# The Impact of Family Policies on the Dynamics of Gender Inequality

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# Gender Inequality and Family Policies

▶ Evidence that children/parenthood explains most of the remaining gender inequality in modern societies

  ▶ Large and persistent *child penalties* on women's careers

  ▶ Debate about mechanisms

▶ Large expansions of family policies over the last 50 years

  ▶ Maternity and parental leave policies

  ▶ Child care provision and subsidization

▶ Impact of these policies on gender gaps is still debated

  ▶ Widespread belief that family policies could be helpful

  ▶ But also a concern that some policies may have backfired

# Family Policies and Child Penalties

- ► Most of the literature estimates the contemporaneous impact of policy on female labor supply or earnings

- ► Given child penalties are now understood to explain most of the gender inequality, we study
  - ► Child penalities as our outcome
  - ► The dynamic impacts on career paths of women relative to men

- ► Enables us to map estimates back into cross-sectional gender inequality

# The Parental Leave / Child Care Provision Bundle

► Most of the literature focuses on specific familiy policies in isolation

► But parental leave and child care provision are in practice a bundle of policies

   ► There may be complementarities/cross effects btw the two

► We analyze these two policies together

   ► Study both policies and their potential interaction within a single empirical setting

# Uniquely Rich Quasi-Experimental Variation

- Rich quasi-experimental variation in Austria:
  - Multiple parental leave reforms at different baseline levels (RD)
  - Local child care expansions (DiD a la Duflo 2001)

- Combined with administrative data including very rich information on child care provision

- Effects on child penalties:
  - **Parental leave:** Negative short-run effect; no long-run effect (Marginal treatment effect is declining in baseline level)
  - **Child care:** Very small effect, if any
  - **Interaction:** None
  - **Bottom line:** Family policy has had little effect on gender inequality

# Context and Data

# The Austrian Context

- A gender conservative environment:
  - Total gender gap in earnings: $\approx$35% `Gender Gaps`
  - Relatively low female LFP
  - Prevalence of conservative gender norms `Elicited Values`

- Generous maternity leave policy:
  - Up to 30 months, with replacement rate $\approx$40% net median female earnings
  - Multiple reforms of parental leave over last 30 years
    - 1990, 1996, 2000, 2008

- Institutional child care provision before age 5:
  - **Nurseries (age 1-2)**: limited provision $\approx$15% of children
  - **Kindergarten (age 3-5)**: more widespread $\approx$75% of children

# Data

- **ASSD**: Universe of matched employer employee data 1980-2017
  - Info on annual earnings + labor contract start/end dates
  - Detailed geographical info on place residence
- Linking children to parents:
  - ASSD: information on child births for women
  - Tax data: link fathers to mothers and child
- **Detailed municipality level data on child care provision**
  - For all child care institutions (nurseries and kindergarten), info on number of teachers and legal max # of children per teacher

# Child Penalties

# Child Penalty in Earnings
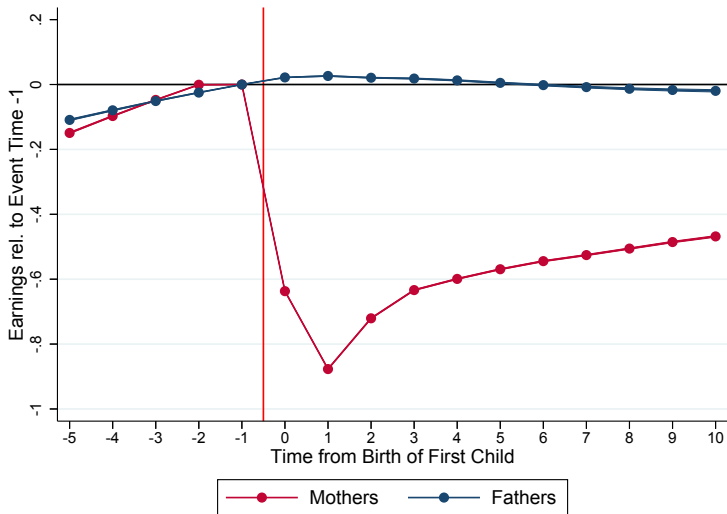
# Child Penalty in Extensive Margin Labor Supply
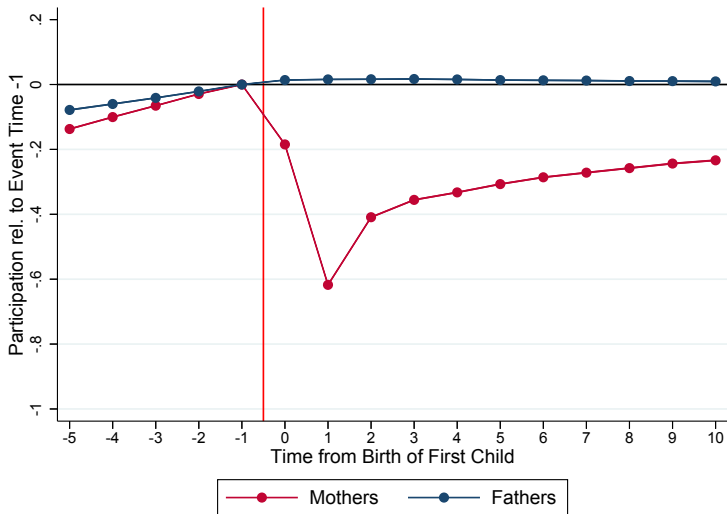
# Child Penalty in Intensive Margin Labor Supply
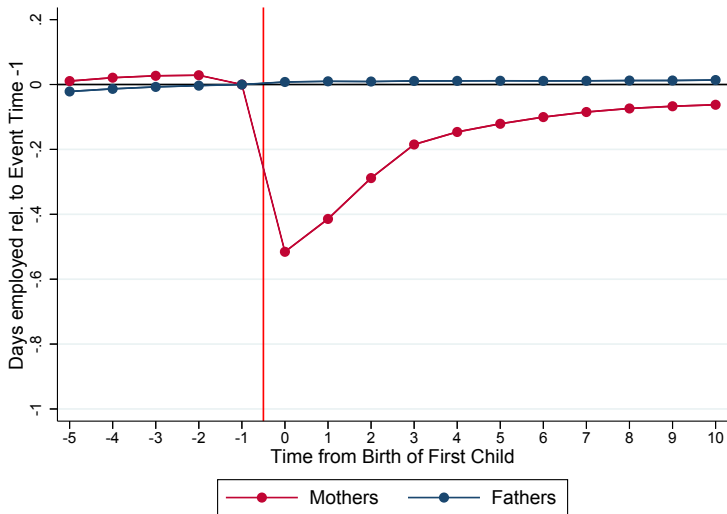
# Child Penalty in Daily Wage Rate
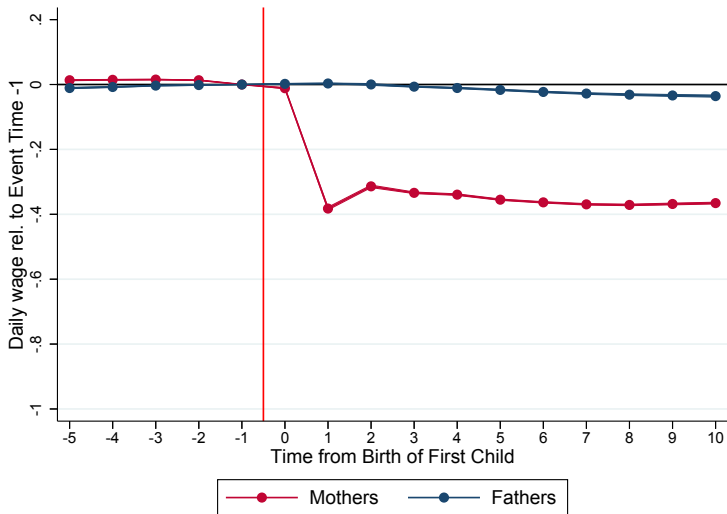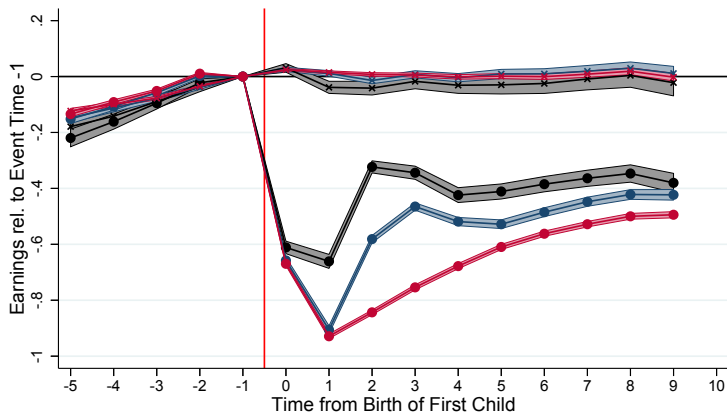
# Impact of Parental Leave Policy

