The Great Resignation and Optimal Unemployment Insurance

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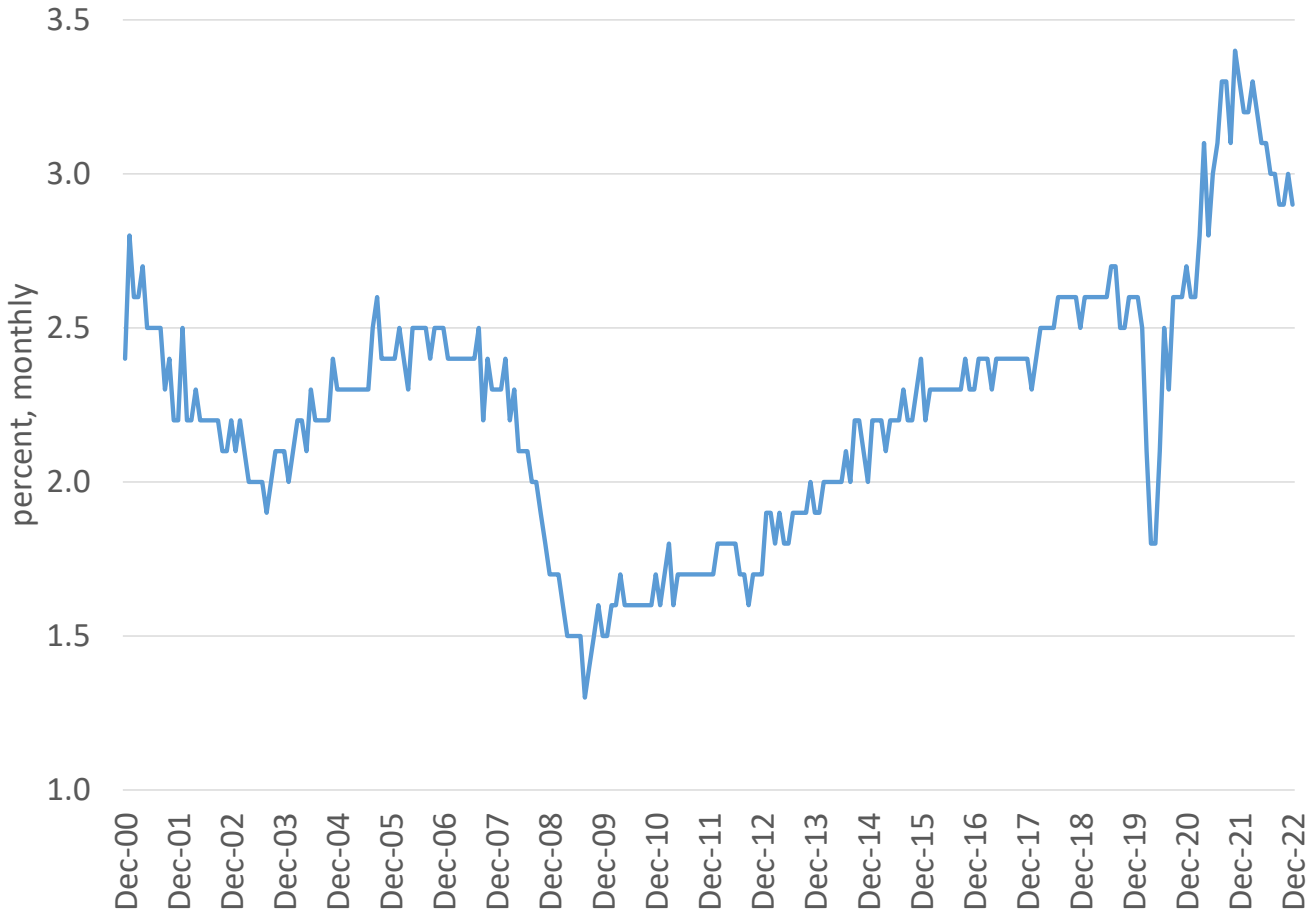
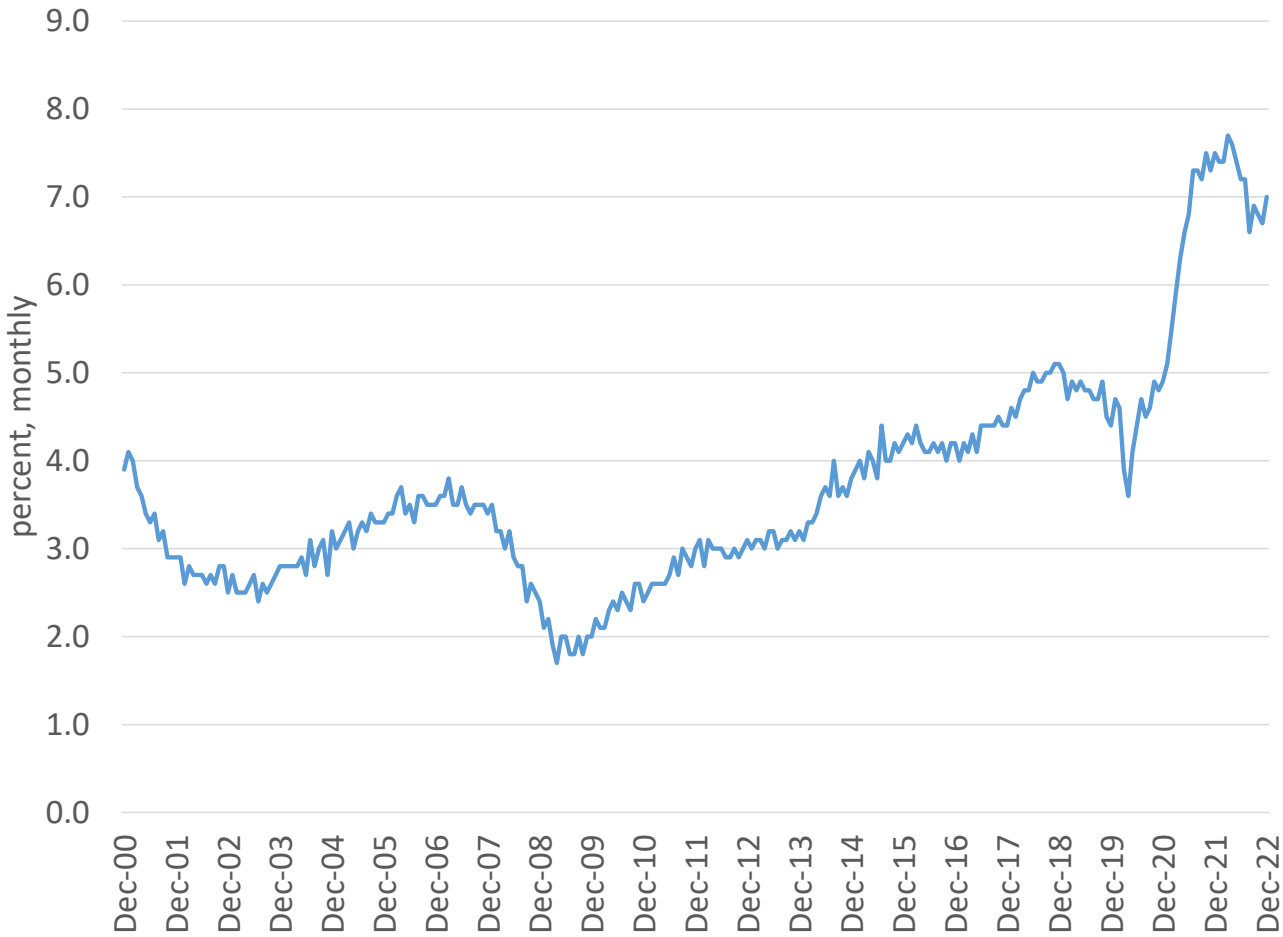
The Great Resignation: JOLTS Quit Rate



- Quits near all time high
- A global phenomenon

Also Lots of Vacancies: JOLTS Job Openings Rate



- High quits driving up vacancies? ... or high vacancies driving quits?

