

How Fair This Spot?

Evidence from structural estimates of the wage Phillips relation

Preliminary and Incomplete

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0. Motivation

1. Model

2. Estimation (in progress)

0. Nominal wage Phillips relation

i. Tobin(72)-Lipsey(78) as stochastic macroeconomic equilibrium

- “random intersectoral shocks keep individual labor markets in diverse states of disequilibrium”
- “the perpetual flux of particular markets produces fairly definite aggregate outcomes of unemployment and wages.”
 - Beveridge curve redux: Ahn and Crane(20); Michailat and Saez(21); Blanchard, Domash and Summers(22); Cheremukhin and Restrepo-Echavarria(23); Barlevy, Faberman, Hobijn and Şahin(23)

ii. Fair wage reconsidered: Okun(81), Bewley(98), Driscoll and Holden(04), Akerlof (79; 82; 90 w/ Yellen)

- Partial gift exchange among co-workers/ between employers and employees(Fehr, Kirchsteiger and Riedl, 93)
- Akerlof(82): “As a consequence of worker **sentiment** for one another, the firm cannot deal with each worker individually, but rather must at least to some extent treat the group of workers with the same **norms**, collectively.”
 - **Reciprocity** or other-regarding social preference: Veblen effect (Bowles and Park, 05); upward mobility (Chetty et al., 14); ‘catching up with the Jones’ (Abel, 90); ‘anchoring bias’ (Jäger, Roth, Roussille and Schoefer, 21); self-estimation within reference groups(Hvidberg, Stantcheva and Kreiner, 22); ‘warm grow’(Della Vigna, List, Malmendier and Rao, 22).
 - **Norm** or reference-dependent preference: loss aversion(Kahneman and Tversky, 79); identity(Akerlof and Kranton, 10).

Fairness concerns in workplace

International Social Survey Programme (ISSP, GESIS): ‘Work Orientations’ I 1989, II 1997, III 2005 and IV 2015

- “To what extent do you agree or disagree with each of the following statements?”

Strongly agree(5) / Agree(4) / Neither agree nor disagree(3) / Disagree(2) / Strongly disagree(1) / Can’t choose

A) “I am willing to work harder than I have to in order to *help* the firm or organisation I work for succeed.” (*HelpFirm*)

B) “I am *proud* to be working for my firm or organization.” (*ProudFirm*)

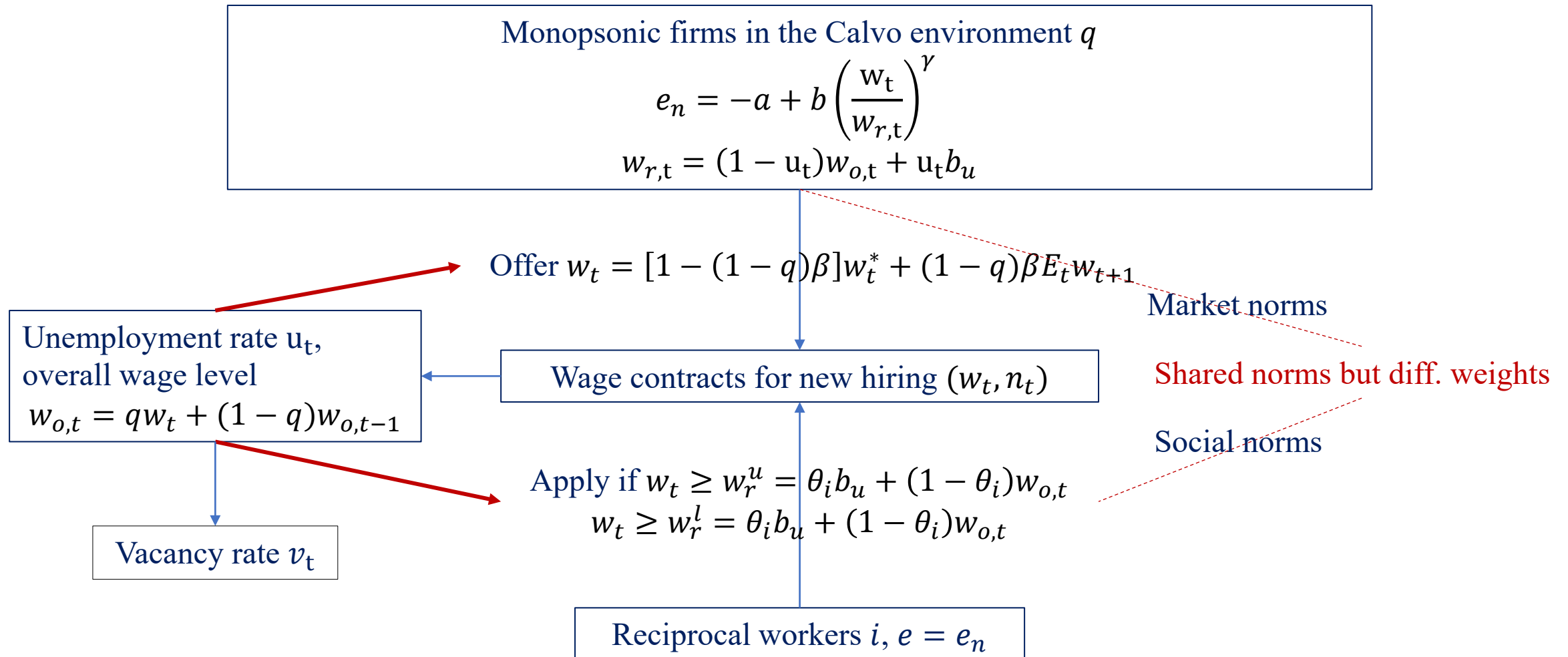
C) “I would turn down another job that offered quite a bit more pay in order to stay with this organization.” (*PrefStay*)