# 2008 Regime: Child Penalty by Parental Leave Option
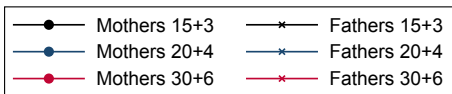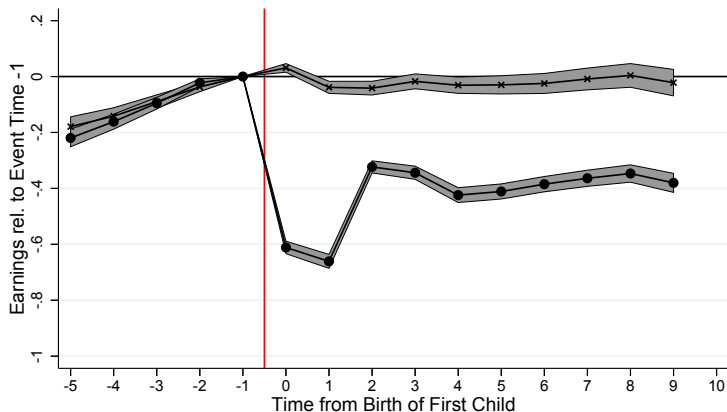
# 2008 Regime: Child Penalty by Parental Leave Option
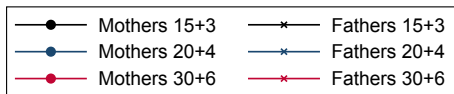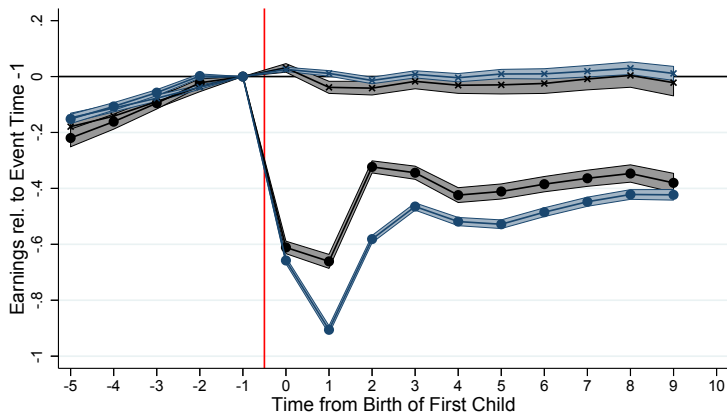
# 2008 Regime: Child Penalty by Parental Leave Option
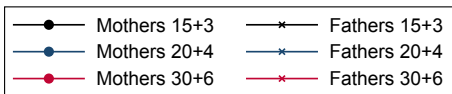
# Parental Leave Reforms: Empirical Strategy

- ► 2008 regime evidence confounded by selection into parental leave option

- ► Use 3 reforms that exogenously changed PL duration
  - ► **1990**: increase duration from 12 to 24 months
  - ► **1996**: decrease duration from 24 to 18 months
  - ► **2000:** increase duration from 18 to 30 months

- ► Replacement rate was kept constant

- ► Job protection increased from 12 to 24 months in 1990

- ► Regime eligibility depends on DOB of child (no grandfathering)
  - ► **RD based on DOB of 1st child** relative to cutoff date

# 1990 Reform: 3 Years Before Birth
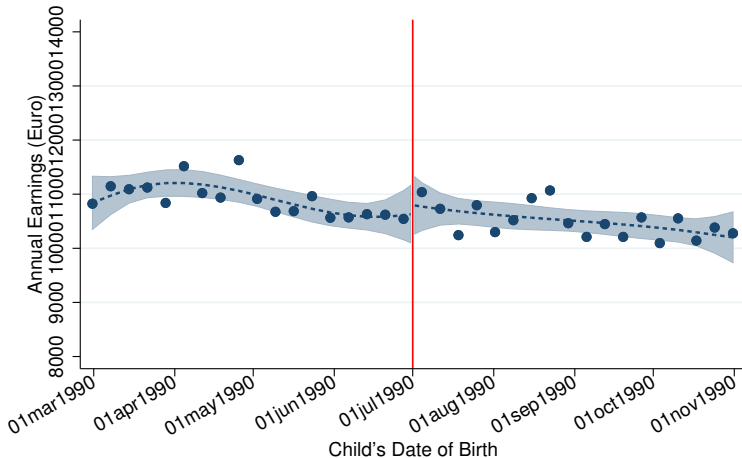


RD Estimate: 151.3 (393.7)
Div. by Counterfactual: 0.0131 (0.0340)

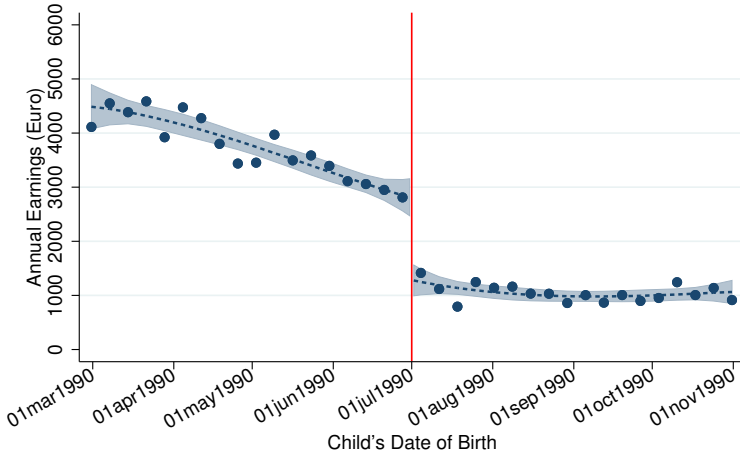# 1990 Reform: 2 Years Before Birth



RD Estimate: 133.3 (392.5)
Div. by Counterfactual: 0.0107 (0.0314)

# 1990 Reform: 1 Year Before Birth
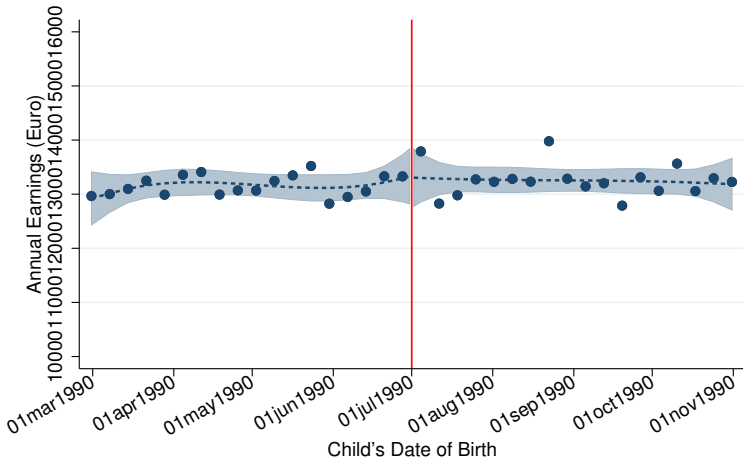


RD Estimate: –38.3 (386.0)
Div. by Counterfactual: –0.0029 (0.0290)

# 1990 Reform: Year of Birth
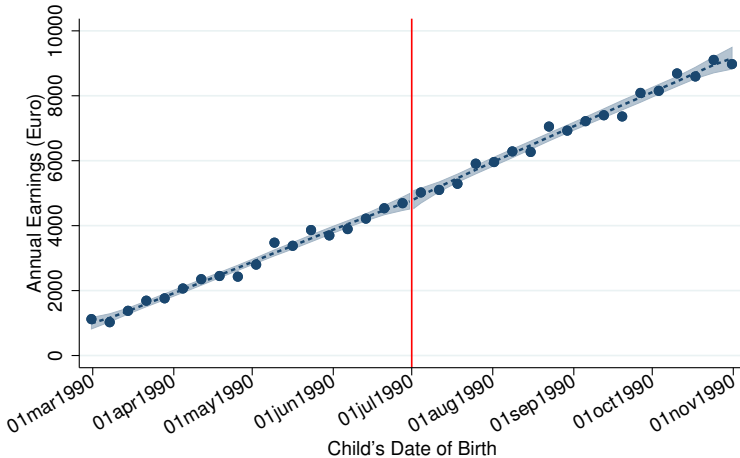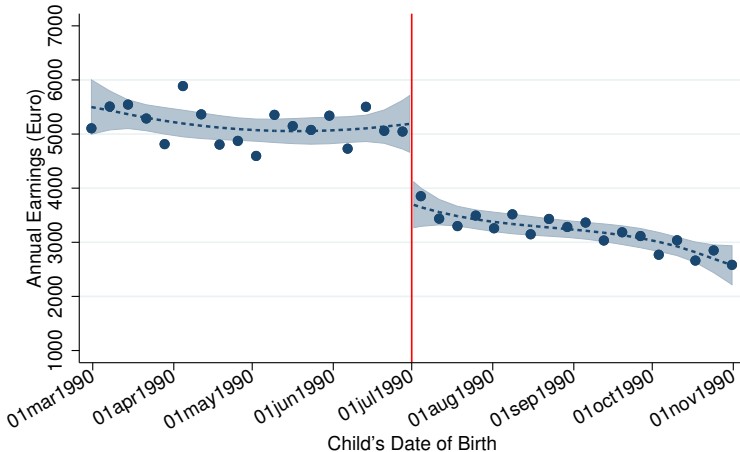


RD Estimate: 27.6 (191.3)
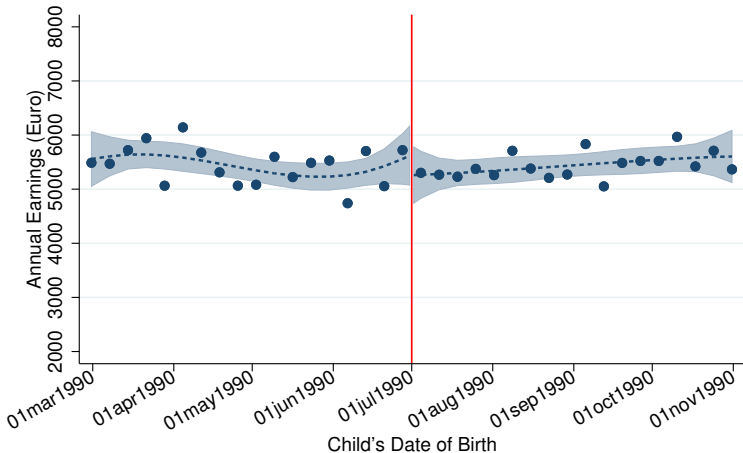Div. by Counterfactual: 0.0020 (0.0137)

# 1990 Reform: 1 Year After Birth



RD Estimate: −1522.5 (236.1)
Div. by Counterfactual: −0.1059 (0.0164)