Quitting and UI

- Large literature on interaction between worker search effort and optimal UI policy
- But non-employment also driven by workers quitting jobs
- Margin becoming more relevant in the "Great Resignation"
- Extend directed search & matching model to include quits to non-employment
- How does the quit margin change prescriptions for optimal UI?

Key Ideas

- Idiosyncratic private disutility of work shocks drive quits
- Workers quit too often ...
- ... which depresses equilibrium wages
- UI for quitters makes excessive quitting problem worse

$\Rightarrow$ Incentive not to make UI too generous

Three Directed Search Models

1. Tractable static model with linear utility
   - Efficiency absent policy intervention if pref. shocks observable
   - When preference shocks not observed, economy features high "efficiency" wages and low employment
   - Reducing UI to reduce quitting increases welfare
2. 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
   - Margin quantitatively important, since applies to economy-wide wages
3. 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, Shoefer, 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, Shoefer, 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 (2022), Bagga, Mann, Sahin and Violante (2023)

Tractable One Period Model

- All workers start out unmatched
- Firms post vacancies v at cost ϕ
- Labor markets indexed by promised wage w, tightness $\theta = v/u = v$
  - 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
- UI benefit b for non-workers, financed by tax τ on workers:

$$\begin{aligned} U^e &= w - \tau - \chi \\ U^n &= b \end{aligned}$$

Two Versions of Model

1. 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. 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 Functional Forms

Match prob: $p = \frac{A\sqrt{uv}}{u} = A\sqrt{\theta}$; Uniform preference shock: $\chi \sim U[0, a]$

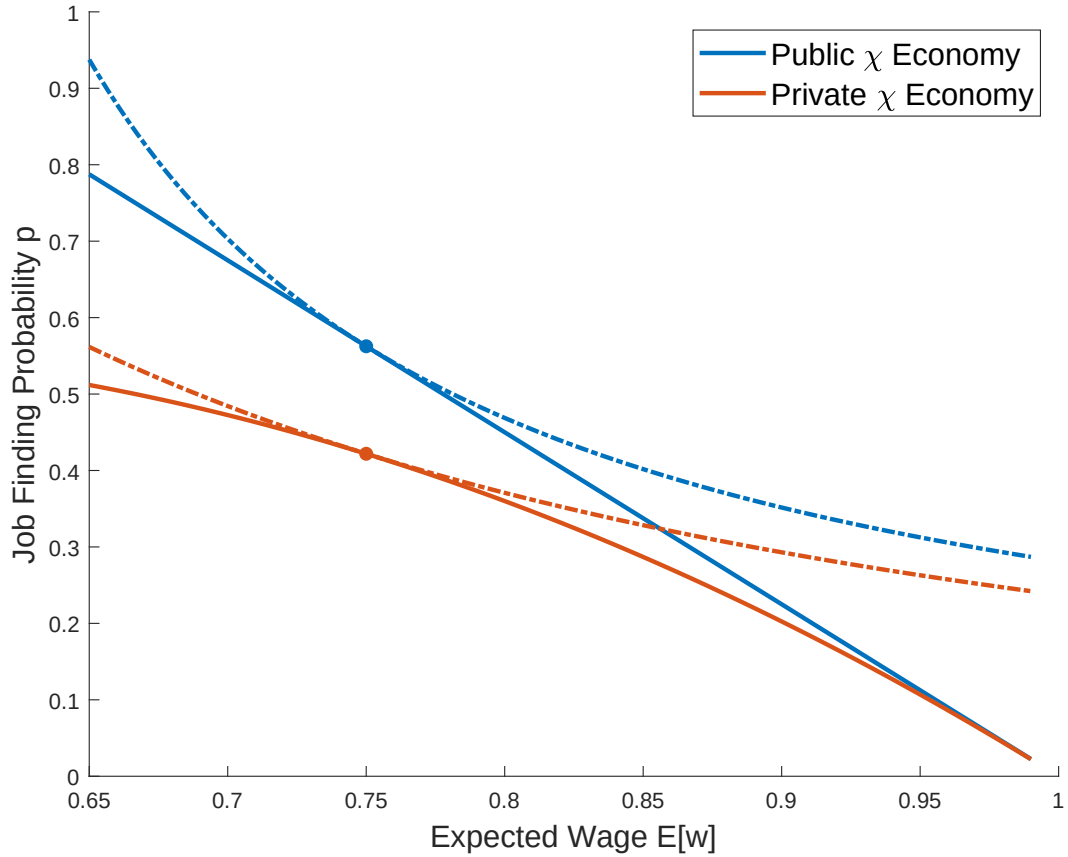
	public χ		private χ
$\bar{\chi}$	$z - (\tau + b)$	$>$	$\frac{3}{4}z - \frac{3}{4}(\tau + b)$
$\mathbb{E}[w]$	$\frac{3}{4}z + \frac{1}{4}(\tau + b)$	$=$	$\frac{3}{4}z + \frac{1}{4}(\tau + b)$
p	$\frac{A^2}{\phi}\frac{1}{a}\frac{1}{4}(z - (\tau + b))^2$	$>$	$\frac{A^2}{\phi}\frac{3}{4a}\frac{1}{4}(z - (\tau + b))^2$

Thus introducing private information friction leads to

- Lower quitting threshold (more quitting)
- No change in expected wage
- Lower job finding probability

Graphical Representation of Equilibrium

$A = 1.5,\ a = 2,\ z = 1,\ b = \tau = 0,\ \phi = 0.5$



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

Intuition

Markets address excess quitting by implementing efficiency wages

- Private χ economy features more quitting for any wage w

  $\Rightarrow$ posting vacancies less profitable for firms

  $\Rightarrow$ workers must choose lower w and / or lower p

- But low w jobs imply more quitting, so firms offer only small increase in p in exchange for lower w

  $\Rightarrow$ workers choose to search in relatively high w, low p market

Optimal policy

	public χ	private χ
$(\tau^* + b^*)$	0	$-\frac{z}{5}$

- Public χ economy: $b = 0$ delivers first best
  - Contingent wages deliver efficient quitting threshold $\bar{\chi} = z$
  - Competitive search ensures efficient level of vacancy posting

- Private χ economy:
  - At $b = 0$, quit rate is too high
  - $b < 0$ – punishing non-employment – reduces quits & boosts wages
  - But cannot achieve first best $\bar{\chi}$ and p with only one instrument

Intermediate Model

- Dynamic model, workers and firms discount at rate β
- Private disutility of work shocks χ iid over time
- Exogenous match destruction at rate $1-\gamma$, in addition to quits
- Concave period utility:

$$U(w(1-\tau)) - \chi \text{ if employed}$$

$$U(\kappa z) \text{ if not employed}$$

- Directed search, assume firms post constant wages

Recursive Formulation

- Let W denote value of being unmatched before search and matching
- Let $V^e(w)$ and V^u denote values after matching, before χ drawn

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

where

$$U\left(w\left(1-\tau\right)\right) - \bar{\chi} + \beta V^e(w) = V^u$$

$$V^u = U(\kappa z) + \beta W$$

$$W = \max_{p,w} \{pV^e(w) + (1-p)V^u\}$$

s.t.

