only in the steady state flexible employment share, ranging from approximately 1% to 40%. Welfare is measured relative to the near zero flex reference economy using equation (56). Each panel varies one structural parameter while holding all others at their benchmark values. Panel (a) varies the churn differential $\rho^f/\rho^r \in \{2.0, 3.3, 5.0\}$ (green dashed, black solid, and red dash–dot, respectively), where 3.3 is the empirically calibrated benchmark. Panel (b) varies the stepping-stone intensity $s/s_0 \in \{0.5, 1.0, 2.0\}$ (green dashed, black solid, and red dash–dot, respectively), where $s_0$ denotes the calibrated value. Panel (c) varies the unemployment flow value $\delta/\delta_0 \in \{0.8, 1.0, 1.2\}$ (green dashed, black solid, and red dash–dot, respectively), where $\delta_0$ denotes the calibrated value. Panel (d) varies the coefficient of relative risk aversion $\sigma \in \{2, 4\}$ (black solid and red dash–dot, respectively), where $\sigma = 2$ is the benchmark. The vertical dotted line marks the benchmark calibration (20% flexible employment share).

**Figure A8:** Validation of comparable economies across the flexible-employment-share grid.




**Notes:** The figure reports steady-state outcomes for 50 model economies that differ only in the share of flexible employment, which ranges from approximately 0% to 40%. At each grid point, the labor-market block is recalibrated so that key anchor moments remain unchanged, including the unemployment rate, the wage ratio between flexible and regular workers, and job-finding conditions for flexible workers. The annual real interest rate target is imposed by construction. Panel (a) shows that the annual real interest rate remains essentially constant at approximately 2% across all economies. Panel (b) shows that the unemployment rate also remains virtually unchanged at around 6.5%, confirming that the economies are comparable along these dimensions. Panel (c) shows that aggregate consumption declines monotonically as the flexible employment share increases, indicating that consumption is not an anchor moment and instead adjusts endogenously across economies. Panel (d) decomposes employment into total, regular, and flexible employment.

# B Derivation of the Stabilization Mechanism

This appendix proves the results in Section 3.9. The derivations use the household state vector $(e, b, q)$ and the cross-sectional distribution $\mu_t(e, b, q)$.

## B.1 Proof of Lemma 1

The current operating surplus of a type-$s$ match is

$$\mathcal{S}_t^s = x_t \chi^s - w_t^s, \qquad s \in \{r, f\},$$

where $x_t \equiv \varphi_t Z_t$.
For regular jobs, the wage target is

$$w_t^{r,N} = (1-\alpha)\delta_t + \alpha x_t \chi^r,$$

and the wage rule is

$$\log w_t^r = \phi_w \log w_{t-1}^r + (1-\phi_w) \log w_t^{r,N}.$$

Differentiating with respect to $x_t$, treating $w_{t-1}^r$ and $\delta_t$ as fixed, gives

$$\frac{1}{w_t^r}\frac{\partial w_t^r}{\partial x_t} = (1-\phi_w)\frac{1}{w_t^{r,N}}\frac{\partial w_t^{r,N}}{\partial x_t} = (1-\phi_w)\frac{\alpha \chi^r}{w_t^{r,N}}.$$

At the deterministic steady state, $w^r = w^{r,N}$. Hence

$$\left.\frac{\partial w_t^r}{\partial x_t}\right|_{SS} = (1-\phi_w)\alpha\chi^r.$$

Therefore,

$$\left.\frac{\partial \mathcal{S}_t^r}{\partial x_t}\right|_{SS} = \chi^r - (1-\phi_w)\alpha\chi^r = [(1-\alpha) + \alpha\phi_w]\,\chi^r.$$

For flexible jobs,

$$w_t^f = (1-\alpha)\delta_t + \alpha x_t \chi^f - \nu s p_t^r.$$

The lemma reports the direct wage-setting effect, holding $p_t^r$ fixed. Thus,

$$\left.\frac{\partial w_t^f}{\partial x_t}\right|_{SS} = \alpha\chi^f,$$

and

$$\left.\frac{\partial \mathcal{S}_t^f}{\partial x_t}\right|_{SS} = \chi^f - \alpha\chi^f = (1-\alpha)\chi^f.$$

Since $\chi^r > \chi^f > 0$ and $\phi_w \geq 0$,

$$\left[(1-\alpha) + \alpha\phi_w\right]\chi^r > (1-\alpha)\chi^f.$$

Thus,

$$\frac{\partial \mathcal{S}_t^r}{\partial x_t} > \frac{\partial \mathcal{S}_t^f}{\partial x_t} > 0.$$

For an adverse aggregate shock $dx_t < 0$,

$$d\mathcal{S}_t^s = \frac{\partial \mathcal{S}_t^s}{\partial x_t} dx_t.$$

Multiplying the previous inequality by $dx_t < 0$ reverses the ranking:

$$d\mathcal{S}_t^r < d\mathcal{S}_t^f < 0.$$

This proves the lemma.