| % of total respondents | | US | | | | | UK | | | | | JP | | | | |
|------------------------|------|-----------|-------|-------|-------|-----------|-----------|-------|-------|-------|-----------|-----------|-------|-------|------|-----------|
| | | Strong A. | A. | N. | D. | Strong D. | Strong A. | A. | N. | D. | Strong D. | Strong A. | A. | N. | D. | Strong D. |
| A. HelpFirm | 1997 | 15.47 | 35.34 | 11.48 | 3.5 | 0.33 | 6.94 | 23.8 | 13.98 | 4.81 | 0.56 | 17.54 | 18.27 | 15.33 | 5.22 | 4.98 |
| | 2005 | 23.98 | 29.45 | 9.09 | 2.96 | 1.12 | 8.76 | 24.32 | 13.36 | 5.04 | 0.33 | 16.07 | 20.52 | 12.6 | 3.26 | 7.17 |
| | 2015 | 22.88 | 27.96 | 8.94 | 2.44 | 0.68 | 10.04 | 25.99 | 10.37 | 3.07 | 0.61 | 8.96 | 20.47 | 18.18 | 5.53 | 6.04 |
| B. ProudFirm | 1997 | 15.64 | 33.96 | 13.44 | 2.61 | 0.41 | 6.67 | 20.83 | 18.52 | 3.24 | 0.74 | 18.6 | 16.97 | 17.05 | 5.14 | 4.4 |
| | 2005 | 24.31 | 31.16 | 7.91 | 2.44 | 1.05 | 8.98 | 25.08 | 15.22 | 1.86 | 0.55 | 16.29 | 17.92 | 18.24 | 2.82 | 4.67 |
| | 2015 | 22.95 | 28.98 | 8.53 | 1.96 | 0.61 | 11.15 | 24.87 | 11.6 | 2.34 | 0.22 | 8.01 | 19.71 | 19.45 | 5.85 | 6.04 |
| C. PrefStay | 1997 | 3.66 | 9.93 | 16.37 | 23.45 | 11.07 | 2.22 | 7.41 | 9.81 | 20.93 | 8.33 | 16.07 | 8.73 | 15.42 | 5.46 | 14.19 |
| | 2005 | 8.43 | 13.24 | 11.92 | 20.69 | 12.32 | 3.18 | 8.54 | 12.16 | 19.72 | 6.79 | 17.59 | 13.03 | 15.85 | 3.26 | 7.93 |
| | 2015 | 7.31 | 9.88 | 12.86 | 19.09 | 13.61 | 4.02 | 8.7 | 14.45 | 15.45 | 6.41 | 8.46 | 11.57 | 18.12 | 6.23 | 12.71 |