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

Planner Problem

- Can write W non-recursively as

$$(1-\beta)W = (1-\tilde{u})\left\{U\left((1-\tau)\,w\right) - \mathbb{E}[\chi_{|\chi\leq\bar{\chi}}]\right\} + \tilde{u}U(\kappa z)$$

  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

- GBC:

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

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

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

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 $\kappa \rightarrow$ variance 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

Quantification

- $U(c) = \log(C)$, $\beta = 0.99^{1/3}$
- F lognormal with parameters μ_χ and σ_χ^2
- $\kappa = 0.5$
- A, ϕ, γ, μ_χ to match 2021-22 JOLTS/CPS rates for (i) unemployment 4.15%, (ii) job openings 8.03%, (iii) layoffs 1.94% (iv) quits to non-emp. 1.88%

Panel A: Parameter values

	A	ϕ	μ_χ	σ_χ^2	γ
Baseline	0.563	0.103	-1.22	0.25	0.9806
$\sigma_\chi^2 = 100$	0.563	0.405	-20.83	100	0.9806

Panel B: Terms in Baily-Chetty formula and elasticities

	κ	insurance	fiscal extn.	quit extn.	$\varepsilon_{\tilde{u},\kappa}$	$\varepsilon_{w,\kappa}$	$\varepsilon_{w,\kappa\|p}$
Baseline	0.500	0.918	-4.545	-1.364	4.271	0.002	-0.046
Optimum	0.328	1.996	-1.012	-0.984	0.980	-0.008	-0.008
$\sigma_x^2 = 100$	0.500	0.867	-0.983	-0.202	0.948	0.027	-0.007
Optimum	0.455	1.057	-0.838	-0.220	0.814	0.025	-0.006

Richer Quantitative Model

- Workers vary by sector n which determines expected productivity Y_n
- Idiosyncratic match quality $z \in \{z_H, z_L\}$ revealed after match formed
- Workers produce $z_H Y_n$ with prob. μ_H and $z_L Y_n$ with prob. $1 - \mu_H$
- Match output constant during life of match

Labor Markets

- Unemployed and employed workers both search (within their sector)
- Markets indexed by promised worker value V^s, tightness $\theta = v/u$
- On-the-job search: for employed searchers, markets additionally indexed by (V, z) of current job
  - will determine probability existing employer matches offer, retains worker

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 $p(\theta)$. 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**

Directed Search Markets

- $\zeta\left(V^s, V, z\right)$: probability offer V^s is matched
  - $\zeta\left(V^s\right) = 0$ if unemployed
- $\mathbb{E}\left[\Pi\left(V^s\right)\right]$: expected present value of profits given V^s
- Expected profit from posting vacancy in market $\left(V^s, V, z\right)$:

$$q\left(\theta\right)\left(1 - \zeta\left(V^s, V, z\right)\right)\mathbb{E}\left[\Pi\left(V^s\right)\right] - \phi$$

- Free entry $\Rightarrow$ expected profit must be zero in any active markets

Optimal Directed Search

Unemployed workers solve

$$\max_{V^s,\theta} \left\{ p\left(\theta\right) V^s + \left(1 - p\left(\theta\right)\right) V^u \right\}$$

$$s.t.$$

$$q\left(\theta\right) \mathbb{E}\left[\Pi\left(V^s\right)\right] = \phi$$

Employed workers in state (V, z) solve

$$\max_{V^s,\theta} \left\{ p\left(\theta\right) V^s + \left(1 - p\left(\theta\right)\right) V \right\}$$

$$s.t.$$

$$q\left(\theta\right) \left(1 - \zeta\left(V^s, V, z\right)\right) \mathbb{E}\left[\Pi\left(V^s\right)\right] = \phi$$

Firm Wage Contracts

- Firms observe match quality z once worker hired
- Do not observe preference shock χ
- Workers report outside offers, firms cannot verify
- Offer rich dynamic contracts, where wages depend on
  (i) match quality z, (ii) tenure, (iii) outside offers
- Also specify probabilities $\zeta(V^s, V, z)$ of matching reported outside offers versus firing workers reporting such offers
- Fired worker switches to new job if offer real, otherwise unemployed

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 (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

Firm problem (after search and matching stage)

State is (V, z). Choices are:

- w : current period wage
- V' : continuation value absent outside offer
- $\bar{\chi}$: threshold for preference shock above which worker will quit
- ζ' : probability firm will match outside offer in next period
- $V^{s'}$: market in which worker will search in next period

Constraints:

1. Contract delivers promised value V
2. $\bar{\chi}$ is consistent with optimal quitting behavior
3. $V^{s'}$ is consistent with optimal on-the-job (directed) search
4. Workers without an outside offer will not choose to report one

Firm Problem

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

$$\Pi(V, z)$$

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

$$s.t.$$

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

$$U(w(1-\tau)) - \bar{\chi} + \beta p\left(V^{s'}\right) V^{s'} + \beta \left(1 - p\left(V^{s'}\right)\right) V' = V^u$$

$$V^{s'} \in \arg\max \left\{ p\left(V^{s'}\right) V^{s'} + \left(1 - p\left(V^{s'}\right)\right) V' \right\}$$

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

Backloading Wages

1. Workers have concave utility → prefer flat wage profiles
2. But increasing wage profile reduces future EN flow (quits)
3. Also increasing wage profile reduces future EE flow

Log utility + no OJS ⇒ optimal wage path satisfies

$$w_{t+1} - w_t = \frac{f(\bar{\chi}_{t+1})}{F(\bar{\chi}_{t+1})} [z - w_{t+1} + \beta \Pi_{t+2}]$$

- LHS is direct cost of pushing compensation from t to $t+1$
- RHS is benefit in terms of reduced quitting at $t+1$
- Wages increase with tenure and converge to $\lim_{t\to\infty} w_t = z$
- Balke & Lamadon (2022): backloading in moral hazard framework

