

Quitting and Optimal Unemployment Insurance

Zhifeng Cai

Rutgers University

Jonathan Heathcote

Minneapolis Fed

Bristol

The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System

November 4, 2025

Facts about Quitters

Common view:

- ▶ layoffs drive most separations to non-employment
- ▶ quits are mostly job-to-job transitions

But this view is wrong!

Fact 1: Quits \geq layoffs in separations to non-employment

- ▶ Simmons (2023). SIPP, 1996-2013.
Monthly separation rate 4.2% =
1.2% layoffs + 1.0% job-to-job transitions + **2.0% other quits**
- ▶ Graves, Huckfeldt and Swanson (2024), Ellieroth and Michaud (2024).
CPS, 1978 to 2023. **1.4–1.9% quit-to-non-employment rate**

Facts about Quitters

Fact 2: Most quits to non-employment are temporary

- ▶ Kudlyak and Lange (2017): 39% of non-workers with 3 month history EEN employed in next month, compared to 46% of those with EEU
- ▶ 60% of hires from non-employment each month reported being OLF

Fact 3: Economic considerations important for quits

- ▶ Coglianesse (2018), Ahn, Hobijn and Sahin (2023): “in-and-outs” disproportionately drawn from bottom of wage distribution
- ▶ Quit rate strongly pro-cyclical, contractionary monetary shocks reduce quit rate (Graves et al.)

Fact 4: Quitters receive few benefits

- ▶ In US, quitters generally ineligible for UI
- ▶ In other countries, quitters can collect benefits after waiting period (12 weeks in Germany)

Summary

- ▶ Majority of movements into and out of employment in the United States driven by quitters.
- ▶ But almost entire literature on public insurance focuses on layoffs
- ▶ Should quitters get benefits? If so, how much?

Key Ideas

- ▶ We extend a directed search & matching model to include quits
 - ▶ How does the quit margin change prescriptions for social insurance?
 - ▶ Idiosyncratic privately-observed disutility of work shocks drive quits
 - ▶ Workers quit too often ...
 - ▶ ... which depresses equilibrium wages
 - ▶ UI for quitters makes excessive quitting problem worse, further depressing wages
- ⇒ Incentive not to make UI (for quitters) too generous ...
- ▶ But want some insurance for quitters!

Four Directed Search Models

1. Tractable static model with linear utility
 - ▶ With private preference shocks, economy features high “efficiency” wages and low employment
 - ▶ Reducing UI to reduce quitting increases welfare
2. Static model with concave utility
 - ▶ Quitters should get positive benefits, but less than fired workers
3. Dynamic representative worker model with concave utility
 - ▶ Derive extension of Baily-Chetty formula
 - ▶ Quit margin adds a new term: more UI \Rightarrow more quits \Rightarrow lower wages
4. Richer more quantitative model
 - ▶ Multiple sectors \rightarrow useful for identifying variation of preference shocks
 - ▶ On-the-job search \rightarrow workers quit to get a raise
 - ▶ Variation in match quality \rightarrow quits to find a better match
 - ▶ Richer dynamic wage contracts \rightarrow firms backload pay, stochastically match outside offers to reduce quitting

Literature

1. Empirical impact of UI on quits and wages

- ▶ Quits: Jager, Schoefer, Zweimuller (2023), Jurajda (2003), Schmieder, von Wachter and Bender (2016), Christofides and McKenna (1996), Green and Riddell (1997), Baker and Rea (1998)
- ▶ Wages: Schmieder et al. (2016), Nekoei and Weber (2017), Jager, Schoefer, Young and Zweimuller (2023)

2. Directed search and optimal UI:

- ▶ Acemoglu and Shimer (1999) and Golosov, Maziero, Menzio (2013)

3. Job-to-job transitions:

- ▶ Shimer (2006), Delacroix and Shi (2006), Menzio and Shi (2011), Mercan and Schoefer (2020), Elsby, Gottfries, Michaels, Ratner (2022)

4. Backloading wages to reduce quitting:

- ▶ Stevens (2004), Burdett and Coles (2003), Shi (2009), Balke and Lamadon (2022)

5. Stochastic contracts: Moore (1985)

6. Quits to non-employment:

- ▶ Guerrieri (2008), Hopenhayn and Nicolini (2009), Mazur (2016), Blanco, Drenik, Moser, Zaratiegui (2023), Qiu (2023), Bagga, Mann, Sahin and Violante (2024)

