The Unequal Consequences of Job Loss across Countries

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All views and opinions are our own.

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Introduction

- How large and persistent are the consequences of job loss in Europe?
- How important are the role of labour market institutions and characteristics of employers and workers on these losses?
- Losing a job may have a tremendous impact on workers career (Jacobson et al, 1993).
  - More efficient labour markets generate lower earnings losses.
  - Recent debate on the sources of job-loss effects (Lachowska et al, 2020; Schmieder et al, 2020).
- Results across studies are hard to compare and reconcile due to differences in:
  - Methodologies (research designs/sampling)
  - Institutions (unemployment insurance, employment protection, etc.)
- THIS PAPER: harmonized dataset and analysis using European employer-employee administrative data.

What we do:

1. Document the long-run impact of job loss on labour market outcomes across 7 European countries:
   - Countries: (i) Spain, Italy, Portugal; (ii) France, Austria; (iii) Denmark and Sweden;
   - Method: use a standard "mass layoff" event study design
2. Analyse the drivers of cross-country heterogeneities:
   - The contribution of employer characteristics in explaining earnings losses (AKM model).
   - Compositional differences across countries (Oaxaca-Blinder decompositions).
   - Suggestive evidence of the role of labour market institutions.

What we find:

1. Even within Europe, substantial heterogeneity of earnings losses 5 years after job loss:
   - 10% in Nordic countries vs 20% in Southern Europe (not driven by compositional differences).
2. A large share of wage losses is related to transitions to worse-paying firms:
   - At least 50% of wage losses in most countries.
3. *Suggestive* evidence that labour market policies reduce earnings losses:
   - A higher spending in "Active" Labour Market Policies (ALMP) reduces earnings losses.

Table 1: Review of Research Designs and Impact of Job Loss on Earnings

Paper	Country	Year	Tenure	Event	Firm size	Gender	Control: Stayer	Earnings in year 5
Gulyas & Pytka (2020)	AT	1984-2017	2	Mass layoff $\geq$ 30%	30	Male	No	-16%
Halla et al (2020)	AT	1990-2007	1	Mass layoff	10	Male	No	-20%
Bennett & Ouazad (2019)	DK	1990-1994	3	Mass layoff $\geq$ 30%	30	Male	No	- 23%
Roulet (2020)	DK	2001-2006	5	Plant closure	5	Both	No	- 12%
Royer (2011)	FR	1995-1999	2	Plant closure	10	Both	No	-16%
Brandily et al (2021)	FR	2002-2012	2	Separation Reason	none	Both	No	-36%
Schmieder et al (2020)	DE	1975-2005	3	Mass layoff $\geq$ 30%	50	Male	No	-20%
Fackler et al (2021)	DE	2002-2014	3	Separation Reason	none	Male	No	-12%
Leombruni et al (2013)	IT	1989-1994	3	Plant closure	none	Both	No	-9%
Mossucca (2016)	IT	2005-2010	6	Mass layoff	none	Both	Yes	-9%
Carneiro & Portugal (2006)	PT	1991-1998	3	Plant closure	none	Both	Yes	-6%
Raposo et al (2021)	PT	1988-2014	2	Plant closure	20	Both	No	-27%
Garcia-Cabo (2018)	ES	2005-2015	1.5	Separation Reason	none	Both	Yes	-32%
Garda (2012)	ES	1999-2004	3	Separation Reason	5	Male	No	-25 %
Eliason & Storrie (2006)	SW	1987-1988	none	Plant closure	10	Both	No	-11%
Seim (2019)	SW	2002-2004	1.5	Separation Reason	5	Male	No	-15%
Jacobson et al (1993)	US	1974-1986	6	Mass layoff $\geq$ 30%	50	Both	Yes	-25%
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Continuously employed

Our contribution:

1. Causal estimates of the consequences of job displacement across nations using a harmonised dataset.
2. Assess the role of labour market institutions on job loss outcomes.

Outline of the Talk

1. Introduction
2. Data description
3. Empirical Strategy and Results
4. Sources of the unequal consequences of job loss across countries
5. Conclusions

Data description

- Data sources: employer-employee data from Social Security records.
- Harmonized dataset covering worker displacement event from 1994 to 2016 in six countries. Spain from 2007.

Table 2: Characteristics of data sources by country.

	Italy	Portugal	Spain	France	Austria	Denmark	Sweden
Sample period	93-16	92-17	07-19	94-16	87-18	83-16	94-16
Employees:							
Similar job	YES	YES	YES	YES	YES	YES	YES
% population	6.5	100	4	8	100	100	100
Employers:							
Esta & Firm ID	YES	YES	YES	YES	NO	YES	YES
Private & Public sector	YES	YES	YES	YES	YES	YES	YES
Source:	INPS	QP	MCVL	DADS	AMDB	IDA	RAMS

Research Design: Event-study

- We follow closely Schmieder, von Wachter and Heining (2020).
- Sample population: Employees aged under 50 in the private sector whose:
  - Establishments have at least 50 workers at the pre-displacement year ($t^* - 1$)
  - Long-term workers, i.e. with a job tenure higher than 3 years at the pre-displacement year
- **Treated group**: experience an involuntary job loss with their main employer:
  - Establishment size drops by >30% between years $t^* - 1$ and t^* (year of mass layoff).
  - Employer reasons of job separations in t^* are economic layoffs in Italy and mass layoffs in Spain (*EREs* in Spanish).
  - Workers are not recalled at the main employer in t^* in post-treatment.
- **Control group**: Displaced workers are matched with one comparable worker:
  - Perfectly at calendar year, gender and industry.
  - Other characteristics: age, employer size, job tenure, working time (full-time/part time) and kind of job contract (opend-ended vs fixed-term) in $t^* - 1$ and previous earnings in various years before.

Table 3: Descriptive Statistics: Employees

	Denmark		Sweden		Italy		Spain		Austria		France		Portugal	
	T	C	T	C	T	C	T	C	T	C	T	C	T	C
Earnings	41.8	41.8	33.1	33.1	24.1	24.3	22.4	22.4	29.9	30.0	29.5	29.7	15.4	15.5
Age	33.4	33.9	36.6	36.7	37.7	37.7	38.2	38.0	38.2	38.1	37.0	37.3	35.8	35.8
Female	0.38	0.38	0.35	0.35	0.40	0.40	0.41	0.41	0.42	0.42	0.36	0.36	0.48	0.48
Job tenure	5.5	5.5	7.3	7.3	4.7	4.7	6.7	6.6	7.3	7.3	6.7	6.7	10.3	10.4
FTC	–	–	–	–	0.06	0.06	0.14	0.15	–	–	0.10	0.09	0.13	0.13
Full time	0.81	0.81	–	–	0.86	0.85	0.87	0.86	–	–	0.87	0.88	0.89	0.89
Workers (in 1000)	188.7	188.7	97.4	97.4	66.3	66.3	14.7	14.7	55.9	55.9	29.9	29.9	177.3	177.3

Notes: T and C denote treatment group and control groups of workers, respectively. FTC means Fixed-term contracts.

Table 3: Descriptive Statistics (Contd.): Employers

	Denmark		Sweden		Italy		Spain		Austria		France		Portugal	
	T	C	T	C	T	C	T	C	T	C	T	C	T	C
Industry:														
Manufacturing	0.37	0.37	0.42	0.42	0.36	0.36	0.26	0.26	0.47	0.47	0.45	0.45	0.53	0.53
Services	0.35	0.35	0.32	0.32	0.31	0.31	0.59	0.59	0.13	0.13	0.33	0.33	0.38	0.38
Other	0.28	0.28	0.25	0.25	0.33	0.33	0.15	0.15	0.41	0.41	0.22	0.22	0.09	0.09
Employer size	359	342	387	382	364	359	342	361	323	308	614	622	335	320
Firms (in 1000)	7.0	9.8	6.0	15.1	22.6	28.2	13.3	13.7	1.2	5.9	8.7	19.5	8.0	46.1

Notes: T and C denote treatment group and control group of workers, respectively.

Empirical strategy: baseline event-study

Let t_i^* denote the year of mass layoff experienced by individual i

$$y_{it} = \alpha_i + \lambda_t + \sum_{k=-5}^{k=5} \gamma_k \mathbf{1}\{t = t_i^* + k\} + \sum_{k=-5}^{k=5} \theta_k \mathbf{1}\{t = t_i^* + k\} \times Displaced_i + X_{it}'\beta + r_{it} \tag{1}$$

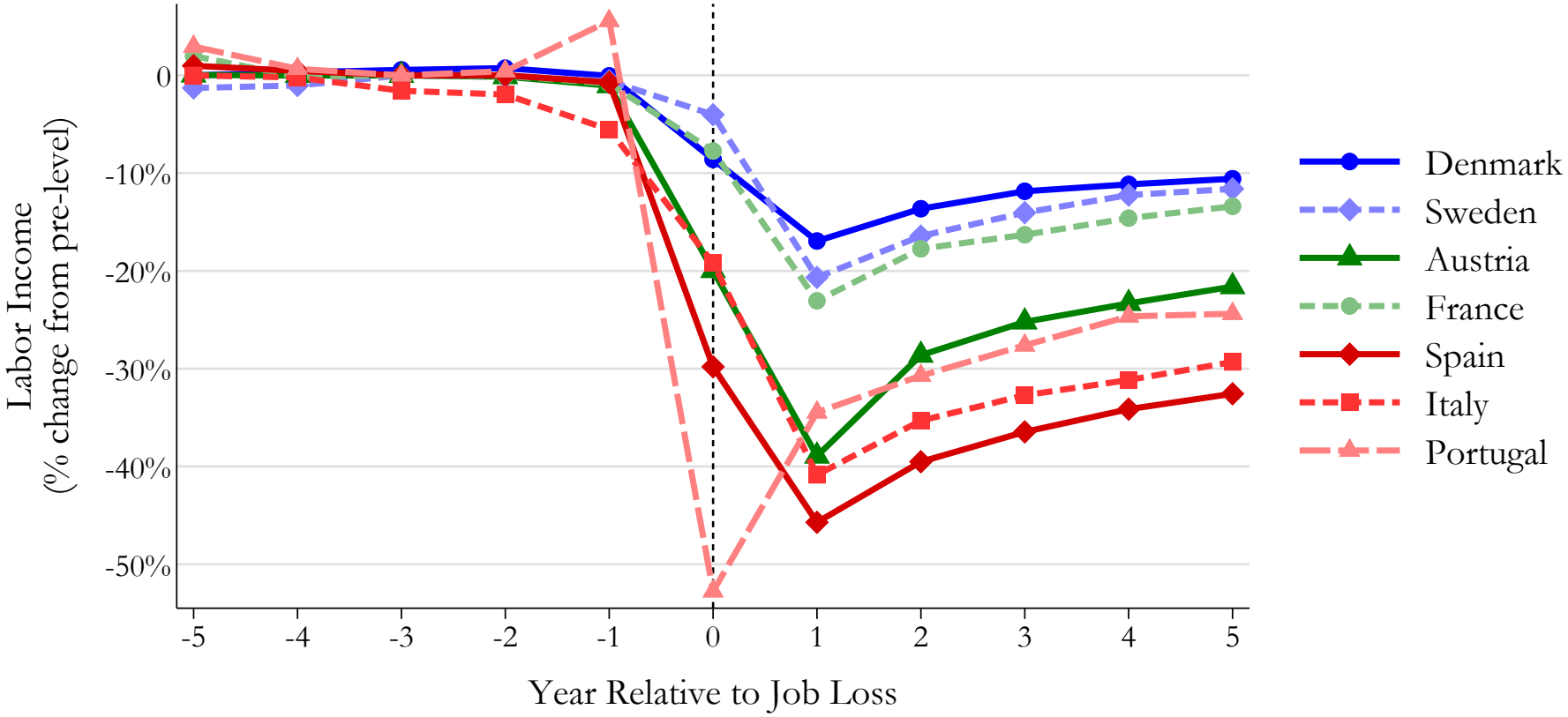
Coefficients of interest: θ_k

θ_k: effect of job loss in each year relative to mass layoff ($t^* - 5$, $t^* - 4$,..., t^*, $t^* + 1$,..., $t^* + 5$)
α_i: worker effects; λ_t: calendar year effects; γ_k: baseline trends around each event; X_{it}: other covariates (age squared); β: model parameters; r_{it}: error term

Main outcomes y_{it}:

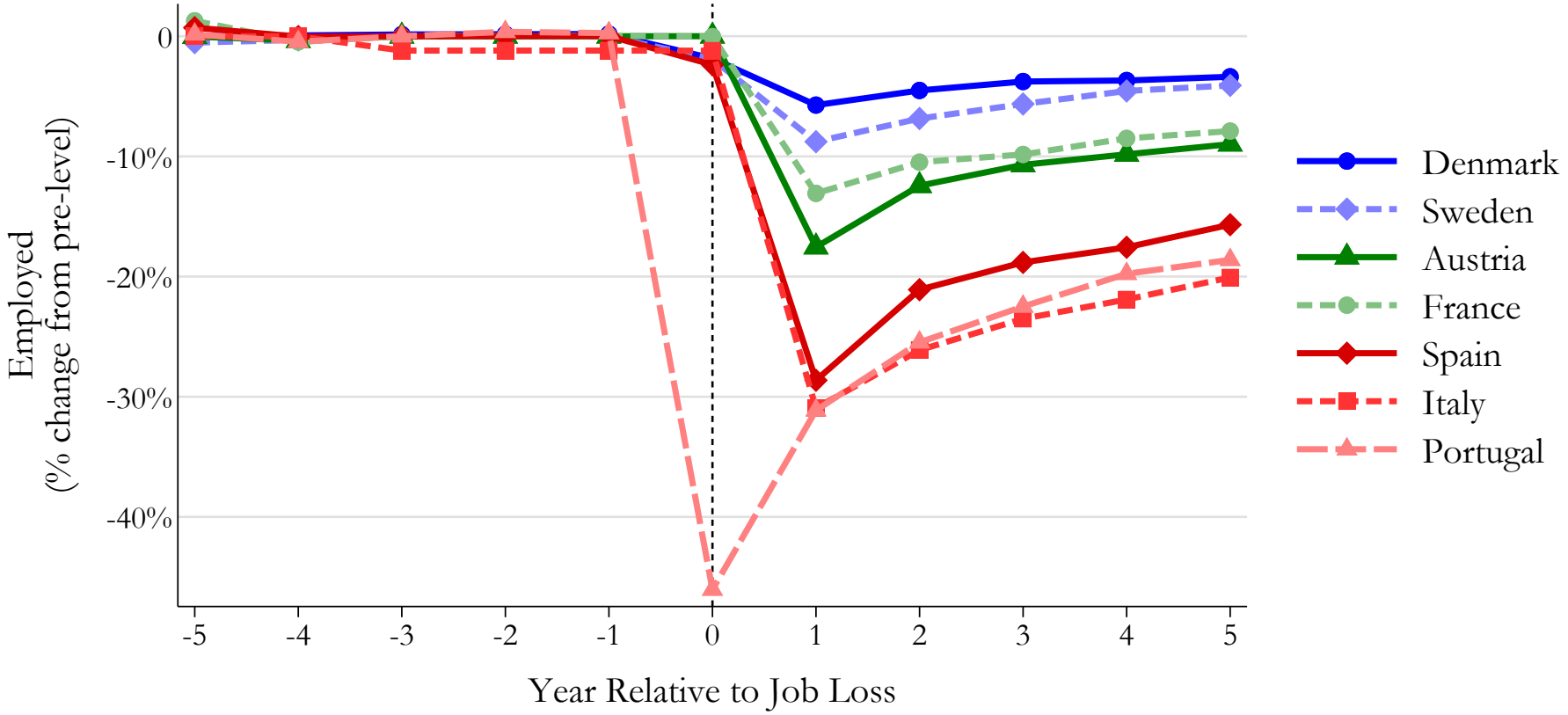
- Total labor earnings across employers
- Daily wage at the main employer
- Probability of employment and total days worked across employers

Figure 1: The impact of job loss on labour earnings across years



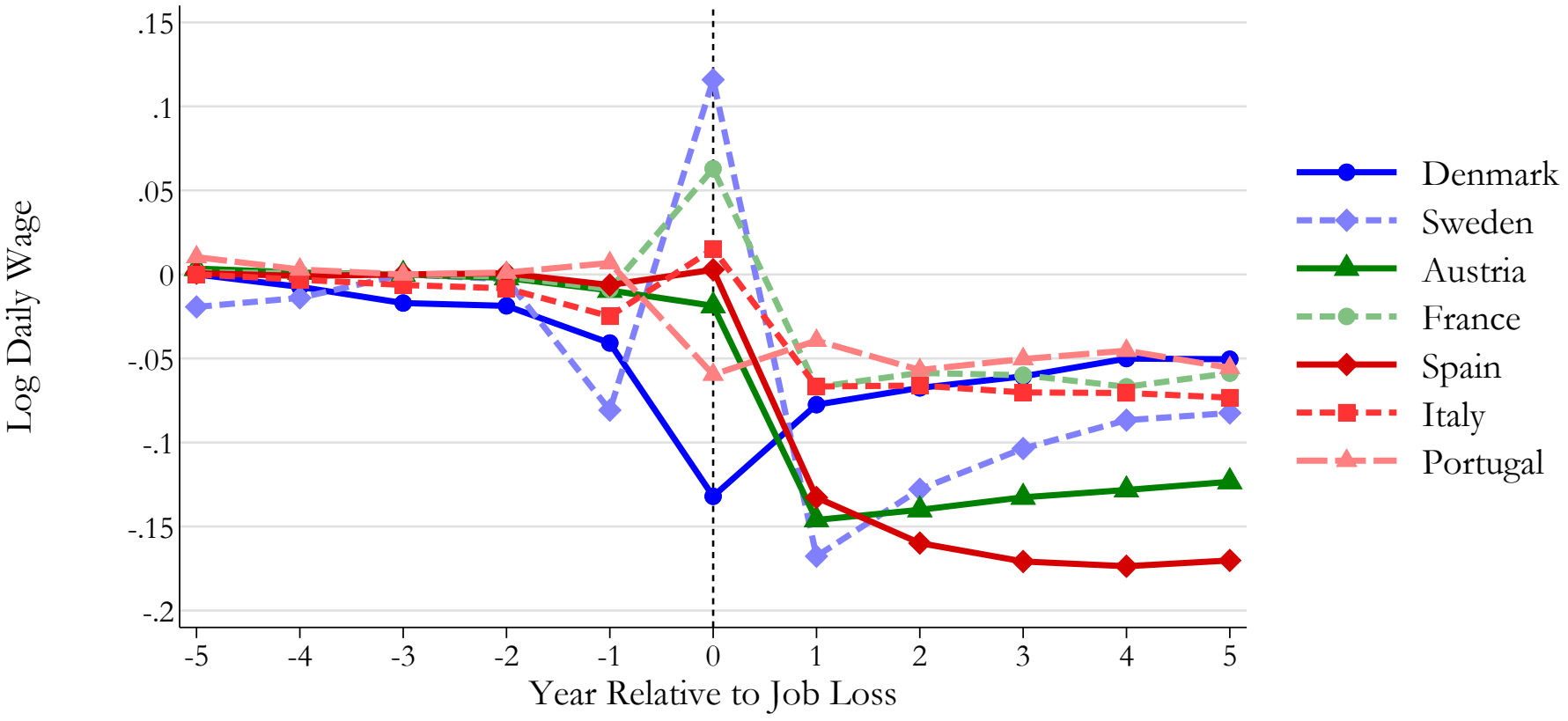
Gender

Figure 2: The impact of job loss on employment across years



Worked days

Figure 3: The impact of job loss on wages (daily earnings) across years



Other outcomes in Spain

Some robustness checks

1. Heterogeneity in earnings losses due to alternative definitions of mass layoffs:
   - Based only on employer size reductions vs also combining with job separation reasons given by employers.
   - In Italy, economic layoffs
   - In Spain, mass layoffs (*Expedientes de Regulación de Empleo, EREs*) Job separation reasons
2. Differences in earnings and wage losses due to the use of earnings from tax records vs Social Security contributions. Tax records
3. Similar event-study results for workers aged 45 at most at the pre-displacement year. Aged 45
4. No trends in earnings losses except for Italy. Trends
5. Very small differences in earnings losses by gender. Gender