**Remark 1** (Endogenous stepping-stone feedback)**.** *If the response of $p_t^r$ is included in the derivative of flexible wages, then*

$$\frac{\partial w_t^f}{\partial x_t} = \alpha\chi^f - \nu s\frac{\partial p_t^r}{\partial x_t},$$

*and therefore*

$$\frac{\partial \mathcal{S}_t^f}{\partial x_t} = (1-\alpha)\chi^f + \nu s\frac{\partial p_t^r}{\partial x_t}.$$

*In that case, the surplus ranking requires*

$$\left[(1-\alpha) + \alpha\phi_w\right]\chi^r > (1-\alpha)\chi^f + \nu s\frac{\partial p_t^r}{\partial x_t}.$$

*The quantitative model incorporates this general-equilibrium feedback. The lemma isolates the direct wage-setting channel.*

## B.2 Proof of Proposition 1

Free entry in submarket $s \in \{r, f\}$ requires

$$\eta^s = \lambda_t^s J_t^s,$$

where

$$\lambda_t^s = m^s(\theta_t^s)^{-\gamma}.$$

Substituting the vacancy-filling probability into free entry gives

$$\eta^s = m^s(\theta_t^s)^{-\gamma} J_t^s.$$

Solving for tightness,

$$\theta_t^s = \left(\frac{m^s J_t^s}{\eta^s}\right)^{1/\gamma}.$$

Taking logs,

$$\log\theta_t^s = \frac{1}{\gamma}\left[\log m^s + \log J_t^s - \log\eta^s\right].$$

Since $m^s$ and $\eta^s$ are parameters,

$$d\log\theta_t^s = \frac{1}{\gamma} d\log J_t^s.$$

Therefore,

$$d\log\left(\frac{\theta_t^f}{\theta_t^r}\right) = \frac{1}{\gamma}\left[d\log J_t^f - d\log J_t^r\right].$$

By assumption,

$$d\log J_t^r < d\log J_t^f < 0$$

after a sufficiently small adverse aggregate shock. Hence

$$d\log\left(\frac{\theta_t^f}{\theta_t^r}\right) > 0.$$

This proves the proposition.

## B.3 Proof of Proposition 2

A current regular worker remains employed with probability $1 - \rho^r$. With probability $\rho^r$, the worker separates and enters the search pool. Conditional on being in the search pool, the probability of finding a regular job is $\psi_t p_t^r$, and the probability of finding a flexible job is $(1-\psi_t)p_t^f$. Hence the probability of re-employment is

$$P_t = \psi_t p_t^r + (1-\psi_t)p_t^f.$$

The probability that a current regular worker becomes unemployed is therefore

$$\Gamma_t^{r\to u} = \rho^r(1-P_t).$$

Differentiating,

$$d\Gamma_t^{r\to u} = -\rho^r dP_t.$$

Thus, whenever the flexible margin makes $P_t$ less volatile, it also makes $\Gamma_t^{r\to u}$ less volatile. If search direction is locally fixed, then

$$dP_t = \psi_t dp_t^r + (1-\psi_t)dp_t^f.$$

If search direction also responds, then

$$dP_t = \psi_t dp_t^r + (1-\psi_t)dp_t^f + (p_t^r - p_t^f)d\psi_t.$$

Both expressions imply the same result: the unemployment risk of regular workers is stabilized whenever the aggregate re-employment probability is stabilized.