# 1990 Reform: 2 Years After Birth



RD Estimate: −1501.6 (356.4)
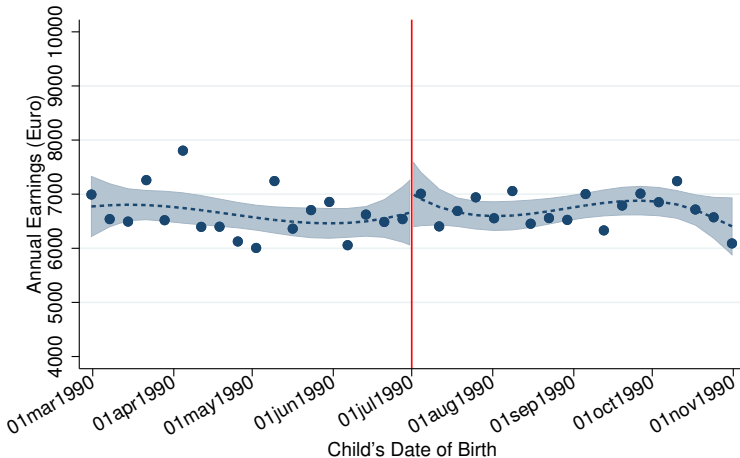Div. by Counterfactual: −0.1021 (0.0242)

# 1990 Reform: 3 Years After Birth



RD Estimate: –387.2 (396.9)
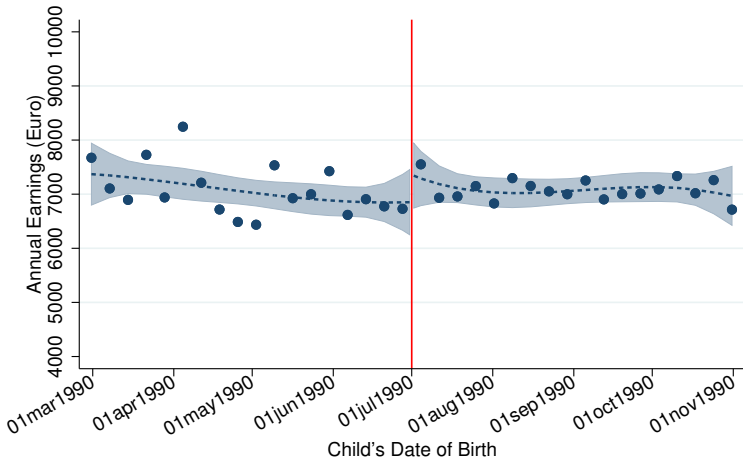Div. by Counterfactual: –0.0259 (0.0265)

# 1990 Reform: 4 Years After Birth
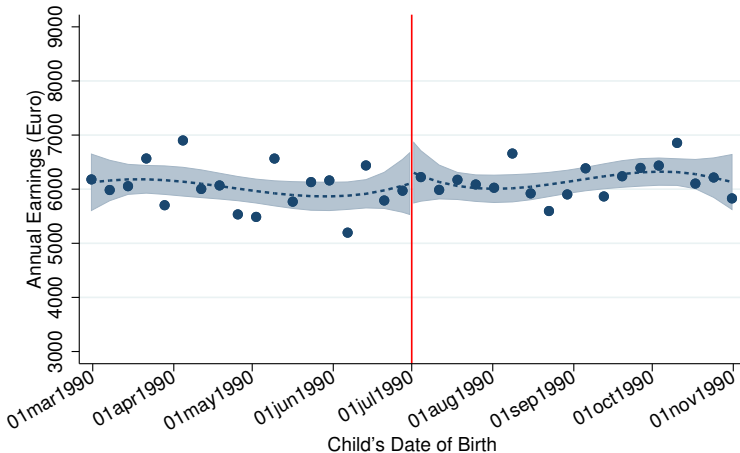


RD Estimate: 184.5 (419.9)
Div. by Counterfactual: 0.0122 (0.0277)

# 1990 Reform: 5 Years After Birth



RD Estimate: 316.7 (440.6)
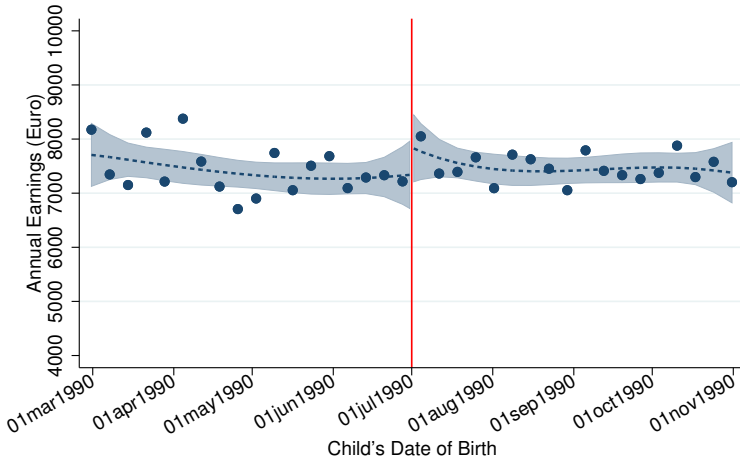Div. by Counterfactual: 0.0206 (0.0286)

# 1990 Reform: 6 Years After Birth



RD Estimate: 488.7 (447.3)
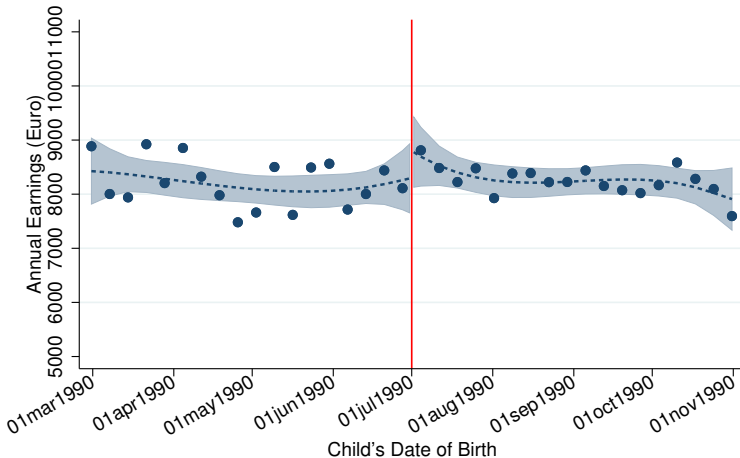Div. by Counterfactual: 0.0311 (0.0284)

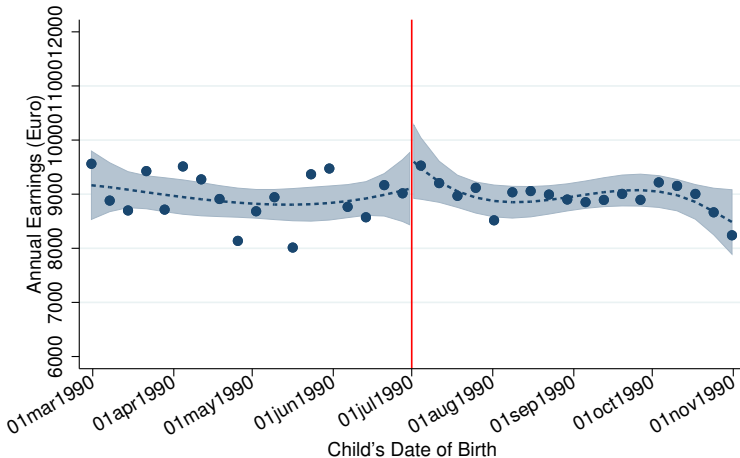# 1990 Reform: 7 Years After Birth



RD Estimate: 483.5 (460.7)
Div. by Counterfactual: 0.0302 (0.0288)
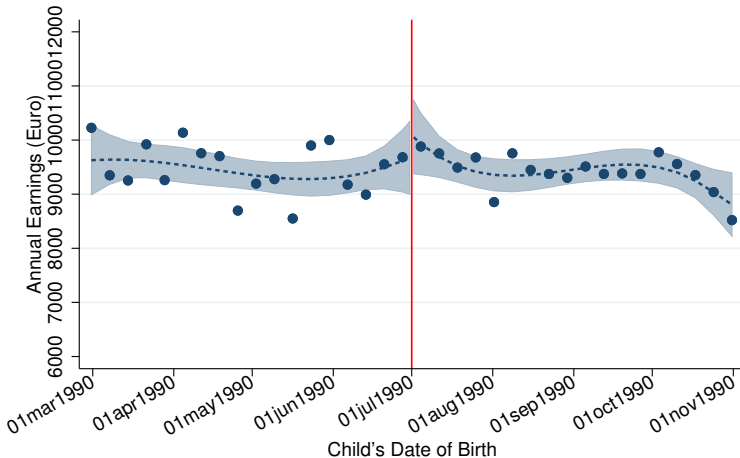
# 1990 Reform: 8 Years After Birth



RD Estimate: 471.5 (478.9)
Div. by Counterfactual: 0.0288 (0.0292)
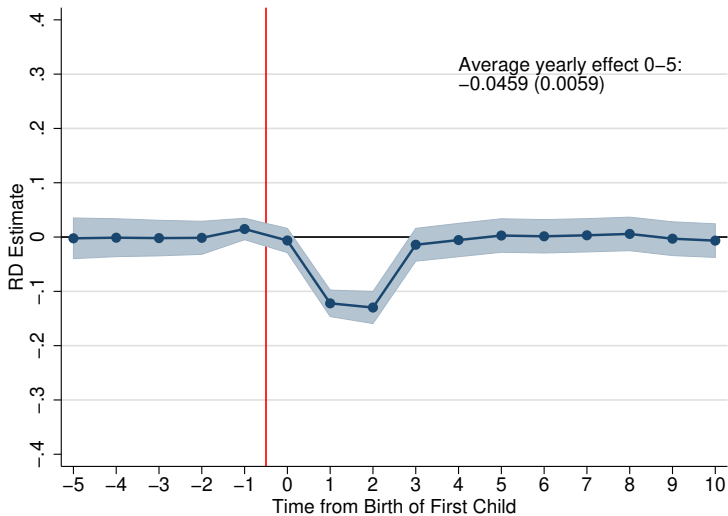
# 1990 Reform: 9 Years After Birth