Contribution of employer characteristics: employer-specific pay premium

- Estimate employer pay premiums: $\psi_{J(i,t)}$ by AKM model (Abowd, Kramarz & Margolis, 1999) using Card, Heining and Kline (2013)

$$logY_{ijt} = \alpha_i + \psi_{J(i,t)} + \theta_t + X'_{it}\beta + u_{ijt}$$

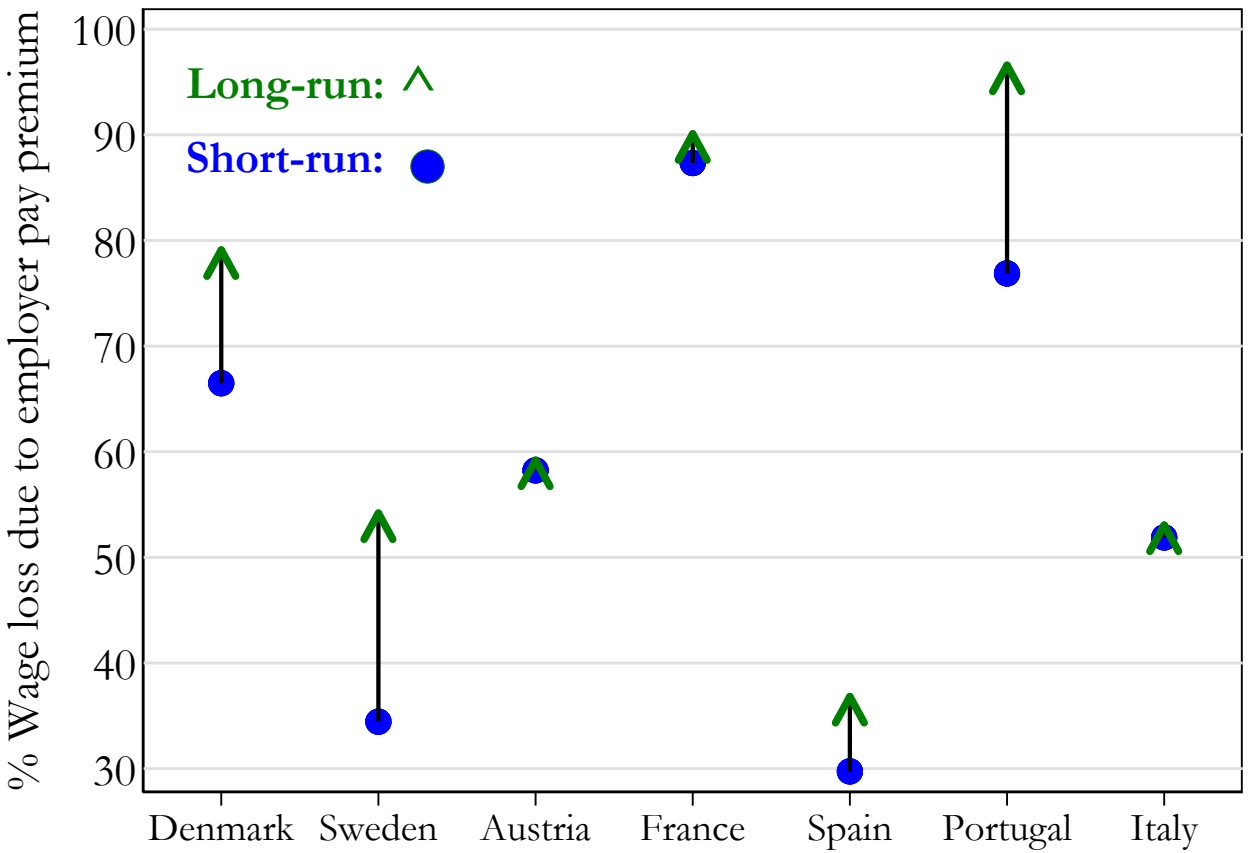
- Use estimated firm wage premium as dependent variable in the event study:

$$\widehat{\psi}_{ijt}^{log(Y)} = \alpha_i + \lambda_t + \sum_{k=-5}^{k=5} \gamma_k^{AKM} \mathbf{1}\{t = t_i^* + k\} + \sum_{k=-5}^{k=5} \theta_k^{AKM} \mathbf{1}\{t = t_i^* + k\} \times Displaced_i + X_{it}\beta + r_{it}$$

- Share of wage loss due to pay premium loss : $\dfrac{\theta_k^{AKM}}{\theta_k}$

Wages

Figure 4: The role of the employer-specific pay premium: explains at least 50% of the wage loss in most countries



Notes: Estimates of the contribution of the employer-specific pay premium, $\frac{\theta_k^{AKM}}{\theta_k}$. *Short-run: average of estimates in* $t^* + 2$ *and* $t^* + 3$*; long-run: average of* $t^* + 4$ *and* $t^* + 5$.

Employers

Sources of unequal consequences across countries

(i) Compositional differences: Oaxaca-Blinder decomposition

- Average job loss gap: $\Delta \equiv E[\Delta^s_{DiD} y_{it^*}] - E[\Delta^r_{DiD} y_{it^*}]$
  Reference country (r) = Denmark (DK).

  $\Delta_{DiD} y_{ist^*} = (y_{i,T,t^*+3,s} - y_{i,T,t^*-3,s}) - (y_{i,C,t^*+3,s} - y_{i,C,t^*-3,s})$
- Estimate effects of observables on earnings losses *within* each country s $(\widehat{\beta}_s)$ between $t^* - 3$ and $t^* + 3$:

  $\Delta^s_{DiD} y_{it^*} = X_{ist^*} \beta_s + \varepsilon_{ist^*}; \quad s = IT,\ DK \ldots$

  X = Female, Tenure, age, size, economic sector, ΔU, year, quintiles of AKM worker and firm fixed effects
- Build conterfactual:

$$\Delta = \sum_{x \in X} \underbrace{(E[x^s] - E[x^{DK}])\beta^s_x}_{Composition} + \sum_{x \in X} \underbrace{E[x^{DK}](\beta^s_x - \beta^{DK}_x)}_{Unexplained}$$

- Composition: How much earnings an Italian $(s = IT)$ would lose after displacement compared to a Dane, if both workers experienced the same marginal effects?

Table 4: Composition does not explain the large differences in earnings losses across countries:

	Overall gap	Composition part					Unexplained part
	(1)	Worker (2)	Employer (3)	Business cycle (4)	Time trend (5)	Total (6)	Total (7)
Sweden	-0.011	-0.049	-0.003	-0.000	-0.000	-0.053	0.042
Austria	-0.098	-0.025	-0.052	-0.001	-0.003	-0.081	-0.017
France	-0.009	-0.020	-0.013	0.001	0.002	-0.030	0.021
Italy	**-0.166**	0.023	-0.012	0.003	-0.005	**0.009**	-0.173
Spain	-0.207	-0.030	0.019	-0.000	-0.000	-0.011	-0.195
Portugal	-0.145	-0.022	-0.002	-0.011	0.002	-0.032	-0.113

Notes: Oaxaca-Blinder decompositions of earnings losses in percentage by comparing separately each country with Denmark.

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⇒ Δ Italy - Denmark: out of a total 17% job loss gap, only 1% is explained by compositional differences Wages

Economic conditions and labour market institutions (i)

1. **Cyclicality of job loss effects on wages and earnings:**

Using Schmieder et al (2020), how the difference in earnings losses between treated and control workers relative to pre-displacement responds to business cycle:

$$\Delta_{DiD} y_{ist^*} = (y_{i,T,t^*+3,s} - y_{i,T,t^*-3,s}) - (y_{i,C,t^*+3,s} - y_{i,C,t^*-3,s})$$

T: Treated worker; C: Control worker; s: country

$$\Delta_{DiD} y_{ist^*} = \lambda_{t^*} + X'_{ist^*}\beta + \varepsilon_{ist^*}$$

X_{ist^*}: Female, job tenure, age, employer size, ΔU, year of displacement, AKM worker and firm fixed effects (FE), and Δfirm FE ($\Delta_{DiD}\widehat{\psi}_J$).

$\rightarrow$ Once we take into account the change in employer characteristics, earnings and wage losses seem not to react (or very little) to the business cycle.

Wages Earnings Tax records in Spain

Interpretation of results

- Losing the job in recessions does not impact so much on wage losses, *after* controlling for changes in wage policies.
- Wage losses are higher - conditional on having found a job in $t^* + 3$ - among workers with high pre-displacement wages.
- Two potential explanations:
  1. High-wage workers are slower to climb the job ladder (more frictions), Jarosch (2021).
  2. The length of the job ladder is different for high-wage vs low-wage workers (more rent), Kline et al (2019).

Economic conditions and labour market institutions (ii)

2. Cross-country Regressions: the role of Labour Market Institutions

- OLS regressions of the mean difference of earnings between treated and matched control workers with respect to pre-displacement by country (s) and year of mass-layoff (t^*):

$$\Delta_{DiD}\text{Earnings}_{st^*} = \lambda_{t^*} + X'_{st^*}\beta + \varepsilon_{st^*}$$

- Independent variables include:
  - Country fixed effect
  - Employer size, age, gender, job tenure
  - Change and level of unemployment rate, GDP, Gini index
  - Unemployment insurance: replacement rate, duration and job search requirements
  - Total Labour Market expenditures, unions, Employment Protection Legislation (EPL)

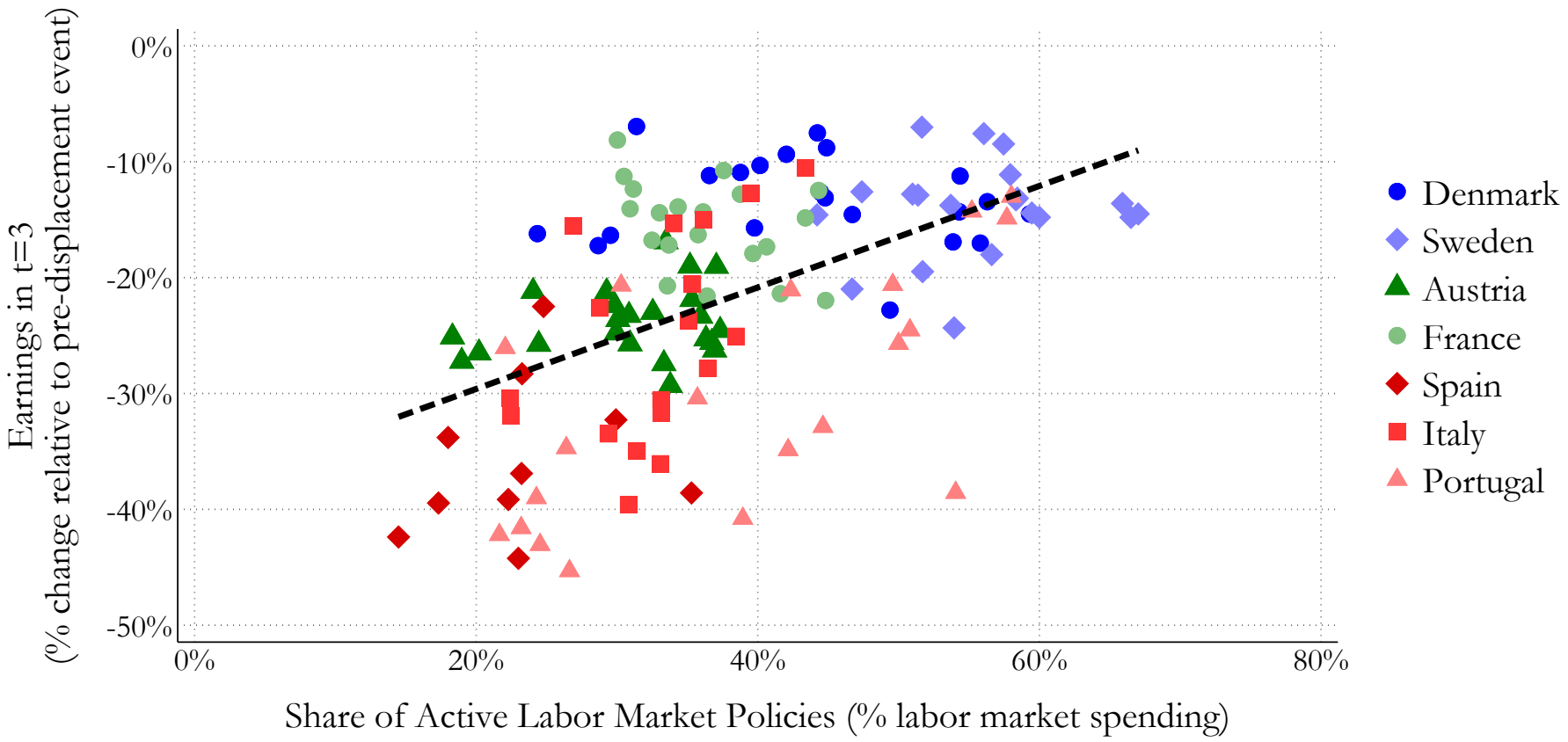
ALMP EPL Unemployment insurance

Table 5: Earnings Variation due to Displacement and Labor Market Institutions

Outcome: % of Earnings Change 3 years following Displacement				
	1	2	3	4
Share of Active Labor Market Policies (%)	**0.44**	**0.49**	**0.50**	**0.24**
	(0.08)	**(0.13)**	**(0.20)**	
Labor Market Spending (% GDP)		0.86	1.14	0.29
		(1.35)	(2.83)	
Employment Protection Index (permanent)		-3.50	-0.79	
		(2.26)	(5.55)	
Unemployment benefits (replacement rate)		-0.04	-0.81	
		(0.27)	(0.30)	
Union coverage (%)		0.40	0.07	
		(0.24)	(0.34)	
Observations	132	132	132	132
Adj. R2	0.296	0.566	0.738	
Additional Controls	No	Yes	Yes	Yes
Country FE & Year FE	No	No	Yes	Yes
Penalized regression	No	No	No	Yes

Notes: Standard errors in parentheses.

Figure 5: Earnings losses and Active Labour Market Policies



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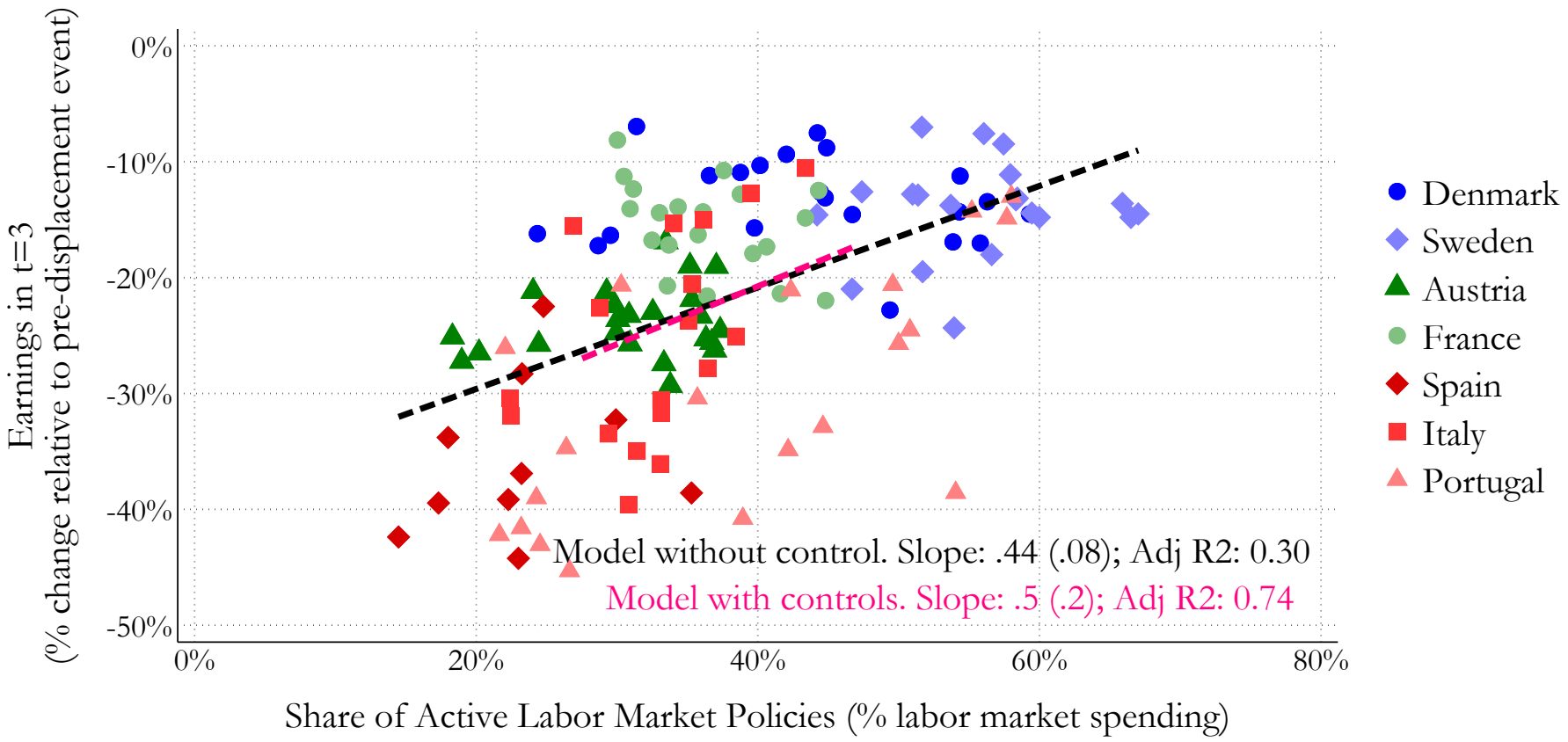

Table 6: Active labor market policies and job loss effects

	Outcome: Earnings, Employment and Wages in t=3					
	Earnings		Employment		Wages	
	(1)	(2)	(3)	(4)	(5)	(6)
Share of Active Labor Market Policies (%)	0.50	–	0.29	–	0.22	–
	(0.20)	–	(0.12)	–	(0.09)	–
ALMP: Public Employment Services (%)	–	0.45	–	0.52	–	0.54
	–	(0.74)	–	(0.80)	–	(0.28)
ALMP: Training Programmes (%)	–	**0.49**	–	**0.25**	–	**0.29**
	–	**(0.14)**	–	**(0.09)**	–	**(0.12)**
ALMP: Employment Subsidies (%)	–	**0.73**	–	0.40	–	0.23
	–	**(0.34)**	–	(0.26)	–	(0.21)
ALMP: Other (%)	–	0.22	–	0.16	–	-0.04
	–	(0.35)	–	(0.31)	–	(0.18)
Observations	132	132	132	132	132	132
Mean Dep. Var.	-21.5	-21.5	-16.1	-16.1	-8.5	-8.5
Adj. R2	0.738	0.736	0.780	0.775	0.705	0.708

Notes: Standard errors in parentheses. Baseline specification includes additional controls, and country and year effects.