## B.4 Proof of Proposition 3

The expected labor income of a separated regular worker is

$$\mathcal{Y}_t^{r,\text{sep}} = \psi_t p_t^r w_t^r + (1-\psi_t)p_t^f w_t^f + \left[1-\psi_t p_t^r - (1-\psi_t)p_t^f\right]\delta_t.$$

Rearranging,

$$\mathcal{Y}_t^{r,\text{sep}} = \delta_t + \psi_t p_t^r(w_t^r - \delta_t) + (1-\psi_t)p_t^f(w_t^f - \delta_t).$$

Holding wages, unemployment income, and search direction fixed,

$$d\mathcal{Y}_t^{r,\text{sep}} = \psi_t(w_t^r - \delta_t)dp_t^r + (1-\psi_t)(w_t^f - \delta_t)dp_t^f.$$

A current regular worker is exposed to this separated-worker income only if she separates, which occurs with probability $\rho^r$. Therefore, the relevant expected-income change for a current regular worker is

$$\rho^r d\mathcal{Y}_t^{r,\text{sep}}.$$

Let

$$\mathcal{M}_t^r(e,b) \equiv \frac{\partial c_t^r(e,b)}{\partial \mathcal{Y}_t^{r,\text{sep}}}$$

denote the local consumption exposure of a regular worker with state $(e,b)$ to expected labor income in the separation state. In an incomplete-markets economy, this object is positive for households whose consumption responds to expected labor income, especially households close to the borrowing constraint.

Aggregating over current regular workers,

$$dC_t^r \approx \int_{\{q=r\}} \mathcal{M}_t^r(e,b)\rho^r d\mathcal{Y}_t^{r,\text{sep}}\, d\mu_t(e,b,q).$$

Define

$$\overline{\mathcal{M}}_t^r \equiv \frac{1}{N_t^r}\int_{\{q=r\}} \mathcal{M}_t^r(e,b)\, d\mu_t(e,b,q).$$

Then

$$dC_t^r \approx N_t^r \overline{\mathcal{M}}_t^r \rho^r d\mathcal{Y}_t^{r,\text{sep}}.$$

Substituting the expression for $d\mathcal{Y}_t^{r,\text{sep}}$ gives

$$dC_t^r \approx N_t^r \overline{\mathcal{M}}_t^r \rho^r \left[\psi_t(w_t^r - \delta_t)dp_t^r + (1-\psi_t)(w_t^f - \delta_t)dp_t^f\right].$$

This is equation (53).

If $w_t^r > w_t^f > \delta_t$, then both income gaps are positive. If $\overline{\mathcal{M}}_t^r > 0$, a smaller fall in the bracketed term implies a smaller fall in aggregate consumption. Therefore, when flexible jobs cushion the decline in re-employment probabilities, they stabilize aggregate demand.

## B.5 Proof of Corollary 1

By Proposition 2,

$$d\Gamma_t^{r\to u} = -\rho^r dP_t.$$

Thus, a less volatile re-employment probability implies less volatile unemployment risk. By Proposition 3, lower unemployment-risk volatility reduces the volatility of expected labor income and precautionary saving. This stabilizes aggregate consumption.

Aggregate consumption is a central component of aggregate demand. Through goods-market clearing, a more stable path of consumption stabilizes output. Through the Phillips curve, lower output volatility also dampens inflation volatility, for a given monetary-policy rule and price-adjustment friction. Hence flexible jobs reduce the volatility of output and inflation.

### B.6 Proof of Corollary 2

The social welfare criterion is

$$W_t = \int V_t^q(e, b)\, d\mu_t(e, b, q) + \Lambda\Theta V_t^C.$$

A higher flexible-job share affects welfare through two opposing channels.
First, by Corollary 1, flexible jobs can reduce the volatility of unemployment risk, precautionary saving, aggregate consumption, output, and inflation. This stabilization channel raises welfare by reducing the incidence and severity of low-consumption states.
Second, flexible jobs are lower-quality employment states in the model. They have lower productivity, lower wages, and higher separation rates:

$$\chi^f < \chi^r, \qquad w_t^f < w_t^r, \qquad \rho^f > \rho^r.$$

A larger flexible-job share can therefore reduce average labor income and increase worker-level exposure to future unemployment. This lowers welfare through the insurance and job-quality channel.
Because these two channels operate in opposite directions, the overall welfare effect is ambiguous and must be evaluated quantitatively.

## C Steady State and Internal Consistency Checks

This appendix collects the stationary equilibrium conditions of the model. In a stationary equilibrium, all aggregate variables are constant over time. I denote steady-state objects by dropping time subscripts. The next-period employment transition matrix used by households satisfies $\Pi_{t+1}^q = \Pi^q$ in steady state, so there is no distinction between current and next-period transition matrices at the fixed point.

