Unemployment insurance (UI) entitlement and the wage effect of increasing the UI benefit rate^a

Daniel Gyetvai^b

August 31st, 2023

EEA Annual Congress 2023

Barcelona

^aThis project uses data from the Austrian Labor Market Database (AMDB) and benefited from generous financial support for data access from the Chaire Sécurisation des Parcours Professionnels and Sciences Po Paris École de la Recherche.

^bPhD candidate, Sciences Po Paris Department of Economics

Introduction

1

• broad context: equilibrium labor market effects of UI benefits

- broad context: equilibrium labor market effects of UI benefits
- standard models:

- broad context: equilibrium labor market effects of UI benefits
- standard models:

job creation effect of UI through wages

- broad context: equilibrium labor market effects of UI benefits
- standard models:

job creation effect of UI through wages

generosity of UI \uparrow

1

- broad context: equilibrium labor market effects of UI benefits
- standard models:

job creation effect of UI through wages generosity of UI \uparrow \Downarrow opportunity cost of employment \uparrow

- broad context: equilibrium labor market effects of UI benefits
- standard models:

job creation effect of UI through wages generosity of UI \uparrow \downarrow opportunity cost of employment \uparrow \downarrow reservation wages \uparrow

1

- broad context: equilibrium labor market effects of UI benefits
- standard models:

```
job creation effect of UI through wages

generosity of UI \uparrow

\downarrow \downarrow

opportunity cost of employment \uparrow

\downarrow \downarrow

reservation wages \uparrow

\downarrow \downarrow

wages \uparrow
```

1

- broad context: equilibrium labor market effects of UI benefits
- standard models:

```
job creation effect of UI through wages

generosity of UI \uparrow

\Downarrow

opportunity cost of employment \uparrow

\Downarrow

reservation wages \uparrow

\Downarrow

wages \uparrow

\Downarrow

expected employer profits \downarrow
```

- broad context: equilibrium labor market effects of UI benefits
- standard models:

```
job creation effect of UI through wages

generosity of UI \uparrow

\Downarrow

opportunity cost of employment \uparrow

\Downarrow

reservation wages \uparrow

\Downarrow

wages \uparrow

\Downarrow

expected employer profits \downarrow

\Downarrow

job creation \downarrow
```

- broad context: equilibrium labor market effects of UI benefits
- standard models:

```
job creation effect of UI through wages

generosity of UI \uparrow

\downarrow

opportunity cost of employment \uparrow

\downarrow

reservation wages \uparrow

\downarrow

wages \uparrow

\downarrow

expected employer profits \downarrow

\downarrow

job creation \downarrow
```

- literature mostly concerned with extraordinary UI policy measures
 - UI extensions during the Great Recession
 - FPUC (US) during the Covid-19 pandemic

• studies the wage effect of an increase in the UI benefit rate:

$\frac{\Delta \bar{\boldsymbol{w}}}{\Delta \bar{\boldsymbol{b}}}$

in non-emergency context

• studies the wage effect of an increase in the UI benefit rate:

$\frac{\Delta \bar{\boldsymbol{w}}}{\Delta \bar{\boldsymbol{b}}}$

in non-emergency context

- using Austrian social security data to
 - 1. highlight the predicted **impact of** UI **entitlement** on $\frac{\Delta \bar{w}}{\Delta \bar{h}}$ (theory)
 - 2. propose a test for the theory (empirics)

• studies the wage effect of an increase in the UI benefit rate:

$\frac{\Delta \bar{\boldsymbol{w}}}{\Delta \bar{\boldsymbol{b}}}$

in non-emergency context

• using Austrian social security data to

1. highlight the predicted impact of UI entitlement on $\frac{\Delta \bar{w}}{\Delta \bar{h}}$ (theory)

- 2. propose a test for the theory (empirics)
- closest paper is Jäger, Schoefer, Young, and Zweimüller (2020)

Comparison to Jäger et al. (2020)

• putting together multiple pieces that already exist in the literature

UI entitlement in the literature

• putting together multiple pieces that already exist in the literature

UI entitlement in the literature

• using a simple Mortensen-Pissarides model with UI benefit expiration:

UI benefit expiration rate $\uparrow \implies \frac{\Delta \bar{w}}{\Delta \bar{h}} \downarrow$

• putting together multiple pieces that already exist in the literature

UI entitlement in the literature

• using a simple Mortensen-Pissarides model with UI benefit expiration:

UI benefit expiration rate $\uparrow \implies \frac{\Delta \bar{w}}{\Delta \bar{h}} \downarrow$

• when calibrated: impact may be substantial

• putting together multiple pieces that already exist in the literature

UI entitlement in the literature

• using a simple Mortensen-Pissarides model with UI benefit expiration:

UI benefit expiration rate $\uparrow \implies \frac{\Delta \bar{w}}{\Delta \bar{b}} \downarrow$

- when calibrated: impact may be substantial
- decomposition of $\frac{\Delta \bar{w}}{\Delta \bar{b}}$ to highlight
 - the heterogeneity of $\frac{\Delta \bar{w}}{\Delta \bar{b}}$ by UI entitlement status

 $\longrightarrow\,$ effect is **negative** for individuals without UI entitlement

• the two channels through which the UI expiration rate affects $\frac{\Delta \bar{w}}{\Delta \bar{h}}$

• 2001 Austrian UI reform: change in the UI benefit calculation fomula

- 2001 Austrian UI reform: change in the UI benefit calculation fomula
- within a sample of individuals for whom $b_{post} > b_{pre}$

- 2001 Austrian UI reform: change in the UI benefit calculation fomula
- within a sample of individuals for whom $b_{post} > b_{pre}$
- I compare
 - the reemployment wages of post-reform UI claimants (who started a UI claim in the month following the reform)

то

• the reemployment wages of pre-reform UI-claimants (who started a UI claim in the month leading up to the reform)

- 2001 Austrian UI reform: change in the UI benefit calculation fomula
- within a sample of individuals for whom $b_{post} > b_{pre}$
- I compare
 - the reemployment wages of post-reform UI claimants (who started a UI claim in the month following the reform)

то

- the reemployment wages of pre-reform UI-claimants (who started a UI claim in the month leading up to the reform)
- using observations from surrounding years as a control group

- 2001 Austrian UI reform: change in the UI benefit calculation fomula
- within a sample of individuals for whom $b_{post} > b_{pre}$
- I compare
 - the reemployment wages of post-reform UI claimants (who started a UI claim in the month following the reform)

ТО

- the reemployment wages of pre-reform UI-claimants (who started a UI claim in the month leading up to the reform)
- using observations from surrounding years as a control group
- to find that post-reform UI claimants have higher reemployment wages than prereform UI claimants
 - in accordance with what the theory predicts
 - although the difference is only marginally statistically significant

Theory

Conceptual framework

Conceptual framework

- model à la Mortensen and Pissarides (1994)
 - exogenous job separations
 - wage renegotiation only by mutual agreement
 - UI benefits indexed to the pre-separation wage (for calibration)

Conceptual framework

- model à la Mortensen and Pissarides (1994)
 - exogenous job separations
 - wage renegotiation only by mutual agreement
 - UI benefits indexed to the pre-separation wage (for calibration)
- introducing UI benefit entitlement
 - within the set of unemployed individuals ${\mathcal U}$

 \implies there is a subset of individuals \mathcal{U}_0 without UI entitlement

• upon separation from employer

 \implies individual becomes entitled for UI benefit receipt

• when unemployed with UI entitlement

 \implies individual loses entitlement for UI benefit receipt at rate ξ

Wage determination

Wage determination

- wage is determined through Nash bargaining
 - worker's threat point: continuation of current unemployment spell
 - both parties have some bargaining power

Wage determination

- wage is determined through Nash bargaining
 - worker's threat point: continuation of current unemployment spell
 - both parties have some bargaining power
 - \implies worker's share of match surplus depends on
 - worker's impatience regarding date of (re)employment \boldsymbol{T}



Current versus Potential Future unemployment income




• the bargained wage can be written as a function of two terms:

$$\mathbf{w} = \phi(\mathbf{B}, \mathbf{B'})$$

- $\begin{array}{rcl} B & \longrightarrow & \text{during the current unemployment spell } U \\ & & (\text{before getting (re)employed}) \end{array}$
- $B' \longrightarrow during potential future unemployment spells U'$ (after getting (re)employed)



• the bargained wage can be written as a function of two terms:

$$\mathbf{w} = \phi(\mathbf{B}, \mathbf{B'})$$

- $\begin{array}{rcl} B & \longrightarrow & \text{during the current unemployment spell } U \\ & & (\text{before getting (re)employed}) \end{array}$
- $B' \longrightarrow during potential future unemployment spells U'$ (after getting (re)employed)
- besides other forms of unemployment income



• the bargained wage can be written as a function of two terms:

$$\mathbf{w} = \phi(\mathbf{B}, \mathbf{B'})$$

- $\begin{array}{rcl} B & \longrightarrow & \text{during the current unemployment spell } U \\ & & (\text{before getting (re)employed}) \end{array}$
- $B' \longrightarrow during potential future unemployment spells U'$ (after getting (re)employed)
- besides other forms of unemployment income
 - B includes UI benefits b only in the case of individuals with UI entitlement



