Entitled to Leave: the Impact of Unemployment Insurance Eligibility on Employment Duration and Job Quality

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Motivation

Entitlement conditions apply in most UI schemes

- Often as a social security contribution or job tenure requirement
- At the center of the policy debate:
 - Index created by the OECD measuring the ease of access to UI schemes (Venn, 2012): entitlement conditions = 1/8th
 - Great variation across countries
 - One of the main points of the 2019 UI reform in France
- Absent from the literature: UI benefits considered as accessible to any non-employed in models, barely studied in the empirical literature

Motivation

Figure 1: Strictness of entitlement conditions (OECD countries)

Indicator scored from 1 (least strict) to 5 (most strict)



Source: Venn (2012)

Introduction

UI entitlement conditions potentially affect the labour supply decision of workers by **changing their outside option**

In this paper :

 \rightarrow Impact of the minimum employment history condition to be eligible for UI benefits in France

 \rightarrow Use of the 2009 French reform which changed this condition from 6 months to 4 months

This paper

- **Focus of the presentation**: Do employers and employees respond to the increase in UI value by separating more at the eligibility threshold ?
 - Through increasing flows to non-employment (+43%)
 - Through shorter contracts after the reform (+1.5 4-m contracts relative to 6-m contracts \approx +17%)
- 2 Does receiving UI benefits affect future employment prospects ?
 - Negative long-lasting impact on employment probability (up to 20m)
 - No clear positive impact on job-quality

Literature

- <u>Contribution 1</u>: We estimate the impact of UI on on-the-job behaviours both at the micro and macro levels
 Ortega and Rioux (2010); Hopenhayn and Nicolini (2009); Andersen et al. (2015)
 Rebollo-Sanz (2012); Van Doornik et al. (2018); Albanese et al. (2019); Martins (2016)
- <u>Contribution 2</u>: extensive margin impact of UI benefits both on short- and long-run outcomes
 <u>Tables</u>
 Landais (2015); Lalive et al. (2006); Chetty (2006); Schmieder et al. (2016); Kyyrä and Pesola (2017)
 Davezies and Le Barbanchon (2017); Leung and O'Leary (2015)

Contribution 3: document the effect on job quality while still an on-going debate

Nekoei and Weber (2017); Caliendo et al. (2013); Schmieder et al. (2013); Lalive (2007); Card et al. (2007); Van Ours and Vodopivec (2008);

Le Barbanchon et al. (2017)

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Institutional background

Eligibility depends on a minimum employment record \rightarrow **reform** on April, 1st, 2009 :

Table 1: Pre and Post reform rules

Minimum employment record		Potential benefit duration
Pre-reform	6 months over the last 22 months	Different categories according to work history
Post-reform	4 months over the last 28 months	1 to 1 relationship up to 2 years

Data

- FH-DADS: linked employer-employee dataset matched with UI data between 2003-2012 [Sample]
 - Panel data (1/12th)
 - Earnings, number of days worked, type of job, firm size, industry, occupation, etc.
- MMO: cross-section of all employment flows with information on termination reason

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Employment outflows - Data

- ► FH-DADS (864,534 individuals):
 - Positions converted into biweekly spells starting from the 1st job after the reform over 2 years
 - Measure of the transitions from employment to registered UI and to non-employment

Figure 2: Probability to go from employment to registered unemployment



Source: FH-DADS.



Source: FH-DADS.

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Contract duration - potential mechanisms

- Employers may internalize the jump in the value of unemployment at the time of hiring
- Triple advantage of contracts scheduled to qualify workers for benefits:
 - Implicit contract theory : employers and employees may agree to share the rent from UI through lower wages (Feldstein, 1976; Baily, 1977)
 - They ease adjustments of the workforce to the variation in business activity with a limited decrease in attractiveness of contracts
 - If systematic enough, employers' recalling behaviours can ensure investment in firm-specific human capital without bearing the cost of high employment protection

Contract duration - Methodology

- Use of the 2009 reform
- ► MMO (≈ 22M obs): Monthly panel of firms with number of fixed-term contracts of duration *d* ending in month *m*
- DiD comparing the evolution of the number of 4 and 6-month contracts over time Reg

$$Y_{imt}^{d} = \alpha + \beta_1.post_{mt} + \beta_2.\mathbb{1}_{d=4} + \beta_3.post_{mt} * \mathbb{1}_{d=4} + \mu_i + \kappa_m + \delta_t + \epsilon_{imt}$$

where Y_{imt}^d is the number of contracts of duration $d \in \{4; 6\}$ ending in firm *i*, on month *m* of year *t*; *post_{mt}* is a dummy equal to 1 after April 2009, and $\mathbb{1}_{d=4}$ is a dummy variable indicating 4-month contracts.

