Optimal Unemployment Insurance with Program Interactions

joint with Z. Parolin (Bocconi & IZA)

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Research question

- Interactions between public policies
  - Evaluations or welfare analyses consider policies in isolation
  - While interactions might have implications for public finances

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- Interactions between public policies
  - Evaluations or welfare analyses consider policies in isolation
  - While interactions might have implications for public finances
- Focus on unemployment insurance (UI)
  - Strong and long-lasting implications of job losses
  - Unclear how a more generous UI can affect other transfers

Related literature

- Studies on the interaction between UI and other programs
  - Focused on interactions with pension and/or disability (Inderbitzin et al. 2016; Kyyrra and Ollikainen 2008; Lindner 2016; Mueller et al. 2016)
  - Look at effects on the extensive margin (Leung and O'Leary 2020; Rothstein and Valletta 2017)
- Empirical literature on welfare effects of UI
  - Studies estimate welfare effects based on Baily-Chetty framework (Card et al. 2015; Gruber 2001; Kolsrud et al. 2010; Landais 2015)
  - Look at the implications of considering policy interactions

Data and identification

- Data from the United States from 1990 to 2013 (Survey of Income and Program Participation)
  - Track individuals at the monthly level for 30-64 months
  - Unemployed who separate from a job after at least 3 months

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- Data from the United States from 1990 to 2013 (Survey of Income and Program Participation)
  - Track individuals at the monthly level for 30-64 months
  - Unemployed who separate from a job after at least 3 months
- Exploit state-level changes in the generosity of UI (Hsu et al. 2018; Kuka 2020; Lindo et al. 2023)
  - Treatment corresponds to maximum benefit levels
  - Center the analysis around the time of job loss

descriptive | des stat | macro | policy | institution | composition

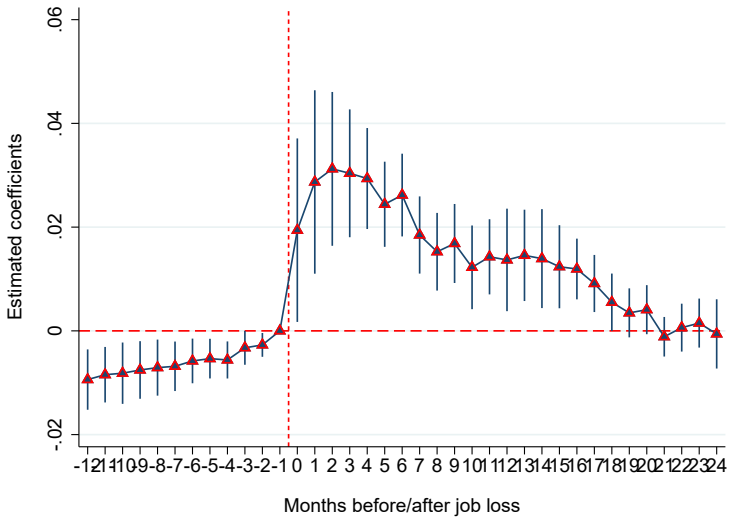
Empirical specification

$$Y_{isqt} = \alpha_i + Layoff_{isqt} + \beta(MaxUI_{sqt} * Layoff_{isqt}) + X_{isqt} + Z_{st} + \nu_{qt} + \lambda_s + \epsilon_{isqt}$$

- Where the terms of the equation read as follows:
  - α_i is an individual fixed effect
  - $Layoff_{isqt}$ is a dummy equal to 1 after layoff
  - $MaxUI_{sqt}$ is the maximum UI level at time of job loss
  - X_{isqt} are individual-level characteristics (e.g. education, children)
  - Z_{st} are state-level controls (e.g. GDP, minimum wages)
  - ν_{qt} are quarter-by-year fixed effects
  - λ_s are state fixed effects

Baseline results: program receipt

Figure: Event-study estimates on UI and any other program



(a) UI

Baseline results: program receipt

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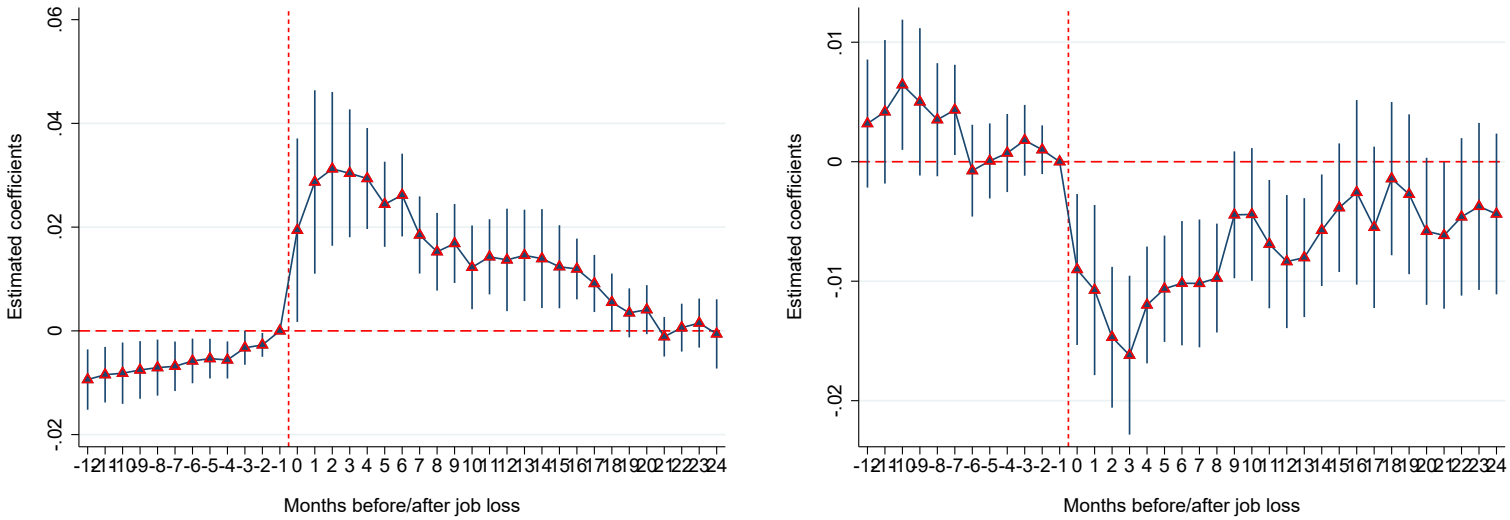