• the bargained wage can be written as a function of two terms:

$$\mathbf{w} = \phi(\mathbf{B}, \mathbf{B'})$$

- $\begin{array}{rcl} B & \longrightarrow & \text{during the current unemployment spell } U \\ & & (\text{before getting (re)employed}) \end{array}$
- $B' \longrightarrow during potential future unemployment spells U'$ (after getting (re)employed)
- besides other forms of unemployment income
 - B includes UI benefits b only in the case of individuals with UI entitlement
 - B' includes UI benefits b regardless of UI entitlement status

• the partial (i.e. ceteris paribus) wage effect

- the partial (i.e. ceteris paribus) wage effect
 - of current unemployment income is positive $\frac{\partial \mathbf{w}}{\partial \mathbf{B}} > 0$ because

- the partial (i.e. ceteris paribus) wage effect
 - of current unemployment income is positive $\frac{\partial \mathbf{w}}{\partial \mathbf{B}} > 0$ because

- the partial (i.e. ceteris paribus) wage effect
 - of current unemployment income is positive $\frac{\partial \mathbf{w}}{\partial \mathbf{B}} > 0$ because

- of future unemployment income is negative $\frac{\partial w}{\partial B'} < 0$ because

• the effect through **current** unemployment income is **greater** in magnitude

$$\left| \frac{\partial \mathbf{w}}{\partial \mathbf{B}} \right| > \left| \frac{\partial \mathbf{w}}{\partial \mathbf{B'}} \right|$$

primarily because of discounting and uncertainty about the future.

- consider a ceteris paribus increase in flat UI benefit rate $b\uparrow$

- consider a ceteris paribus increase in flat UI benefit rate $b\uparrow$
- **b** may affect **w** through two terms: decomposition
 - current unemployment income **B**
 - potential future unemployment income B^\prime

- consider a ceteris paribus increase in flat UI benefit rate $b\uparrow$
- **b** may affect **w** through two terms: decomposition
 - current unemployment income B
 - potential future unemployment income B^\prime
- for individuals with UI entitlement the partial wage effect is positive:

$$\frac{\partial \mathbf{w}_{i}}{\partial b}\Big|_{i\notin\mathcal{U}_{0}} = \underbrace{\frac{\partial \mathbf{w}_{i}}{\partial \mathbf{B}_{i}} \times \frac{\partial \mathbf{B}_{i}}{\partial b}\Big|_{i\notin\mathcal{U}_{0}}}_{\text{effect through current unemployment income}} + \underbrace{\frac{\partial \mathbf{w}_{i}}{\partial \mathbf{B}_{i}'} \times \frac{\partial \mathbf{B}_{i}'}{\partial b}}_{\text{effect through future unemployment income}} > 0$$

- consider a ceteris paribus increase in flat UI benefit rate $b\uparrow$
- **b** may affect **w** through two terms: decomposition
 - current unemployment income B
 - potential future unemployment income B^\prime
- for individuals with UI entitlement the partial wage effect is positive:

$$\frac{\partial \mathbf{w}_{i}}{\partial b}\Big|_{i\notin\mathcal{U}_{0}} = \underbrace{\left. \begin{array}{c} \stackrel{>0}{\underbrace{\partial \mathbf{w}_{i}}}_{i} \times \underbrace{\partial \mathbf{B}_{i}}_{\partial b} \right|_{i\notin\mathcal{U}_{0}}}_{\text{effect through current unemployment income}} + \underbrace{\left. \begin{array}{c} \stackrel{<0}{\underbrace{\partial \mathbf{w}_{i}}}_{i} \times \underbrace{\partial \mathbf{B}_{i}'}_{\partial b} \right|_{i\notin\mathcal{U}_{0}}}_{\text{effect through future unemployment income}} + \underbrace{\left. \begin{array}{c} \stackrel{<0}{\underbrace{\partial \mathbf{w}_{i}}}_{i} \times \underbrace{\partial \mathbf{B}_{i}'}_{\partial b} \right|_{i\in\mathcal{U}_{0}}}_{\text{unemployment income}} \right. > 0$$

$$\text{because } \frac{\partial \mathbf{B}_{i}}{\partial b} \approx \frac{\partial \mathbf{B}_{i}'}{\partial b} \text{ and } \left| \frac{\partial \mathbf{w}}{\partial \mathbf{B}} \right| > \left| \frac{\partial \mathbf{w}}{\partial \mathbf{B}'} \right|.$$

• for individuals without UI entitlement the partial wage effect is negative:

$$\frac{\partial \mathbf{w}_{i}}{\partial b}\Big|_{i \in \mathcal{U}_{0}} = \underbrace{\left. \underbrace{\partial \mathbf{w}_{i}}_{\partial \mathbf{B}_{i}} \times \underbrace{\partial \mathbf{B}_{i}}_{\partial \mathbf{b}} \right|_{i \in \mathcal{U}_{0}}}_{\text{effect through current unemployment income unemployment income}} + \underbrace{\left. \underbrace{\partial \mathbf{w}_{i}}_{\partial \mathbf{B}_{i}'} \times \underbrace{\partial \mathbf{B}_{i}'}_{\partial \mathbf{B}_{i}'} \right|_{\mathbf{b}_{i}'} = \underbrace{\left. \underbrace{\partial \mathbf{w}_{i}}_{\partial \mathbf{B}_{i}'} \times \underbrace{\partial \mathbf{B}_{i}'}_{\partial \mathbf{B}_{i}'} \right|_{\mathbf{b}_{i}'} < 0$$

• add indexation of UI benefits to pre-separation wage

- add indexation of UI benefits to pre-separation wage
- calibrate the model using Austrian data Calibration
 - random sample of individuals aged between 25 and 55 in year 2001

- add indexation of UI benefits to pre-separation wage
- calibrate the model using Austrian data Calibration
 - random sample of individuals aged between 25 and 55 in year 2001
- change in the UI replacement rate:

 $\begin{array}{ccc} 0.5 & \longrightarrow & 0.6 \\ (\text{policy regime } p_0) & & (\text{policy regime } p_1) \end{array}$

- add indexation of UI benefits to pre-separation wage
- calibrate the model using Austrian data Calibration
 - random sample of individuals aged between 25 and 55 in year 2001
- change in the UI replacement rate:

 $\begin{array}{ccc} 0.5 & \longrightarrow & 0.6 \\ (\text{policy regime } p_0) & & (\text{policy regime } p_1) \end{array}$

- report $\frac{\Delta \bar{w}}{\Delta \bar{b}}$
 - with and without effect on labor market tightness

Partial Effect =
$$\frac{\mathbb{E}[w \mid p_1, \theta_{p_0}] - \mathbb{E}[w \mid p_0, \theta_{p_0}]}{\mathbb{E}[b \mid p_1, \theta_{p_0}] - \mathbb{E}[b \mid p_0, \theta_{p_0}]}$$
$$\text{Total Effect} = \frac{\mathbb{E}[w \mid p_1, \theta_{p_1}] - \mathbb{E}[w \mid p_0, \theta_{p_0}]}{\mathbb{E}[b \mid p_1, \theta_{p_1}] - \mathbb{E}[b \mid p_0, \theta_{p_0}]}$$

• also by UI entitlement status

Decomposition of the impact of ξ on the average partial wage effect

	All	UI- eligibles	UI- ineligibles
$\xi = 0.0 \left(\frac{u_0}{u} = 0.37, \frac{w_{P_0}}{y} = 0.66\right)$			
Partial Effect	0.293	0.562	-0.194
Total Effect	0.179	0.506	-0.407
$\xi = 0.0047 \left(\frac{u_0}{u} = 0.61, \frac{w_{p_0}}{y} = 0.6\right)$			
Partial Effect	0.0323	0.191	-0.0473
Total Effect	0.0297	0.189	-0.05

The model ignores many important but (plausibly orthogonal) effects like increased separation rates 11 documented by Hartung, Jung, & Kuhn (2022) in the context of the Hartz reforms.

