Thumbscrew for agencies or for individuals?
How to reduce unemployment

Andrey Launov and Klaus Wälde

University of Mainz

June 2014

1. How to reduce unemployment?

1.1 The role of institutions

1. How to reduce unemployment?

1.1 The role of institutions

- Central institutions

  Minimum wages, unions, hiring subsidies, labour taxes, unemployment benefits (Blau and Kahn, 1999; Nickel and Layard, 1999)

1. How to reduce unemployment?

1.1 The role of institutions

- Central institutions

    Minimum wages, unions, hiring subsidies, labour taxes, unemployment
    benefits (Blau and Kahn, 1999; Nickel and Layard, 1999)

- Equilibrium employment effect of institutions
    - → All of above (Pries and Rogerson, 2005; Yashiv, 2004)
    - → Experience rating (Cahuc and Malherbet, 2004)
    - → Minimum wage (Flinn, 2006)
    - → Union coverage (Boeri and Burda, 2009)
    - → In-work benefits (Immervoll et al., 2007)
    - → Layoff tax & payroll subsidy (L'Haridon and Malherbet, 2009)
    - → Temporary contracts & firing costs (Bentolila et al., 2012)
    - → Unemployment benefits (Launov and Wälde, 2013)

1. How to reduce unemployment?

1.1 The role of institutions

- Central institutions

    Minimum wages, unions, hiring subsidies, labour taxes, unemployment benefits (Blau and Kahn, 1999; Nickel and Layard, 1999)

- Equilibrium employment effect of institutions
    - → All of above (Pries and Rogerson, 2005; Yashiv, 2004)
    - → Experience rating (Cahuc and Malherbet, 2004)
    - → Minimum wage (Flinn, 2006)
    - → Union coverage (Boeri and Burda, 2009)
    - → In-work benefits (Immervoll et al., 2007)
    - → Layoff tax & payroll subsidy (L'Haridon and Malherbet, 2009)
    - → Temporary contracts & firing costs (Bentolila et al., 2012)
    - → Unemployment benefits (Launov and Wälde, 2013)

- Public Employment Agency (PEA)?

    Largely left aside, although key to reducing coordination frictions (Petrongolo and Pissarides, 2001)

1. How to reduce unemployment?
1.2 Evidence on PEA?

- Equilibrium effects of the Agency
  - Pissarides (1979), Fougère et al. (2009):
    - Search through agencies and private search; potential negative effect of more effective agency via discouraging private search
  - Jung and Kuhn (2014):
    - Explain the difference between the US and Germany in 80s-90s by the difference in matching effectiveness of PEA (not benefits!)
  - Krebs and Scheffel (2014):
    - Matching effectiveness and cost of recessions
  - Selected aspects:
    - Counseling (Cahuc & Le Barbanchon, 2010) / Middleman (Yavaș, 1994)

1. How to reduce unemployment?
1.2 Evidence on PEA?

- Equilibrium effects of the Agency
  - Pissarides (1979), Fougère et al. (2009):
    - Search through agencies and private search; potential negative effect of more effective agency via discouraging private search
  - Jung and Kuhn (2014):
    - Explain the difference between the US and Germany in 80s-90s by the difference in matching effectiveness of PEA (not benefits!)
  - Krebs and Scheffel (2014):
    - Matching effectiveness and cost of recessions
  - Selected aspects:
    - Counseling (Cahuc & Le Barbanchon, 2010) / Middleman (Yavaş, 1994)

- Effects in reduced-form literature
  - Holzer (1988), Blau and Robins (1990) and the Followers:
    - Fairly wide but no link between impact estimates and the change of the equilibrium unemployment rate

- Our goal
  - Analyze the incentive structure and the employment effect of a real-life reform aimed at increasing effectiveness of matching
    - → Thumbscrew for Agencies
  - Compare it with a more traditional reform (of unemployment benefits)
    - → Thumbscrew for Unemployed

1. How to reduce unemployment?

- Our goal
  - Analyze the incentive structure and the employment effect of a real-life reform aimed at increasing effectiveness of matching
    - → Thumbscrew for Agencies
  - Compare it with a more traditional reform (of unemployment benefits)
    - → Thumbscrew for Unemployed

- Conceptual modelling framework (Launov and Wälde, 2013)
  - Structurally estimated nonstationary equilibrium matching model with time-varying productivity of PEA and time-varying benefits

1. How to reduce unemployment?

1.3 Our goal and findings

- Our goal
  - Analyze the incentive structure and the employment effect of a real-life reform aimed at increasing effectiveness of matching
    - → Thumbscrew for Agencies
  - Compare it with a more traditional reform (of unemployment benefits)
    - → Thumbscrew for Unemployed