Conclusions

- Use of harmonized administrative data and identical sampling design in Austria, Denmark, France, Italy, Portugal, Spain and Sweden.
- Provide the first comparable estimates of the consequences of job loss across countries.
- Study the determinants of wage and earnings losses following worker displacement. Three main takeaways:
  1. Substantial heterogeneity across countries within Europe: Lowest losses in Nothern countries and highest in the South
  2. A large share of wage losses explained by transitions to lower-paying firms
  3. Suggestive evidence: Active labor market policies can alleviate earnings losses by improving worker ability to find new high-quality matches faster.

Thanks a lot for your attention!

Figure 6: Long-run effects of job loss on total earnings in percentage by gender

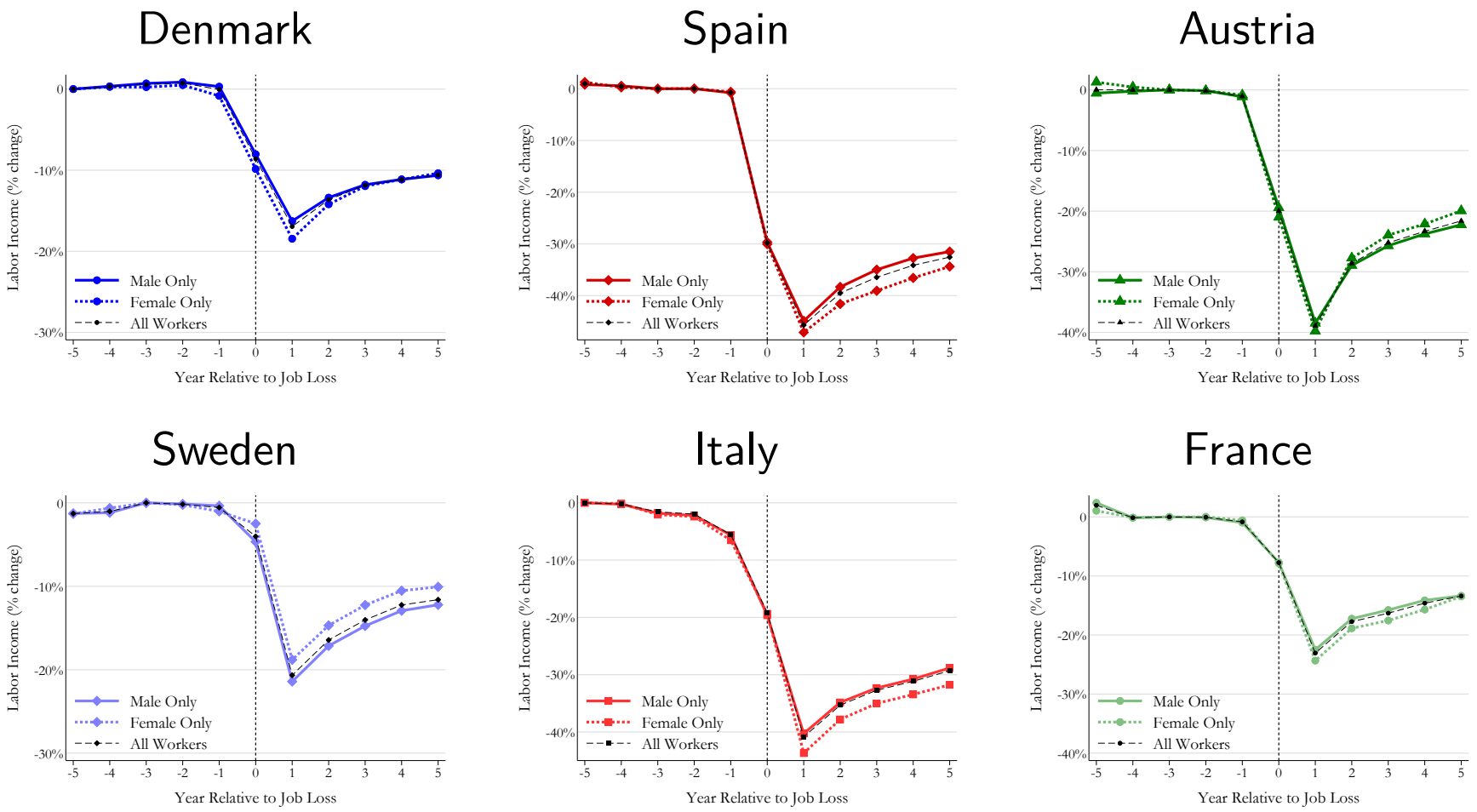

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Figure 7: Long-run effects of job loss on total earnings (in %) in Portugal

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Figure 8: Long-run effects of job loss on worked days

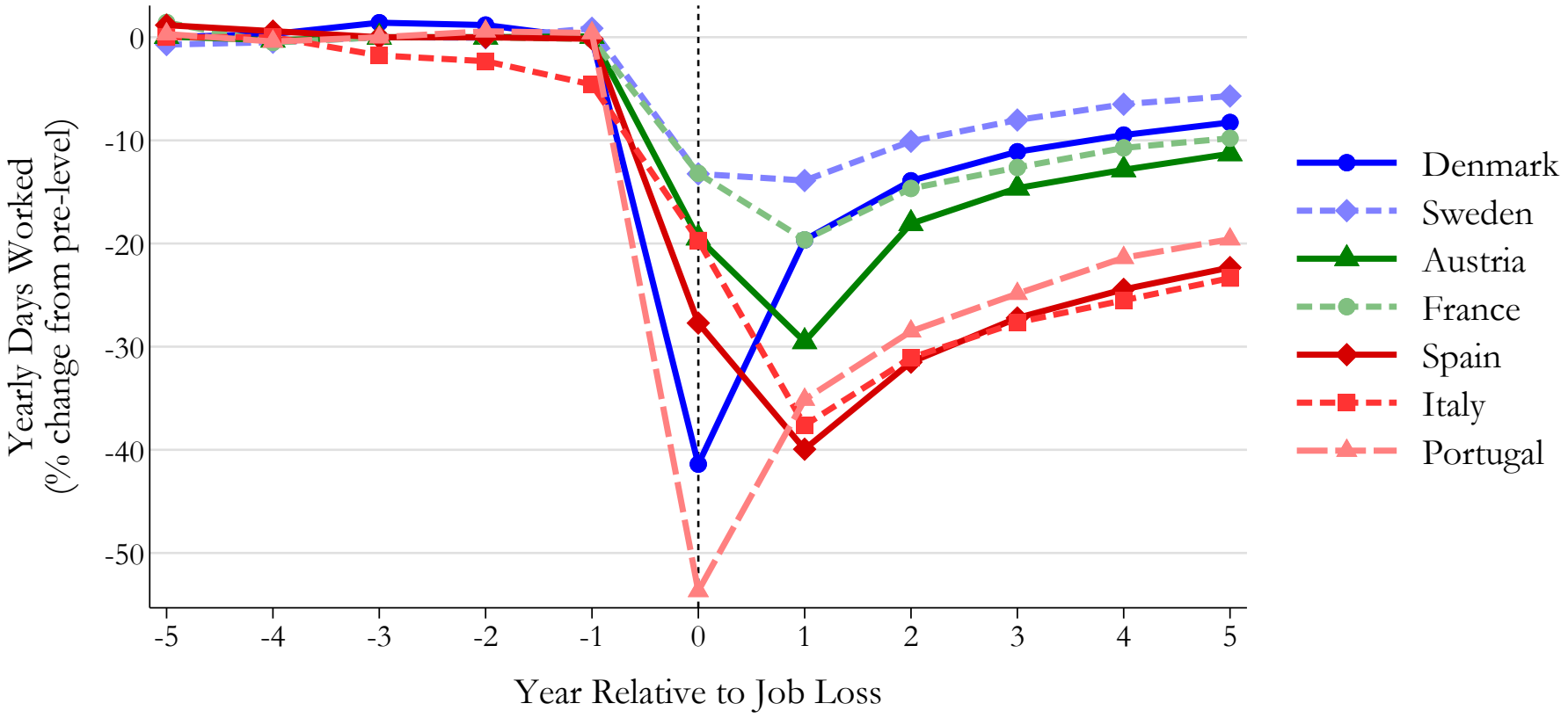

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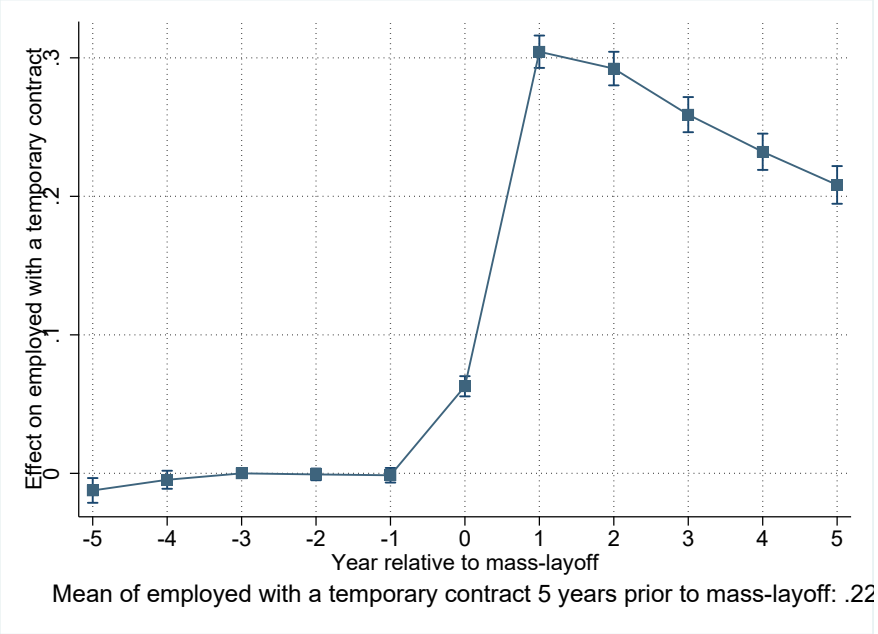
Figure 9: The impact of job loss on fixed-term contracts and full-time jobs in Spain



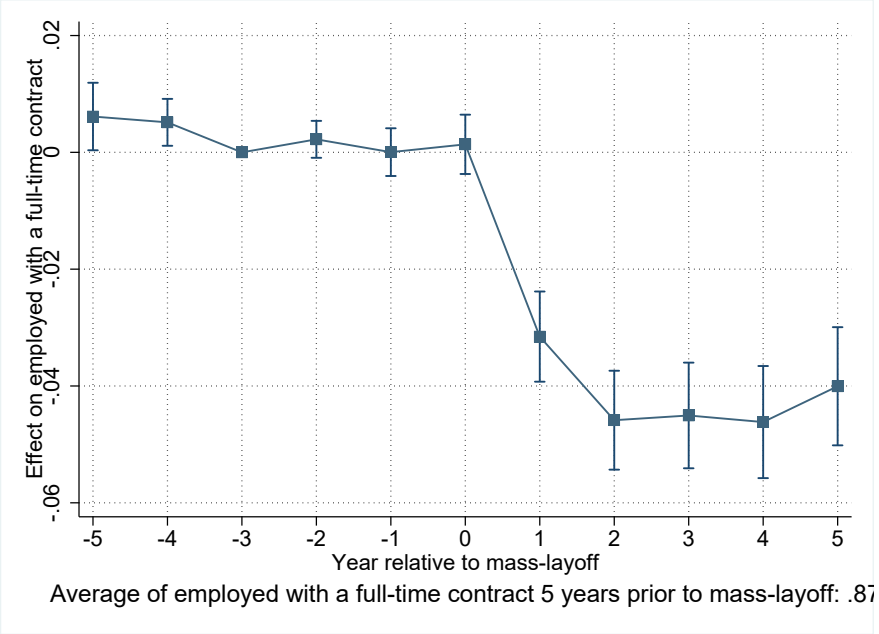


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Figure 10: Differences in earnings losses due to alternative definitions of mass layoffs in Spain

Earnings in % with respect to predisplacement

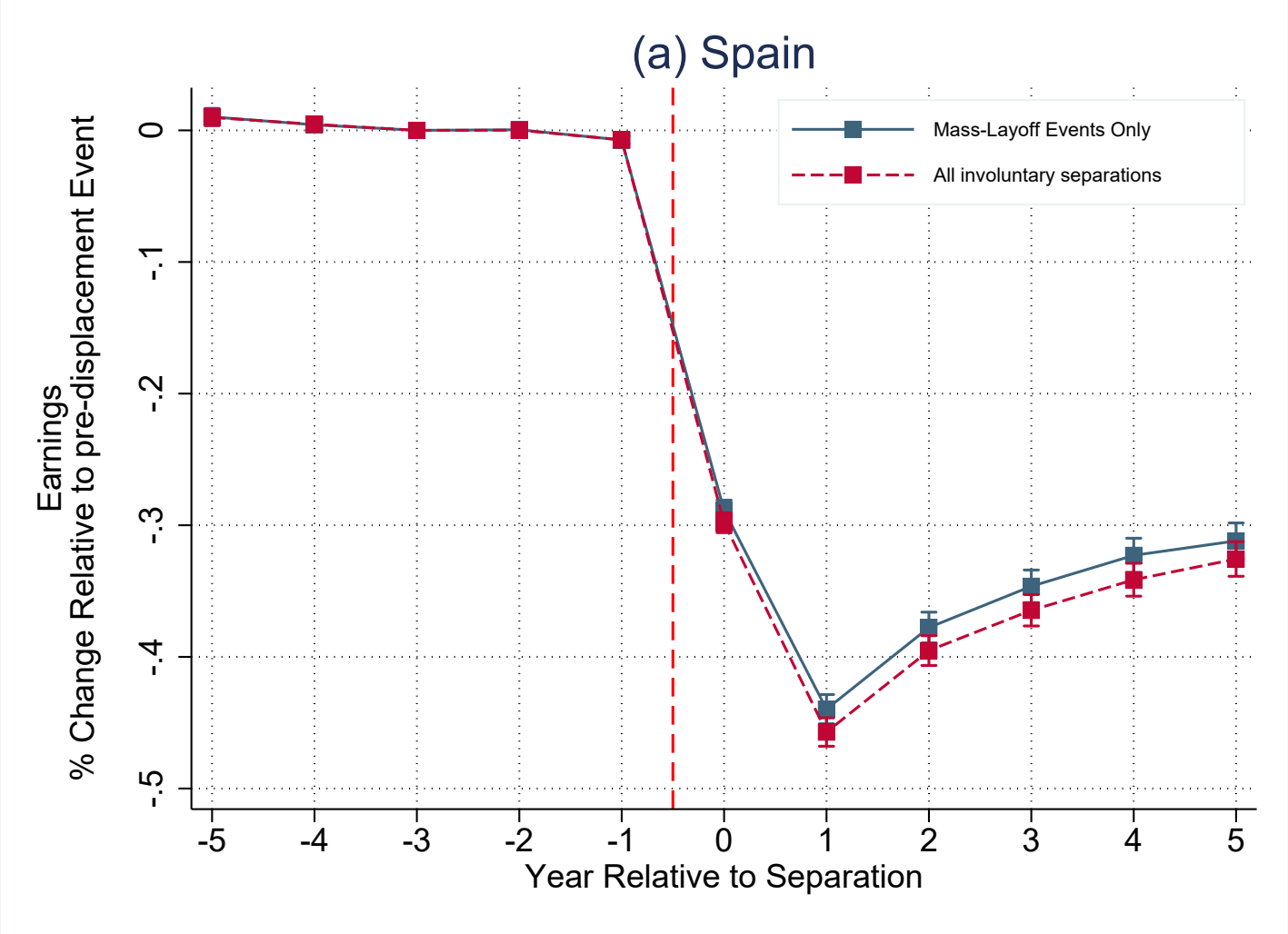

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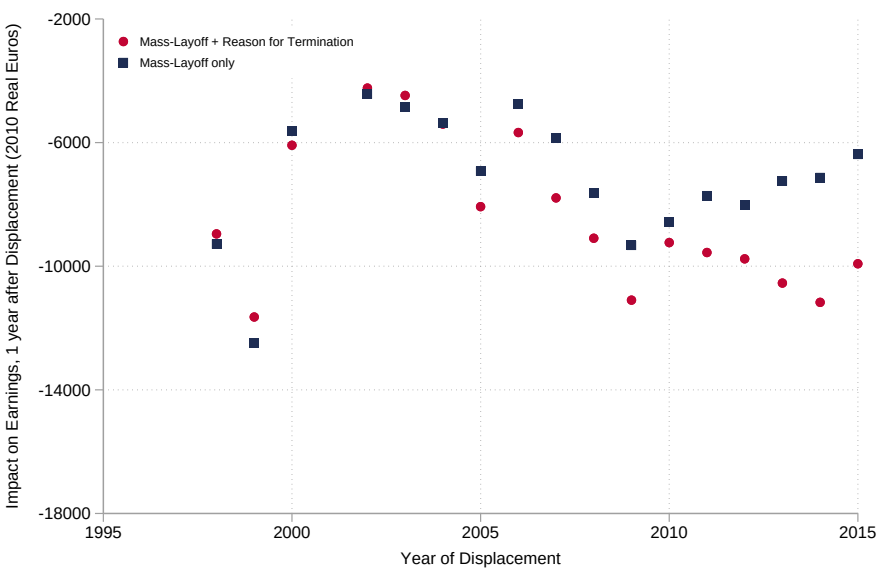
Figure 11: Differences in earnings losses due to alternative definitions of mass layoffs in Italy



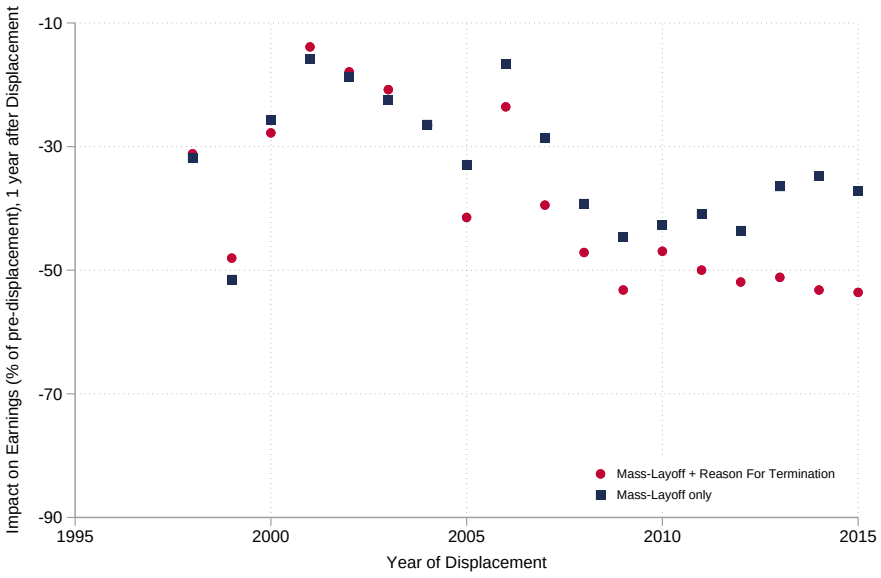


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Figure 12: Differences in earnings losses using earnings from tax records in Spain.

