Children, Household Specialization and Relationship Quality

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(Job Market Paper)

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Having children changes people's lives

Children increase responsibilities $\Rightarrow$ Parents reorganize how they use time

- Mothers reduce labor market time [Kleven et al., 2019; Goldin, 2021]
- Parents spend more time in home production [Aguilar-Gomez et al., 2019; Siminski and Yetsenga, 2022]
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How do children and the associated time readjustments affect couples' relationship quality?

Relationship Quality

Proxy **non-material gains** from being in a couple

- Incorporated in models of couple formation, dissolution and fertility decisions
  [e.g., Browning et al., 2014; Chiappori, 2020; Greenwood et al., 2017]
- With limited empirical guidance [Weiss and Willis, 1997; Bertrand et al., 2015]

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1. Individual well-being: Component of utility derived from couple [Chiappori et al., 2018]
2. Couples' decision-making process
   - → Formation, dissolution and fertility [e.g., Browning et al., 2014]
   - → Investments in child education, household specialization... [Chiappori and Weiss, 2007]

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3. Children's well-being
   - → Exposure to bad relationship [Piketty, 2003; Björklund and Sundström, 2006]

In this paper

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  - → Questionnaire about relationship with partner (e.g., happiness, arguments)
  - → Extract RQ using factor analysis
  - → Validate measure: marital transition prediction and correlation between partners
- Study the causal effect of children on RQ
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  - → Perform a dynamic difference-in-differences estimation around first child birth

- ▷ First child birth **significantly and persistently reduces** RQ
  - → By age four ↓ 1/2 standard deviation
- ▷ Impact both **mothers and fathers** equally

In this paper

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▷ Gender-based **specialization** after birth, regardless of pre-birth arrangement
→ Women increase housework and reduce labor market time

▷ Larger time **rearrangement** associated with larger decrease in RQ

Literature and contribution

Models of family formation and dissolution [Blasutto, 2024; Brien et al., 2006; Browning et al., 2014; Chiappori, 2020; Eckstein et al., 2019; Gemici and Laufer, 2011; Goussé et al., 2017; Greenwood et al., 2017; Low et al., 2018; Voena, 2015; Weiss and Willis, 1997]

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- Integrate multiple aspects into single measure & overcome past data limitations

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Consequences of having children [Adda et al., 2017; Albanesi et al., 2023; Ahammer et al., 2023; Blau and Kahn, 2017; Bertrand et al., 2015; Bertrand, 2020; Clark et al., 2008; Cortés and Pan, 2020; Goldin, 2021; Kleven et al., 2019; Lillard and Waite, 1993; Svarer and Verner, 2008]

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Household time allocation [Aguilar-Gomez et al., 2019; Alon et al., 2020; Del Boca et al., 2020; Farré et al., 2020; Hupkau and Petrongolo, 2020; Lundberg and Rose, 2000; Lundberg, 2005; Sevilla and Smith, 2020; Siminski and Yetsenga, 2022]

- Document child-induced specialization regardless of *ex-ante* roles & implications for RQ

Data and Measure

Dataset and sample

- **Dataset:** Understanding Society, UK longitudinal household survey
  - + Relationship history since 1991 (British Household Panel Survey)
- **Population of interest:**

  Individuals in a couple that become parents
- **Sample:** Summary Statistics

  Individuals cohabiting with their partners that had their 1st child in 2009-2021 observed at least once before and after birth

  → Panel of 1,760 individuals and up to 6 waves

Measure of Relationship Quality

Partner Questionnaire to both cohabiting partners **individually**:

(a) Subjective assessments	(b) Couple time use
How often do you... ?	*How often do you... ?*
consider splitting	work together on a project
regret getting married	stimulating exchange of ideas
quarrel	calmly discuss something
get on each others nerves	kiss partner
What is the... ?	*Do you and your partner... ?*
degree of happiness w/ couple	engage in outside interests

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Factor analysis to construct RQ using *all* available information

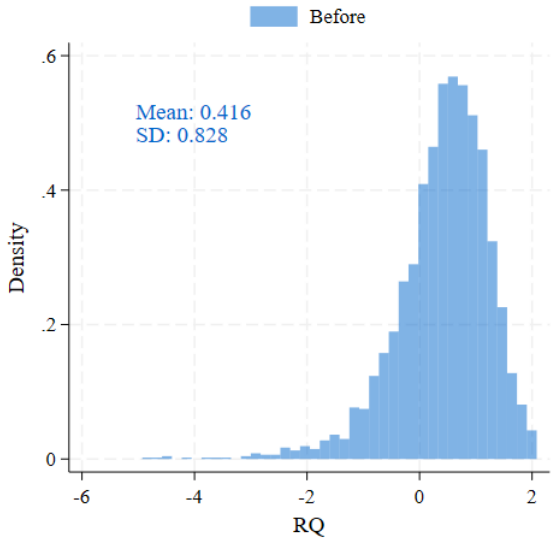
- Retain first factor $\rightarrow$ One-dimensional measure
- Explains 40.61% of the variation in the items

Scree Plot

Factor Loadings

Distribution of the RQ measure in the sample

- Standardized
  - ⇒ Coefficients in standard deviations
- Higher values indicate better relationships



Never parents | Rank

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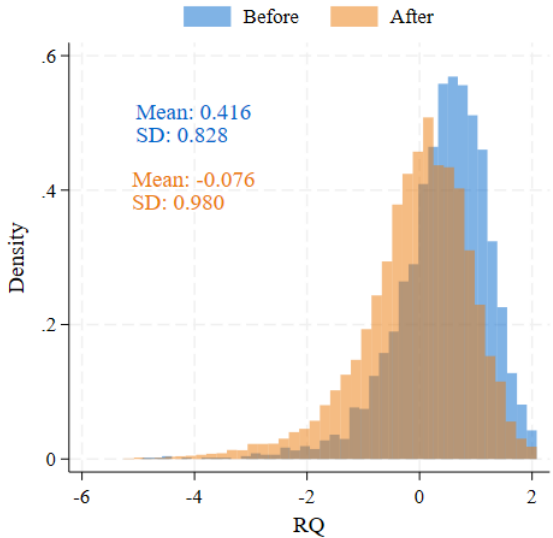

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Validation of the measure

- **Informativeness**: Provides meaningful information about match quality
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  - → No jumps in average profiles

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- **Smooth evolution** over the life-cycle and with relationship tenure
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- Association with partners' **observable characteristics**
  - → Confirm associations drawn in the literature (marriage, assortative matching)

Empirical Strategy

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We want to estimate the impact of first child birth on RQ

Dynamic difference-in-differences: two-way fixed effects specification

$$y_{i,t} = \alpha_i + \mu_t + \sum_j \mathbb{1}\{j = t - G_i\}\delta_j + u_{i,t}$$

- $t - G_i$: time since i's first child was born (*event time*)
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$\Rightarrow$ Issues estimating through OLS: *"forbidden comparisons"* with already treated may result in biased estimates

[e.g., De Chaisemartin and d'Haultfoeuille, 2020; Goodman-Bacon, 2021; Roth et al., 2023]

Empirical Strategy

Using **Callaway and Sant'Anna [2021]** method

1. Compute "good" 2×2 difference-in-differences comparisons for each treatment cohort and event-time period

   Illustrate comparisons

   e.g., Compare 2010 cohort w/ 2011-2020 cohorts at event-time 0, 2016-2020 cohorts at event-time 5...

