VISITINPS

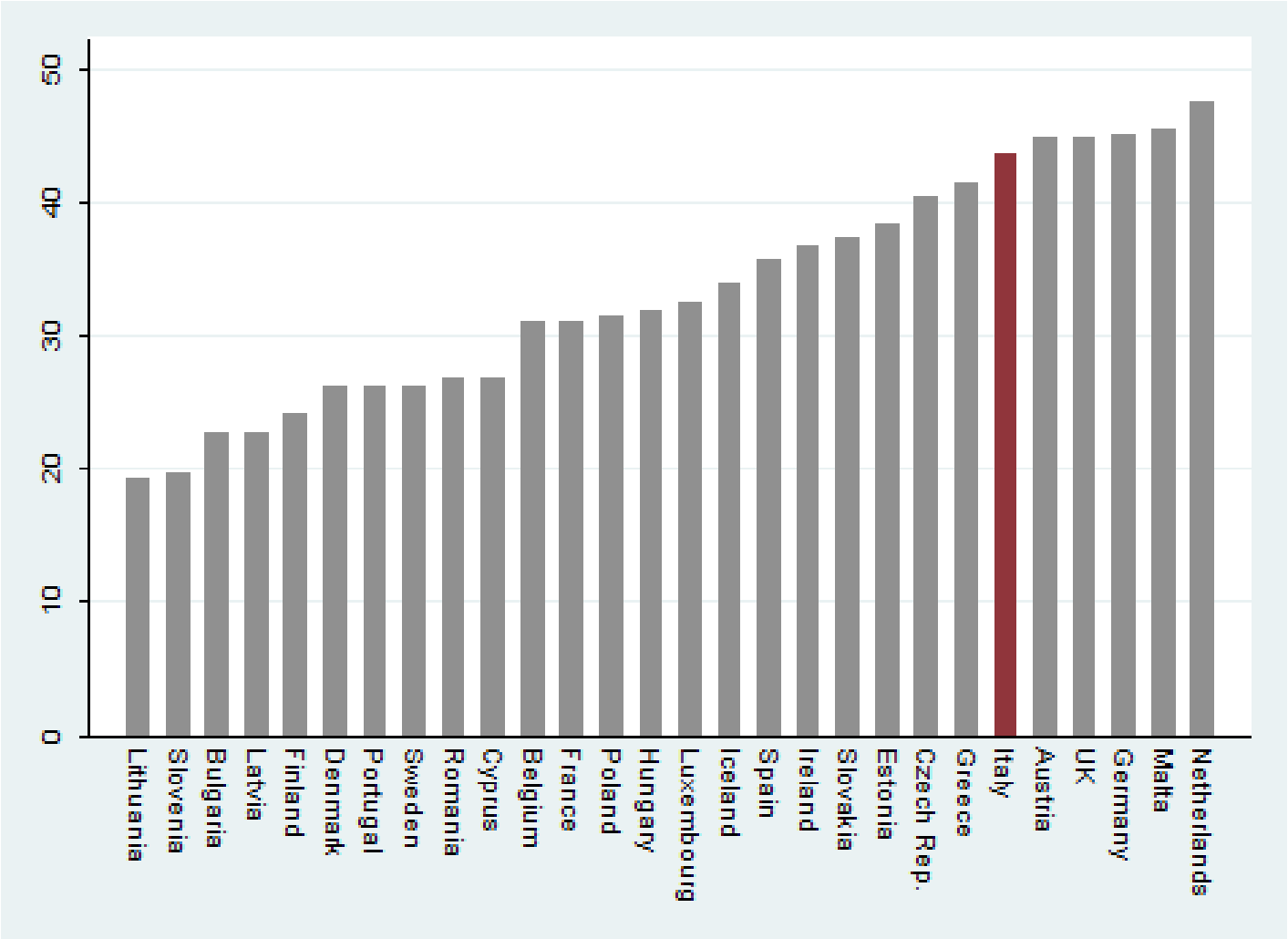
un anno dopo

formazione, ricerca e innovazione

The Labor Cost of Motherhood: Is a Shorter Leave Helpful?

Enrica Maria Martino
INED, CHILD (Collegio Carlo Alberto)

Motivation: Gender earnings gap



Eurostat data (2015)

Motivation: The Impact of Motherhood

"The Gender Pay Gap is Largely because of Motherhood"

Claire Cain Miller, New York Times
May 13, 2017

Thoka Maer

Previous research

- Quantifying the impact of motherhood on gender gap
  - Angelov et al. (2016), Kleve et al. (2016)

- Impact of fertility on labor supply
  - Eckstein e Wolpin (1989), Francesconi (2002), Bernal (2008), Del Boca e Sauer (2009), Lalive et al. (2014), Adda et al. (2017)

- Family policies
  - Childcare supply:

    Berlinski e Galiani (2007), Baker et al. (2008), Cascio (2009), Brilli, Del Boca e Pronzato (2015)
  - Parental leave:

    Kluve and Tamm (2013), Lalive et al. (2014), Schonberg and Ludstack (2014)

This paper

- What is the cost of motherhood for Italian workers?
- Does it fade over time?

- Is shorter parental leave beneficial?
  - For labor supply
  - For earnings

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- Is shorter parental leave beneficial?
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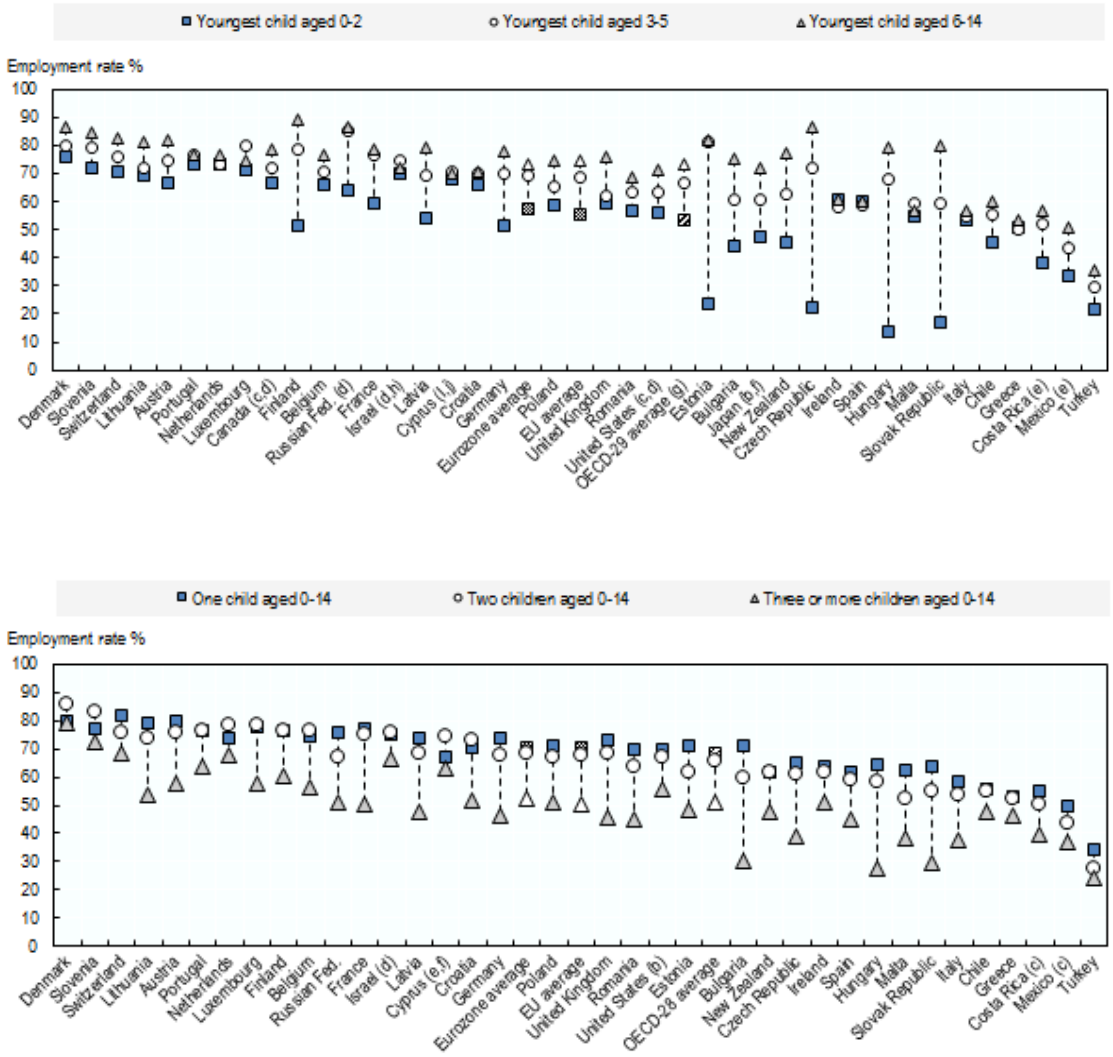
- Is shorter parental leave beneficial?
  - For labor supply
  - For earnings

  Early return to work ↑ earnings in the short run

Motivation: Maternal Employment



OECD data (2014)

Data

- Universe of Italian firms (≥ 1 employee) in the private sector
- Universe of dependent workers in the private sector
  - Monthly records 2005-2015 (yearly from 1983)
  - Detailed information about contract characteristics and leave periods
- Universe of maternity leave and parental leave records
- Universe of demands for *Bonus Infanzia*

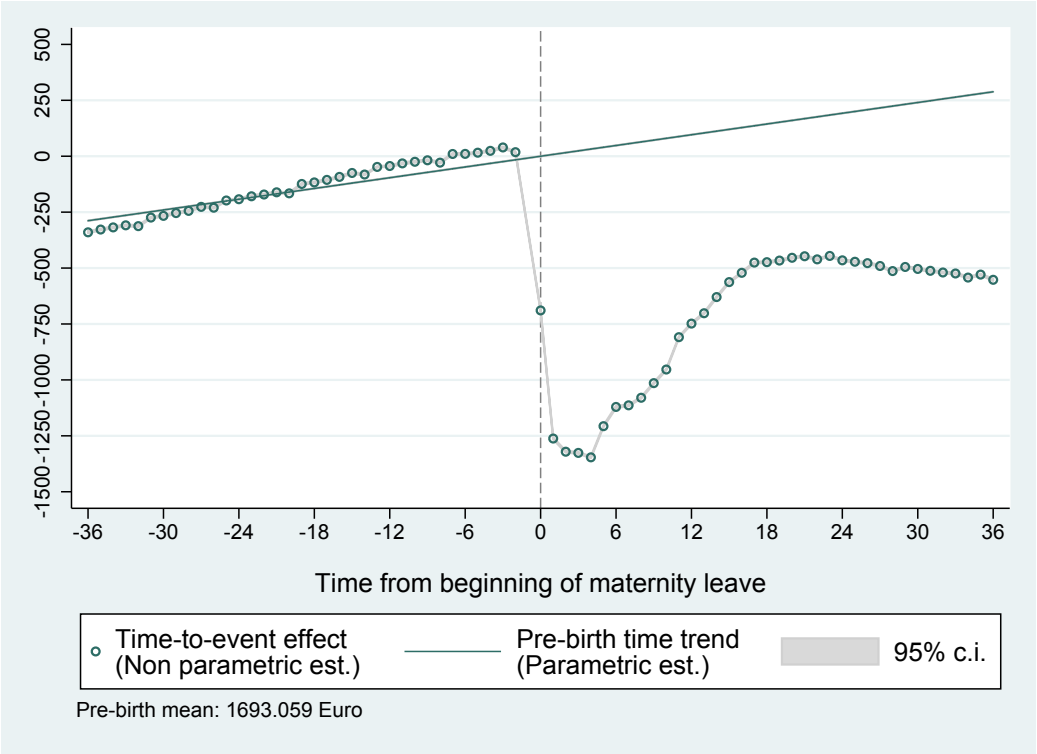
Descriptives Descriptives by *Bonus*

Institutional background

- Mandatory maternity leave $\rightarrow$ 5 months, paid 80% of previous salary
- Optional parental leave $\rightarrow \leq$ 6 months per parent, max 10 months. Paid 30% of previous salary for at most 6 months (before the child turns 6)