Empirics: testing the theory

- introduction of a new benefit calculation formula on 1st of January, 2001
 - $\longrightarrow~{\rm for~new}$ UI claims

- introduction of a new benefit calculation formula on 1st of January, 2001
 - \longrightarrow for new UI claims
- for median and below-median earners
 - \longrightarrow gross UI replacement rate increased from 0.44 to 0.48
 - \rightarrow average monthly UI benefits increased by 300-400 ATS (≈ 25 EUR) and up to 700 ATS (≈ 50 EUR) for some

- introduction of a new benefit calculation formula on 1st of January, 2001
 - \longrightarrow for new UI claims
- for median and below-median earners
 - \longrightarrow gross UI replacement rate increased from 0.44 to 0.48
 - \rightarrow average monthly UI benefits increased by 300-400 ATS (≈ 25 EUR) and up to 700 ATS (≈ 50 EUR) for some
- Austria is an ideal context for testing the theory:
 - non-binding sectoral wage floors
 - no experience rating
 - possibility to claim UI benefits even in the case of quitting

- consider a progressively introduced increase in flat UI benefits: $b_{post} > b_{pre}$

$$b(T_{job \ loss}) = egin{cases} b_{pre} & ext{if} \ T_{job \ loss} < T_{reform} \ b_{post} & ext{if} \ T_{job \ loss} > T_{reform} \end{cases}$$

- consider a progressively introduced increase in flat UI benefits: $b_{post} > b_{pre}$

$$b(T_{job\ loss}) = egin{cases} b_{pre} & ext{if}\ T_{job\ loss} < T_{reform} \ b_{post} & ext{if}\ T_{job\ loss} > T_{reform} \end{cases}$$

• expected reemployment wage of individual i as a function of the time of job loss:

$$\mathbf{w}_i(\mathbf{T}_{job\ loss}) = \phi_i(\mathbf{B}_i(\mathbf{T}_{job\ loss}), \mathbf{B}'_i(\mathbf{T}_{job\ loss}), \mathbf{T}_{job\ loss})$$

• consider a progressively introduced increase in flat UI benefits: $b_{post} > b_{pre}$

$$b(T_{job\ loss}) = egin{cases} b_{pre} & ext{if}\ T_{job\ loss} < T_{reform} \ b_{post} & ext{if}\ T_{job\ loss} > T_{reform} \end{cases}$$

- expected reemployment wage of individual i as a function of the time of job loss:

$$\mathbf{w}_i(\mathbf{T}_{job\ loss}) = \phi_i(\mathbf{B}_i(\mathbf{T}_{job\ loss}), \mathbf{B}'_i(\mathbf{T}_{job\ loss}), \mathbf{T}_{job\ loss})$$

where

- consider a progressively introduced increase in flat UI benefits: $b_{post} > b_{pre}$

$$b(T_{job\ loss}) = egin{cases} b_{pre} & ext{if}\ T_{job\ loss} < T_{reform} \ b_{post} & ext{if}\ T_{job\ loss} > T_{reform} \end{cases}$$

• expected reemployment wage of individual i as a function of the time of job loss:

$$\mathbf{w}_i(\mathbf{T}_{job\ loss}) = \phi_i(\mathbf{B}_i(\mathbf{T}_{job\ loss}), \mathbf{B}'_i(\mathbf{T}_{job\ loss}), \mathbf{T}_{job\ loss})$$

where

- the current unemployment income term $B_i(T_{job\ loss})$ writes

with a jump discontinuity at $T_{job \ loss} = T_{reform}$.

- consider a progressively introduced increase in flat UI benefits: $b_{post} > b_{pre}$

$$b(T_{job\ loss}) = egin{cases} b_{pre} & ext{if}\ T_{job\ loss} < T_{reform} \ b_{post} & ext{if}\ T_{job\ loss} > T_{reform} \end{cases}$$

• expected reemployment wage of individual i as a function of the time of job loss:

$$\mathbf{w}_i(\mathbf{T}_{job\ loss}) = \phi_i(\mathbf{B}_i(\mathbf{T}_{job\ loss}), \mathbf{B}_i'(\mathbf{T}_{job\ loss}), \mathbf{T}_{job\ loss})$$

where

• the current unemployment income term $B_i(T_{job\ loss})$ writes

$$egin{array}{rll} egin{array}{rll} egin{arra$$

with a jump discontinuity at $T_{job \ loss} = T_{reform}$.

• and the future unemployment income term $B'_i(T_{job \ loss})$ writes

with a no jump discontinuity at $T_{job \ loss} = T_{reform}$.

• the reemployment wage of individual i if job loss occurs just before T_{reform} :

$$\mathbf{w}_{i,pre} = \lim_{T_{job \ loss} \ \uparrow \ T_{reform}} \mathbf{w}_{i}(T_{job \ loss}) = \phi_{i}(\mathbf{B}_{i,pre}(T_{reform}), \mathbf{B}_{i,post}'(T_{reform}), T_{reform})$$

• the reemployment wage of individual i if job loss occurs just before T_{reform} :

$$\mathbf{w}_{i,pre} = \lim_{T_{job \ loss} \ \uparrow \ T_{reform}} \mathbf{w}_{i}(T_{job \ loss}) = \phi_{i}(\mathbf{B}_{i,pre}(T_{reform}), \mathbf{B}'_{i,post}(T_{reform}), T_{reform})$$

- the reemployment wage of individual i if job loss occurs **just after** T_{reform} :

$$\mathbf{w}_{i,post} = \lim_{T_{job \ loss} \ \downarrow \ T_{reform}} \mathbf{w}_{i}(T_{job \ loss}) = \phi_{i}(\mathbf{B}_{i,post}(T_{reform}), \mathbf{B}'_{i,post}(T_{reform}), T_{reform})$$

• the reemployment wage of individual i if job loss occurs just before T_{reform} :

$$\mathbf{w}_{i,pre} = \lim_{T_{job \ loss} \ \uparrow \ T_{reform}} \mathbf{w}_{i}(T_{job \ loss}) = \phi_{i}(\mathbf{B}_{i,pre}(T_{reform}), \mathbf{B}'_{i,post}(T_{reform}), T_{reform})$$

- the reemployment wage of individual i if job loss occurs **just after** T_{reform} :

$$\mathbf{w}_{i,post} = \lim_{T_{job \ loss} \ \downarrow \ T_{reform}} \mathbf{w}_{i}(T_{job \ loss}) = \phi_{i}(\mathbf{B}_{i,post}(T_{reform}), \mathbf{B}_{i,post}'(T_{reform}), T_{reform})$$

• taking the difference and scaling by the change in UI benefits yields:

$$rac{\mathrm{w}_{i,post} \ - \ \mathrm{w}_{i,pre}}{b_{post} \ - \ b_{pre}} \ pprox \underbrace{rac{\partial \mathrm{w}_i}{\partial \mathrm{B}_i} \times \ rac{\partial \mathrm{B}_i}{\partial \mathrm{b}}}_{\mathrm{effect\ through\ current\ unemployment\ income}}$$

(first-order approximation)

Theoretical prediction: size
Theoretical prediction: size

- using the same model
 - calibrated using the sample for diff-in-diff analysis Calibration

Theoretical prediction: size

- using the same model
 - calibrated using the sample for diff-in-diff analysis Calibration
- simulate labor market histories (employment, wages, UI entitlement) around an unanticipated change in UI replacement rate from 0.5 to 0.6

Theoretical prediction: size

- using the same model
 - calibrated using the sample for diff-in-diff analysis Calibration
- simulate labor market histories (employment, wages, UI entitlement) around an unanticipated change in UI replacement rate from 0.5 to 0.6
- when considering a 50-day window for $T_{job \ loss}$ around T_{reform}

 \longrightarrow values for

$$\frac{\mathbb{E}\left[\left.w \mid T_{job \ loss} \geq T_{reform}\right] - \mathbb{E}\left[\left.w \mid T_{job \ loss} < T_{reform}\right]\right]}{\mathbb{E}\left[\left.b \mid T_{job \ loss} \geq T_{reform}\right] - \mathbb{E}\left[\left.b \mid T_{job \ loss} < T_{reform}\right]\right]}$$

range from **0.3** ($\xi = 0.0065$) up to **0.8** ($\xi = 0$). details









Empirical strategy: difference-in-differences

Empirical strategy: difference-in-differences

$$W_i = \beta_P \cdot Post_i + \beta_{P \times R} \cdot Post_i \cdot Reform_i + \sum_{\mathbf{y} \in \mathcal{Y}} \beta_{\mathbf{y}} \cdot \mathbb{1} \left[Y(i) = \mathbf{y} \right] + \mathbf{X}'_i \zeta + \epsilon_i$$

where:

- W_i is the reemployment wage
- \mathcal{Y} is the set of sample-years $\mathcal{Y} \equiv \{1999, 2000, 2001, 2002, 2003, 2004\}$
- Post is an indicator for the UI claim starting on or after the 1st of January:

 $Post_i = \mathbb{1} \left[T_{UI \ claim \ start}(i) \ge January \ 1st \ of \ Y(i) \right]$

• Reform is an indicator for the sample-year being 2001:

$$Reform_i = 1 [Y(i) = 2001]$$

• and **X** is a vector of covariates. Covariates

Sample

Sample

- summary statistics by sub-sample
 - demographics and earnings
 - by Post × Reform: 20 40 20 (1 obs./ind.) 40 (1 obs./ind.)
 - by sample-year Y: 20 40 20 (1 obs./ind.) 40 (1 obs./ind.)
 - distribution across sectors: 20 40 20 (1 obs./ind.) 40 (1 obs./ind.)
 - distribution across states: 20 40 20 (1 obs./ind.) 40 (1 obs./ind.)
 - distribution of $T_{UI \ claim \ start}$: UI claim starting week
- great degree of similarity between **Reform** and **Control**
 - partly not surprising because of overlaps across Y: 20 days 40 days
 - due to high share of seasonal workers: Seasonal share
 ≈ 26% with the conservative criterion of Del Bono and Weber (2008)
 - individuals who regularly claim UI benefits

Difference-in-Differences Estimation Results

Difference-in-Differences Estimation Results

- $\hat{\beta}_{P \times R}$ for the difference in reemployment wages is estimated using OLS
- baseline estimates: table figure
 - range from 100 ATS (bandwidth ≈ 30 days) to 700 ATS (BW ≈ 20 days)
 - for bandwidths of $\approx 20~{\rm days}$
 - marginally statistically significant with non-robust SE estimates
 - when keeping only 1 observation per individual table figure
 - slightly larger and statistically significant estimates (to be taken with a grain of salt!)