Optimal insurance against match quality risk

Given promise of expected value V^s to a newly matched worker, firm solves

$$\mathbb{E}\left[\Pi\left(V^s\right)\right] = \max_{V_H, V_L} \left\{\mu_H \Pi\left(V_H, z_H\right) + \left(1 - \mu_H\right) \Pi\left(V_L, z_L\right)\right\}$$

$$s.t.$$

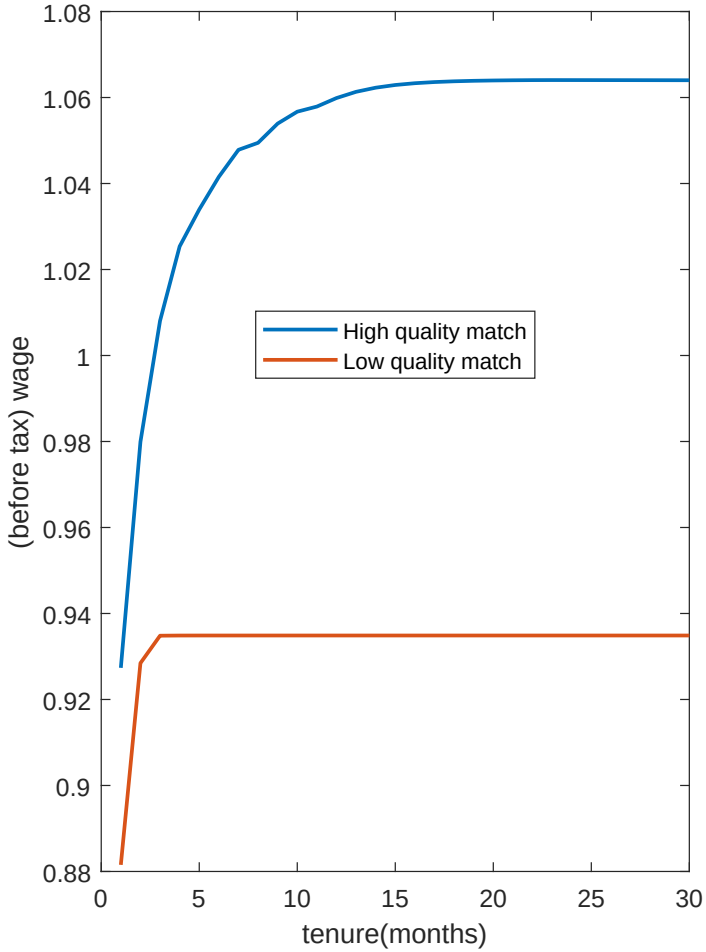
$$\mu_H V_H + \left(1 - \mu_H\right) V_L \geq V^s$$

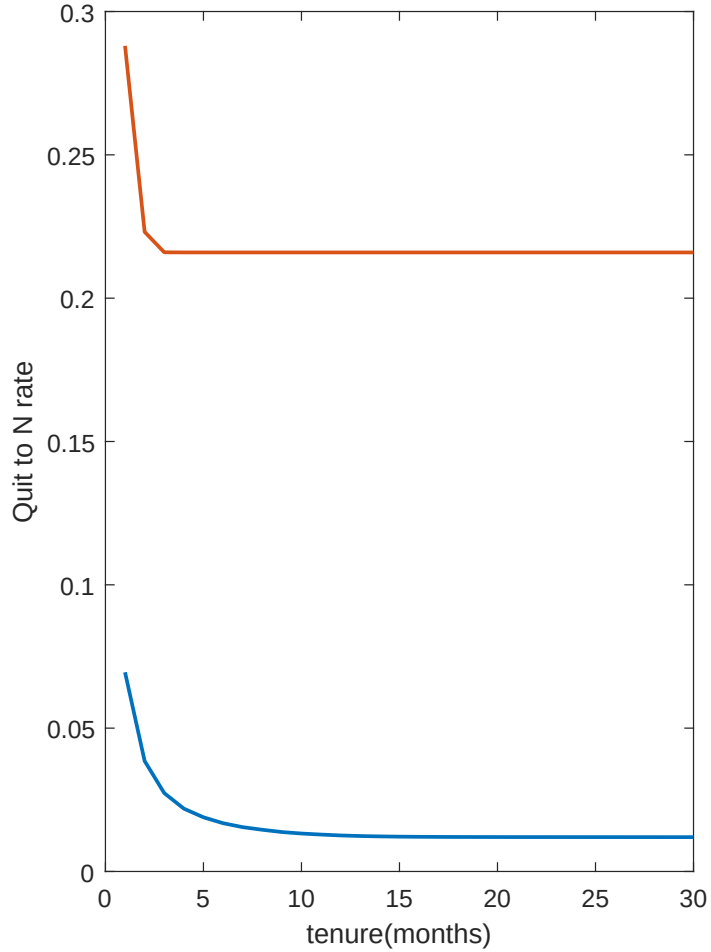
Equilibrium Conditions

In a stationary equilibrium:

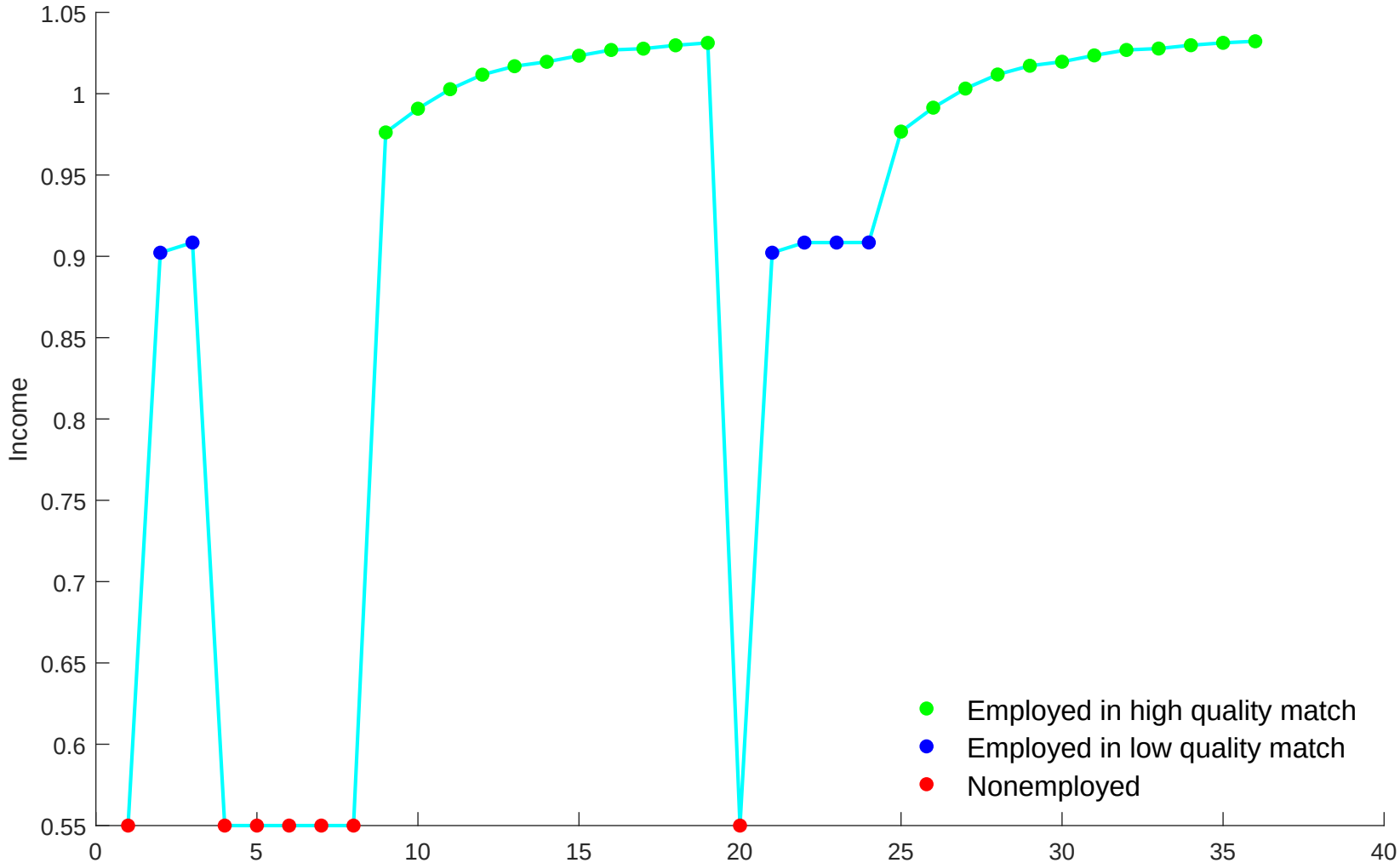
1. Workers direct search to the highest expected welfare sub-markets
2. Workers quit optimally
3. Workers report outside offers truthfully
4. Firms posting vacancies make zero expected profits
5. Firms deliver promised values as profitably as possible
6. Revenue from taxes finances benefits to unmatched workers
7. The share of unmatched workers is constant over time