Contract duration - Results

Figure 4: Yearly evolution of the number of 4-month contracts relative to 6-month contracts



Contract duration - Results

Figure 5: Within sector change in the number of 4- month contracts relative to 6-month contracts



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Impact on unemployment outflows - Methodology

- Qualifying for benefits 2 months sooner may affect decisions regarding employment
- Separation response makes it hard to study the extensive margin impact of UI benefits on U outcomes
- Further sample restrictions and use of the reform
 - Workers with 4 months ≤ work history ≤ 6 months before (controls) and after (treated) the reform
 - Under a fixed-term contract that started before the reform
 - Fuzzy RDD around the time threshold of the reform on 23,559 observations

Impact on unemployment outflows - Methodology

Assumption to be checked:

- No disproportionately high number of contracts ≤ 4 months starting before the reform and ending right after Graphs
- McCrary test (McCrary, 2008)
- Continuity of the covariates

Graph

Impact on unemployment outflows - 1st stage





Impact on employment probability

Figure 7: Impact of UI eligibility on employment probability 6 months after Reg



Impact on employment probability

Figure 8: Impact of UI eligibility on employment probability



Impact on job quality

Table 2: Summary of the results on job quality

		Conditionally		
	Short-term Medium-term Long-term			Next contract
Permanent contract	(-)	-	(-)	(+)
Full-time	-	(-)	n.s.	(-)
Wage	n.s.	(-)	-	-
Duration	-	-	-	
Matching	-	n.s.	n.s.	n.s.

A single + or - means that the result is significant and of the indicated sign. A (+) or (-) in parentheses means that there is a strong pattern of the effect going in the indicated direction but coefficients are not significant.

Impact on job quality

 Table 3: Impact of UI benefit receipt on cumulative earnings over two years

	Cumulative earnings over 2 years					
	Linear Quadratic Cubic					
RD_Estimate	-34790.054*	-29929.143	-37389.971			
	(17979.466)	(25519.166)	(30919.655)			
Observations	23559	23559	23559			

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

NOTE: This table reports the regressions discontinuity estimates of the impact of UI benefits receipt. The bandwidth has been computed using the MSE optimal bandwidth selector. Linear, quadratic and cubic specifications. The dependent variable corresponds to earnings accumulated over two years after the end of the contract that defines the treatment status.

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Conclusion

Evidence that firms and workers react to UI incentives in their separation behaviors

 \rightarrow effect on the overall structure of contracts beyond future UI recipients

 \rightarrow important behavioural response to incorporate into the optimal UI framework

- One of the first empirical evidence on the effect of receiving any UI benefits:
 - Strong and long-lasting neg. impact on employment probability
 - Evidence of neg. impact on earnings
 - Less clear-cut results on job quality
- Future extensions:
 - Incorporation of a model; More systematic placebo tests
 - Need to look at interactions with social minima; Heterogeneity analysis

Appendix

Table 4: Descriptive statistics by work history Back

	Work history $< 6 \mbox{ months}$	Work history $\geq 6 \text{ months}$	Difference (2) - (1)
Gender	0.587	0.612	0.025*** (0.0004)
Level of education	4.213	4.488	0.275*** (0.0038)
Hourly wage	13.046	15.586	2.540*** (0.1297)
Permanent contract	0.162	0.463	0.301*** (0.0004)
Fulltime	0.602	0.692	0.090*** (0.0004)
Establishment size	113.390	258.550	145.160*** (0.8760)
Experience on the labour market (years)	5.526	10.794	5.267*** (0.0081)
Daily number of hours worked	4.075	4.187	0.112*** (0.0026)
Probability to hold multiple jobs in a given month	0.054	0.040	-0.014*** (0.0002)
Average number of simultaneous jobs in a given month	1.067	1.049	-0.018*** (0.0001)
Observations	1942608	6491757	8434365

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

NOTE: This table displays descriptive statistics comparing workers with an employment record of more or less than 6 months over the last 28 months. These statistics have been computed on the sample of workers employed during the 2004-2012 period using the DADS. Work history has been computed by the authors.