Difference-in-Differences Estimation Results

- $\hat{\beta}_{P\times R}$ for the difference in reemployment wages is estimated using OLS
- baseline estimates: table figure
 - range from 100 ATS (bandwidth ≈ 30 days) to 700 ATS (BW ≈ 20 days)
 - for bandwidths of ≈ 20 days
 - marginally statistically significant with non-robust SE estimates
 - when keeping only 1 observation per individual table figure
 - slightly larger and statistically significant estimates (to be taken with a grain of salt!)
- robustness:
 - varying main covariates all 1 obs. per individual
 - \implies results remain unchanged
 - leaving out one year from the control group all 1 obs. per individual
 ⇒ results vary slightly

PLACEBO Difference-in-Differences Estimation Results

PLACEBO Difference-in-Differences Estimation Results

- redoing the same exercise with
 - 2000 and 2002 being assigned to placebo reform
 - 1999, 2003, 2004 assigned to placebo control
- placebo estimates: table figure
 - smaller / closer to zero: vary between -300 ATS and 200 ATS
 - regardless of whether performing the analysis
 - with all observations (multiple observations per individual)
 - with only 1 observation per individual table figure

none of the estimates is statistically significantly different from zero

Comparison to Jäger, Schoefer, Young, and Zweimüller (2020)

• in contrast to Jäger et al. (2020):

 \longrightarrow findings ${\bf consistent}$ with theory although statistically weak

- however not directly comparable because of
 - different strategy / comparison:

 $\rightarrow~$ in my sample there are many regular UI-claimants

- $\rightarrow~$ Jäger et al. (2020) focus on individuals with stable employment
- lower statistical power:
 - $\rightarrow~$ I have data for only 1 reform
 - \rightarrow Jäger et al. (2020) have data for 4 different reforms

Appendix

Literature: job creation effect of UI benefits through wages Back

- job creation effect of UI benefits:
 - \longrightarrow old topic:

Ehrenberg and Oaxaca (1976)

- $\longrightarrow\,$ renewed interest following UI-extensions during the Great Recession:
 - Hagedorn, Karahan, Manovskii, and Mitman (2013), Lalive, Landais, and
 Zweimüller (2015), Landais, Michaillat, and Saez (2018), Chodorow-Reich,
 Coglianese, and Karabarbounis (2019), Fredriksson and Söderström (2020)
- → current interest following emergency FPUC during the Covid-19 pandemic: Ganong, Noel, and Vavra (2020), Marinescu, Skandalis, and Zhao (2021), Finamor and Scott (2021)
- wage effect of UI-extensions: theoretically and empirically ambiguous Schmieder, Wachter, and Bender (2016), Nekoei and Weber (2017)
- wage effect of UI benefit rate: $a \ priori$ unambiguously positive
 - Jäger, Schoefer, Young, and Zweimüller (2020) find zero effect
 ⇒ contradicts standard theory

UI entitlement in the literature Back

- most UI systems (Tatsiramos and Van Ours, 2014)
 - condition receipt of UI benefits on prior (recent) employment (contribution)
 - limit the duration of UI benefit entitlement while unemployed (finite potential benefit duration)
- old idea of an entitlement effect:
 - prospect of gaining access to UI

 \implies additional incentive for labor market participation (Hamermesh, 1979)

- negative effect of future potential UI benefits on current wages (Beissinger et al., 2004, in the context of union wage bargaining)
- UI benefits are not the only source of income while unemployed
 - \longrightarrow especially if potential benefit durations are short

(Jäger et al. (2020); Chodorow-Reich et al. (2019))

Arbitrarily set (targeted) values

	General Sample	Analysis Sample
θ_{p_0} [labor market tightness]	0.135	0.135
$\widehat{\left(\frac{w_{p_0}}{y}\right)}$ [targeted labor share]	0.6	0.6
ρ [time discount rate]	0.0001	0.0001
γ [worker bargaining power]	0.1	0.1
η [matching elasticity]	0.9	0.9
$\frac{\delta}{\delta+\mu}$ [separation rate divided by employment outflow rate]	0.67	0.67

Estimated values

	General Sample	Analysis Sample
f_{p_0} [job finding rate]	0.00716	0.0173
δ_{\min} [lower bound on separation rate]	0.000427	0.00366
$(\delta + \mu)$ [total employment outflow rate]	0.00135	0.00707
$\hat{\xi}$ [est. UI expiration rate]	0.0047	0.0065

Indirectly assigned (implied) values

	General Sample	Analysis Sample
δ [separation rate]	0.000905	0.00474
ν [working population renewal rate]	0.000445	0.00233
μ [matching efficiency]	0.00875	0.0211
$\frac{\kappa}{y}$ [vacancy cost share]	14.6	7.15
$\frac{a}{y}$ [unemployment amenity share]	0.103	0.203
$\frac{z}{y}$ [ineligible unemployment income share]	0.213	0.218

Sample from the population (*) Sample used in the analysis (**)

employment outflow rate $(\delta+\nu)$.00135 (.0012)	.00707 (.00495)
job separation lower bound (δ_{\min})	.000427 (.000469)	.00366 (.00323)
employment inflow rate $\left(f\right)$.00716 (.00856)	.0173 (.0188)
UI benefit expiration rate (ξ)	.0047 (.00288)	.0065 (.00483)
Avg. number of obs.	35,607	13,707

(*) Random sample drawn from the population of individuals who are between 25 and 55 in 2001.

(**) Sample used for the analysis about the effect of the 2001 UI reform.

Partial wage effect of increasing the UI benefit rate Back

- consider a ceteris paribus increase in flat UI benefit rate $b\uparrow$
- the overall partial effect on the wage w of a given individual i can be written as:

$$\frac{\partial w_i}{\partial b} = \underbrace{\frac{\partial w_i}{\partial B_i} \times \frac{\partial B_i}{\partial b}}_{\text{effect through current unemployment income}} + \underbrace{\frac{\partial w_i}{\partial B'_i} \times \frac{\partial B'_i}{\partial b}}_{\text{effect through future unemployment income}}$$

• effect through future unemployment income

 \Longrightarrow all individuals regardless of current UI entitlement status

$$\frac{\partial \mathbf{B'_i}}{\partial \mathbf{b}} > 0$$
 for all individuals

• effect through current unemployment income

 $\implies \text{only individuals who are currently entitled to receive UI benefits}$ $\implies \frac{\partial B_i}{\partial b} > 0 \text{ for individuals with current UI entitlement } \mathbf{i} \notin \mathcal{U}_0$ $\implies \frac{\partial B_i}{\partial b} = 0 \text{ for individuals without current UI entitlement } \mathbf{i} \in \mathcal{U}_0$

Impact of UI expiration rate ξ on the average partial wage effect Back

- under flat UI benefits, the average partial effect $\frac{\partial \bar{w}}{\partial h}$ is a weighted average of
 - the partial effect for individuals with UI entitlement $\frac{\partial w_i}{\partial b}\Big|_{i \notin \mathcal{U}_0}$ weighted by the share of individuals with UI entitlement
 - and the partial effect for individuals without UI entitlement $\frac{\partial w_i}{\partial b}\Big|_{i \in U_0}$ weighted by the share of individuals without UI entitlement
- $\xi \uparrow$ affects the average partial effect $\frac{\partial \bar{w}}{\partial h}$ through two channels
 - relative attenuation:

b represent a smaller share of B

ambiguous sign

• composition:

higher share of individuals without UI entitlement \downarrow higher share of individuals with negative partial effect \downarrow **negative sign**



Assuming static	Using the
expectations	post-reform
about the	equilibrium job
evolution of the	finding rate
job finding rate	

$$\xi = 0.0 \quad \left(\frac{u_0}{u} = 0.41, \quad \frac{w_{p_0}}{y} = 0.64\right) \qquad 0.783 \qquad 0.77$$

$$\xi = 0.0065 \quad \left(\frac{u_0}{u} = 0.56, \quad \frac{w_{p_0}}{y} = 0.6\right) \qquad 0.324 \qquad 0.314$$

$$\frac{\mathbb{E}\left[w \mid T_{job \ loss} \geq T_{reform}\right] - \mathbb{E}\left[w \mid T_{job \ loss} < T_{reform}\right]}{\mathbb{E}\left[b \mid T_{job \ loss} \geq T_{reform}\right] - \mathbb{E}\left[b \mid T_{job \ loss} < T_{reform}\right]}$$

2001 Austrian UI Reform: Replacement Rate Back



2001 Austrian UI Reform: Average Change Back



Covariates Back to empirical strategy

- reference earnings (Y-2);
- indicator for white-collar employment;
- indicator for Austrian citizenship (Y-2);
- indicator for gender interacted with
 - a cubic polynomial of age;
 - a cubic polynomial of employment days during the 18m before T_{UI} claim start;
- time-to-entry fixed effects (3 categories);
- sector fixed effects (20 categories);
- state (Bundesland) fixed effects (7 categories).

