Thumbscrews for agencies or for individuals?
How to reduce unemployment

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February 2014

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

1. How to reduce unemployment?

1.2 Evidence on Public Employment Agencies (PEA)?

- Search and matching literature
  - Pissarides (1979), Fougère et al. (2009):
    Search through agencies and private search; potentially negative but quantitatively positive effect of more effective agencies
  - Jung and Kuhn (2013):
    Explain difference in labour market flows between the US and Germany in 80s-90s by the difference in matching effectiveness of PEA
  - Selected aspects / Other views:
    Counseling (Cahuc and Le Barbanchon, 2010) / Middleman (Yavaș, 1994)

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

1. How to reduce unemployment?

1.3 Our goal and contribution

- Our goal
  - Analyze effects of increasing the effectiveness of matching
    → Thumbscrew for agencies
  - Compare it with a more traditional reform (of unemployment benefits)
    → Thumbscrew for the unemployed

- Our contribution and findings
  - We evaluate the equilibrium effect of a Public Employment Agency (PEA) reform
  - Finding 1: Successful reform of PEA in Germany explains around 33% of the post-reform reduction in unemployment
  - Finding 2: Traditional benefits and entitlement reduction of a reasonable size explains only around 7% of unemployment reduction

1. How to reduce unemployment?

- Labour market reform of 2003-2005 in Germany: The Hartz reform
  - Four packages of policy measures affecting nearly all aspects of the market (aiming at higher flexibility)
  - Unique reform design that allows identification of the effect of PEA reform from the rest of the policy measures

- Conceptual modelling framework
  - Structurally estimated nonstationary equilibrium matching model with time-dependent benefits (Launov and Wälde, 2013)
  - Extension for productivity of PEAs
  - Link to reduced-form estimates of the change in the number of matches due to the reform of PEAs (Klinger and Rothe, 2012)
  - Allows for comparison of PEA reform with unemployment benefit reform

Figure 1 Unemployment rate in Germany in 2001-2008
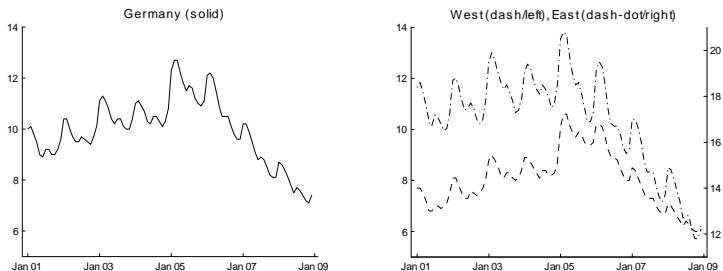
(Source: Bundesagentur für Arbeit)

○ Structural break in March 2005 (benefit reduction: January 2005!)
○ Reduction of 3.9 percentage points (ppt) between 2005 and 2008

2. German unemployment and Hartz reforms
2.2 Institutional setting

- 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 taxation rules for Mini- and Midi-Jobs
  - New start-up subsidies
- Hartz III (effective as of 01.01.2004)
  - Internal administrative reform of the entire Federal Employment Agency
  - Creation of "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

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- Hartz II
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- Hartz III: Reform of PEA (*change in matching effectiveness*)
  - Internal administrative reform of the entire Federal Employment Agency
  - Creation of "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 General structure, labour income, transition rates

Pissarides matching model with: [a)]time-dependent unemployment benefits, [b)]endogenous search effort, [c)]risk-averse workers, *ex-ante* heterogeneous over: [i)]observed characteristics (k) [ii)]unobserved search productivity (χ).

- Labour income

    Employed: w

    Unemployed: $b(s) = \left\{ \begin{array}{ll} b_{UI} = \xi_{UI} w, & \text{if } 0 < s \leq \bar{s} \\ b_{UA} = \xi_{UA} w, & \text{if } \bar{s} > s. \end{array} \right.$

- Transition rates

    $U \rightarrow E$: $\mu(.)$ depends on tightness θ and search effort $\phi(s, b_{UI}, b_{UA}, \bar{s})$
                                  search productivity χ (unknown to Bayesian worker)
                                  productivity $\psi(s)$ of public empl. agency
                                  ○ objective: $\mu(s) \equiv \mu(\phi(s)\theta, \psi(s), \chi)$
                                  ○ subjective: $\mu(s) \equiv \mu(\phi(s)\theta, \psi(s), p(s))$

    $E \rightarrow U$: λ exogenous

3. Theory

3.2 Workers, firms, equilibrium unemployment

- Value of being unemployed

$$\rho V_k \left(b\left(s \right), s \right) = \max_{\phi_k(s)} \left\{ v\left(b\left(s \right), \phi_k\left(s \right) \right) + dV_k \left(b\left(s \right), s \right) / ds \right.$$
$$\left. + \mu_k \left(s, p\left(s \right) \right) \left[V\left(w_k \right) - V_k \left(b\left(s \right), s \right) \right] \right\}.$$