RD Estimate: 485.4 (500.2)
Div. by Counterfactual: 0.0288 (0.0297)

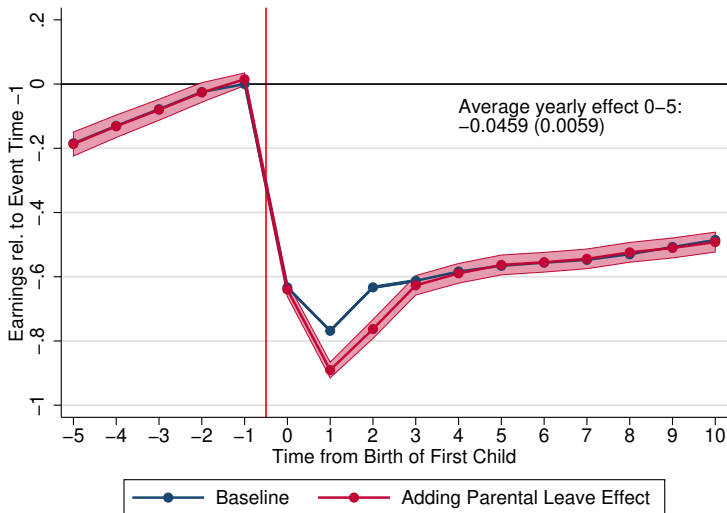# 1990 Reform: 10 Years After Birth



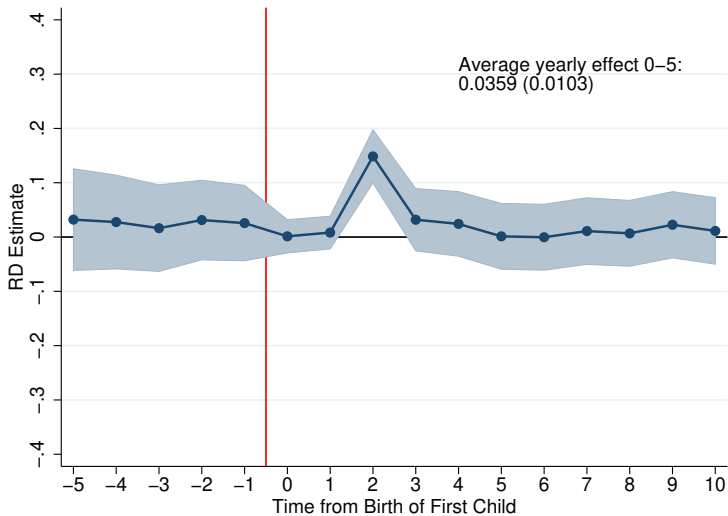RD Estimate: 360.1 (502.1)
Div. by Counterfactual: 0.0208 (0.0290)
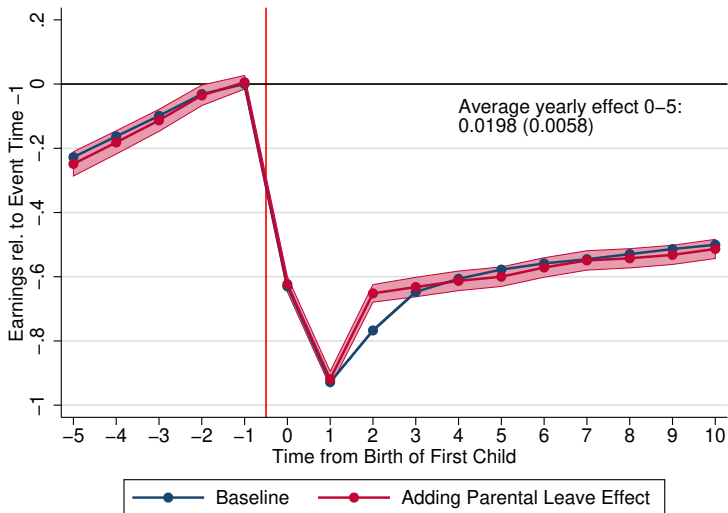
# 1990 Reform: Dynamic RD Estimates



Average yearly effect 0–5:
−0.0459 (0.0059)

# 1990 Reform: Effects on Child Penalties



Average yearly effect 0–5:
–0.0459 (0.0059)

X-axis: Time from Birth of First Child
Y-axis: Earnings rel. to Event Time –1

Legend: Baseline — Adding Parental Leave Effect

# 1996 Reform: Dynamic RD Estimates



Average yearly effect 0–5:
0.0359 (0.0103)

# 1996 Reform: Effects on Child Penalties

# 2000 Reform: Dynamic RD Estimates



Average yearly effect 0–5:
−0.0296 (0.0110)

# 2000 Reform: Effects on Child Penalties



Average yearly effect 0–5:
−0.0172 (0.0067)

Earnings rel. to Event Time −1 (y-axis)

Time from Birth of First Child (x-axis)

Baseline ● Adding Parental Leave Effect
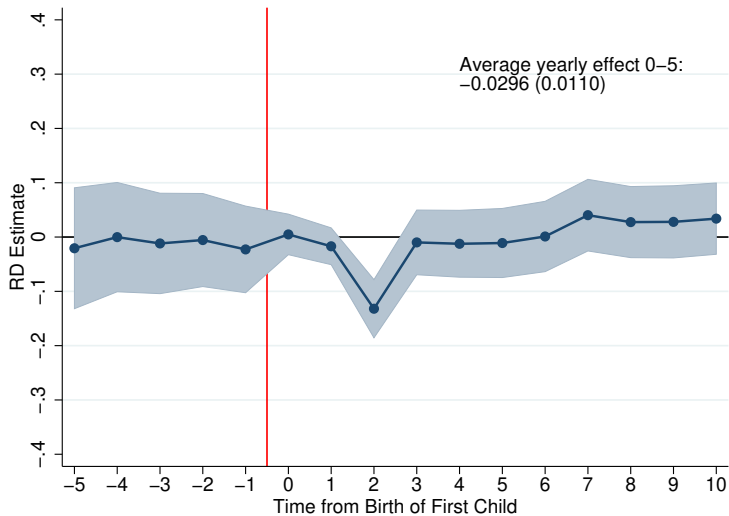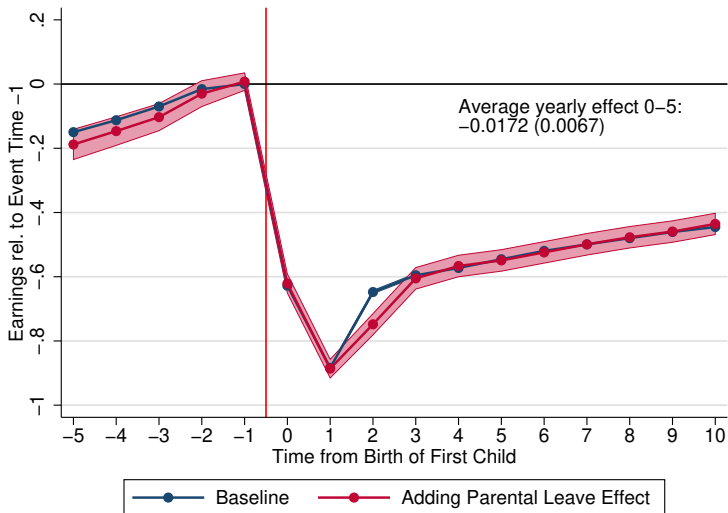
# Parental Leave Expansions: Effects by Duration
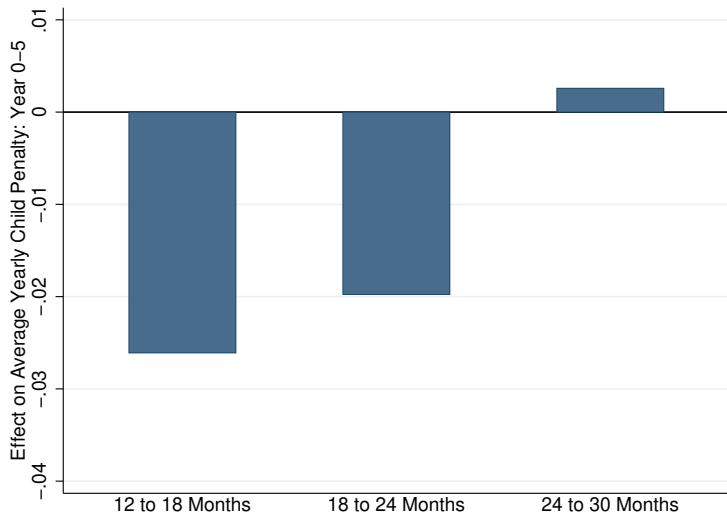
# Impact of Child Care Provision

# Granular Measures of Child Care Provision

- For each municipality X year, granular information on all nurseries & kindergarten:
  - Location, opening hours, # of teachers, contracts (part-time/full time), and legal max # of children per teacher