(a) UI

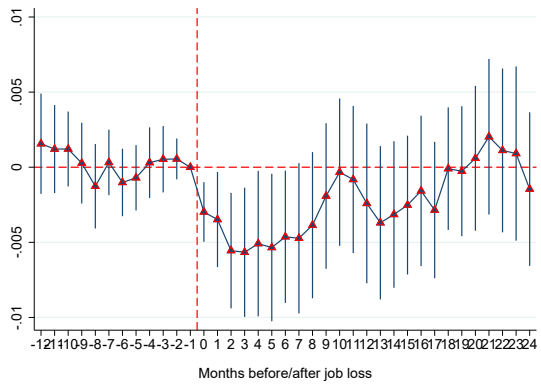
(b) Any other program

benefit amount table

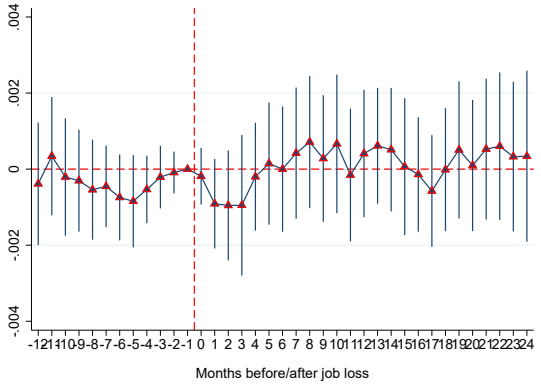
Means-tested programs

Means-tested programs

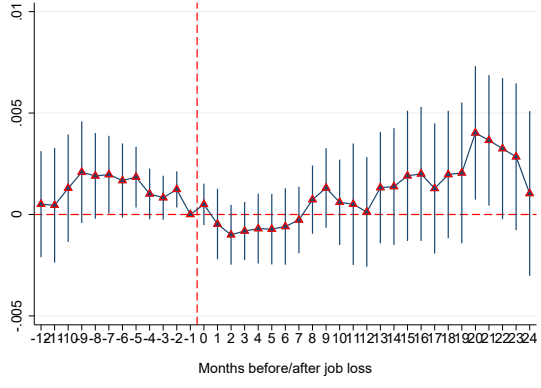
Figure: Event-study estimates on means-tested programs



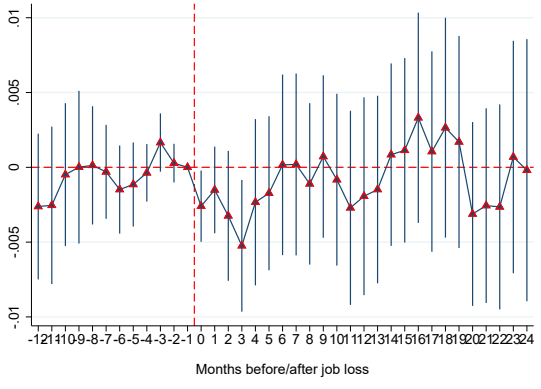
(a) SNAP



(b) TANF



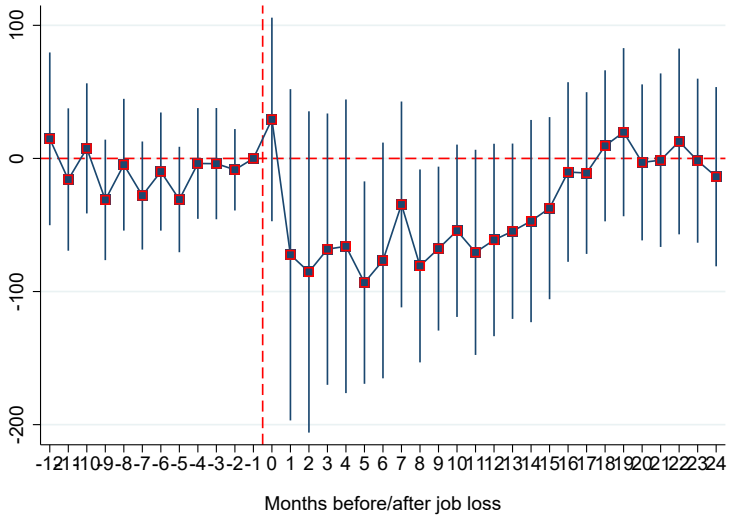
(c) WIC



(d) Other means-tested

Lower eligibility or lower take-up?

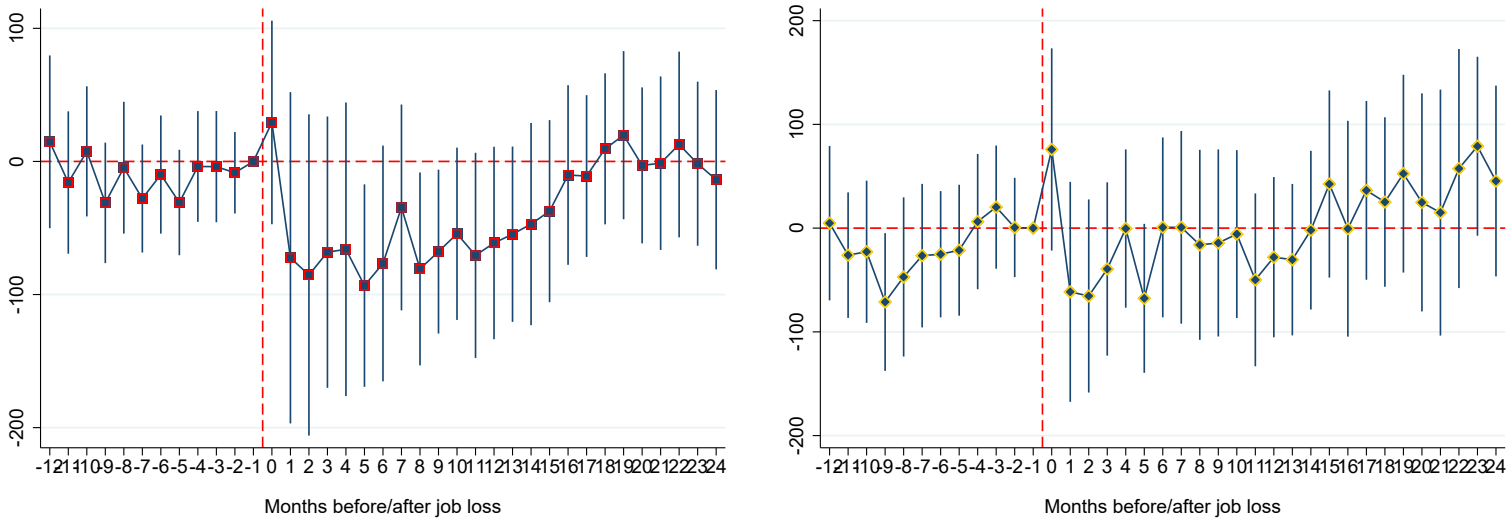
Figure: Event-study estimates on personal and household income



(a) Total income: Individual

Lower eligibility or lower take-up?