Optimal search requires a choice of search effort $\phi\left(s \right)$ given the evolution of the *subjective* belief $p\left(s \right)$ about own search productivity

$$dp\left(s \right) / ds = -p\left(s \right) \left[1 - p\left(s \right) \right] \left[\mu_k \left(s, 1 \right) - \mu_k \left(s, 0 \right) \right] < 0$$

- Value of a filled job

$$\rho J(w_k) = A_k - w_k / \left(1 - \kappa \right) - \lambda_k J(w_k),$$

where A_k is the output of the worker-firm pair and κ is the tax rate.

- Wages and Government
  Wages: Set by collective bargaining. Government: Runs balanced budget

- Value of a filled job

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- Wages and Government
  Wages: Set by collective bargaining. Government: Runs balanced budget
- Equilibrium unemployment

$$u_k = \frac{p_{eu}^k}{p_{eu}^k + \int_0^\infty p_{ue}^k(s) dF^k(s)}$$

where p_{eu}^k $\{p_{ue}^k(s)\}$ is a steady-state probability of being unemployed {employed} conditional on having had a job {unemployment spell of s}.

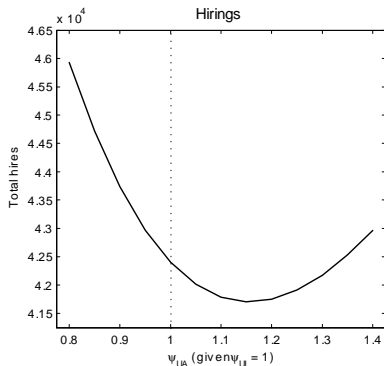- Uniform increase in productivity of PEAs
  - Matching rate increases, unemployment goes down
  - Theoretical prediction as expected
  - Quantitative question: By how much did productivity increase and by how much did this reduce the unemployment rate?

- Heterogeneous increases in productivities of PEAs
  - Reform of PEAs in Germany affected short-term and long-term unemployed differently (Klinger and Rothe, 2012)
  - Apparently productivity of PEAs increased differently for short- and long-term unemployed
  - Makes sense by institutional setup - e.g. special focus on individuals above 50
  - An increase in productivities of PEAs can actually *increase* the unemployment rate

3. Theory
3.3 The effect of more productive public employment agencies (PEAs)

- Heterogeneous increases in productivities of PEAs
  - An increase in productivities of PEAs can actually *increase* the unemployment rate
  - Reminds of 'immiserizing growth' in trade literature (Bhagwati, 1958)

3. Theory

- Where does this paradox come from?
  - Why can more productivity of PEAs for long-term unemployed workers *increase* the unemployment rate?
  - Channel 1 (positive): more productivity of PEA helps long-term unemployed workers to find a job
  - Channel 2 (negative): Anticipating higher future exit rates, short-term unemployed workers put less effort into finding a job
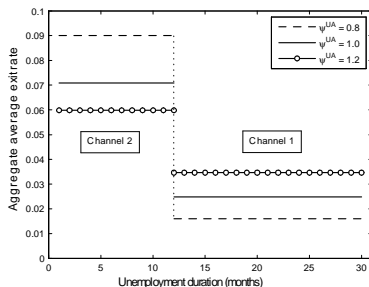
4. The role of public employment agencies

- Structural estimation
  - Estimates from Launov and Wälde (2013) from Hartz IV analysis
  - Valid here as well (data from 1997-1998, i.e. before the Hartz reforms)
- Targets for calibration
  - Based on reduced-form estimate(s) of %-increase in number of matches (Klinger and Rothe, 2012)
  - Homogenous case (PEA reform had same effects on short-term and long-term unemployed workers): 3.5 %
  - Heterogenous case: 2.1% (short-term) and 6.1% (long-term)
- Identifying the effect of the reform of PEAs (i.e. of Hartz III)
  - Timing of Hartz III (implemented 1 January 2004, no other policy change)
  - Homogeneity of Hartz III (almost exclusively targeted at PEAs)

- Parameter(s) for calibration: Productivity of public employment agencies
  - Homogenous increase of productivity in PEAs

$$\bar{\mu}\left(\psi\right) U = \delta \hat{m}$$

  where $\hat{m}$ are matches before the reforms ψ is productivity of PEAs
  - Heterogenous increase of productiv*ies* of PEAS (paradox arises)

$$\begin{aligned} \bar{\mu}^{UI}\left(\psi^{UI}\right) U^{\text{short}} &= \delta^{UI} \hat{m}^{UI} \\ \bar{\mu}^{UA}\left(\psi^{UA}\right) U^{\text{long}} &= \delta_k^{UA} \hat{m}^{UA} \end{aligned}$$

  where productivity rises in PEAs differs between short-term (ψ^{UI}) and long-term (ψ^{UA}) unemployed workers
  - Knowledge of ψ, ψ^{UI} and ψ^{UA} allows to compute response of the equilibrium unemployment rate (which is the reason why we do this ...)