- Create 2 indices of child care provision at municipality level:
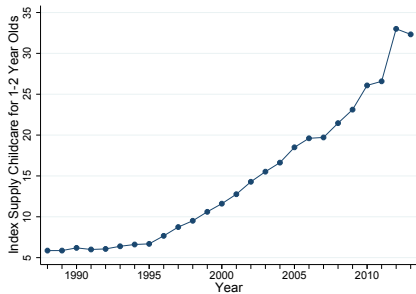  - **Index 1-2 (Nursery Care)**

    $$\text{Index 1-2} = \frac{\text{\# FTE Child Care Spots for Children Age 1-2}}{\text{\# Children of Age 1-2}}$$
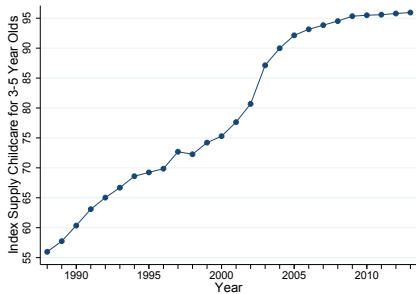
  - **Index 3-5 (Pre-School Care)**

    $$\text{Index 3-5} = \frac{\text{\# FTE Child Care Spots for Children Age 3-5}}{\text{\# Children of Age 3-5}}$$

# Index of Child Care Provision Over Time
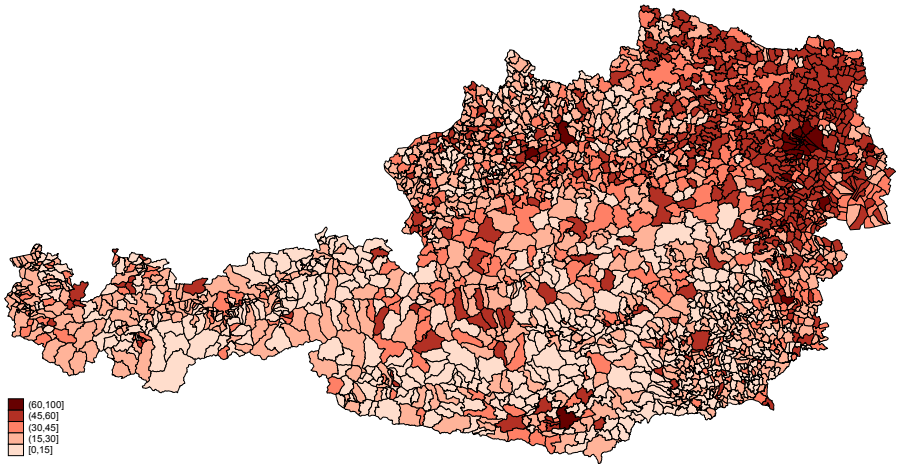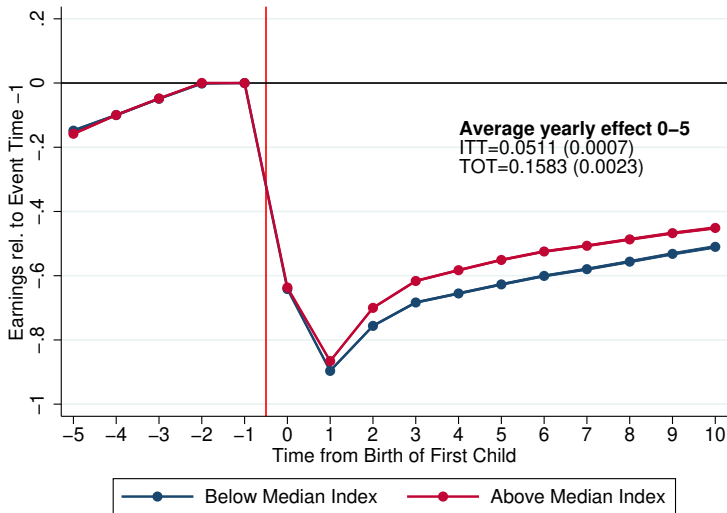


**Child Care Index 1-2**

**Child Care Index 3-5**

# Spatial Variation in Child Care Provision

Index 1-5 - 1990



(60,100]
(45,60]
(30,45]
(15,30]
[0,15]

Child Penalty by Level of Child Care Provision

Below vs Above Median Index 1-5 in 1990

**Average yearly effect 0–5**
ITT=0.0511 (0.0007)
TOT=0.1583 (0.0023)

# Spatial Variation in Child Care Expansion

## Change in Index 1-5 Between 1990 and 2000



Legend:
- (35,100]
- (20,35]
- (10,20]
- (0,10]
- [-60,0]
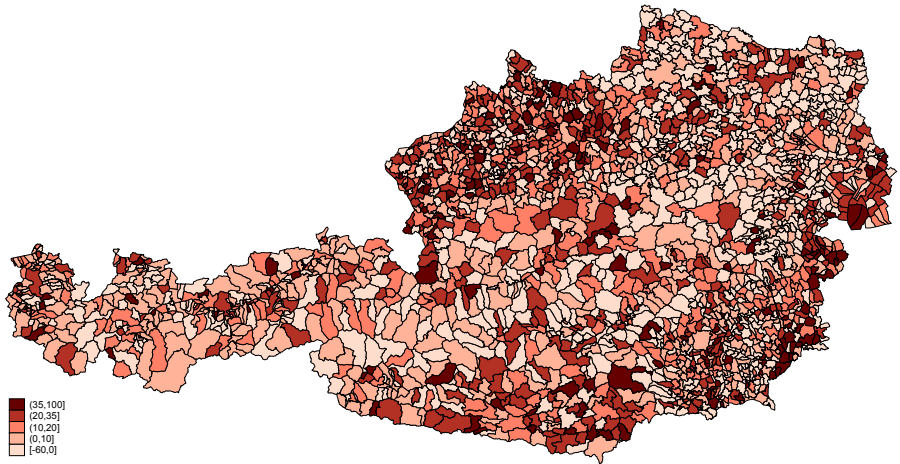
# Spatial Variation in Child Care Expansion

## Change in Index 1-5 Between 2000 and 2010



(35,100]
(20,35]
(10,20]
(0,10]
[-60,0]
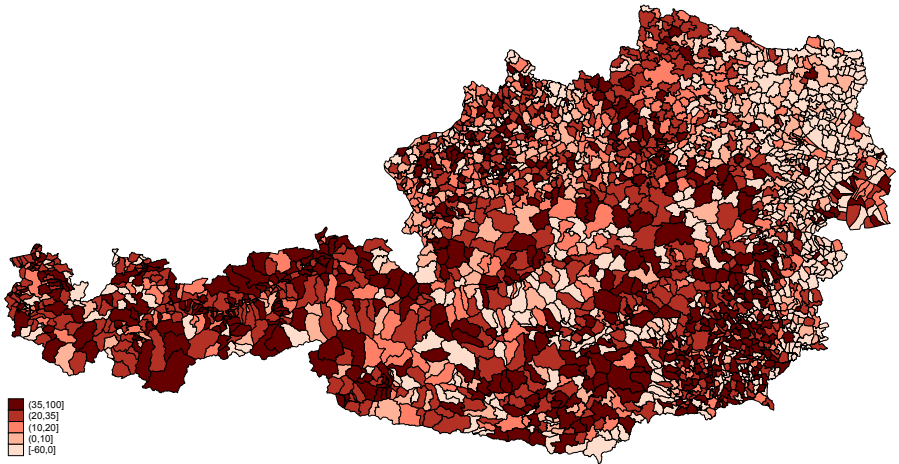
# Exploiting Local Child Care Expansions

- ▶ Spatial variation is conceptually appealing
  - ▶ Macro vs micro effect
  - ▶ No comparison btw women with vs w/o young children (biased by dynamic effects)
  - ▶ But spatial variation often endogenous

- ▶ Isolate episodes of large and sudden increases in child care provision at municipality level
  - ▶ Index increase > 20 in a single year
  - ▶ Driven by large supply shocks (new facility, new teachers)

- ▶ Compare dynamic outcomes of women in treated municipalities to similar women (IPW) in control municipalities

- ▶ Compare expansions of nursery care (year 1-2) vs pre-school care (year 3-5)

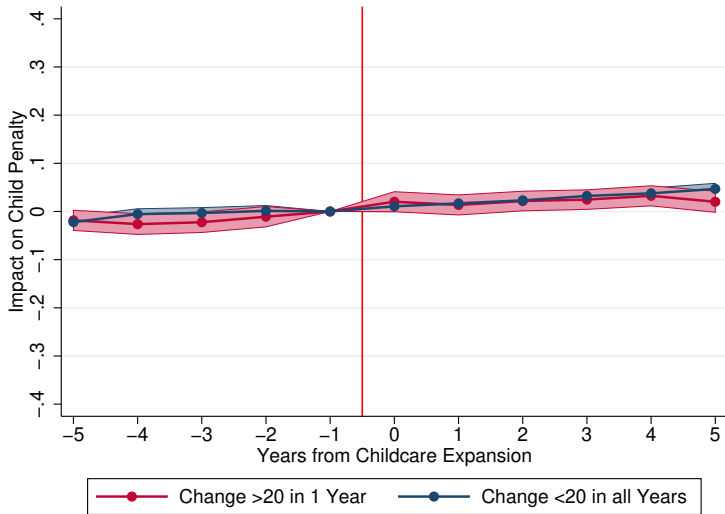# Nursery Care Expansion (Year 1-2)