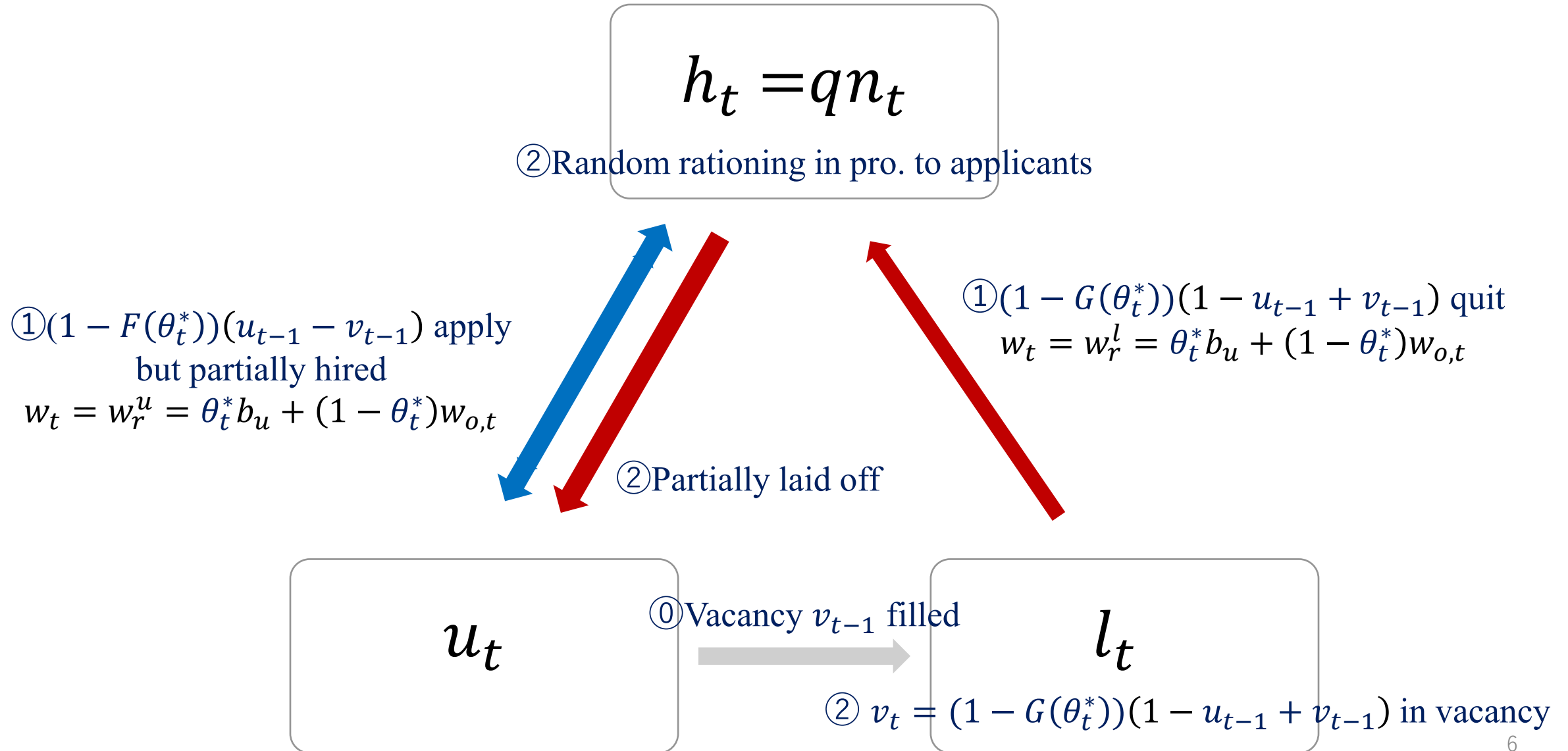
- Generalized ordered logit models estimated after testing parallel lines assumptions
 - Sample size: 31146
 - Case A) *HelpFirm* : a statistically significant positive relationship between respondents' work effort and their income, ctrl for age; gender; marital; political party; religion; education; yr; and ctry.