Wages and Quit Rates by Tenure





Income and Employment Status Sample Path



Quantitative model calibration (monthly model)

- Non-employed consumption $b(n) = \delta \mathbb{E}[Y_n] + \min\{\kappa Y_n, \kappa \mathbb{E}[Y_n]\}$
  - SNAP + UI $\Rightarrow \delta = 0.05$, $\kappa = 0.5$
- N sectors with population weights μ_n and productivity values Y_n to match CES sectoral employment and sectoral average earnings
- Vacancy posting cost: $\phi_n = \hat{\phi} Y_n$
- Matching function $A\sqrt{uv}$
- As in simpler model, set A, $\hat{\phi}$, μ_χ to match unemployment rate, job openings rate, quit rate

New internally calibrated parameters

New Parameters

1. Variance of preference shock: σ_χ^2
2. Share of high quality matches: μ_H
3. Match quality dispersion: z_H/z_L

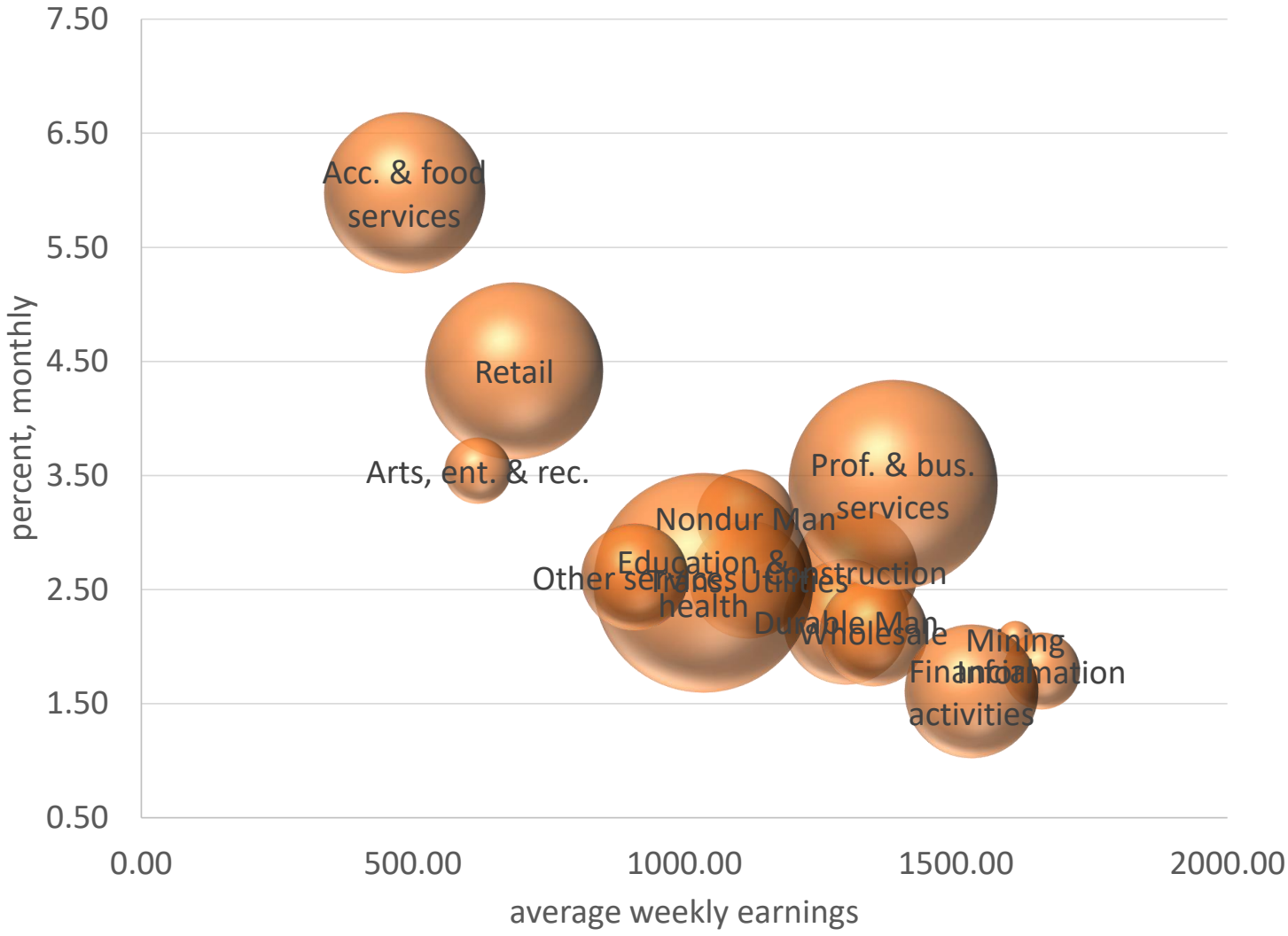
New Targets

1. Elasticity of quit rate to sectoral variation in average earnings
2. LEHD share of separations that are J2J continuous employment 32.2%

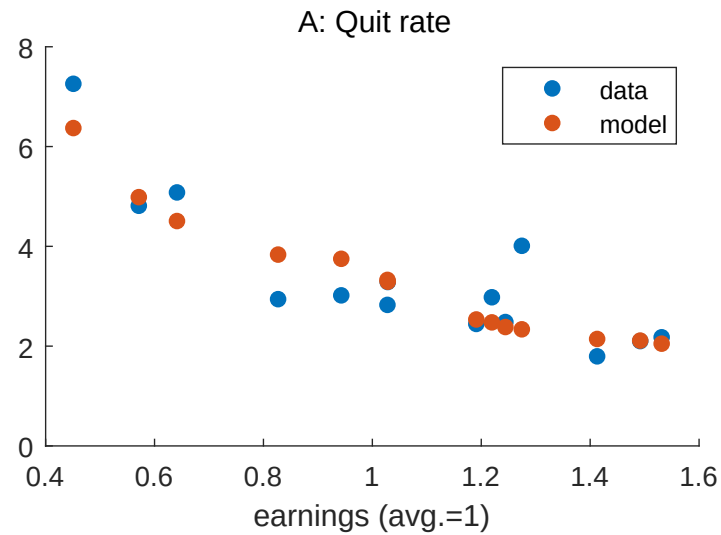
   $\Rightarrow$ EE rate = 1.81% EN rate = 1.88%, EU rate = 1.94%
3. LEHD wage growth for J2J switchers 9% (Birinci et al., 2022)