Actual Take Up
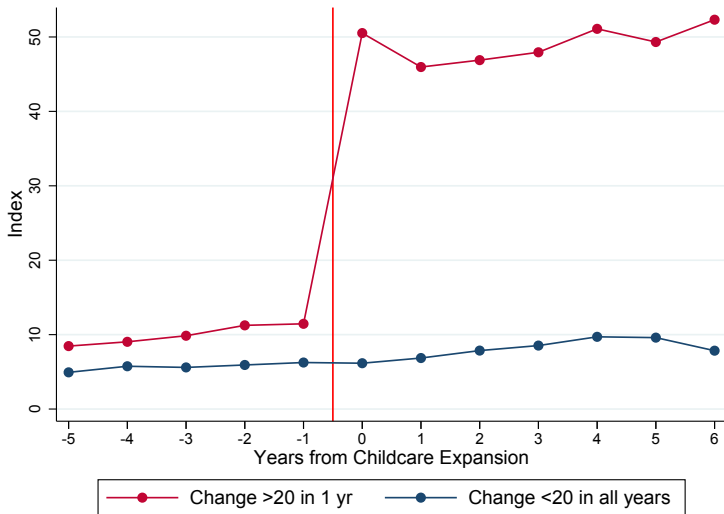
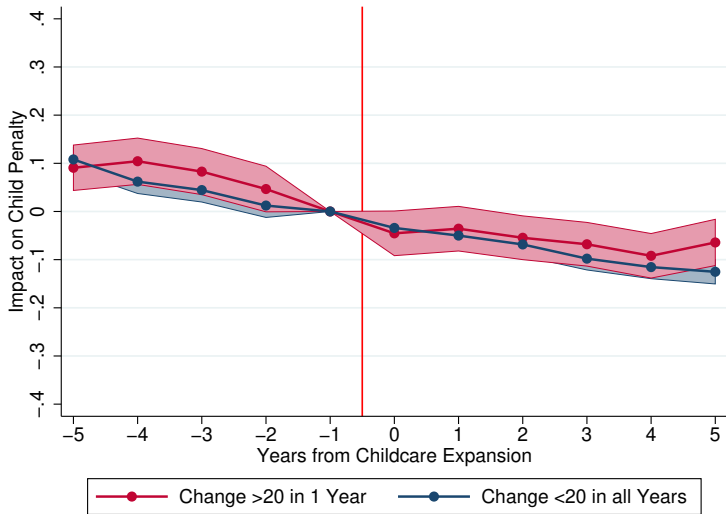# Pre-School Care Expansion (Year 3-5)
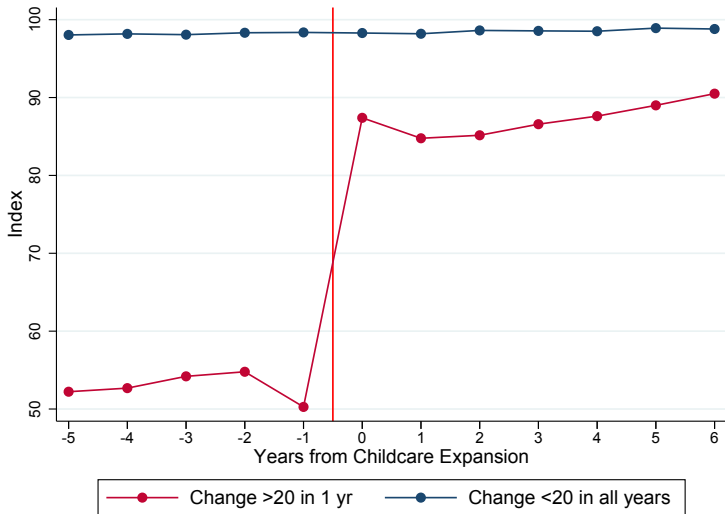
Nursery Care Expansion

Earnings 1 Year Before Birth

# Nursery Care Expansion

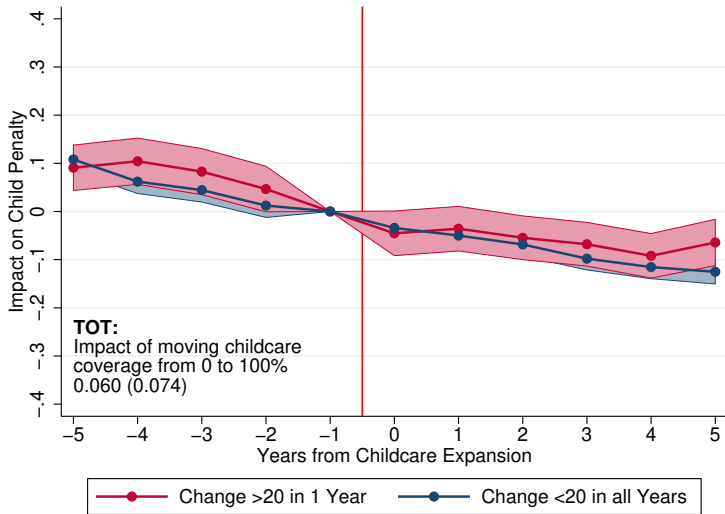## Earnings in Year 1 & 2 Post Birth

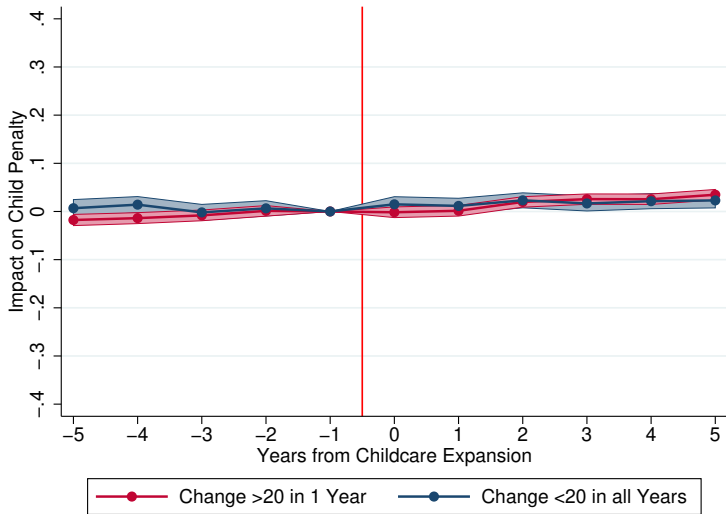# Nursery Care Expansion

## Earnings in Year 1 & 2 Post Birth

# Nursery Care Expansion
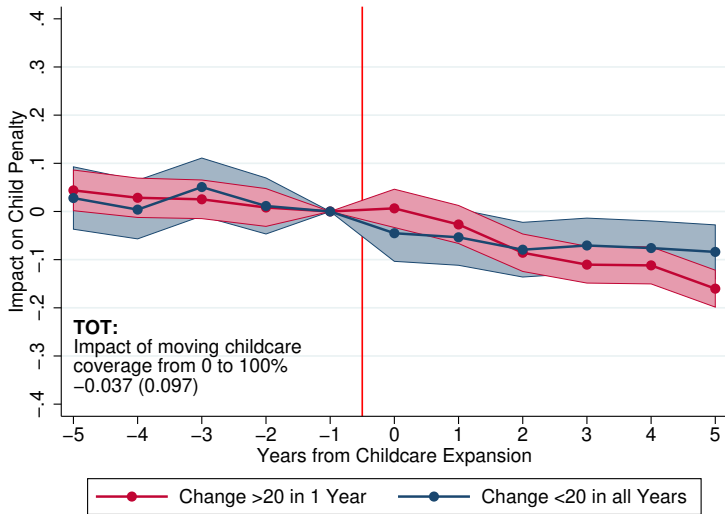
## Earnings in Year 1 & 2 Post Birth

# Pre-School Care Expansion

Earnings 1 Year Before Birth

# Pre-School Care Expansion

## Earnings 3 to 5 Years Post Birth



**TOT:**
Impact of moving childcare
coverage from 0 to 100%
−0.037 (0.097)

Legend: Change >20 in 1 Year (red) — Change <20 in all Years (blue)

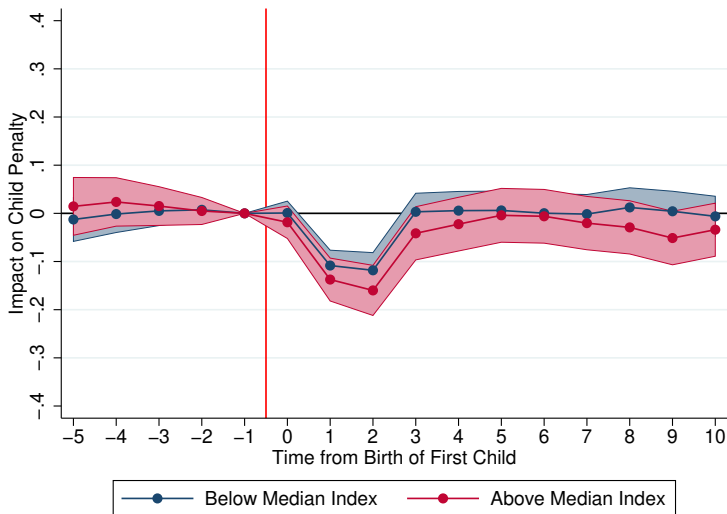X-axis: Years from Childcare Expansion
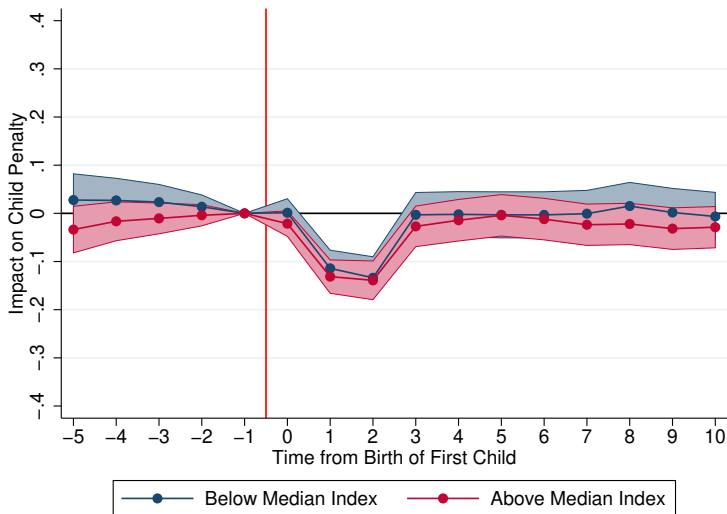Y-axis: Impact on Child Penalty

Interaction Effects?