Diff-in-Diff estimates by bandwidth Back

	Dependent variable: Earnings (reemployment)						
Bandwidth	10 days	20 days	30 days	40 days	50 days		
UIB claim starts Post = 0 Post = 1	22 Dec - 31 Dec 1 Jan - 10 Jan	12 Dec - 31 Dec 1 Jan - 20 Jan	2 Dec - 31 Dec 1 Jan - 30 Jan	22 Nov - 31 Dec 1 Jan - 9 Feb	12 Nov - 31 Dec 1 Jan - 19 Feb		
Post	-385.96 (243.50)	-267.58^{*} (149.62)	-211.82^{*} (120.68)	-199.35** (97.15)	-91.62 (83.10)		
$\mathrm{Post}\times\mathrm{Reform}$	180.35 (568.87)	635.85* (343.37)	316.26 (272.27)	302.00 (215.01)	334.21* (181.60)		
Earnings (Y-2)	0.52*** (0.04)	0.56*** (0.03)	0.58*** (0.02)	0.65*** (0.02)	0.69^{***} (0.01)		
Controls	Yes	Yes	Yes	Yes	Yes		
Sector FE	Yes	Yes	Yes	Yes	Yes		
Bundesland FE	Yes	Yes	Yes	Yes	Yes		
Number of obs.	3,029	6,619	9,747	14,368	19,585		
Adjusted \mathbb{R}^2	0.27	0.28	0.27	0.28	0.28		

Diff-in-Diff estimates by bandwidth Back



PLACEBO Diff-in-Diff estimates by bandwidth (Back



	Dependent variable: Earnings (reemployment)						
Bandwidth	10 days	20 days	30 days	40 days	50 days		
UIB claim starts Post = 0 Post = 1	22 Dec - 31 Dec 1 Jan - 10 Jan	12 Dec - 31 Dec 1 Jan - 20 Jan	2 Dec - 31 Dec 1 Jan - 30 Jan	22 Nov - 31 Dec 1 Jan - 9 Feb	12 Nov - 31 Dec 1 Jan - 19 Feb		
Post	-206.18 (317.59)	-263.54 (195.21)	-253.71 (155.68)	-277.40** (125.37)	-147.36 (106.38)		
$\mathrm{Post} \times \mathrm{Reform}$	-579.18 (470.81)	-88.42 (290.31)	36.36 (231.46)	106.64 (183.45)	106.02 (154.72)		
Earnings (Y-2)	0.53*** (0.04)	0.56*** (0.03)	0.59*** (0.02)	0.66**** (0.02)	0.70*** (0.01)		
Controls	Yes	Yes	Yes	Yes	Yes		
Sector FE	Yes	Yes	Yes	Yes	Yes		
Bundesland FE	Yes	Yes	Yes	Yes	Yes		
Number of obs.	2,505	5,466	8,048	11,857	16,240		
Adjusted \mathbb{R}^2	0.26	0.28	0.27	0.28	0.29		



Diff-in-Diff estimates varying main covariates (20 days) Back



	Dependent variable: Earnings (reemployment)					
	(1)	(2)	(3)	(4)	(5)	(6)
Post	-262.12 (162.91)	-188.16 (156.70)	-188.82 (156.86)	-332.48^{**} (155.06)	-267.58^{*} (149.62)	-268.25^{*} (149.71)
$\mathrm{Post} \times \mathrm{Reform}$	674.35* (376.98)	709.01* (362.53)	698.05* (362.89)	615.20 ⁺ (355.92)	635.85* (343.37)	627.60* (343.59)
Earnings (Y-2)		0.62^{***} (0.03)			0.56^{***} (0.03)	
Log(Earnings (Y-2))			9425.39*** (410.14)			8603.70*** (392.38)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	No	No	No	Yes	Yes	Yes
Bundesland FE	No	No	No	Yes	Yes	Yes
Number of obs.	6,685	6,685	6,685	6,619	6,619	6,619
Adjusted R^2	0.16	0.22	0.22	0.23	0.28	0.28



	Dependent variable: Earnings (reemployment)					
Leave-out-year	1999	2000	2002	2003	2004	
Post	-375.28^{**}	-243.33	-228.52	-132.74	-329.24^{**}	
	(172.22)	(170.90)	(164.29)	(165.14)	(162.20)	
Post \times Reform	734.45**	626.17^{*}	616.07^{*}	536.68	676.57*	
	(356.81)	(353.81)	(346.25)	(349.07)	(346.75)	
Earnings (Y-2)	0.55***	0.59***	0.57***	0.57***	0.55***	
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	
Controls	Yes	Yes	Yes	Yes	Yes	
Sector FE	Yes	Yes	Yes	Yes	Yes	
Bundesland FE	Yes	Yes	Yes	Yes	Yes	
Number of obs.	5,414	5,404	5,536	5,595	5,680	
Adjusted R^2	0.28	0.28	0.29	0.29	0.28	



keeping only 1 observation per individual

	Dependent variable: Earnings (reemployment)					
Bandwidth	10 days	20 days	30 days	40 days	50 days	
UIB claim starts Post = 0 Post = 1	22 Dec - 31 Dec 1 Jan - 10 Jan	12 Dec - 31 Dec 1 Jan - 20 Jan	2 Dec - 31 Dec 1 Jan - 30 Jan	22 Nov - 31 Dec 1 Jan - 9 Feb	12 Nov - 31 Dec 1 Jan - 19 Feb	
Post	-319.00 (294.04)	-229.81 (185.04)	-265.22^{*} (151.99)	-227.96^{*} (125.80)	-109.34 (110.07)	
$\mathrm{Post} \times \mathrm{Reform}$	614.78 (705.68)	1077.18 ^{**} (441.29)	666.85^{*} (359.51)	536.39* (291.25)	508.26** (251.81)	
Earnings (Y-2)	0.44*** (0.05)	(0.50^{***}) (0.03)	0.51*** (0.03)	0.58*** (0.02)	0.63*** (0.02)	
Controls	Yes	Yes	Yes	Yes	Yes	
Sector FE	Yes	Yes	Yes	Yes	Yes	
Bundesland FE	Yes	Yes	Yes	Yes	Yes	
Number of obs.	2,242	4,820	6,981	9,948	12,970	
Adjusted \mathbb{R}^2	0.25	0.27	0.25	0.26	0.26	
Diff-in-Diff estimates by bandwidth





		Dependent variable: Earnings (reemployment)					
Bandwidth	10 days	20 days	30 days	40 days	50 days		
UIB claim starts Post = 0 Post = 1	22 Dec - 31 Dec 1 Jan - 10 Jan	12 Dec - 31 Dec 1 Jan - 20 Jan	2 Dec - 31 Dec 1 Jan - 30 Jan	22 Nov - 31 Dec 1 Jan - 9 Feb	12 Nov - 31 Dec 1 Jan - 19 Feb		
Post	-37.35 (381.28)	-158.65 (239.18)	-234.93 (194.02)	-300.80^{*} (160.26)	-138.01 (139.87)		
$\mathrm{Post} \times \mathrm{Reform}$	-934.76 (582.69)	-85.25 (364.44)	26.79 (297.44)	159.44 (242.47)	64.42 (210.53)		
Earnings (Y-2)	0.48*** (0.05)	0.51*** (0.03)	0.53*** (0.03)	0.60*** (0.02)	0.64*** (0.02)		
Controls	Yes	Yes	Yes	Yes	Yes		
Sector FE	Yes	Yes	Yes	Yes	Yes		
Bundesland FE	Yes	Yes	Yes	Yes	Yes		
Number of obs.	1,864	4,051	5,838	8,302	10,789		
Adjusted R ²	0.24	0.26	0.25	0.26	0.26		

PLACEBO Diff-in-Diff estimates by bandwidth Back





		Dependent variable: Earnings (reemployment)					
	(1)	(2)	(3)	(4)	(5)	(6)	
Post	-122.64 (198.80)	-109.95 (193.15)	-106.89 (193.27)	-164.29 (188.74)	-157.69 (184.24)	-155.71 (184.30)	
Post \times Reform	922.07* (475.70)	1027.61^{**} (462.19)	1007.01^{**} (462.47)	982.83** (449.16)	1049.05^{**} (438.46)	1032.01** (438.59)	
Earnings (Y-2)		0.57^{***} (0.03)			0.49^{***} (0.03)		
Log(Earnings (Y-2))			8631.67*** (510.42)			7538.03*** (490.47)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes	
Sector FE	No	No	No	Yes	Yes	Yes	
Bundesland FE	No	No	No	Yes	Yes	Yes	
Number of obs.	4,927	4,927	4,927	4,867	4,867	4,867	
Adjusted R^2	0.16	0.21	0.21	0.23	0.26	0.26	