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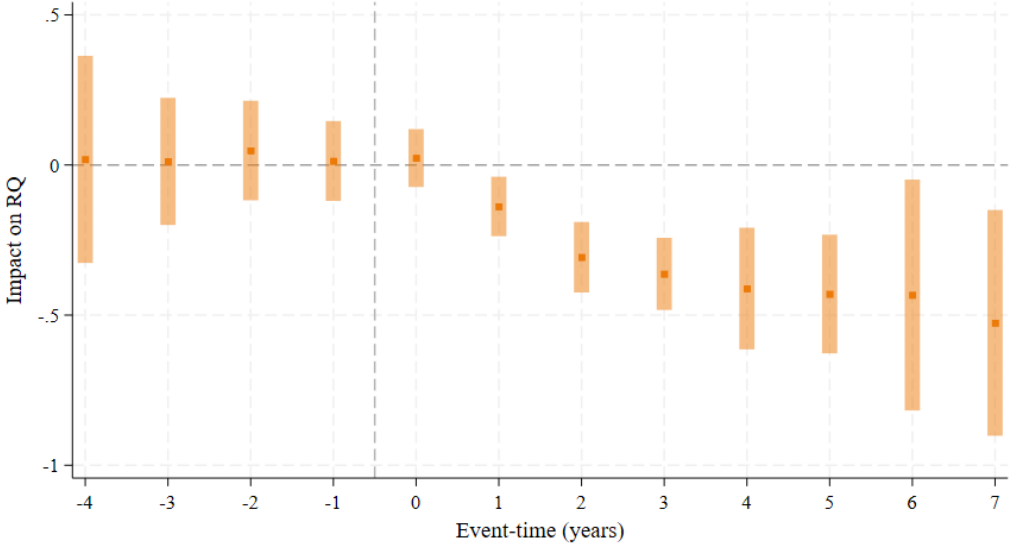
   - **A2. Parallel trends** - *W/o treatm. RQ would have evolved in parallel across cohorts* — Checks

2. Aggregate ATT at the event-time level to obtain $\hat{\hat{\delta}}_j$ — Homogeneity, Illustrate aggregation

Impact of first child birth on Relationship Quality

First child birth significantly and persistently reduces RQ



The results are not driven by...

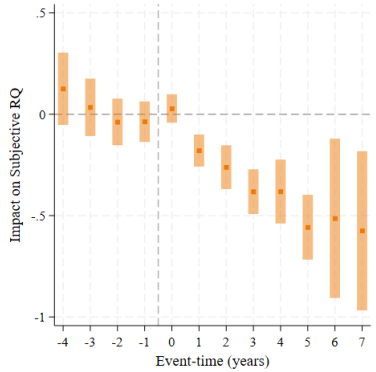
- changes in time use items only or in item valuation after birth
  - → Larger impact on subjective assessment items (happiness)
- parents of more than one child
  - → Parents of +1 child experience smaller decrease
- attrition due to couple dissolution
  - → Same magnitude excluding couples that end up dissolving
- timing of birth, in terms of age and relationship tenure
  - → Similar impact regardless of age/tenure at birth

More

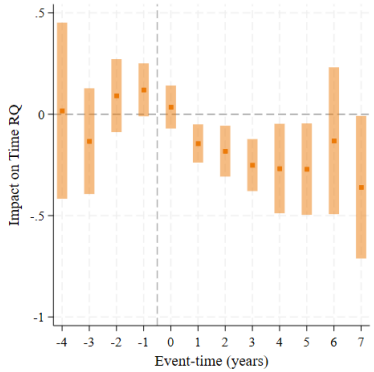
The results are not driven by changes in time use items only

Construct separate measures for each block of items

(a) Subjective assessment



(b) Couple time use



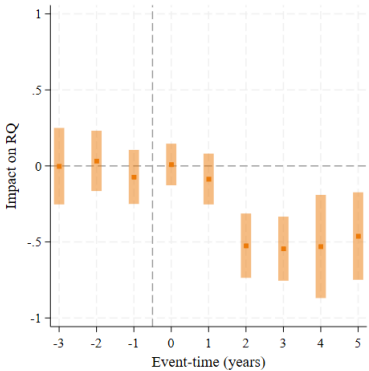
Factor Loadings | Distribution | By item: subjective assessment | By item: time use

The results are not driven by parents of more than one child

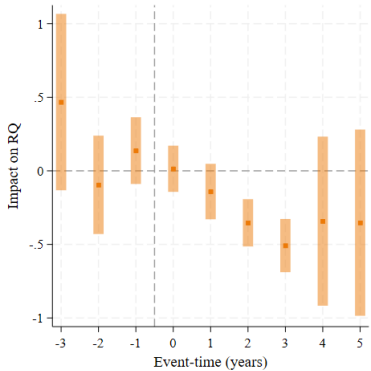
Separately by total amount of children at the end of the observation period

Second child

(a) One child

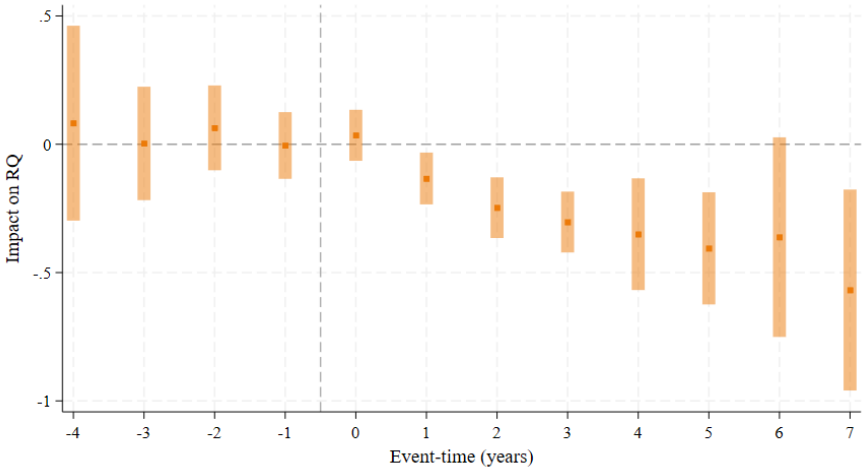


(b) More than one child



The results are not driven by separating couples

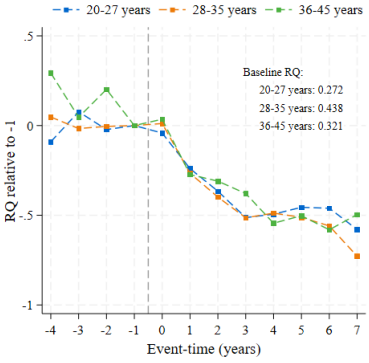
Exclude individuals observed separating by the end of the observation period