Figure: Event-study estimates on personal and household income



(a) Total income: Individual

(b) Total income: Household

income detailed reasons to apply

Social security (i)

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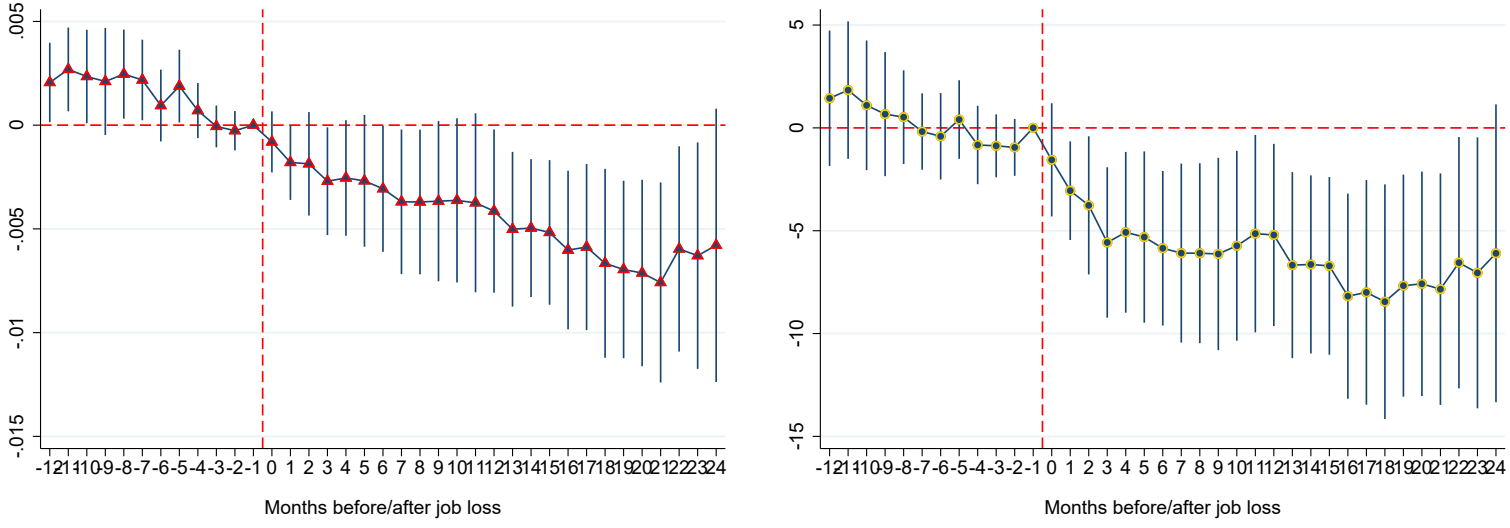
Figure: Event-study estimates on social security



(a) Receipt

(b) Amount

Social security (ii): Reasons social security

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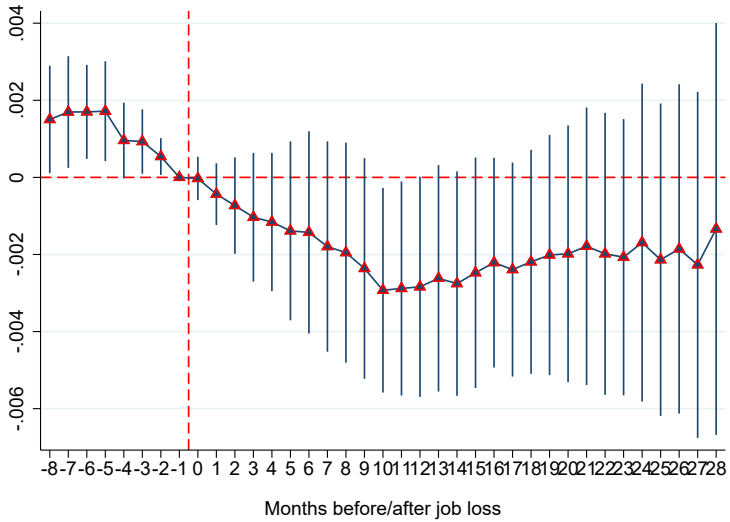
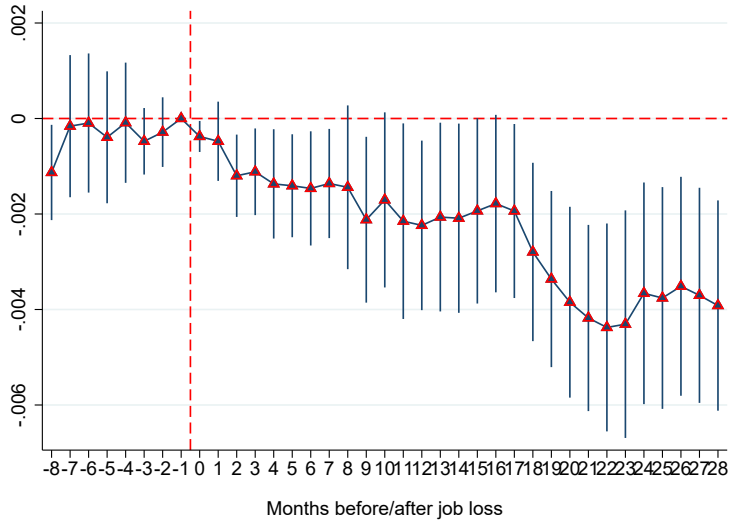
Figure: Event study estimates of the effects on the reasons for social security receipt