	De	pendent varia	ble: Earnings	(reemploym	ent)
Leave-out-year	1999	2000	2002	2003	2004
Post	-353.82^{*}	-219.79	-203.32	-94.18	-352.57^{*}
	(214.07)	(212.80)	(200.94)	(201.71)	(200.05)
Post \times Reform	989.93**	872.76*	863.18**	727.66^{*}	933.93**
	(452.68)	(450.81)	(436.42)	(439.70)	(439.37)
Earnings (Y-2)	0.45***	0.51***	0.48***	0.48***	0.45***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.04)
Controls	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes
Bundesland FE	Yes	Yes	Yes	Yes	Yes
Number of obs.	3,912	3,924	4,105	4,139	4,162
Adjusted \mathbb{R}^2	0.27	0.26	0.28	0.27	0.26

Summary statistics by $Reform \times Post$ (20 days) Back



	Refor	m = 0	Refor	m = 1
	Post = 0	Post = 1	Post = 0	Post = 1
Female	.304	.45	.347	.463
	(0.460)	(0.498)	(0.477)	(0.499)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Age	38.2	38.8	38	39.3
	(8.476)	(8.490)	(8.458)	(8.133)
	[24; 56]	[25; 56]	[24; 56]	[25; 56]
Austrian (Y-2)	.624	.635	.558	.609
	(0.484)	(0.481)	(0.497)	(0.488)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Earnings (Y-2)	16,919	16, 640	16,758	16,407
	(2, 708)	(2, 823)	(2, 603)	(2, 623)
	$\left[10,005;21,528\right]$	$\left[10,014;21,523\right]$	$\left[9,966;19,980\right]$	$\left[9,993;19,987\right]$
Earnings (reemployment)	20,057	19,298	19,233	19,207
	(6, 285)	(6, 217)	(6, 234)	(6, 116)
	$\left[4, 549; 53, 940\right]$	[4, 549; 53, 940]	$\left[4,640;45,649\right]$	[4,755;44,400]
White-collar job	.0992	.148	.108	.141
	(0.299)	(0.355)	(0.310)	(0.348)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Emp. days in 18m before UIB spell $% \left({{{\rm{U}}{\rm{B}}}} \right)$	385	419	388	420
	(107.395)	(103.494)	(109.310)	(97.728)
	[0; 549]	[0; 549]	[0; 550]	[62; 550]
Time to entry	92.9	93.6	90.5	92.1
	(114.197)	(97.620)	(115.088)	(91.310)
	[1; 1330]	[1; 1150]	[1;741]	[1;730]
Number of obs.	2,338	3,179	464	704

Summary statistics by sample-year (20 days) Back



Sample year	Y = 1999	Y = 2000	Y = 2001	Y = 2002	Y = 2003	Y = 2004
	(control)	(control)	(reform)	(control)	(control)	(control)
Female	.367	.396	.417	.413	.39	.374
	(0.482)	(0.489)	(0.493)	(0.493)	(0.488)	(0.484)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Age	37.8	37.8	38.8	38.8	39.5	39
	(8.346)	(8.318)	(8.283)	(8.578)	(8.471)	(8.654)
	[24; 56]	[24; 56]	[24; 56]	[24; 56]	[24; 56]	[24; 56]
Austrian (Y-2)	.601	.616	.589	.625	.641	.682
	(0.490)	(0.486)	(0.492)	(0.484)	(0.480)	(0.466)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Earnings (Y-2)	16,223	16,099	16, 546	16,760	17,259	17,750
	(2, 400)	(2, 598)	(2, 620)	(2, 647)	(2, 906)	(3, 055)
	$\left[10,291;19,382\right]$	$\left[10,005;19,618\right]$	$\left[9,966;19,987\right]$	$\left[10, 192; 20, 355\right]$	$\left[10,148;21,010\right]$	[10, 187; 21, 528]
Earnings (reemployment)	18,830	19,178	19,217	19,716	20, 138	20,526
	(5, 787)	(6, 133)	(6, 160)	(6, 438)	(6, 252)	(6, 616)
	$\left[4, 549; 49, 700\right]$	$\left[4, 640; 48, 300\right]$	$\left[4,640;45,649\right]$	[4, 841; 47, 897]	$\left[4,966;53,940\right]$	[5,076;52,635]
White-collar job	.114	.121	.128	.134	.127	.145
	(0.318)	(0.326)	(0.334)	(0.340)	(0.333)	(0.353)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Emp. days in 18m before UIB spell $% \left({{{\rm{U}}{\rm{B}}}} \right)$	403	404	408	404	409	403
	(107.959)	(104.423)	(103.635)	(107.124)	(104.000)	(108.996)
	[0; 549]	[0; 549]	[0; 550]	[0; 549]	[48; 549]	[0; 549]
Time to entry	96.9	89.5	91.5	95.2	94.8	90.1
	(109.330)	(96.341)	(101.380)	(113.792)	(104.114)	(100.117)
	[1; 1018]	[1;815]	[1;741]	[1; 1150]	[1; 1330]	[1; 1008]
Number of obs.	1,214	1,228	1,168	1,092	1,033	950

Sector of reemployment by $Reform \times Post$ (20 days) Back

	Refor	m = 0	Refor	m = 1
	$\mathrm{Post}=0$	$\mathrm{Post}=1$	$\mathrm{Post}=0$	$\mathrm{Post}=1$
Accommodation and food service activities	17.5%	26.9%	$\mathbf{18.8\%}$	24.9%
Activities of extraterritorial organisations and bodies	0.0%	0.0%	0.0%	0.0%
Activities of households as employers;				
undifferentiated goods - and services - producing activities of households for own use	0.1%	0.3%	0.4%	0.0%
Administrative and support service activities	21.1%	13.6%	21.2%	$\mathbf{13.9\%}$
Agriculture, forestry and fishing	5.4%	2.7%	2.6%	3.4%
Arts, entertainment and recreation	1.1%	1.1%	1.8%	0.7%
Construction	16.9%	17.0%	16.2%	19.4%
Education	3.6%	1.2%	4.8%	0.7%
Electricity, gas, steam and air conditioning supply	0.1%	0.1%	0.0%	0.0%
Financial and insurance activities	0.1%	0.1%	0.0%	0.3%
Human health and social work activities	1.1%	0.7%	0.7%	1.1%
Information and communication	0.6%	0.4%	0.4%	0.3%
Manufacturing	7.4%	9.1%	6.1%	9.2%
Mining and quarrying	0.3%	0.3%	0.0%	0.3%
Other services activities	1.2%	1.4%	0.4%	1.7%
Professional, scientific and technical activities	1.3%	1.2%	1.1%	1.4%
Public administration and defence;				
compulsory social security	4.5%	4.7%	5.0%	4.2%
Real estate activities	0.6%	0.6%	0.4%	0.6%
Transporting and storage	12.2%	9.5%	14.2%	10.1%
Water supply; sewerage;				
waste managment and remediation activities	0.2%	0.3%	0.4%	0.4%
Wholesale and retail trade;				
repair of motor vehicles and motorcycles	4.7%	8.8%	5.3%	7.3%
Number of obs.	2,338	3,179	464	704

	Reform = 0		Reform $= 1$		
	$\mathrm{Post}=0$	$\mathrm{Post}=1$	$\mathrm{Post}=0$	$\mathrm{Post}=1$	
Unknown	0.8%	0.6%	1.1%	0.3%	
Burgenland	3.3%	4.6%	3.4%	4.8%	
Kärnten	12.8%	14.9%	11.0%	15.1%	
Niederösterreich	14.8%	17.4%	10.8%	16.3%	
			10.007	10.007	

Burgenland	3.3%	4.6%	3.4%	4.8%
Kärnten	12.8%	14.9%	11.0%	15.1%
Niederösterreich	14.8%	17.4%	10.8%	16.3%
Oberösterreich	15.7%	15.7%	16.6%	18.6%
Salzburg	10.4%	7.1%	11.6%	7.8%
Steiermark	12.6%	16.7%	11.4%	15.9%
Tirol	15.6%	11.2%	17.2%	9.8%
Vorarlberg	2.4%	1.4%	3.2%	1.4%
Wien	11.7%	10.4%	13.6%	9.9%
Number of obs.	2,338	3,179	464	704

	1999	2000	2001	2002	2003	2004
2004	58	64	89	107	135	950
2003	74	82	118	151	1,033	
2002	82	112	147	1,092		
2001	110	134	1,168			
2000	136	1,228				
1999	1,214					





