

Unemployment Insurance, Reservation Wages and Reemployment Outcomes

Thomas Le Barbanchon (Bocconi)
Roland Rathelot (Warwick)
Alexandra Roulet (INSEAD)

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This presentation

Mix of two papers, same research agenda, same team

1. "Unemployment Insurance and Reservation Wages : Evidence from Administrative Data", accepted at *Journal of Public Economics*
2. Unemployment Insurance, Reemployment Outcomes and Duration Dependence

Broad context

- ▶ Robust finding in the literature: more generous UI leads to longer unemployment duration
- ▶ Debate: does UI subsidize leisure or search? Does it delay job acceptance or does it allow job seekers to find better matches?
 - ▶ Estimates of effect of UI on reemployment outcomes are mixed
- ▶ Tricky because the effect of UI on reemployment outcomes is the sum of two opposite forces (Nekoei & Weber, 2017):
 1. More UI – > longer non-employment duration – > lower job prospects (duration dependence)
 2. More UI – > higher reservation wages (bc. higher value of unemployment) – > better outcomes
- ▶ This can explain the diversity of estimates [▶ More](#)
- ▶ But what explains which forces dominate ?

1. More UI \rightarrow longer non-employment duration \rightarrow lower job prospects (duration dependence)
2. More UI \rightarrow higher reservation wages (bc. higher value of unemployment) \rightarrow better outcomes

What do we know about these two forces ?

- ▶ Elasticity of non-employment duration w.r.t Potential Benefits Duration is 0.1 across studies
- ▶ Duration dependence is hard to disentangle from dynamic selection. Some evidence from audit studies (e.g. Kroft et al., 2013), with some debate (Jarosch et Pilossoph, 2017)
- ▶ Very rare direct empirical evidence on reservation wages
 - ▶ Feldstein and Poterba (1984), Krueger and Mueller (2016) lack exogenous variation in UI
 - ▶ Arni (2017)

Our papers

- ▶ First paper: effect of UI on reservation wages at the beginning of the spell, i.e. holding constant the job offer distribution
- ▶ Second paper, very much work in progress: we now have also access to reemployment outcomes data and we try to understand the relevant heterogeneity / mechanisms that determine the magnitude and sign of the effect of UI on match quality

First paper in a nutshell

- ▶ Motivation: scarce empirical evidence on reservation wages despite its central role in job search theory
- ▶ Contribution: quasi-experimental estimates of the effect of UI on reservation wages
 - ▶ We use rich administrative data on reservation wages and other dimensions of job selectivity, collected by the French Public Employment Service when job seekers register
 - ▶ as well as a reform in UI rules
- ▶ Take-away: job selectivity reacts much less to UI than predicted by standard theory
 - ▶ We can rule out elasticities of reservation wages with respect to the Potential Benefits Duration (PBD) of 0.006
 - ▶ No effect either on other dimensions of the job people are looking for

Second paper, as of today

- ▶ Using the identification strategy of the first paper
- ▶ We look at effect of UI on non-employment duration and reemployment outcomes
- ▶ For different subgroups

Outline

Identification strategy and data

Effect of PBD on job selectivity (first paper)

Effect of PBD on reemployment outcomes (work in progress)

Conclusion

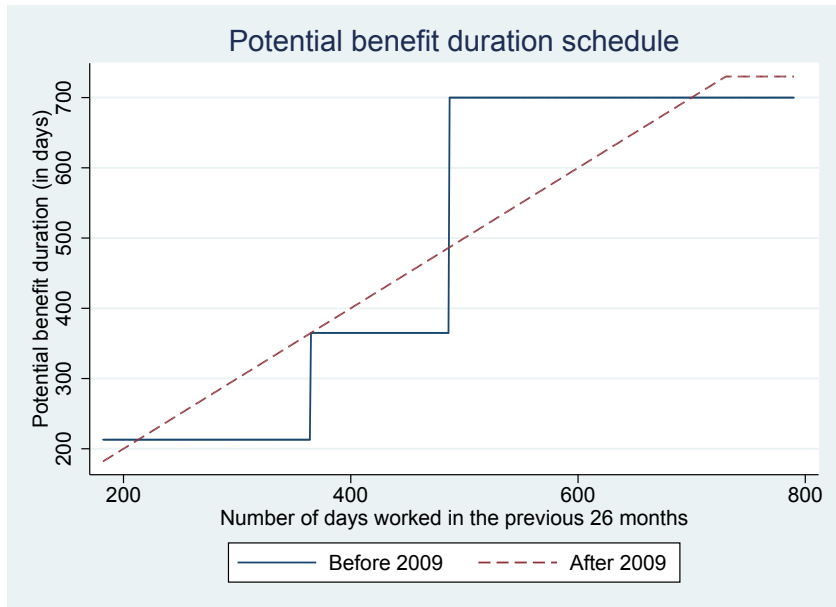
Identification strategy and data

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2009 reform in France: simplification of UI rules



Data

- ▶ French Public Employment Service (Pôle Emploi) registers
 - ▶ Administrative data on reservation wages and other dimensions of the job people are looking for, as well as standard UI information, for the universe of UI claimants
- ▶ Matched employer-employee registers (DADS)
- ▶ For a 10% sample, these two data sources are matched
 - ▶ This allows us to look at reemployment outcomes

Sample selection

- ▶ Inflow of new UI claims associated with a contract that ended between April 1st, 2006 and March 31st, 2012
 - ▶ The reform applies to all claims associated with a contract that ended on or after April 1st, 2009
- ▶ Job seekers less than 50 years old at end of previous contract

▶ Summary stat.

