The Effect of Unemployment Benefits and Nonemployment Durations on Wages

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Overview I

Research Question:

What is the effect of unemployment insurance (UI) and nonemployment on:

(1) General job outcomes

(2) Reemployment wages in particular

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Empirical Strategy:

(1) Regression discontinuity

(2) Instrumental variables

Data I

- Source: Social security records in Germany
- Time period between 1987 and 1999 (UI system stable)
- Who is edible for UI? Working for at least 12 months in the previous three years
- Benefits: Fixed replacement rate of 63 percent (Arbeitslosengeld)

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$$\text{Maximum UI duration} = \begin{cases} 12 \text{ month} & < 42 \text{ years old} \\ 18 \text{ month} & 42 \le 43 \text{ years old} \\ 22 \text{ month} & 44 \le 48 \text{ years old} \end{cases}$$

Data II

- $\approx 800,000$ individuals

- Day-to-day information on employment history and receptions of UI benefits, with corresponding daily wage and benefit level

- Demographic characteristics

- With this can only infer about nonemployment and not unemployment

Part 1

(1)
The Effect of Unemployment Insurance on Job Market Outcomes
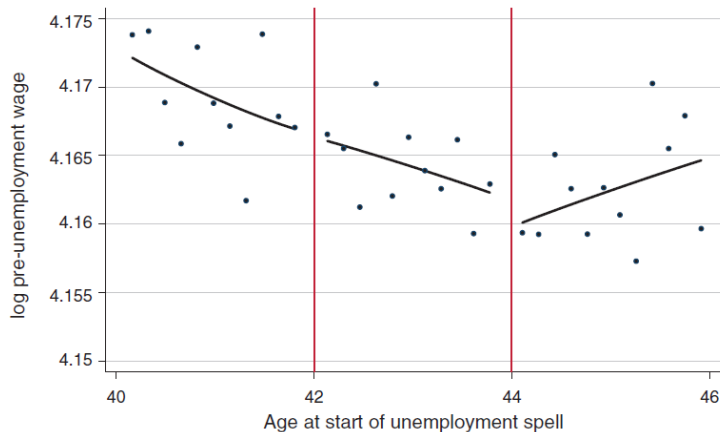
Regression Discontinuity Validity I

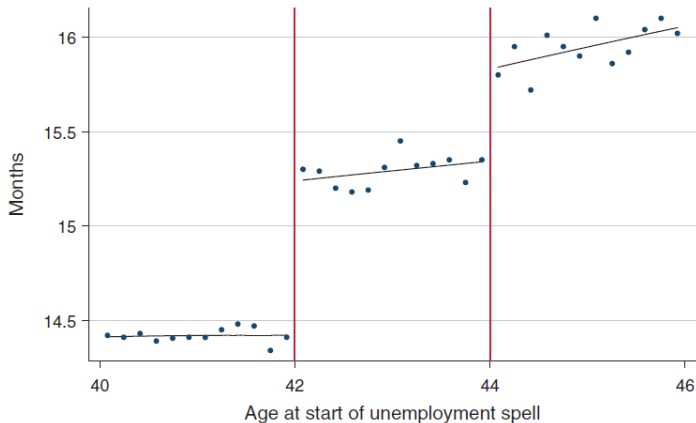Panel A. Frequency of observations around age cutoffs
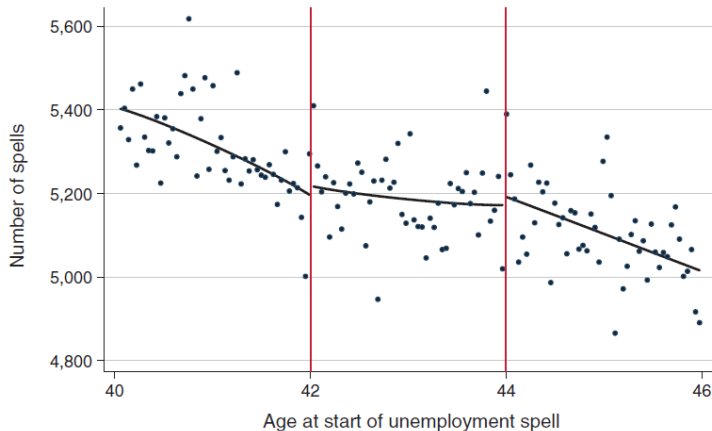
Regression Discontinuity Validity II

