Estimating incentive and welfare effects of non-stationary unemployment benefits

Andrey Launov and Klaus Wälde

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1. Introduction
European unemployment

- The starting point

![Graphs by Countryid](image-url)

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European unemployment

- The starting point

![Graphs by Country](image-url)
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European unemployment

- The starting point

Graphs by Country:
- Germany
- France
- UK
- Italy
- Netherlands
- USA
1. Introduction

European unemployment

The causes

Shocks? Institutions? Interaction of institutions?

→ Interaction of shocks and institutions!

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European unemployment

- The causes

Shocks? Institutions? Interaction of institutions?
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- The options

“get rid of institutions” (as shocks won’t go)
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European unemployment

- The causes

Shocks? Institutions? Interaction of institutions?
→ Interaction of shocks and institutions!

- The options

“get rid of institutions” (as shocks won’t go)

Do we want this?

classic efficiency-equity trade-off
“solved” / addressed by many countries in different ways
1. Introduction

The example of Germany

How did Germany address the efficiency-equity trade-off?
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The example of Germany

How did Germany address the efficiency-equity trade-off?
- Reduction of length and level of payments

How desirable are reforms of this type?

Given risk-aversion, how do length and level of unemployment benefits affect social welfare/insurance mechanism?

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Incentive and welfare effects

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1. Introduction
The example of Germany

How did Germany address the efficiency-equity trade-off?
- Reduction of length and level of payments

![Graph showing net wage (w) and benefits (b_{UI}, b_{UA}) over time with markers for short-term (s), long-term, and unemployment spell (s) with Hartz IV and the point (*) where 53% lose more than what 47% gain.]

- How desirable are reforms of this type?
- Given risk-aversion, how do length and level of unemployment benefits affect social welfare/insurance mechanism?
1. Introduction

Findings

Design of the reform

The low-skilled gain, the medium- and high-skilled lose (both in East and West Germany)

Equilibrium effects

Workers that lose search harder due to the reform - effort increases and their unemployment rates fall

The gross wage falls for almost all groups (not low-skilled in East)

The net wage increases for most groups (not for medium and high-skilled in East) – contradicting the general public perception

Intuition builds on wage bargaining, more vacancies and lower taxation

Firms gain ...

... as long as gross wages fall
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- The net wage increases for most groups

Looking at expected utility, public perception is right again: only low-skilled gain due to reform, medium- and high-skilled lose

Why?

Though medium- and high-skill workers in West gain through higher net wage, they anticipate that they might become long-term unemployed and they lose in an expected utility sense. Hartz IV reforms are welfare reducing for 4 out of 6 groups

Results come from a macro model structurally estimated with micro data

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Results come from a macro model structurally estimated with micro data

Andrey Launov and Klaus Wälde
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Structure of the talk

2. The model

3. Equilibrium properties

4. Structural estimation

5. The effect of labour market reforms

6. Conclusion

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Incentive and welfare effects

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1. Introduction

Structure of the talk

2. The model
3. Equilibrium properties
4. Structural estimation
5. The effect of labour market reforms
6. Conclusion
2. The model

Search and matching model with time-dependent unemployment benefits, endogenous effort, risk-averse households and endogenous individual spell. Households are ex-ante heterogeneous in skills $k$ and type $\chi$. Skills are known, type is unknown to individual (individual can learn over time).

Labour force (consider one skill group to start with) $N$ labour force, $L(t)$ employed, $N_L(t)$ unemployed

Output of worker-firm pair, $\lambda$ exog. separation rate

Spell-dependent benefit system $b(s) = b_{UI}$ for short-term unemployed, $0 < s < b_{UA}$ for long-term unemployed, with replacement rate, e.g. $b_{UI} = \xi_{UI} w$.

We choose $\bar{s}$ identical for all (value of having a job is then constant)

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2. The model

Search and matching model

Households are ex-ante heterogeneous in skills $k$ and type $\chi$. Skills are known, type is unknown to individual (individual can learn over time)

Labour force (consider one skill group to start with)

$N_{\text{labour force}}$, $L(t)$ employed, $N_{\text{L}}(t)$ unemployed

A output of worker-firm pair, $\lambda$ exog. separation rate

Spell-dependent benefit system

$b(s) = b_{\text{UI}}$ for short-term unemployed, $0 < s < b_{\text{UA}}$ for long-term unemployed, $s < s$

with replacement rate, e.g. $b_{\text{UI}} = \xi_{\text{UI}}w$

We choose $\bar{s}$ identical for all (value of having a job is then constant)
2. The model

Search and matching model with time-dependent unemployment benefits,
2. The model

Search and matching model with time-dependent unemployment benefits, endogenous effort, risk-averse households.
2. The model

Search and matching model with time-dependent unemployment benefits, endogenous effort, risk-averse households and endogenous individual spell effect.