Tractable One Period Model — Directed Search with Quits

- ▶ All workers start out unmatched
- ▶ Firms post vacancies v at cost ϕ
- ▶ Labor markets indexed by promised wage w , job finding probability p
 - ▶ higher wage jobs harder to find
- ▶ If they match, workers draw idiosyncratic utility cost of work $\chi \sim F$
- ▶ Matched workers decide whether to quit
- ▶ Matched workers who do not quit produce z
- ▶ Benefit b for all non-workers, financed by tax τ on workers:

$$U^e = w - \tau - \chi$$

$$U^n = b$$

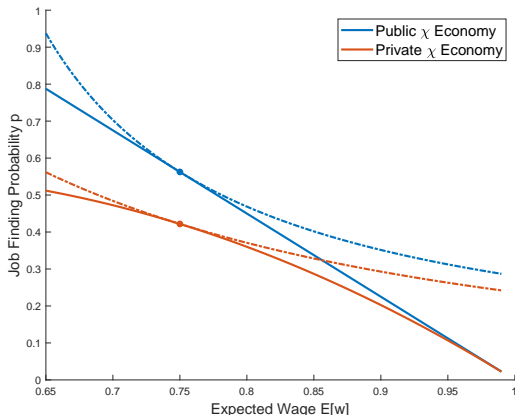
Two Versions of Model

1. Baseline (reality): χ is private \Rightarrow wage must be independent of χ
 \Rightarrow worker will quit iff $\chi > \bar{\chi} = w - \tau - b$
 - ▶ Thus, quit rate **declining** in wage in search sub-market
2. Alternative (hypothetical): χ is public \Rightarrow firms offer χ contingent wages up to $w = z$
 \Rightarrow worker will quit iff $\chi > \bar{\chi} = z - \tau - b$
 - ▶ Thus, quit rate **independent** of expected wage in search sub-market

Tractable Example

Matching: $p = \frac{A\sqrt{uv}}{u}$, $q = \frac{A^2}{p}$; Preference shock: $\chi \sim U[0, a]$

$z = 1$, $b = \tau = 0$,



- ▶ Solid line: $q(p)F(\bar{\chi})(z - \mathbb{E}[w]) = \phi$
- ▶ Dash line: $pF(\bar{\chi})(\mathbb{E}[w] - \tau - \mathbb{E}[\chi_{|\chi < \bar{\chi}}]) + (1 - pF(\bar{\chi}))b = \bar{U}$

Intuition

Markets address excess quitting by implementing **efficiency wages**

- ▶ Searchers always tradeoff higher w versus lower p
- ▶ But low w jobs imply more quitting, so firms offer only small increase in p in exchange for lower w
⇒ workers choose to search in relatively high w , low p market

Optimal policy

- ▶ Govt. budget constraint is $pF(\bar{\chi})\tau = (1 - pF(\bar{\chi}))b$
- ▶ Public χ economy: $b^* = \tau^* = 0$ delivers first best:
 - ▶ Contingent wages deliver efficient quitting threshold $\bar{\chi} = z$
 - ▶ Competitive search ensures efficient level of vacancy posting
- ▶ Baseline private χ economy:
 - ▶ At $b = 0$, quit rate is too high
 - ▶ $(\tau^* + b^*) = -\frac{z}{5}$ reduces quits & boosts wages
 - ▶ Cannot achieve first best $\bar{\chi}$ and p with common b for all non-workers
 - ▶ Can recover first best with differential benefits:
 - ▶ Harsher punishment for quitters

Static Model with Concave Utility

- ▶ Same model, but with concave utility \Rightarrow insurance motive for UI
- ▶ More generous UI \Rightarrow better insurance, but ...
- ▶ Workers become pickier, search for high w , low p jobs
- ▶ Fiscal externality (standard):
 - ▶ If all searchers are pickier, then ...
 - ▶ equilibrium unemployment is higher, which necessitates ...
 - ▶ higher tax rates to fund UI
- ▶ Assume govt can pay different benefits to
 1. those who never find a job, b_s
 2. those who quit, b_q
 3. those fired, b_f

Two Results

1. Without quits, optimal to perfectly insure fired workers: $b_f = w - \tau$
 - ▶ Direct benefit from insurance + increases value of finding a job
(mitigates fiscal externality)
2. With quits, optimal policy features $0 < b_q < b_f < w - \tau$
 - ▶ Excessive quitting \Rightarrow want to make quitting costly
 - ▶ But also want consumption insurance for quitters
 - ▶ \Rightarrow Reduce quitting by rewarding work as well as by punishing quitting

Dynamic Model

- ▶ Dynamic model, workers and firms discount at rate β
- ▶ All workers start out unmatched
- ▶ Firms post vacancies v at cost ϕ
- ▶ Labor markets indexed by constant wage w , job finding probability p
- ▶ Cobb-Douglas matching function
 \Rightarrow with u searchers and v vacancies job finding probability is $p = \frac{A\sqrt{uv}}{u}$
- ▶ If they match, workers draw idiosyncratic utility cost of work $\chi \sim F$
- ▶ χ not observed by the firm, iid over time
- ▶ Matched workers decide whether to quit
 - ▶ Quit iff $\chi \geq \bar{\chi}$, where $\bar{\chi}$ is increasing in w
- ▶ Exogenous layoffs at rate $1 - \gamma$, in addition to quits