## C.1 Steady-State Household Problem

The worker's Bellman equation is

$$V^q(e,b) = \max_{c,b'} \left\{ u(c) + \beta \sum_{q' \in \{r,f,u\}} [\Pi^q]_{q,q'} \sum_{e'} Q_{e,e'} V^{q'}(e',b') \right\}, \tag{A57}$$

subject to

$$c + b' = y^q(e) + \bar{R}^b b + \mathcal{T}(e), \tag{A58}$$

$$b' \geq \underline{b}, \qquad c \geq 0, \tag{A59}$$

where

$$y^q(e) = \begin{cases} w^r e, & \text{if } q = r, \\ w^f e, & \text{if } q = f, \\ \delta e, & \text{if } q = u. \end{cases} \tag{A60}$$

Outside the borrowing constraint, the steady-state Euler equation is

$$u'(c(e,b,q)) = \beta \bar{R}^b \sum_{q' \in \{r,f,u\}} [\Pi^q]_{q,q'} \sum_{e'} Q_{e,e'} u'(c(e',b',q')). \tag{A61}$$

When the borrowing constraint binds, equation (A61) holds with inequality.

Let $\mu(e,b,q)$ denote the invariant cross-sectional distribution of workers across idiosyncratic productivity, liquid wealth, and employment state. Then aggregate household quantities are

$$C = \int c(e,b,q)\, d\mu, \qquad B^H = \int g^{b,q}(e,b)\, d\mu, \tag{A62}$$

where $g^{b,q}(e,b)$ is the steady-state liquid-saving policy function.

## C.2 Steady-State Labor Market

Let $N^r$ and $N^f$ denote the steady-state shares of workers employed in regular and flexible jobs, respectively, and let

$$N \equiv N^r + N^f \tag{A63}$$

denote total employment. The end-of-period unemployment rate is therefore

$$u \equiv 1 - N. \tag{A64}$$

Because separations occur before search and matching, the post-separation searching pool is

$$U = 1 - (1 - \rho^r)N^r - (1 - \rho^f)N^f. \tag{A65}$$

Equivalently,

$$U = u + \rho^r N^r + \rho^f N^f. \tag{A66}$$

This identity clarifies that $U$ exceeds end-of-period unemployment whenever positive masses of employed workers are separated and allowed to re-search within the period.

The effective search pools in the two submarkets are

$$E^r = \psi U + s(1 - \rho^f)N^f, \tag{A67}$$

$$E^f = (1 - \psi)U. \tag{A68}$$

Matching in each market is Cobb–Douglas:

$$M^r = m^r (V^r)^{1-\gamma}(E^r)^{\gamma}, \qquad M^f = m^f (V^f)^{1-\gamma}(E^f)^{\gamma}. \tag{A69}$$

Labor-market tightness is

$$\theta^r = \frac{V^r}{E^r}, \qquad \theta^f = \frac{V^f}{E^f}, \tag{A70}$$

so the job-finding and vacancy-filling probabilities are

$$p^r = m^r (\theta^r)^{1-\gamma}, \qquad p^f = m^f (\theta^f)^{1-\gamma}, \tag{A71}$$

$$\lambda^r = m^r (\theta^r)^{-\gamma}, \qquad \lambda^f = m^f (\theta^f)^{-\gamma}. \tag{A72}$$

These imply the useful identities

$$p^r = \theta^r \lambda^r, \qquad p^f = \theta^f \lambda^f. \tag{A73}$$

Steady-state hiring flows are

$$H^{u \to r} = \psi U p^r, \qquad H^{u \to f} = (1 - \psi) U p^f, \tag{A74}$$

$$H^{f \to r} = s(1 - \rho^f) N^f p^r. \tag{A75}$$

The stationary employment laws of motion are

$$N^r = (1-\rho^r)N^r + H^{u\to r} + H^{f\to r}, \tag{A76}$$

$$N^f = (1-\rho^f)N^f - H^{f\to r} + H^{u\to f}. \tag{A77}$$

Equivalently, they can be written as flow-balance equations:

$$\rho^r N^r = \psi U p^r + s(1-\rho^f)N^f p^r, \tag{A78}$$

$$\rho^f N^f + s(1-\rho^f)N^f p^r = (1-\psi)Up^f. \tag{A79}$$

These two equations are the key steady-state consistency conditions for the labor market: outflows from each employment state must equal inflows into that state.