Parental leave

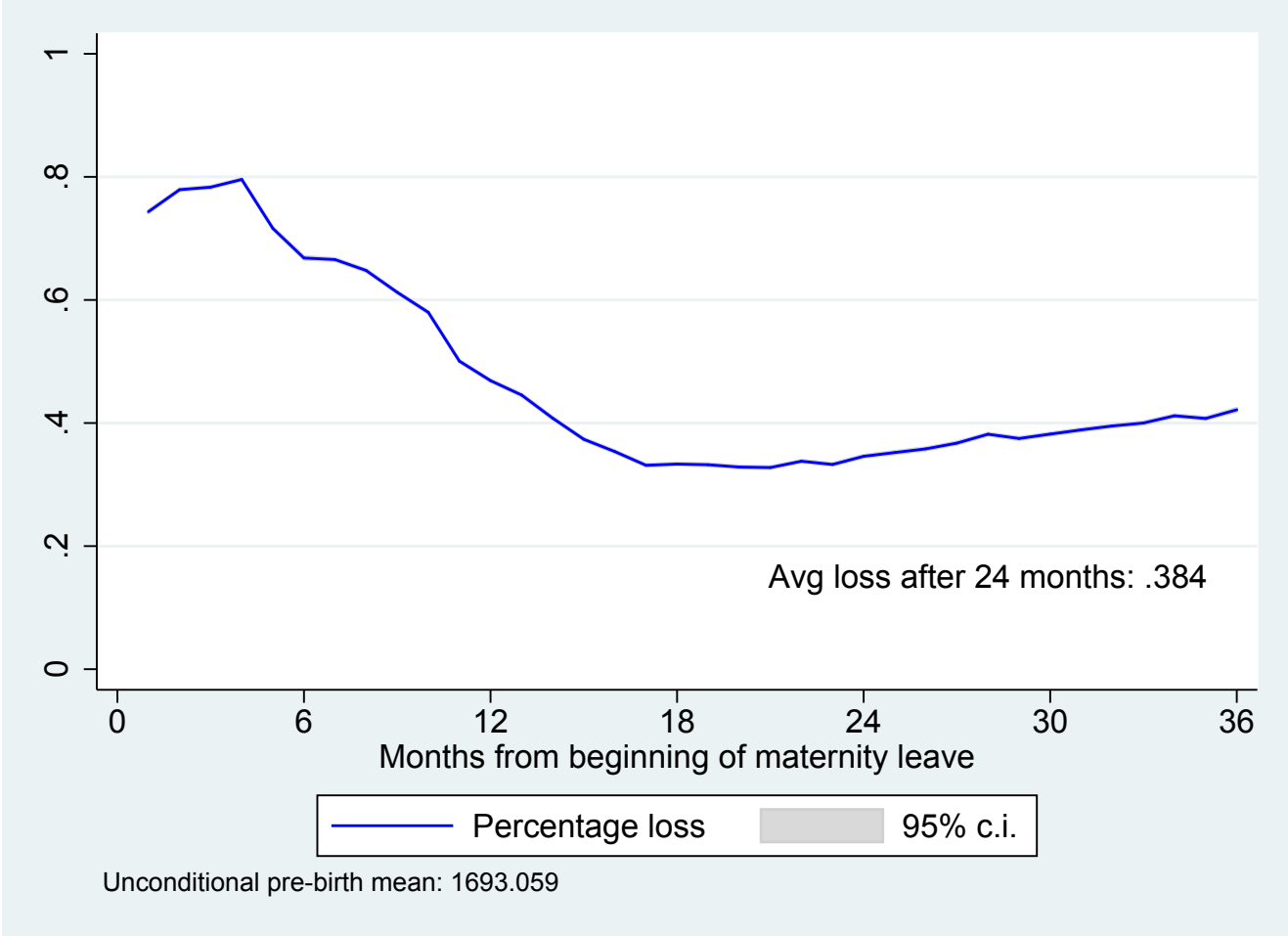
The labor cost of motherhood: Earnings around childbirth



$$Y_{irt} = \sum_{R>-1} \alpha_r \mathbb{1}[R = r] + \delta r + \eta_i + \epsilon_{irt} \tag{2}$$

Kleven&al

The labor cost of motherhood: Earnings loss (%)

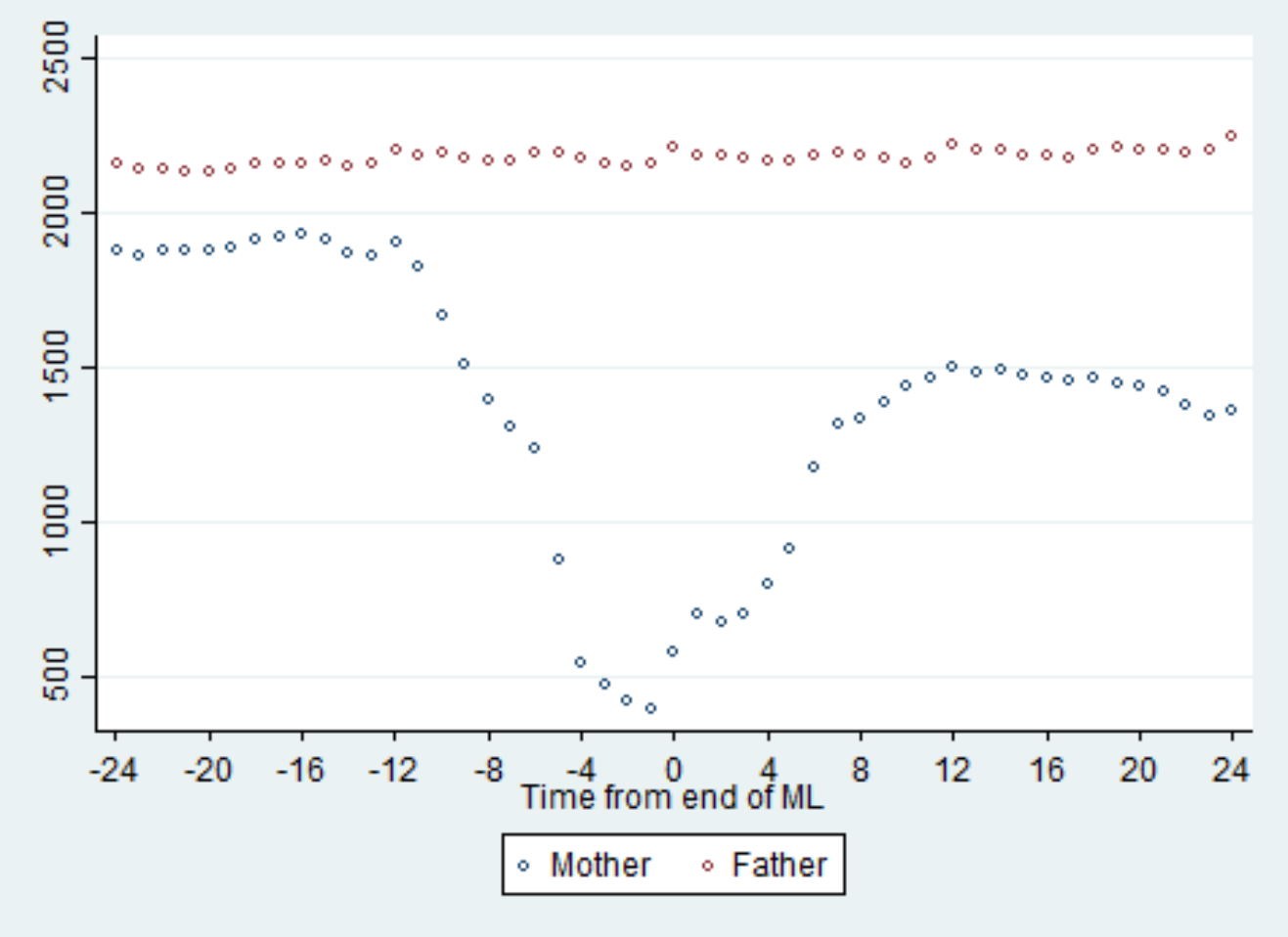


No individual FE

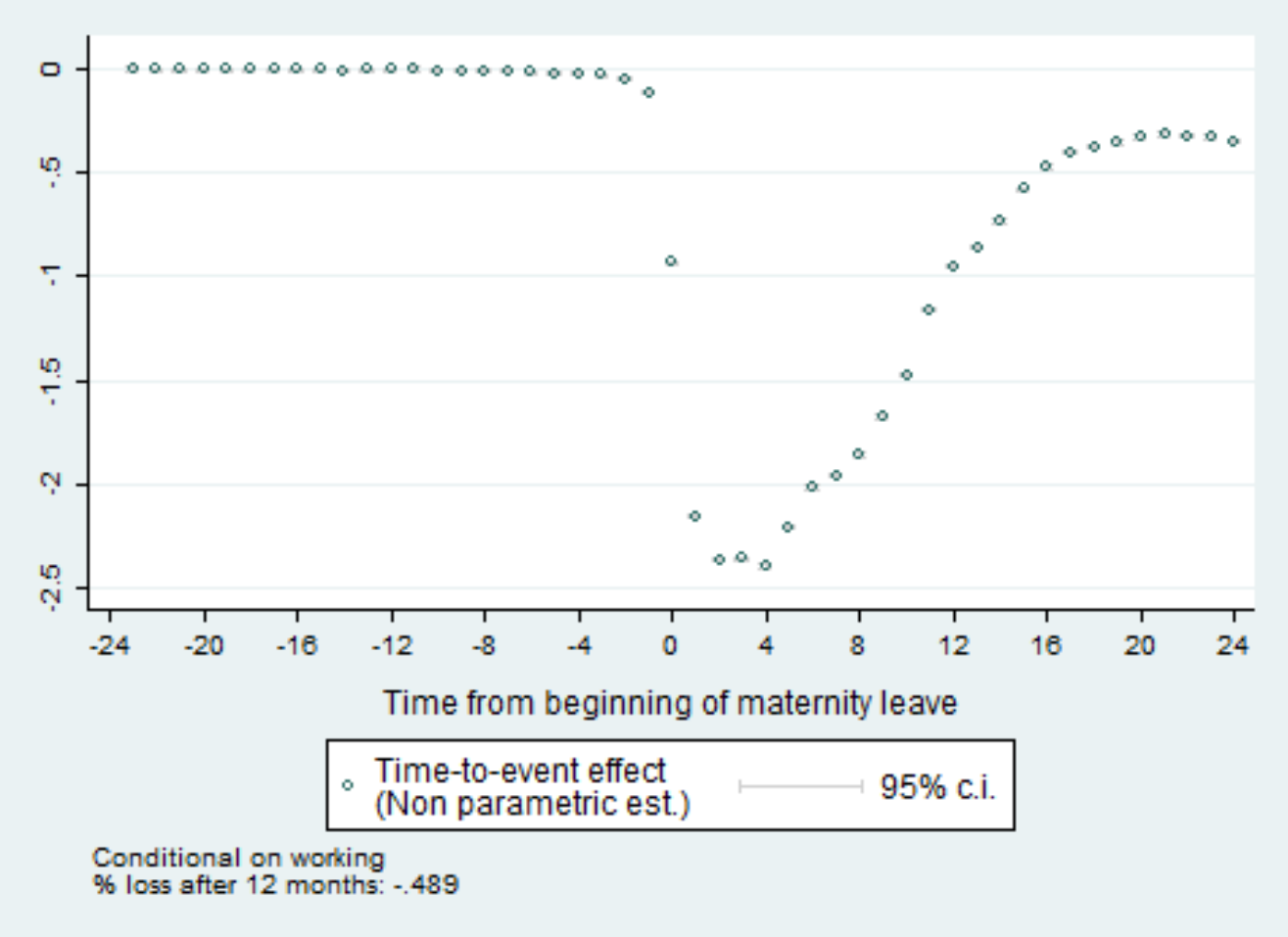
Conditional

Decomposition

The labor cost of motherhood: maternal and paternal earnings



The labor cost of motherhood: within-couple differential



Institutional background

- *Bonus Infanzia*
  - Childcare subsidy 300 (600) € /month of parental leave given up to
  - Max 6 months within 11 months from the end of mandatory maternity leave