Table 5: Descriptive statistics by work history - sectors of activity

	Work history < 6 months	Work history \geq 6 months	Difference (2) - (1)
Agriculture, Forestry and Fishing	0.0320	0.0148	-0.0172*** (0.00014)
Extractive industry	0.0002	0.0009	0.0006*** (0.00003)
Manufacturing industry	0.0543	0.1159	0.0616*** (0.00031)
Gas and electricity	0.0011	0.0067	0.0056*** (0.00008)
Water supply, Sanitation, Waste management	0.0020	0.0056	0.0036*** (0.00007)
Construction	0.0483	0.0762	0.0279*** (0.00027)
Retail and wholesale trade; Car repair	0.1344	0.1517	0.0173*** (0.00037)
Transportation and storage	0.0253	0.0635	0.0382*** (0.00024)
Food and accommodation	0.1088	0.0782	-0.0307*** (0.00029)
Information and Communication	0.0378	0.0475	0.0097*** (0.00022)
Financial and Insurance activities	0.0177	0.0364	0.0187*** (0.00018)
Real estate	0.0090	0.0135	0.0045*** (0.00012)
Specialised, scientific and technical activities	0.0425	0.0645	0.0220*** (0.00025)
Administrative services and support activities	0.3772	0.2065	-0.1707*** (0.00044)
Public administration	0.0029	0.0097	0.0068*** (0.00009)
Teaching	0.0093	0.0122	0.0029*** (0.00011)
Health and Social action	0.0367	0.0487	0.0120*** (0.00022)
Art and entertainment	0.0341	0.0221	-0.0120*** (0.00016)
Other services	0.0261	0.0254	-0.0007*** (0.00016)
Extraterritorial activities	0.0000	0.0000	0.0000* (0.00001)
Observations	1188815	3968959	5157774

Table 6: Descriptive statistics by work history – Occupation type

	Work history < 6 months	Work history $\geq 6 \text{ months}$	Difference (2) - (1)
Farmer	0.0001	0.0000	-0.0000**** (0.00001)
Craftsperson	0.0001	0.0007	0.0005*** (0.00002)
Retail trader	0.0004	0.0015	0.0011*** (0.00003)
Head of a company of 10 employees or more	0.0008	0.0047	0.0039*** (0.00005)
Professional activity (doctor, architect, etc.) under a salaried status	0.0005	0.0010	0.0004*** (0.00002)
Civil-servant executives	0.0001	0.0027	0.0025*** (0.00004)
Professors, Scientific occupations	0.0025	0.0048	0.0024*** (0.00005)
Information, art and entertainment	0.0350	0.0208	-0.0142*** (0.00013)
Administration and business executives	0.0122	0.0536	0.0415*** (0.00017)
Specialised executives and engineers	0.0083	0.0414	0.0331*** (0.00015)
Primary school teachers	0.0080	0.0092	0.0013*** (0.00008)
Social work and health intermediate professions	0.0174	0.0192	0.0018*** (0.00011)
Clergy	0.0000	0.0001	0.0000*** (0.00001)
Administrative intermediate professions of the public sector	0.0008	0.0047	0.0038*** (0.00005)
Administrative and business intermediate professions of the private sector	0.0450	0.0829	0.0379*** (0.00021)
Technicians	0.0150	0.0357	0.0207*** (0.00014)
Foreman	0.0050	0.0180	0.0130*** (0.00010)
Civil-servants	0.0174	0.0230	0.0056*** (0.00012)
Supervising officer	0.0115	0.0133	0.0018*** (0.00009)
Administrative employees in firms	0.0874	0.0984	0.0111*** (0.00024)
Commercial employee	0.1201	0.0804	-0.0398*** (0.00023)
Employees providing services to individuals	0.1097	0.0729	-0.0368*** (0.00022)
Skilled worker in the industry	0.0522	0.0721	0.0198*** (0.00021)
Skilled worker in the arts and crafts	0.0789	0.0853	0.0064*** (0.00023)
Driver	0.0322	0.0436	0.0115*** (0.00016)
Skilled under in actal bandling, stocking and temperaturing	0.0244	0.0252	0.0010888

 Table 7: Descriptive statistics on treated and control workers

	Treated	Control	Difference (2)-(1)
Gender	0.58	0.59	0.01 (0.008)
Level of education	4.25	4.18	-0.07 (0.070)
Daily wage	44.66	53.28	8.61*** (1.254)
Fulltime	0.48	0.56	0.08*** (0.008)
Establishment size	96.59	79.11	-17.48* (8.145)
Observations	5401	18158	23559

* p < 0.05, ** p < 0.01, *** p < 0.001. Standard errors in parentheses. SOURCE: FH-DADS.