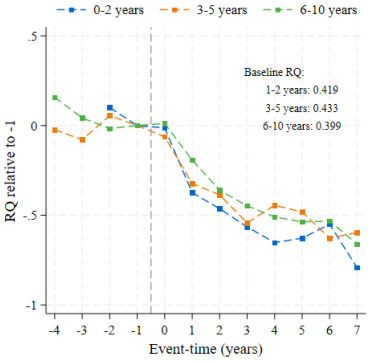
The results are not driven by differences in timing of birth

Average RQ at each event-time period by age and tenure at birth

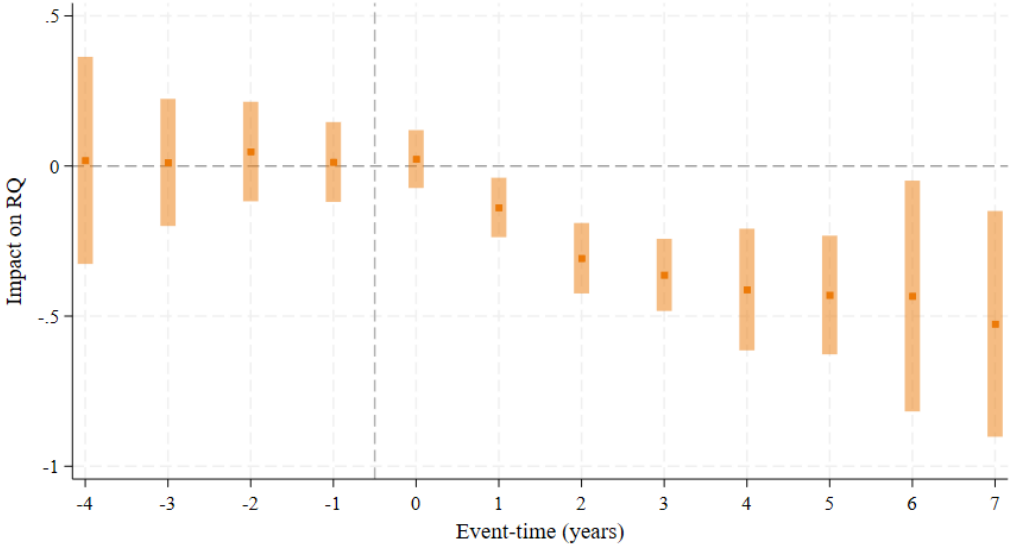
(a) Age bins



(b) Tenure bins



What are the implications of this result?

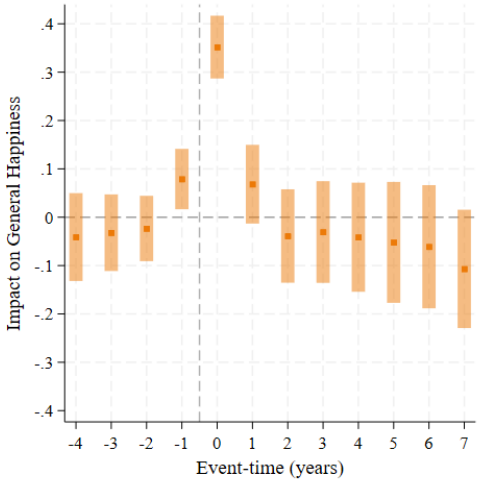


Implications - Back-of-the-envelope calculations on divorce

	Dependent variable: Couple dissolution		
	(1)	(2)	(3)
Lagged RQ	-0.0106***	-0.00833***	-0.00698*
	(0.002)	(0.002)	(0.003)
Controls		✓	✓
Individual FE			✓
R-squared	0.007	0.054	0.050
Observations	17228	15555	15555

- Around 2% of the existing couples dissolve yearly in our sample
- 1/2 std dev ↓ in RQ associated w/ **17.5% higher probability of separation**

Implications - General happiness and RQ



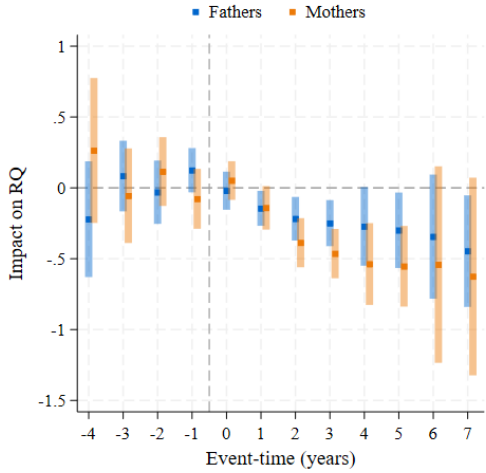
- *"Have you recently been feeling reasonably happy, all things considered?"*
- Very different from RQ:
  - Adapt to life events over time
  - Benefits of children balance out drawbacks in RQ

Other shocks: Unemployment

Notes: Using event-time t=-2 as baseline.

Similar impact on mothers and fathers

- *Child penalty*: Impact mothers' outcomes only
  - Labor market
  - Housework time
  - Mental health
- Fathers' RQ decreases to a similar magnitude as mothers' Difference

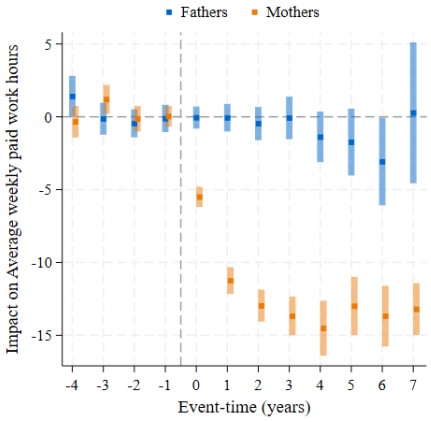


Mechanism: Changes in Household Specialization

How parents use their time changes after birth

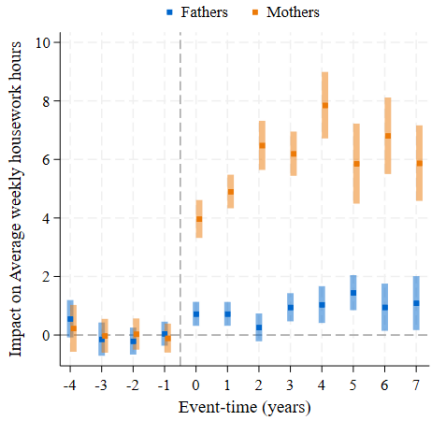
Leave policies

(a) Paid market work hours



Pre-birth: Men 32 hours, women 27 hours

(b) Unpaid housework hours



Pre-birth: Men 5 hours, women 8 hours

Characterize couples based on pre-birth roles

Compute share out of household total done by women for each type of work l:

$$\textit{female share}_l = \frac{\text{woman's hours}_l}{\text{man's hours}_l + \text{woman's hours}_l} \quad ; \quad l \in \{\text{market, house}\}$$