Panel B. log pre-unemployment wage

Regression Discontinuity Results I

Panel B. Months of nonemployment

Regression Discontinuity Results II

	Increase in potential UI duration from 12 to 18 months	
	UI benefit duration (1)	Nonemp duration (2)
RD estimate (Age $\geq$ cutoff)	1.77 (0.048)***	0.95 (0.19)***
Mean of dependent variable	7.57	14.7

Regression Discontinuity Results II

	Increase in potential UI duration from 12 to 18 months				
	UI benefit duration (1)	Nonemp duration (2)	Ever emp again (3)	log post wage (4)	log wage difference (5)
RD estimate (Age $\geq$ cutoff)	1.77 (0.048)***	0.95 (0.19)***	-0.0094 (0.0033)***	-0.0078 (0.0036)**	-0.0070 (0.0034)**
Mean of dependent variable	7.57	14.7	0.86	4.01	-0.14

Regression Discontinuity Results III

	Increase in potential UI duration from 12 to 18 months			
	log wage growth 5 years (1)	log wage 1 year after reemployment (2)	log wage 3 year after reemployment (3)	log wage 5 year after reemployment 4
Marginal effect $\frac{dy}{dP}$	0.00026 (0.00085)	-0.0014 (0.00069)*	-0.00093 (0.00077)	-0.0008 (0.00091)
Mean of dependent variable	-0.084	3.95	3.95	3.97

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	Duration of post-unemployment job in years	Post-unemployment job is full time	Post-unemployment job is different industry	Post-unemployment job is different occupation
Marginal effect $\frac{dy}{dP}$	-0.0081 (0.0067)	-0.0011 (0.00045)*	0.0012 (0.00057)*	0.0018 (0.00071)*
Mean of dependent variable	4.10	0.89	0.69	0.61

(2)
The Effect of Nonemployment on Reemployment Wages
Using UI as Instrument

IV Setup I

- Authors present a labor market search model (based on canonical partial-equilibrium search model)

- Individuals choose search intensity and whether to accept job given wage offer

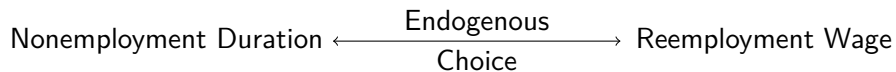- Wage offer drawn from distribution which might depend on nonemployment duration

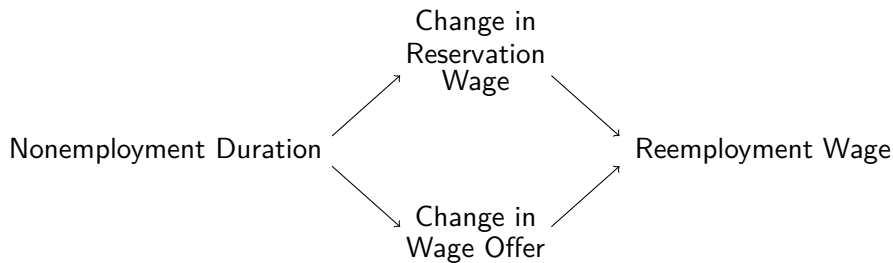Nonemployment Duration   Reemployment Wage
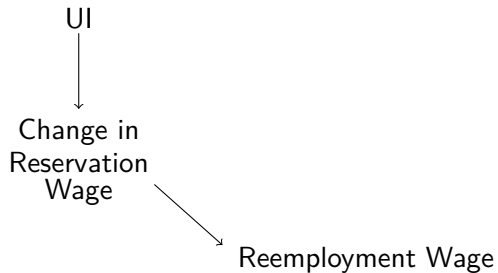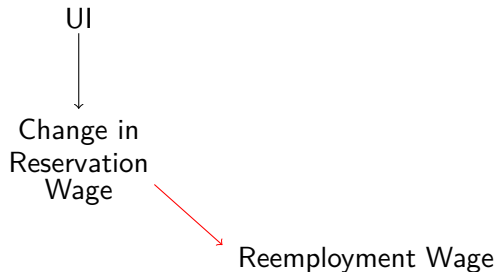
IV Setup II