Table 8: Descriptive statistics on takers and non-takers

	Takers	Treated non takers	Difference
Gender	0.57	0.58	0.02 (0.020)
Level of education	4.36	4.23	-0.13 (0.171)
Daily wage	62.30	41.92	-20.38*** (1.422)
Fulltime	0.76	0.44	-0.32*** (0.019)
Establishment size	99.58	96.12	-3.46 (24.431)
Work history over the last 28 months	157.15	152.32	-4.83*** (0.821)
Observations	727	4674	5401

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

FH-DADS Back :

- DADS built at the individual × establishment × year level ('position')
- \blacktriangleright Work history variable built from DADS \rightarrow 75% match between FH and DADS
- Sample restrictions: remove workers ever observed as a civil servant or home-employed for a private employer

Table 9: Discontinuity in the transition rate fromemployment to non-employment on full-time workersBack

	Probability of transiting from employment to non-employment				
RD_Estimate	0.027***	0.032***	0.036***		
	(0.006)	(0.008)	(0.010)		
Observations	436350	436350	436350		

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

SOURCE: FH-DADS.

NOTE: The regression shows in a regression discontinuity design spirit the discontinuity in the biweekly transition rate from employment to non-employment. The running variable is the work history over the last 28 months and the cutoff value is 4 months. Bandwidth has been computed using the mean squared error (MSE) optimal bandwidth selector with a linear specification. The sample has been restricted to workers whose number of hours corresponds to a daily full working time multiplied by the number of days covered by the position to reduce the probability that the position does not correspond to an uninterrupted employment spell.

Table 10: Difference-in-difference estimate of the number of 4-month contracts relative to 6-month contracts Back

		Within firm	monthly numb	er of contracts	5
4-month (versus 6m) contracts	7.44499***	4.88344***	3.67946	-0.59904	-0.86041
	(1.104302)	(0.136075)	(2.540706)	(0.420878)	(0.607546)
Post-reform	-0.13257	1.29470***	1.25968	0.48156	0.37090
	(0.281080)	(0.336468)	(0.898371)	(0.567464)	(0.814415)
4-month (versus 6m) contracts $ imes$ Post-reform	0.49209	0.25898	0.24836	1.53001**	2.38411***
	(1.396799)	(0.161821)	(0.455498)	(0.605193)	(0.912708)
Constant	3.75650***	4.17694***	4.83235***	8.91393***	13.82090***
	(0.256077)	(0.241221)	(1.724860)	(0.433443)	(0.603916)
Month fixed-effect	No	Yes	Yes	Yes	Yes
Year fixed-effect	No	Yes	Yes	Yes	Yes
Sector fixed-effect	No	No	Yes	Yes	Yes
Firm fixed-effect	No	No	No	Yes	Yes
Sample	Sample 1	Sample 1	Sample 1	Sample 1	Sample 2
Observations	549208	549208	549208	517695	352660

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

SOURCE: MMO.

NOTE: The table shows the difference-in-difference estimate of the number of fixed-term 4-month contracts relative to fixed-term 6-month contracts before and after the reform, computed at the firm \times month level and aggregated at the national level. The first column displays the raw regression, and month, year, sector and firm fixed-feffects are progressively added. The two last column include all fixed-teffects. Construction of Sample 1 is detailed in the paper. Sample 2 is a restriction to firms observed in both period with at least one 4-month and one 6-month contracts ending in each period. Standard errors are clustered at the sector level for the 3rd specification, and at the firm level for the last two ones.

Source: FNA.

Figure 9: Yearly evolution of the number of 1-month contracts relative to 2-month contracts Back



SOURCE: MMO





Source: FNA.

Figure 11: Share of 31 to 60-day contracts among contracts of 1 year or less



Source: FNA.

Figure 12: Share of 61 to 90-day contracts among contracts of 1 year or less



Source: FNA.