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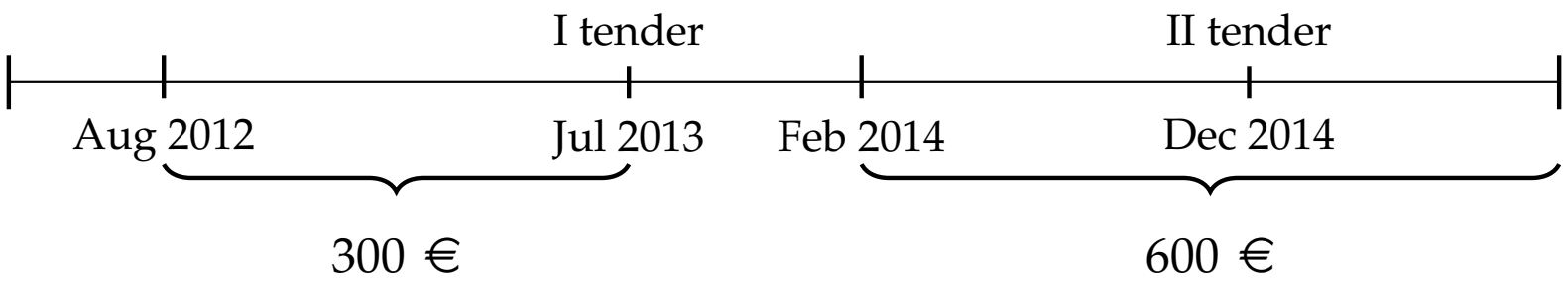
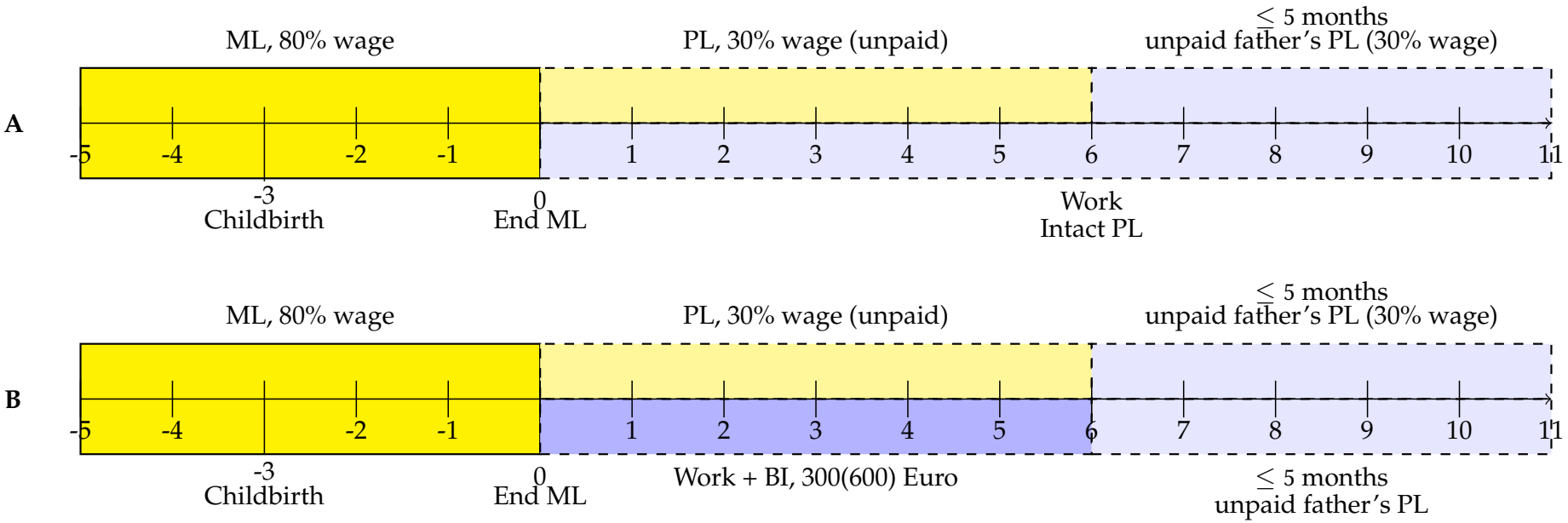
Policy time frame

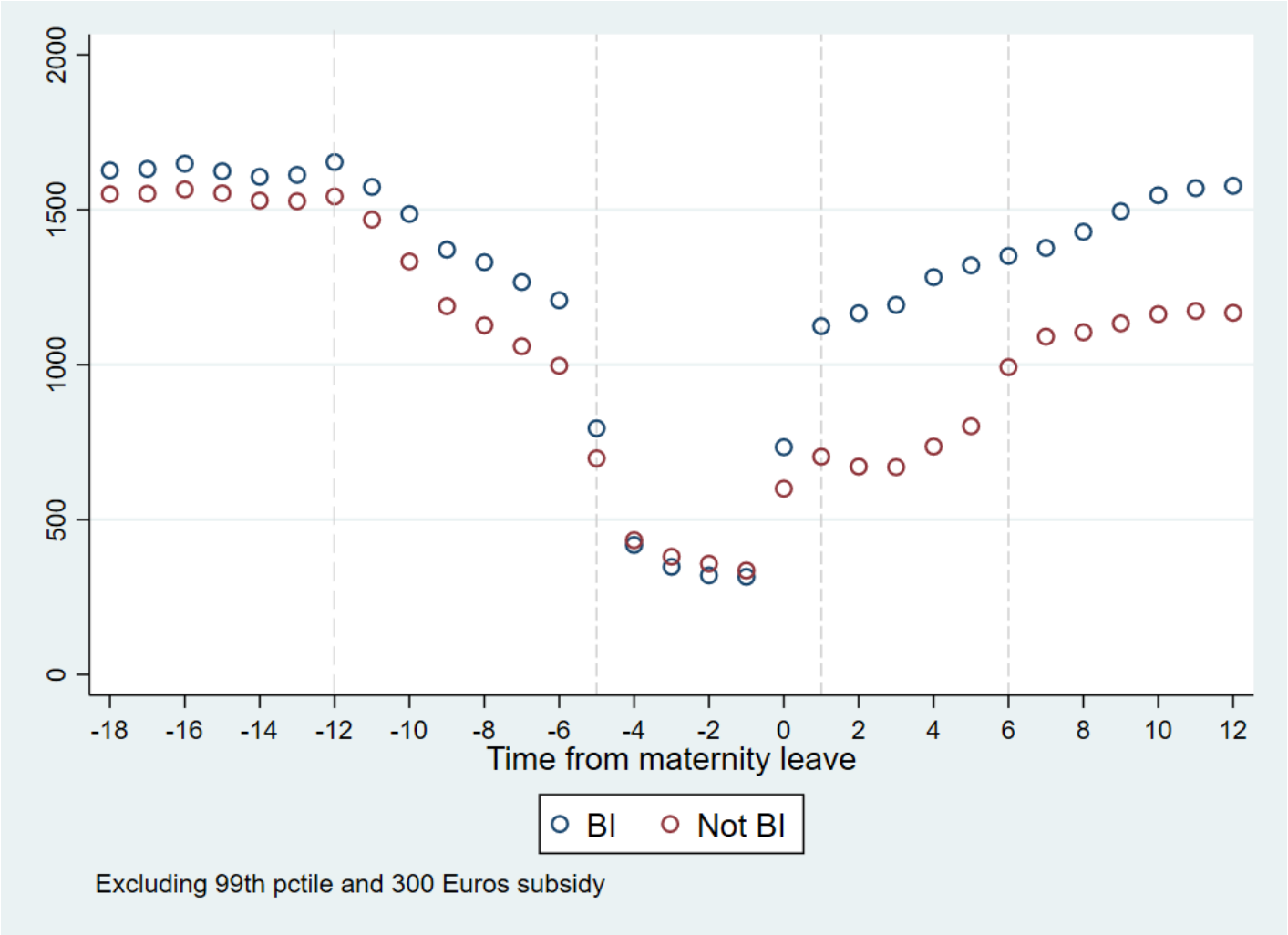


The Bonus Infanzia



Job protection around childbirth

Descriptive evidence: Unconditional earnings



Identification strategy

$$Y_{i,r} = \alpha X_{i,r} + \sum_{k=-12}^{12} \alpha_{B,r} \mathbb{1}(r = k) \times B_i + \eta_i + \eta_m + \varepsilon_{i,r}$$

- B_i: using *Bonus Infanzia*
- η_i individual fixed effect
- η_m month fixed effect
- r relative time from ML

- DiD regression

Identification strategy

$$Y_{i,r} = \alpha X_{i,r} + \sum_{k=-12}^{12} \alpha_{B,r} \mathbb{1}(r = k) \times B_i + \eta_i + \eta_m + \varepsilon_{i,r}$$

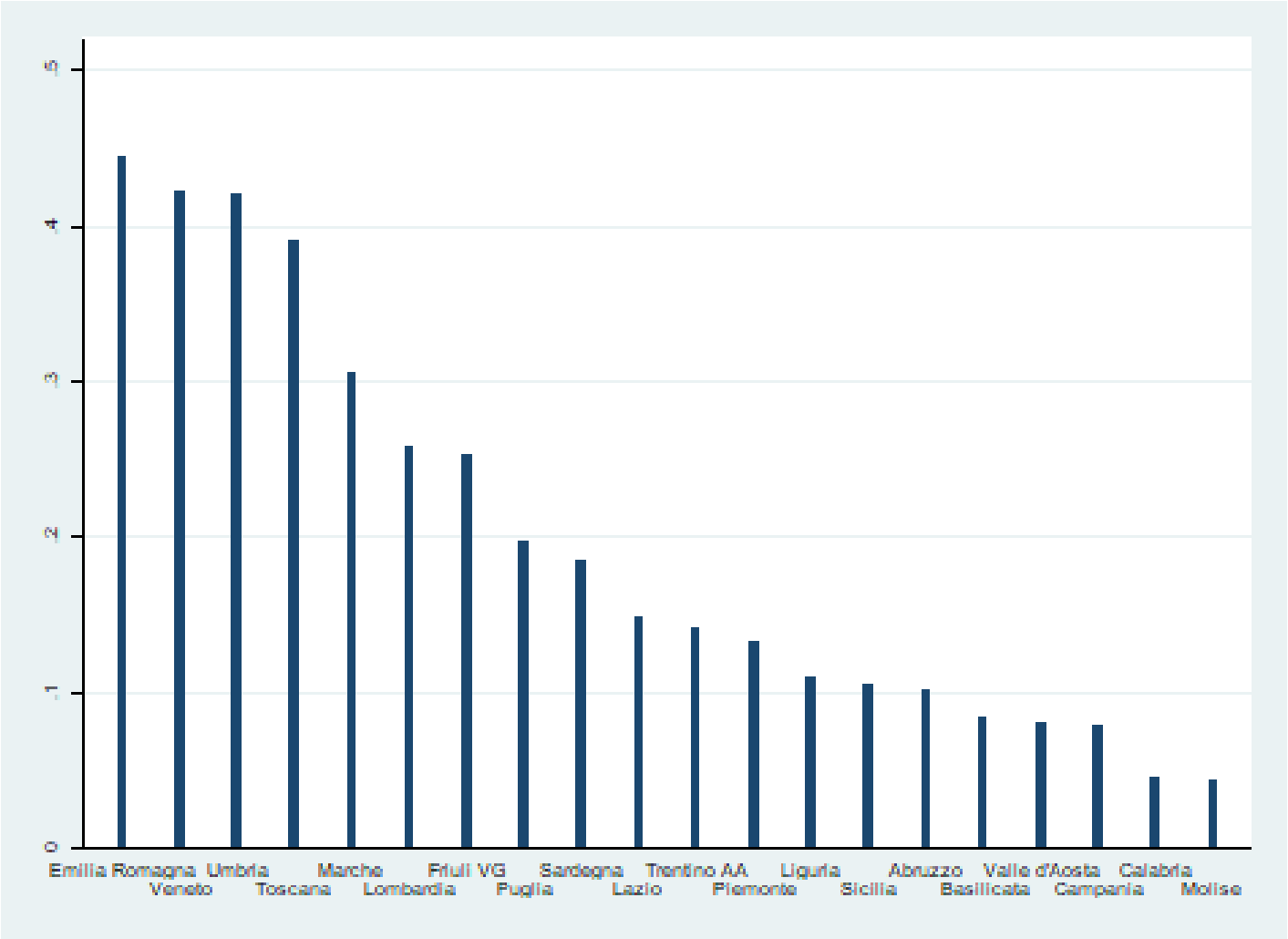
- B_i: using *Bonus Infanzia*
- η_i individual fixed effect
- η_m month fixed effect
- r relative time from ML