Nonemployment Duration $\longleftrightarrow$ Reemployment Wage

Endogenous
Choice

Nonemployment Duration → Change in Reservation Wage → Reemployment Wage

Nonemployment Duration → Change in Wage Offer → Reemployment Wage

UI

Change in
Reservation
Wage

Reemployment Wage

UI

↓

Change in
Reservation
Wage

Reemployment Wage

(1) Exit hazard is changing
(2) No effect of UI duration on con-
ditional reemployment wage

Nonemployment Duration

Reemployment Wage

Change in
Wage Offer

Nonemployment Duration $\longleftrightarrow$ Reemployment Wage

$$\text{Endogenous Choice}$$
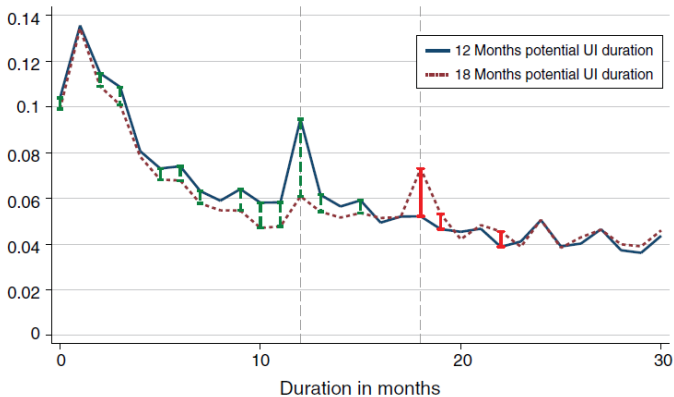
Nonemployment Duration $\longrightarrow$ Reemployment Wage

UI

Key assumption:
Conditional on observable characteristics there is no change in the distribution of unobserved characteristics over the nonemployment spell.
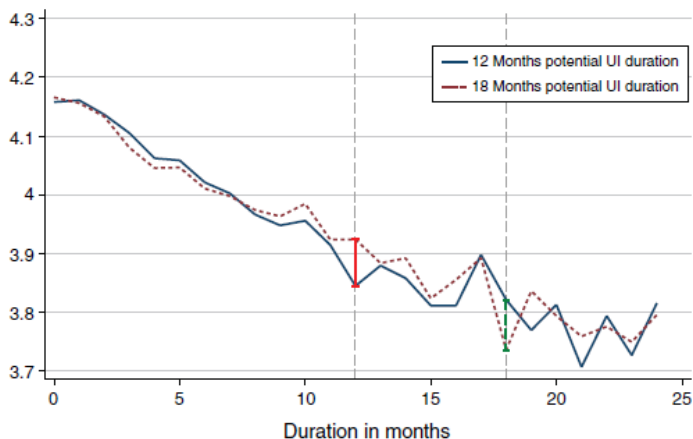
(1) Exit Hazard is Changing

Panel A. Unemployment exit hazard

(2) No Effect of UI on Conditional Reemployment Wage

Panel A. Mean post-unemployment log wage

IV Results

	Increase in potential UI duration from 12 to 18 months	
	2SLS	OLS
	log reemployment wage (1)	log reemployment wage (2)
Nonemployment duration	-0.0080 (0.0033)**	-0.0067 (0.000053)***
Mean of dependent variable	4.01	4.01

IV Results

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	2SLS	OLS
	log reemployment wage (1)	log reemployment wage (2)
Nonemployment duration	-0.0080 (0.0033)**	-0.0067 (0.000053)***
Mean of dependent variable	4.01	4.01

- Implies daily wage loss of 4.8 percent (9.6 percent) for 6 (12) additional months of nonemployment

- Represents about a third of the average wage loss at 6 (12) months

Overview of Results

(1) Precise negative effects of UI extension on job market outcomes

(2) Reservation wages do not bind

(3) Negative causal effect of nonemployment duration on wage offers

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Contribution:

(1) Very precise estimates

(2) Actual labor market data (no survey), also first to link with UI

(3) Complete framework, causal effect

Discussion

- Interesting dataset, analysis answers important questions

- Identify causal relationship guided by model

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- Identify causal relationship guided by model

- Results rely heavily on the absence of self-selection and unobservable heterogeneity

$\Rightarrow$ Do multiple bounding and robustness analyses