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2. The model

Search and matching model with time-dependent unemployment benefits, endogenous effort, risk-averse households and endogenous individual spell effect. Households are ex-ante heterogeneous in skills $k$ and type $\chi$. Skills are known, type is unknown to individual (individual can learn over time)

- Labour force (consider one skill group to start with)
  
  $N$ labour force, $L(t)$ employed, $N - L(t)$ unemployed
  
  $A$ output of worker-firm pair, $\lambda$ exog. separation rate
2. The model

Search and matching model with time-dependent unemployment benefits, endogenous effort, risk-averse households and endogenous individual spell effect. Households are ex-ante heterogeneous in skills $k$ and type $\chi$. Skills are known, type is unknown to individual (individual can learn over time)

- Labour force (consider one skill group to start with)

  \[ N \text{ labour force, } L(t) \text{ employed, } N - L(t) \text{ unemployed} \]

  A output of worker-firm pair, $\lambda$ exog. separation rate

- Spell-dependent benefit system

  \[
  b(s) = \begin{cases} 
  b_{UI} \text{ for short-term unemployed, } & 0 \leq s \leq \bar{s} \\
  b_{UA} \text{ for long-term unemployed, } & \bar{s} < s 
  \end{cases}
  \]

  with replacement rate, e.g.

  \[ b_{UI} = \xi_{UI} w \]

  We choose $\bar{s}$ identical for all (value of having a job is then constant)
2. The model

- Exit rate(s) into employment $\mu(\cdot)$
- Individual effort $\phi(s)$
- Labour market tightness $\theta \equiv V/U$
- An individual's type $\chi \in \{0, 1\}$ with subjective belief $p(s) \equiv \text{Prob}(\chi = 1)$
2. The model

- Exit rate(s) into employment $\mu(.)$

  individual effort $\phi(s)$
  labour market tightness $\theta \equiv V/U$
  an individual’s type $\chi \in \{0, 1\}$ with subjective belief $p(s) \equiv \text{Prob}(\chi = 1)$

  - objective arrival rate: $\mu(\phi(s)\theta, \chi)$
  - subjective arrival rate: $\mu(\phi(s)\theta, p(s))$
2. The model

- Exit rate(s) into employment $\mu(\cdot)$
- Individual effort $\phi(s)$
- Labour market tightness $\theta \equiv V/U$
- An individual’s type $\chi \in \{0, 1\}$ with subjective belief $p(s) \equiv \text{Prob}(\chi = 1)$

  - **Objective** arrival rate: $\mu(\phi(s) \theta, \chi)$
  - **Subjective** arrival rate: $\mu(\phi(s) \theta, p(s))$

- Government budget constraint

$$\kappa \frac{w}{1 - \kappa} L = b_{UI} U_{\text{short}} + b_{UA} U_{\text{long}}$$

where $\kappa$ is the tax rate on gross wage and $w$ is the net wage.
2. The model

Wage setting

\[
\begin{align*}
\text{Collective wage setting} & \\
\text{Wage equation} & \quad (1) \beta u(w_k) + \beta m w_k (.) = (1 - \beta \lambda) u(w_k) + \lambda \rho + \mu(\phi_k(0), 0) u(w_k(b_{ul}, k, \phi_k(0))) + \beta (1 - \kappa) m w_k (.) + \gamma k \theta_k \mu(\phi_k(0), 0) \bar{\mu}_k
\end{align*}
\]

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2. The model

Wage setting

- Nash vs strategic bargaining?
2. The model

Wage setting

- Nash vs strategic bargaining?
- We use Nash bargaining, as outside option of union is stationary under collective bargaining (with and without history-dependent entitlement $\bar{s}(l)$)
2. The model

Wage setting

- Nash vs strategic bargaining?
- We use Nash bargaining, as outside option of union is stationary under collective bargaining (with and without history-dependent entitlement $\bar{s}(l)$)