Income Model

- ▶ Workers who do not quit or get laid off produce z
- ▶ All receive unearned income φ (spousal income, asset income)
- ▶ Common UI benefit κz for all non-workers
- ▶ Budget constraints

$$c^e = w(1 - \tau) + \varphi$$

$$c^u = \kappa z + \varphi$$

- ▶ Utility:

$U(c^e) - \chi$ if employed

$U(c^u)$ if not employed

Equilibrium

- ▶ Free entry \Rightarrow vacancy cost equals expected present value of profits:

$$\phi = q(p) \frac{\gamma F(\bar{\chi})}{1 - \beta \gamma F(\bar{\chi})} (z - w)$$

where $1 - F(\bar{\chi})$ is the quit rate

- ▶ Higher w reduces flow profits
- ▶ Offset by
 - ▶ higher worker finding probability (higher q)
 - ▶ higher worker retention rate $\gamma F(\bar{\chi})$
- ▶ Think of workers choosing $p \in [0, 1] \Rightarrow w$ pinned down by free entry

$$V^u(p) = U(c^u) + \beta (pV^e(p) + (1 - p)V^u(p))$$

$$V^e(p) = \gamma F(\bar{\chi})(U(c^e) - \mathbb{E}[\chi_{|\chi \leq \bar{\chi}}] + \beta V^e(p)) + (1 - \gamma F(\bar{\chi}))V^u(p)$$

where $\bar{\chi}$ is solution to

$$U(c^e) - \bar{\chi} + \beta V^e(p) = V^u(p)$$

Planner Problem

- ▶ Benevolent govt maximizes initial unmatched workers' value subject to budget constraint

$$\tau(1 - \tilde{u})w = \kappa\tilde{u}z$$

where $1 - \tilde{u} = \frac{\gamma p F(\bar{\chi})}{1 - \beta \gamma (1 - p) F(\bar{\chi})}$ is present value of time spent employed

- ▶ Govt moves first, choosing κ (which implies τ via GBC)
- ▶ Unmatched workers choose $p \Rightarrow w$ given κ , internalizing impact on $\bar{\chi}$
- ▶ Matched workers choose $\bar{\chi}$, given (κ, τ, w)
- ▶ Planner problem:

$$\max_{\kappa} W(\kappa, p(\kappa), \bar{\chi}(\kappa), \tau(\kappa))$$

- ▶ The FOC of this problem delivers an extended Baily-Chetty formula

Extended Baily-Chetty Formula

- ▶ FOC wrt κ :

$$\underbrace{\frac{U'(c^u) - U'(c^e)}{U'(c^e)}}_{\text{Insurance}} + \underbrace{- \left[\frac{1}{1 - \tilde{u}} \varepsilon_{\tilde{u}, \kappa} - \varepsilon_{w, \kappa} \right]}_{\text{Fiscal Externality}} + \underbrace{\frac{1 - \tilde{u}}{\tilde{u}} \frac{c^e}{c^u} \varepsilon_{w, \kappa|p}}_{\text{Quitting Externality}} = 0$$

where

$\varepsilon_{\tilde{u}, \kappa}$ is the total elasticity of unemployment \tilde{u} wrt κ

$\varepsilon_{w, \kappa}$ is the total elasticity of the wage w wrt κ

$\varepsilon_{w, \kappa|p}$ is the partial elasticity of w wrt κ via $\bar{\chi}$, holding fixed p .

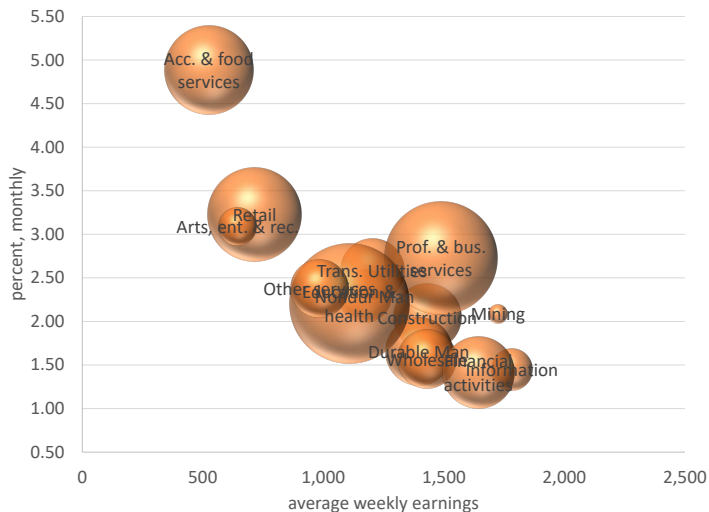
- ▶ Quitting externality affects all workers \rightarrow potentially important!
- ▶ $\varepsilon_{w, \kappa|p}$ depends on sensitivity of quits to $\kappa \rightarrow$ shape of F important
- ▶ Elasticity of w to κ via p does not show up because unmatched workers have chosen p optimally internalizing impact on w (envelope theorem)