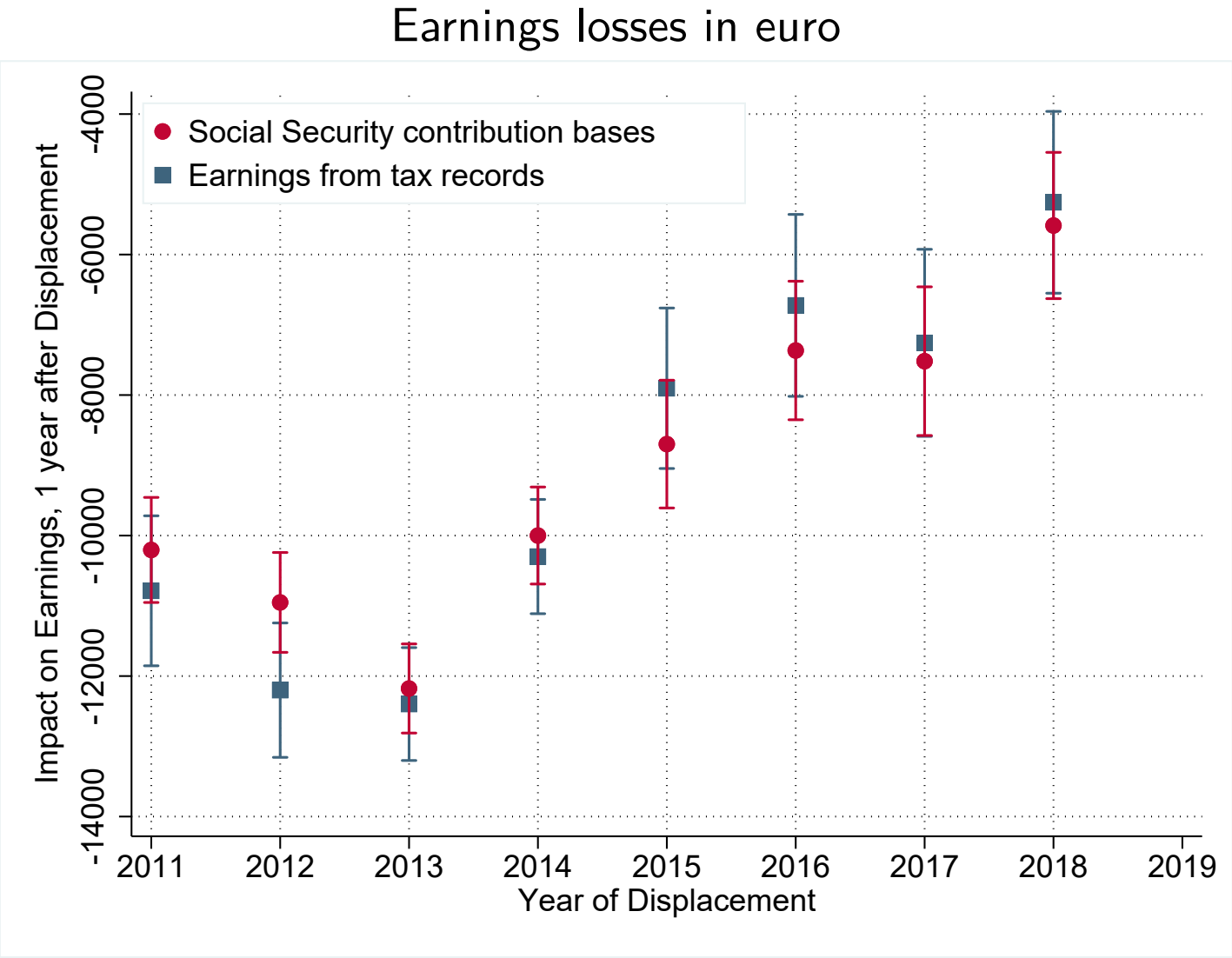

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Figure 12: Differences in earnings losses using earnings from tax records in Spain (Contd.).

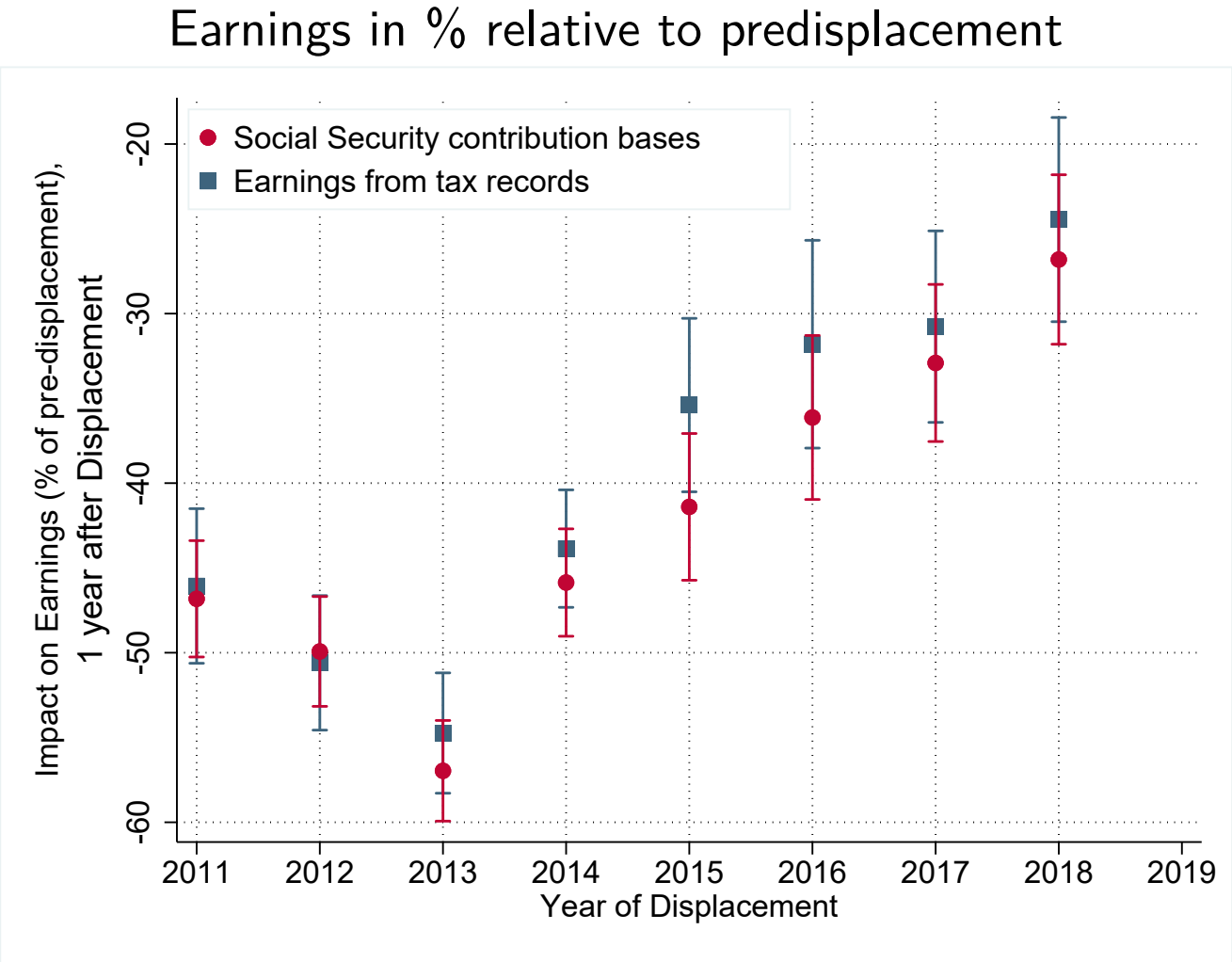

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Figure 13: Long-run impacts of job loss using earnings from tax records in Spain (i)

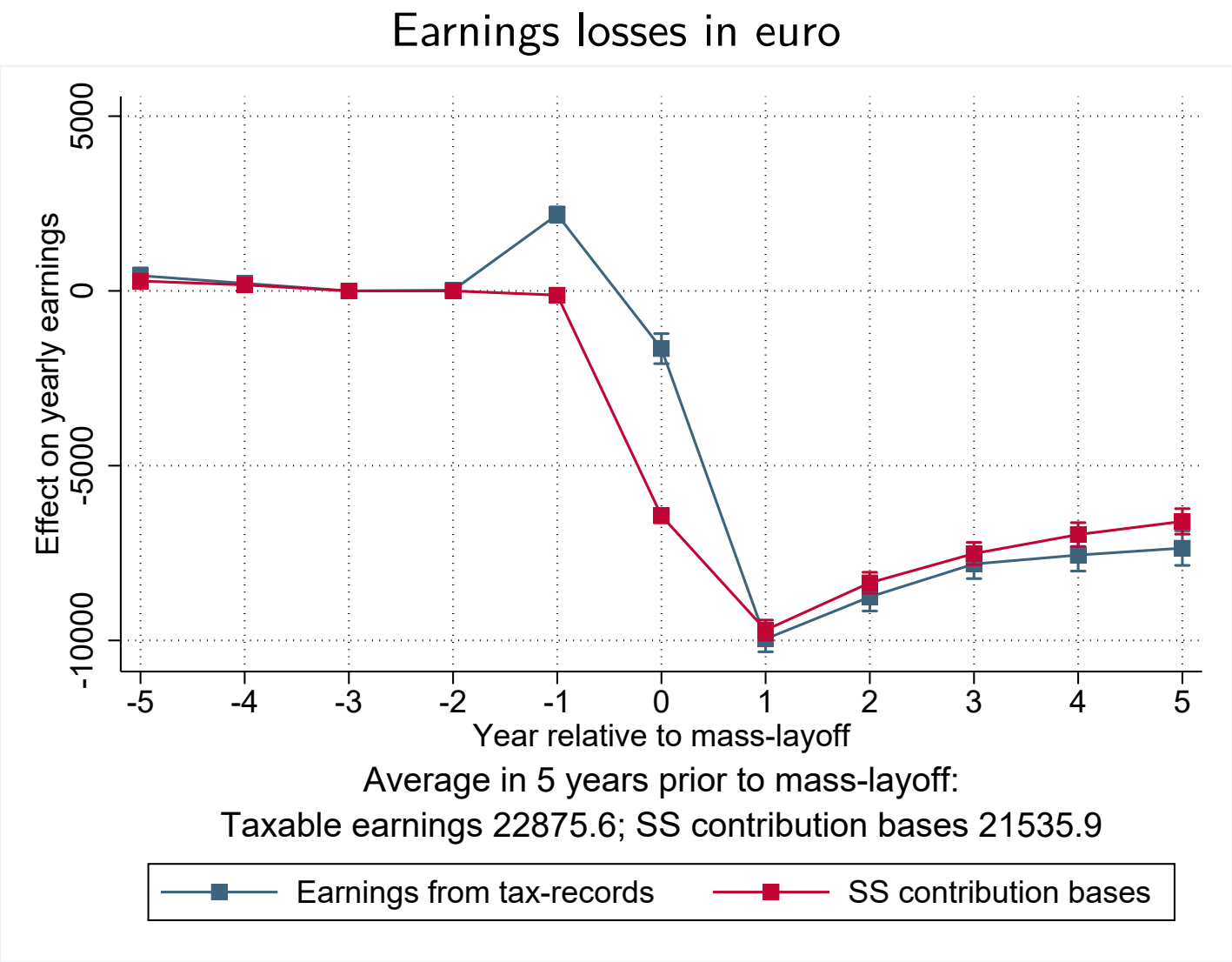

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Figure 13: Long-run impacts of job loss using earnings from tax records in Spain (ii)

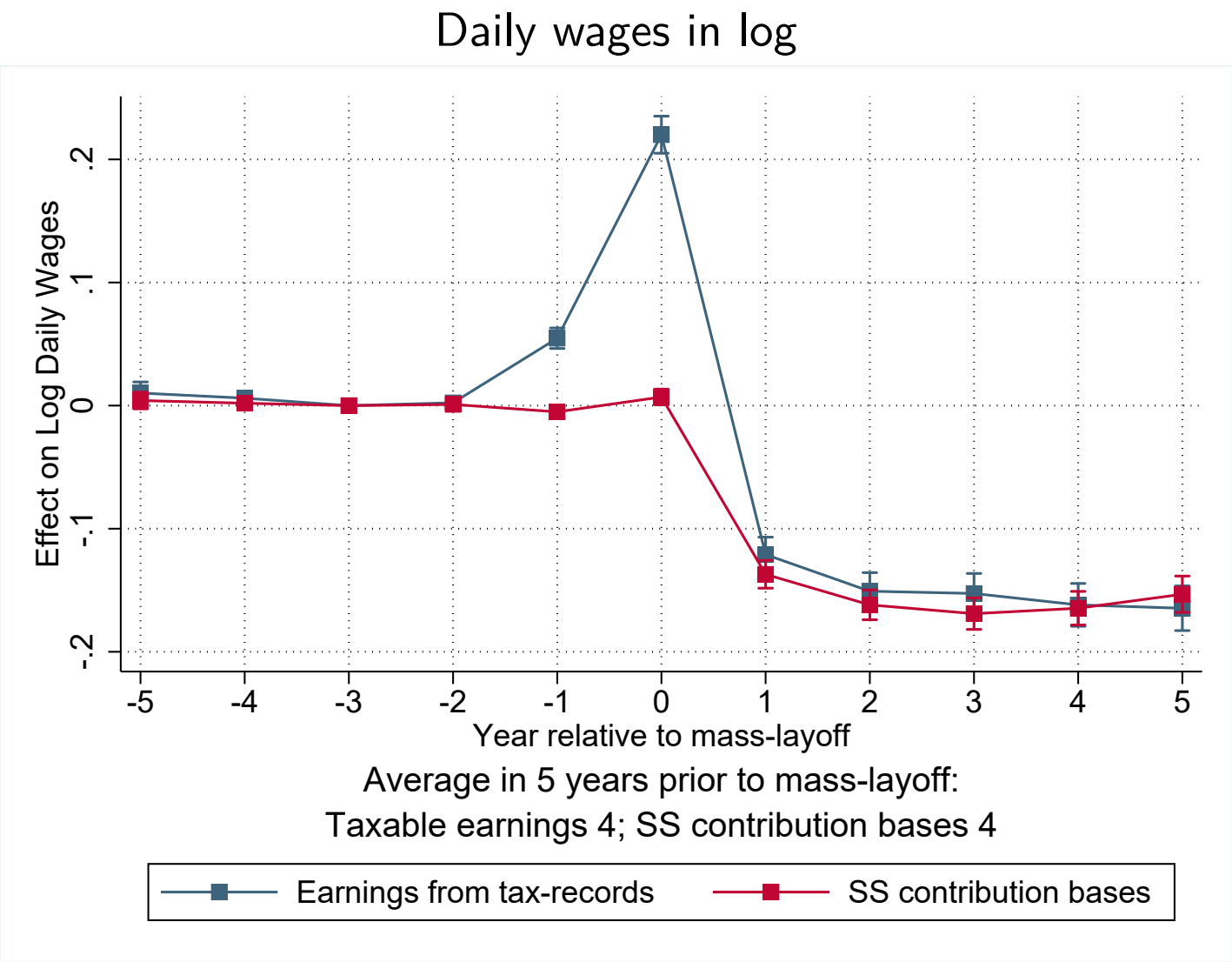

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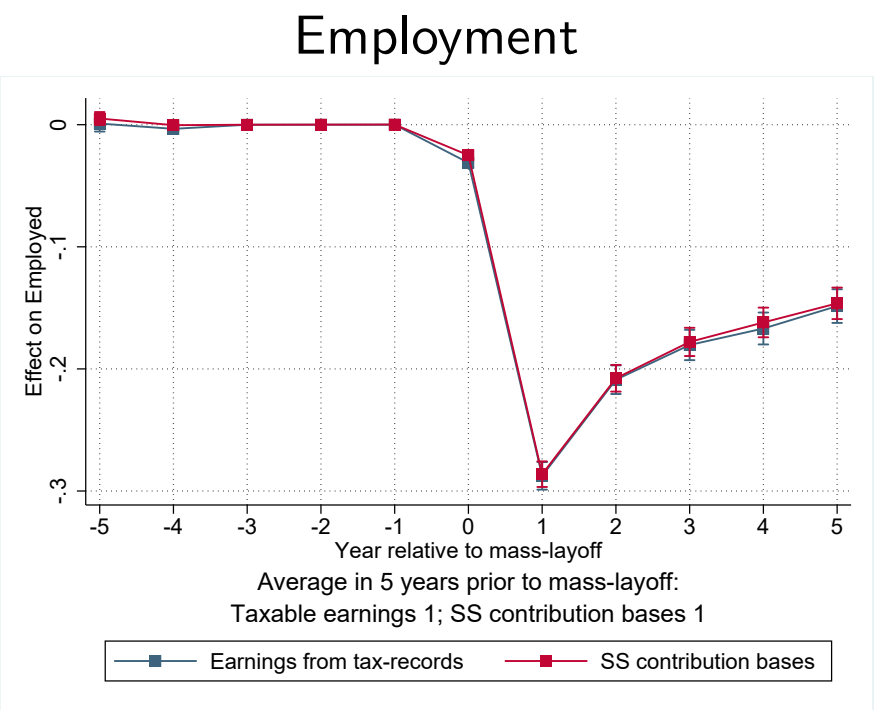
Figure 13: Long-run impacts of job loss using earnings from tax records in Spain (iii)



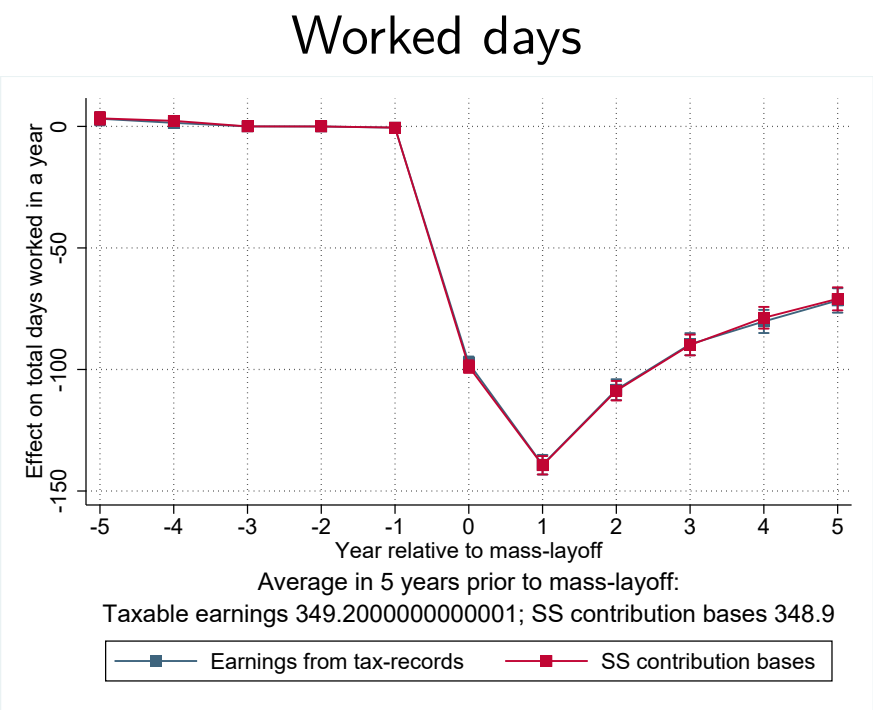


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Figure 14: Differences in earnings losses by the limit age of workers.