Website of the Public Employment Service at registration

- ▶ "What gross minimum wage do you ask for?"

Métier recherché _____

Recherche par Mots-clés Code Rome

Les métiers que vous recherchez
(2 métiers maximum)

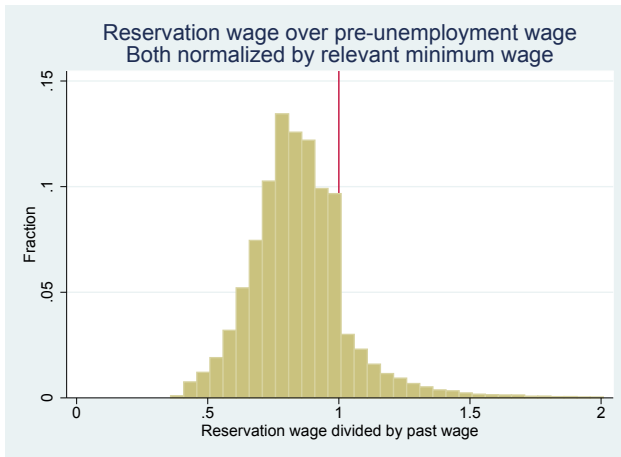
Quel salaire minimum brut demandez-vous ? €

Souhaitez-vous créer ou reprendre une entreprise ? Oui Non

Acceptez-vous de travailler avec des horaires décalés (week-end, nuit, horaires postés) ? Oui Non

▶ More

Distribution of reservation wages over previous wage



86% of job-seekers accept a wage-cut

Median of reservation wage over past wage: 0.83 [▶ More](#)

Socio-demographic determinants of reservation wages

VARIABLES	(1) Log ResW	(2) ResW/PastW
Dummies for 20 equal sized bins of past wage	x	x
Female	-0.0455*** (0.00157)	-0.0431*** (0.00152)
Married x female	-0.0131*** (0.00202)	-0.0109*** (0.00189)
Married x male	0.0273*** (0.00284)	0.0226*** (0.00272)
Age	0.00327*** (0.000106)	0.00288*** (0.000102)
Experience	0.00619*** (0.000201)	0.00531*** (0.000194)
Education	0.0188*** (0.000292)	0.0171*** (0.000298)
Observations	56,861	56,861
R-squared	0.505	0.376

Other dimensions of job selectivity

Variable	Mean	Std. Dev.
Looking for a long-term contract (CDI)	0.91	0.29
Looking for a full-time job	0.91	0.28
Maximum commute time accepted (in minutes)	43.58	19.53
Maximum commute distance accepted (in kms)	29.80	23.92
No geographical constraint	0.02	0.12

Reemployment outcomes

Variable	Mean	Std. Dev.
Non-employment duration (in days)	302.70	298.59
Monthly FTE wage (in euros)	1837.92	559.19
Duration of job (in days)	365.19	401.61
Long-term contract (CDI)	0.30	0.46
Full-time job	0.67	0.47
Distance to job (median, in kms)	9.09	113.06
Occupation mobility	0.571	0.495

Distribution of reemployment wages over reservation wages



78% of job seekers have a reemployment wage above their reservation wage

Reservation wages explains reemployment outcomes

VARIABLES	Log reemp. wage	Log job duration	Long-term contract (CDI)	Full-time
Log ResW	0.390*** (0.00749)	0.288*** (0.0288)	0.275*** (0.0128)	0.109*** (0.0117)
Looking for CDI	-0.0239*** (0.00327)	0.0738*** (0.0152)	0.0791*** (0.00611)	-0.0334*** (0.00673)
Looking for Full-time	0.00374 (0.00366)	-0.0774*** (0.0186)	-0.0614*** (0.00813)	0.172*** (0.00849)
Observations	53,774	53,774	52,700	53,774
R-squared	0.354	0.061	0.087	0.115

- ▶ Includes controls for previous job characteristics (20 wage bins dummies, duration, contract, full-time etc), as well as characteristics of the individual, the UI claim and the Commuting Zone he lives in [▶ More](#)

Identification strategy and data

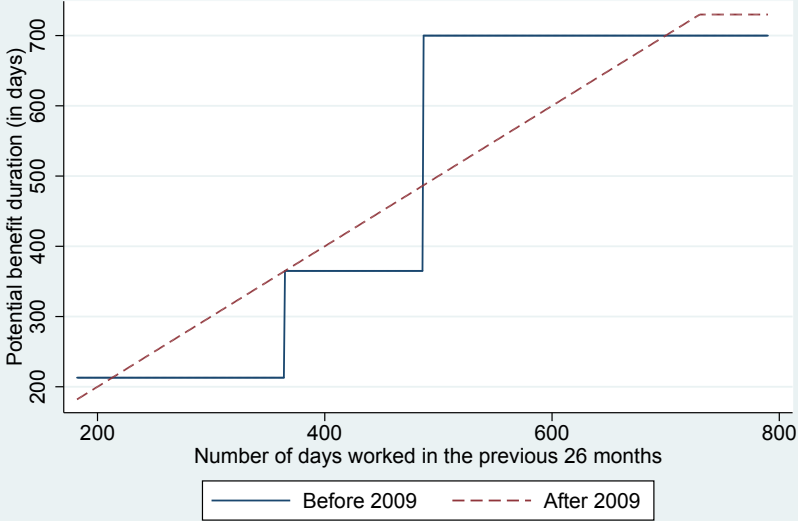
Effect of PBD on job selectivity (first paper)