Collective wage setting
2. The model

Wage setting

- Nash vs strategic bargaining?
- We use Nash bargaining, as outside option of union is stationary under collective bargaining (with and without history-dependent entitlement \(\bar{s}(l)\))

Collective wage setting

- Wage equation

\[
(1 - \beta) u (w_k) + \beta m_{w_k} (\cdot) w_k = \\
(1 - \beta) u (b_{UI,k}, \phi_k (0)) + \beta (1 - \kappa) m_{w_k} (\cdot) \left[ A_k + \gamma_k \theta_k \frac{\mu (\phi_k (0), 0)}{\bar{\mu}_k} \right]
\]

where

\[
m_{w_k} (w_k, b_{UI}, \phi_k (0)) \equiv u_w (w_k) + \frac{\lambda_k}{\rho + \mu (\phi_k (0), 0)} u_w (b_{UI,k}, \phi_k (0))
\]
3. Equilibrium properties

3.1 Individual (un)employment probabilities

We need expressions for unemployment rates, starting with group $k$ and some type $\chi$. Semi-Markov setup probability $p_{eu}(\tau)$ of a person to be unemployed in $\tau$, given current spell $s(t)$. Volterra integral equations for $s(t) = 0$:

$$p_{uu}(\tau, 0) = e^{\int_{\tau}^{t} \mu(s(y)) \, dy} + \int_{\tau}^{t} e^{\int_{v}^{t} \mu(s(y)) \, dy} \mu(s(v)) \, dv$$

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We need expression for unemployment rate,
3. Equilibrium properties

3.1 Individual (un)employment probabilities

We need expression for unemployment rate, starting with group $k$ and some type $\chi$. 
3. Equilibrium properties
3.1 Individual (un)employment probabilities

We need expression for unemployment rate, starting with group $k$ and some type $\chi$

- Semi-Markov setup

probability $\left\{ \begin{array}{c} p_{eu}(\tau) \\ p_{uu}(\tau, s(t)) \end{array} \right\}$ of a person $\left\{ \begin{array}{c} \text{employed} \\ \text{unemployed} \end{array} \right\}$ in $t$ to be unemployed in $\tau$, given current spell $s(t)$
3. Equilibrium properties
3.1 Individual (un)employment probabilities

We need expression for unemployment rate, starting with group $k$ and some type $\chi$

- **Semi-Markov setup**
  
  Probability $\begin{cases} p_{eu}(\tau) \\ p_{uu}(\tau, s(t)) \end{cases}$ of a person $\begin{cases} \text{employed} \\ \text{unemployed} \end{cases}$ in $t$ to be unemployed in $\tau$, given current spell $s(t)$

- **Volterra integral equations for $s(t) = 0$**

  \[
  p_{uu}(\tau, 0) = e^{-\int_{t}^{\tau} \mu(s(y))dy} + \int_{t}^{\tau} e^{-\int_{t}^{\nu} \mu(s(y))dy} \mu(s(\nu)) p_{eu}(\tau - \nu) d\nu
  \]
3. Equilibrium properties

3.1 Individual (un)employment probabilities

We need expression for unemployment rate, starting with group \( k \) and some type \( \chi \)

- Semi-Markov setup

  probability \( \left\{ \begin{align*}
p_{eu}(\tau) \\
p_{uu}(\tau, s(t))
\end{align*} \right\} \)
  of a person \( \left\{ \begin{align*}
\text{employed} \\
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\end{align*} \right\} \)
  in \( t \) to
  be unemployed in \( \tau \), given current spell \( s(t) \)

- Volterra integral equations for \( s(t) = 0 \)

\[
p_{uu}(\tau, 0) = e^{-\int_{t}^{\tau} \mu(s(y))dy} + \int_{t}^{\tau} e^{-\int_{t}^{v} \mu(s(y))dy} \mu(s(v)) p_{eu}(\tau - v) dv
\]

\[
\begin{array}{c}
e \\
\downarrow \\
u \\
\downarrow \\
t \\
\downarrow \\
v \\
\downarrow \\
\tau
\end{array}
\]

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Incentive and welfare effects

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3. Equilibrium properties

3.2 Aggregate unemployment

Steady state with pure idiosyncratic risk

\[ U = p_{eu} \rho + R_\infty \int p_{ue}(s(t)) dF(s(t)) \]