Quantification

- ▶ $U(c) = \log(c)$, $\beta = 0.96^{1/12}$
- ▶ F lognormal with parameters μ_χ and σ_χ^2
- ▶ $z = 1$, $\kappa = 0.43$, $\varphi = 0.721$ (ASEC)
- ▶ $(A, \phi, \gamma, \mu_\chi)$ to match 2022-25 CPS / JOLTS (i) unemployment 3.78%, (ii) job openings 5.81%, (iii) layoffs 1.22% (iv) quits to non-emp. 1.91%
- ▶ σ_χ to match elasticity of sectoral quit rate to sectoral earnings

Quit Rates by Industry

- Higher quit rates in low wage jobs



Optimal Policy via Extended Baily-Chetty Formula

Panel A: Parameter values

| | A | ϕ | μ_χ | σ_χ | γ | φ | z |
|---------------------|-------|--------|------------|---------------|----------|-----------|-----|
| Baseline | 0.563 | 0.117 | -1.700 | 0.51 | 0.988 | 0.721 | 1 |
| $\sigma_\chi = 100$ | 0.563 | 0.605 | -207.709 | 100 | 0.988 | 0.721 | 1 |

Panel B: Terms in Baily-Chetty formula and elasticities

| | κ | c ineq. | fiscal extn. | quit extn. | $\varepsilon_{\bar{u},\kappa}$ | $\varepsilon_{w,\kappa}$ | $\varepsilon_{w,\kappa p}$ |
|------------------|----------|---------|--------------|------------|--------------------------------|--------------------------|----------------------------|
| Baseline | 0.430 | 0.466 | -3.424 | -1.126 | 3.224 | -0.003 | -0.031 |
| Optimum | 0.111 | 1.058 | -0.246 | -0.813 | 0.241 | -0.001 | -0.001 |
| $\sigma_x = 100$ | 0.430 | 0.440 | -0.549 | -0.021 | 0.536 | 0.020 | -0.0006 |
| Optimum | 0.392 | 0.491 | -0.469 | -0.022 | 0.461 | 0.018 | -0.0005 |

Richer Quantitative Model with New Ingredients

- ▶ Workers vary by sector n which determines expected productivity Y_n
 - ▶ Replicate productivity-quit relationship at sector level
- ▶ Variation in match quality
 - ▶ Idiosyncratic match quality shock $z \in \{z_H, z_L\}$ revealed after match formed
 - ▶ On the job search / quits as ways to improve match quality
- ▶ Richer contracts to reduce quit rate:
 - ▶ Firms backload wages
 - ▶ Stochastically match unobserved outside offers

Timeline

1. Workers start out matched or unmatched. If matched, state is (V, z)
2. **Search and matching.** All workers choose where to search
 - ▶ Unmatched workers find jobs with probability p . If unsuccessful they spend the period unemployed
 - ▶ Matched workers who receive outside offers switch jobs iff existing employer does not match offer V^s (EE transition)
3. **Match quality draw** z for new matches
4. **Exogenous match destruction:** fraction $1 - \gamma$ of matches end (EU)
5. **Quitting:** matched workers draw work cost χ , may quit (EN)
6. **Production:** workers who remain matched produce
7. **Consumption**

Firm Wage Contracts

- ▶ Firms observe match quality z once worker hired
- ▶ Do not observe preference shock χ
- ▶ Workers report outside offers, firms cannot verify but can incentivize truth-telling
 - ▶ Specify probabilities ζ of matching reported outside offers versus firing workers reporting such offers
 - ▶ If outside offer not matched, worker switches to new job if offer exists, otherwise is let go (as penalty)
- ▶ Offer rich dynamic contracts, where wages depend on
 - (i) match quality z , (ii) tenure, (iii) reported outside offers

Firm's problem

Insurance against match quality shocks

Outside Offers

- ▶ Existing directed search papers (e.g. Shi, 2009) assume firms ignore outside offers
 - ▶ Burdett and Coles (2003): “Of course, given offers from other firms are not observed, they will be ignored.”
- ▶ We also assume outside offers not observable
 - ▶ (contrast to Postel-Vinay and Robin, 2002)
- ▶ But strategy of matching and firing probabilistically can incentivize truthful reporting
 - ▶ Set firing probability just high enough that a worker without an offer prefers not fake an offer
 - ▶ (see also Moore, 1985)
- ▶ And probabilistic matching more profitable than ignoring offers
- ▶ Note that offer matching implies OJS more difficult than search while non-employed even though matching technology is identical