Effect of PBD on reemployment outcomes (work in progress)

Conclusion

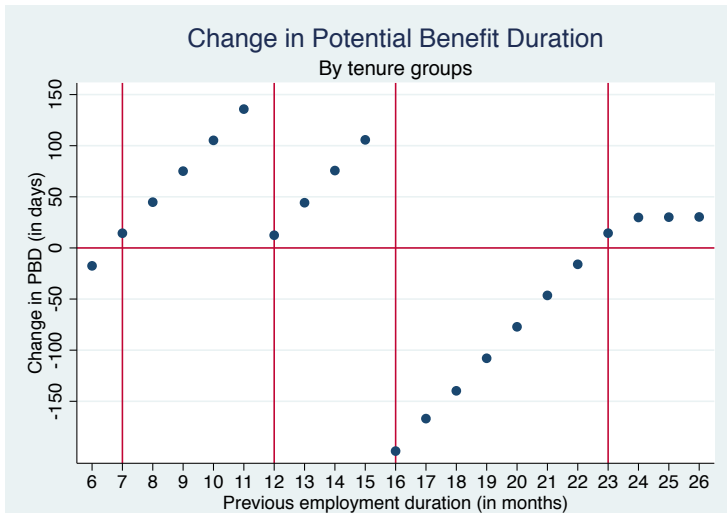
The reform

Potential benefit duration schedule



First stage

$$PBD_{i,n} = \sum_{j=6}^{26} \beta_j D(\text{Tenure}_{i,n} = j) \times \text{After}_{i,n} + \sum_{j=6}^{26} \delta_j D(\text{Tenure}_{i,n} = j) + \nu_{i,n}$$



Econometric model

$$\log Y_{i,n} = \alpha \log PBD_{i,n} + \sum_{j=6}^{26} \delta_j D(\text{Tenure}_{i,n} = j) \\ + \gamma X_{i,n} + \text{Indiv.F.E.}_i + \text{Year} \times \text{Quarter F.E.} + \epsilon_{i,n}$$

- ▶ We instrument $\log(PBD)$ by $\sum_{j=6}^{26} D(\text{Tenure}_{i,n} = j) \times \text{After}_{i,n}$
- ▶ $D(\text{Tenure}_{i,n} = j)$ indicates whether the past tenure of individual i before her n -th claim is j months

▶ More

▶ More

Elasticity of reservation wages w.r.t. PBD

	OLS	IV	FE	FE,IV
	Log of reservation wage			
log PBD	0.000954 (0.00854)	0.00473 (0.00691)	-0.000132 (0.00310)	-0.000535 (0.00318)
Obs.	180,637	180,637	180,637	180,637
R-squared	0.474	0.474	0.340	
Indiv. FE	no	no	yes	yes

Standard errors clustered by monthly tenure group in columns (1) and (2)

▶▶ More

▶▶ Reduced form

Hazard rates start to react in the first weeks

weeks since U entry	Cumulative job finding rate				
	1	2	3	4	5
log PBD	-0.008 (0.005)	-0.013** (0.006)	-0.017** (0.008)	-0.019** (0.008)	-0.023*** (0.009)
Mean outcome	0.018	0.030	0.044	0.057	0.070
Indiv. FE	yes	yes	yes	yes	yes
Obs.	180,637	180,637	180,637	180,637	180,637

Effect of PBD on other dimensions of job selectivity

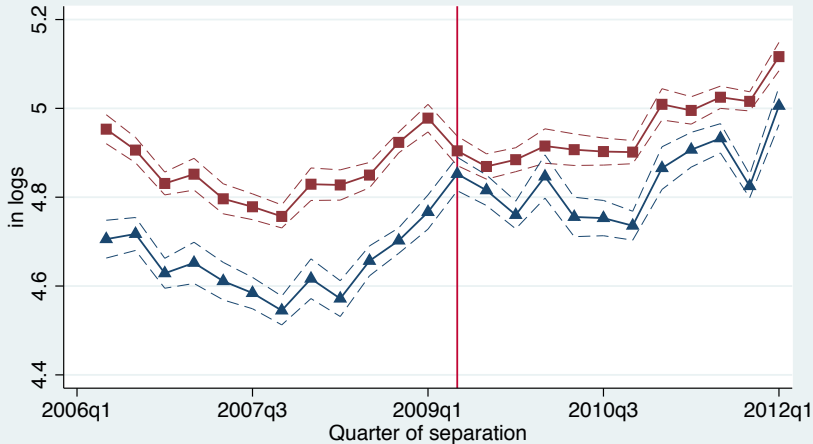
	Looking for a long-term contract (1)	full-time job (2)	Max. commute time/distance (in log) (3)
log PBD	-0.00462 (0.00825)	0.000111 (0.00496)	-0.000931 (0.0132)
Indiv. FE	yes	yes	yes
IV	yes	yes	yes
Obs.	180,637	180,637	163,192