- DiD regression
- IV regression

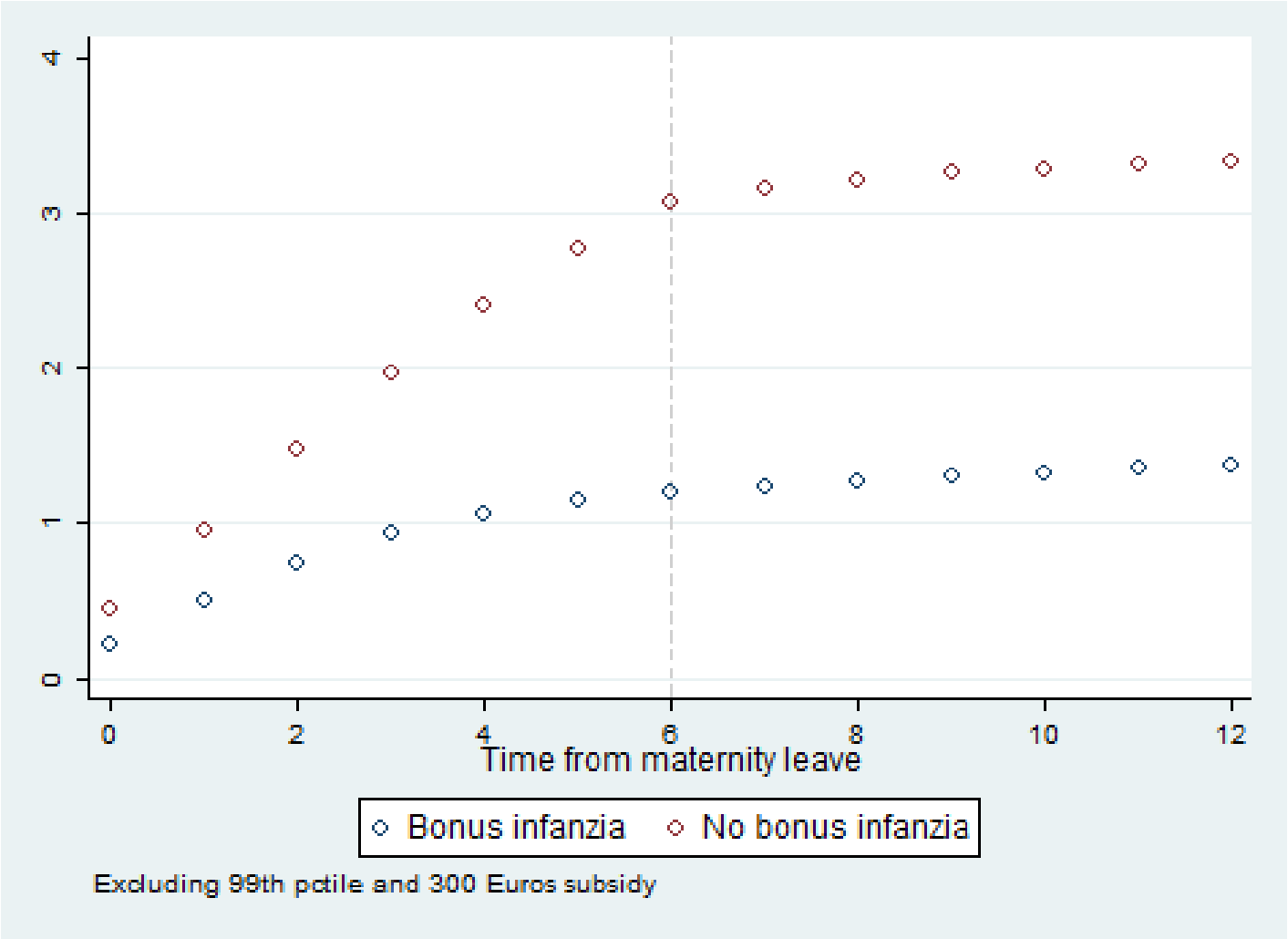
$$B_{i,c,t} = \delta_1 X_{i,c,t} + \delta_2 E_{i,t} + itc_{i,c} + \eta_i + \eta_m + \xi_{i,c,t}$$

- Eligibility: $E_{i,t,r} = 1$ if the woman entered ML in line with eligibility requirements
- $itc_{i,c}$: number of infant toddler centers adhering to the policy in the municipality of residence of the woman
  (+ add control for regular supply of ITCs at the municipal level)

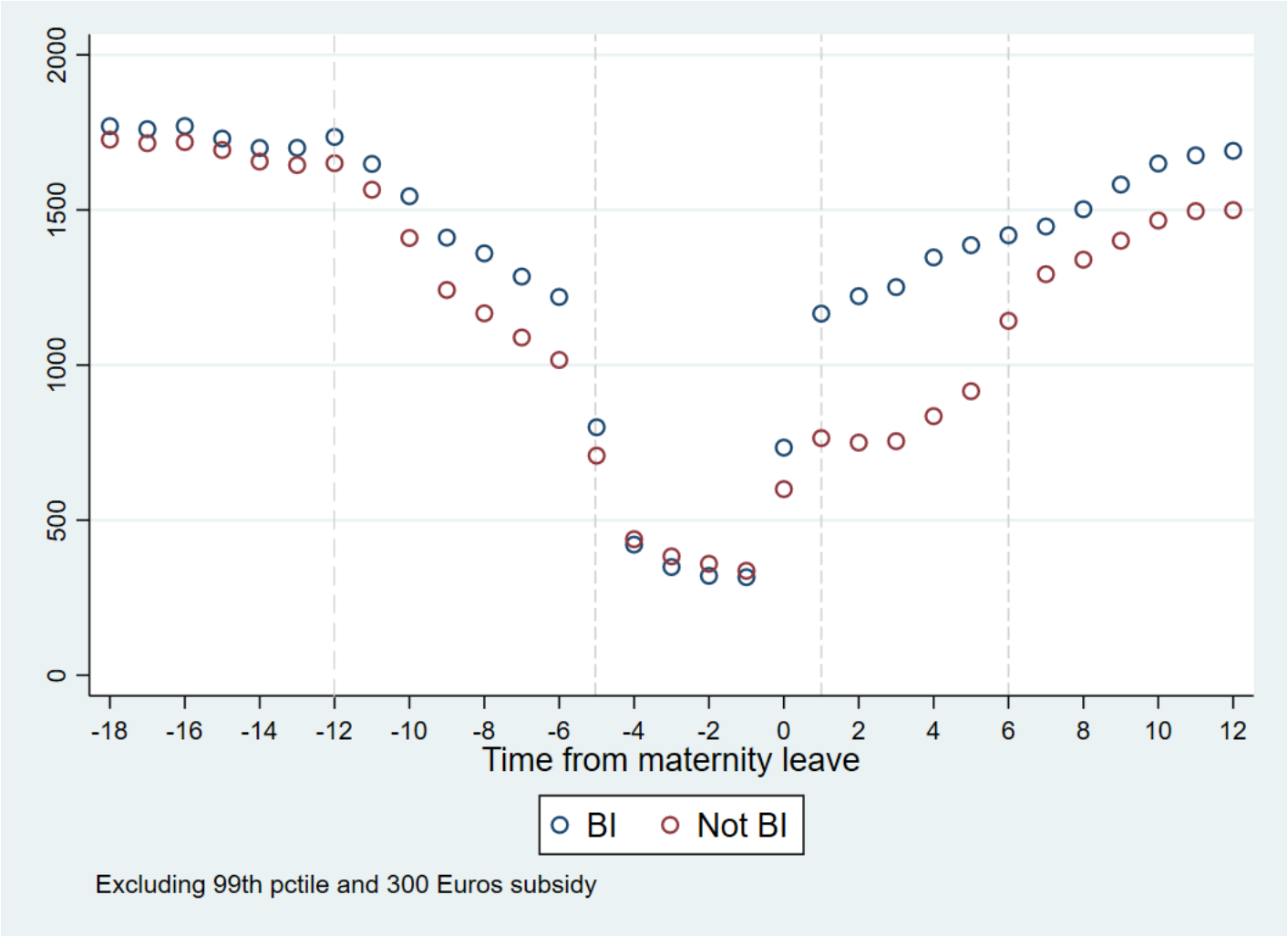
Municipality with BI supply by region (%)



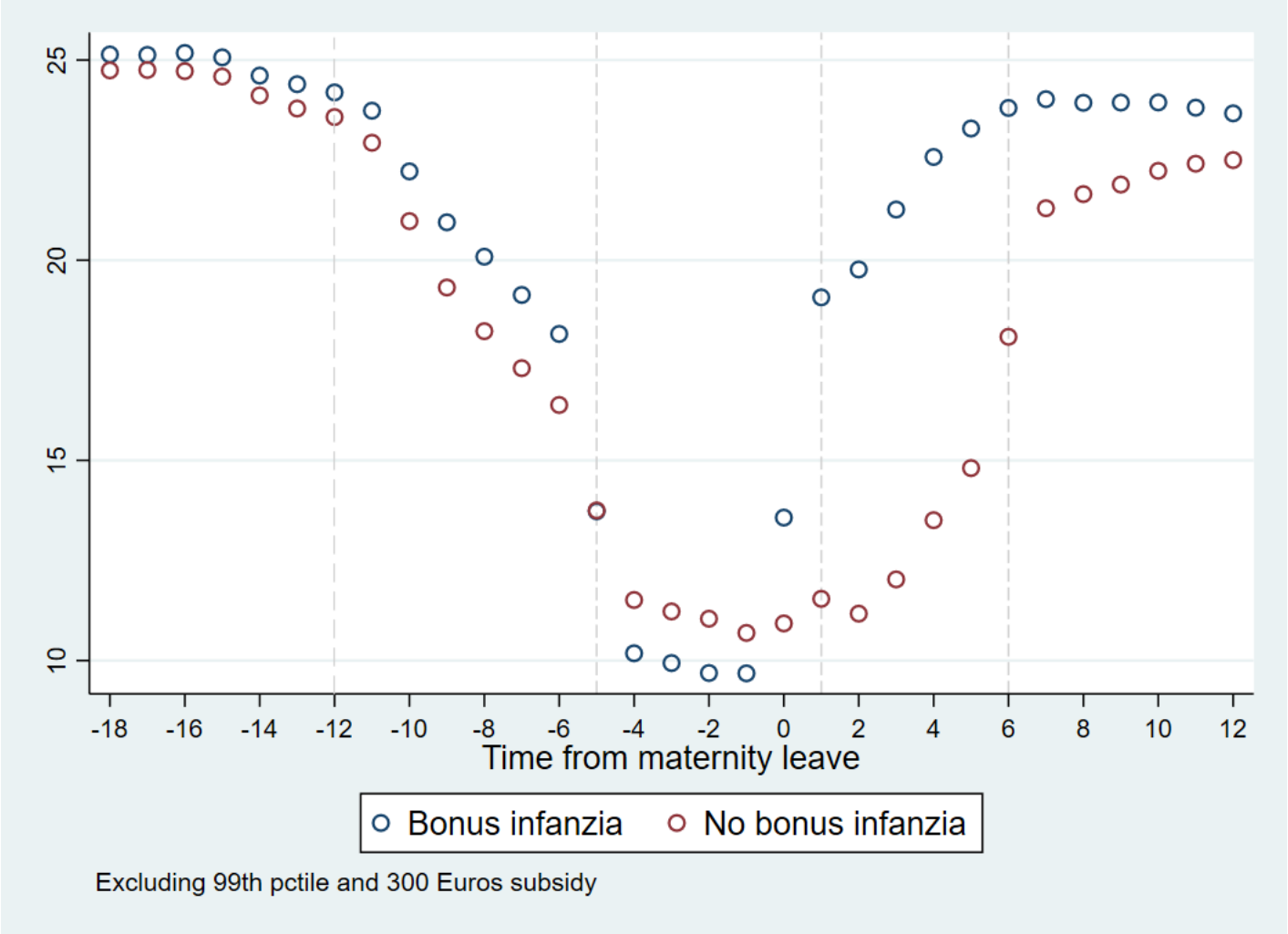
Descriptive evidence: Parental leave



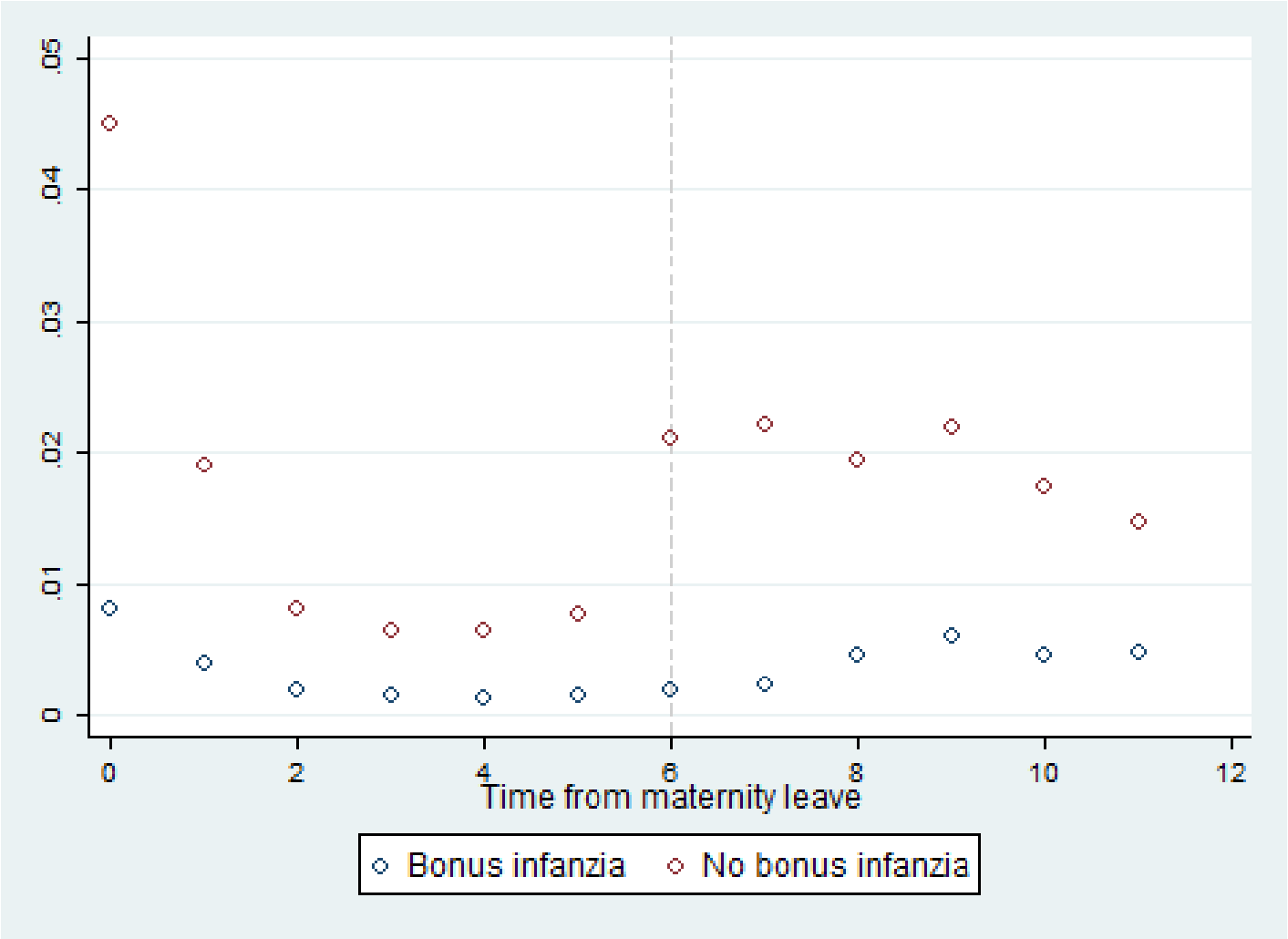
Descriptive evidence: Conditional earnings