- Conceptual modelling framework (Launov and Wälde, 2013)
  - Structurally estimated nonstationary equilibrium matching model with time-varying productivity of PEA and time-varying benefits

- Our findings
  - The reform of PEA in Germany explains up to 33.8% of the observed post-reform reduction in unemployment
  - Traditional benefits and entitlement reductions of a reasonable size explain just 7.7% of the observed unemployment reduction
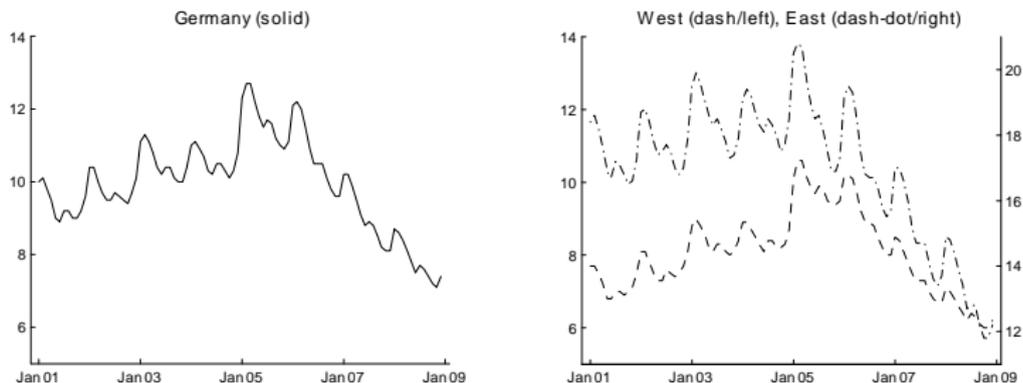
2. German unemployment and Hartz reforms

2.1 Stylized facts

Figure 1 Unemployment rate in Germany in 2001-2008

(Source: Bundesagentur für Arbeit)

- Structural break in 2005 (benefit reduction: 01.01.2005!)
- Reduction of 3.91 ppt (equiv. 33.4%) between 2005 and 2008

2. German unemployment and Hartz reforms

- Hartz I (effective as of 01.01.2003)
  - Various training and employment-stimulating measures
  - Job market integration of workers over 50
  - Strengthened sanctions and increased pressure to search
  - Established personnel service agencies as intermediaries between job searchers and employers to coordinate loan work placement
- Hartz II (effective as of 01.01.2003)
  - New rules for Mini-Jobs; introduction of Midi-Jobs
  - New start-up subsidies
- Hartz III (effective as of 01.01.2004)
  - Internal administrative reform of the entire Federal Employment Agency
  - "Job Centers" as a unified address for benefit claimants
- Hartz IV (effective as of 01.01.2005)
  - Fixed unemployment assistance benefits (reduction of benefits on average)
  - Reduced entitlement to unemployment insurance benefits

2. German unemployment and Hartz reforms
2.2 Institutional setting

- Hartz I
  - Various training and employment-stimulating measures
  - Job market integration of workers over 50
  - Strengthened sanctions and increased pressure to search
  - Established personnel service agencies as intermediaries between job searchers and employers to coordinate loan work placement

- Hartz II
  - New rules for Mini-Jobs; introduction of Midi-Jobs
  - New start-up subsidies

- Hartz III
  - Internal administrative reform of the entire Federal Employment Agency
  - "Job Centers" as a unified address for benefit claimants

- Hartz IV
  - Fixed unemployment assistance benefits (reduction of benefits on average)
  - Reduced entitlement to unemployment insurance benefits

2. German unemployment and Hartz reforms
2.2 Institutional setting

- Hartz I
  - Various training and employment-stimulating measures
  - Job market integration of workers over 50
  - Strengthened sanctions and increased pressure to search
  - Established personnel service agencies as intermediaries between job searchers and employers to coordinate loan work placement

- Hartz II
  - New rules for Mini-Jobs; introduction of Midi-Jobs
  - New start-up subsidies

- Hartz III - Reform of PEA - pure change in matching effectiveness
  - Internal administrative reform of the entire Federal Employment Agency
  - "Job Centers" as a unified address for benefit claimants

- Hartz IV - Benefit reform - pure change in benefits & entitlement
  - Fixed unemployment assistance benefits (reduction of benefits on average)
  - Reduced entitlement to unemployment insurance benefits

3. Theory
3.1 Key features

3. Theory
3.1 Key features

Two-state ($\mathcal{E}$ and $\mathcal{U}$) Diamond-Mortensen-Pissarides matching model with