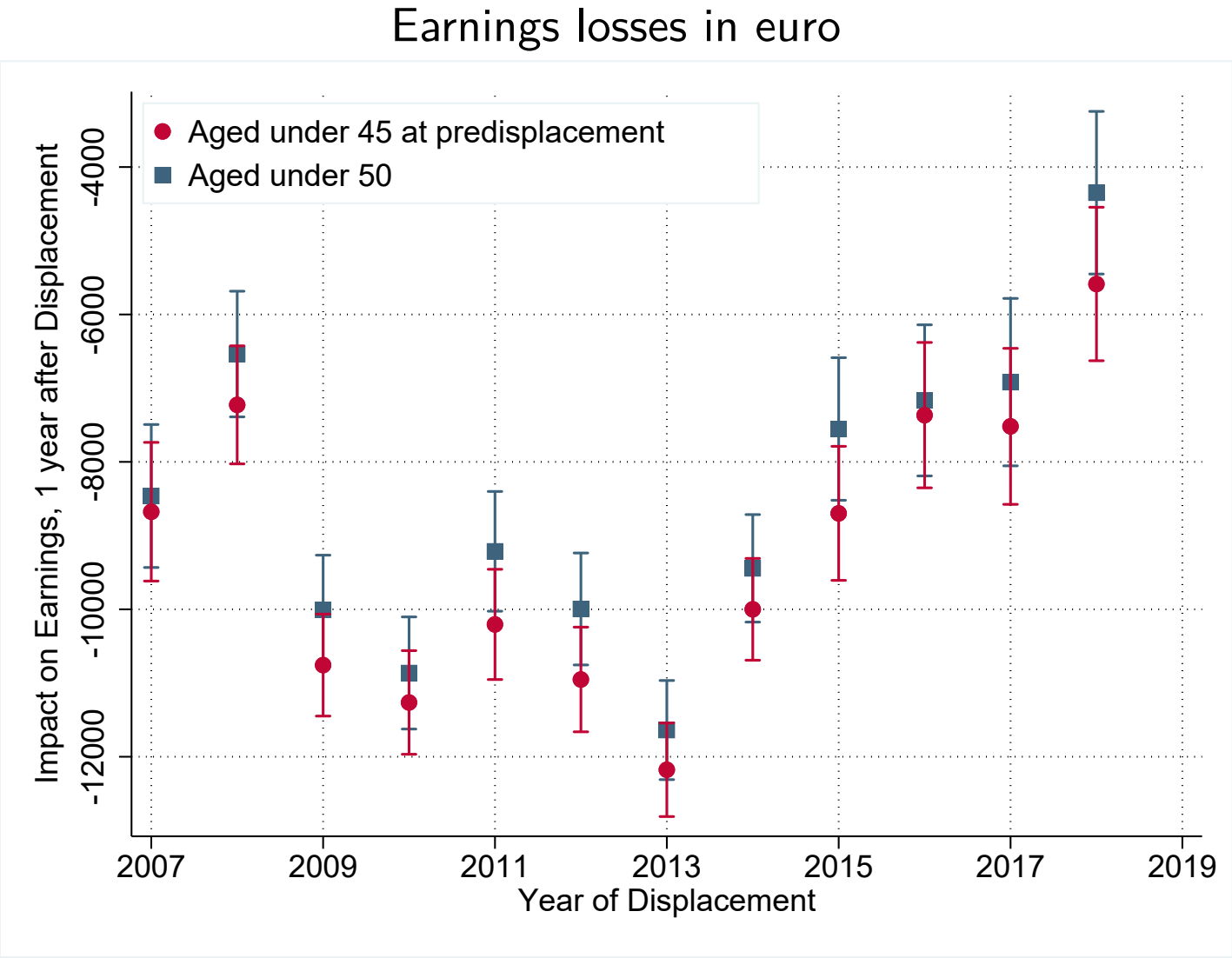

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Figure 14: Differences in earnings losses by the limit age of workers (Contd.).

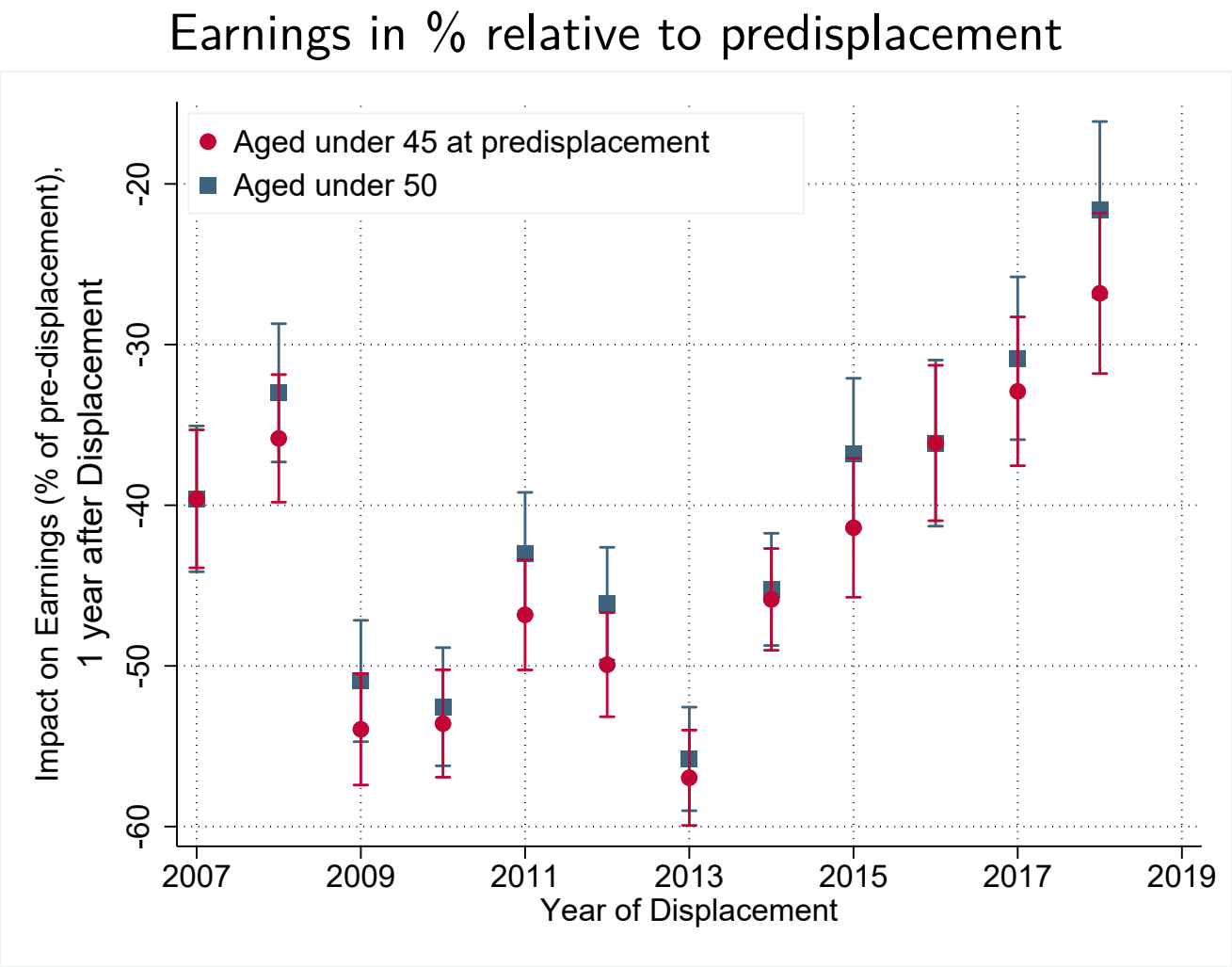

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Figure 15: Long-run impacts of job loss by the limit age of workers (i)

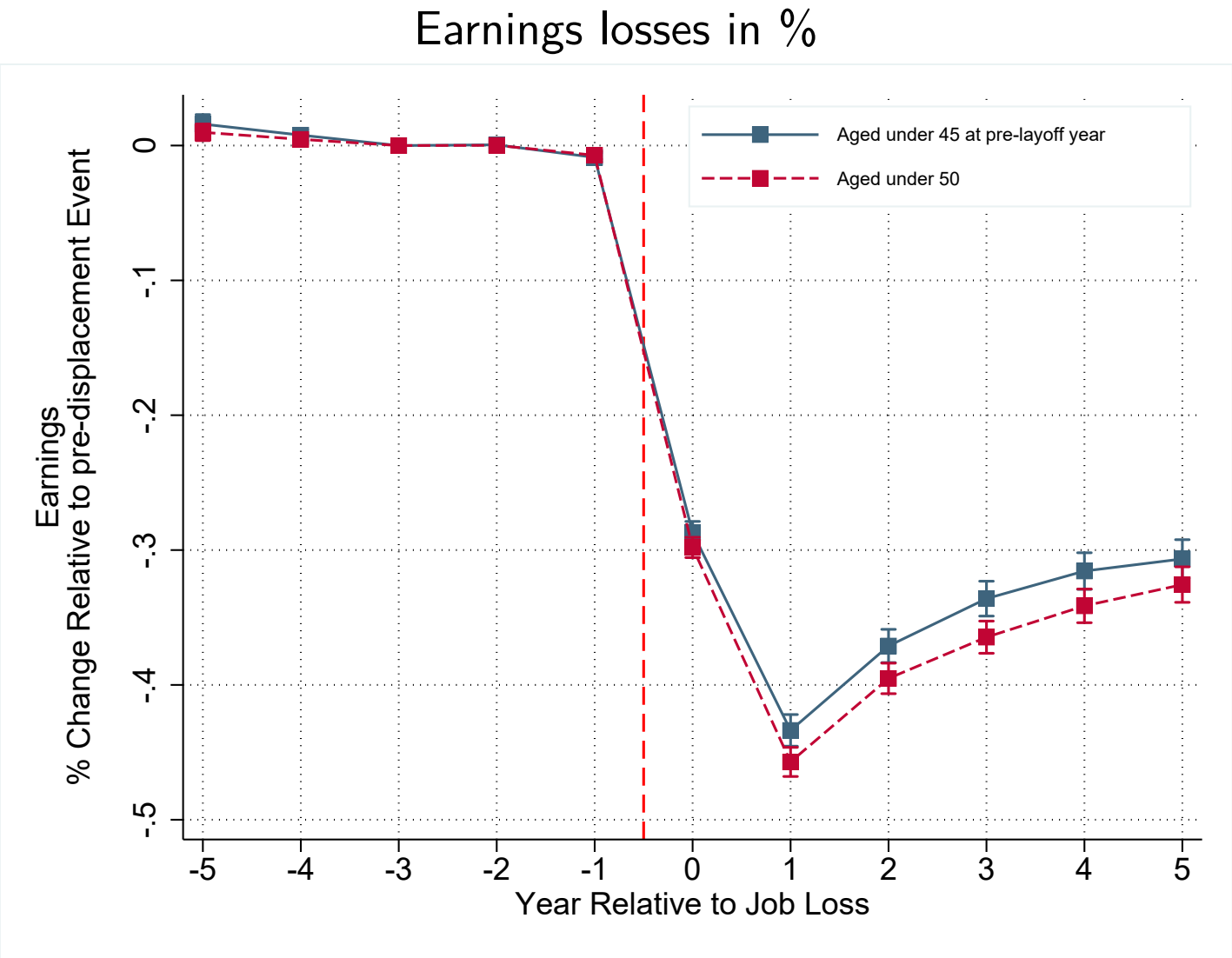

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Figure 15: Long-run impacts of job loss by limit age of workers (ii)

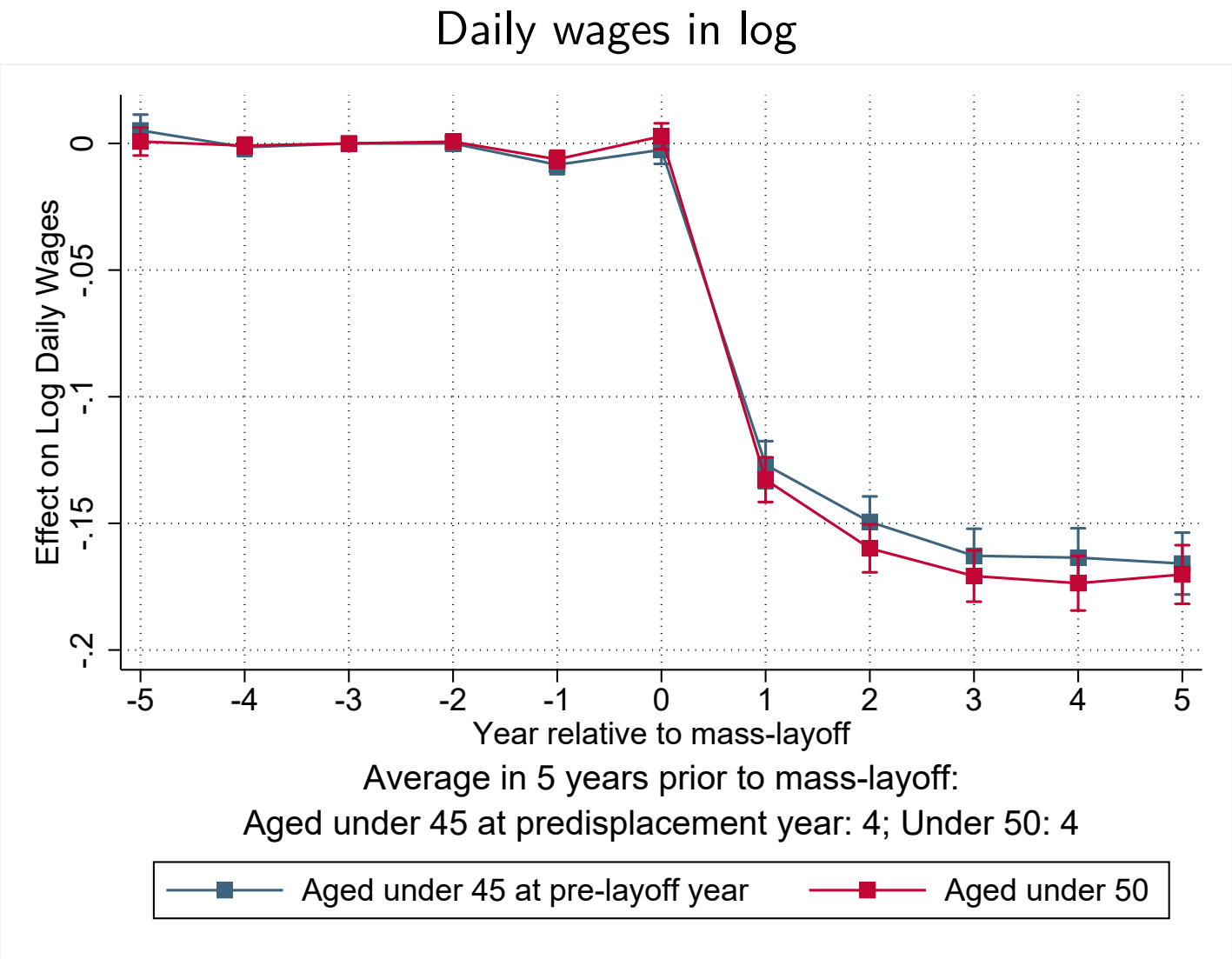

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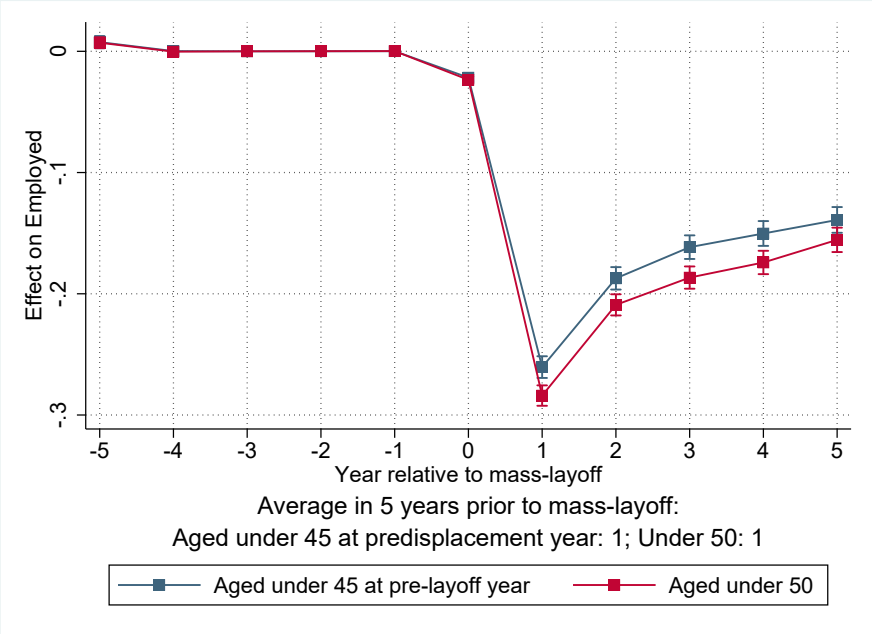
Figure 15: Long-run impacts of job loss by limit age of workers (iii)