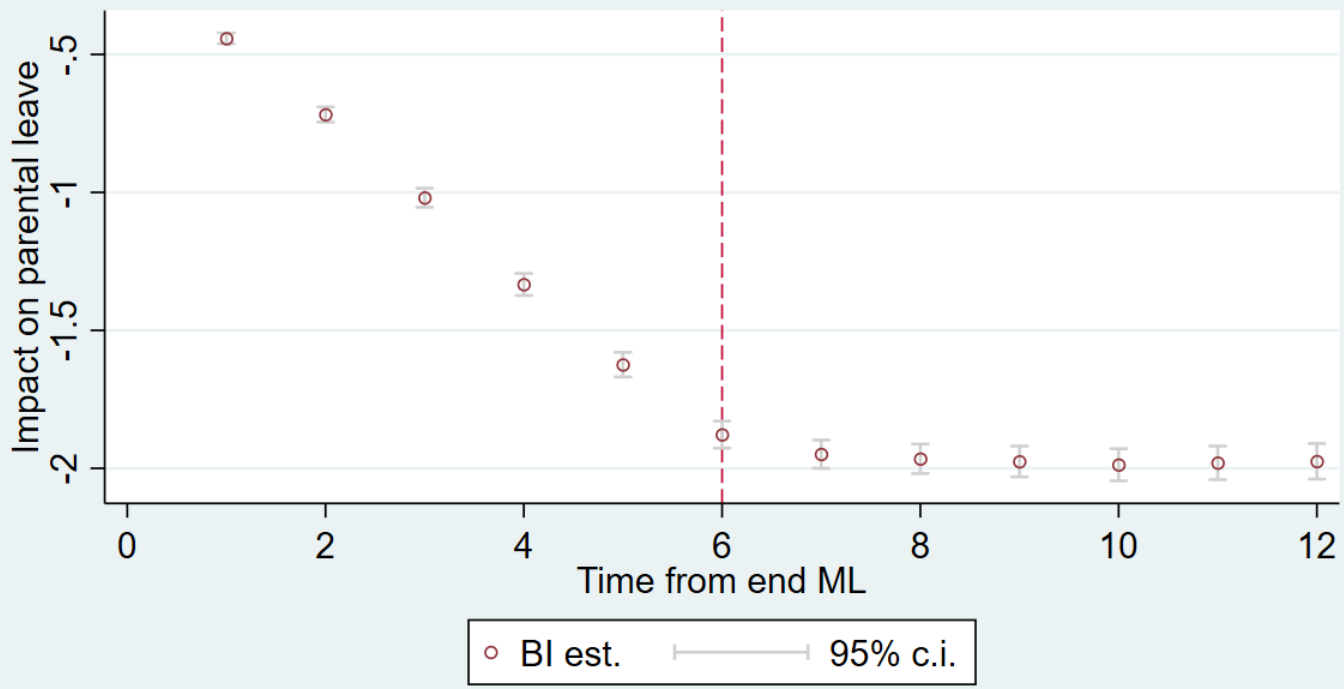
Descriptive evidence: Conditional days of work



Descriptive evidence: Exit rate



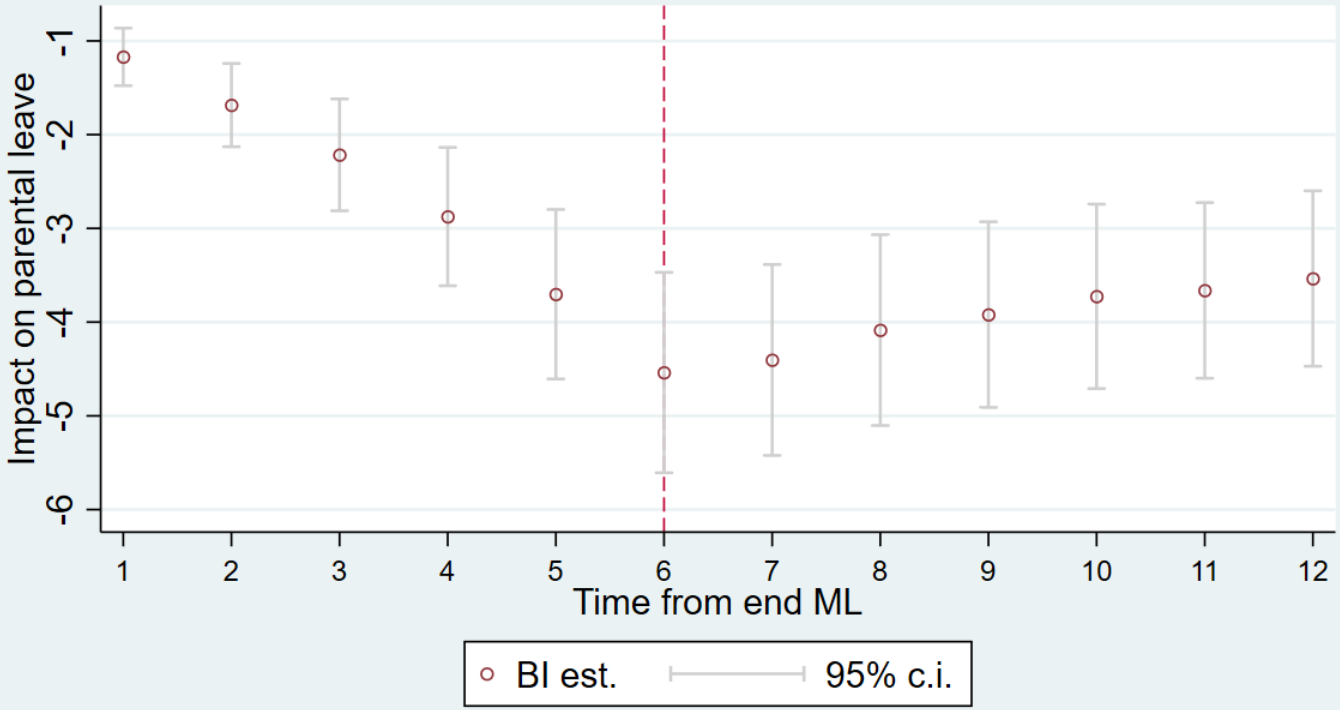
Parental leave: OLS



Controls included: quadratic in age, work experience,
type of contract, occupation and sector dummies,
firm size, avg age in the firm, % of women in the firm.
Province and month fixed effects included.
Robust standard errors.
Excluding 99th pctile and 300 Euros subsidy.

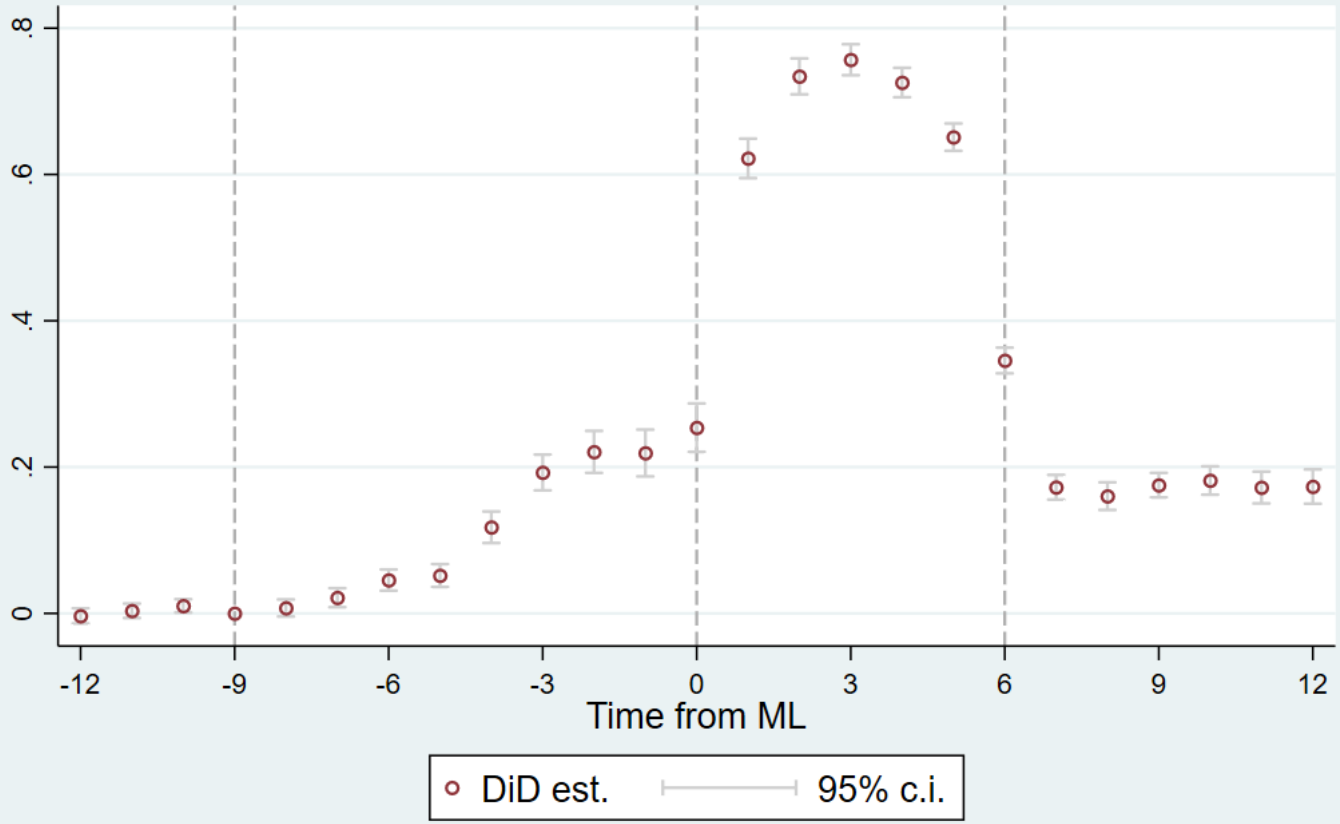
The graph reports coefficients from separate regressions of the treatment on log earnings at different time periods.