## C.3 Steady-State Transition Matrix

The worker transition matrix $\Pi^q$ is constructed from the steady-state flow probabilities. For an unemployed worker,

$$\Gamma^{u\to r} = \psi p^r, \qquad \Gamma^{u\to f} = (1-\psi)p^f, \qquad \Gamma^{u\to u} = 1 - \psi p^r - (1-\psi)p^f. \tag{A80}$$

For a regular worker,

$$\Gamma^{r\to r} = (1-\rho^r) + \rho^r\Gamma^{u\to r}, \tag{A81}$$

$$\Gamma^{r\to f} = \rho^r\Gamma^{u\to f}, \tag{A82}$$

$$\Gamma^{r\to u} = \rho^r\Gamma^{u\to u}. \tag{A83}$$

For a flexible worker,

$$\Gamma^{f\to r} = (1-\rho^f)sp^r + \rho^f\Gamma^{u\to r}, \tag{A84}$$

$$\Gamma^{f\to f} = (1-\rho^f)(1-sp^r) + \rho^f\Gamma^{u\to f}, \tag{A85}$$

$$\Gamma^{f\to u} = \rho^f\Gamma^{u\to u}. \tag{A86}$$

Hence the steady-state transition matrix is

$$\Pi^q = \begin{pmatrix} \Gamma^{r\to r} & \Gamma^{r\to f} & \Gamma^{r\to u} \\ \Gamma^{f\to r} & \Gamma^{f\to f} & \Gamma^{f\to u} \\ \Gamma^{u\to r} & \Gamma^{u\to f} & \Gamma^{u\to u} \end{pmatrix}. \tag{A87}$$

A basic internal consistency check is that each row sums to one. This holds by construction:

$$\Gamma^{u\to r} + \Gamma^{u\to f} + \Gamma^{u\to u} = 1, \tag{A88}$$

$$\Gamma^{r\to r} + \Gamma^{r\to f} + \Gamma^{r\to u} = 1, \tag{A89}$$

$$\Gamma^{f\to r} + \Gamma^{f\to f} + \Gamma^{f\to u} = 1. \tag{A90}$$

In steady state, the invariant employment shares are also consistent with $\Pi^q$:

$$\begin{pmatrix} N^r \\ N^f \\ 1-N \end{pmatrix} = (\Pi^q)' \begin{pmatrix} N^r \\ N^f \\ 1-N \end{pmatrix}. \tag{A91}$$

## C.4 Steady-State Vacancy Creation and Wages

The steady-state value of a filled regular job is

$$J^r = (1-\tau^{I,r})(\bar{\varphi}\bar{Z}\chi^r - w^r) + \beta(1-\rho^r)J^r, \tag{A92}$$

and the steady-state value of a filled flexible job is

$$J^f = (1-\tau^{I,f})(\bar{\varphi}\bar{Z}\chi^f - w^f) + \beta(1-\rho^f)(1-sp^r)J^f, \tag{A93}$$

where the capitalist stochastic discount factor reduces to $\beta$ in a deterministic stationary equilibrium.
Solving equations (A92)–(A93) gives

$$J^r = \frac{(1-\tau^{I,r})(\bar{\varphi}\bar{Z}\chi^r - w^r)}{1-\beta(1-\rho^r)}, \tag{A94}$$

$$J^f = \frac{(1-\tau^{I,f})(\bar{\varphi}\bar{Z}\chi^f - w^f)}{1-\beta(1-\rho^f)(1-sp^r)}. \tag{A95}$$

Free entry requires

$$\eta^r = \lambda^r J^r, \qquad \eta^f = \lambda^f J^f. \tag{A96}$$

Using $\lambda^s = m^s(\theta^s)^{-\gamma}$, steady-state labor-market tightness can be written as

$$\theta^r = \left(\frac{m^r J^r}{\eta^r}\right)^{1/\gamma}, \qquad \theta^f = \left(\frac{m^f J^f}{\eta^f}\right)^{1/\gamma}. \tag{A97}$$

Steady-state wages satisfy

$$w^r = w^{r,N}, \qquad w^f = w^{f,N}, \tag{A98}$$

because a constant regular wage implies that the wage-adjustment rule collapses to its target. The steady-state wage targets are

$$w^{r,N} = (1-\alpha)\delta + \alpha\bar{\varphi}\bar{Z}\chi^r, \tag{A99}$$

$$w^{f,N} = (1-\alpha)\delta + \alpha\bar{\varphi}\bar{Z}\chi^f - \nu s p^r. \tag{A100}$$

## C.5 Steady-State Monetary Policy and Production

In steady state, the Fisher equation is

$$\bar{R}^b = \frac{1+\bar{i}}{1+\bar{\pi}}. \tag{A101}$$

Under the benchmark zero-inflation steady state, $\bar{\pi} = 0$ and hence $\bar{R}^b = 1 + \bar{i}$.