Employment



Worked days

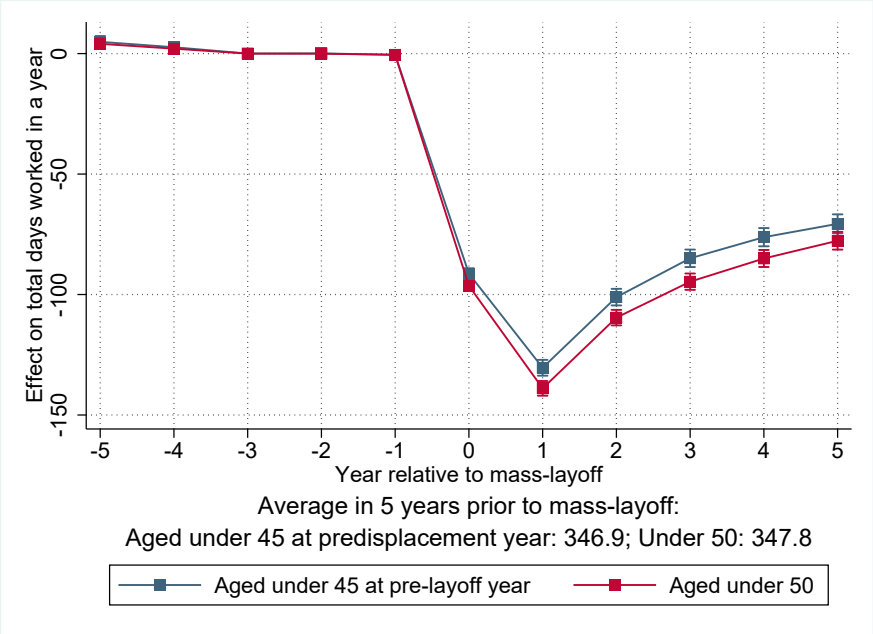


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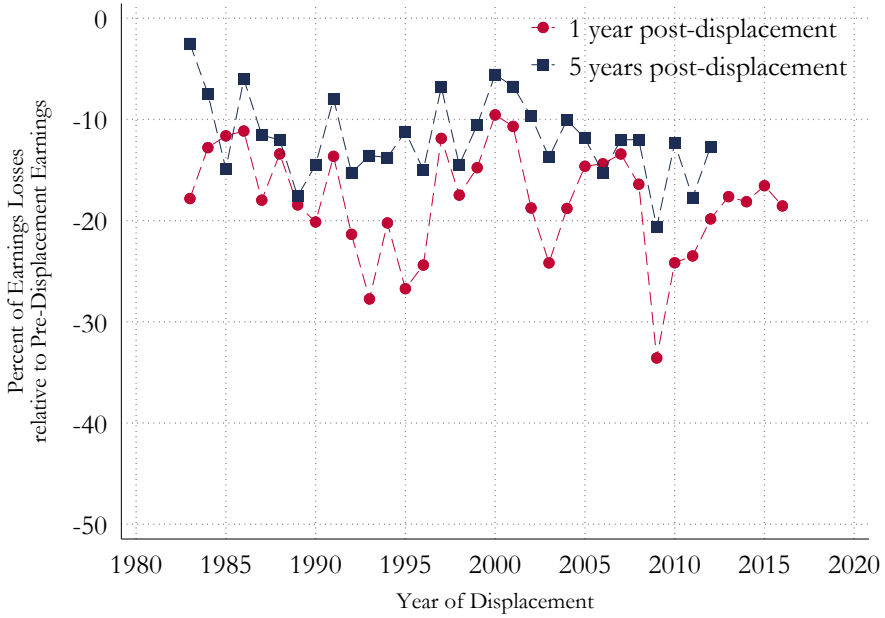
Figure 16: Trends in earnings losses: (i) Nordic countries

Denmark



Sweden

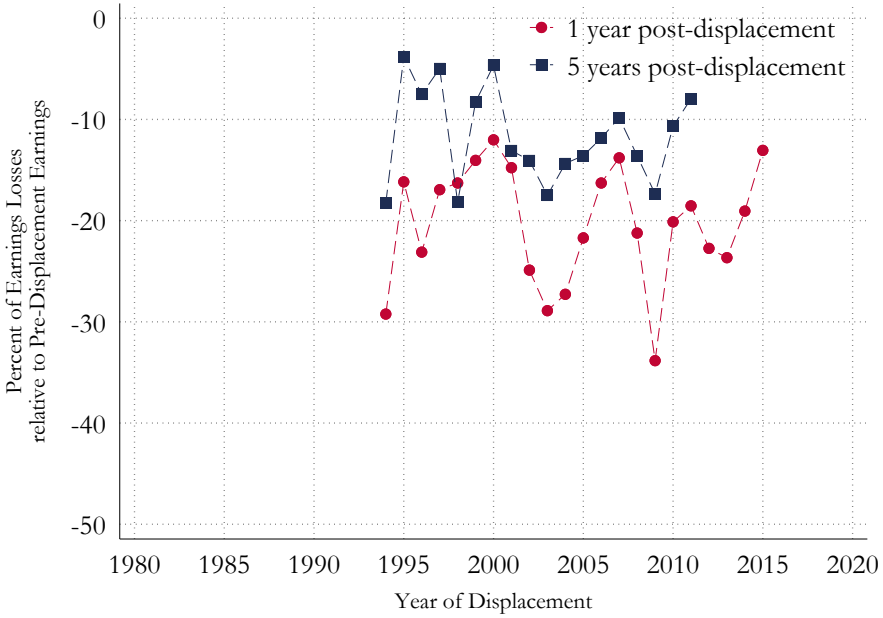


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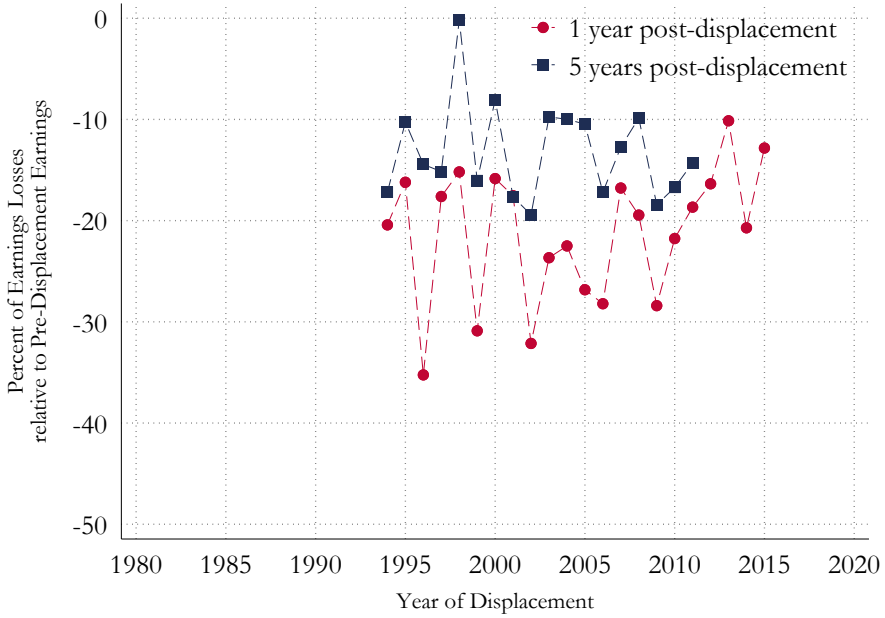
Figure 16: Trends in earnings losses: (ii) Central Europe

France



Austria

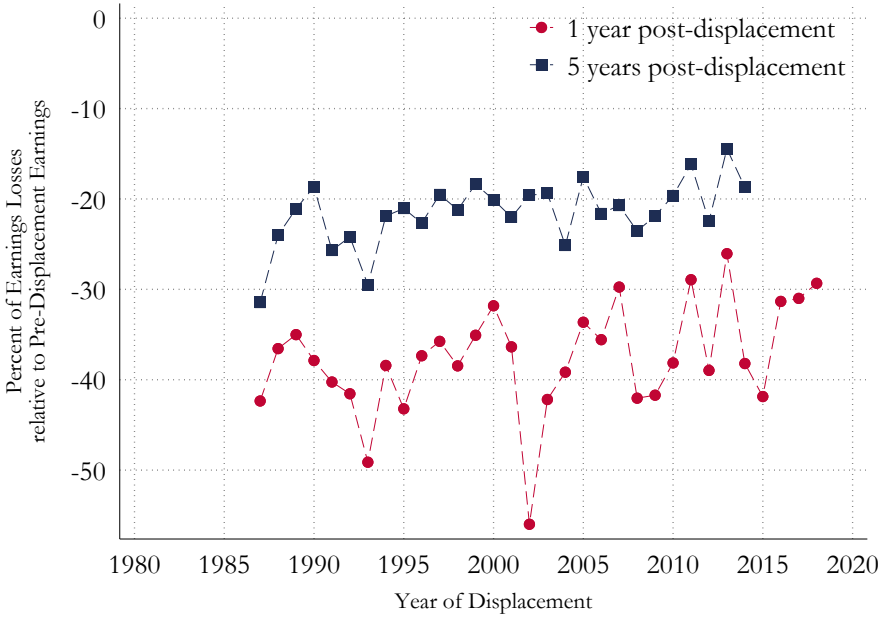


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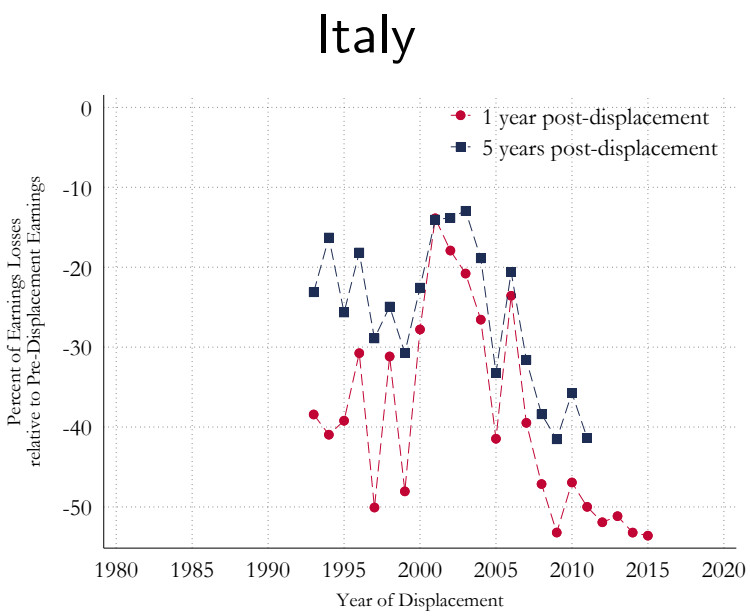
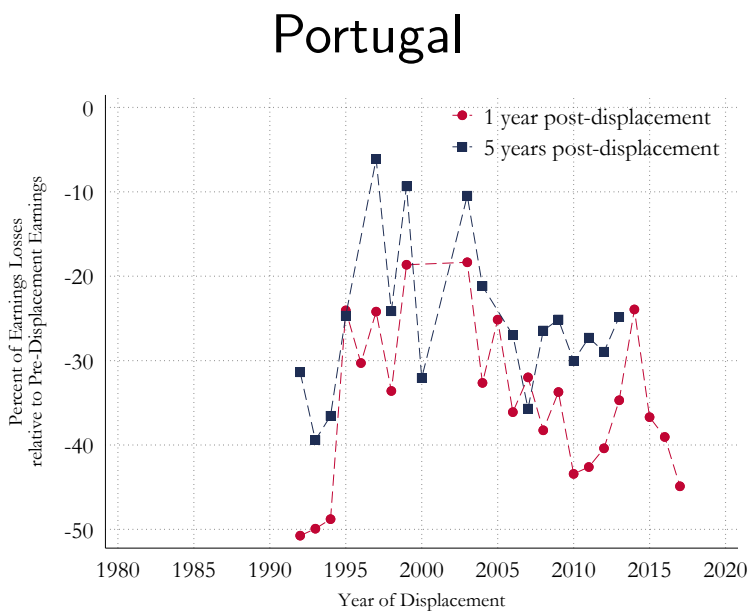
Figure 16: Trends in earnings losses: (iii) Southern countries





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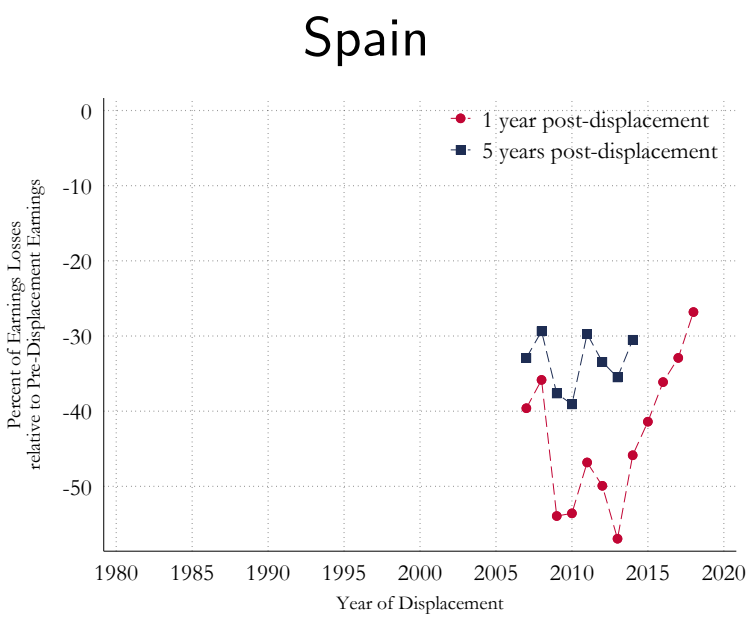

Figure 17: Long-run impacts of job loss by gender (i)

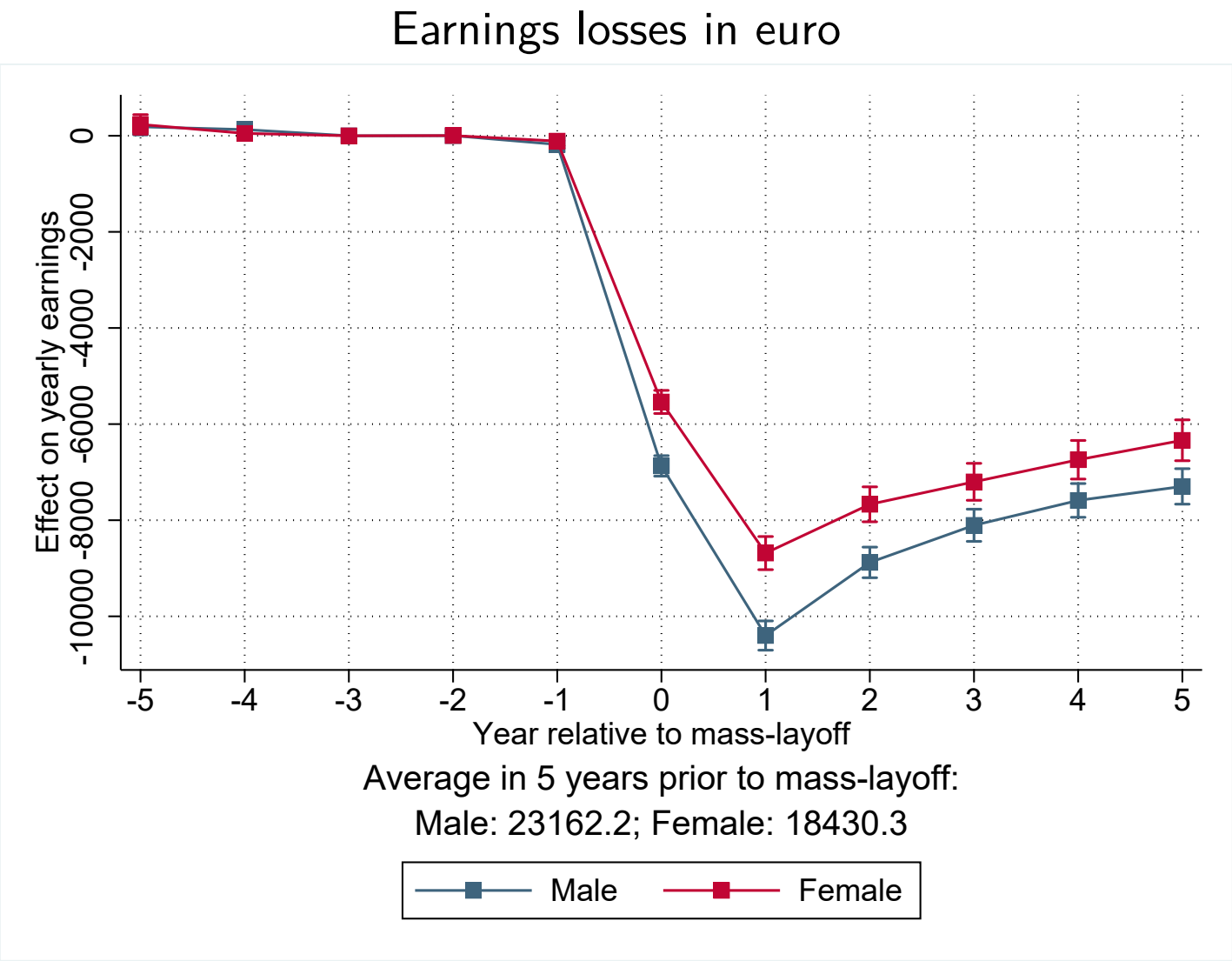

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Figure 17: Long-run impacts of job loss by gender (ii)