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- **Traditional**: Women specialize in housework and men in labor market work
  - ⇝ $\textit{female share}_{\text{market}} \leq 0.45$ and $\textit{female share}_{\text{house}} \geq 0.55$

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- **Unbalanced**: Women take a larger share of both types of work
  - ⇝ $\textit{female share}_{\text{market}} \geq 0.55$ and $\textit{female share}_{\text{house}} \geq 0.55$

Characterize couples based on pre-birth roles

Compute share out of household total done by women for each type of work l:

$$\textit{female share}_l = \frac{\text{woman's hours}_l}{\text{man's hours}_l + \text{woman's hours}_l} \quad ; \quad l \in \{\text{market, house}\}$$

Classify couples by split of work times **before** first child birth:

Distribution

- **Traditional**: Women specialize in housework and men in labor market work
- **Unbalanced**: Women take a larger share of both types of work
- **Egalitarian**: No specialization, 50-50 split of both work types
  - $\rightsquigarrow$ $0.45 \leq \textit{female share}_{\text{market}} \leq 0.55$ and $0.45 \leq \textit{female share}_{\text{house}} \leq 0.55$

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Classify couples by split of work times **before** first child birth:

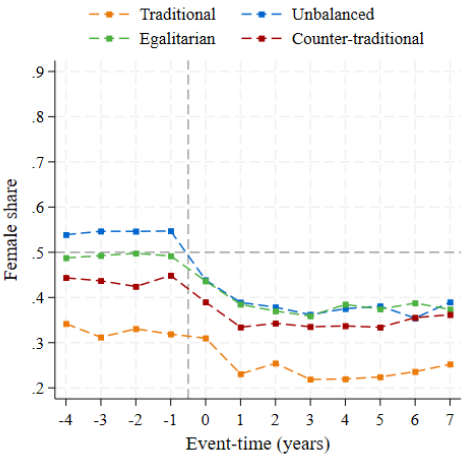
Distribution

- **Traditional**: Women specialize in housework and men in labor market work
- **Unbalanced**: Women take a larger share of both types of work
- **Egalitarian**: No specialization, 50-50 split of both work types
- **Counter-traditional**: Men take a larger share of housework
  - $\rightsquigarrow$ $\textit{female share}_{\text{house}} \leq 0.45$

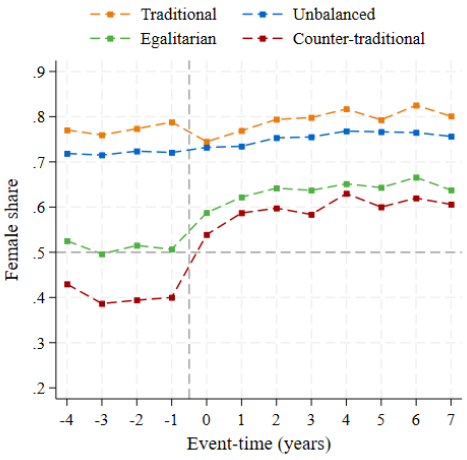
Gender-based specialization after childbirth

Estimates | Time changes

(a) Labor market work hours

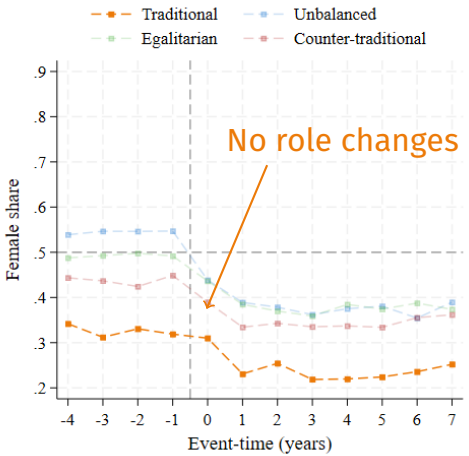


(b) Housework hours

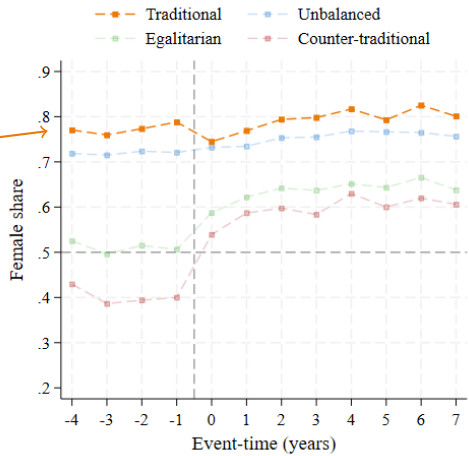


Who experiences the largest changes?

(a) Paid market work hours



(b) Unpaid housework hours



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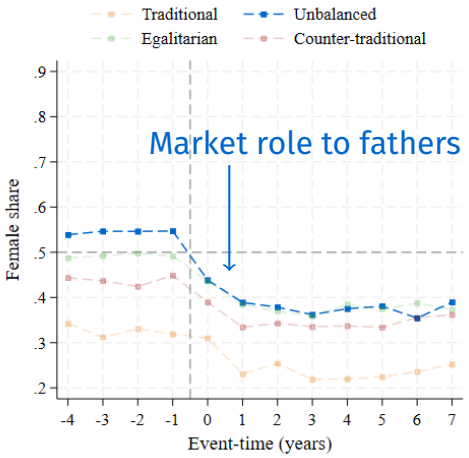
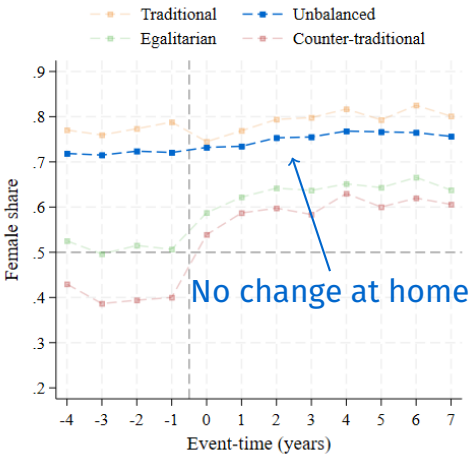