Parental leave: IV



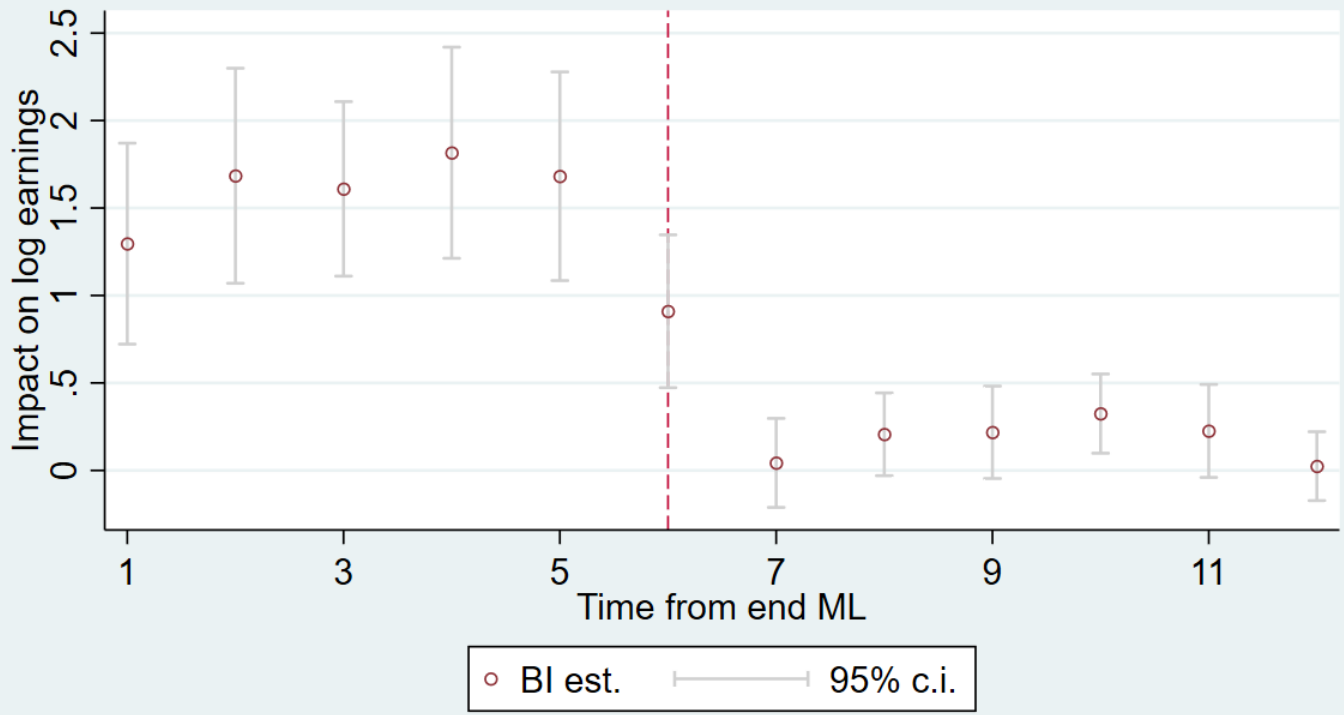
Controls included: quadratic in age, work experience,
type of contract, occupation and sector dummies,
firm size, avg age in the firm, % of women in the firm,
childcare supply at municipality level.
Month and province fixed effects included.
Errors clustered at municipal level.
Excluding 99th pctile and 300 Euros subsidy.
Reference period: 9 months before childbirth.

Conditional earnings - DiD estimates



Individual and month fixed effects included;
errors clusterd at the individual level.
Excluding 99th pctile of earnings and 300 Euros subsidy.
Reference period: 9 months before childbirth.

Conditional earnings - IV estimates



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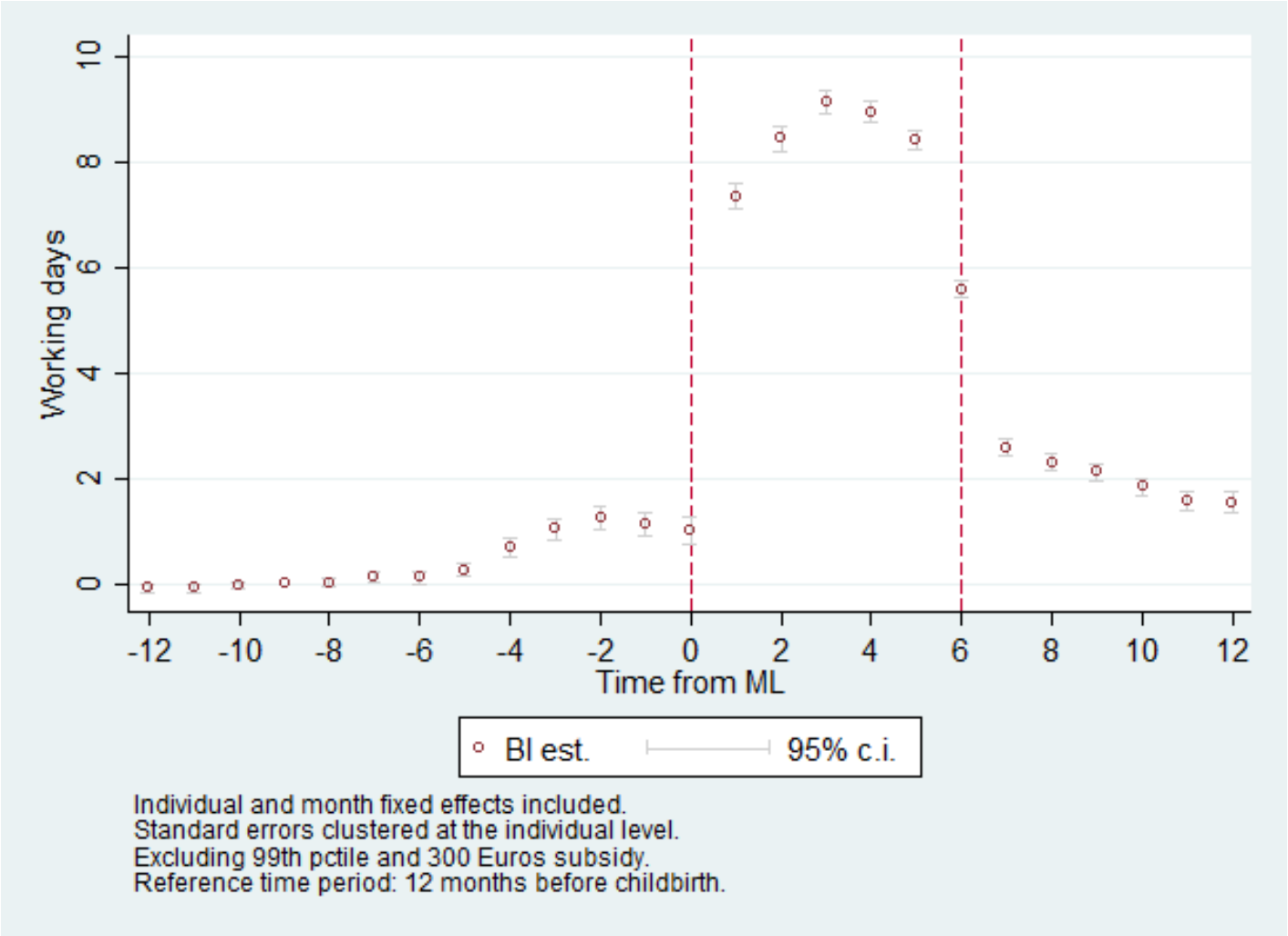
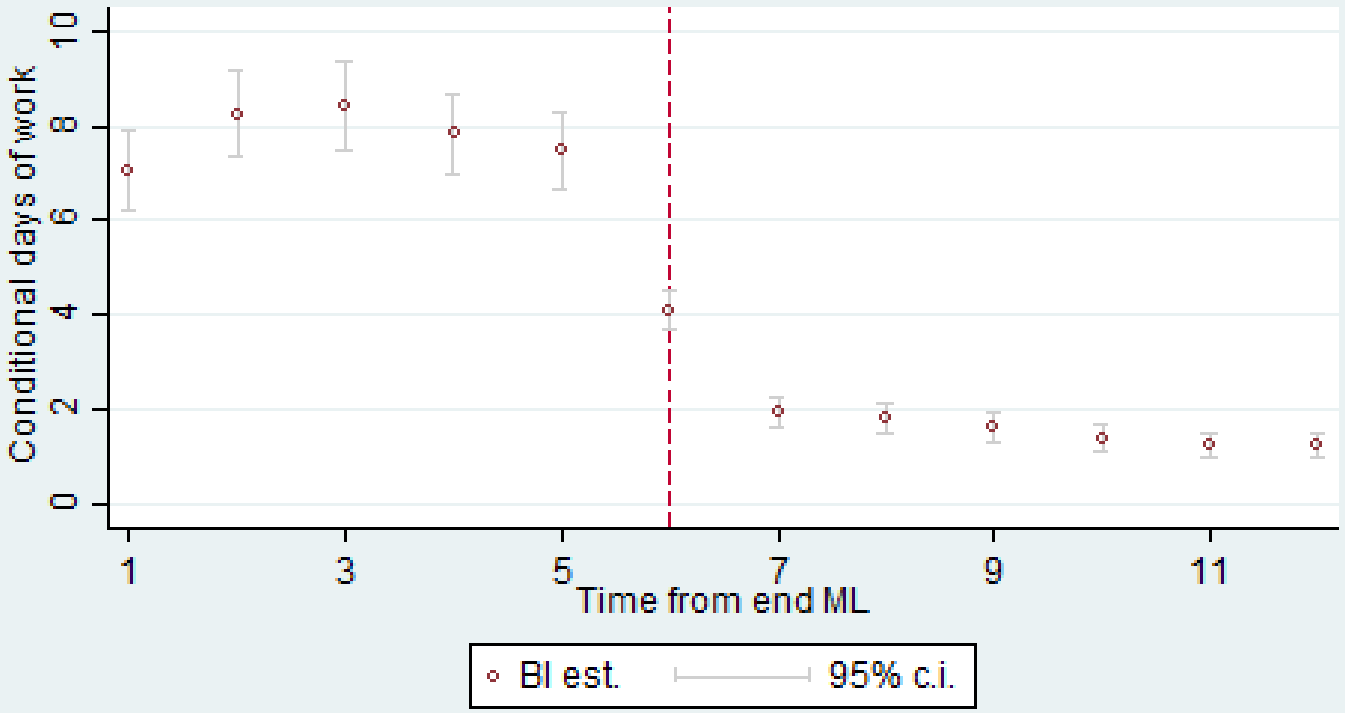
childcare supply at municipality level.
Month and province fixed effects included.
Errors clustered at municipal level.
Excluding 99th pctile and 300 Euros subsidy.
Reference period: 9 months before childbirth.

Working days - DiD estimates



Working days - IV estimates



Controls included: quadratic in age, work experience,
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firm size, avg age in the firm, % of women in the firm,
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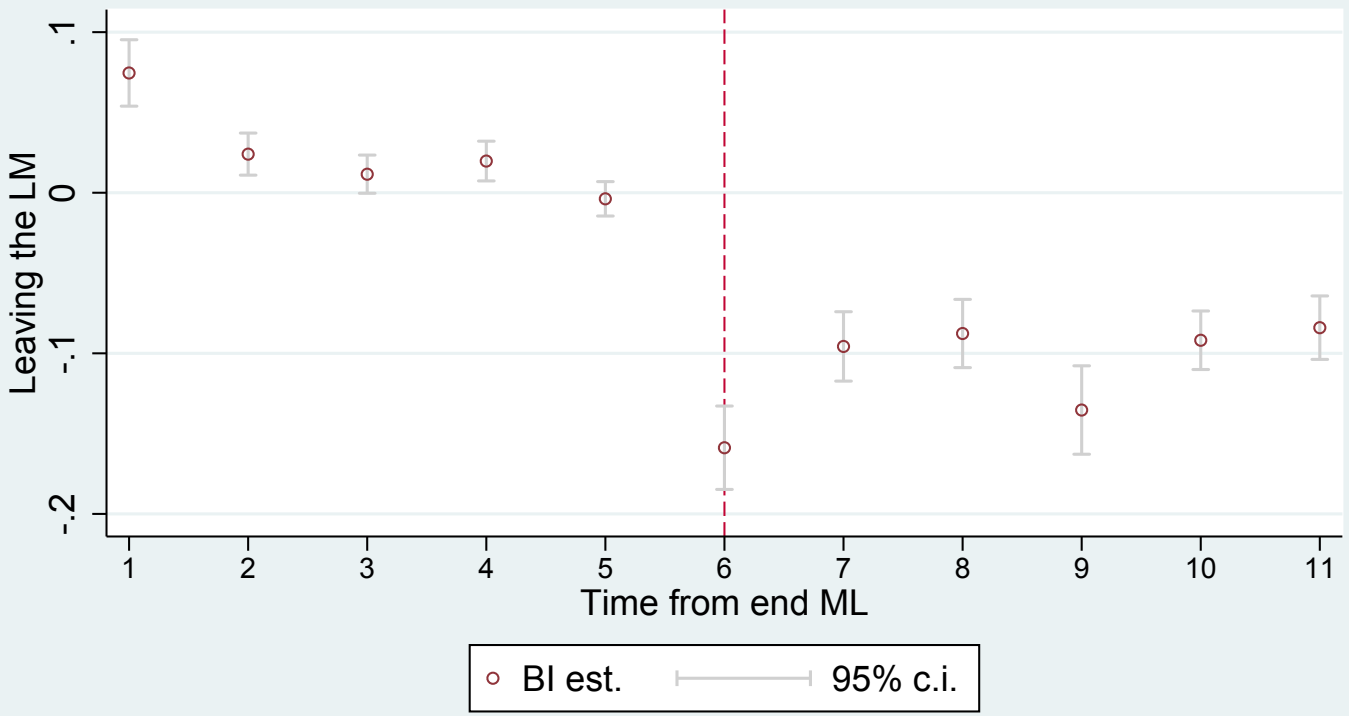
Month and province fixed effects included.
Errors clustered at municipal level.
Excluding 99th pctile and 300 Euros subsidy.
Reference period: 9 months before childbirth.

Exit rate



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Month and province fixed effects included.
Errors clustered at municipal level.
Excluding 99th pctile and 300 Euros subsidy.
Reference period: 9 months before childbirth.