Backloading Wages

- ▶ Wage growth under the optimal contract satisfies:

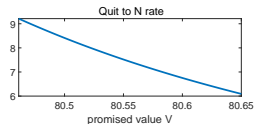
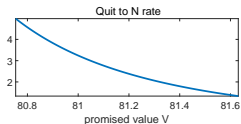
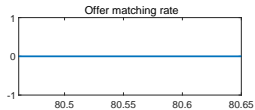
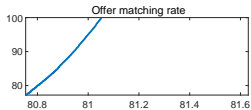
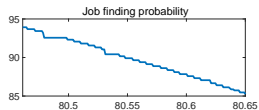
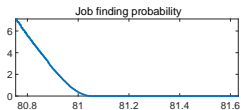
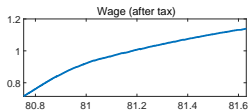
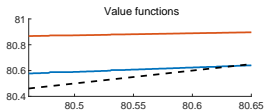
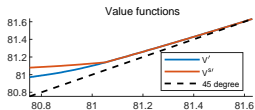
$$\frac{1}{U'_t} - \frac{1}{U'_{t+1}} = \frac{f(\bar{\chi}_{t+1})}{F(\bar{\chi}_{t+1})} (1 - \tau) [zY_n - w_{t+1} + \beta\Pi_{t+2}]$$

- ▶ where $U'_t = U'((1 - \tau)w_t + \varphi_n)$ denotes marginal utility of consumption for worker at date t .
- ▶ w_t rises for as long as the worker and firm remain matched, and converges to zY_n .

New parameters

- ▶ Most parameters calibrated as in the simpler model
- ▶ Sectoral productivity Y_n : CPS average weekly earnings by industry
- ▶ Vacancy costs and UI proportional to Y_n :
$$\phi_n = 0.76Y_n, \kappa_n = 0.43Y_n$$
- ▶ No UI for quitters
- ▶ Nonwage income to match ASEC regression of other family income on individual wage income:
$$\varphi = 0.552 + 0.169Y_n$$
- ▶ $z_H/z_L = 1.33$ to match Fujita et al. J2J transition rate (2.32%)

Policy Functions



Wages and Quit Rates by Tenure

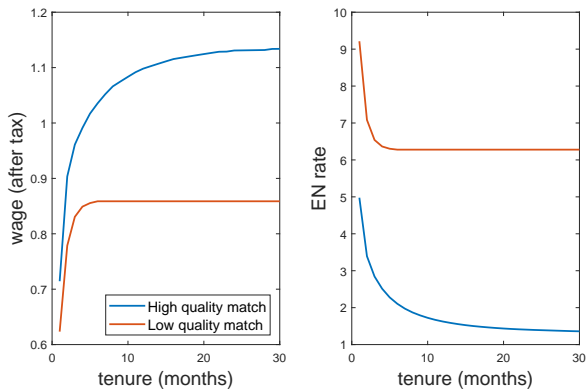


Figure 1: Wages and Quit Rate by Tenure (worker in sector with $Y_n = 1$)

Sample Income Path

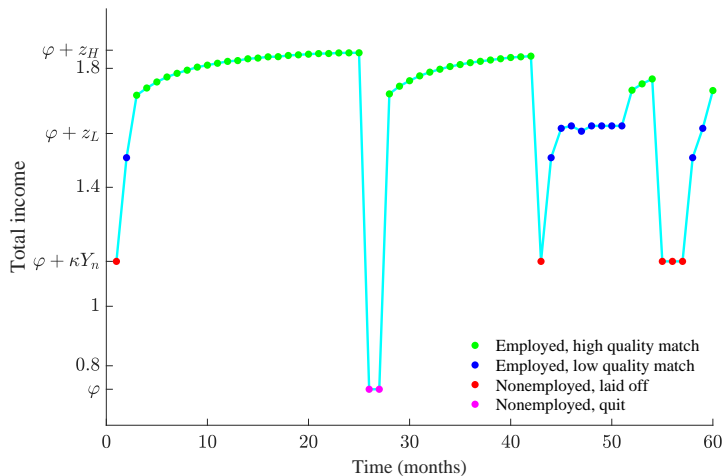
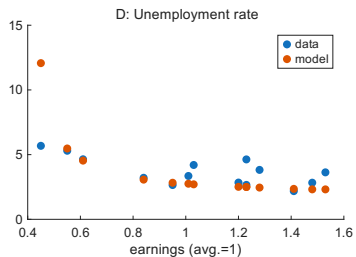
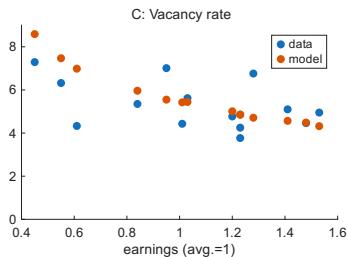
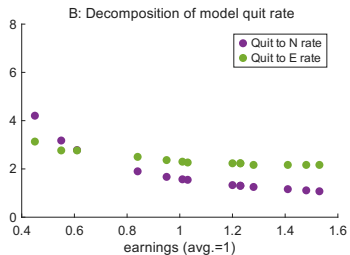
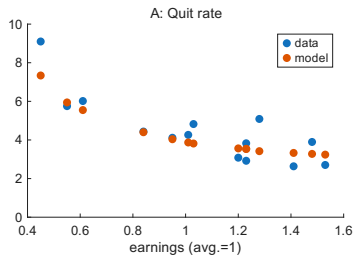