(b) Unpaid housework hours



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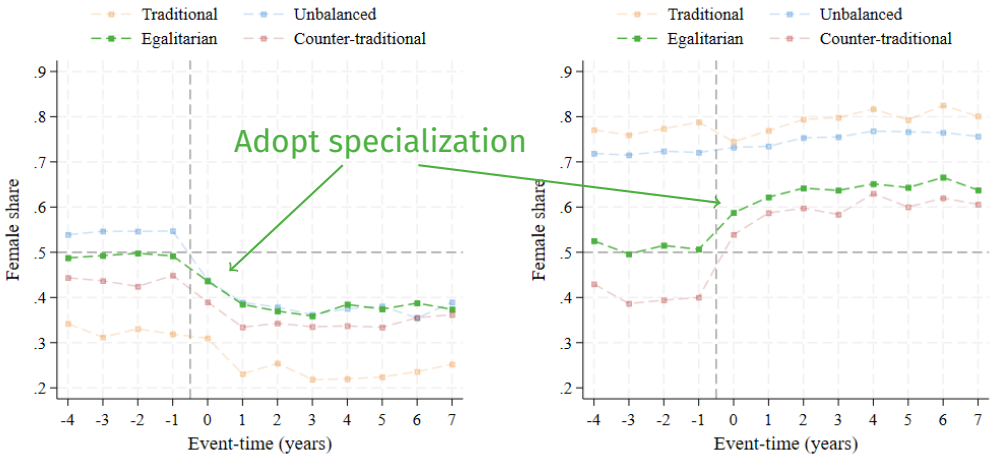
(b) Unpaid housework hours



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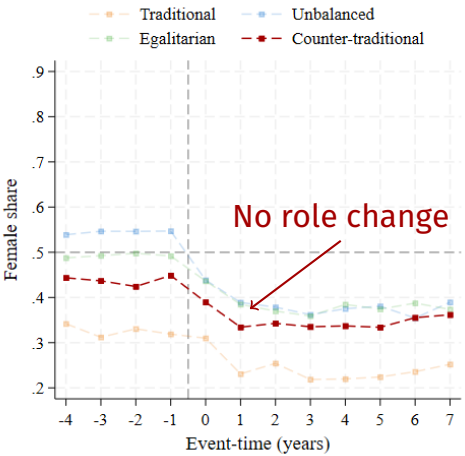
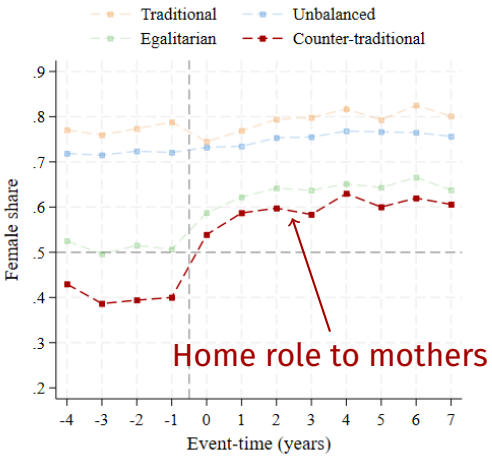


(b) Unpaid housework hours



Who experiences the largest changes?

	Market	Home
Traditional	No role change	
Unbalanced	To fathers	No change
Egalitarian	Adopt specialization	
Counter-traditional	No change	To mothers

Who experiences the largest changes?

	Market	Home
Traditional	No role change	
Unbalanced	To fathers	No change
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Counter-traditional	No change	To mothers

Not behaving according to revealed comparative advantages pre-birth

→ Frictions in the labor market or identity considerations
[Akerlof and Kranton, 2000; Ichino et al., 2019]

→ Become prevalent after parenthood and **unanticipated**
[Kuziemko et al., 2018]

Couples experiencing largest changes suffer the most

Static diff-in-diff estimates by couple type, using Callaway and Sant'Anna [2021]

	Traditional	Unbalanced	Egalitarian	Counter-traditional
Baseline RQ	0.345 (0.993)	0.424 (0.749)	0.568 (0.633)	0.459 (0.784)
ATT	-0.107 (0.180)	-0.0992 (0.086)	-0.175* (0.069)	-0.243** (0.075)
Observations	273	876	611	856

- Larger changes in housework associated with larger decreases in RQ
- Unanticipated changes: zero effect of second child birth

Average RQ | Percentage of baseline | Controls | By sex | Other mechanisms

Conclusions

1. **Having a child reduces Relationship Quality significantly and persistently**
2. **Parents change how they use their time**
   - Gender-based household specialization
   - Larger reallocation of paid and unpaid work → Larger RQ decrease

Email: olatz.roman@eui.eu

Conclusions

1. **Having a child reduces Relationship Quality significantly and persistently**
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Implications? Policies encouraging a more egalitarian distribution of tasks post-birth could mitigate the negative impact on RQ

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Conclusions

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Next project: Integrate empirical evidence into model of fertility and couple dissolution decisions

→ Which policies can mitigate negative impact on RQ?

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Future Research Plans

Olatz Román[1]

[1] European University Institute

ifo Institute
January 23, 2025

How do gendered behaviors and geographic factors influence...

1. Family decisions and outcomes

2. Labor market and mobility decisions

How do gendered behaviors and geographic factors influence...

1. Family decisions and outcomes ⇝ Job Market Paper

2. Labor market and mobility decisions

How do gendered behaviors and geographic factors influence...

1. Family decisions and outcomes ⇝ Job Market Paper

2. Labor market and mobility decisions ⇝ Let's start here

2. Labor market and mobility decisions

What are the consequences of gender differences in occupational choices?

1. *Ongoing:* “The Geography of Jobs and Couple Migration”
2. “Earnings Gender Gap and Occupations over the Life-Cycle” (with Alexander Monge-Naranjo)
3. “Occupational Sorting, Gendered Urban Wage Premia and Local Marriage Markets” (with Yannick Reichlin)

The Geography of Jobs and Couple Migration 1/2

Summary

Motivation: Decreasing couple migration and changes in women's labor market behavior

Women:	Not-participate	$\rightarrow$	Enter "female" occ.	$\rightarrow$	Enter all occ.
Couples:	Single earner	$\rightarrow$	Double earner, mobile	$\rightarrow$	Double earner, immobile

The Geography of Jobs and Couple Migration 1/2

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Question: How does the geography of occupations affect couple migration?

- Measure joint geographic constraints of couples
- Study relation between occupation geography and couple migration decisions

The Geography of Jobs and Couple Migration 1/2

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Main findings: Joint geographic constraints shape couple migration patterns

- Couples in highly concentrated occupations migrate less than other couples (1/2)
- Geographic overlap between partners' occupations is associated with higher migration
  - $\rightarrow$ Almost fully mitigates the negative effect of concentration

The Geography of Jobs and Couple Migration 2/2

Next steps

Empirically: Estimate causal effect of joint geographic constraints on couple migration

- *Idea:* Exploit shocks to joint geographic constraints through staggered introduction of state-level occupational licensing requirements
- *Status:* Waiting for historical licensing data availability

Theoretically: How much of the decrease in couple migration can be explained by occupational patterns? Can schemes like working from home encourage couple migration?

