Delayed Collection of Unemployment Insurance in Recessions

Zoe Xie
FRB Atlanta

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The views expressed in this presentation are those of the authors and do not necessarily represent the views of the Federal Reserve System or the Federal Reserve Banks.
Delayed Collection of UI

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- Policy potentially encourages short-term, low-paying jobs without worrying about low or no benefits later.

- Policy especially relevant during recessions when collection window is long, and long-term, high-paying jobs are scarce.
This Paper

Evaluates UI Retention policy effects on labor market

- Is it empirically relevant?

- Is it quantitatively significant?
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Evaluates UI Retention policy effects on labor market

- Is it empirically relevant?
  - Exploiting cross-time and cross-states variations

- Is it quantitatively significant?
  - Discrete job accept/reject (McCall) model augmented with policy features
  - Compare policy to counterfactuals at **steady state** and **transition**
Policy Background
Retention Policy in Recessions

**Figure:** An example during **recessions**

- starts UI collection
- Jan 1, 2009

Because of ‘stored’ benefits, she does not need to worry about unemployment without benefits → maybe more likely to accept a job

How to test effect empirically? → exploit cross-time and cross-state variations
Retention Policy in Recessions

Figure: An example during recessions

- Collected 30 weeks, finds a job, leftover ‘stored’ for future unemployment
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- Starts UI collection: Jan 1, 2009
- Collects 30 weeks
- Finds a job: worked 20 weeks
- Unemployed again

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Cross-Time Variation

Figure: An example during recessions

UI #1: $80/week
starts UI collection Jan 1, 2009
collected 30 weeks
finds a job worked 20 weeks
unemployed again

Collected 30 weeks, finds a job, leftover ‘stored’ for future unemployment
Cross-Time Variation

Figure: An example during recessions

UI #1: $80/week
- starts UI collection: Jan 1, 2009
- collected 30 weeks
- finds a job: worked 20 weeks
- unemployed again
- re-qualifies new UI segment

UI #2: $40/week
- Collected 30 weeks, finds a job, leftover ‘stored’ for future unemployment
- Complication: work re-qualifies her for a new UI segment
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Zoe Xie 4/45
Cross-State Variation

- States differ in how hard to **re-qualify** for new UI segment
  - worker required to earn a multiple $X$ of her previous benefit level
  - $X$ differs across states from 3 (easier to re-qualify) to 10 (harder to re-qualify)

State difference also changes over time
- Pre-July 2010: harder to re-qualify $\rightarrow$ easier to collect old UI if unemployed again
- Post-July 2010: no difference since workers can choose between new and old UI
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Cross-State Variation Pre-July 2010: An Illustrative Example

1st work spell: wages high → high benefits in 1st unemployment
2nd work spell: wages lower → if re-qualifies then low benefits
IL easier to re-qualify → lower benefits in 2nd unemployment spell

Anticipating this, less likely to take the 2nd job in IL than in MD

Anecdote: Zoe Xie
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- IL easier to re-qualify $\rightarrow$ lower benefits in 2nd unemployment spell
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anecdote

Zoe Xie
Taking Stock

- Retention policy allows workers to collect leftover UI from previous unemployment
- Both cross-time and cross-state variations
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- Two predictions in recessions
  1. States where it is **harder** to collect old benefits should have lower average job finding rates (among UI recipients)
  2. No cross-state differences with the Federal law post-July 2010
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- Two predictions in recessions
  1. States where it is **harder** to collect old benefits should have lower average job finding rates (among UI recipients)
  2. No cross-state differences with the Federal law post-July 2010

- Next, empirically test the predictions during Great Recessions
Empirical Analysis
Setup

- Group states according to income multiple ($X$) required to re-qualify:
  smaller multiple $\rightarrow$ **easier** to re-qualify $\rightarrow$ **harder** to collect old benefits
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Survey of Income Program Participation (SIPP)