| Marginal effect | Strongly disagree | Disagree | Neither | Agree | Strongly agree |
|---------------------------|-------------------|------------------|------------------|-----------------|-----------------|
| income w/i ctry (h, m, l) | -0.006*** | -0.007** | -0.021*** | 0.021*** | 0.013*** |
| age | 0.000* | 0.000* | 0.000 | 0.000 | 0.000 |
| gender | -0.011*** | -0.025*** | -0.028*** | 0.024*** | 0.040*** |
| single | 0.000 | 0.001 | 0.001 | -0.001 | -0.001 |
| party center | -0.016*** | -0.011* | -0.008 | 0.028*** | 0.006 |
| religion Christ | -0.013*** | -0.011** | -0.013* | 0.020** | 0.016** |
| education_above_univ. | -0.010*** | -0.007 | -0.018*** | 0.030*** | 0.005 |
| year 2000s | -0.002* | -0.005* | -0.005* | 0.005* | 0.008* |
| G-7 ctry | 0.005 | -0.024*** | 0.010 | -0.014* | 0.023*** |

1. Model



Flow of workers in the 3 stages w/i period t



Temporary equilibrium with stochastic rationing

Given the lagged $(w_{o,t-1}, u_{t-1}, v_{t-1})$, a temporary equilibrium $H(w_{o,t}, u_t, v_t, \theta_t^*) = 0$ within a period t satisfying the 4-dimensional expectational difference equations:

- *Eq. 1: Unemployment flow*

$$0 = u_t - u_{t-1} + v_{t-1} - (1 - G(\theta_t^*))(1 - u_{t-1} + v_{t-1}) + q \left[\left(\frac{a\gamma}{1-\gamma} \right)^{-\alpha} \alpha^{-1} \left(\frac{1}{q} w_{o,t} - \frac{1-q}{q} w_{o,t-1} \right) \right]^{\frac{1}{\alpha-1}}$$

- *Eq. 2: Vacancy residual*

$$0 = v_t - (1 - G(\theta_t^*))(1 - u_{t-1} + v_{t-1})$$

- *Eq. 3: Calvo pricing of nominal wage level*

$$0 = \frac{1}{q} w_{o,t} - \frac{1-q}{q} w_{o,t-1} - [1 - (1-q)\beta] \left(\frac{a}{b(1-\gamma)} \right)^{\frac{1}{\gamma}} [(1 - u_t)w_{o,t} + u_t b_u] - (1-q)\beta \left(\frac{1}{q} E_t w_{o,t+1} - \frac{1-q}{q} w_{o,t} \right)$$

- *Eq. 4: Stochastic rationing of recruitment (Drazen, 87)*

$$0 = [1 - (1 - \theta_t^*)q] \left(\frac{1}{q} w_{o,t} - \frac{1-q}{q} w_{o,t-1} \right) - \theta_t^* b_u - (1 - \theta_t^*)(1 - q)w_{o,t-1}, \text{ if } w_{o,t} < w_{o,t-1}$$