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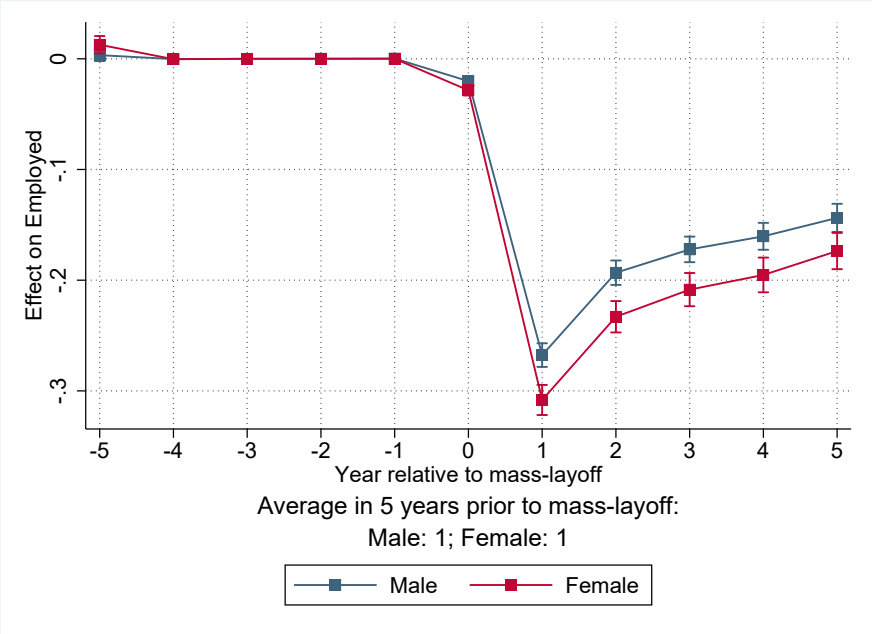
Figure 17: Long-run impacts of job loss by gender (iii)

Employment



Worked days

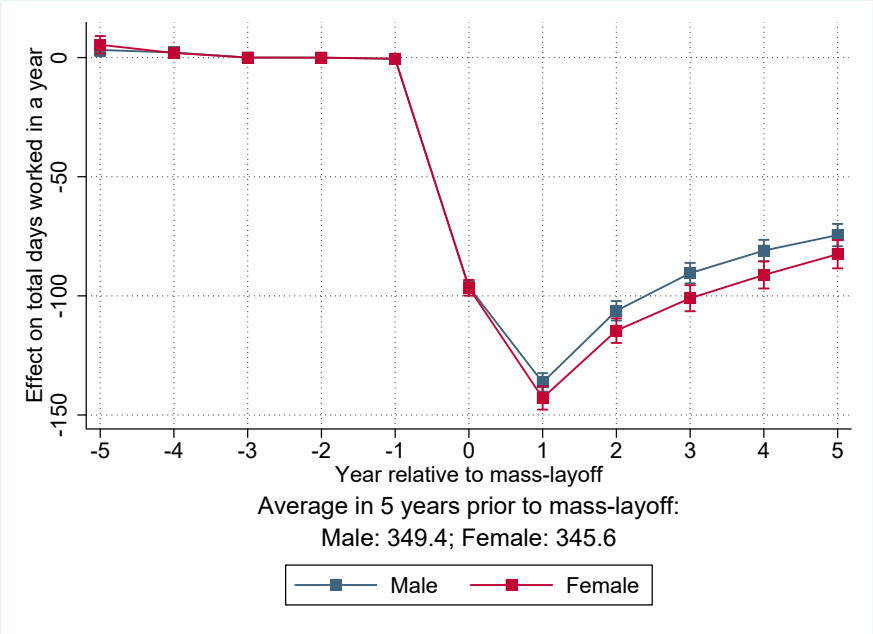


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Table 7: Earnings Effects with Alternative Control Groups

	Earnings Effect in t=+5		Earnings Effect in t=+1	
	Baseline	Continuously employed	Baseline	Continuously employed
Austria	-0.211	-0.360	-0.389	-0.461
Denmark	-0.116	-0.253	-0.177	-0.255
France	-0.121	-0.255	-0.199	-0.253
Italy	-0.277	-0.772	-0.392	-0.635
Portugal	-0.243	-0.270	-0.344	-0.437
Spain	-0.325	-0.512	-0.457	-0.537
Sweden	-0.116	-0.171	-0.206	-0.233

Notes: The Continuously employed control group is similar to that in Lachowska et al (2020), i.e. workers who stay employed at the same establishment at which they had at least 3 years of pre-displacement tenure for the entirety of the post-period time window (up to 9 years in total).

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Table 8: Loss of employer- specific wage premiums five years after job displacement

		Daily wage (in logarithm)				
		Loss of employer pay premium (1)		Total job loss effect (2)		Ratio (3)
Denmark	$t = 5$	-0.018	(0.001)	-0.039	(0.002)	0.46
Sweden	$t = 5$	-0.029	(0.001)	-0.055	(0.004)	0.53
Austria	$t = 5$	-0.064	(0.001)	-0.112	(0.002)	0.59
France	$t = 5$	-0.030	(0.002)	-0.044	(0.004)	0.68
Italy	$t = 5$	-0.027	(0.002)	-0.057	(0.003)	0.47
Spain	$t = 5$	-0.046	(0.003)	-0.130	(0.006)	0.37
Portugal	$t = 5$	-0.043	(0.001)	-0.045	(0.002)	0.95

Notes: Standard errors in parentheses.

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Table 9: Oaxaca-Blinder decomposition estimates of wage losses in log across countries:

	Overall gap	Composition part					Unexplained part
		Worker	Employer	Business cycle	Time trend	Total	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sweden	-0.044	-0.027	0.001	-0.000	-0.000	-0.026	-0.019
Austria	-0.074	-0.004	-0.042	-0.000	-0.005	-0.052	-0.023
France	-0.006	-0.035	-0.009	0.002	0.004	-0.038	0.033
Italy	-0.010	-0.002	-0.004	0.001	-0.007	-0.012	-0.000
Spain	-0.112	-0.005	0.023	-0.006	-0.007	0.005	-0.117
Portugal	0.023	0.009	-0.009	-0.006	-0.000	-0.006	0.029

Notes: Oaxaca-Blinder decompositions of wages losses by comparing separately each country with Denmark.

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Figure 18: Distribution of displaced workers across quintiles of firm effects before job displacement

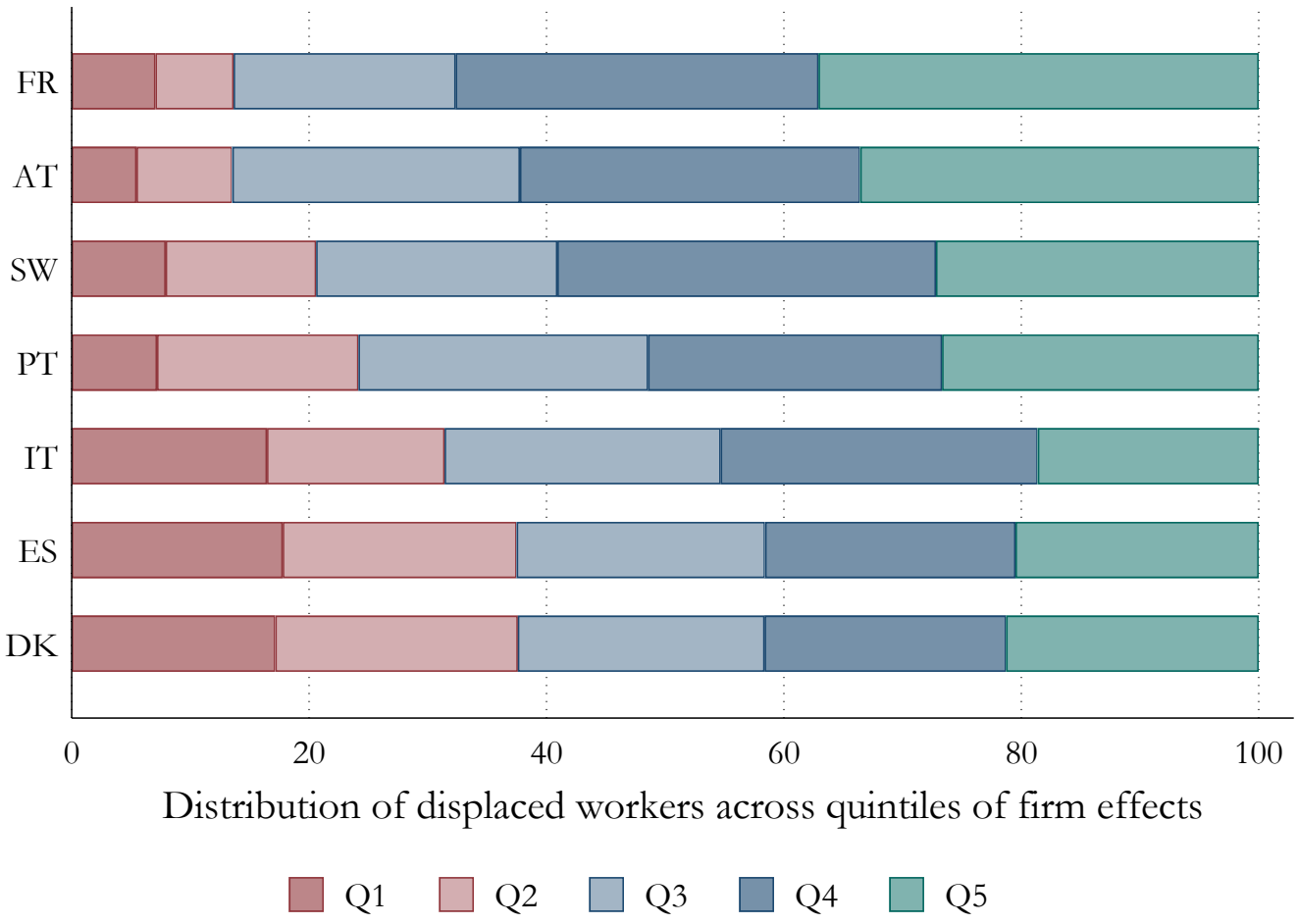

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Table 10: Cyclicality in wage loss is explained by changes in employer characteristics.

$$\Delta_{DiD} y_{ist^*} = \lambda_{t^*} + X'_{ist^*}\beta + \varepsilon_{ist^*}$$

	Denmark		Sweden	
Δ in unempl. rate	-0.012***	-0.005	-0.022***	-0.008*
Employer FE	-0.316***	0.160***	-0.032	0.555***
Worker FE	-0.352***	-0.402***	0.019*	-0.040***
Δ in employer FE		0.820***		1.280***
Mean Dep. Var.	-0.053	-0.053	-0.058	-0.058
N	73,794	73,794	52,479	52,479

X_{ist^*} : Female, job tenure, age, employer size, ΔU, year of displacement, AKM worker and firm fixed effects (FE), and Δfirm FE ($\Delta_{DiD}\widehat{\psi}_J$).

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Table 10: Cyclicality in wage loss is explained by changes in employer characteristics (Contd.).

$$\Delta_{DiD} y_{ist^*} = \lambda_{t^*} + X'_{ist^*}\beta + \varepsilon_{ist^*}$$

	Austria		France	
Δ in unempl. rate	-0.007	-0.009*	-0.017**	-0.010
Employer FE	-0.500***	0.051***	-0.045**	0.173***
Worker FE	-0.192***	-0.326***	0.027*	-0.070***
Δ in employer FE		0.840***		0.536***
Mean Dep. Var.	-0.127	-0.127	-0.046	-0.046
N	26,885	26,885	12,207	12,207

X_{ist^*}: Female, job tenure, age, employer size, ΔU, year of displacement, AKM worker and firm fixed effects (FE), and Δfirm FE ($\Delta_{DiD}\widehat{\psi}_J$).

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Table 10: Cyclicality in wage loss is explained by changes in employer characteristics (Contd.).

$$\Delta_{DiD} y_{ist^*} = \lambda_{t^*} + X'_{ist^*}\beta + \varepsilon_{ist^*}$$

	Italy		Portugal		Spain	
Δ in unempl. rate	-0.039*	-0.020	-0.014***	-0.009***	-0.010**	-0.005
Employer FE	-0.178***	0.038***	-0.127***	0.160***	-0.261***	0.120***
Worker FE	-0.086***	-0.178***	-0.057***	-0.159***	-0.081***	-0.221***
Δ in employer FE		0.563***		0.925***		0.829***
Mean Dep. Var.	-0.056	-0.056	-0.040	-0.040	-0.137	-0.137
N	25,688	25,688	49,496	49,496	5,581	5,581

X_{ist^*}: Female, job tenure, age, employer size, ΔU, year of displacement, AKM worker and firm fixed effects (FE), and Δfirm FE ($\Delta_{DiD}\widehat{\psi}_J$).

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Table 11: Earnings losses over the business cycle.

$$\Delta_{DiD} y_{ist^*} = \lambda_{t^*} + X'_{ist^*}\beta + \varepsilon_{ist^*}$$

	Denmark		Sweden	
Δ in unempl. rate	-0.021***	-0.017***	-0.021***	-0.010**
Employer FE	0.005	0.257***	0.071*	0.549***
Worker FE	-0.069***	-0.095***	0.095***	0.047***
Δ in employer FE		0.432***		1.041***
Mean Dep. Var.	-0.064	-0.064	-0.067	-0.067
N	77,549	77,549	52,480	52,480

X_{ist^*} : Female, job tenure, age, employer size, ΔU, year of displacement, AKM worker and firm fixed effects (FE), and Δfirm FE ($\Delta_{DiD}\widehat{\psi}_J$).

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Table 11: Earnings losses over the business cycle (Contd.).

$$\Delta_{DiD} y_{ist^*} = \lambda_{t^*} + X'_{ist^*}\beta + \varepsilon_{ist^*}$$

	Austria		France	
Δ in unempl. rate	-0.004	-0.006	-0.017*	-0.011
Employer FE	-0.603***	-0.055**	0.112***	0.282***
Worker FE	-0.167***	-0.301***	0.178***	0.102***
Δ in employer FE		0.834***		0.416***
Mean Dep. Var.	-0.147	-0.147	-0.050	-0.050
N	26,886	26,886	12,250	12,250

X_{ist^*}: Female, job tenure, age, employer size, ΔU, year of displacement, AKM worker and firm fixed effects (FE), and Δfirm FE ($\Delta_{DiD}\widehat{\psi}_J$).

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Table 11: Earnings losses over the business cycle (Contd.).

$$\Delta_{DiD} y_{ist^*} = \lambda_{t^*} + X'_{ist^*}\beta + \varepsilon_{ist^*}$$

	Italy		Portugal		Spain	
Δ in unempl. rate	-0.081**	-0.068**	-0.024*	-0.017	-0.012**	-0.007
Employer FE	-0.149***	0.009	0.058	0.445***	-0.262***	0.081**
Worker FE	0.005	-0.062***	-0.330***	-0.467***	-0.091***	-0.218***
Δ in employer FE		0.412***		1.247***		0.746***
Mean Dep. Var.	-0.091	-0.091	-0.076	-0.076	-0.195	-0.195
N	25,688	25,688	49,496	49,496	5,581	5,581

X_{ist^*}: Female, job tenure, age, employer size, ΔU, year of displacement, AKM worker and firm fixed effects (FE), and Δfirm FE ($\Delta_{DiD}\widehat{\psi}_J$).

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Table 12: Cyclical earnings and wage losses using tax records in Spain.

	Earnings from tax records		Social Security contribution bases	
	(1) Earnings (in %)	(2) Log daily wages	(3) Earnings (in %)	(4) Log daily wages
Δ in unempl. rate	**-0.001**	**0.002**	**-0.011**	**-0.003**
	(0.012)	**(0.011)**	**(0.010)**	**(0.009)**
Female	-0.030	0.040	-0.022	-0.003
	(0.021)	(0.020)**	(0.019)	(0.016)
Job tenure	-0.008	-0.012	-0.007	-0.014
	(0.003)***	(0.003)***	(0.002)***	(0.002)***
Age	-0.008	-0.006	-0.006	-0.002
	(0.002)***	(0.002)***	(0.001)***	(0.001)
Employer size	-0.000	0.000	-0.000	0.000
	(0.000)**	(0.000)	(0.000)*	(0.000)
$(t^* - 2011)$	-0.023	-0.070	-0.048	-0.050
	(0.027)	(0.025)***	(0.024)**	(0.020)**
$(t^* - 2011)^2$	0.013	0.021	0.016	0.015
	(0.009)	(0.008)***	(0.008)**	(0.006)**
Constant	-0.322	-0.119	-0.305	-0.100
	(0.038)***	(0.037)***	(0.034)***	(0.029)***
Observations	5878	3889	6789	4523

*Standard errors in parentheses. * $p \leq 0.10$, ** $p \leq 0.05$, *** $p \leq 0.01$*

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Figure 19: Evolution of the expenditures on Active Labour Market Policies (ALMP) by country

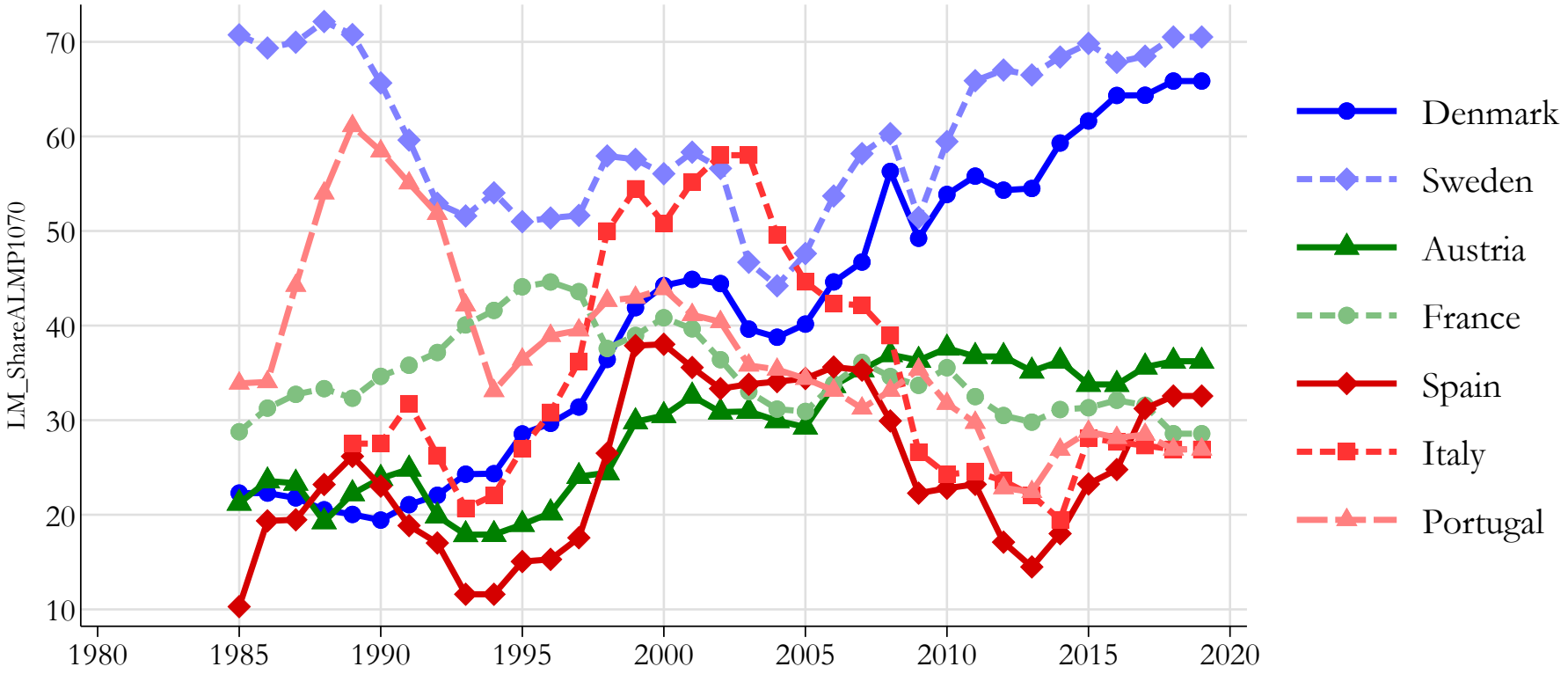

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Figure 20: Evolution of the employment protection of workers under an open-ended contract by country