The Phillips curve implies

$$\bar{\varphi} = (1+\tau^W)\frac{\mu-1}{\mu}. \tag{A102}$$

Under the benchmark $\tau^W = 0$, this reduces to

$$\bar{\varphi} = \frac{\mu-1}{\mu}. \tag{A103}$$

Aggregate output is

$$Y = \bar{Z}\chi^r N^r + \bar{Z}\chi^f N^f. \tag{A104}$$

## C.6 Steady-State Government and Market Clearing

Government revenues are

$$\mathcal{R} = \tau^{I,r} N^r(\bar{\varphi}\bar{Z}\chi^r - w^r) + \tau^{I,f} N^f(\bar{\varphi}\bar{Z}\chi^f - w^f) - \tau^W Y. \tag{A105}$$

The stationary government budget constraint is

$$B^G = \bar{R}^b B^G + G + T + \mathcal{T}^C - \mathcal{R}. \tag{A106}$$

Equivalently,

$$(1-\bar{R}^b)B^G = G + T + \mathcal{T}^C - \mathcal{R}. \tag{A107}$$

The liquid-asset market clears when

$$B^H + \Lambda b^C = B^G. \tag{A108}$$

The steady-state resource constraint is

$$C + \Lambda c^C + \eta^r V^r + \eta^f V^f + G = Y + (1-N)\delta + \Omega, \tag{A109}$$

where the Rotemberg adjustment cost vanishes under zero inflation.

## C.7 Steady-State Distribution

Let $g^{b,q}(e,b)$ denote the steady-state liquid-saving policy function and let $\Pi^q$ and $\Pi^e$ denote the steady-state Markov matrices for employment and idiosyncratic productivity. The stationary distribution must satisfy

$$\mu(e',b',q') = \sum_{q\in\{r,f,u\}} \sum_{e} [\Pi^q]_{q,q'}\, \pi^{e\to e'} \int \mathbf{1}\{b' = g^{b,q}(e,b)\}\, d\mu(e,b,q). \tag{A110}$$

This invariant distribution is the fixed point used to compute the cross-sectional distribution of liquid wealth and the aggregate marginal propensity to consume.

## C.8 Internal Consistency Checks

A useful set of model checks is the following:

1. **Labor-market feasibility:**

$$0 \le \psi p^r + (1-\psi)p^f \le 1, \qquad 0 \le sp^r \le 1.$$

2. **Transition-matrix feasibility:** all entries of $\Pi^q$ must lie in $[0,1]$, and each row must sum to one.

3. **Flow balance:** equations (A78)–(A79) must hold exactly.

4. **Invariant employment shares:**

$$(N^r, N^f, 1-N)' = (\Pi^q)'(N^r, N^f, 1-N)'.$$

5. **Free entry:**
$$\eta^r - \lambda^r J^r = 0, \qquad \eta^f - \lambda^f J^f = 0.$$

6. **Wage-rule consistency:**
$$w^r = w^{r,N}, \qquad w^f = w^{f,N}.$$

7. **Market clearing:**
$$B^H + \Lambda b^C - B^G = 0,$$
$$C + \Lambda c^C + \eta^r V^r + \eta^f V^f + G - Y - (1-N)\delta - \Omega = 0$$
under zero inflation.

8. **Distribution invariance:** the law of motion for $\mu$ must converge to a fixed point.

Taken together, these conditions provide a complete stationary-equilibrium system for the one-asset model.

# D Calibration Details

This appendix provides the detailed discussion supporting the calibration in Section 4. It covers the rationale for each externally assigned parameter, the construction of the calibration targets, and the data mapping from euro-area aggregates and Dutch administrative microdata.

## D.1 Calibration Strategy

The model combines incomplete markets, borrowing constraints, endogenous employment risk, and search frictions, so no single parameter maps cleanly into a single moment. The calibration proceeds in three steps organized by how tightly each parameter is identified by the data.