3. Theory
3.1 Key features

Two-state ($\mathcal{E}$ and $\mathcal{U}$) Diamond-Mortensen-Pissarides matching model with

- Unemployment insurance (b_{UI}) and assistance (b_{UA}) benefits proportional to previous wage (w) with fixed and known time limit ($\bar{s}$) on insurance benefits

$$b\left(s\right) = \left\{ \begin{array}{ll} b_{UI} = \xi_{UI} w, & s \leq \bar{s} \\ b_{UA} = \xi_{UA} w, & s > \bar{s}, \quad \xi_{UI} > \xi_{UA}: \text{ replacement rates} \end{array} \right.$$

- Time-dependent matching effectiveness of the agency for short- (ψ_{UI}) and long-term (ψ_{UA}) unemployed

$$\psi\left(s\right) = \left\{ \begin{array}{ll} \psi_{UI}, & s \leq \bar{s} \\ \psi_{UA}, & s > \bar{s}, \quad \psi_{UI} >, =, < \psi_{UA} \end{array} \right.$$

3. Theory
3.1 Key features

Two-state ($\mathcal{E}$ and $\mathcal{U}$) Diamond-Mortensen-Pissarides matching model with

- Unemployment insurance (b_{UI}) and assistance (b_{UA}) benefits proportional to previous wage (w) with fixed and known time limit ($\bar{s}$) on insurance benefits

$$b\left(s\right) = \left\{ \begin{array}{ll} b_{UI} = \xi_{UI} w, & s \leq \bar{s} \\ b_{UA} = \xi_{UA} w, & s > \bar{s}, \quad \xi_{UI} > \xi_{UA}: \text{ replacement rates} \end{array} \right.$$

- Time-dependent matching effectiveness of the agency for short- (ψ_{UI}) and long-term (ψ_{UA}) unemployed

$$\psi\left(s\right) = \left\{ \begin{array}{ll} \psi_{UI}, & s \leq \bar{s} \\ \psi_{UA}, & s > \bar{s}, \quad \psi_{UI} >, =, < \psi_{UA} \end{array} \right.$$

- Endogenous search effort: $\phi\left(s\right)$

3. Theory
3.1 Key features

Two-state ($\mathcal{E}$ and $\mathcal{U}$) Diamond-Mortensen-Pissarides matching model with

- Unemployment insurance (b_{UI}) and assistance (b_{UA}) benefits proportional to previous wage (w) with fixed and known time limit ($\bar{s}$) on insurance benefits

$$b\left(s\right) = \begin{cases} b_{UI} = \xi_{UI}w, & s \leq \bar{s} \\ b_{UA} = \xi_{UA}w, & s > \bar{s}, \quad \xi_{UI} > \xi_{UA}: \text{ replacement rates} \end{cases}$$

- Time-dependent matching effectiveness of the agency for short- (ψ_{UI}) and long-term (ψ_{UA}) unemployed

$$\psi\left(s\right) = \begin{cases} \psi_{UI}, & s \leq \bar{s} \\ \psi_{UA}, & s > \bar{s}, \quad \psi_{UI} >, =, < \psi_{UA} \end{cases}$$

- Endogenous search effort: $\phi\left(s\right)$
- Risk-averse workers, *ex-ante* heterogeneous over
  - observed individual characteristics
  - unobserved individual search productivity: χ, $\chi = \{0, 1\}$

3. Theory
3.1 Key features

Two-state ($\mathcal{E}$ and $\mathcal{U}$) Diamond-Mortensen-Pissarides matching model with

- Unemployment insurance (b_{UI}) and assistance (b_{UA}) benefits proportional to previous wage (w) with fixed and known time limit ($\bar{s}$) on insurance benefits

$$b(s) = \begin{cases} b_{UI} = \xi_{UI} w, & s \leq \bar{s} \\ b_{UA} = \xi_{UA} w, & s > \bar{s}, \quad \xi_{UI} > \xi_{UA}: \text{ replacement rates} \end{cases}$$

- Time-dependent matching effectiveness of the agency for short- (ψ_{UI}) and long-term (ψ_{UA}) unemployed

$$\psi(s) = \begin{cases} \psi_{UI}, & s \leq \bar{s} \\ \psi_{UA}, & s > \bar{s}, \quad \psi_{UI} >, =, < \psi_{UA} \end{cases}$$

- Endogenous search effort: $\phi(s)$
- Risk-averse workers, *ex-ante* heterogeneous over
  - observed individual characteristics
  - unobserved individual search productivity: χ, $\chi = \{0, 1\}$
- Bayesian learning over own search productivity: $p(s) = P(\chi = 1; s)$