Validating the research design

To check the parallel trends assumption, we define 2 groups:

- ▶ Change in PBD is more than 30 days (the median)
 - ▶ Past tenure = 8-11 and 13-15 months
- ▶ Change in PBD is less than 30 days
 - ▶ Past tenure = 6-7, 12 and 16-26 months

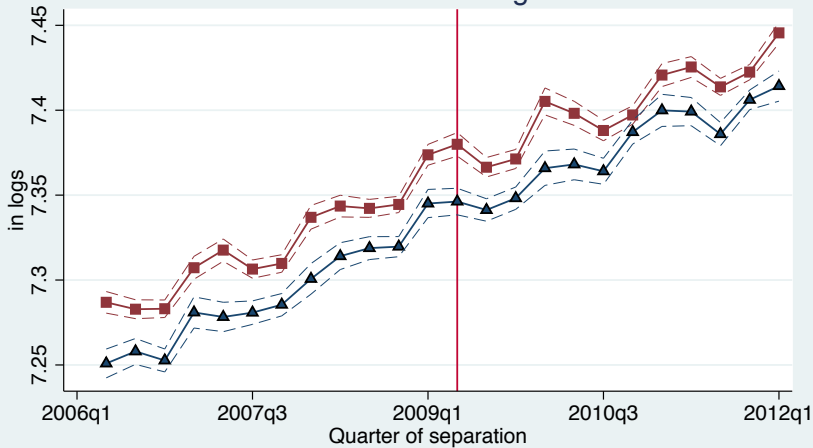
Actual duration of benefits



Change in PBD after reform <= median (30 days)

Change in PBD after reform > median (30 days)

Reservation wage



- Change in PBD after reform \leq median (30 days)
- Change in PBD after reform $>$ median (30 days)

Summary so far

- ▶ Reservation wages at the beginning of the job search spell do not respond to UI generosity, while hazard rates do
 - ▶ Being entitled to 1 additional month of benefits for a claimant with an initial PBD of 10 months is associated with at most a 0.06 % increase in its reservation wage
 - ▶ Other dimensions of the job searched for do not adjust either
 - ▶ Results robust to alternative research design : discontinuity at age 50 in the PBD schedule
 - ▶ [More on RDD](#)
 - ▶ For some groups (e.g. low tenure people), significant positive elasticity of reservation wage but small : 0.01
- ▶ Lack of responsiveness is at odds with standard job search theory

Identification strategy and data

Effect of PBD on job selectivity (first paper)

Effect of PBD on reemployment outcomes (work in progress)

Conclusion

Specification reminder

$$\log Y_i = \alpha \log PBD_i + \sum_j \delta_j D(\text{Tenure}_i = j) \\ + \gamma X_i + \text{Year} \times \text{Quarter} F.E. + \epsilon_i$$

- ▶ We instrument $\log(PBD)$ by $\sum_j D(\text{Tenure}_i = j) \times \text{After}_i$
- ▶ $D(\text{Tenure}_i = j)$ indicates whether the work tenure prior to unemployment spell i is j months

Replicating the results on job selectivity on our new sample

VARIABLES	(1) Log ResW	(2) CDI	(3) Full-time	(4) Log distance
log PBD	0.00367 (0.00647)	-0.00127 (0.0114)	0.00959 (0.00995)	-0.0266 (0.0286)
Observations	53,774	53,774	53,774	48,758
R-squared	0.549	0.021	0.072	0.102
controls	yes	yes	yes	yes

- ▶ We can rule out elasticities of the reservation wage of 0.016

Effect on reemployment outcomes

	(1)	(2)	(3)	(4)	(5)
	Log non-emp. duration	Log reemp. wage	Log duration of new job	Long term contract	Full-time
log PBD	0.135** (0.0651)	0.0147 (0.00896)	0.0327 (0.0444)	-0.00743 (0.0182)	-0.00809 (0.0182)
Obs.	53,774	53,774	53,774	52,690	53,774
R-squ.	0.046	0.311	0.055	0.087	0.115
Controls	yes	yes	yes	yes	yes

Heterogeneity by previous wage

	(1) Log non-emp. duration	(2) Log reemp. wage	(3) Log duration of new job	(4) Long term contract	(5) Full-time
	Previous wage above median				
log PBD	0.283*** (0.0894)	0.0006 (0.0135)	0.0291 (0.0630)	-0.0312 (0.0257)	-0.0146 (0.0247)
Obs.	27,103	27,103	27,103	27,103	27,103
R-squ.	0.061	0.343	0.067	0.112	0.104
	Previous wage below median				
log PBD	-0.0002 (0.0945)	0.0258** (0.0116)	0.0255 (0.0627)	0.0162 (0.0259)	-0.0022 (0.0269)
Obs.	26,661	26,661	26,661	26,661	26,661
R-squ.	0.052	0.086	0.047	0.064	0.112

- ▶ We use the previous wage normalized by the relevant minimum wage; the median is 1.3