- Longitudinal survey, monthly labor market and program (e.g. UI) status
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- Sample selection
  - Restricted to individuals ages 20 to 64 at time of survey
  - Restricted to states implementing similar benefit extension tiers
    - states with no EUC 2 before Nov 2009 (ND, NE, SD, UT) are excluded
    - states with no retention policy (VA) is excluded
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**Three samples by time period and UI status**
1. pre-federal law (2008–June 2010) UI recipients
2. pre-federal law (2008–June 2010) non-UI recipients
3. post-federal law (Nov 2010–2013) UI recipients
State-Level Analysis

- **Measure:** proportion of unemployment spells ending in re-employment during sample period

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Individual Level Analysis

Estimate Cox proportional hazard models (similar to LaLumia 2013):

\[
\log(h_{i,t}) = \beta_{StateGroup_i} + \gamma X_{i,t} + \epsilon_{i,t}
\]

- \( h \) is the hazard rate
- \( StateGroup \) is a collection of dummy variables for each state group
- \( X \) includes
  - Individual demographics (gender, education, age)
  - Pre-unemployment work characteristics (job tenure, monthly earnings, industry)
  - Monthly state-level unemployment rates and include year fixed effects
# Individual Level Job-Finding Hazard Model Estimates

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Empirical evidence consistent with two predictions:

1. Among states where it is easier to delay UI collection, job finding rates are higher among UI recipients, but not among non-recipients

2. After a federal law removed the cross-state variations, no difference even among UI recipients
Taking Stock

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- Evidence suggests retention policy does affect worker’s job choices
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Next, use a quantitative model to study the aggregate and transitional effects of the policy
Model
Environment

McCall model of discrete job accept/reject choice

- Time is discrete and infinite
- Measure one of infinitely lived workers
- At any time, a worker can be either employed or unemployed
  - Employed workers get paid wages $w$
  - Unemployed worker receives $c$ from non-UI or non-monetary benefits
  - Some unemployed workers receive UI benefits indexed to previous wage $b = \gamma w$
- No private insurance markets, no saving and borrowing for now
Environment: Labor Market

- Two types of jobs
  - Regular jobs: wage ($w_g$) from a known distribution, longer expected job tenure
  - Temp jobs: single lower wage ($w_b = w < \mathbb{E}w_g$), more abundant

- Unemployment to employment
  - Job offer arrival probability: $\rho$
  - Proportion $\rho_g$ ($\rho_b = 1 - \rho_g$) of job offers are regular (temp): $\rho_g < \rho_b$
  - In recession, both $\rho$ and $\rho_g$ become smaller

- Employment to unemployment
  - Exogenous job separation rates $\delta_g$ ($\delta_b$) for regular (temp) jobs: $\delta_g < \delta_b$
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A UI segment is \((b \text{ (benefit level)}, J \text{ (entitlement)})\): \(J\) is larger in a recession.
Environment: UI Policy Structure

A UI segment is \((b \text{ (benefit level)}, J \text{ (entitlement)})\): J is larger in a recession

- Qualify for new UI
  - Newly unemployed workers without open UI segment qualify for new benefits with probability \(\lambda\)
  - Workers with open UI segment re-qualify according to
    \[
    Q_{\text{state}} = \mathbb{I}\{\text{current wage} \times \text{periods worked} \geq X_{\text{state}} \times \text{previous benefit level}\}
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  - Before federal law: if re-qualify for new UI, forfeit old open segment
  - After federal law: choice between new and old segments
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- **UI exhaustion**
  - Once a UI segment is exhausted, worker becomes unemployed without benefits
Unemployed Worker’s Problem

Individual states: $\omega$ (prev job wage), $j = 1, \ldots, J_t$ (UI periods used). Unemployed worker consumes benefits $\gamma \omega$ (if any) and base consumption $c$.

$$U_t(\omega, j) = u(\gamma \omega + c) + \beta(1 - \rho_t) V_{t+1}(\omega, j)$$

- no job offer

$$+ \beta \rho_t \left[ \rho_{g,t} E_w \max\{W_{g,t+1}(w), V_{t+1}(\omega, j)\} \right]$$