- *Idea:* Model of endogenous location choices with heterogeneous occupations
- *Status:* Set up preliminary 2-location $\times$ 3-occupation model

“Earnings Gender Gap and Occupations over the Life-Cycle”, with Alexander Monge-Naranjo

- How has the gender gap in earnings evolved over time and across cohorts? What is the role of occupations in determining this gap?
  - Entry occupations and occupational **transitions** over the life cycle
- *Idea:* Using a model *à la* Hsieh-et-al-2019, examine the role of gender-life cycle-cohort differences in occupational choices on the earnings gender gap
- *Status:* Gathering descriptive evidence

“Occupational Sorting, Gendered Urban Wage Premia and Local Marriage Markets”, with Yannick Reichlin

- Does occupational gender segregation create a wedge in urban wage premia? How does this affect the composition of local marriage markets?
- *Idea:* Using German employer-employee data...
  - Compute **real** urban wage premia by occupation over time
  - Document gender imbalances in city composition induced by gender unequal urban wage premia
  - Study the consequences of the resulting gender imbalances in: couple formation/dissolution, political inclinations, etc.

1. Family decisions and outcomes

What is the role of relationship quality?

1. *Ongoing:* “Measuring Relationship Quality”, with Belén Rodríguez-Moro
2. *Ongoing:* “Children, Household Specialization and Relationship Quality”, with Belén Rodríguez-Moro
3. *Ongoing:* “Until the City Do Us Part: Relationship Quality and Marriage Market Size”, with Ana Moreno-Maldonado and Belén Rodríguez-Moro
4. “Parental Relationship Quality and Child Development”, with Belén Rodríguez-Moro

“Until the City Do Us Part: Relationship Quality and Marriage Market Size”, with Ana Moreno-Maldonado and Belén Rodríguez-Moro

Question: Is there a city size premium to marriage markets in terms of RQ, couple formation and dissolution, analogous to that in local labor markets?

Main findings:

- Larger cities have more singles and lower stability in newly formed couples compared to smaller cities
- However, couples in bigger cities experience faster decreases in dissolution probabilities and slower deterioration in RQ with relationship tenure

Next steps: Disentangle size effects vs. composition effects

- AKM-style decomposition
- Dynamic quantitative model of couple formation and dissolution with endogenous location decisions

“Parental Relationship Quality and Child Development”, with Belén Rodríguez-Moro

- How does parental separation affect children’s long-term outcomes?
- *Idea:* Matching parental couples on observables and RQ, disentangle negative effects of
  - exposure to a bad relationship
  - separation

  on child develompent outcomes, comparing couples with similar RQ trajectories who separate and who do not

Future Research Plans

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Appendix

Models of couple formation and dissolution

Back to literature

Two types of gains from being in a couple [Becker, 1991]:

- material: being in a couple financially beneficial (economies of scale, risk sharing)
- non-material: more subjective and match specific

Theoretical treatments of non-material component, or match quality:

1. Stochastic component, non-persistent shocks at each period [Chiappori and Weiss, 2006, 2007; Gemici and Laufer, 2011; Bruze et al., 2015; Voena, 2015; Greenwood et al., 2017; Low et al., 2018]
2. Deterministic but unobserved, noisy signal updated each period [Brien et al., 2006; Blasutto et al., 2020; Antler et al., 2022; Blasutto, 2024]

⇒ Limited empirical guidance on how match quality determines couple decisions

Empirical studies of match quality

Back to literature

- In Economics:
  - observed partner characteristics [Eckstein et al., 2019; Low, 2021; Weiss and Willis, 1997]
  - well-being, happiness and conflict [Bertrand et al., 2015; Chiappori et al., 2018]

  → *Incorporate relationship-specific information*

- In Psychology:
  - propose and test measures of marital satisfaction and stress [Spanier, 1976; Busby et al., 1995; Norton, 1983; Funk and Rogge, 2007; Joel et al., 2020]

  → *Comprehensive measure parsimoniously summarizing*

- Other disciplines associate match quality with
  - marital transitions, childbirth, health, financial resources, happiness, etc. [Perelli-Harris and Blom, 2022; Carlson and VanOrman, 2017; Rijken and Liefbroer, 2009; Fernandes-Pires et al., 2023; Halliday Hardie and Lucas, 2010; Meadows and Arber, 2015]

  → *Overcome data shortcomings: longitudinal, own responses, present values*

Summary statistics the period before birth

Back to data

	(1) Fathers	(2) Mothers
Age	32.00	28.38
	(6.323)	(6.058)
College educated (%)	33.77	36.34
	(47.30)	(48.11)
Active in labor mkt (%)	86.97	84.25
	(33.65)	(36.42)
Employed (%)	82.48	78.09
	(37.98)	(41.35)
Weekly work hours	31.43	27.34
	(17.04)	(16.11)
Gross monthly income	2213.5	1569.2
	(1620.7)	(1220.5)
Weekly housework hours	5.157	8.583
	(4.044)	(6.258)
RQ	0.351	0.385
	(0.860)	(0.895)
Observations	2714	3260

	(3) Couples
Tenure	4.186
	(3.311)
Married (%)	42.56
	(49.20)
Female share of paid work	0.472
	(0.210)
Monthly household income	4045.0
	(2988.5)
Female share of housework	0.630
	(0.204)
Observations	4124

Summary statistics of parents and never parents

Back to data

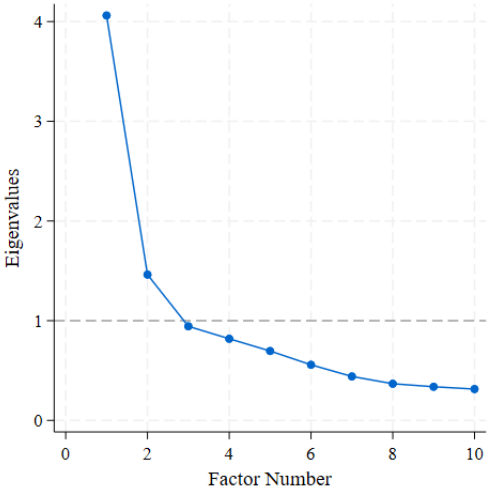
	(1) Parents	(2) Childless*
Age	32.08	40.10
	(7.719)	(12.72)
College educated (%)	30.91	33.61
	(45.03)	(46.94)
Active in labor mkt (%)	75.23	84.63
	(34.08)	(33.41)
Employed (%)	68.56	79.95
	(37.50)	(37.21)
Weekly work hours	23.17	27.66
	(15.41)	(16.23)
Gross monthly income	1833.2	1975.6
	(1355.0)	(1511.2)
Weekly housework hours	9.662	9.096
	(7.301)	(8.275)
RQ Distribution	0.00597	0.0995
	(0.869)	(0.963)
Observations	9573	7578