Sample year	Y = 1999	Y = 2000	Y = 2001	Y = 2002	Y = 2003	Y = 2004
	(control)	(control)	(reform)	(control)	(control)	(control)
Female	.318	.352	.36	.366	.349	.323
	(0.466)	(0.478)	(0.480)	(0.482)	(0.477)	(0.468)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Age	37.4	37.1	38	37.8	38.7	37.8
	(8.423)	(8.313)	(8.373)	(8.711)	(8.469)	(8.657)
	[24; 56]	[24; 56]	[24; 56]	[24; 56]	[24; 56]	[24; 56]
Austrian (Y-2)	.626	.635	.59	.644	.636	.698
	(0.484)	(0.482)	(0.492)	(0.479)	(0.482)	(0.459)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Earnings (Y-2)	16, 417	16,163	16, 614	16,729	17, 427	17,736
	(2, 368)	(2, 641)	(2, 633)	(2, 714)	(2, 953)	(3, 162)
	$\left[10,294;19,382\right]$	$\left[10,005;19,618\right]$	$\left[9,993;19,980\right]$	$\left[10, 192; 20, 355\right]$	$\left[10,148;21,010\right]$	[10, 187; 21, 523]
Earnings (reemployment)	19,485	19,802	19,801	20, 419	20,781	21,046
	(6, 160)	(6, 562)	(6, 611)	(7, 156)	(6, 666)	(7, 106)
	$\left[4, 549; 49, 700\right]$	[4, 640; 48, 300]	$\left[4,640;45,649\right]$	[4, 841; 47, 897]	$\left[4,966;53,940\right]$	[5,076;52,635]
White-collar job	.0989	.108	.111	.119	.122	.134
	(0.299)	(0.310)	(0.314)	(0.325)	(0.328)	(0.341)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Emp. days in 18m before UIB spell	404	402	404	403	407	400
	(109.406)	(108.755)	(108.852)	(114.238)	(108.305)	(113.188)
	[0; 549]	[0; 549]	[0; 550]	[0; 549]	[56; 549]	[0; 549]
Time to entry	103	90.9	98.5	104	100	91.7
	(118.159)	(98.958)	(112.482)	(129.791)	(106.086)	(106.296)
	[1; 1018]	[1; 694]	[1;741]	[1; 1150]	[1; 835]	[1; 1008]
Number of obs.	940	920	814	745	736	702

	Refor	Reform = 0		m = 1
	Post = 0	$\mathrm{Post}=1$	$\mathrm{Post}=0$	$\mathrm{Post}=1$
Accommodation and food service activities	13.7%	$\mathbf{21.0\%}$	14.3%	$\mathbf{18.0\%}$
Activities of extraterritorial organisations and bodies	0.0%	0.0%	0.0%	0.0%
Activities of households as employers;				
undifferentiated goods - and services - producing activities of households for own use	0.1%	0.2%	0.6%	0.0%
Administrative and support service activities	23.3%	15.8%	23.8%	16.6%
Agriculture, forestry and fishing	4.9%	2.1%	2.1%	2.3%
Arts, entertainment and recreation	1.2%	1.2%	1.8%	0.8%
Construction	19.4%	19.7%	21.0 %	21.5%
Education	2.6%	1.3%	2.4%	0.8%
Electricity, gas, steam and air conditioning supply	0.1%	0.1%	0.0%	0.0%
Financial and insurance activities	0.1%	0.1%	0.0%	0.2%
Human health and social work activities	1.3%	1.0%	0.9%	1.6%
Information and communication	0.6%	0.4%	0.6%	0.4%
Manufacturing	8.5%	9.9%	5.8%	10.2%
Mining and quarrying	0.3%	0.4%	0.0%	0.4%
Other services activities	1.1%	1.1%	0.3%	1.4%
Professional, scientific and technical activities	1.3%	1.4%	1.5%	1.6%
Public administration and defence;				
compulsory social security	4.7%	5.0%	4.9%	3.9%
Real estate activities	0.6%	0.7%	0.3%	0.6%
Transporting and storage	11.5%	9.3%	12.8%	10.5%
Water supply; sewerage;				
waste managment and remediation activities	0.3%	0.4%	0.6%	0.6%
Wholesale and retail trade;				
repair of motor vehicles and motorcycles	4.5%	8.8%	6.1%	8.4%
Number of obs.	1,831	2,274	334	495



	Reform = 0		Reform $= 1$		
	$\mathrm{Post}=0$	$\mathrm{Post}=1$	$\mathrm{Post}=0$	Post = 1	
Unknown	1.0%	0.7%	0.6%	0.4%	
Burgenland	3.0%	4.5%	3.6%	3.8%	
Kärnten	12.3%	13.1%	10.9%	12.8%	
Niederösterreich	15.7%	18.2%	12.7%	17.0%	
Oberösterreich	16.8%	15.8%	19.5%	18.7%	
Salzburg	9.6%	7.5%	10.4%	8.2%	
Steiermark	12.6%	16.2%	12.1%	14.1%	
Tirol	13.9%	10.4%	13.6%	10.5%	
Vorarlberg	2.3%	1.5%	3.3%	1.7%	
Wien	12.8%	12.1%	13.3%	12.8%	
Number of obs.	1,788	2,294	338	476	

Summary statistics by $Reform \times Post$ (40 days) Back



	Refor	m = 0	Refor	m = 1
	Post = 0	Post = 1	Post = 0	Post = 1
Female	.441	.468	.487	.483
	(0.496)	(0.499)	(0.500)	(0.500)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Age	38.4	38.9	38.3	39.1
	(8.437)	(8.445)	(8.658)	(8.183)
	[24; 56]	[25; 56]	[24; 56]	[25; 56]
Austrian (Y-2)	.545	.629	.514	.624
	(0.498)	(0.483)	(0.500)	(0.485)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Earnings (Y-2)	16,948	16,616	16,715	16,308
	(2, 683)	(2,836)	(2, 579)	(2, 676)
	$\left[10,005;21,533\right]$	$\left[10,014;21,523\right]$	$\left[9,965;19,991\right]$	$\left[9,975;19,991\right]$
Earnings (reemployment)	19, 262	19, 131	18,807	18,963
	(5, 620)	(6, 213)	(5, 610)	(6, 069)
	$\left[4, 549; 53, 940\right]$	[4, 549; 55, 385]	[4, 640; 52, 496]	$\left[4,755;47,880 ight]$
White-collar job	.107	.16	.129	.159
	(0.309)	(0.367)	(0.336)	(0.365)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Emp. days in 18m before UIB spell	390	419	389	416
	(103.294)	(102.278)	(104.658)	(102.288)
	[0; 549]	[0; 549]	[0; 550]	[0; 550]
Time to entry	83.6	93.3	85.1	90.7
	(107.120)	(97.456)	(107.776)	(89.199)
	[1; 1885]	[1; 1150]	[1; 1058]	[1; 759]
Number of obs.	6,680	5,293	1,344	1,198

Summary statistics by sample-year (40 days) Back



Sample year	Y = 1999	Y = 2000	Y = 2001	Y = 2002	Y = 2003	Y = 2004
	(control)	(control)	(reform)	(control)	(control)	(control)
Female	.442	.457	.485	.471	.443	.451
	(0.497)	(0.498)	(0.500)	(0.499)	(0.497)	(0.498)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Age	37.8	38.2	38.7	39	39.2	39.3
	(8.380)	(8.332)	(8.448)	(8.450)	(8.420)	(8.567)
	[24; 56]	[24; 56]	[24; 56]	[24; 56]	[24; 56]	[24; 56]
Austrian (Y-2)	.555	.556	.566	.578	.601	.637
	(0.497)	(0.497)	(0.496)	(0.494)	(0.490)	(0.481)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Earnings (Y-2)	16,265	16,279	16, 523	16,830	17,280	17,665
	(2, 381)	(2, 552)	(2, 632)	(2, 649)	(2, 938)	(3, 074)
	[10, 288; 19, 382]	$\left[10,005;19,618\right]$	$\left[9,965;19,991\right]$	$\left[10, 192; 20, 355\right]$	$\left[10, 147; 21, 010\right]$	[10, 187; 21, 533]
Earnings (reemployment)	18,499	18,791	18,880	19,400	19,719	19,924
	(5, 270)	(5, 615)	(5, 831)	(6, 194)	(6, 069)	(6, 323)
	$\left[4, 549; 49, 700\right]$	[4, 549; 50, 600]	[4, 640; 52, 496]	[4, 755; 52, 496]	[4, 841; 53, 940]	[4, 966; 55, 385]
White-collar job	.118	.12	.143	.141	.133	.146
	(0.323)	(0.325)	(0.350)	(0.348)	(0.339)	(0.354)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Emp. days in 18m before UIB spell	401	402	402	403	405	405
	(104.652)	(103.546)	(104.409)	(103.269)	(103.040)	(104.753)
	[0; 549]	[0; 549]	[0; 550]	[0; 549]	[0; 549]	[0; 549]
Time to entry	91.3	84.4	87.7	90.7	88.2	84.4
	(104.978)	(93.773)	(99.476)	(109.232)	(105.931)	(101.707)
	[1; 1018]	[1;903]	[1; 1058]	[1; 1157]	[1; 1521]	[1; 1885]
Number of obs.	2,757	2,682	2,542	2,327	2,131	2,076