Regression results

	DiD		IV	
	Short run	Long run	Short run	Long run
Parental leave	-1.165***	-1.973***	-3.93***	-4.02***
	(.008)	(.012)	(.405)	(.495)
			430.016	376.442
Exit probability	-0.008***	-0.13***	-0.004	-0.098***
	(.0002)	(.0004)	(.004)	(.007)
			406.928	364.905

Short run: up to 6 months after end ML;
Long run: 6-12 months after end ML.

Regression results

	Short run	Long run
Unconditional earnings	282.289***	127.825***
	(7.299)	(11.526)
Log earnings	0.461***	0.099***
	(.001)	(.012)
Days of work	6.192***	1.089***
	(.082)	(.100)

Short run: up to 6 months after end ML;
Long run: 6-12 months after end ML.

Conclusions

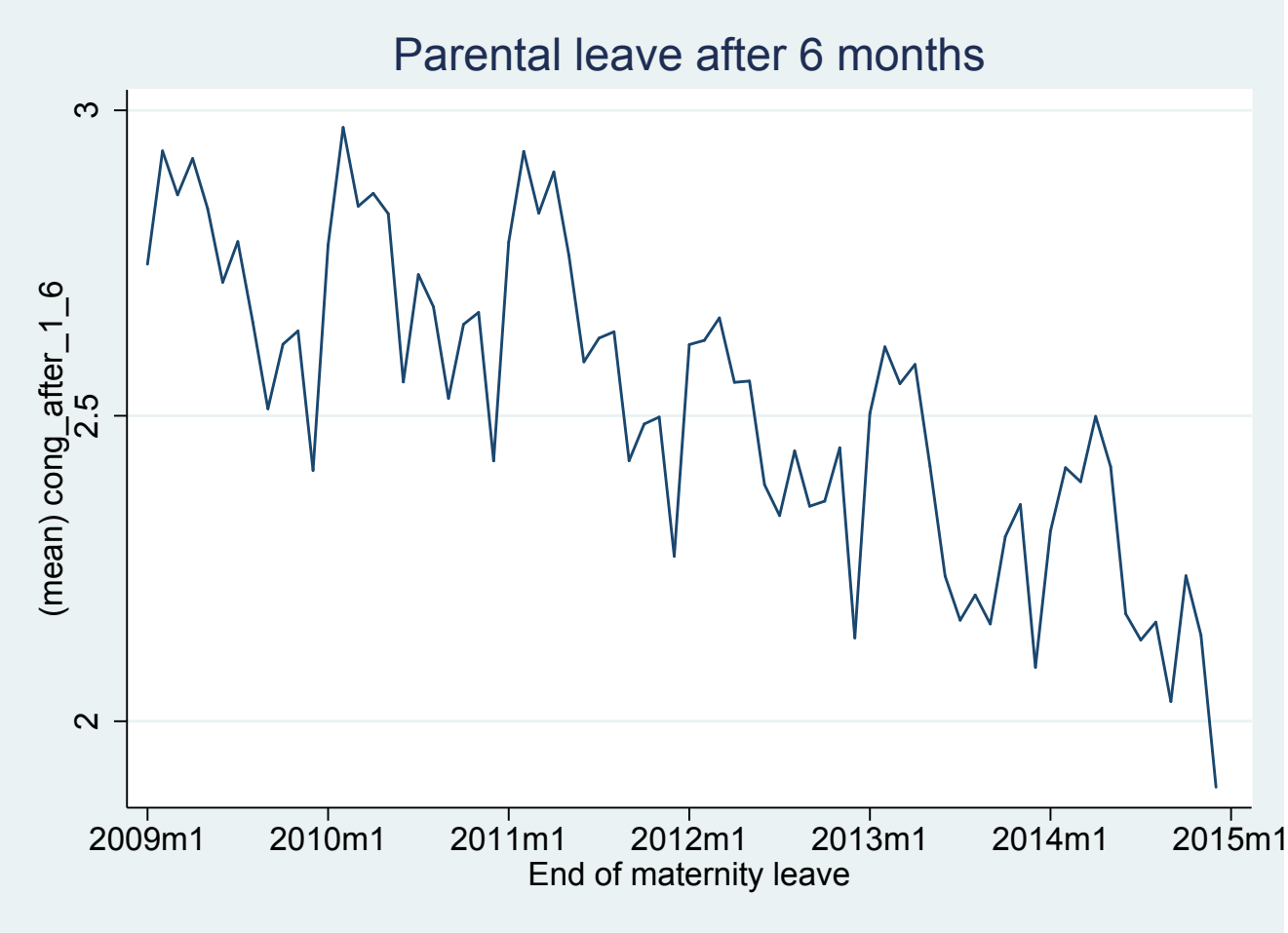
Analysis of administrative data to estimate
the cost of a child on maternal labor market outcomes

- Event study approach
  - 10% earning penalty in the medium run
- Evaluation of *Bonus Infanzia*
  - Earlier return to work significantly improves earnings in the short run

Thank you!

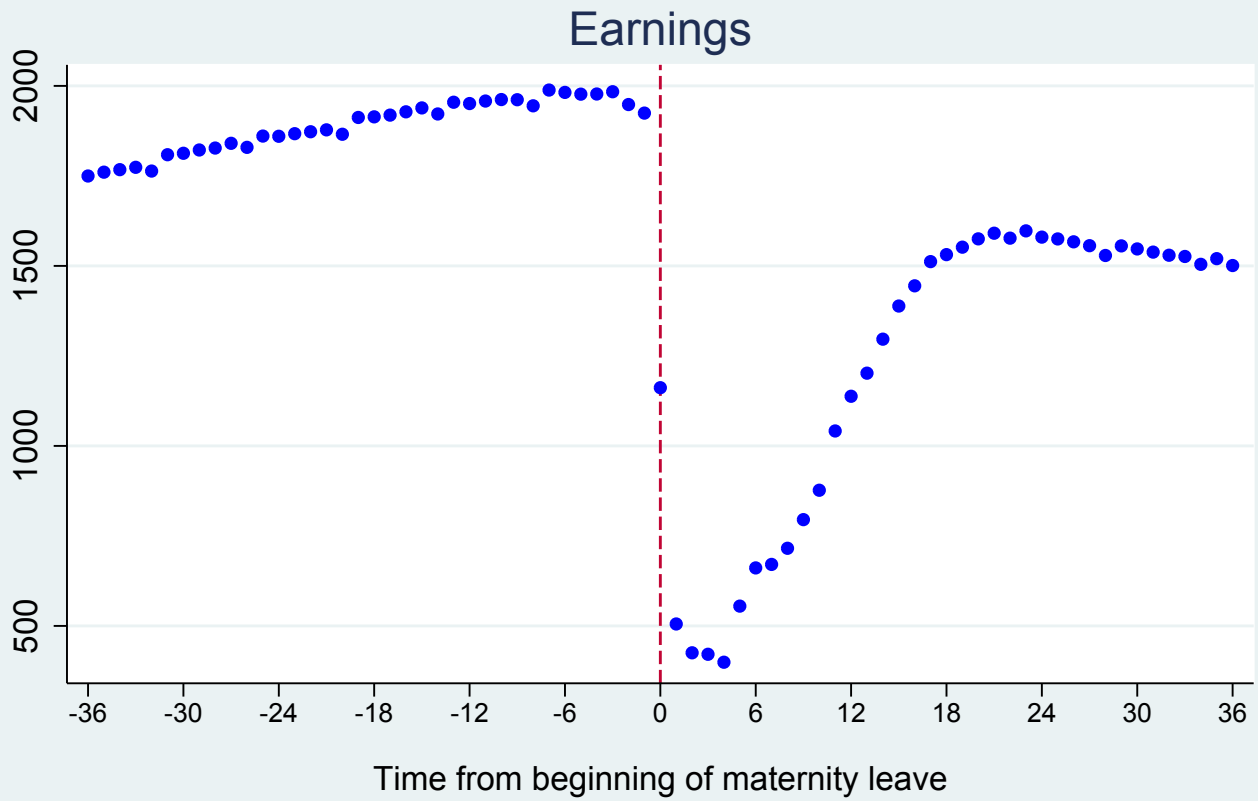
Appendix

Parental leave in Italy



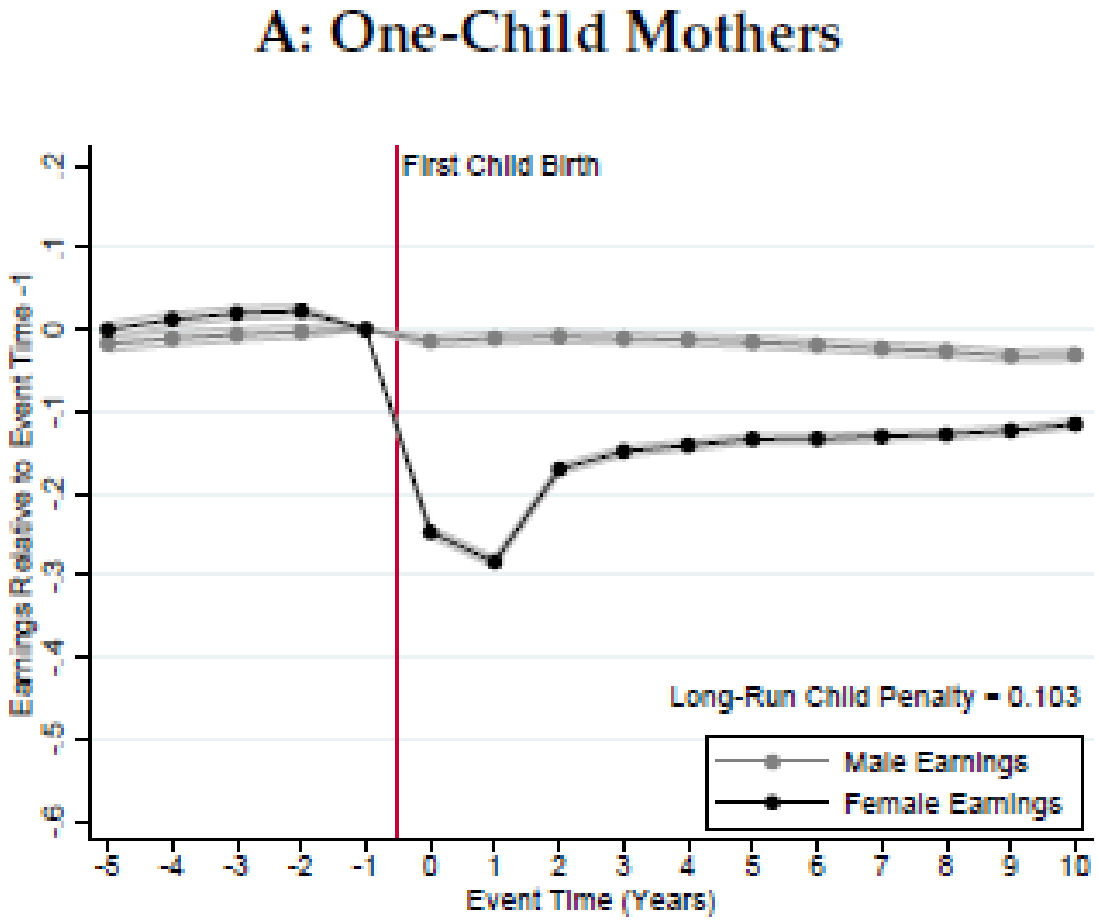
Parental leave 6 months after ML

Earnings around childbirth



Raw data
Source: INPS

Kleve et al. (2017)



Data

	Pre ML	After 6	After 12
	Demographics		
Age	31.4	32.8	33.4
Immigrants	0.11	0.11	0.10
North-East	0.27	0.26	0.26
North-West	0.33	0.35	0.35
Center	0.20	0.20	0.20
South	0.18	0.19	0.19
	Labor market		
Tenure	25.8	35.6	39.7
LM exp.	41.4	56.8	63.3
No. jobs	4.0	3.9	3.9
No. firms	2.5	2.4	2.4
Obs.	651,512	673,182	639,424

Pre ML refers to 6 months before the beginning of ML

Data

	Pre ML	After 6	After 12
	Job		
Permanent	.89	.96	.97
Earnings	1,844	623	1,079
Wage	1,254	1,643	1,564
Full time	.71	.70	.69
Working hs	23.6	34.9	34.7
Days of work	24.7	10.8	16.1
Blue collar	.31	.31	.31
White collar	.60	.62	.63
Trainee	.08	.06	.06
Industry	.24	.24	.24
Sales	.30	.29	.29
Services	.39	.39	.40
Obs.	651,512	673,182	639,424