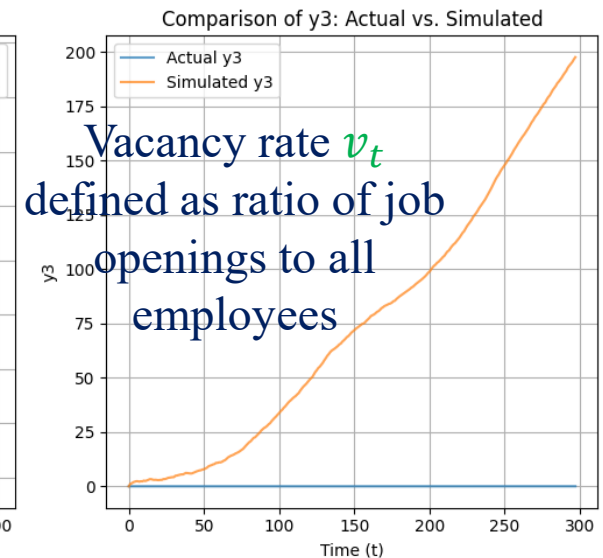
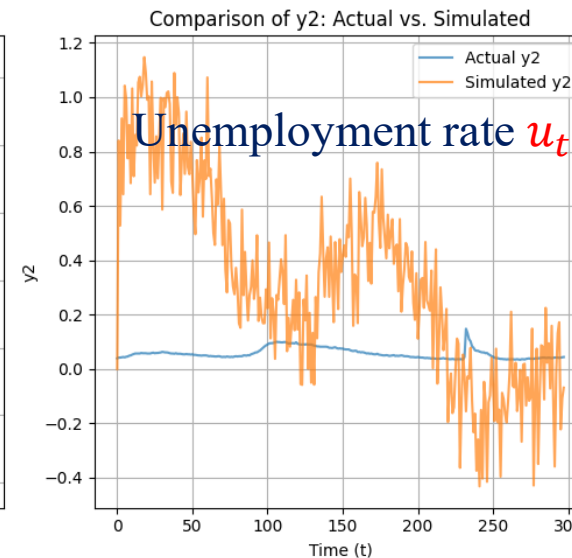
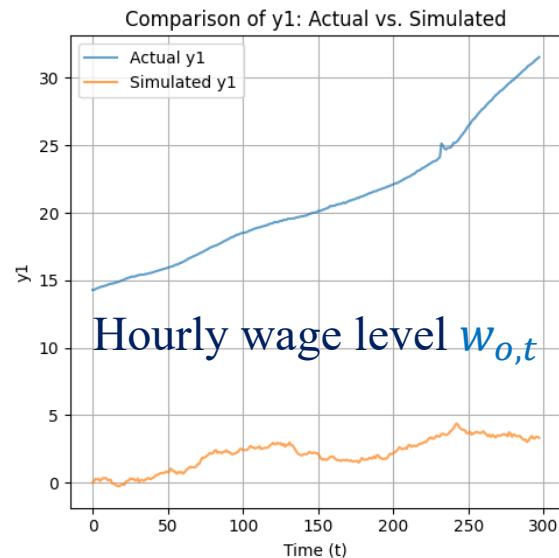
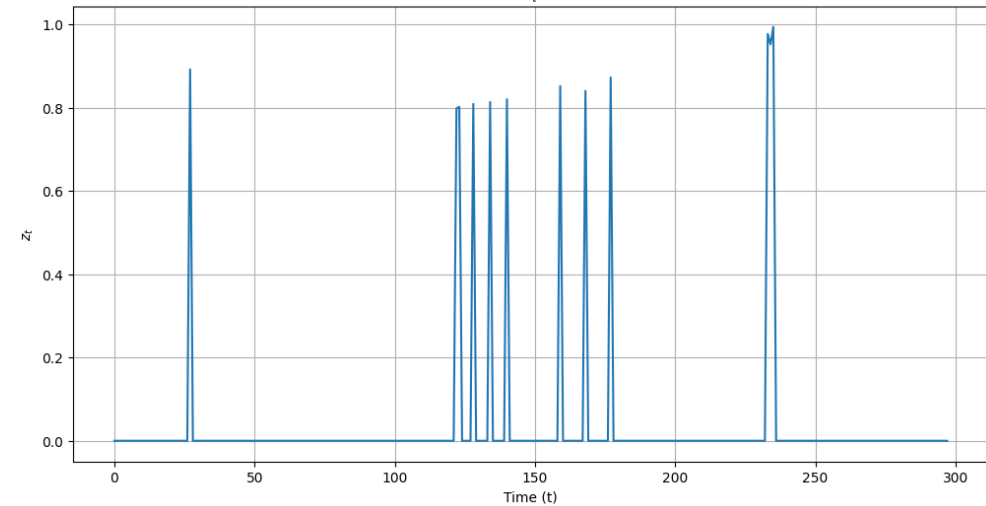
Otherwise, $\theta_t^* = 0$