	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			0.11	2.81 %
Hartz III & IV	2.07	52.94 %	1.61	41.18 %
H. IV given H. III	0.09	2.30 %	0.29	7.42 %

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Relative importance of reforms and design of reforms

- Reform of PEA (1.32) is 4 - 5 times more successful than reform of benefits (0.29)
- Reform should be balanced (1.98 higher than 1.32)
- Reduction of benefits (H. IV) has more effect when productivities are high (0.29 vs 0.11)

4. The role of public employment agencies

4.2 The reduction of equilibrium unemployment rates

- The unemployment reduction effect in a figure
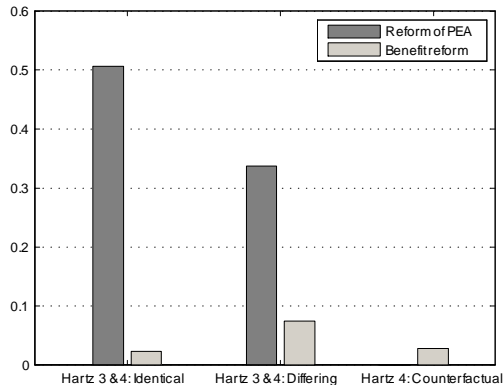
- Hartz III (reform of PEA) is 4-5 times more successful in reducing unemployment than Hartz IV (reduction of benefits)

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

- Example from Germany – what did they actually do? (Weise, 2011)
  - PEA in Germany by 2000 was perceived as slow, ineffective and in part fraudulent (reporting too high placements/ matches)
  - Abolish PEA or reform? → Hartz III reform
  - Remodel an administrative bureaucracy into a service center
  - Complete restructuring of work flow (call center, reception desks, consultation upon appointment and without interruptions)
  - Targets for workload: 150 claimants per case worker, 75 claimants under 25 years of age p.c.w. (met in 2012 only)
  - Priorities: Priority scheme in processing cases of those over 50

5. Comparison to other findings

The effects of Hartz IV on equilibrium unemployment

- Krause and Uhlig (2012)
  - Matching model with stochastic human capital accumulation and depreciation
  - Calibrated effect: 2.8 ppt reduction
- Krebs and Scheffel (2011)
  - Matching model with consumption savings and investment into risky human capital
  - Calibrated effect: 1.2 ppt reduction
- Launov and Wälde (2013a)
  - Matching model with two-step time-dependent benefits and productivity learning
  - Estimated effect: 0.1 ppt reduction

Why are existing structural results on the effect of the reduction of unemployment benefits (Hartz IV) so diverse? Different models?

- No! - Different benefits!

5. Comparison to other findings

- Post- relative to pre-Hartz-IV unemployment assistance benefits
  - Krause and Uhlig (2012):
    - ○ Vary between 0.33 and 0.76 depending on skills. All workers loose.
    - ○ Benefits: Endogenous; big discrepancy is artefact of the assumptions on the initial skill distribution
  - Krebs and Scheffel (2011):
    - ○ Single value of 0.65 for all. All workers loose.
    - ○ Benefits: "Rule of thumb" (?)
  - Launov and Wälde (2013a):
    - ○ On average 0.94. Some workers lose, some gain.
    - ○ Benefits: GSOEP data and OECD, IAB and DIW estimates
- Predictions of our model with benefit reductions as in the above two

Benefit reduction	Change in unemployment (ppt)	
	prediction (our model)	original
Krause and Uhlig	2.0 - 2.2	2.8
Krebs and Scheffel	1.3 - 1.5	1.2

6. Conclusion

- The role of public employment agencies (PEA)
  - Improved bureaucracy appears to have high significant unemployment reducing potential in a typical welfare state
  - Reduction in unemployment rate due to PEA reform (Hartz III): around 1.3 percentage points
  - PEA reform explains around 33% of reduction of unemployment rate as of 2005
- The role of benefit reform
  - Traditional unemployment benefit reform turns out to have an order of magnitude weaker effect
  - Reduction in unemployment rate due to benefit reform (Hartz IV): 3/10th of a percentage point
  - Hartz IV explains only 7.4% of reduction of unemployment rate as of 2005
- How should unemployment be reduced?
  - Don't focus exclusively on benefits
  - Look into reforming bureaucracies

Thank You!