Link to textbook model

\[ p_{eu} = \lambda \lambda + \mu, \quad p_{ue} = \mu \lambda + \mu (\lambda + \mu) \]

\[ U = \lambda \lambda + \mu \]

Aggregation over all groups \( K \) and types \( u_k \)

\[ u_k = \pi \chi u_k, 1 + (\pi \chi) u_k, 0, u = \sum_{n=1}^{N_k} N u_k \]
Steady state with pure idiosyncratic risk

\[
\frac{U}{N} = \frac{p_{eu}}{p_{eu} + \int_0^\infty p_{ue}(s(t)) \, dF(s(t))}
\]
3. Equilibrium properties

3.2 Aggregate unemployment

- Steady state with pure idiosyncratic risk

\[
\frac{U}{N} = \frac{p_{eu}}{p_{eu} + \int_{0}^{\infty} p_{ue}(s(t)) dF(s(t))}
\]

- Link to text-book model

\[
p_{eu} = \frac{\lambda}{\lambda + \mu}, \quad p_{ue} = \frac{\mu}{\lambda + \mu} \Rightarrow \frac{U}{N} = \frac{\lambda}{\lambda + \mu}
\]
3. Equilibrium properties

3.2 Aggregate unemployment

- Steady state with pure idiosyncratic risk

\[
\frac{U}{N} = \frac{p_{eu}}{p_{eu} + \int_0^\infty p_{ue}(s(t)) \, dF(s(t))}
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\[
p_{eu} = \frac{\lambda}{\lambda + \mu}, \quad p_{ue} = \frac{\mu}{\lambda + \mu} \implies \frac{U}{N} = \frac{\lambda}{\lambda + \mu}
\]

- Aggregation over all groups \( K \) and types

\[
u_k = \pi^\lambda u_{k,1} + (1 - \pi^\lambda) u_{k,0}, \quad u = \sum_{k=1}^n \frac{N_k}{N} u_k
\]
3. Equilibrium properties

3.3 Steady state

Utility function

\[ u(b(s), \phi(s)) = b(s) \frac{1}{\sigma} \left[ \phi(s) \theta \right]^{\alpha} \]

Objective

arrival rate

\[ \mu(\phi(s) \theta, \chi) = (\frac{1}{\chi} \eta_0 + \chi \eta_1) \left[ \phi(s) \theta \right]^{\alpha} \]

Subjective

arrival rate

\[ \mu(\phi(s) \theta, p(s)) = (\frac{1}{p(s)} \eta_0 + p(s) \eta_1) \left[ \phi(s) \theta \right]^{\alpha} \]

Evolution of the belief

\[ dp(s) ds = p(s) \left( 1 - p(s) \right) \left( \mu(\phi(s) \theta, 1) - \mu(\phi(s) \theta, 0) \right) < 0 \]
3. Equilibrium properties

3.3 Steady state

Functional forms

- **Utility function**
  
  \[ u(b(s), \phi(s)) = \frac{b(s)^{1-\sigma} - 1}{1 - \sigma} - \phi(s) \]

- **Objective** arrival rate
  
  \[ \mu(\phi(s) \theta, \chi) = ((1 - \chi) \eta_0 + \chi \eta_1) [\phi(s) \theta]^\alpha \]

- **Subjective** arrival rate
  
  \[ \mu(\phi(s) \theta, p(s)) = ((1 - p(s)) \eta_0 + p(s) \eta_1) [\phi(s) \theta]^\alpha \]
3. Equilibrium properties

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Functional forms

- Utility function

\[
\begin{align*}
    u(b(s), \phi(s)) &= b(s)^{1-\sigma} - 1 \quad \frac{1}{1 - \sigma} - \phi(s)
\end{align*}
\]

- Objective arrival rate

\[
\begin{align*}
    \mu(\phi(s) \theta, \chi) &= ((1 - \chi) \eta_0 + \chi \eta_1) [\phi(s) \theta]^\alpha
\end{align*}
\]

- Subjective arrival rate

\[
\begin{align*}
    \mu(\phi(s) \theta, p(s)) &= ((1 - p(s)) \eta_0 + p(s) \eta_1) [\phi(s) \theta]^\alpha
\end{align*}
\]

Evolution of the belief

\[
\begin{align*}
    \frac{dp(s)}{ds} &= -p(s) (1 - p(s)) (\mu(\phi(s) \theta, 1) - \mu(\phi(s) \theta, 0)) < 0
\end{align*}
\]
4. Estimation