Heterogeneity by previous wage ct'ed

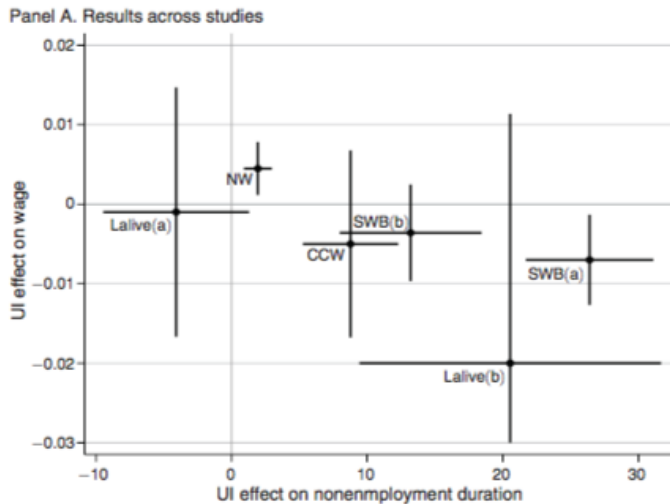
VARIABLES	(1) Log ResW	(2) CDI	(3) Full-time	(4) Log distance
Previous wage above median				
log PBD	-0.0034 (0.0103)	-0.0098 (0.0161)	0.0170 (0.0124)	-0.0251 (0.0380)
Obs.	27,103	27,103	27,103	24,276
R-squ.	0.594	0.053	0.067	
Previous wage below median				
log PBD	0.0088 (0.0070)	0.0123 (0.0159)	0.0046 (0.0157)	-0.0266 (0.0422)
Obs.	26,661	26,661	26,661	24,474
R-squ.	0.268	0.024	0.079	0.09

Conclusion

- ▶ Reservation wages don't react much to PBD
 - ▶ Potential explanation : reference dependence
- ▶ On average insignificant effect of PBD on reemployment outcomes but heterogeneity:
 - ▶ Low earnings group : significant 0.02 elasticity, while effect on non-employment duration is 0
 - ▶ High wage group : 0 effect on reemployment wages while strong 0.3 elasticity of non-employment duration
 - ▶ In line with Nekoei & Weber (2017)
- ▶ Next on the agenda : understanding what's behind this heterogeneity
- ▶ Note that our preliminary results could be evidence in favor of less generous UI for higher earners, for efficiency reasons

APPENDIX

Figure 4 (Nekoei & Weber, 2017)



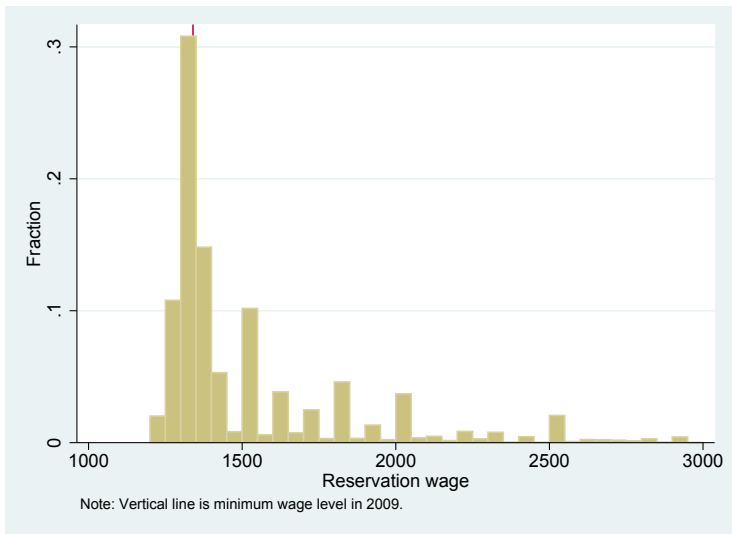
Variable	First paper	Second paper
Male	0.599	0.480
Foreign born	0.111	0.108
Age	31.301	27.702
Married	0.353	0.278
Divorced	0.068	0.049
Has a child	0.363	0.260
Education (in years)	11.59	12.12
Occupational experience (in years)	4.628	3.399
Past Contract is long-term	0.353	0.223
Past tenure at last employer (in days)	393.648	245.449
Sum of past tenures over last 2 years	427.708	386.801
Potential Benefit Duration (in days)	413.156	390.788
Actual Benefit Duration (in days)	192.403	231.598
Past Monthly Wage (gross, in €)	1721.631	1906.162
Unemployment Benefits (in €)	1006.869	911.33
N. of observations	180,670	56,861

Incentives when answering the reservation wage question

- ▶ No incentive to underestimate:
 - ▶ Job seekers' self-reported preferences are used by case workers to propose vacancies
 - ▶ Truthful declaration if browsing through vacancies is costly
- ▶ No incentive to overestimate:
 - ▶ When monitoring search effort, case workers compare posted wage of vacancies to job seekers' *previous* wage, not to their reservation wage

▶▶ Back

Distribution of nominal monthly reservation wages (in €)