	(3) Parents	(4) Childless*
Tenure	6.600	11.32
	(4.357)	(11.38)
Married (%)	44.72	41.16
	(45.91)	(48.08)
Female sh. paid work	0.393	0.469
	(0.224)	(0.266)
Monthly hh income	3852.6	4546.5
	(2240.4)	(2703.9)
Female sh. housework	0.672	0.649
	(0.170)	(0.239)
Observations	6871	6469

*Individuals never having cohabiting own children, observed before age 45

Scree plot of factor analysis

Back to measure



- The 1st factor explains 41% of the variation in the items
- The 1st and 2nd factors jointly explain 55% of the variation
- Jumps in the percentage explained are decreasing in size

Factor loadings of RQ

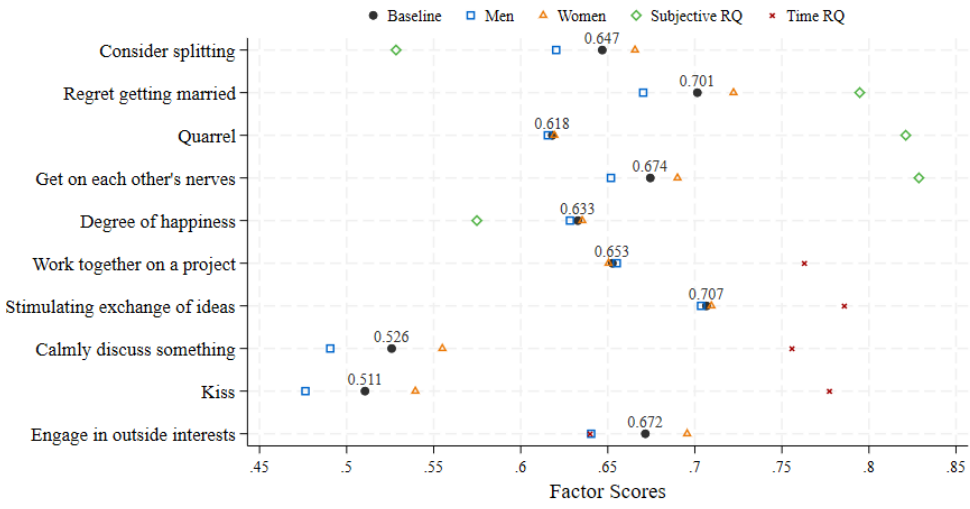
Back to measure

(a) Subjective assessment		(b) Couple time use	
How often do you... ?		*How often do you... ?*	
consider splitting	0.647	work together on a project	0.653
regret getting married	0.701	stimulating exchange of ideas	0.707
quarrel	0.618	calmly discuss something	0.526
get on each others nerves	0.674	kiss partner	0.510
What is the... ?		*Do you and your partner... ?*	
degree of happiness w/ couple	0.633	engage in outside interests	0.672

- Factor loadings are the correlation coefficient between an item and the factor
- RQ (factor 1) has **eigenvalue 4.06**, the next factor 1.46, the rest are below 1
- RQ explains **40.61%** of the variation

Factor loadings of RQ

Back to measure Back to results

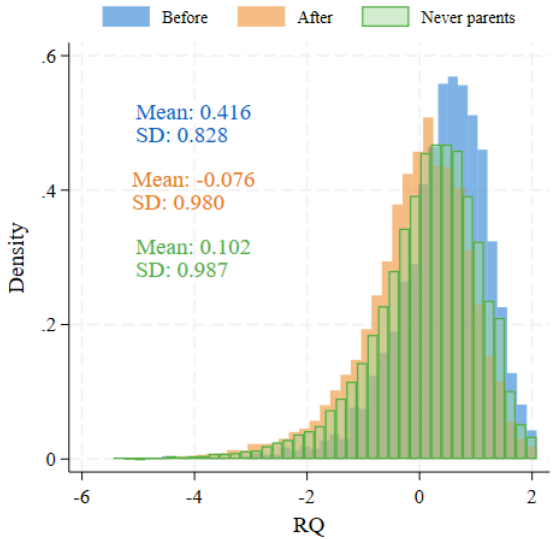


Distribution of RQ for never parents

Back to distribution

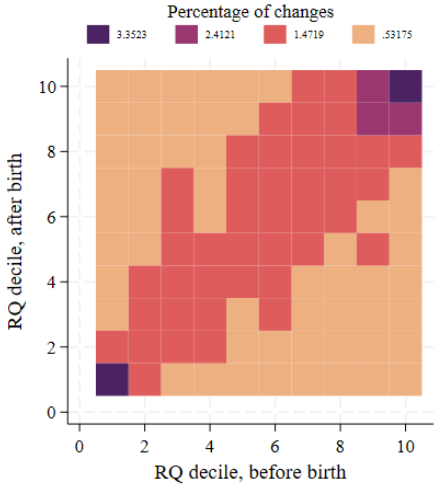
- Individuals never having cohabiting own children, observed before age 45

Summary Statistics



RQ decile before and after birth

Back to distribution

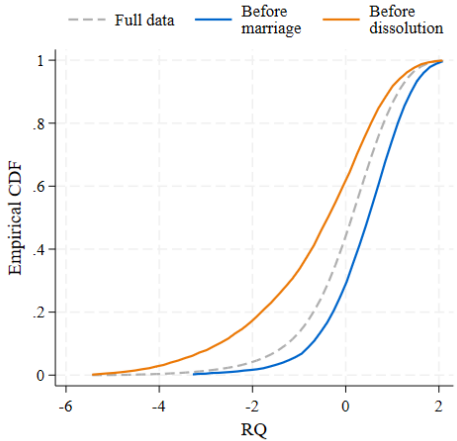


Validity: Informativeness

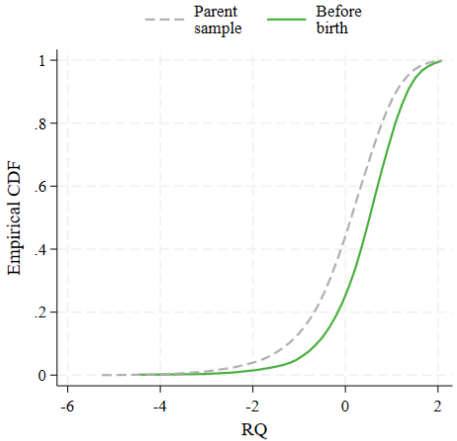
Back to measure

Behavior Prediction

(a) Marital transitions



(b) Fertility decisions



Validity: Informativeness

Back to measure

Behavior Prediction

	Separation		Marriage	
	(1)	(2)	(3)	(4)
Lagged RQ	-0.00876***	-0.00634***	0.00309***	-0.000371
	(0.001)	(0.001)	(0.001)	(0.001)
Controls		✓		✓
Individual FE	✓	✓	✓	✓
R-squared	0.003	0.029	0.000	0.025
Observations	93854	84586	93854	84586