(a) Retired



(b) Disability

Social security (ii): People above 50

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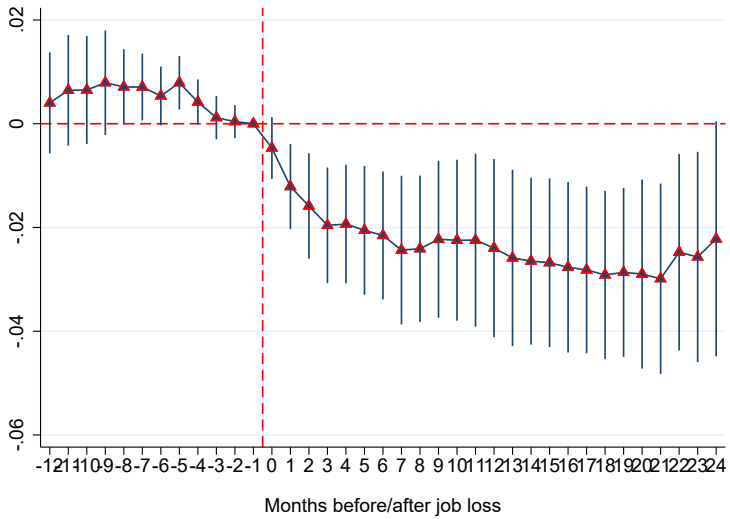
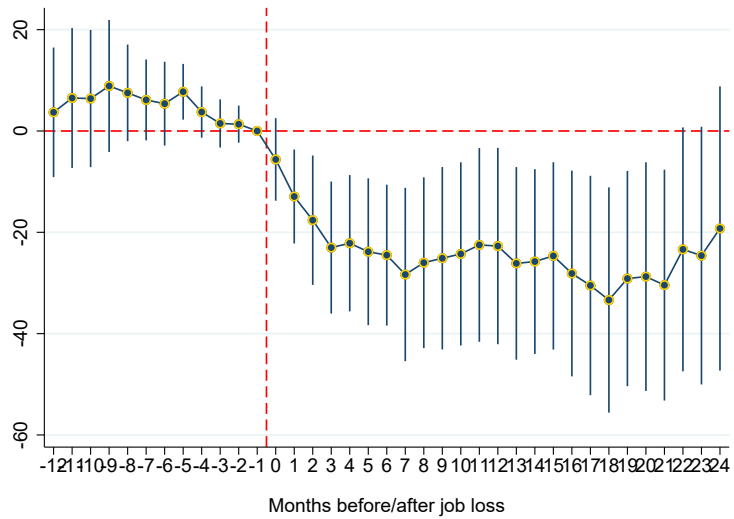
Figure: Event study estimates of the effects on the receipt and amount received of Social Security, for the population aged 50 and above



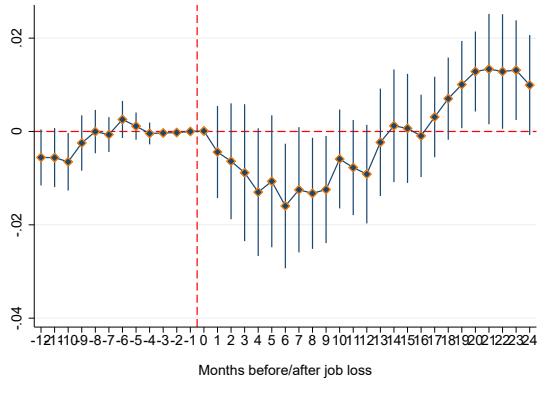
(a) Social security receipt



(b) Social security amount

Labor market outcomes

Figure: Event-study estimates on labour market outcomes



(a) Employment

Labor market outcomes

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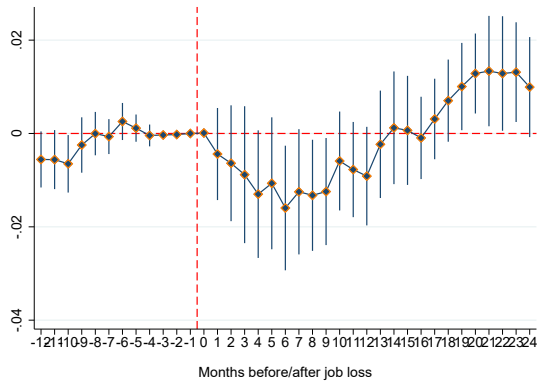

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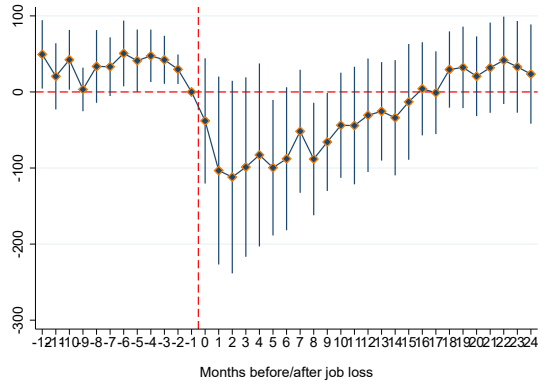
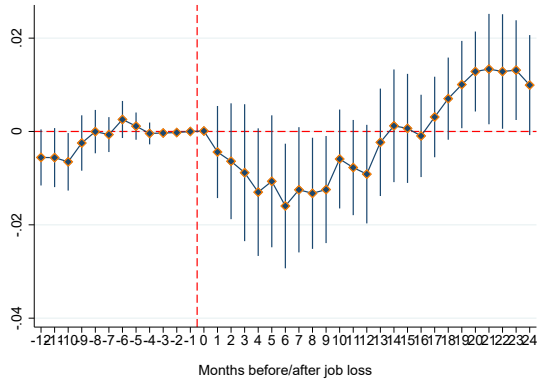


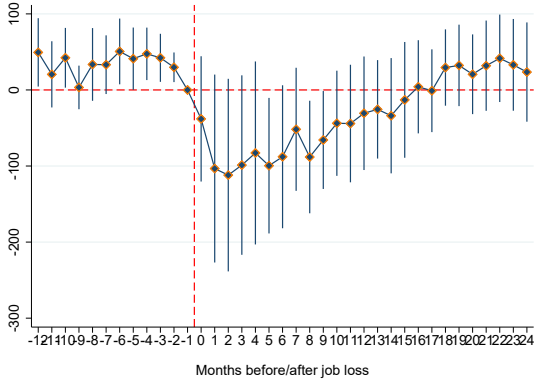
(b) Monthly earnings

Labor market outcomes

Figure: Event-study estimates on labour market outcomes



(a) Employment



(b) Monthly earnings

(c) Unemployment

Labor market outcomes

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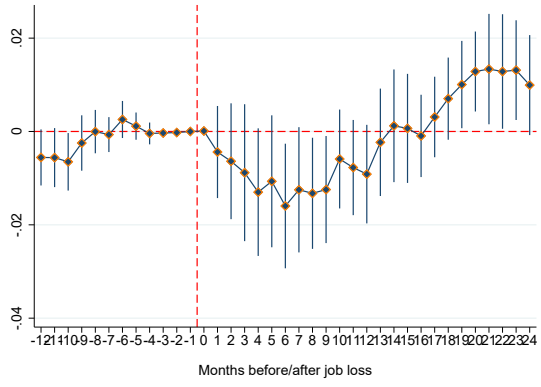
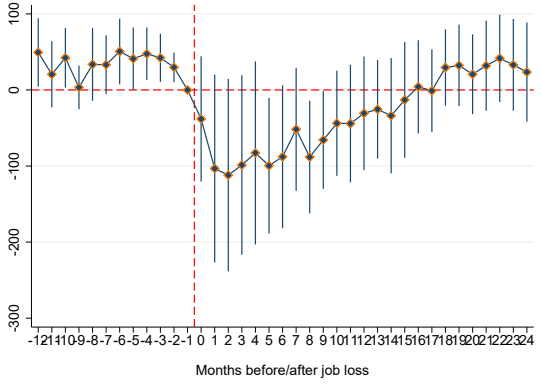