Sector of reemployment by $Reform \times Post$ (40 days) Back

	Reform = 0		Refor	m = 1
	$\mathrm{Post}=0$	$\mathrm{Post}=1$	$\mathrm{Post}=0$	$\mathrm{Post}=1$
Accommodation and food service activities	38.9%	26.4%	39.5%	24.7%
Activities of extraterritorial organisations and bodies	0.0%	0.0%	0.0%	0.0%
Activities of households as employers;				
undifferentiated goods - and services - producing activities of households for own use	0.0%	0.3%	0.2%	0.0%
Administrative and support service activities	14.2%	13.5%	14.0%	14.2%
Agriculture, forestry and fishing	3.5%	2.5%	2.0%	3.2%
Arts, entertainment and recreation	1.0%	1.2%	1.3%	1.3%
Construction	9.8%	16.1%	9.2%	17.6%
Education	4.0%	1.2%	4.3%	1.2%
Electricity, gas, steam and air conditioning supply	0.0%	0.1%	0.0%	0.0%
Financial and insurance activities	0.2%	0.2%	0.0%	0.3%
Human health and social work activities	0.9%	0.8%	0.8%	1.1%
Information and communication	0.3%	0.5%	0.3%	0.3%
Manufacturing	5.0%	9.5%	5.0%	9.4%
Mining and quarrying	0.1%	0.3%	0.0%	0.3%
Other services activities	1.2%	1.4%	1.1%	1.7%
Professional, scientific and technical activities	0.9%	1.4%	0.4%	1.6%
Public administration and defence;				
compulsory social security	3.8%	4.8%	3.6%	4.1%
Real estate activities	0.4%	0.6%	0.3%	0.4%
Transporting and storage	10.9%	9.8%	12.2%	9.9%
Water supply; sewerage;				
waste managment and remediation activities	0.2%	0.4%	0.3%	0.3%
Wholesale and retail trade;				
repair of motor vehicles and motorcycles	4.6%	9.1%	5.5%	8.5%
Number of obs.	6,680	5,293	1,344	1,198

Bundesland of reemployment by $Reform \times Post$ (40 days) Back

	Reform = 0		Refor	m = 1
	$\mathrm{Post}=0$	$\mathrm{Post}=1$	$\mathrm{Post}=0$	$\mathrm{Post}=1$
Unknown	0.7%	0.6%	0.5%	0.3%
Burgenland	1.9%	4.1%	1.9%	4.5%
Kärnten	10.5%	14.5%	10.2%	13.8%
Niederösterreich	9.8%	16.9%	8.3%	17.3%
Oberösterreich	12.0%	16.4%	12.8%	18.4%
Salzburg	14.7%	7.3%	14.4%	7.3%
Steiermark	9.7%	16.5%	9.6%	16.3%
Tirol	27.5%	10.5%	26.6%	9.5%
Vorarlberg	4.0%	1.4%	5.7%	1.3%
Wien	9.3%	11.8%	10.0%	11.4%
Number of obs.	6,680	5,293	1,344	1,198

	1999	2000	2001	2002	2003	2004
2004	142	166	247	310	379	2,076
2003	192	207	331	399	2,131	
2002	235	326	439	2,327		
2001	333	422	2,542			
2000	450	2,682				
1999	2,757					



Sample year	Y = 1999	Y = 2000	Y = 2001	Y = 2002	Y = 2003	Y = 2004
	(control)	(control)	(reform)	(control)	(control)	(control)
Female	.395	.403	.422	.412	.387	.395
	(0.489)	(0.491)	(0.494)	(0.492)	(0.487)	(0.489)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Age	37.4	37.7	38.1	38	38.2	38.2
	(8.455)	(8.379)	(8.536)	(8.568)	(8.518)	(8.653)
	[24; 56]	[24; 56]	[24; 56]	[24; 56]	[24; 56]	[24; 56]
Austrian (Y-2)	.582	.585	.588	.607	.615	.666
	(0.493)	(0.493)	(0.492)	(0.489)	(0.487)	(0.472)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Earnings (Y-2)	16,428	16,323	16,488	16,829	17,335	17,659
	(2, 368)	(2, 597)	(2, 693)	(2, 730)	(3,004)	(3, 133)
	[10, 288; 19, 382]	$\left[10,005;19,618\right]$	$\left[9,965;19,989\right]$	$\left[10, 192; 20, 355\right]$	$\left[10,147;21,010\right]$	[10, 187; 21, 533]
Earnings (reemployment)	19,050	19,406	19, 462	19,909	20,238	20,290
	(5,712)	(6, 171)	(6, 429)	(6, 975)	(6, 613)	(6,793)
	$\left[4, 549; 49, 700\right]$	[4, 549; 50, 600]	[4, 640; 52, 496]	[4, 755; 52, 496]	$\left[4,841;53,940\right]$	[4, 966; 55, 385]
White-collar job	.112	.118	.137	.129	.123	.143
	(0.315)	(0.323)	(0.344)	(0.335)	(0.329)	(0.350)
	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]	[0; 1]
Emp. days in 18m before UIB spell	400	400	398	400	402	402
	(108.501)	(109.680)	(110.784)	(110.020)	(107.254)	(110.357)
	[0; 549]	[0; 549]	[0; 550]	[0; 549]	[0; 549]	[0; 549]
Time to entry	98.5	90.6	95.4	100	95	87.8
	(114.156)	(100.842)	(109.543)	(120.053)	(113.218)	(100.430)
	[1; 1018]	[1;903]	[1; 1058]	[1; 1150]	[1; 1521]	[1; 1008]
Number of obs.	2,074	1,881	1,667	1,518	1,438	1,466

	Reform = 0		Reform = 1	
	Post = 0	$\mathrm{Post}=1$	$\mathrm{Post}=0$	$\mathrm{Post}=1$
Accommodation and food service activities	30.5%	21.5%	31.9%	18.4%
Activities of extraterritorial organisations and bodies	0.0%	0.0%	0.0%	0.0%
Activities of households as employers;				
undifferentiated goods - and services - producing activities of households for own use	0.0%	0.3%	0.2%	0.0%
Administrative and support service activities	17.8%	15.9%	17.9%	16.9%
Agriculture, forestry and fishing	3.1%	2.1%	1.5%	2.7%
Arts, entertainment and recreation	1.2%	1.0%	1.3%	1.3%
Construction	12.7%	18.3%	13.0%	20.4%
Education	3.2%	1.2%	2.8%	1.3%
Electricity, gas, steam and air conditioning supply	0.0%	0.1%	0.0%	0.0%
Financial and insurance activities	0.2%	0.2%	0.0%	0.4%
Human health and social work activities	1.1%	1.0%	1.1%	1.5%
Information and communication	0.5%	0.4%	0.4%	0.4%
Manufacturing	6.3%	9.9%	5.6%	10.2%
Mining and quarrying	0.1%	0.4%	0.0%	0.2%
Other services activities	1.3%	1.2%	0.9%	1.8%
Professional, scientific and technical activities	1.0%	1.4%	0.6%	1.9%
Public administration and defence;				
compulsory social security	4.1%	5.0%	4.6%	3.8%
Real estate activities	0.4%	0.6%	0.1%	0.4%
Transporting and storage	11.6%	9.5%	12.3%	9.2%
Water supply; sewerage;				
waste managment and remediation activities	0.2%	0.5%	0.5%	0.5%
Wholesale and retail trade;				
repair of motor vehicles and motorcycles	4.6%	9.4%	5.6%	8.6%
Number of obs.	4,563	3,835	872	835



	Reform = 0		Refor	m = 1
	$\mathrm{Post}=0$	$\mathrm{Post}=1$	$\mathrm{Post}=0$	$\mathrm{Post}=1$
Unknown	0.6%	0.7%	0.7%	0.4%
Burgenland	2.1%	4.1%	2.4%	3.8%
Kärnten	10.3%	13.0%	9.8%	12.0%
Niederösterreich	11.4%	17.7%	9.5%	17.8%
Oberösterreich	14.2%	16.4%	16.2%	19.9%
Salzburg	12.7%	7.5%	12.6%	7.3%
Steiermark	10.5%	15.2%	10.9%	14.6%
Tirol	23.1%	10.4%	20.8%	8.8%
Vorarlberg	3.3%	1.7%	4.7%	1.9%
Wien	11.7%	13.3%	12.3%	13.4%
Number of obs.	4,561	3,799	864	833

Share of workers reemployed in a seasonal job Back based on the conservative criterion of Del Bono and Weber (2008)

Bandwidth	10 days	20 days	30 days	40 days	50 days
1999	23.2%	23.9%	23.1%	22.9%	21.6%
2000	22.4%	23%	23.7%	23.7%	22.5%
2001	27.2%	26.7%	25.6%	24.5%	23.2%
2002	26.7%	25.7%	25.2%	25.4%	23.6%
2003	27.7%	27.3%	26.6%	27%	23.8%
2004	26.7%	24.3%	23.5%	23.4%	22.1%

Distribution of the week of $T_{UI \ claim \ start}$



Back