- regular job offer: choice for each wage $w$

$$+ \rho_{b,t} \max\{W_{b,t+1}(\omega, j, 1), V_{t+1}(\omega, j)\}$$

- temp job offer

where

$$V_{t+1}(\omega, j) = \mathbb{I}\{j = J_t\} \quad U_t(0, 0) \quad + \mathbb{I}\{j < J_t\} \quad U_t(\omega, j + 1)$$

- benefit exhausted
- benefit not exhausted

is the value of entering period $t + 1$ without a job.
Unemployed Worker’s Problem

Individual states: $\omega$ (prev job wage), $j = 1, \ldots, J_t$ (UI periods used).
Unemployed worker consumes benefits $\gamma \omega$ (if any) and base consumption $c$.

$$U_t(\omega, j) = u(\gamma \omega + c) + \beta(1 - \rho_t) V_{t+1}(\omega, j)$$

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$$+ \beta \rho_t \left[ \rho_{g,t} \mathbb{E}_w \max\{W_{g,t+1}(w), V_{t+1}(\omega, j)\} \right]$$

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benefit exhausted benefit not exhausted

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$V_{t+1}(\omega, j) = \begin{cases} \Pi\{j = J_t\} U_t(0, 0) & \text{benefit exhausted} \\ \Pi\{j < J_t\} U_t(\omega, j + 1) & \text{benefit not exhausted} \end{cases}$

is the value of entering period $t + 1$ without a job.
Regular Job Worker

- Regular job workers not affected by retention policy
- Only individual state is wage $w$, initially drawn from $F(w)$, with support $w \in [w_L, w_H]$, remains unchanged

$$W_{g,t}(w) = u(w) + \beta (1 - \delta_{g,t}) W_{g,t+1}(w)$$

- stays with job

$$+ \beta \delta_{g,t} \left[ \lambda U_{t+1}(w, 1) + (1 - \lambda) U_{t+1}(0, 0) \right]$$

- separated from job
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Temp Job Worker

- Temp job workers affected by retention policy, and have the choice between new and old UI segments post-July 2010

- Individual states
  - inherited from unemployment \((\omega, j)\), stay unchanged
  - number of periods worked in the same spell \(jw\)

\[
W_{b,t}(\omega, j, jw) = u(w) + \beta(1 - \delta_{b,t}) W_{b,t+1}(\omega, j, jw + 1) \\
\text{stays with job}
\]

\[
+ \beta \delta_{b,t} \tilde{W}_{b,t+1}(\omega, j, jw) \\
\text{separates from job}
\]

where \(\tilde{W}_{b,t+1}(\omega, j, jw)\) is the value of newly unemployed temp worker
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Newly Unemployed Temp Job Worker

\[ \tilde{W}_{b,t+1}(\omega, j, jw) = \]

\[ \begin{cases} 
\text{(No retention)} \\
Q_s(\omega, jw)U_{t+1}(w, 1) + (1 - Q_s(\omega, jw))U_{t+1}(0, 0) \\
\end{cases} \]

\[ \begin{cases} 
\text{(Retention, No federal law)} \\
Q_s(\omega, jw)U_{t+1}(w, 1) + (1 - Q_s(\omega, jw))U_{t+1}(\omega, j) \\
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\[ \begin{cases} 
\text{(Retention + Federal law)} \\
Q_s(\omega, jw)\max\{U_{t+1}(w, 1), U_{t+1}(\omega, j)\} + (1 - Q_s(\omega, jw))U_{t+1}(\omega, j) \\
\end{cases} \]

where

\[ Q_s(\omega, jw) = \mathbb{I}\{w \times jw \geq X_s \times \gamma \omega\} \]

is indicator whether the worker re-qualify for a new UI segment.
**Newly Unemployed Temp Job Worker**

\[
\tilde{W}_{b,t+1}(\omega, j, jw) =
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is indicator whether the worker re-qualify for a new UI segment.
**Equilibrium**