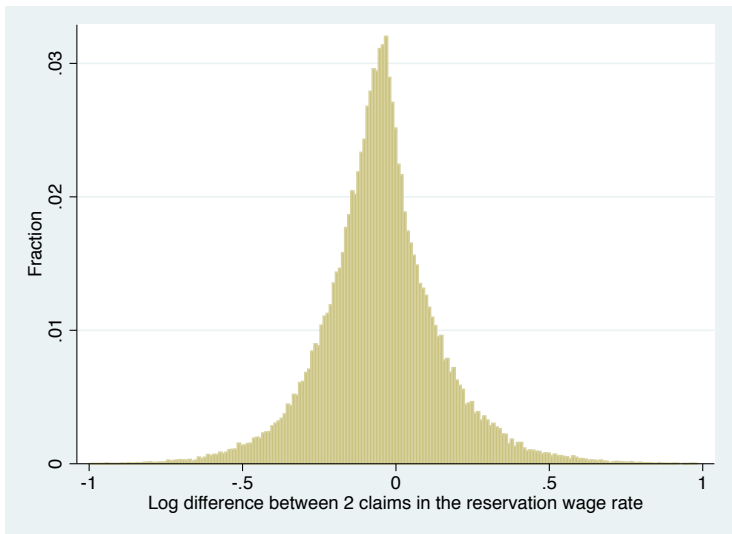
Reservation wages explains unemployment duration

	Log UI duration		Log non-employment duration	
Log ResW	-0.273*** (0.0210)	0.466*** (0.232)	-0.104*** (0.0377)	0.506 (0.435)
Indiv. FE	no	yes	no	yes
Obs.	56,861	5,068	56,861	5,068
R-squared	0.096	0.177	0.030	0.066

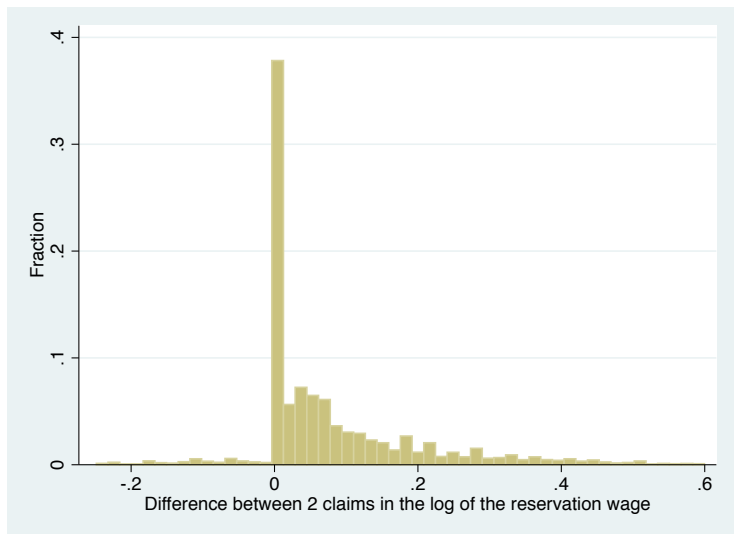
▶ Back

Variable	Repeated claimants	All claimants
Male	0.599	0.582
Foreign born	0.111	0.096
Age	31.301	32.008
Married	0.353	0.402
Divorced	0.068	0.076
Has a child	0.363	0.406
Education (in years)	11.59	11.79
Occupational experience (in years)	4.628	5.272
Past Contract is long-term	0.353	0.549
Past tenure at last employer (in days)	393.648	994.644
Sum of past tenures over last 2 years	427.708	590.319
Potential Benefit Duration (in days)	413.156	550.979
Actual Benefit Duration (in days)	192.403	233.036
Past Monthly Wage (gross, in €)	1721.631	1778.903
Unemployment Benefits (in €)	1006.869	1059.519
N. of observations	180,670	1,958,138

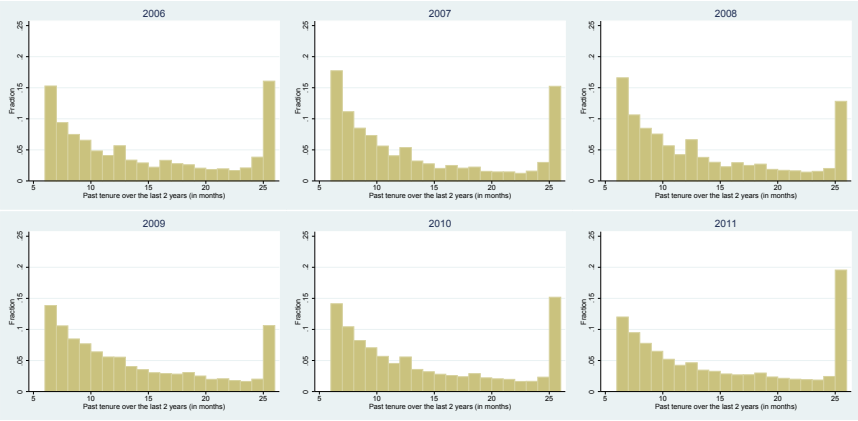
Changes in reservation wage rates across claims