3. Theory
3.1 Key features

- Transition rates

  $\mathcal{U} \to \mathcal{E}$: $\mu(s) = \mu(\phi(s)\theta, \psi(s), p(s))$

  Depends on:

  tightness θ, search effort $\phi(s)$, agency effectiveness $\psi(s)$, and the subjective probability of being productive in search $p(s)$

  $\mathcal{E} \to \mathcal{U}$: λ

  λ is exogenous

3. Theory
3.1 Key features

- Transition rates

  $\mathcal{U} \to \mathcal{E}$: $\mu(s) = \mu(\phi(s)\theta, \psi(s), p(s))$

  Depends on:

  tightness θ, search effort $\phi(s)$, agency effectiveness $\psi(s)$, and the subjective probability of being productive in search $p(s)$

  $\mathcal{E} \to \mathcal{U}$: λ

  λ is exogenous

- Optimal behaviour
  - Workers: Maximize value of unemployment by optimally choosing $\phi(s)$ given the institutions $[\psi(s)$ and $b(s)]$
  - Firms: Maximize profits by posting costly vacancies
  - Government: Operates balanced budget to finance benefits

3. Theory
3.1 Key features

- Transition rates

  $\mathcal{U} \to \mathcal{E}$: $\mu(s) = \mu(\phi(s)\theta, \psi(s), p(s))$

  Depends on:

  > tightness θ, search effort $\phi(s)$, agency effectiveness $\psi(s)$, and the subjective probability of being productive in search $p(s)$

  $\mathcal{E} \to \mathcal{U}$: λ

  > λ is exogenous

- Optimal behaviour
  - Workers: Maximize value of unemployment by optimally choosing $\phi(s)$ given the institutions $[\psi(s)$ and $b(s)]$
  - Firms: Maximize profits by posting costly vacancies
  - Government: Operates balanced budget to finance benefits

- Equilibrium
  - Endogenous distribution of unemployment duration (given institutions)
  - Endogenous wage, tightness & unemployment rate (given institutions)

- Uniform increase in productivity of the agency
 - Matching rate increases, unemployment goes down unambiguously

3. Theory

3.2 Employment effect of a more productive agency

- Uniform increase in productivity of the agency
  - Matching rate increases, unemployment goes down unambiguously
- Heterogeneous increase in productivity of the agency
  - Ambiguity: Differing increases in productivities of the agency for short- and long-term unemployed can *increase* the unemployment rate!
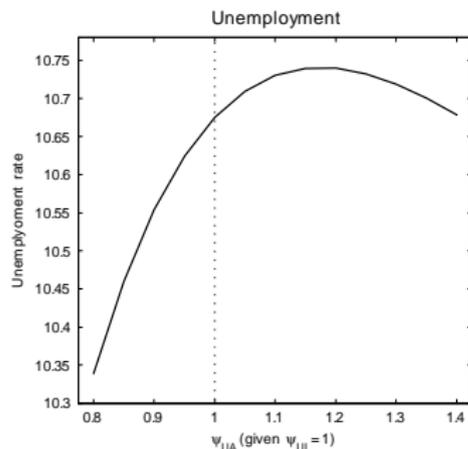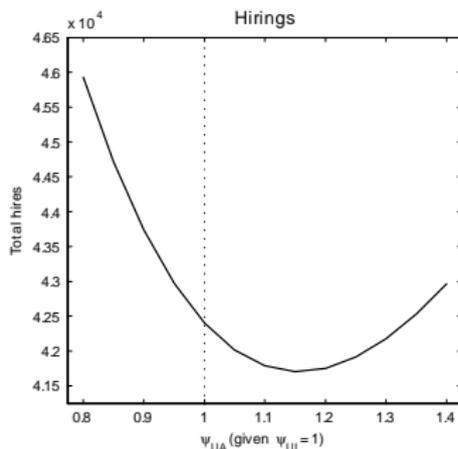
- Where does this paradox come from?

3. Theory

3.2 Employment effect of a more productive agency

- Where does this paradox come from?

  Two opposing influences on the exit ($\Rightarrow$ unemployment) rate

  - Productivity effect

    Higher productivity of PEA helps long-term unemployed workers to find a job faster: A positive effect

  - Incentive effect

    Anticipating higher future exit rates, short-term unemployed workers put less effort into finding a job: A negative effect

  Sum of both effects determines the direction of change

3. Theory
3.2 Employment effect of a more productive agency

- Where does this paradox come from?