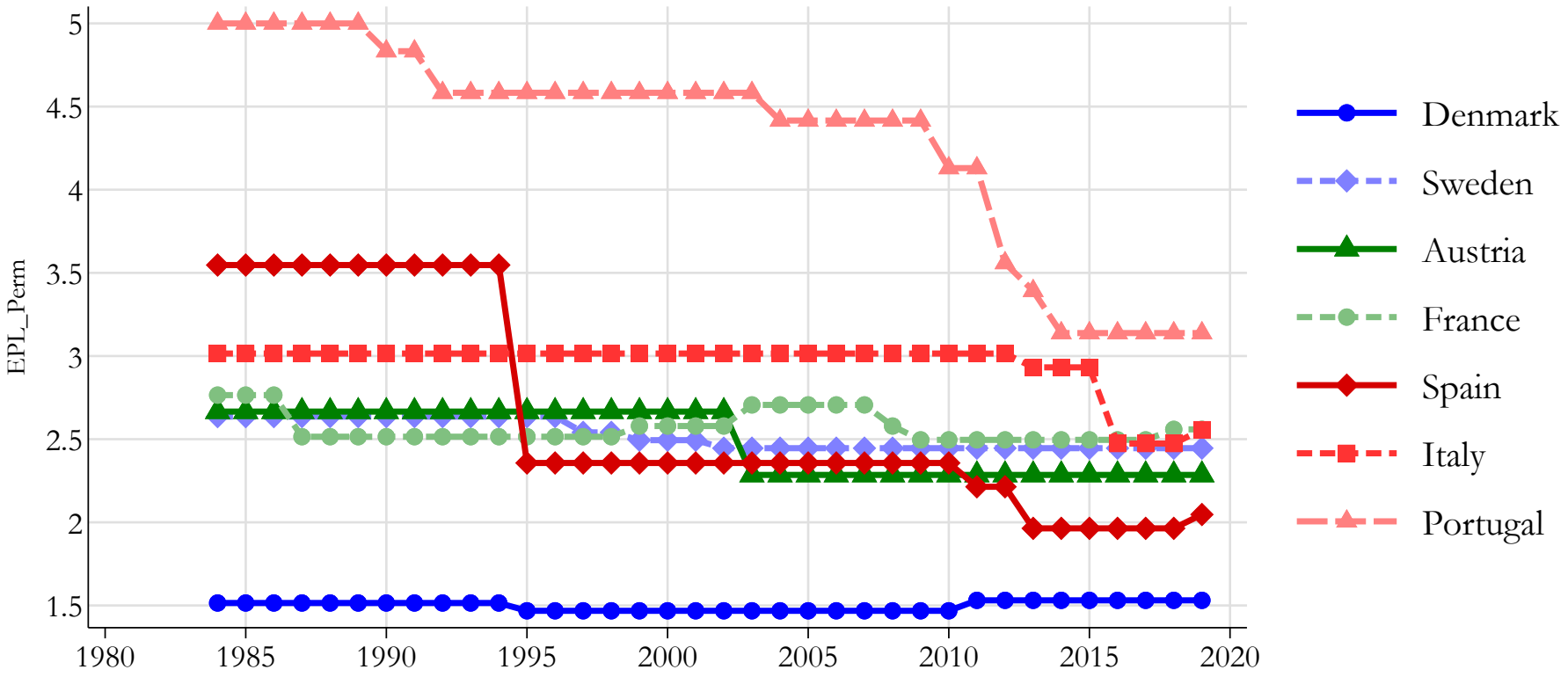

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Figure 21: Evolution of the employment protection of workers under a fixed-term contract by country

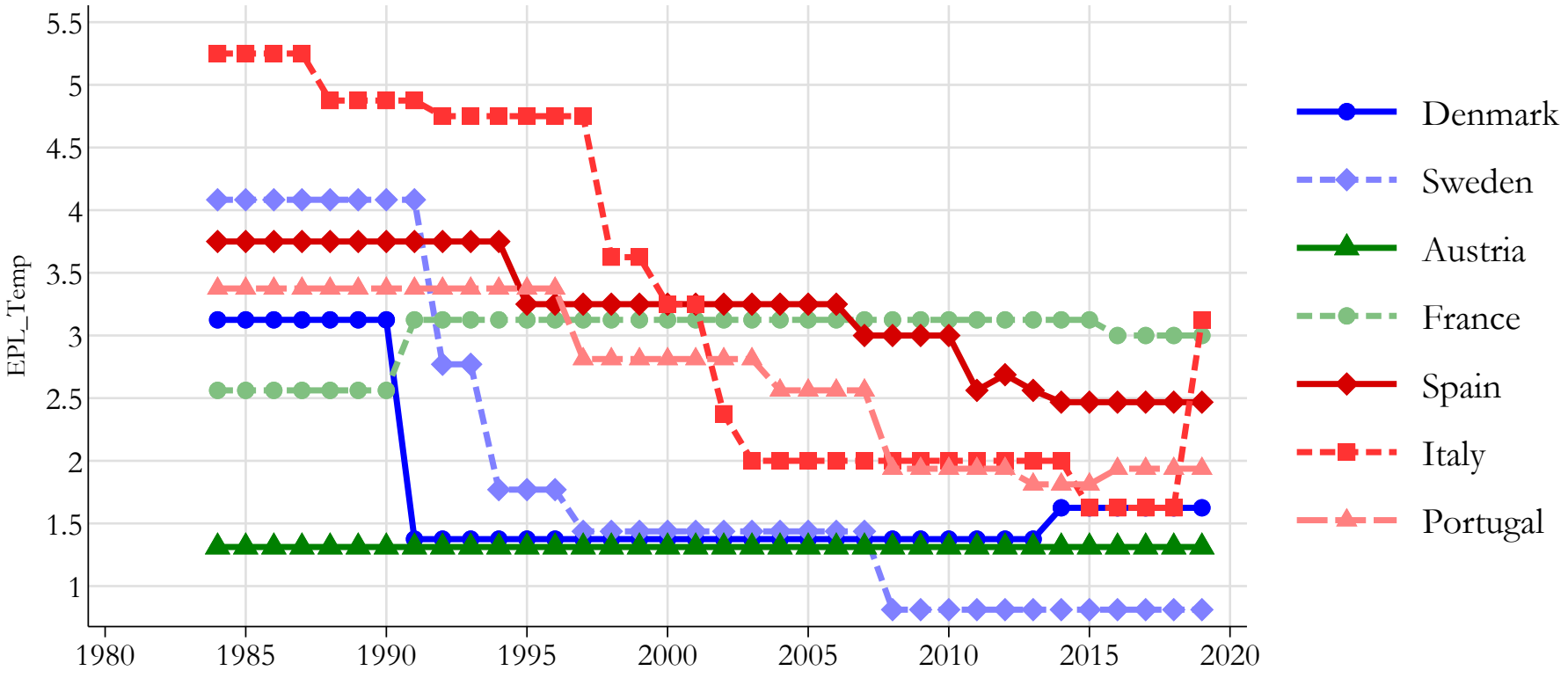

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Figure 22: Evolution of the difference in the employment protection of workers across job contracts: open-ended vs fixed-term contracts

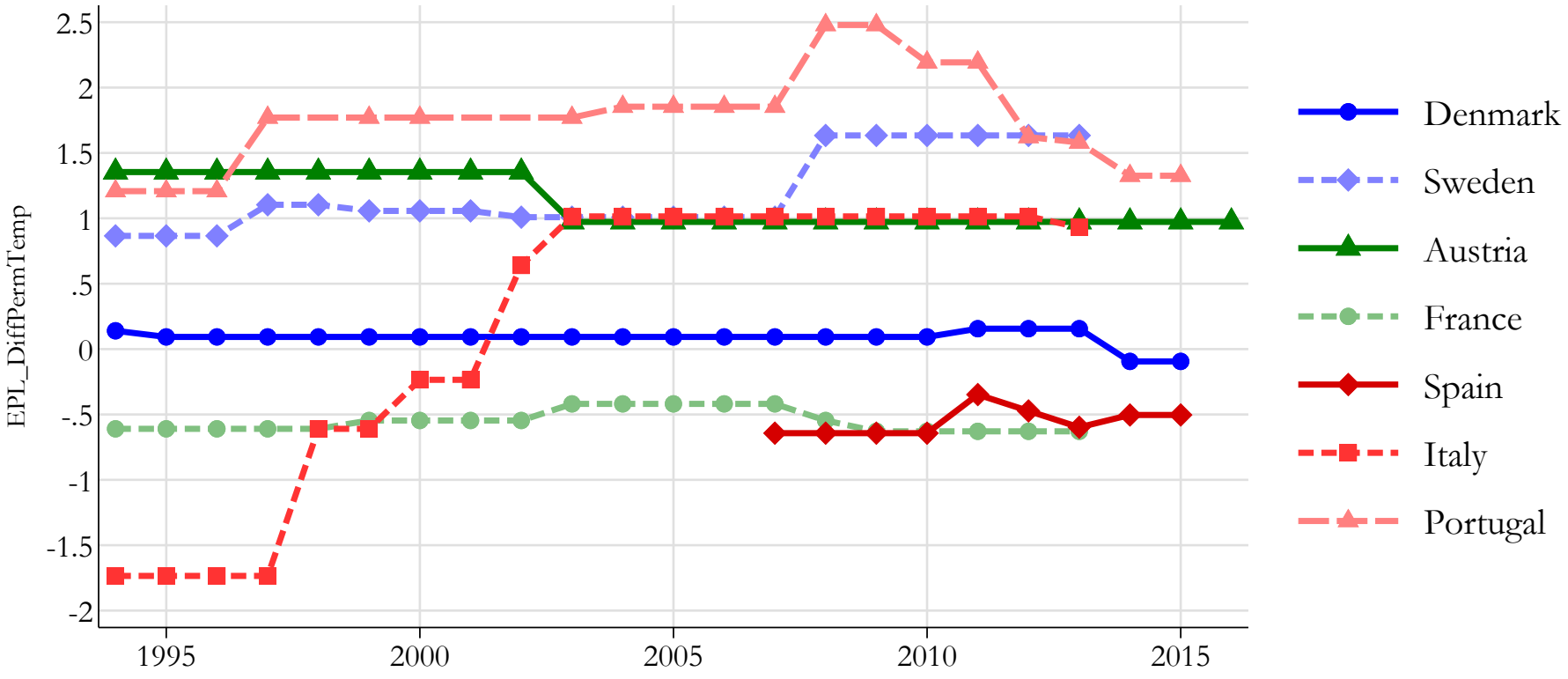

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Figure 23: Evolution of the unemployment insurance replacement rate in the short-run

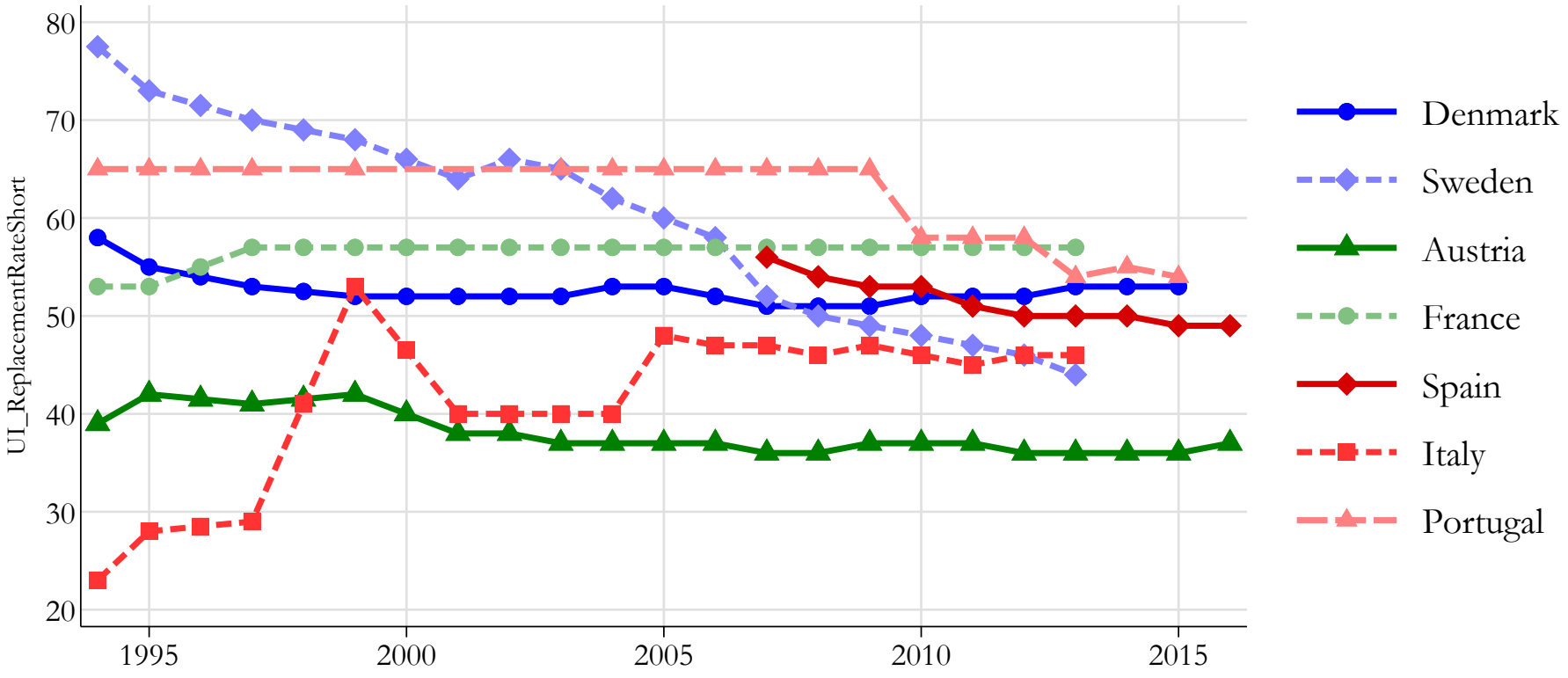

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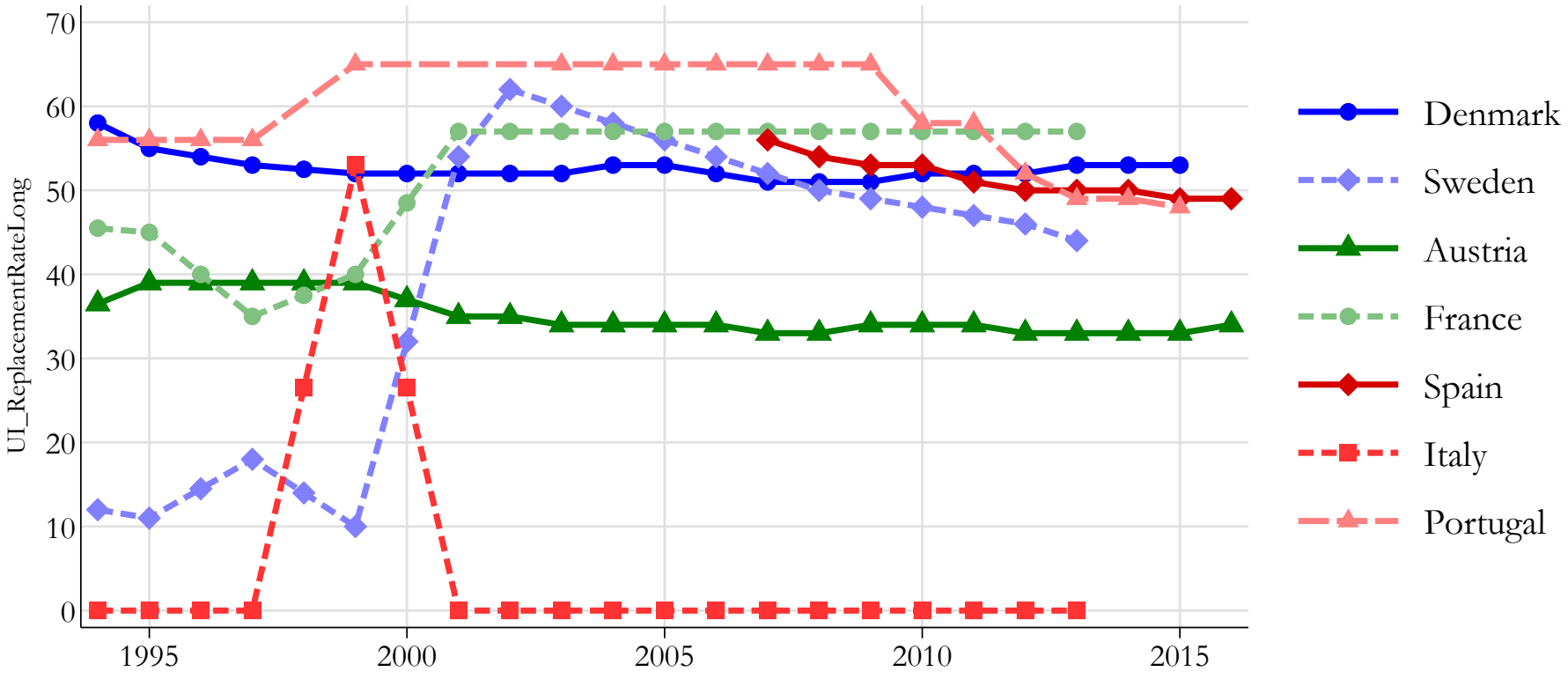
Figure 24: Evolution of the unemployment insurance replacement rate in the long-run



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