Log changes in nominal reservation wage across claims

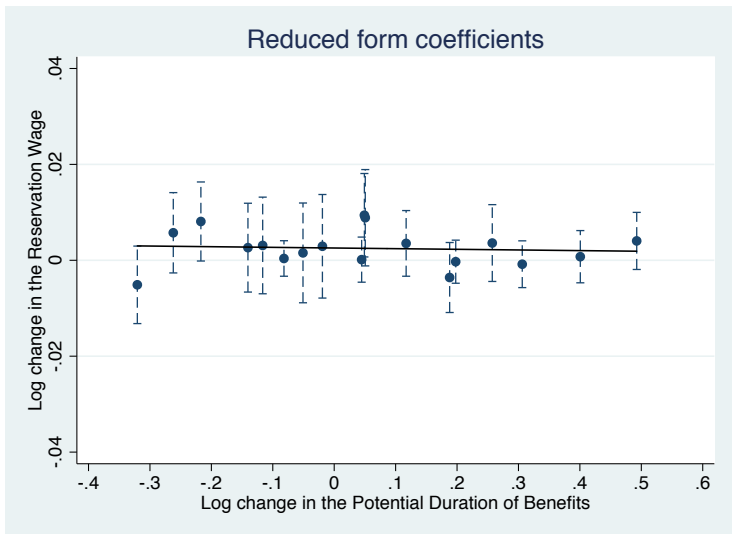


Distribution of running variable

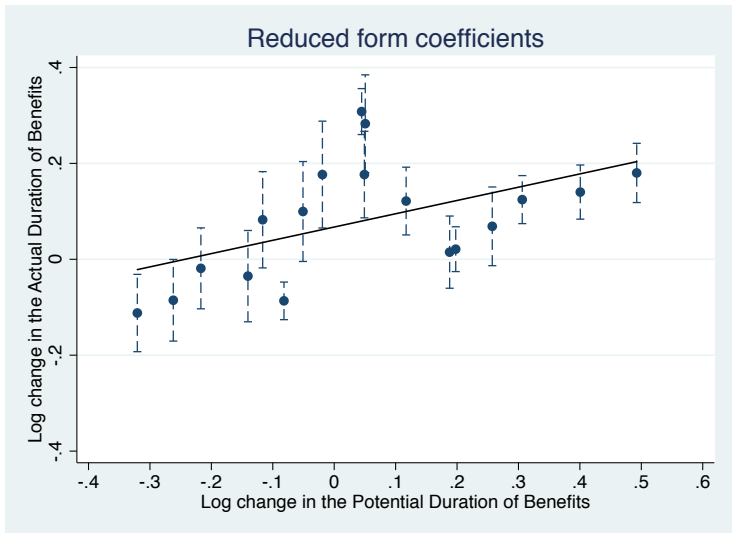


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Reduced form preview : no effect on reservation wages



While strong effect on actual duration of benefits



Reduced-form equation

$$\begin{aligned}\log Y_{i,n} = & \sum_{j=6, \text{excl.} 7, 12, 23}^{26} \beta_j D(\textit{Tenure}_{i,n} = j) \times \textit{After}_{i,n} \\ & + \sum_{j=6, \text{excl.} 7, 12, 23}^{26} \delta_j D(\textit{Tenure}_{i,n} = j) \\ & + \gamma X_{i,n} + \textit{Year} \times \textit{QuarterF.E.} + \textit{Indiv.F.E.}_i + \nu_{i,n}\end{aligned}$$

- ▶ For *Tenure* = 7, 12 or 23 months: PBD is almost the same under 2009 and under 2006 rules

Heterogeneity analysis

- ▶ Higher elasticity for job seekers with an average tenure below the median, i.e. ≤ 13 months

	Low tenure	High tenure
	Log of Reservation wage	
log PBD	0.00964** (0.00379)	-0.00272 (0.00557)
IObs.	90,364	90,273
Indiv. F.E.	yes	yes

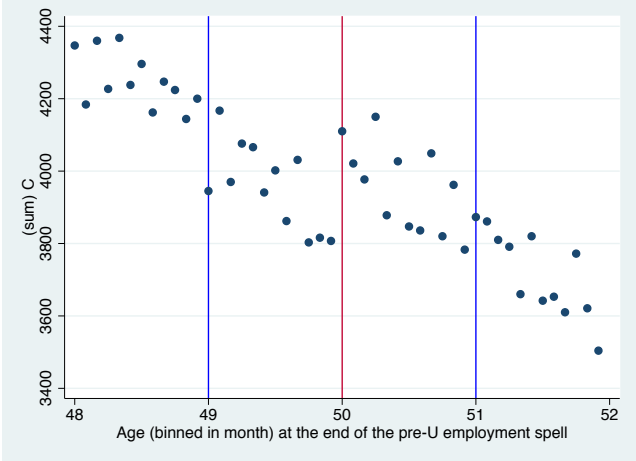
Age discontinuity in Potential Benefit Duration

Job seekers of age 50 or more are entitled to longer benefits

- ▶ Before the 2009 reform:
 - ▶ Same step schedule as younger job seekers (700, 365 or 213 days depending on previous work duration)
 - ▶ With one extra step : 1095 days if more than 27 months of work over the last 36 months;
- ▶ After the reform:
 - ▶ Same linear schedule as for younger job seekers
 - ▶ But up to 36 months (instead of 24)

==> On average PBD is 30% longer for senior workers

Density around the cutoff

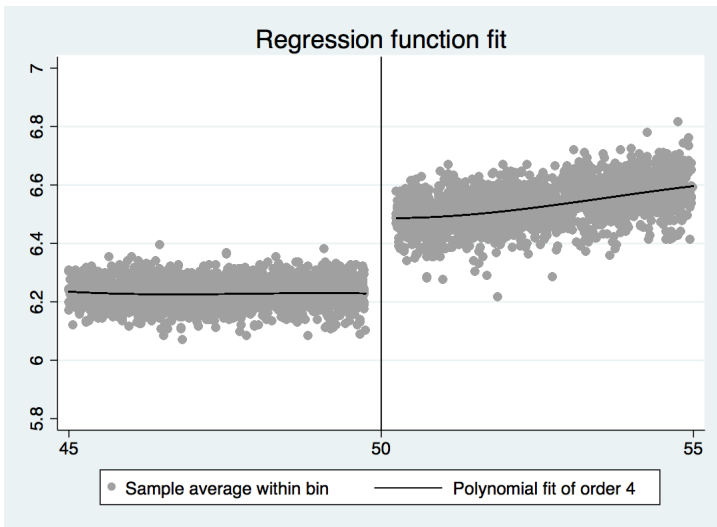


Donut Regression Discontinuity Design

As in Lalive (2007) and Schmieder et al. (2012), also using age discontinuities in UI rules, evidence of very local manipulation