4.1 Data and estimation method

Data (GSOEP) - flow sample of entry into (un)employment (each month of 1997 and 1998), giving us total of 743 individuals. (un)employment duration in current state and employment history of unemployed, giving us:

- $l$, $s$, $b_{UI}$, $b_{UA}$
- $\bar{s}$, $w$
- plus socio-economic variables $x$

Non-parametric exit rates falling exit rates could be individual belief or unobserved heterogeneity, providing a good fit is important for credibility of policy evaluation.
4. Estimation

4.1 Data and estimation method

Data (GSOEP)

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- $l$
- $s$
- $b_{UI}$
- $b_{UA}$
- $\bar{s}$
- $w$ plus socio-economic variables

Aggregate data labour market tightness $\theta_{V/U}$ as average over 1997 and 1998

Maximum likelihood estimation

Individual variables: $z = f(b_{UI}, b_{UA}, \bar{s}, w, \theta, g, x) = f(sex, region, skill, age)$

unobs. heterogeneity: (i) matching rate parameter $\eta(x, \nu)$  
(ii) $\pi_{UA}$ share of individuals who pass $UA$ means test

Parameter set: $\xi = n, \alpha, \sigma, \pi_{UA}, v, \pi_{\chi}, \zeta, \lambda, \zeta, \eta, o$

Duration model with structural densities
4. Estimation
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- (un)employment duration in current state and employment history of unemployed, giving us: $l$, $s$, $b_{UI}$, $b_{UA}$, $\bar{s}$, $w$ plus socio-econ. variables $x$
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- (un)employment duration in current state and employment history of unemployed, giving us: \( l, s, b_{UI}, b_{UA}, \bar{s}, w \) plus socio-econ.variables \( x \)

Aggregate data

- Labour market tightness \( \theta \equiv V/U \) as average over 1997 and 1998
4. Estimation

4.1 Data and estimation method

Data (GSOEP)

- flow sample of entry into (un)employment (each month of 1997 and 1998), giving us total of 743 individuals
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Maximum likelihood estimation

- Individual variables: $z = \{b_{UI}, b_{UA}, \bar{s}, w, \theta\}$,
  $x = \{\text{sex, region, skill, age}\}$
- unobs. heterogeneity: (i) matching rate parameter $\eta(x, \nu)$
  (ii) $\pi^{UA}$ share of individ. who pass UA means test
- Parameter set: $\xi = \{\alpha, \sigma, \pi^{UA}, \nu, \pi^X, \zeta_\lambda, \zeta_\eta\}$

Duration model with structural densities
4. Estimation
4.2 Estimated model parameters

- Parameters without slope coefficients (see paper for more)
4. Estimation
4.2 Estimated model parameters

- **Parameters without slope coefficients (see paper for more)**

<table>
<thead>
<tr>
<th></th>
<th>Coeff.</th>
<th>SE</th>
<th>z-Stat.</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\zeta_\lambda$: (intercept)</td>
<td>-4.4948</td>
<td>0.0566</td>
<td>-79.4364</td>
<td>0.0000</td>
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<td>$\zeta_\eta$: (intercept)</td>
<td>-4.0928</td>
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<td>-7.6242</td>
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<tr>
<td>$\alpha$</td>
<td>0.4059</td>
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<td>$\sigma$</td>
<td>0.7639</td>
<td>0.2013</td>
<td>3.7954</td>
<td>0.0001</td>
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<tr>
<td>$\mu^{UA}$</td>
<td>0.2447</td>
<td>0.0311</td>
<td>7.8666</td>
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<tr>
<td>$\nu$</td>
<td>1.6974</td>
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<tr>
<td>$\pi\chi$</td>
<td>0.9246</td>
<td>0.0402</td>
<td>22.9807</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

- **Functional forms (reminder)**

\[
\begin{align*}
    u(b(s), \phi(s)) &= \frac{b(s)^{1-\sigma} - 1}{1 - \sigma} - \phi(s) \\
    \mu(.) &= \eta(s) [\phi(s) \theta]^\alpha, \\
    \eta(s,x) &= (1 - p(s)) \eta_0 + p(s) \eta_1 \\
    \eta_0 &\equiv e^{x'\zeta\eta}, \quad \eta_1 \equiv e^{x'\zeta\eta + \nu}, \\
    \lambda(x,\nu) &= e^{x'\zeta\lambda}
\end{align*}
\]
predicted survivor functions (solid lines with 95% confidence interval) and Kaplan-Meier survivor probabilities (circles)
5. Evaluating labour market reforms