**Step 1.** A first block of parameters is assigned from prior literature or from normalizations that do not affect the main quantitative results. These include preference parameters, the idiosyncratic productivity process, matching-function parameters, separation rates, on-the-job search intensity, bargaining power, wage inertia, unemployment income, and fiscal-policy parameters. This block determines the qualitative structure of the model without targeting any specific moment.

**Step 2.** Conditional on Step 1, four parameters are chosen to exactly match four steady-state labor-market targets. The search split $\psi$, the vacancy costs $(\eta^r, \eta^f)$, and the stepping-stone wage parameter $\nu$ are backed out from the steady-state labor-market system. Allowing $\eta^f$ to be determined endogenously is particularly important because fixing the flexible-vacancy cost arbitrarily can imply an infeasible job-finding probability above one, which would render the equilibrium transition matrix invalid.

**Step 3.** Conditional on the calibrated labor block and the targeted steady-state real return, the full steady state is solved and $\beta$ is chosen so that the liquid-asset market clears. The resulting value $\beta = 0.9646$ is consistent with the range used in quantitative heterogeneous-agent models (Challe, 2020; McKay and Reis, 2016; Ravn and Sterk, 2021).

This strategy reflects the paper's economic logic. The labor block is calibrated to reproduce the relative attractiveness and riskiness of regular and flexible jobs, while the household block is disciplined so that transitions across those jobs matter quantitatively for saving behavior. The calibration does not impose the stabilization result. Flexible jobs are individually worse along every dimension that matters for worker welfare, and the quantitative question is whether the reemployment channel they create is strong enough to dampen aggregate unemployment-risk fluctuations.

## D.2 Baseline Parametrization

**Household and asset-market parameters.** The annual real interest rate is set to 2%, implying a gross quarterly real return of $\bar{R}^b = 1.005$, a conventional target in quantitative incomplete-markets business cycle models (Challe, 2020; McKay and Reis, 2016; Ravn and Sterk, 2021). The supply of liquid government bonds is $\bar{B}^G = 0.30$ of quarterly income. The borrowing limit is $\underline{b} = -0.05$, equal to five percent of quarterly income. This tight constraint captures short-run credit capacity while preventing households from self-insuring away the employment risk that is central to the mechanism. The resulting share of constrained households is 22.3%, consistent with euro area evidence.

The relative risk-aversion coefficient is $\sigma = 2$, standard across quantitative heterogeneous-agent models. The idiosyncratic productivity process has persistence $\rho_e = 0.975$ and innovation standard deviation $\sigma_e = 0.350$, within the empirically plausible range for persistent earnings shocks (Blundell et al., 2008). Together with the borrowing limit, this process ensures that employment transitions translate into meaningful consumption responses rather than being absorbed through self-insurance.

The calibration generates a mean quarterly MPC of 0.175, close to the empirical benchmark of approximately 0.20 (Fagereng et al., 2021), and the correct MPC ordering across employment states. Unemployed workers display the highest MPCs (0.630), regular workers the lowest (0.128), and flexible workers lie in between (0.207). This ordering is not imposed but emerges from the model's equilibrium. Matching this hierarchy is critical for the mechanism because if the model compressed MPCs across employment states, the aggregate consumption response to changes in $P_t$ would be largely independent of the employment-status distribution and the stabilization channel would lose its quantitative bite.

**Unemployment target.** The steady-state unemployment rate is targeted at 6.5%, corresponding to the euro area rate in 2018–2019, immediately before the COVID-19 pandemic. This is a better approximation to a stationary equilibrium than the crisis-period average of approximately 9.5% over 2010–2019, which reflected the protracted aftermath of the sovereign debt crisis rather than a structural steady state.

**Flexible-employment share.** The flexible-employment share is targeted at 20% of total employment. This exceeds the narrow euro area temporary-contract share of approximately 14–15%, but the model's flexible category is deliberately broader, encompassing fixed-term, agency, zero-hour, and related non-standard arrangements that share weaker employment protection, higher turnover, and greater wage flexibility (Boeri and Garibaldi, 2024; Eurofound, 2020). The 20% target lies between the narrow euro area share and the higher flexible-employment shares observed in economies such as Spain, Poland, and the Netherlands, where fixed-term and agency work together account for a quarter or more of total employment.