**Stationary equilibrium**  Given a UI policy regime, the economic conditions (job separation and arrival rates) and the distribution of wages, a stationary equilibrium in this economy is a collection of

- value functions
- decision rules
- worker’s distribution

such that

- workers optimize by solving the individual problems
- the distribution of workers over individual states is stationary
Parametrization
Calibration at Steady State: An Overview

Calibrate two (relative) steady state economies

- Pre-recession (2005-2007) using the equilibrium without UI extensions
- Post-recession (2012) using the equilibrium with UI extensions, retention and the federal law

Two-step calibration

- Externally calibrated from literature or data, e.g. preference, job separation
- Internally jointly calibrated to fit moments, e.g. wage distribution, job offer arrival rates

Model period is one week.
Externally Calibrated: Preferences

Utility of consumption

\[ u(c) = \frac{c^{1-\sigma}}{1 - \sigma}. \]

- Discount factor \( \beta = 0.99^{1/13} \)
- Coefficient of relative risk aversion \( \sigma = 2 \)
Externally Calibrated: UI Policy

- UI replacement ratio $\gamma = 0.4$ based on the numbers reported on the U.S. Department of Labor (DOL) website for post-2000.

- New UI entitlement $J = 26$ weeks during non-recessions, increased gradually to 92 weeks in 2012.

- Value of non-monetary benefits $c = 0.02$ consistent with Shimer (2005)'s low value of non-UI value of unemployment.
Externally Calibrated: Labor Market

Temp job wage and expected job tenure (both time-invariant)

- Temp job wage $w = 0.35$ (normalized)
- Separation rate $\delta_b = 0.08 \approx 1/13$ for an average expected job tenure of one quarter

Regular job

- Separation rate pre- and post-recession $\delta_g = 0.0031$ according to data for 2005-2007 and 2012
- Bounds of support for $F(w)$: $w_L = 0.3$, $w_H = 0.95$
  - In SIPP 2004 panel, first separate jobs by observed job tenure
    - $\leq 4$ months (short), $> 12$ months (long)
  - During 2005-2007 median hourly wage of short-tenure jobs ($\$7$) vs long-tenure jobs ($\$11.4$): $w < \mathbb{E}w_g$
  - Take $10^{th}$ and $80^{th}$ percentiles of long-tenure job wages for $w_L$ and $w_H$
Internally Calibrated Parameters

In 2005-2007, jointly calibrate

1. Job arrival rate $\rho$
2. Proportion of regular jobs offers $\rho_g$
3. Wage distribution of regular job offers $f(w)$ — 10 bins over $[w_L, w_H]$

To match

a. Unemployment rate
b. Proportion of earnings changes that are negative

c. Wage distribution of **accepted** regular jobs
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To match

a. Unemployment rate

b. Proportion of earnings changes that are negative

c. Wage distribution of accepted regular jobs

In 2012, hold $f(w)$ unchanged after initial period, and calibrate (1)-(2) with targets (a) and (b).
Internally Calibrated Parameters

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To match

a. Unemployment rate — 4.2% during 2005-2007 and 8.5% in 2012

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   o Emp–Unemp–Emp (EUE) spells constructed using SIPP 2004 and 2008 panels

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b. Proportion of earnings changes that are negative — $\sim 0.4$
   o Emp–Unemp–Emp (EUE) spells constructed using SIPP 2004 and 2008 panels

c. Wage distribution of accepted regular jobs
   o Wage of all jobs accepted 2005-2007 lasting more than 12 months

In 2012, hold $f(w)$ unchanged after initial period, and calibrate (1)-(2) with targets (a) and (b).
Internally Calibrated: Wage Distribution

**Figure:** Distribution of regular job wages in the steady state

- Density of offers is higher (lower) than accepted wages at left (right) end
## Parameters at Steady States

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
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Zoe Xie 28/45
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**Time-invariant parameters**

**Time-varying parameters**

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**Model Fit: Distribution of Earnings Change**