5.1 Pre-reform steady state

1. Take estimated model as a description of pre-reform steady state.

2. Undertake comparative static analysis of reform measures (UA, ñs) using the equilibrium model.

3. Do this for 6 groups: East- and West-Germany times three skill groups based on education level (low, medium, high).
5. Evaluating labour market reforms

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5. Evaluating labour market reforms

5.1 Pre-reform steady state

- Micro dynamics
5. Evaluating labour market reforms

5.1 Pre-reform steady state

- Micro dynamics

![Graphs showing belief, value of unemployment, effort paths for different groups, and true and subjective exit rates.](image)
5. Evaluating labour market reforms

5.2 The effects of the reform
5. Evaluating labour market reforms

5.2 The effects of the reform

- The reform (reminder of broad idea)
The reform (reminder of broad idea)

The reform (reminder of broad idea)
5. Evaluating labour market reforms

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- The reform (in detail)
5. Evaluating labour market reforms

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- (Joint) Aggregate effects of UA payments and entitlement length
5. Evaluating labour market reforms

5.2 The effects of the reform

(Joint) Aggregate effects of UA payments and entitlement length

Andrey Launov and Klaus Wälde (University of Mainz, UC Louvain-la-Neuve and CESifo)

Incentive and welfare effects

April 2012 24 / 33
5. Evaluating labour market reforms
5.2 The effects of the reform

(Joint) Distributional effects of UA payments and entitlement length
5. Evaluating labour market reforms
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(Joint) Distributional effects of UA payments and entitlement length

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Incentive and welfare effects
April 2012 25 / 33
5. Evaluating labour market reforms

5.2 The effects of the reform

The messages (distribution)
The messages (distribution)

- Two groups are favoured by the reform ... 
- but four groups gain in terms of net wage ... 
- yet, only two groups gain in intertemporal sense
5. Evaluating labour market reforms
5.2 The effects of the reform

The mechanism

Two groups are favoured by the reform ... new ... fixed UA level is higher than previous proportional UA level (entitlement length to UI payments reduced for all)

Four groups gain in terms of net wage ... What overcompensates the drop in the outside option?

(i) more vacancies per unempl. worker (due to higher search effort)
(ii) wage bargaining (given estimated para/s) implies higher wage
(iii) tax rate falls (fewer unemployed, lower benefits)

Only two groups gain in intertemporal sense ... The value of being employed falls for all but those favoured by the reform, gain in net wage is not enough to overcompensate the expected loss once unemployed
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The messages (efficiency)

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<tr>
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<th>W-Medium</th>
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<th>E-Medium</th>
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<tr>
<td>Change in Unemployment Rate (%)</td>
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Groups with highest unemployment rates even experienced an increase in unemployment rates.

Overall effect basically zero.
5. Evaluating labour market reforms

5.2 The effects of the reform

The messages (efficiency)

- Labour market reform leads to rising and falling unemployment rates
5. Evaluating labour market reforms

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The messages (efficiency)

- Labour market reform leads to rising and falling unemployment rates
- The reduction of unemployment rates by skill groups in percentage points

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What if the reform went further?

- Let us go beyond Hartz and decrease UA benefits $b_{UA}$ and entitlement length $\bar{s}$ further

Effects are all small.

Reduction of $b_{UA}$ and $\bar{s}$ by 1/3 reduces unemployment rate by only 1/5.

One needs to pay a “high price” for a “low benefit.”

Welfare effects would be negative of course as well.

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Incentive and welfare effects

April 2012
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6. Conclusion

European unemployment has been fought successfully in many countries, however what about the insurance effects of unemployment benefit systems?

Framework

Random search and matching framework

Spell-dependent unemployment benefits

Endogenous individual duration dependence

Methodological results - Derivation of:

Learning behaviour leading to downward-sloping individual duration dependence

Individual unemployment probabilities using semi-Markov structure

Aggregate unemployment rate

Close theory-data link

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Incentive and welfare effects

April 2012
6. Conclusion

Background

- European unemployment has been fought successfully in many countries
- there is more than output and employment in life, however
- what about insurance effect of UI systems?
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Bad reform!

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April 2012
Thank you!