Pre ML refers to 6 months before the beginning of ML

Descriptive statistics by use of BI

	Pre ML		After 6		After 12	
	Bonus	Non bonus	Bonus	Non bonus	Bonus	Non bonus
			Demographics			
Age	32.0	31.7	33.6	33.3	34.0	33.8
Immigrants	.10	.12	.10	.12	.10	.12
North-East	.18	.25	.19	.24	.19	.25
North-West	.29	.34	.29	.34	.29	.35
Center	.25	.21	.25	.21	.25	.22
South	.28	.20	.28	.20	.27	.19
			Labor market			
LM exp.	127	123	172	161	192	178
No. firms	1.48	1.36	1.45	1.28	1.45	1.31
No. jobs	1.03	1.02	1.02	1.02	1.02	1.02
Not employed	.05	.07	.05	.13	.07	.22
			Job			
Earnings (uncond.)	1,709	1,617	1,373	1,011	1,596	1,188
Earnings (cond.)	1,795	1,732	1,437	1,159	1,708	1,519
Wage	1,564	1,548	1,689	1,554	1,613	1,532
Permanent	.93	.91	.97	.97	.96	.95
Full time	.68	.68	.67	.68	.62	.57
Days worked	25.2	24.7	23.8	18.1	23.7	22.5
Hours of work	34.4	31.1	34.3	34.2	33.7	32.8
Blue collar	.19	.32	.18	.30	.17	.30
White collar	.71	.60	.74	.63	.76	.65
Industry	.20	.23	.20	.24	.21	.25
Manifacturing	.07	.09	.07	.09	.06	.08
Finance	.05	.05	.05	.05	.06	.05
Tertiary	.68	.63	.67	.62	.67	.61
Obs.	11,620	912,271	9,427	854,811	7,257	803,456

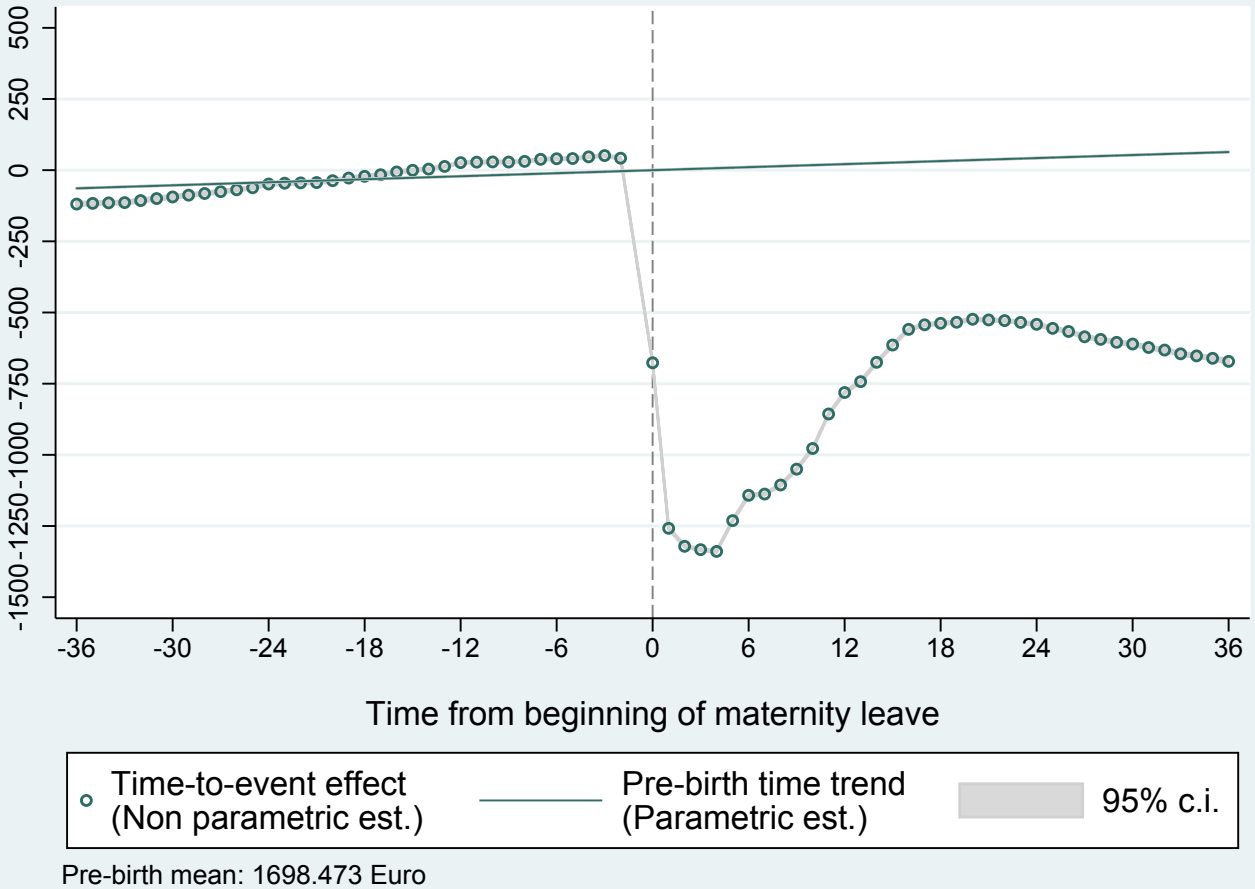
Pre ML refers to 6 months before the beginning of ML

Descriptive statistics by eligibility

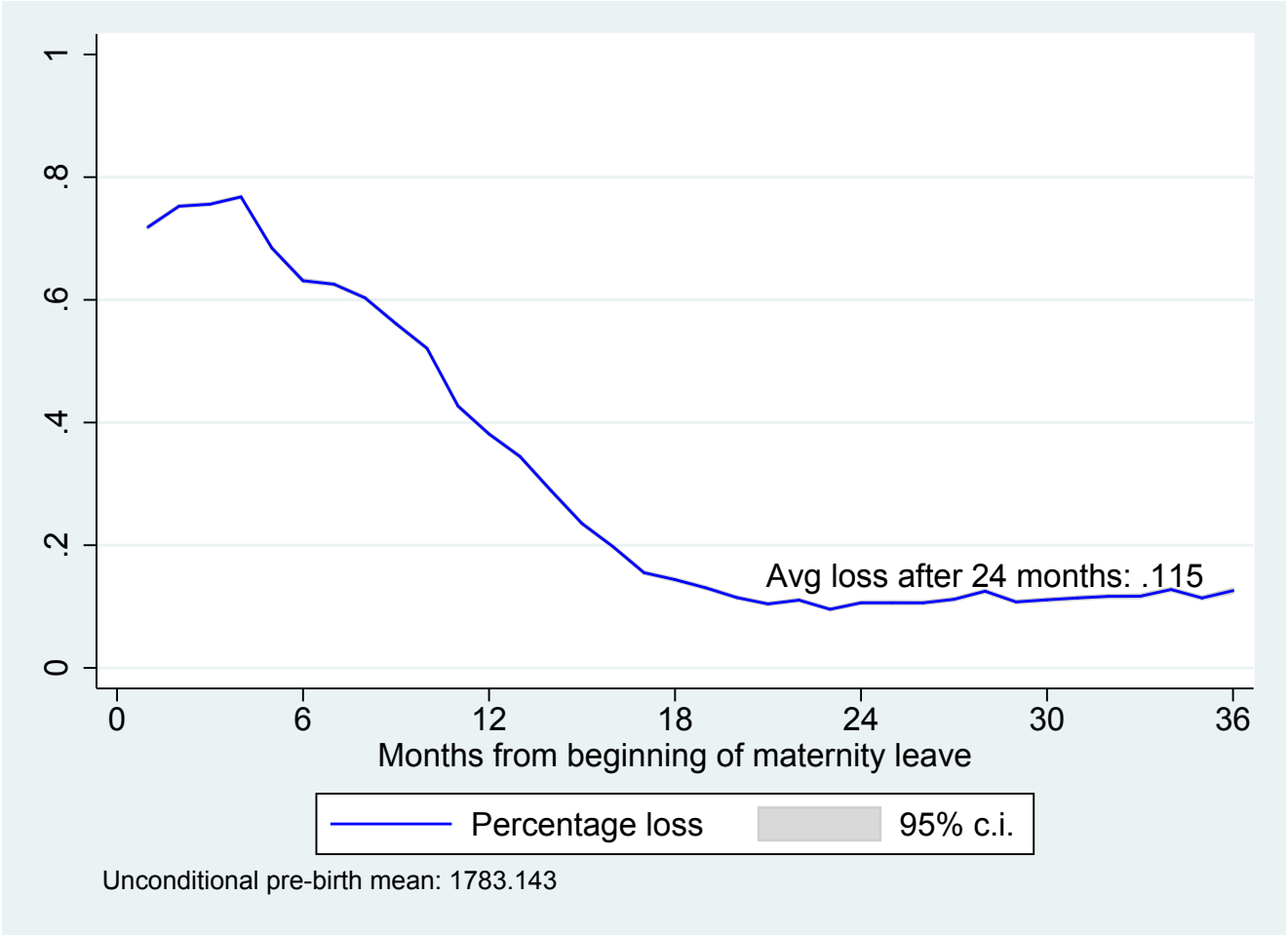
	Non elig.	Elig.
Demographics		
Age	31.5	31.6
Immigrants	.12	.12
North-East	.21	.21
North-West	.07	.07
Center	.24	.24
South	.45	.45
Labor market		
LM exp.	113.4	115.8
No. firms	1.02	1.03
No. jobs	1.3	1.5
Not employed	0.08	0.08
Job		
Earnings (uncond.)	1,601	1,539
Earnings (cond.)	1,747	1,672
Wage	1,537	1,492
Permanent	.91	.91
Full time	.70	.66
Days worked	24.6	24.5
Hours of work	27.37	33.99
Blue collar	.32	.31
White collar	.60	.60
Industry	.24	.21
Manifacturing	.10	.09
Finance	.05	.05
Tertiary	.61	.65
Obs.	518,111	405,924

Variables refer to 12 months before end ML

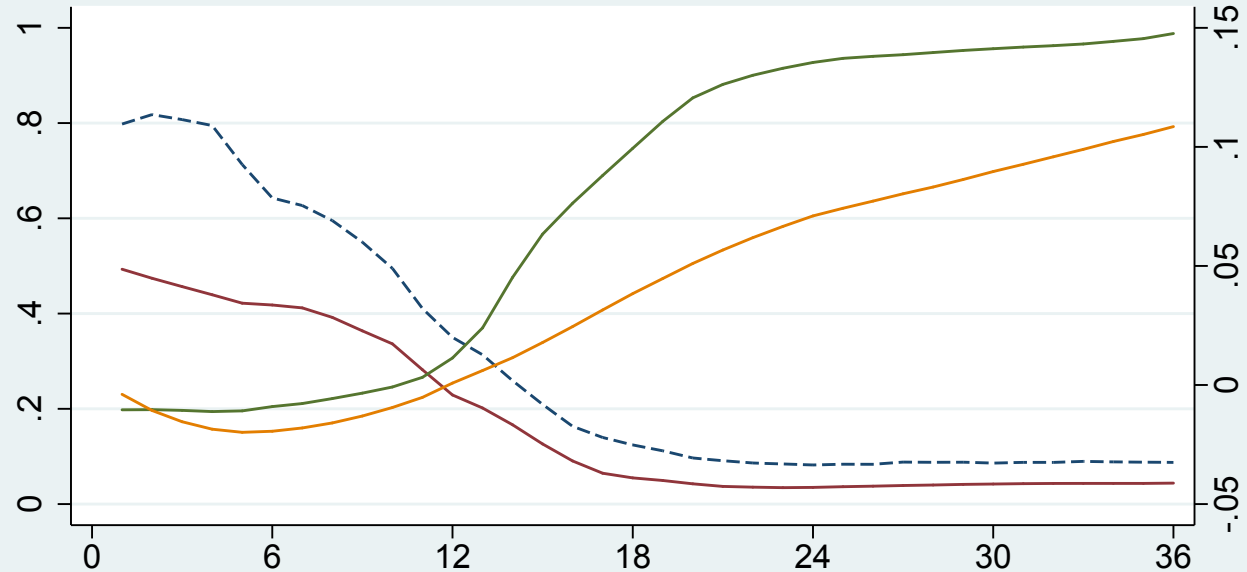
Earnings loss around childbirth: no FE



Conditional earnings loss around childbirth



Earnings loss around childbirth: decomposition



Pre-birth mean:
Earnings 1553.487
Days 27.757
Full time .848
Permanent contract .977

Avg loss after 24 months:
Earnings .087
Days .041
Full time .141
Permanent contract .09

Previous research - II

Table 6: The career cost of children - percentage loss in net present value of income at age 15, with and without fertility.

	Percentage loss compared to baseline
Total cost	-35.3%
Oaxaca decomposition of total cost	
Labor supply contribution	-27%
Wage contribution	-8.5%
Oaxaca decomposition of wage contributions	
Contribution of atrophy	-1.8%
Contribution of other factors	-6.7%
Contribution of occupation	-1.6%
Contribution of other factors	-7%

Notes: The career costs are evaluated using simulations and comparing the estimated model with a scenario where the woman knows ex-ante that she cannot have children. The costs are computed as the net present value of female incomes, including all wages, unemployment benefits and maternity benefits in the calculations. The discount factor is set to 0.95 annually. Initial occupation is the one in the no-fertility scenario.

Adda et al. (2017)

←