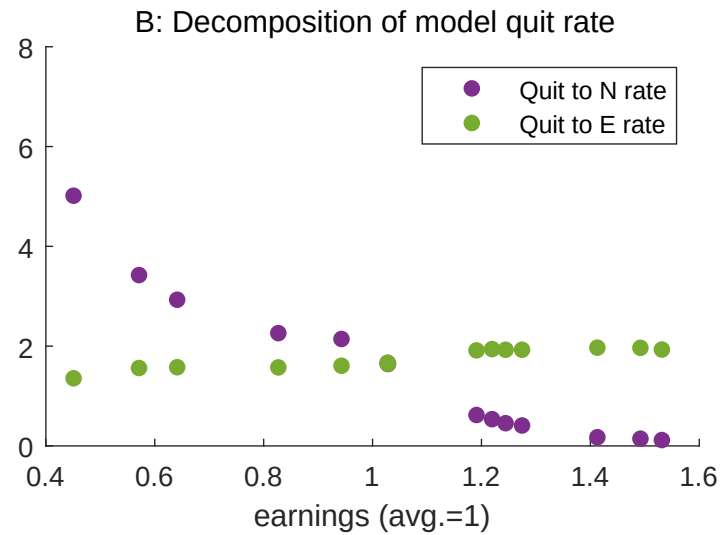
Quit Rates by Industry, 2021-2022

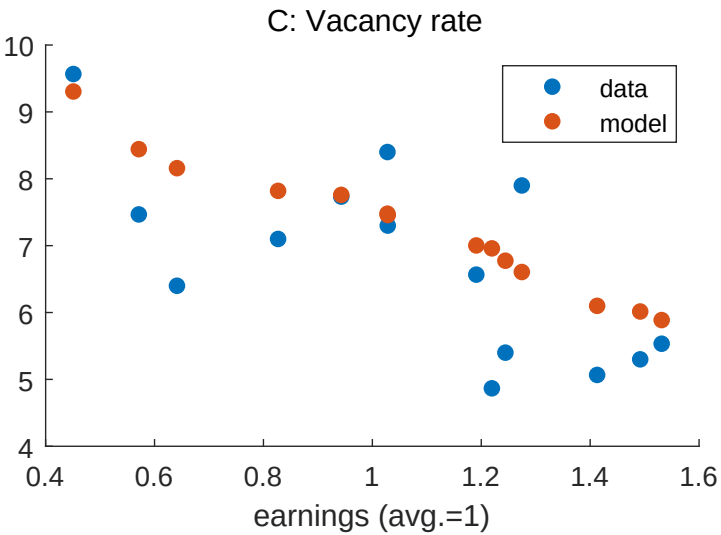
- Higher quit rates in low wage jobs

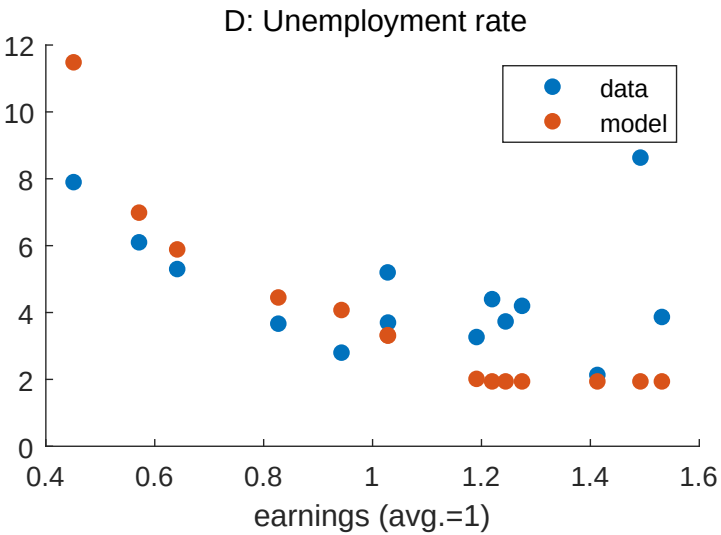


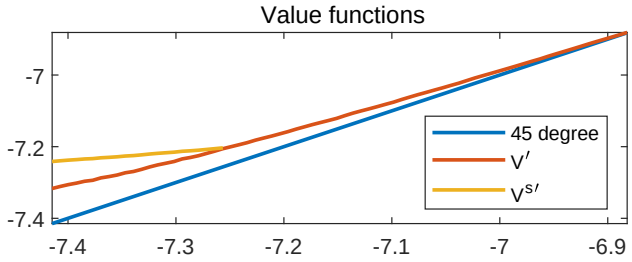
Model versus Data

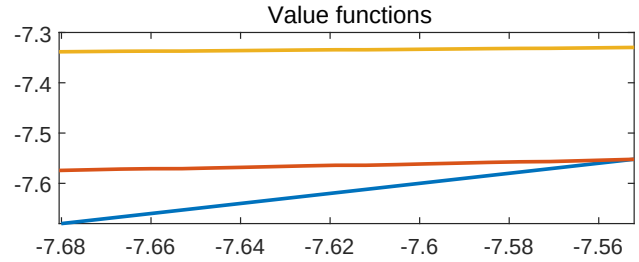


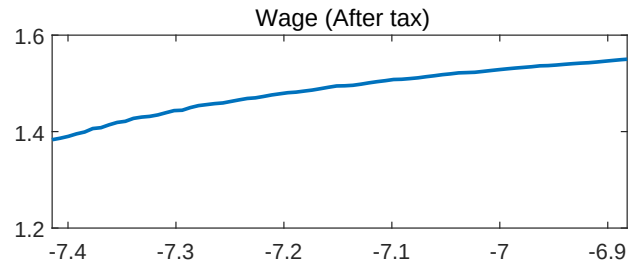


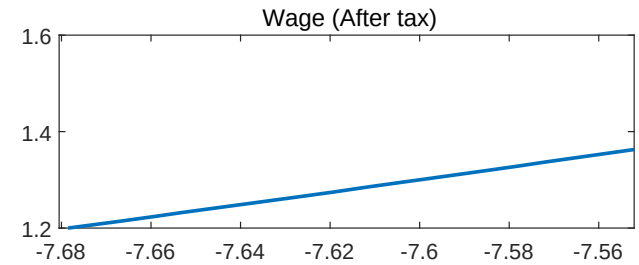





Value functions
45 degree
V′
Vˢ′
promised value V


Value functions
promised value V


Wage (After tax)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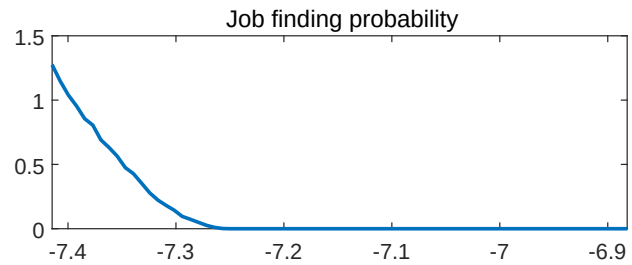
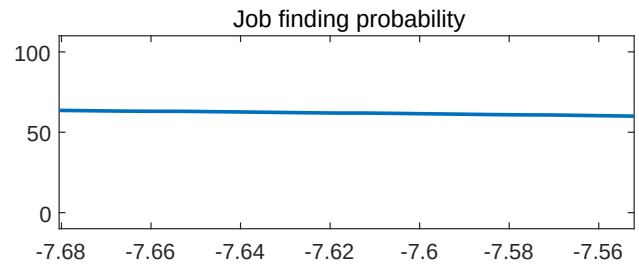