Figure 2: Sample Path for Total Income (worker in sector with $Y_n = 1$)

Model versus Data



Optimal Replacement Rates

- Define optimal policy as replacement rate κ^* that maximizes expected lifetime utility in steady state for an unemployed individual

| | Actual | Optimal | | | Counterfactuals | |
|-----------------------|--------|------------------|---------------------------|-------|-----------------|-------------|
| | | $\kappa_q^* = 0$ | $\kappa_f^* = \kappa_q^*$ | Flex. | No OJS | $z_H = z_L$ |
| κ_f^* rate (%) | 43.0 | 38.0 | 19.7 | 39.9 | 37.5 | 32.6 |
| κ_q^* rate (%) | 00.0 | 00.0 | 19.7 | 15.6 | 17.2 | 12.7 |
| EN rate (%) | 1.91 | 1.91 | 2.95 | 2.69 | 3.46 | 4.63 |
| EE rate (%) | 2.42 | 2.53 | 2.89 | 2.74 | 0.00 | 0.24 |
| u rate (%) | 3.89 | 2.92 | 3.75 | 4.04 | 4.46 | 5.16 |
| v rate (%) | 5.73 | 5.91 | 7.10 | 6.55 | 5.23 | 5.80 |
| p_f rate (%) | 42.9 | 51.1 | 69.2 | 48.0 | 50.7 | 48.1 |
| p_q rate (%) | 88.1 | 88.2 | 69.2 | 73.3 | 73.5 | 69.1 |

Conclusions

1. With quits driven by private idiosyncratic preference shocks, workers quit too often, destroying matches with positive joint surplus
2. This shows up as depressed wages, wasteful vacancy creation
3. Planner incentivized to cut UI to reduce excess quitting
4. Margin appears quantitatively important: key elasticity is response of quit rate to UI
5. Equilibrium response to quitting helps explain some labor market features:
 - ▶ High “efficiency” wages → significant unemployment even when cheap to contact workers
 - ▶ Wages that rise with tenure
 - ▶ Stochastic matching of outside offers

Experiment 1: Role of the Quitting Margin

- ▶ Set $\sigma_x^2 \cong 0$ (keep mean the same) \Rightarrow minimal EN flow

| | Optimal Policies | |
|----------------|------------------|---------------------|
| | Baseline | $\sigma_x^2 = 0.01$ |
| κ^* (%) | 38.4 | 48.9 |
| EN rate (%) | 0.46 | 0.07 |
| EE rate (%) | 2.09 | 1.78 |
| u rate (%) | 1.98 | 2.32 |
| v rate (%) | 6.82 | 5.19 |
| p rate (%) | 98.7 | 87.5 |

Return

Experiment 2: no OJS (no *EE* flow)

| | Optimal Policies | |
|--------------------|------------------|--------|
| | Baseline | No OJS |
| κ^* (%) | 38.4 | 44.0 |
| <i>EN</i> rate (%) | 0.46 | 1.42 |
| <i>EE</i> rate (%) | 2.09 | 0.00 |
| <i>u</i> rate (%) | 1.98 | 2.38 |
| <i>v</i> rate (%) | 6.82 | 7.42 |
| <i>p</i> rate (%) | 98.7 | 92.7 |

► Interpretation: now workers in bad matches can only transition to better matches via unemployment

⇒ more generous UI benefits to support efficient reallocation

Experiment 3: no variation in match quality (minimal EE flow)

| | Optimal Policies | |
|----------------|------------------|-----------------------|
| | Baseline | $\frac{z_H}{z_L} = 1$ |
| κ^* (%) | 38.4 | 33.5 |
| EN rate (%) | 0.46 | 1.08 |
| EE rate (%) | 2.09 | 0.04 |
| u rate (%) | 1.98 | 1.95 |
| v rate (%) | 6.82 | 5.43 |
| p rate (%) | 98.7 | 99.7 |