**Figure:** Distribution of earnings changes in initial steady state

- Bell-shaped distribution centered around 0 (±5% change)
- Model generates too few large earnings change (>50% drop or >100% rise)

Note: Earnings changes calculated as (post-unemp wage - pre-unemp wage)/pre-unemp wage.
Steady State Analysis
Steady State Economy

Use calibrated stationary equilibrium and counterfactuals to study

1. Unemployed worker’s job decisions
   - How policy affects decision to accept/reject temp job (key margin)
   - Also reject low-paying regular job, but unaffected by policy

2. Distributional effects of policy

3. Aggregate effects of policy
Unemployed Worker’s Job Decisions: No UI Extension

Figure: Decision to reject temp job $Job_b(\omega, j)$ (shaded)

Note: Blue horizontal line marks the maximum UI entitlement in the economy.

Two reasons to turn down a temp job

- wait for a better job offer
- consumption gain from employment is small
Unemployed Worker’s Job Decisions: No UI Extension

Figure: Decision to reject temp job $Job_b(\omega, j)$ (shaded)

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- wait for a better job offer — stronger at the start of a UI spell (lower region)
- consumption gain from employment is small
Unemployed Worker’s Job Decisions: No UI Extension

Figure: Decision to reject temp job $Job_b(\omega, j)$ (shaded)

Two reasons to turn down a temp job

- wait for a better job offer — stronger at the start of a UI spell (lower region)
- consumption gain from employment is small — stronger for people with higher benefits (to the right)

Note: Blue horizontal line marks the maximum UI entitlement in the economy.
Unemployed Worker’s Job Decisions: Across Policy Regimes

Figure: Comparison of temp job rejections across policy regimes.

(a) No Extension

Note: Blue horizontal line marks the maximum UI entitlement in the economy.
Unemployed Worker’s Job Decisions: Across Policy Regimes

**Figure:** Comparison of temp job rejections across policy regimes.

1. **(a) No Extension**
   - No extension

2. **(b) Extension, no Retention**
   - Extension, no Retention

Note: Blue horizontal line marks the maximum UI entitlement in the economy.

- + **Extension:** more unemployed workers reject temp job
Unemployed Worker’s Job Decisions: Across Policy Regimes

Figure: Comparison of temp job rejections across policy regimes.

(a) No Extension

(b) Extension, no Retention

(c) Extension + Retention

Note: Blue horizontal line marks the maximum UI entitlement in the economy.

+ Retention: low benefits always accept, because any unused UI are ‘stored’
Unemployed Worker’s Job Decisions: Across Policy Regimes

Figure: Comparison of temp job rejections across policy regimes.

(a) No Extension

(b) Extension, no Retention

(c) Extension + Retention

(d) Extension + Retention + Federal law

Note: Blue horizontal line marks the maximum UI entitlement in the economy.

+ Federal law: medium benefits also accept temp job, because can choose between new and unused old UI
Figure: Distribution of unemployed workers across policy regimes

(a) By benefit level
(b) By UI periods used

Note: Each line represents a stationary economy with total density sums up to 100%.

- Extension (red): more with higher benefits or closer to UI exhaustion
Distributional Effects

Figure: Distribution of unemployed workers across policy regimes

(a) By benefit level
(b) By UI periods used

Note: Each line represents a stationary economy with total density sums up to 100%.

- Extension (red): more with higher benefits or closer to UI exhaustion
- Retention (blue): more newly unemployed (only a few UI periods used)
Effects of Federal Law

(a) Temp workers who choose old benefits (shaded)

- Old UI segment: higher level, shorter duration than new UI segment
**Effects of Federal Law**

(a) Temp workers who choose old benefits (shaded)

- Old UI segment: higher level, shorter duration than new UI segment
- Workers with higher and longer leftover old benefits choose the old benefits
Effects of Federal Law

(a) Temp workers who choose old benefits (shaded)

(b) Distributional difference of unemployed workers

- Old UI segment: higher level, shorter duration than new UI segment
- Workers with higher and longer leftover old benefits choose the old benefits
- Fewer with low benefits newly unemployed. More with medium benefits close to UI exhaustion
# Aggregate Policy Effects