(a) Employment



(b) Monthly earnings

(c) Unemployment

(d) Inactive

reasons inactive

Summary of the results

- More generous UI

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Summary of the results

- More generous UI
  - Increases the lenght of receipt of UI
  - Reduces receipt of other public benefits
  - Partially through a reduction in means-tested programs
  - But mostly due to a long-lasting reduction in social security
- What are the implications for optimal UI levels?

robustness 1 robustness 2 robustness 3

Welfare analysis (i)

- Adapt the standard Baily-Chetty framework (Lindner, 2016)

$$\frac{\partial W}{\partial b}\frac{1}{Bv'(c_e)} = \underbrace{\frac{u'(c_u)-v'(c_e)}{v'(c_e)}}_{InsuranceValue} - \underbrace{(\eta_{B,b}+\eta_{D,b}\frac{D}{B}\frac{\tau}{b})}_{EfficiencyCosts}$$

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- Where the terms related to the interaction read as follows:
  - p_t is the application probability to non-UI benefits
  - g_t is the amount of non-UI benefits
  - D is the time spent out of employment
  - $\eta_{p,b}$ is the elasticity of the application to non-UI benefits to UI

Welfare analysis (ii)

Table: Optimal UI replacement rates for different levels of the coefficient of relative risk aversion

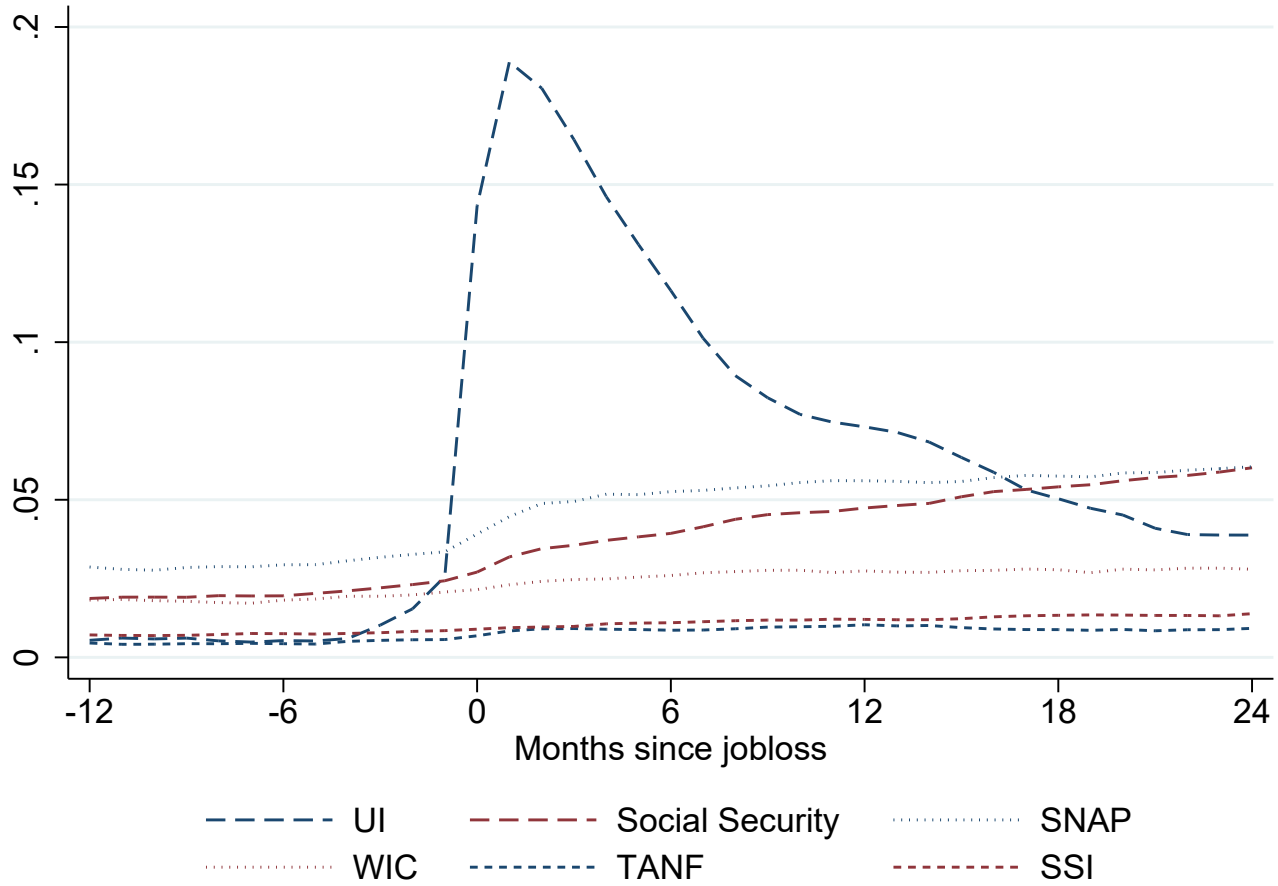
	Values of gamma				
	1	2	3	4	5
Without interactions	0	0.187	0.404	0.512	0.577
With interactions	0.199	0.519	0.625	0.678	0.71

Notes: The table reports the optimal UI replacement rate for different values of the coefficient of relative risk aversion (γ). These are presented from a model that does not consider the interaction between UI and non-UI programs (first row) as well as from a model where instead these interactions are taken into account (second row).