► Interpretation: If OJS fails, can exit a bad match in baseline model by quitting to unemployment

⇒ variation in match quality a rationale for more generous UI

Explaining the Great Resignation

Compare 2006 (end of previous boom) to 2021-2022

| | 2006 | 2021-22 | Δ (pp) |
|--------------------|------|---------|---------------|
| <i>EN</i> rate (%) | 0.8 | 1.8 | 1.0 |
| <i>EE</i> rate (%) | 1.8 | 1.8 | 0.0 |
| <i>u</i> rate (%) | 4.6 | 4.1 | -0.5 |
| <i>v</i> rate (%) | 4.0 | 7.7 | 3.7 |

- ▶ Big rise in quits
- ▶ Big increase in vacancies
- ▶ Modest decline in unemployment

What accounts for these changes?

- ▶ Hypothesis: decline in cost of posting vacancies

- ▶ Indeed, Monster etc.

- ▶ Consider fall in ϕ : $\phi_{2006} = 0.320 \rightarrow \phi_{2021/2} = 0.165$

| | 2006 | 2021-22 | Δ (pp) | Δ Model |
|--------------------|------|---------|---------------|----------------|
| <i>EN</i> rate (%) | 0.8 | 1.8 | 1.0 | 0.9 |
| <i>EE</i> rate (%) | 1.8 | 1.8 | 0.0 | 0.3 |
| <i>u</i> rate (%) | 4.6 | 4.1 | -0.5 | -1.0 |
| <i>v</i> rate (%) | 4.0 | 7.7 | 3.7 | 3.5 |

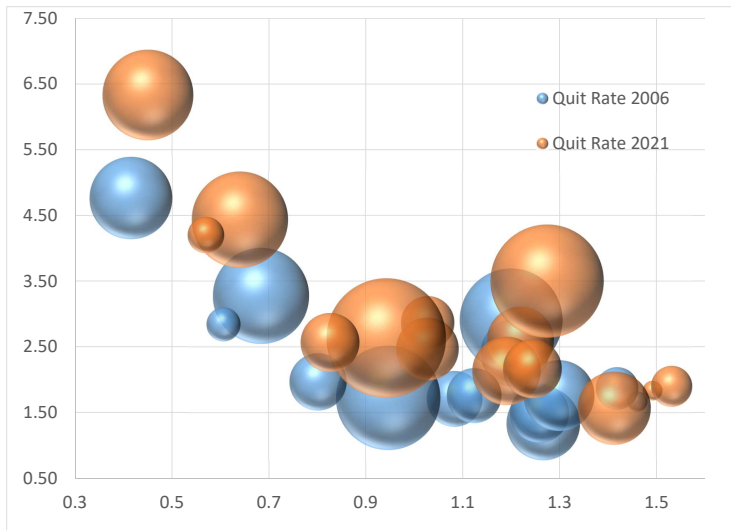
- ▶ Lower $\phi \rightarrow$ more vacancies \rightarrow easier to find (good) jobs \rightarrow workers quit more often \rightarrow even more vacancies
- ▶ Also labor market becomes less frictional \rightarrow harder to backload wages \rightarrow more quitting

Implications of Great Resignation for Optimal UI

- ▶ What does lower $\hat{\phi}$ imply for optimal UI replacement rate?
- ▶ $\kappa_{2006}^* = 40.3\% \rightarrow \kappa_{2021/2}^* = 38.4\%$
- ▶ Intuition:
 - ▶ Lower $\phi \Rightarrow$ fired workers find jobs faster \Rightarrow lower UI less costly
 - ▶ Lower $\phi \Rightarrow$ worse excess quitting problem \Rightarrow want to reduce UI