Job finding probability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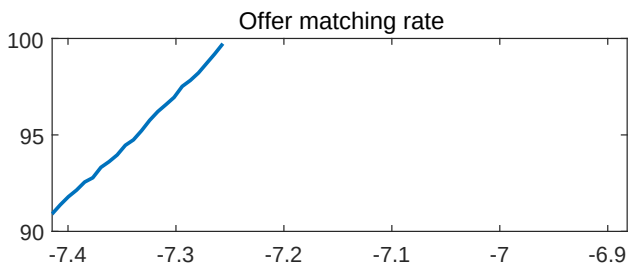
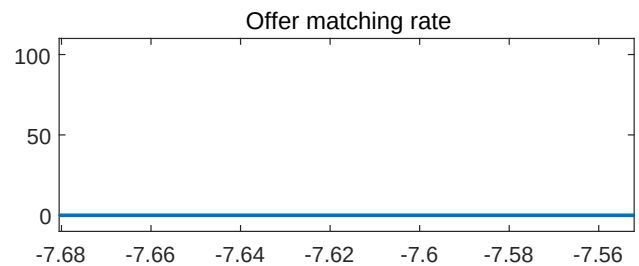

Offer matching rate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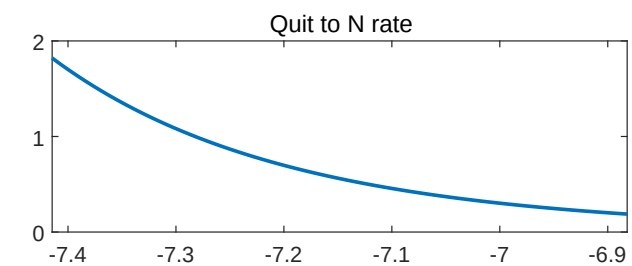
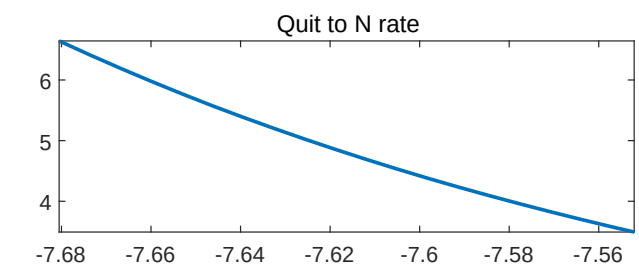

Quit to N rate


Quit to N rate

Policy

Optimal Replacement Rates

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

	US Policy	Optimal Policy
κ^* (%)	50.0	38.4
EN rate (%)	1.80	0.46
EE rate (%)	1.85	2.09
u rate (%)	4.13	1.98
v rate (%)	7.69	6.82
p rate (%)	78.1	98.7

- Optimal replacement rate less generous than current policy
- Reducing UI $\Rightarrow$ big decline in equilibrium unemployment rate
  1. Lower UI $\Rightarrow$ lower quitting
  2. Lower UI $\Rightarrow$ workers less picky

Experiment 1: Role of the Quitting Margin

- Set $\sigma_\chi^2 \approxeq 0$ (keep mean the same) $\Rightarrow$ minimal EN flow

	Optimal Policies	
	Baseline	$\sigma_\chi^2 = 0.01$
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

Experiment 2: no OJS (no EE flow)

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

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

$\Rightarrow$ 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

$\Rightarrow$ variation in match quality a rationale for more generous UI

Differential Benefits for Quitters and Laid-off Workers

- Suppose planner can distinguish workers who quit from those fired, pay different benefits to the two groups

$\Rightarrow$ Pay less generous benefits to quitters to discourage wasteful quitting

	Actual	Optimal Policies	
		Baseline	$\kappa^*_{EU} \neq \kappa^*_{EN}$
κ^*_{EU} (%)	50.0	38.4	48.5
κ^*_{EN} (%)	50.0	38.4	29.8
EN rate (%)	1.80	0.46	0.01
EE rate (%)	1.85	2.09	1.97
u rate (%)	4.13	1.98	2.26
v rate (%)	7.69	6.82	5.26
p_U rate (%)	78.1	98.7	87.5
p_N rate (%)	78.1	98.7	100.0

Welfare Gains from Optimal UI Reform

- $\kappa = 0.5 \rightarrow \kappa^* = 0.384 \Rightarrow$ welfare gain of 1.0% of consumption
- $\kappa^* = 0.384 \rightarrow \begin{matrix} \kappa^*_{EU} = 0.485 \\ \kappa^*_{EN} = 0.295 \end{matrix} \Rightarrow$ welfare gain of 0.3% of consumption
- Universal benefits to non-workers might be optimal if costly to differentiate quitters versus firees

Explaining the Great Resignation

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

	2006	2021-22	Δ (pp)
EN rate (%)	0.8	1.8	1.0
EE rate (%)	1.8	1.8	0.0
u rate (%)	4.6	4.1	-0.5
v 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
EN rate (%)	0.8	1.8	1.0	0.9
EE rate (%)	1.8	1.8	0.0	0.3
u rate (%)	4.6	4.1	-0.5	-1.0
v 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