  Two opposing influences on the exit ($\Rightarrow$ unemployment) rate

  - Productivity effect

    Higher productivity of PEA helps long-term unemployed workers to find a job faster: A positive effect

  - Incentive effect

    Anticipating higher future exit rates, short-term unemployed workers put less effort into finding a job: A negative effect

  Sum of both effects determines the direction of change

- Place in the existing literature

  - Complementary to Pissarides (1979) and Fougère et al. (2009)

- Structural estimation

    Estimates of structural parameters in the pre-reform steady state from Launov and Wälde (2013)

- Structural estimation

    Estimates of structural parameters in the pre-reform steady state from Launov and Wälde (2013)

- Structural prediction of the productivity increase of PEA
    - Homogeneous increase of PEA productivity

    $$\sum_k \bar{\mu}_k(\psi) U_k = \delta \sum_k \bar{\mu}_k^* U_k^*,$$

    δ: external estimate of the increase in matches in the new equilibrium (Klinger & Rothe 2012: $\delta = 3.5\%$)

    - Heterogeneous increase of productiv*ities* of PEA (paradox arises)

    $$\sum_k \bar{\mu}_k(\psi^{UI}) U_k^{\text{short}} = \delta^{UI} \sum_k \bar{\mu}_k^* U_k^{*\text{short}}$$
    $$\sum_k \bar{\mu}_k(\psi^{UA}) U_k^{\text{long}} = \delta^{UA} \sum_k \bar{\mu}_k^* U_k^{*\text{long}}$$

    δ^{UI} and δ^{UA}: external estimates of the increase in matches for short- and long-term unemployed in the new equilibrium (Klinger & Rothe 2012: $\delta^{UI} = 2.1\%$, $\delta^{UA} = 6.1\%$)

4. The role of public employment agency

| | Identical impact | | Differing impact | |
	absolute red. (ppt)	explained red. (%)	absolute red. (ppt)	explained red. (%)
Hartz III	1.98	50.64 %	1.32	33.76 %
Hartz IV			0.08	2.05 %
Hartz III and IV	2.08	52.94 %	1.62	41.43 %
H-IV given H-III	0.10	2.56 %	0.30	7.67 %

- Importance of the reforms relative to each other / Design issues
  - Reform of PEA (1.32) is 4–5 times more successful than unemployment benefit reduction (0.30)
  - Disincentive effect costs 0.66 ppt of not attained reduction
  - Reduction of benefits has stronger effect when productivity of agency is high (0.30 vs 0.10)

- PEA can be an important source of improving market performance
  - Social acceptability: Reduction of coordination frictions does not lead to distributional effects, unlike benefit reduction (poverty, inequality)

- PEA can be an important source of improving market performance
  - Social acceptability: Reduction of coordination frictions does not lead to distributional effects, unlike benefit reduction (poverty, inequality)

- German benchmarks attained by Hartz III (Weise, 2011)
  - Remodeled an administrative bureaucracy into a service center
  - Restructured work flow: Introduced call centers, reception desks, consultations upon appointment and without interruptions
  - Targets for workload: 150 claimants per case worker, 75 claimants under 25 years of age per case worker (met in 2012 only)
  - Priorities: Priority scheme in processing cases of those over 50

Conclusion

Conclusion

- The role of PEA reform
  - Improved bureaucracy has significant unemployment-reducing potential in a typical welfare state
  - The reform of PEA explains up to 33.8% of the observed post-reform reduction in unemployment

Conclusion

- The role of PEA reform
  - Improved bureaucracy has significant unemployment-reducing potential in a typical welfare state
  - The reform of PEA explains up to 33.8% of the observed post-reform reduction in unemployment

- The role of benefit reform
  - Traditional unemployment benefit reform has a weaker effect (7.7% conditional on the prior reform of PEA)

Conclusion

- The role of PEA reform
  - Improved bureaucracy has significant unemployment-reducing potential in a typical welfare state
  - The reform of PEA explains up to 33.8% of the observed post-reform reduction in unemployment

- The role of benefit reform
  - Traditional unemployment benefit reform has a weaker effect (7.7% conditional on the prior reform of PEA)

- How to reduce unemployment?

Conclusion

- The role of PEA reform
    - Improved bureaucracy has significant unemployment-reducing potential in a typical welfare state
    - The reform of PEA explains up to 33.8% of the observed post-reform reduction in unemployment

- The role of benefit reform
    - Traditional unemployment benefit reform has a weaker effect (7.7% conditional on the prior reform of PEA)

- How to reduce unemployment?
    - Do not focus exclusively on benefits
    - Look into reforming bureaucracies!

Thank You!