Appendix

Trends in program receipt

Figure: Share of individuals in the SIPP sample receiving selected programs, by month before and after job loss



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Trends in program receipt

Table: Descriptive statistics

	12 months before		Jobloss		24 months after	
	mean	sd	mean	sd	mean	sd
Male	0.494	0.500	0.501	0.500	0.496	0.500
Age	36.639	13.179	36.435	13.135	38.322	13.222
White	0.825	0.380	0.821	0.383	0.819	0.385
Black	0.119	0.323	0.124	0.330	0.127	0.333
Native American	0.021	0.143	0.020	0.142	0.021	0.142
Asian	0.035	0.184	0.034	0.182	0.033	0.179
Married	0.509	0.500	0.497	0.500	0.509	0.500
Widowed	0.014	0.119	0.016	0.124	0.018	0.134
Divorced or separated	0.126	0.332	0.128	0.334	0.131	0.338
Single or never married	0.351	0.477	0.359	0.480	0.342	0.474
Number of children in household	0.900	1.179	0.883	1.172	0.835	1.148
Completed high school or less	0.441	0.497	0.455	0.498	0.402	0.490
Some college but no degree	0.222	0.416	0.224	0.417	0.226	0.418
Completed college and above	0.331	0.471	0.319	0.466	0.372	0.483
N	24570		43237		19678	

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Macro variables

Table: Relationship between maximum UI benefits and macro variables

Unemployment rate	-0.006				-0.011
	(0.012)				(0.011)
GDP growth		-0.001			-0.002
		(0.004)			(0.004)
Per-capita income			0.001		0.001
			(0.004)		(0.004)
Poverty rate				0.003	0.005
				(0.007)	(0.006)
N	1,224	1,224	1,122	1,224	1,122

back

Institutional variables

Table: Relationship between maximum UI benefits and institutional variables

Minimum wage	0.027				0.027
	(0.018)				(0.018)
Trade union		0.004			-0.023
		(0.012)			(0.025)
Collective bargaining			0.008		0.023
			(0.011)		(0.019)
Democratic governor				0.014	0.010
				(0.023)	(0.021)
N	1,224	1,224	1,122	1,224	1,122

back

Policy variables

Table: Relationship between maximum UI benefits and policy variables

AFDC/TANF and SNAP	0.000				0.000
	(0.000)				(0.000)
WIC recipients		-0.000			-0.000
		(0.000)			(0.000)
Maximum SSI benefit			-0.000		-0.000
			(0.001)		(0.001)
EITC rate				-0.022	-0.017
				(0.047)	(0.047)
N	1,224	1,224	1,122	1,224	1,122

back

Composition

Table: Relationship between UI indicators and characteristics of the unemployed

Panel A: Maximum UI levels				
Female	Age	Single	College	White
-0.000	0.000	-0.001	-0.002	0.001
(0.002)	(0.000)	(0.001)	(0.002)	(0.001)
Panel B: Maximum UI duration				
Female	Age	Single	College	White
-0.003	-0.000	-0.005	-0.017*	-0.009
(0.005)	(0.000)	(0.006)	(0.010)	(0.010)

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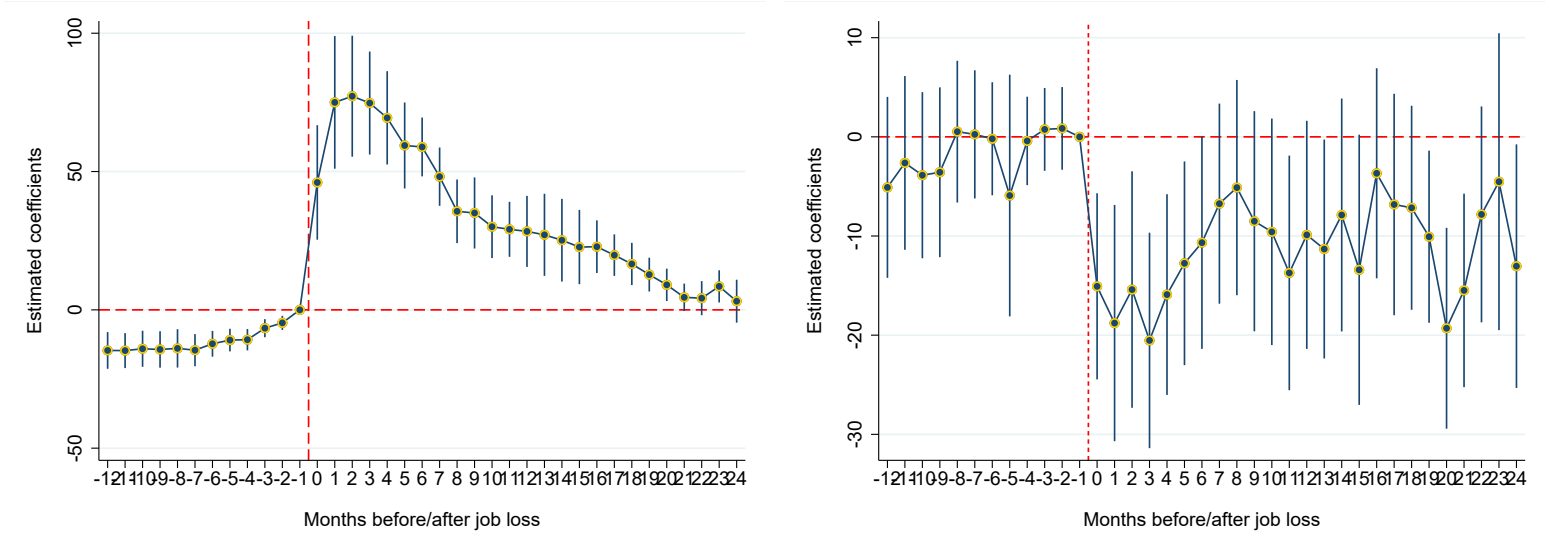
Baseline results: program amount

Figure: Event study estimates of the effects on the amount received of UI and any other programs



(a) Amount of UI

(b) Amount of any other program

back

Baseline results

Table: Effects of UI benefit generosity on the receipt and amount received of UI and any other programs

	Panel A: Receipt of UI				Panel B: Amount of UI			
Post layoff	0.050***	0.132***	0.132***	0.132***	12.268	102.637***	103.029***	102.464***
	(0.012)	(0.013)	(0.013)	(0.013)	(15.788)	(16.778)	(16.790)	(16.854)
Post layoff*Max UI	0.021***	0.022***	0.022***	0.022***	48.612***	49.961***	49.789***	50.118***
	(0.006)	(0.006)	(0.006)	(0.006)	(8.470)	(8.184)	(8.163)	(8.217)
	Panel C: Receipt of any other program				Panel D: Amount of any other program			
Post layoff	0.086***	0.068***	0.068***	0.067***	125.757***	97.352***	98.979***	98.255***
	(0.005)	(0.005)	(0.005)	(0.005)	(10.617)	(10.534)	(10.725)	(10.877)
Post layoff*Max UI	-0.010***	-0.011***	-0.011***	-0.010***	-9.713**	-11.112**	-11.107**	-10.628**
	(0.002)	(0.002)	(0.002)	(0.002)	(4.543)	(4.835)	(4.916)	(4.988)
State	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Year	No	Yes	No	No	No	Yes	No	No
Quarter	No	Yes	No	No	No	Yes	No	No
Year-Quarter	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	No	No	Yes	No	No	No	Yes