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+ Extension: more unemployed workers wait around for better job offers
+ Retention: more willing to accept temp job, quicker turnover
+ Federal law: even more unemployed willing to accept temp job
## Aggregate Policy Effects

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- + Extension: more unemployed workers wait around for better job offers
- + Retention: more willing to accept temp job, quicker turnover
Aggregate Policy Effects

Table: Comparison of stationary economies across policy regimes

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- + Extension: more unemployed workers wait around for better job offers
- + Retention: more willing to accept temp job, quicker turnover
- + Federal law: even more unemployed willing to accept temp job
Transitional Analysis
Transitional Economy

- Transition between pre-recession (2005-2007) and post-recession (2012) with different policy introduced at start

- Perfect foresight transition: workers anticipate path of policy and future economy states (e.g. Conesa and Krueger 1999, Nakajima 2012)

- Use **smoothed** path of time-varying parameters
  - Regular job separation rate $\delta_{g,t}$ from data
  - Maximum potential UI entitlement, $J_t$ from data
  - Job arrival rates $\rho_t$, $\rho_{g,t}$ to match
    - proportion of EUE spells with negative earnings change (0.45)
    - unemployment rate (10%) in 2009Q3
Time-Varying Parameters

**Figure:** Paths of time-varying parameters 2008-2012.

- $\delta_{g,t}$ increases from 0.0031 to 0.004 in 2009Q1, then falls back by 2012
- $J_t$ increases from 26 to 92 by 2010Q2
- $\rho_t$ drops from 0.25 to 0.15 in 2009 then recovers by 2011Q1, $\rho_{g,t}$ falls from 0.5 to 0.195 in 2009Q2 and stays low
Policy Experiments over Transition

Figure: Comparison of transitional economies across policy regimes, 2008-2012.

- Policy effects over transition qualitatively consistent with effects in stationary equilibrium
- Policy effects amplified on transition
  - e.g. Retention reduces unemployment by 2 ppt on transition vs 0.4 ppt in stationary economy
Decomposing Effects of Parameters over Transition

(a) Only changing regular job separation rates $\delta_{g,t}$

(b) Only changing job arrival rates $\rho_t$

(c) Only changing prop. of regular jobs among offers $\rho_{g,t}$

Changing $\rho_{g,t}$ key to amplifying policy effects

- Pre-recession: High $\rho_{g,t}$ many workers with high wages entering recession (more workers affected by policy)

- During recession: Low $\rho_{g,t}$ many temp offers, decisions to accept/reject temp jobs (key margin)
Extensions to Quantitative Model
Several Extensions to Baseline Model

- Allow saving and borrowing
- Alternative assumptions on labor market
  - Allow workers to quit
  - A range of temp job wages
- Additional features of the UI system
  - UI benefit with upper bound
  - Temp job qualifies for shorter UI entitlement
Several Extensions to Baseline Model

- Allow saving and borrowing

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  - UI benefit with upper bound
  - Temp job qualifies for shorter UI entitlement

Will cover 2 of them here
Allow Saving and Borrowing

- Borrowing and saving provides partial self-insurance, can affect effects of UI policy

- Augment the model to include save/borrow decision each period subject to borrowing constraint
  - constraint set to $-0.2$ (some borrowing) or $0$ (no borrowing)
Allow Saving and Borrowing: Results

Unemployed worker’s job decision

- Asset-rich wait longer before accepting a temp job
- Compared to baseline, smaller policy effect on worker’s choice

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+ Retention raises unemployment because higher separation from temp jobs offsets gains in job finding rate
Option to Quit

- The quit margin
  - Baseline model assumes workers do not quit
  - With retention without Federal law, may be optimal to quit before qualify for new UI if old benefits are better

- In practice in the U.S.
  - Workers quitting without ‘good cause’ not eligible for UI benefits
  - Temp workers less likely to quit if UI is important