2. Estimating *how fair the US* (in progress)

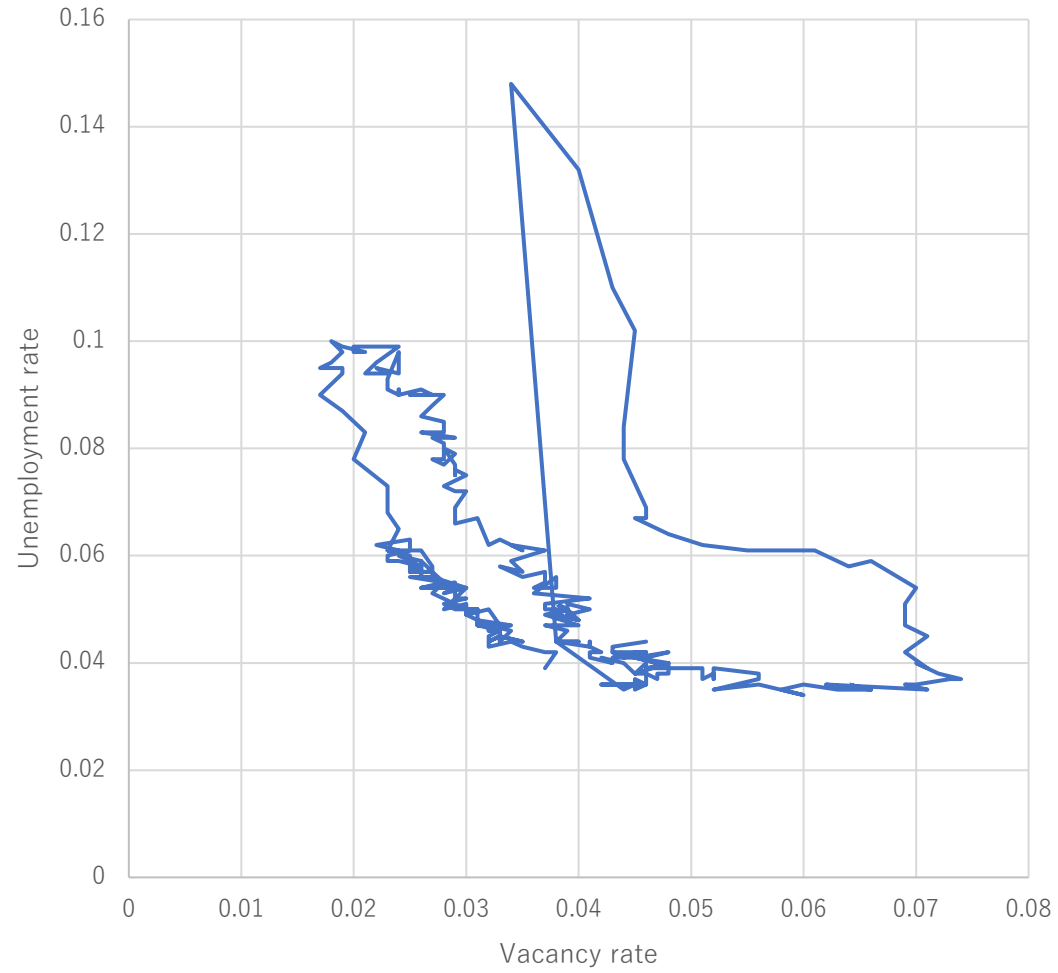
- SMM estimates

- Fixing $\beta = 0.99$; beta CDF $G()$
- Moment conditions to match
 - 1st and 2nd moments and covariances
 - For threshold θ_t^* : 3rd moment and conditional exp. on Δ wage
- Some empirical difficulties in treating
 - Occasionally binding constraint Eq. 4 on a latent variable θ_t^*
 - No feedbacks from vacancy residual v_t in Eq. 2
- Estimate $\hat{q} = 0.303$

Threshold value θ_t^*
Estimated z_t over Time



US Beveridge curve
Dec. 2000-Sep. 2025



US Phillips relation
Dec. 2000-Sep. 2025