# Effects of 1990 Parental Leave Reform by Level of Child Care Provision (Index 1-5)
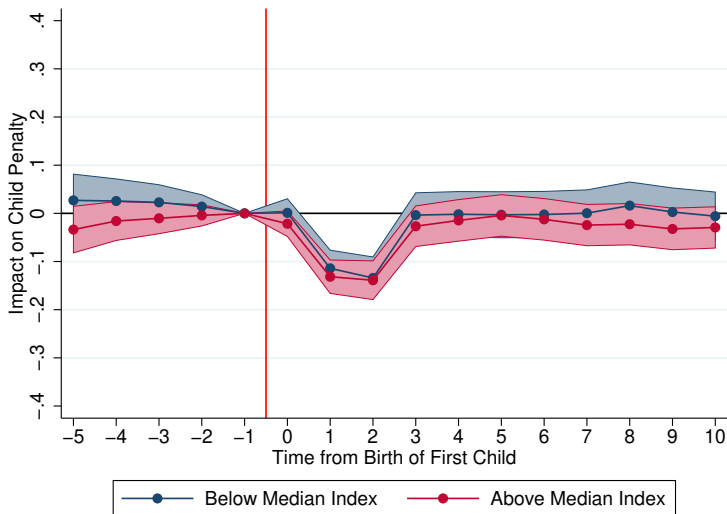
# Effects of 1990 Parental Leave Reform by Level of Child Care Provision (Index 1-2)

# Effects of 1990 Parental Leave Reform by Level of Child Care Provision (Index 3-5)

# Conclusions

# Gender Inequality: Limited Role for Policies?

- ▶ Considerable interest/hope in ability of early childhood policies to shape dynamics of gender inequality
- ▶ We study:
  - ▶ Effects of key bundle of early childhood policies
  - ▶ On full dynamics of relative earnings within HH
  - ▶ In context of large gender inequality & child penalties
- ▶ Family policy has had little effect on gender inequality
  - ▶ Small short run negative effect of PL. No long run effects
  - ▶ Insignficant effect of child care access
  - ▶ No interacted effects

- ▶ Why is more child care not conducive to more labor supply?
- ▶ Additional LS constraints faced by women?
  - ▶ Other costs / disincentives / frictions?
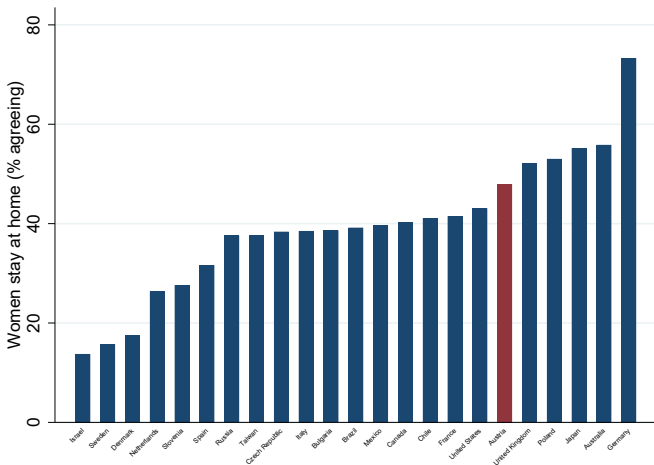  - ▶ Norms?

Additional Figures

# Total Gender Gap in Earnings - Austria (1994-2012)
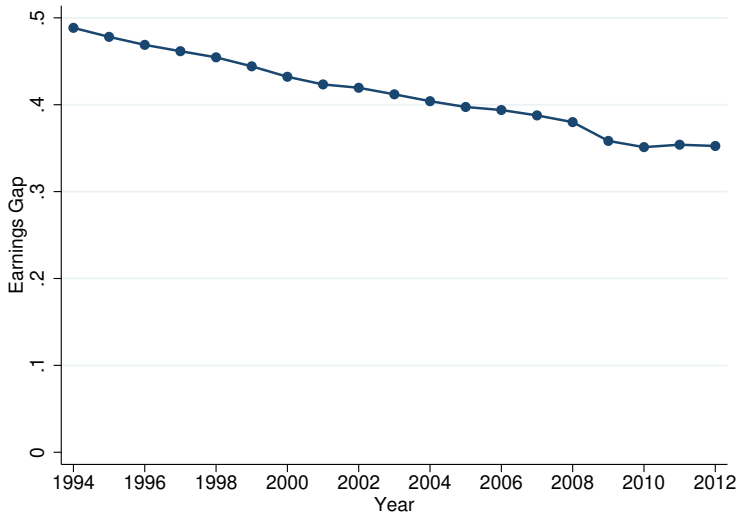
# "A Woman Should Stay Home When She Has a Child Under School Age"?

## Do You Agree With the Statement

# Event Study Approach

- Consider men and women who have their first child at event time 0
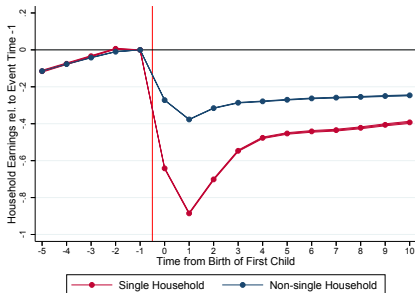
- For men and women ($g = m, w$), we regress

$$Y_{ist}^g = \sum_{j \neq -1} \alpha_j^g \cdot \text{EVENT}_{ij} + \text{age/year dummies}$$

where $Y_{ist}^g$ is the outcome for individual $i$ in year $s$ at event time $t$, and event coefficients $\alpha_j^g$ measure impact relative to event time -1
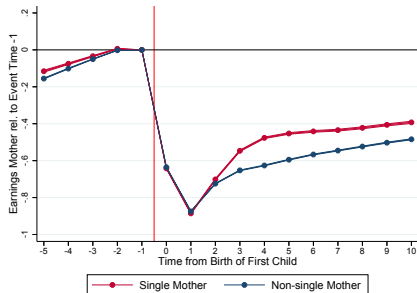
- We show $P_t^g = \hat{\alpha}_t^g / E\left[\tilde{Y}_{ist}^g \mid t\right]$ over time where $\tilde{Y}_{ist}^g$ is the predicted outcome when omitting the event dummies

Back

# Child Penalty by Family Structure

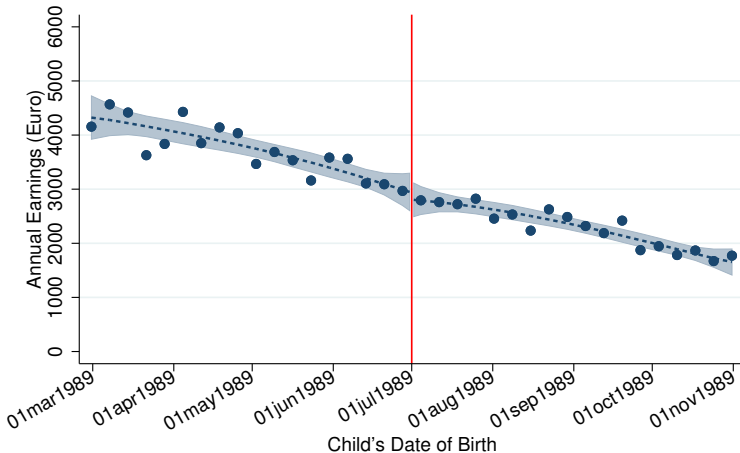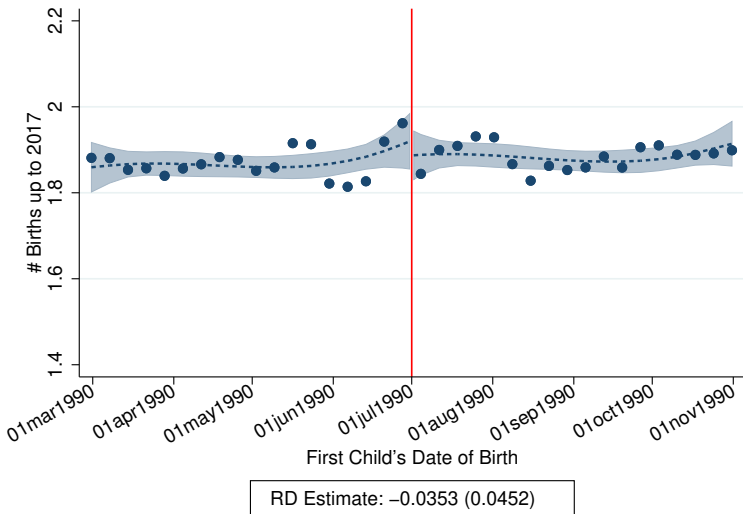# 1990 Reform: 1989 Placebo Births



RD Estimate: −129.8 (245.8)
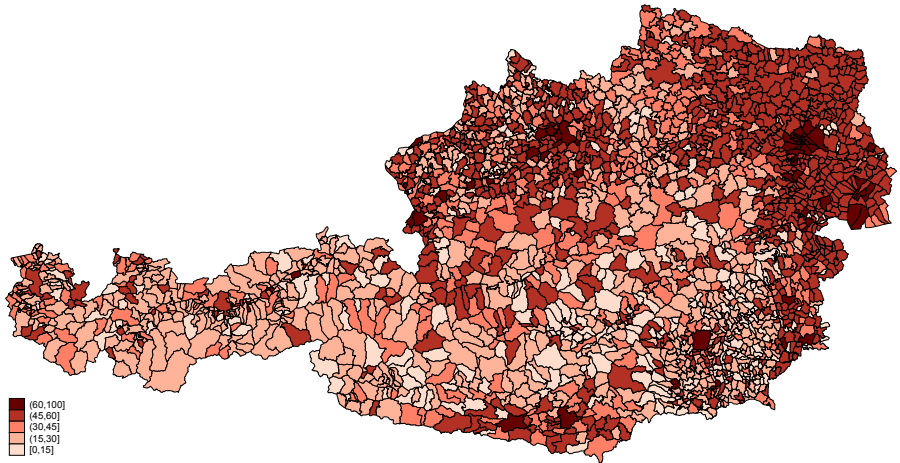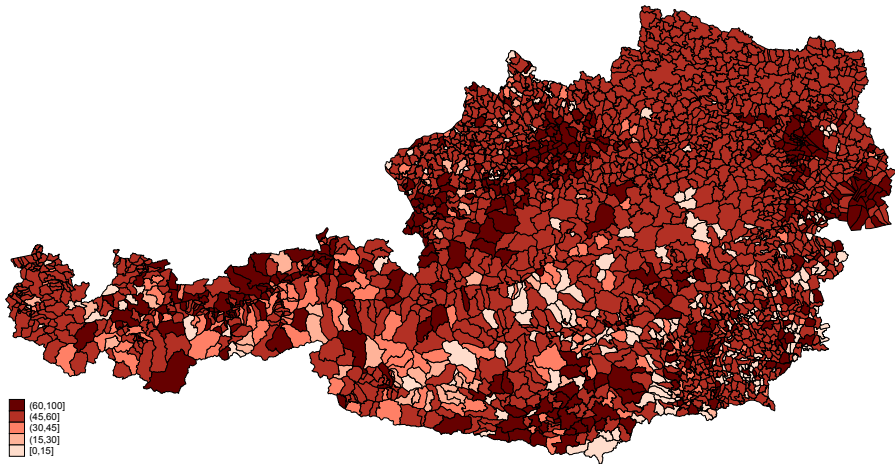Div. by Counterfactual: −0.0090 (0.0171)