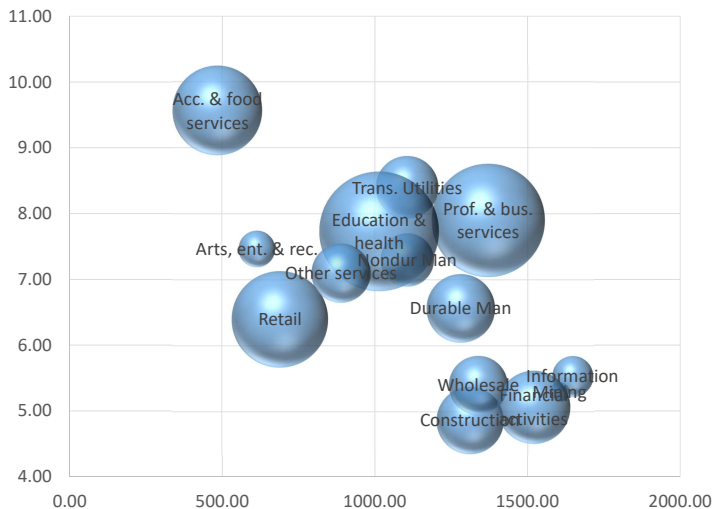
Rise in Quits

- ▶ Quits have risen across the board

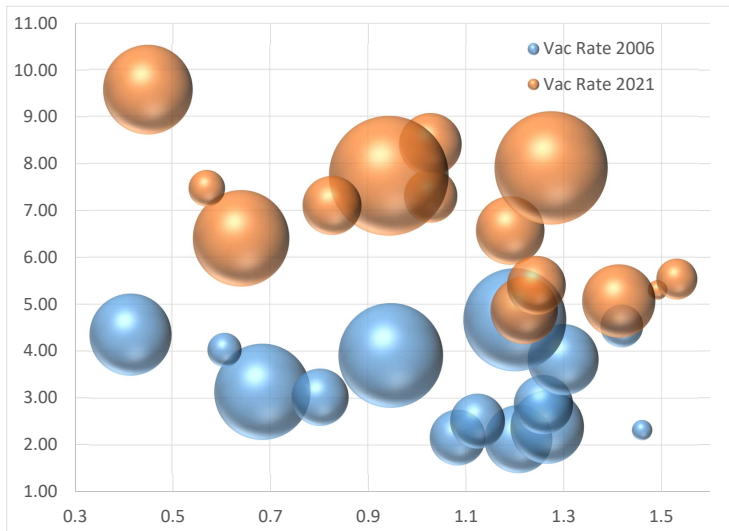


Vacancy Rates by Industry, Fall 2021

- ▶ High quits and high vacancies go together



Rise in Vacancies



Firm Problem (Conditional on Match Quality)

$\Pi(V, z)$: present value of profits given V and z

$$\Pi(V, z)$$

$$= \max_{\{w, V', V^{s'}, \bar{\chi}, \zeta'\}} \gamma F(\bar{\chi}) [z - w + \beta (1 - p(V^{s'})) \Pi(V', z) + \beta p(V^{s'}) \zeta' \Pi(V^{s'}, z)]$$

s.t.

$$\gamma F(\bar{\chi}) [U(w(1 - \tau)) + \beta p(V^{s'}) V^{s'} + \beta (1 - p(V^{s'})) V' - \mathbb{E}[\chi | \chi < \bar{\chi}]] + (1 - \gamma F(\bar{\chi})) V^u \geq V$$

(Promise keeping)

$$U(w(1 - \tau)) - \bar{\chi} + \beta p(V^{s'}) V^{s'} + \beta (1 - p(V^{s'})) V' = V^u \text{ (Threshold for quitting)}$$

$$V^{s'} \in \arg \max \{p(V^{s'}) V^{s'} + (1 - p(V^{s'})) V'\} \text{ (OJS optimality)}$$

$$\zeta' V^{s'} + (1 - \zeta') V^u \leq V' \text{ (Truthful reporting)}$$

Return

Optimal insurance against match quality risk

Given promise of expected value V^s to a newly matched worker, firm allocate values to different matching quality realizations to deliver the promised value

$$\mathbb{E}[\Pi(V^s)] = \max_{V_H, V_L} E_z \Pi(V_z, z)$$

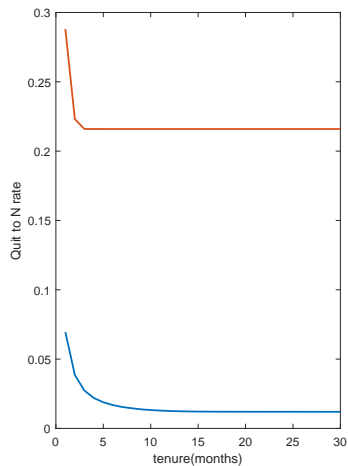
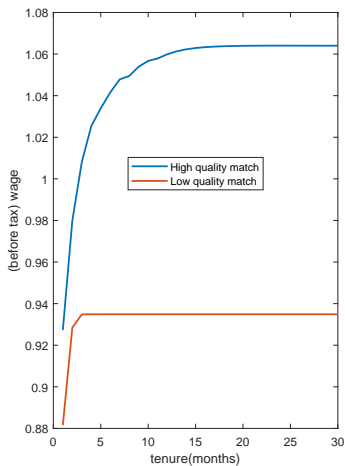
s.t.

$$E_z V_z \geq V^s$$

Return

Wages and Quit Rates by Tenure – Wage Backloading

Return



Income and Employment Status Sample Path

Return