Figure 13: Share of 91 to 120-day contracts among contracts of 1 year or less



Source: FNA.

Figure 14: Share of 121 to 150-days contracts among contracts of 1 year or less



Source: FNA.



Source: FH-DADS.

The running variable, ending date of the contract, has been normalised around the time threshold to be equal to 0 at the threshold, -1 six months before, and +1 six months after.

Back



Source: FH-DADS.

The running variable, ending date of the contract, has been normalised around the time threshold to be equal to 0 at the threshold, -1 six months before, and +1 six months after.

Figure 17: Histogram of the contract ending date frequencies



Source: FH-DADS.

The running variable, ending date of the contract, has been normalised around the time threshold to be equal to be equal to 0 at the threshold, -1 six months before, and +1 six months after. The bin size is equal to 0.02.

Figure 18: Magnitude of the difference in covariates at the cutoff Back



The three levels of significance of the confidence intervals depicted are 5%, 1% and 0.1%.

Table 11: Impact of separating after the reform on UI takeup Back

	Register as unemployed				
	Linear Quadratic Cubic				
RD_Estimate	0.069***	0.061**	0.058**		
	(0.021)	(0.024)	(0.024)		
F-stat	72.64	46.38	21.14		
Observations	23559	23559	23559		

Bandwidth has been computed using the mean squared error (MSE) optimal bandwidth selector.

Standard errors in parentheses.

Table 12: Impact of UI benefits receipt on employment probability (1-4 months) Back

	Probability of being	Probability of being	Probability of being	Probability of being
	employed 1 months	employed 2 months	employed 3 months	employed 4 months
	after	after	after	after
RD_Estimate	0.023	0.019	-0.536	-0.902*
	(0.556)	(0.495)	(0.426)	(0.488)
Observations	23559	23559	23559	23559

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

The bandwidth has been computed using the MSE optimal bandwidth selector. Linear specification.

Table 13: Impact of UI benefits receipt on employment probability (5-8 months)

	Probability of being employed 5 months after	Probability of being employed 6 months after	Probability of being employed 7 months after	Probability of being employed 8 months after
RD_Estimate	-0.895*	-1.068**	-1.020**	-1.141***
Observations	23559	23559	23559	23559

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

The bandwidth has been computed using the MSE optimal bandwidth selector. Linear specification.

Table 14: Impact of UI benefits receipt on employment probability (9-12 months)

	Probability of being	Probability of being	Probability of being	Probability of being
	employed 9 months	employed 10	employed 11	employed 12
	after	months after	months after	months after
RD_Estimate	-0.376	-0.949**	-0.978**	-0.695
	(0.381)	(0.453)	(0.455)	(0.438)
Observations	23559	23559	23559	23559

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

The bandwidth has been computed using the MSE optimal bandwidth selector. Linear specification.

Table 15: Impact of UI benefits receipt on employment probability (13-16 months)

	Probability of being	Probability of being	Probability of being	Probability of being
	employed 13	employed 14	employed 15	employed 16
	months after	months after	months after	months after
RD_Estimate	-0.641	-0.719	-0.684	-0.772*
	(0.453)	(0.446)	(0.435)	(0.438)
Observations	23559	23559	23559	23559

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

The bandwidth has been computed using the MSE optimal bandwidth selector. Linear specification.

Table 16: Impact of UI benefits receipt on employment probability (17-20 months) Impact of UI benefits

	Probability of being	Probability of being	Probability of being	Probability of being
	employed 17	employed 18	employed 19	employed 20
	months after	months after	months after	months after
RD_Estimate	-0.779*	-0.979**	-0.940**	-1.064**
	(0.461)	(0.480)	(0.453)	(0.486)
Observations	23559	23559	23559	23559

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

The bandwidth has been computed using the MSE optimal bandwidth selector. Linear specification.

Table 17: Impact of UI benefits receipt on employment probability (21-24 months)

	Probability of being	Probability of being	Probability of being	Probability of being
	employed 21	employed 22	employed 23	employed 24
	months after	months after	months after	months after
RD_Estimate	-1.108**	0.069	0.079	0.048
	(0.444)	(0.437)	(0.428)	(0.424)
Observations	23559	23559	23559	23559

* p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses.

The bandwidth has been computed using the MSE optimal bandwidth selector. Linear specification.

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