**Matching technology.** The matching elasticity is $\gamma = 0.50$ with symmetric matching efficiencies $m^r = m^f = 0.65$, broadly consistent with empirical estimates of matching elasticities in the range 0.3 to 0.7 (Petrongolo and Pissarides, 2001). Setting matching efficiencies equal across submarkets is a parsimony assumption. Together with the bargaining weight $\alpha = 0.50$, this satisfies the Hosios condition in each submarket (Hosios, 1990), so the baseline economy does not suffer from a bargaining distortion that would confound the stabilization results. The job-finding probability into flexible jobs is targeted at $p^f = 0.65$, reflecting the faster-filling nature of flexible positions. The regular job-finding probability, $p^r = 0.360$, is implied by the equilibrium conditions and is not directly targeted.

**Separation rates and on-the-job search.** The regular separation rate $\rho^r = 0.0455$ and the flexible separation rate $\rho^f = 0.1500$ generate a ratio $\rho^f/\rho^r \approx 3.3$, directly disciplined by the Dutch administrative microdata in Fact 5, which documents a 1.7 percentage-point increase in the annual probability of unemployment following a move into flexible employment relative to the baseline rate of 4.9%. Flexible workers search on the job for regular positions with intensity $s = 0.1500$. The stepping-stone wage parameter $\nu = 0.6645$ implies a steady-state flexible-wage deduction of $\nu s p^r = 0.036$, capturing the option value that flexible workers derive from on-the-job search. The calibrated values of $s$ and $\nu$ together imply a quarterly flexible-to-regular transition probability of $\Gamma^{f \to r} = 0.076$, consistent with the empirical evidence that the bridge from flexible to regular employment is partial rather than automatic (Booth et al., 2002; Cahuc et al., 2022).

**Unemployment income and job quality.** Unemployment income is $\delta = 0.55$, representing the flow value of non-employment within the range of euro area net replacement rates. Regular-job productivity is $\chi^r = 1.15$ relative to the normalization $\chi^f = 1$. This productivity wedge simultaneously ensures that regular jobs pay more, consistent with the wage-ratio target $w^r/w^f = 1.15$ and the empirical evidence on contract-type wage penalties (Autor and Houseman, 2010; Booth et al., 2002; Goldschmidt and Schmieder, 2017), that regular jobs cost more to create, and that the regular sector constitutes the majority of employment in steady state. At the calibrated steady state, regular wages are $w^r = 0.850$ and flexible wages are $w^f = 0.739$, exactly matching the targeted ratio.

**Vacancy costs.** The calibrated vacancy costs are $\eta^r = 5.888$ for regular vacancies and $\eta^f = 0.815$ for flexible vacancies. What matters quantitatively is the ratio $\eta^r/\eta^f \approx 7.2$. This asymmetry ensures that flexible vacancies remain profitable in a wider range of aggregate conditions than regular vacancies, so that when a negative shock compresses regular-match surpluses, firms substitute toward the flexible submarket rather than cutting all hiring. The asymmetry is disciplined indirectly by the 20% flexible-employment share and the $p^f = 0.65$ job-finding target, which together determine how many resources firms must spend to maintain a given stock of each contract type.

**Regular wage inertia.** The regular wage inertia parameter is $\phi_w = 0.850$, in line with the wage survey evidence of Druant et al. (2012), who document that a majority of euro area firms adjust wages at most annually. Together with the lower flexible-vacancy costs, this value generates the surplus-sensitivity differential established in Lemma 1. The robustness analysis in Figure A2 confirms that the qualitative mechanism survives across $\phi_w \in \{0.70, 0.85, 0.95\}$.

**Policy parameters and fiscal closure.** Taylor-rule parameters are $\phi_\pi = 1.5$ and $\mu_i = 0.8$ with steady-state inflation normalized to zero. The Phillips-curve slope is $\kappa_p = 0.100$. Government spending is $G/Y = 0.20$ and the fiscal feedback coefficient is $\phi_B = 0.05$. These are standard closure parameters that ensure a stable government budget without making the stabilization results an artifact of aggressive fiscal insurance. The capitalist mass is $\Lambda = 0.05$. Following Challe (2020) and Ravn and Sterk (2021), capitalists absorb fiscal transfers, including firm rents, that might otherwise affect the cyclicality of income risk and contaminate the implied precautionary-saving response of workers (see also Acharya and Dogra, 2020).