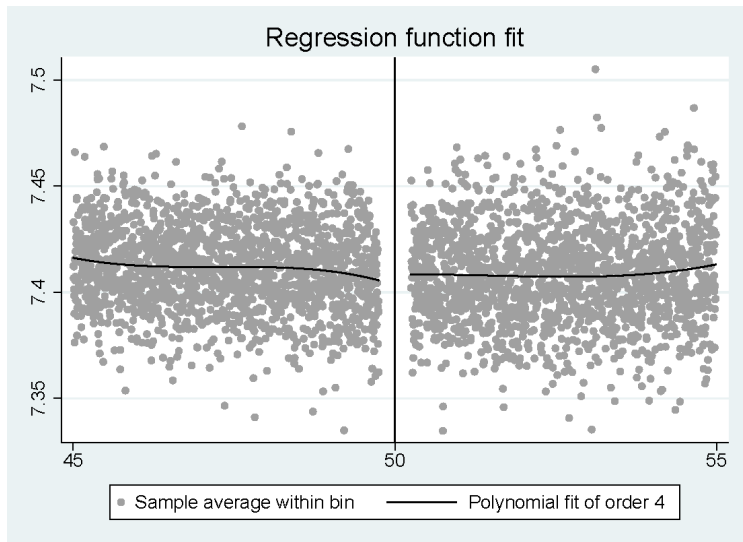
- ▶ Standard McCrary test: density $\approx 8\%$ higher above the cutoff
- > Donut RDD: we exclude observations right around the cutoff
 - ▶ No theoretical guidelines as to size of the donut hole
 - ▶ We show robustness of the results to various sizes

Jump in potential benefit duration at age 50

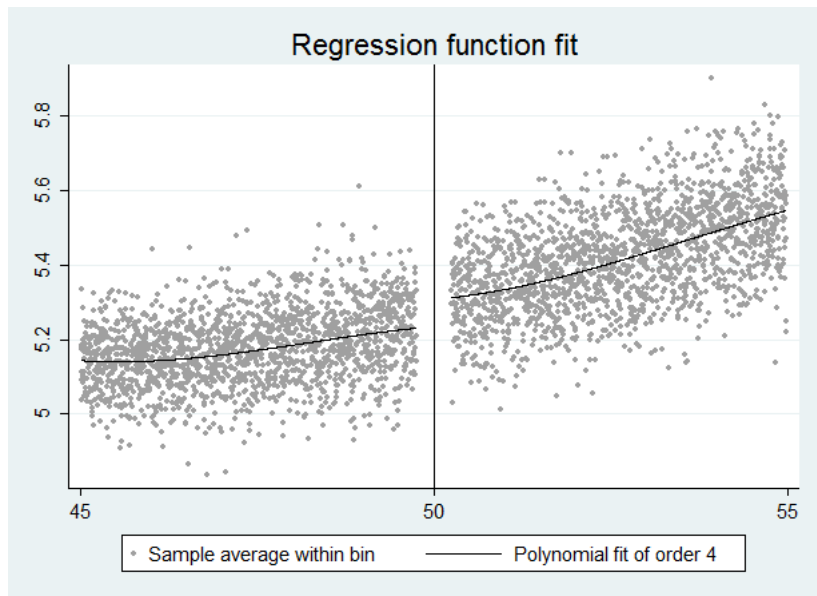


- ▶ Bin size determined according to Calonico et al. (2014)

Log of reservation wage



Log of actual benefit duration



Fuzzy RD estimation

$$\log Y_i = \alpha + \delta \log PBD + P_0(\text{age}_i - 50) \times 1(\text{age}_i < 50) \\ + P_1(\text{age}_i - 50) \times 1(\text{age}_i \geq 50) + \epsilon_i$$

- ▶ Where we instrument $\log PBD$ by $1(\text{age}_i \geq 50)$
- ▶ $P_0(\cdot)$ and $P_1(\cdot)$ are local polynomials whose coefficients are estimated (without constant)
- ▶ We follow Calonico et al. (2014) to select the bandwidth for the polynomial estimation, for bias correction and robust standard error correction

RDD estimates of elasticities of reservation wages and benefit duration w.r.t. PBD

Age excluded	(1) [49.9, 50.1]	(2) [49.75, 50.25]	(3) [49.5, 50.5]
	Log of Reservation wage		
log PBD	0.0116 (0.0149)	0.0172 (0.0162)	0.00457 (0.0141)
	Log of Actual benefit duration		
log PBD	0.211*** (0.0786)	0.242*** (0.0669)	0.175** (0.0692)
Obs.	470,082	456,280	432,431