# 1990 Reform: Subsequent Fertility



RD Estimate: −0.0353 (0.0452)

# 1990 Reform: Dynamic Effects - 1 Child Only



Average yearly effect 0–5:
−0.0445 (0.0060)

y-axis: RD Estimate

x-axis: Time from Birth of First Child

# Spatial pattern of index 1-5 - 2000



Legend:
- (60,100]
- (45,60]
- (30,45]
- (15,30]
- [0,15]

# Spatial pattern of index 1-5 - 2010



Legend:
- (60,100]
- (45,60]
- (30,45]
- (15,30]
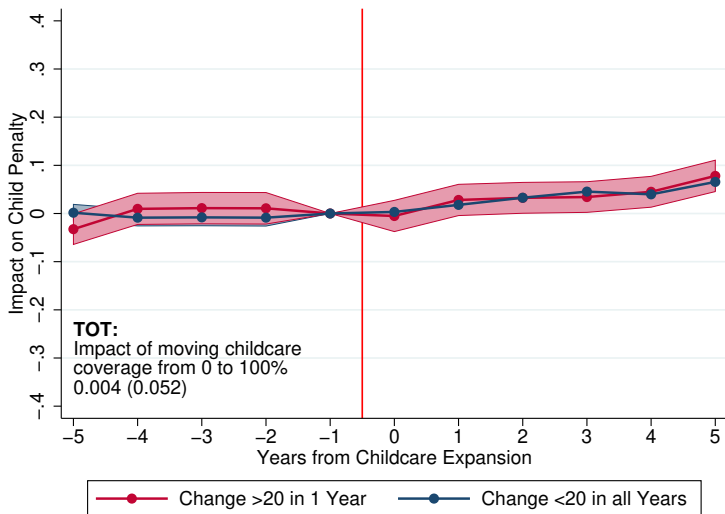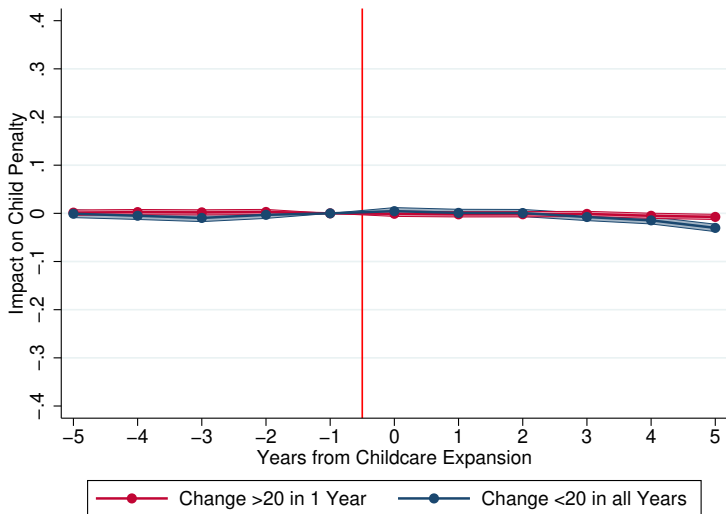- [0,15]
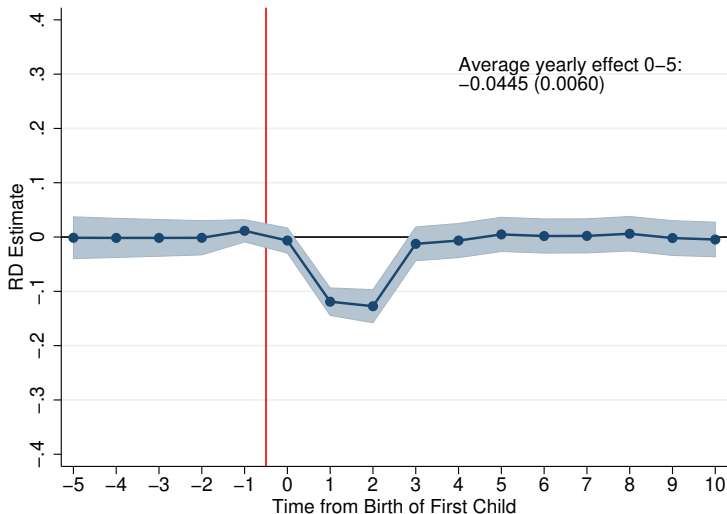
# Event study: Index 1-2, take up
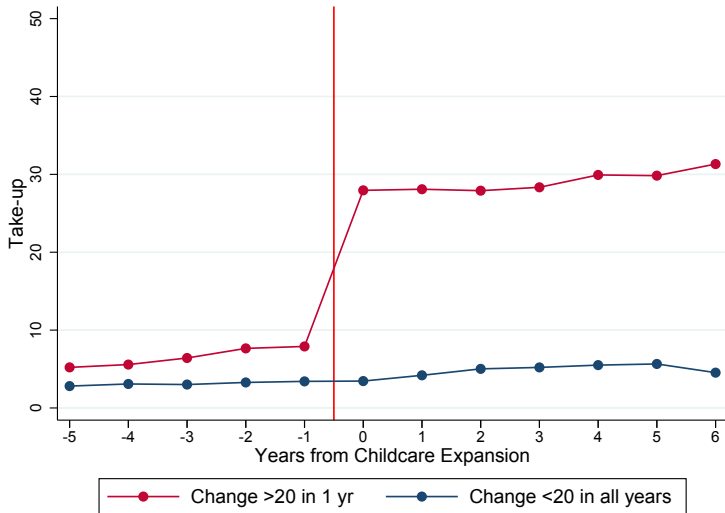
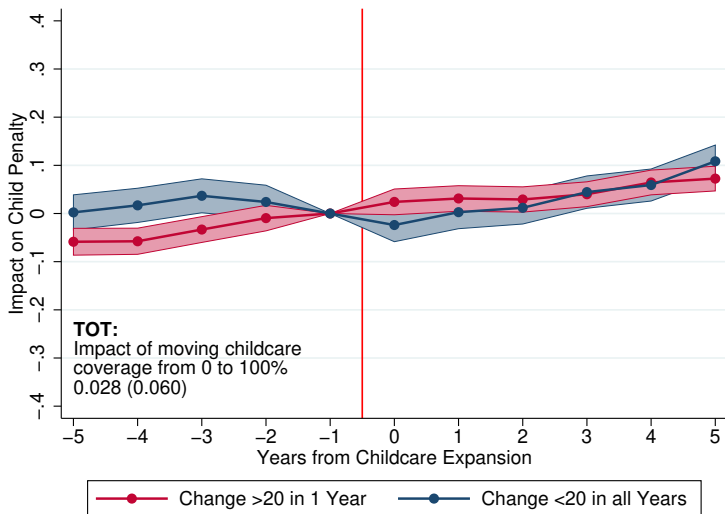# Event study: Index 1-2 employment placebo (1 year before event)
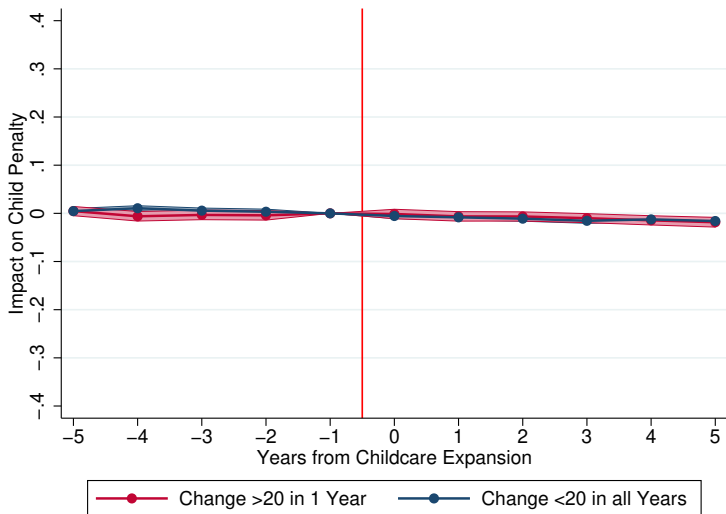
# Event study: Index 1-2 cumulative employment 1-2

# Event study: Index 3-5 employment placebo (1 year before event)

# Event study: Index 3-5 cumulative employment 3-5

# Related Literature

- Literature on career costs of children
  - ...

- LIterature on labor supply responses to parental leave policies
  - Magne, etc.

- Literature on labor supply responses to child care
  - Macro effects: Child care expansions
  - Micro effects: eligibility variation
  - Mixed results. Mostly focus on contemporaneous labor supply