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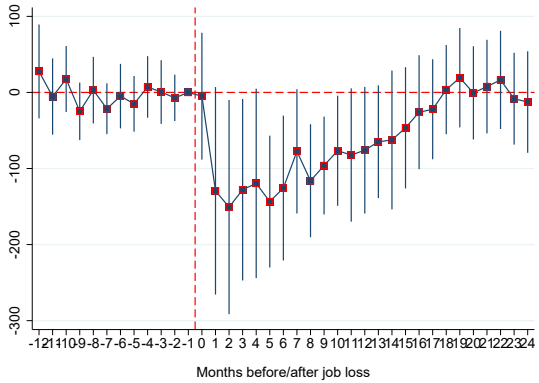
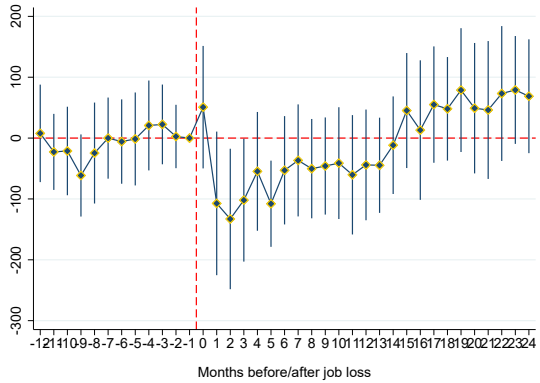
Detailed income results

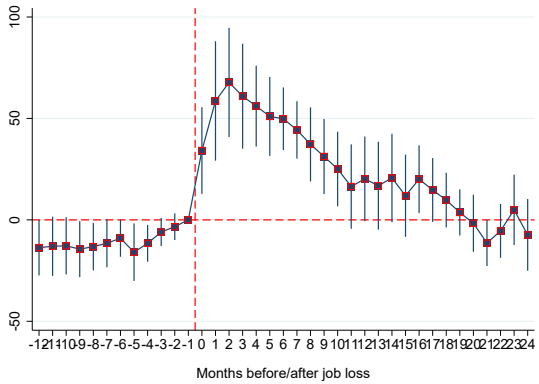
Figure: Event-study estimates on personal and household income



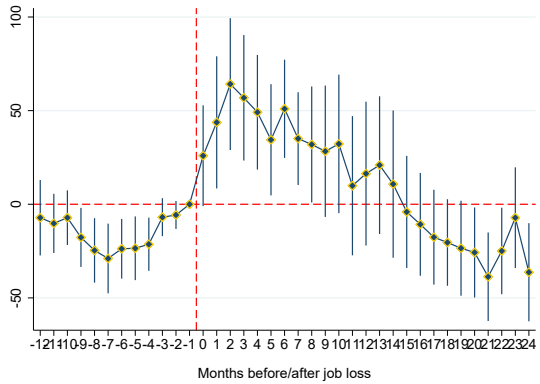
(a) Earned: individual



(b) Earned: household



(c) Transfers: individual



(d) Transfers: household

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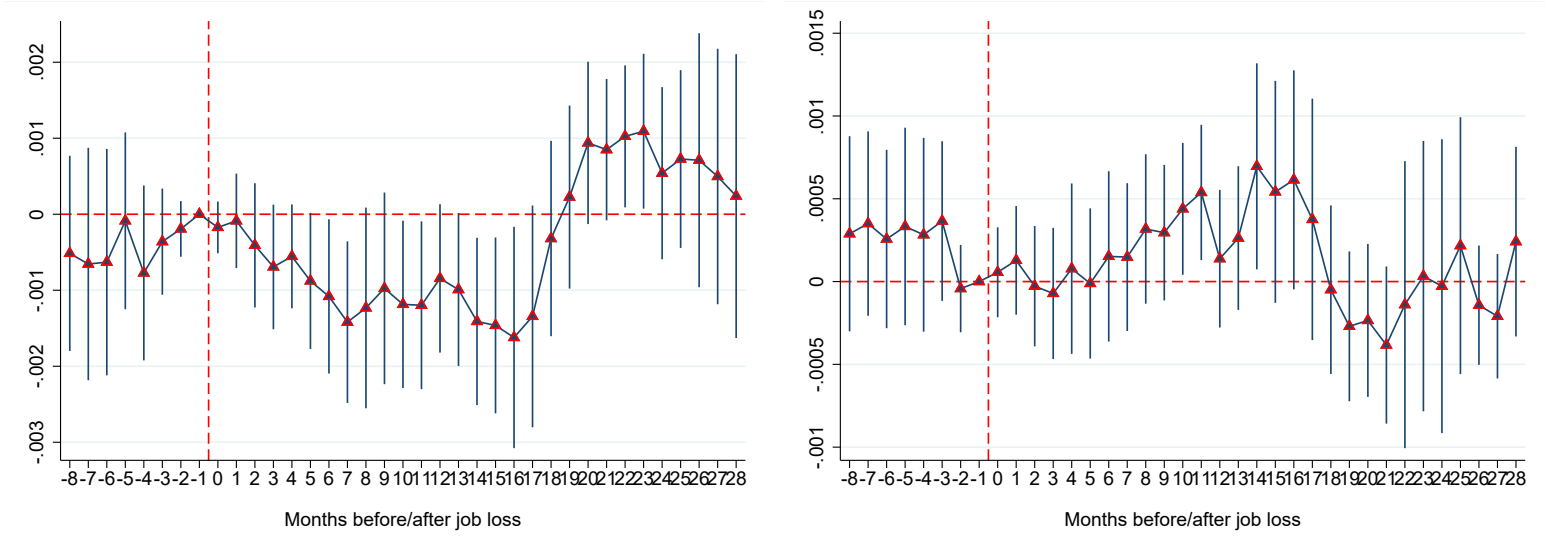
Reasons to apply

Figure: Event study estimates of the effects of UI benefit generosity on SNAP and TANF receipt for economic reasons