- A model with quitting
  - Allow workers to quit and still eligible for UI benefits
  - A worker quits if the future value of working is lower than value of quitting into unemployment
Option to Quit: Results

Unemployed worker’s job decision

- Without retention or with Federal law, no one quits
- With retention (and without Federal law), workers quit to stay on old UI

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- Results similar to baseline

- Because of the option to quit, unemployed workers more likely to accept a temp job with Retention (18.07% vs 12.53%)
Conclusion

- Policy to delay collection of UI to future unemployment ("retention" policy)
- Use cross-time and cross-states policy variations to document policy effects on job finding
- Use quantitative model of job accept/reject to quantify aggregate effects on unemployment
Appendix
Are unemployed workers knowledgeable and rational enough to consider effect of UI policy on income during future unemployment?

- **Excerpt 1**
  
  “I have been reading about people suggesting NOT to take a temp job because of losing benefits? . . . I am currently earning about $430/week in unemployment and right now I am in my 5th month of unemployment. Will my benefits be severely affected if I take a 3-month temporary position at $15 hr?”

  — A user on City-Data asked

- **Excerpt 2**
  
  “With no such luck finding full time employment after 10 months of searching, she decided to accept a temp job that MAY last 3-6 months. Or it may last a few days if they don’t like her. Was it a wise decision to forgo the rest of her Unemployment Benefits for a temp job? . . .”

  — Another user on City-Data asked
## Individual-Level Hazard Model Estimates

<table>
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<tr>
<th>StateGroup (group II is omitted)</th>
<th>(1) Pre-July 2010, UI</th>
<th>(2) Pre-July 2010, no UI</th>
<th>(3) Post-July 2010, UI</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (hardest)</td>
<td>$-0.129^*$</td>
<td>$-0.058$</td>
<td>$0.056$</td>
</tr>
<tr>
<td>III (easiest)</td>
<td>$0.114^{**}$</td>
<td>$-0.026$</td>
<td>$0.003$</td>
</tr>
<tr>
<td>White</td>
<td>$0.345^{**}$</td>
<td>$0.2325^{**}$</td>
<td>$0.103$</td>
</tr>
<tr>
<td>Married</td>
<td>$0.073$</td>
<td>$0.088^*$</td>
<td>$-0.030$</td>
</tr>
<tr>
<td>High school or less</td>
<td>$-0.312^{**}$</td>
<td>$-0.024$</td>
<td>$-0.0017$</td>
</tr>
<tr>
<td>Age</td>
<td>$0.026$</td>
<td>$0.018$</td>
<td>$0.043^{**}$</td>
</tr>
<tr>
<td>Age squared</td>
<td>$-0.00046^{**}$</td>
<td>$-0.00037^{**}$</td>
<td>$-0.00064^{**}$</td>
</tr>
<tr>
<td>Pre-unemp monthly earnings($1000)</td>
<td>$0.033^{**}$</td>
<td>$0.020$</td>
<td>$0.031^{**}$</td>
</tr>
<tr>
<td>Pre-unemp job tenure</td>
<td>$-0.012^*$</td>
<td>$0.014^{**}$</td>
<td>$-0.001$</td>
</tr>
<tr>
<td>Left-censored job tenure</td>
<td>$-0.120$</td>
<td>$0.042$</td>
<td>$-0.235^{**}$</td>
</tr>
<tr>
<td>State unemp rate</td>
<td>$-0.051^{**}$</td>
<td>$-0.057^{**}$</td>
<td>$-0.059^{**}$</td>
</tr>
<tr>
<td>Year fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pre-unemp industry fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of spells</td>
<td>3321</td>
<td>4536</td>
<td>1989</td>
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Note: ** $p < 5\%$, * $p < 10\%$. 
Model with saving and borrowing \( (a_{min} = -0.2) \)

**Figure**: Comparison of temp job rejections across policy regimes

- **(a) No Extension**

- **(b) Extension, no Retention**

- **(c) Extension + Retention**

- **(d) Extension + Retention + Federal law**
Model with option to quit

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