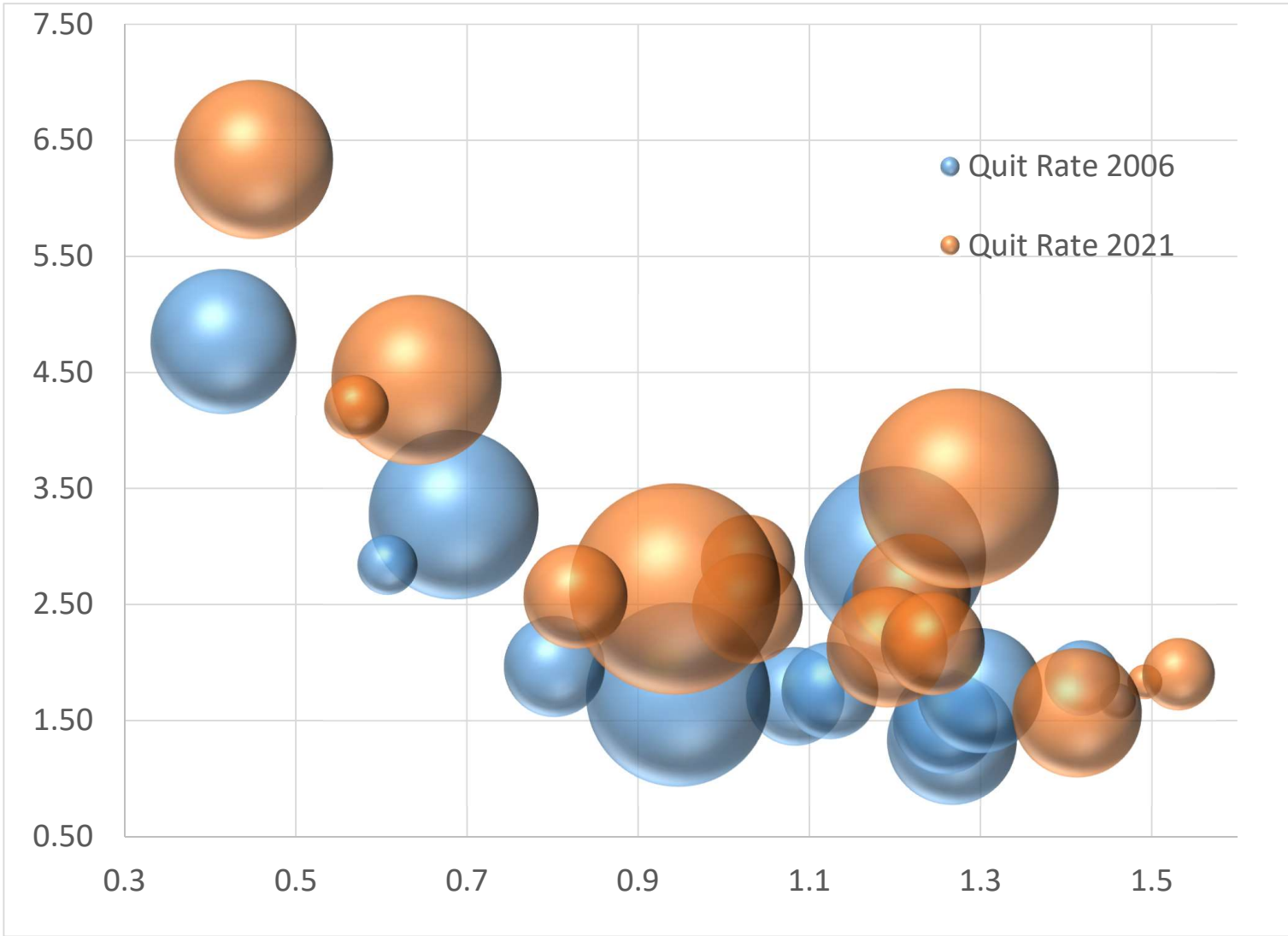
- What does lower $\hat{\phi}$ imply for optimal UI replacement rate?
- $\kappa^*_{2006} = 40.3\% \rightarrow \kappa^*_{2021/2} = 38.4\%$
- Intuition:
  - Lower $\phi \Rightarrow$ fired workers find jobs faster $\Rightarrow$ lower UI less costly
  - Lower $\phi \Rightarrow$ worse excess quitting problem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

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 $\rightarrow$ significant unemployment even when cheap to contact workers
   - Wages that rise with tenure
   - Stochastic matching of outside offers
6. If Great Resignation reflects lower vacancy costs, optimal UI has fallen

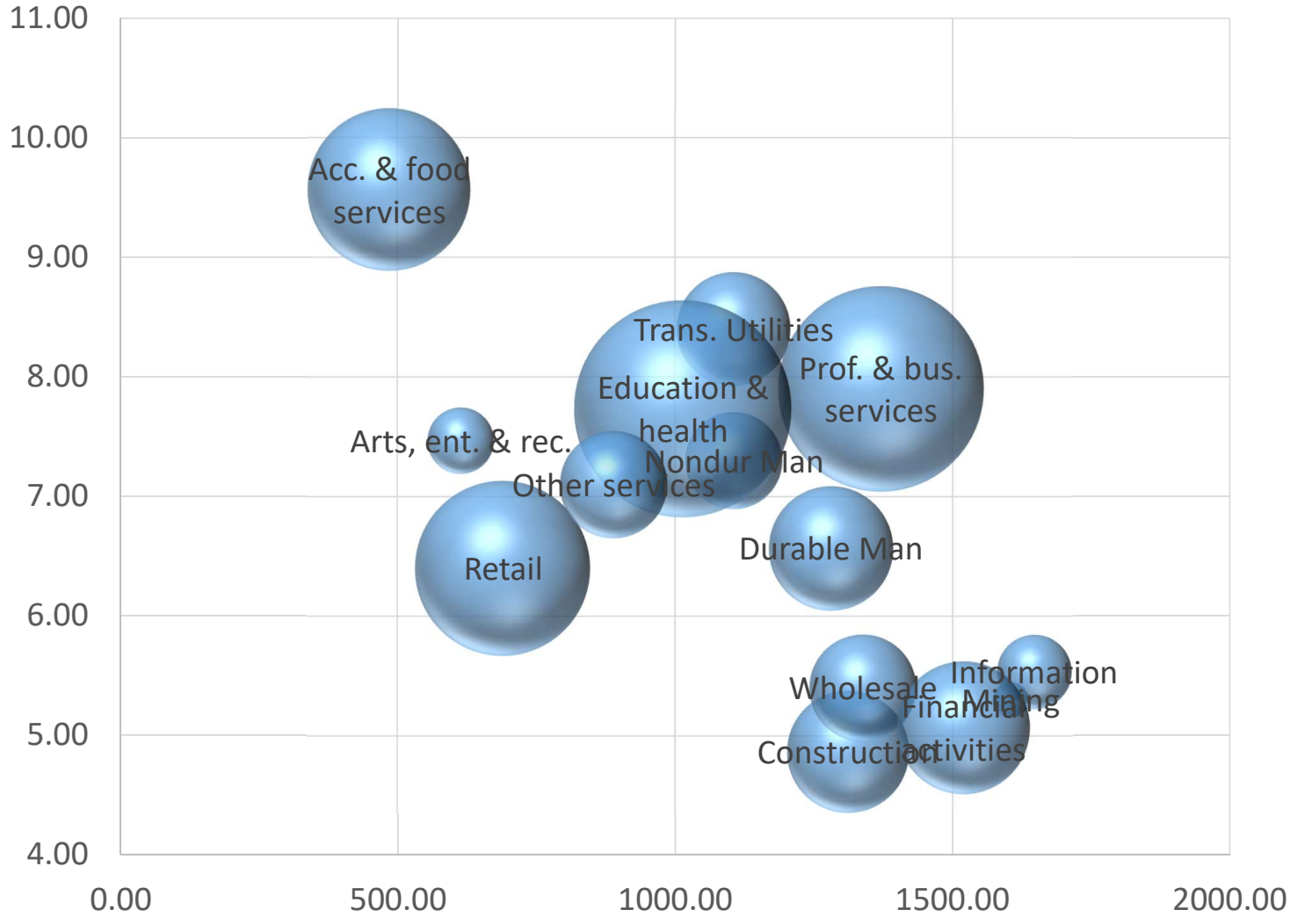
Rise in Quits

- Quits have risen across the board



Vacancy Rates by Industry, Fall 2021

- High quits and high vacancies go together



Rise in Vacancies