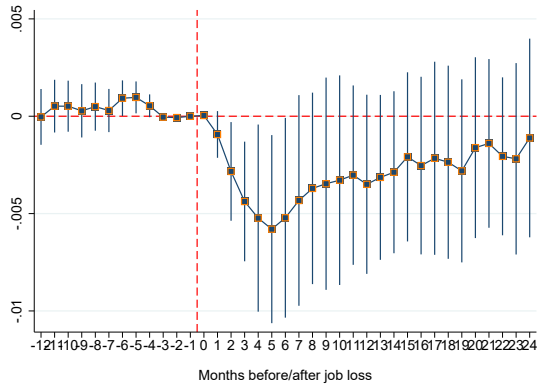
(a) SNAP

(b) TANF

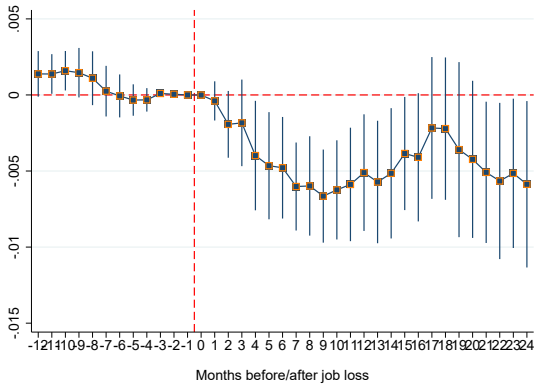
back

Reasons for inactivity

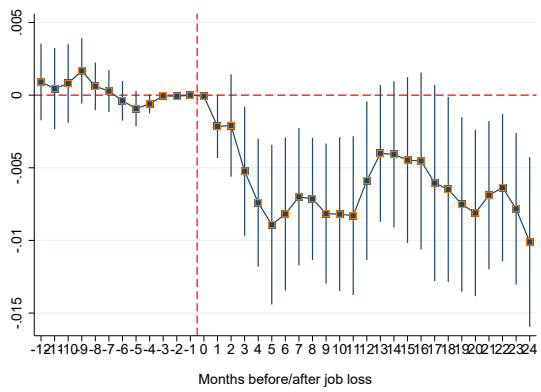
Figure: Event study estimates of the effects on the reasons for inactivity



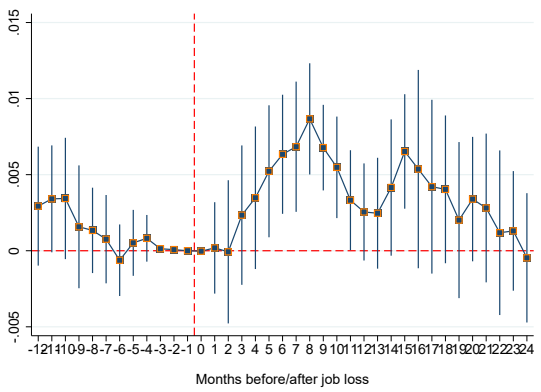
(a) Retired



(b) Unable to work



(c) Care responsibilities



(d) Enrolled in education

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Robustness tests (i)

Table: Robustness tests

Row		UI receipt	Amount of UB	Receipt of any other benefit	Amount of any other benefits
1	Baseline	0.022***	50.293***	-0.010***	-10.646**
		(0.006)	(8.236)	(0.002)	(4.912)
2	Macro controls	0.022***	50.471***	-0.011***	-10.987**
		(0.006)	(8.153)	(0.002)	(4.862)
3	Institution controls	0.022***	50.028***	-0.011***	-10.892**
		(0.006)	(8.312)	(0.002)	(4.961)
4	Policy controls	0.023***	52.559***	-0.011***	-10.022*
		(0.006)	(8.283)	(0.002)	(5.406)
5	All state-level controls	0.023***	52.828***	-0.012***	-10.301*
		(0.006)	(8.364)	(0.002)	(5.384)
6	Reason for jobloss: Any	0.031***	69.142***	-0.017***	-11.582
		(0.008)	(10.002)	(0.004)	(8.889)

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Robustness tests (ii)

Table: Robustness tests

Row		UI receipt	Amount of UB	Receipt of any other benefit	Amount of any other benefits
1	Baseline	0.022***	50.293***	-0.010***	-10.646**
		(0.006)	(8.236)	(0.002)	(4.912)
7	Reason for jobloss: as in Kuka (2020)	0.055***	142.852***	-0.024***	-10.664
		(0.019)	(29.465)	(0.005)	(7.804)
8	Sample: as in Hsu et al (2023)	0.036***	88.536***	-0.026***	-15.156
		(0.011)	(15.755)	(0.007)	(9.576)
9	Reason for jobloss: Firm closure	0.020	52.977	-0.030	-25.675
		(0.020)	(33.537)	(0.024)	(23.898)
10	Reason for jobloss: Quit	-0.008	-0.861	0.005	-8.071
		(0.009)	(7.320)	(0.007)	(11.238)
11	1996-2008 panels	0.023***	47.194***	-0.009***	-11.865**
		(0.005)	(7.420)	(0.003)	(5.459)
12	1990-2004 panels	0.022***	48.124***	-0.009***	-8.360
		(0.006)	(6.848)	(0.003)	(7.011)

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Robustness tests (iii)

Table: Robustness tests

Row		UI receipt	Amount of UB	Receipt of any other benefit	Amount of any other benefits
1	Baseline	0.022***	50.293***	-0.010***	-10.646**
		(0.006)	(8.236)	(0.002)	(4.912)
13	2008 panel	0.018*	49.350***	-0.012***	-13.915*
		(0.010)	(14.297)	(0.004)	(7.019)
14	Low unemployment rates	0.024***	46.087***	-0.012***	-16.979*
		(0.003)	(5.104)	(0.004)	(8.563)
15	High unemployment rates	0.021**	57.865***	-0.006*	-6.228
		(0.010)	(13.717)	(0.003)	(8.042)
16	No individual FEs	0.020***	44.702***	-0.008**	-9.386*
		(0.005)	(7.638)	(0.003)	(5.489)
17	Controlling for benefit duration	0.022***	50.293***	-0.010***	-10.646**
		(0.006)	(8.236)	(0.002)	(4.912)
18	Max dur*Max ben	0.022***	50.293***	-0.010***	-10.646**
		(0.006)	(8.236)	(0.002)	(4.912)
19	Duration as treatment	0.003	7.697**	-0.002	-3.275***
		(0.002)	(2.948)	(0.002)	(0.925)

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