

# Shortening the potential duration of unemployment benefits and labor market outcomes: Evidence from a natural experiment in Germany



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## Abstract

This paper explores the effects of a **major reform of unemployment benefits** in Germany on the labor market outcomes of individuals with some health impairment. The reform induced a substantial **reduction in the potential duration of unemployment benefits** for older workers. Our results provide causal evidence for a significant decrease in the number of days in unemployment benefits and increase in the number of days in employment. However, they also suggest a significant increase in the number of days in unemployment assistance, granted upon exhaustion of unemployment benefits. Transitions to unemployment assistance represent an unintended effect, limiting the success of a policy change that aims to increase labor supply via reductions in the generosity of the unemployment insurance system.

## Introduction

**Reform** ⇒ Reduction in potential duration of unemployment benefits (UB-1) for older workers in 2/2006.

**Table 1:** Maximum duration (in months) of unemployment benefits (years 2004-2009)

Age category	Before 2/2006	Reduction	2/2006-12/2007	Extension	Since 1/2008
< 45	12	0	12	0	12
45-46	18	6	12	0	12
47-49	22	10	12	0	12
50-51	22	10	12	3	15
52-54	26	14	12	3	15
55-56	26	8	18	0	18
57	32	14	18	0	18
> 57	32	14	18	6	24

### German Unemployment Insurance System:

- Unemployment benefits (UB-1) ⇒ conditioned on contributions, temporally restricted.
- Unemployment assistance (UB-2) ⇒ upon exhaustion of UB-1, living at subsistence level.

Causal effects ⇒ DiD design for natural experiment

- Increase **days with employment?** ⇒ Intended incentive effect by policy.
- Decrease **days with UB-1?** ⇒ Intended incentive effect by policy.
- Increase **days with UB-2** due to slip from UB-1? ⇒ Non-intended by labor market policy.

**Contributions:** **1)** Framework of institutional interactions. **2)** A large sample of people with health impairment. **3)** Cumulated labor market outcomes measured in t after rehabilitation.

## Data and Methods

Administrative data of the German Statutory Pension Insurance: Longitudinal data set with a random sample of 20% of all people with medical rehabilitation treatments.

**Years outcome** (years rehabilitation) ⇒ 2004-2009 (2003-2008).

**Age in outcome year** (age in rehabilitation year) ⇒ 38-62 years (37-61).

**Preferred Sample A** ⇒ 2005/2007, N=94,990, employed before rehabilitation.

**Extended Sample B** ⇒ 2004-2009, N=306,230, employed before rehabilitation.

**Additional Sample C** ⇒ 2005/2007, N=15,857, unemployed, and N=16,529, non-employed before rehabilitation.

Pooled (repeated) cross-sections with information before and after medical rehabilitation.

**Treatment** (≥45) and **control** group (<45) assignment according to **age**.

$$Y = \alpha + \beta_1 AGE + \beta_2 YEAR + \beta_3 AGE \times YEAR + \delta X + \varepsilon$$

- Y** ⇒ outcome variables (days UB-1, days UB-2, days employed).
- AGE** ⇒ dummy for treatment group (age ≥45) ( $\beta_1$ ).
- YEAR** ⇒ dummy for post-reform year ( $\beta_2$ ).
- AGE×YEAR** ⇒ interaction term (DiD) and identification of treatment effect ( $\beta_3=ATT$ )
- X** ⇒ control variables (all dummies).

## Results

**Table 2. Results Sample A** (2005/2007, employed before rehabilitation)

	(1) UB-1	(2) UB-2	(3) WORK
age≥45	17.80*** [0.97]	-6.51*** [0.59]	-25.29*** [1.57]
year2007	-6.66*** [1.01]	-4.96*** [0.67]	10.56*** [1.79]
age≥45 × year2007 (post-reform)	-10.50*** [1.22]	4.65*** [0.72]	13.57*** [2.06]
R <sup>2</sup>	0.11	0.07	0.19
Mean dep. variable	39.58	6.15	261.68
N	94,990	94,990	94,990

Notes: Outcome variables are days per calendar year. Covariates included in all models. OLS regressions. Robust s.e. in brackets. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001.

**Table 3. Results Sample B** (2004-2009, employed before rehabilitation)

	(1) UB-1	(2) UB-2	(3) WORK
age≥45	17.52*** [0.94]	-5.39*** [0.43]	-28.72*** [1.48]
year2005	-3.73*** [1.09]	4.08*** [0.68]	4.84** [1.84]
year2006	-8.17*** [1.04]	5.27*** [0.69]	12.26*** [1.79]
year2007	-10.34*** [1.01]	-0.98 [0.56]	15.33*** [1.75]
year2008	-9.31*** [1.01]	-2.81*** [0.51]	15.48*** [1.74]
year2009	-6.31*** [1.04]	-1.85*** [0.54]	9.06*** [1.76]
age≥45 × year2005	0.38 [1.33]	-1.27 [0.72]	3.61 [2.13]
age≥45 × year2006	3.35** [1.29]	-1.05 [0.74]	4.61* [2.07]
age≥45 × year2007 (post-reform)	-10.14*** [1.21]	3.43*** [0.61]	17.17*** [2.01]
age≥45 × year2008 (post-reform)	-10.99*** [1.20]	4.38*** [0.55]	19.74*** [2.00]
age≥45 × year2009 (post-reform)	-12.61*** [1.22]	3.61*** [0.58]	23.25*** [2.00]
R <sup>2</sup>	0.11	0.06	0.18
Mean dep. variable	40.47	5.51	261.43
N	306,230	306,230	306,230

Notes: Outcome variables are days per calendar year. OLS regressions. Covariates included in all models. Robust s.e. in brackets. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001.

**Table 4. Results Sample C** (2005/2007, un-/non-employed before rehabilitation)

	Unemployed			Non-employed		
	(1) UB-1	(2) UB-2	(3) WORK	(1) UB-1	(2) UB-2	(3) WORK
age≥45	31.34*** [2.25]	-26.95*** [3.88]	-14.55*** [2.45]	20.83*** [2.74]	-23.86*** [3.36]	0.34 [3.96]
year2007	-17.17*** [2.20]	14.30** [4.84]	20.39*** [3.41]	-13.94*** [2.67]	-1.79 [3.78]	30.52*** [4.46]
age≥45 × year2007 (post-reform)	-5.94* [2.93]	9.62 [5.53]	-2.05 [3.77]	-9.93** [3.27]	18.98*** [4.21]	-12.67* [5.07]
R <sup>2</sup>	0.12	0.23	0.20	0.07	0.27	0.35
Mean dep. variable	55.93	159.31	42.86	47.47	61.23	146.31
N	15,857	15,857	15,857	16,529	16,529	16,529

Notes: Outcome variables are days per calendar year. OLS regressions. Covariates included in all models. Robust s.e. in brackets. \* p<0.05; \*\* p<0.01; \*\*\* p<0.001.

## Summary and Conclusion

- Results Sample A:** Intended positive effects dominate ⇒ upper & lower bounds.
- Results Sample B:** Support for common trend assumption ⇒ ATT is likely unbiased.
- Results Sample C:** Non-intended negative effects dominate ⇒ better rating of prospects?

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