Validity: Interpersonal comparability

Back to measure

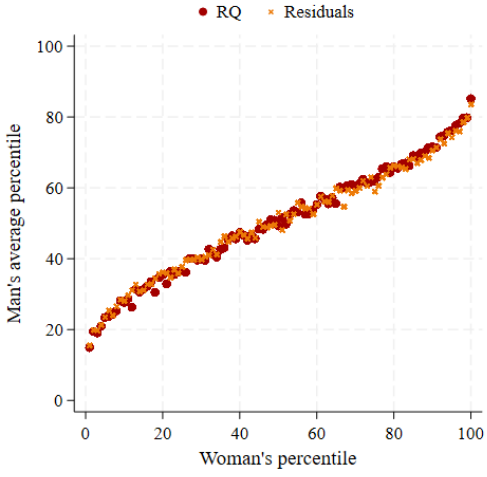
Within Couple Correlation

	Woman RQ	
	(1)	(2)
Man RQ	0.613***	0.594***
	(0.008)	(0.008)
Controls		✓
Age × Tenure × Wave		✓
R-squared	0.320	0.334
Observations	42889	39525

Validity: Interpersonal comparability

Back to measure

Rank-Rank Correlation



Validity: Interpersonal comparability

Back to measure

Couple correlation by item

	Woman									
	(1) cons. split	(2) reg. marry	(3) quarrel	(4) on nerves	(5) happy	(6) work tog.	(7) ideas	(8) discuss	(9) kiss	(10) interests
Man	0.418*** (0.010)	0.323*** (0.010)	0.464*** (0.007)	0.401*** (0.007)	0.289*** (0.006)	0.327*** (0.006)	0.276*** (0.006)	0.286*** (0.006)	0.544*** (0.006)	0.448*** (0.006)
Cont.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.192	0.104	0.227	0.175	0.112	0.141	0.116	0.109	0.354	0.226
Obs.	50314	50284	50282	50273	49519	50142	50089	50183	50107	41394

Validity: Interpersonal comparability

Back to measure

Couple correlation of subjective and time RQ

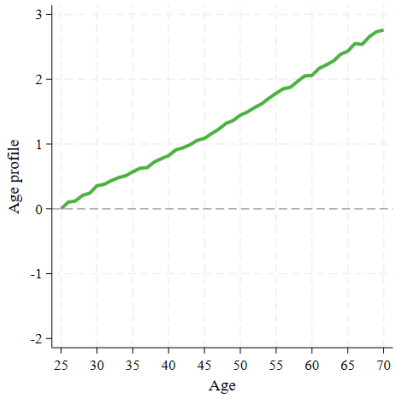
	Woman outcome					
	RQ		Subj. RQ		Time RQ	
	(1)	(2)	(3)	(4)	(5)	(6)
Man outcome	0.613***	0.594***	0.570***	0.557***	0.486***	0.455***
	(0.007)	(0.008)	(0.008)	(0.009)	(0.006)	(0.007)
Age × Tenure × Wave		✓		✓		✓
Controls		✓		✓		✓
R-squared	0.320	0.334	0.281	0.291	0.218	0.242
Observations	42889	39525	53135	49137	44046	40542

RQ measure: Life- and relationship-cycle profiles

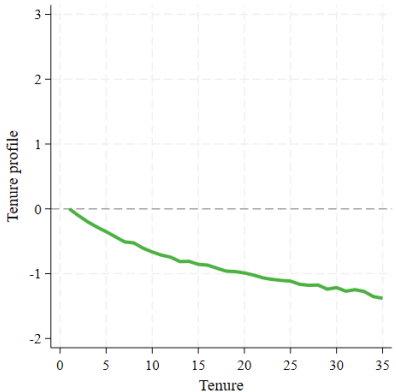
Back to measure

$$y_{i,t} = \phi_i + \lambda_t + \sum_a \mathbb{1}\{a = \text{age}_{i,t}\}\alpha_a + \sum_d \mathbb{1}\{d = \text{tenure}_{i,t}\}\gamma_d + u_{i,t}$$

(a) Life-cycle: α_a



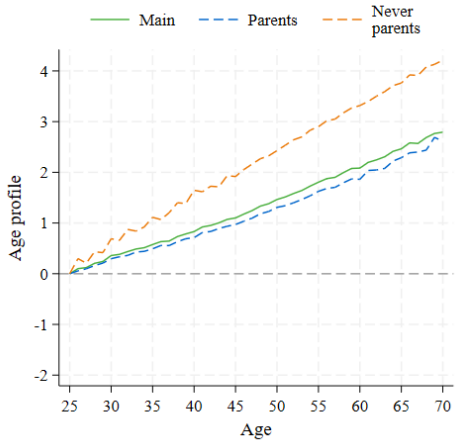
(b) Relationship cycle: γ_d



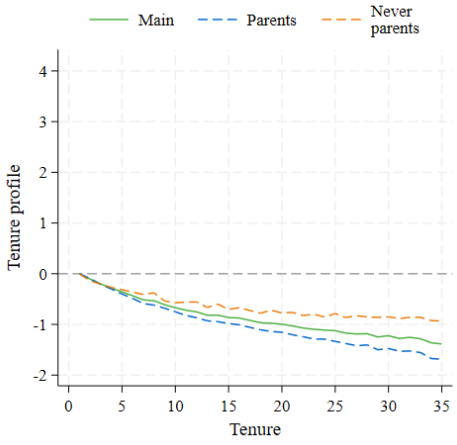
RQ measure: Life- and relationship-cycle profiles

Back to measure

(a) Life-cycle: α_a



(b) Relationship cycle: γ_d



RQ measure: Observable characteristics

Back to measure

	(1)	(2)
Women	-0.109***	
	(0.007)	
College	0.111***	-0.016
	(0.012)	(0.033)
Employed	0.066***	0.008
	(0.014)	(0.010)
Log Income	0.014**	0.000
	(0.004)	(0.003)
Married	0.257***	0.062**
	(0.018)	(0.020)
Children	-0.248***	-0.078***
	(0.015)	(0.013)
Urban	-0.058***	-0.010
	(0.013)	(0.021)
Age × Tenure × Wave	✓	✓
Individual FE		✓
R-squared	0.046	0.074
Observations	106826	106826

RQ measure: Observable characteristics

Back to measure

	(1)	(2)
Woman	-0.092***	-0.112***
	(0.009)	(0.012)
Woman college	0.049*	0.028
	(0.022)	(0.024)
Man college	0.043	-0.000
	(0.026)	(0.029)
Both college	0.152***	0.139***
	(0.020)	(0.022)
Woman × Woman college		0.042
		(0.024)
Woman × Man college		0.085**
		(0.027)
Woman × Both college		0.024
		(0.020)
Age × Tenure × Wave	✓	✓
Controls	✓	✓
R-squared	0.054	0.055
Observations	54160	54160

Back to empirical strategy

- **Issue:** The usual specification carries out *forbidden* comparisons: uses already treated as controls
- **Proposed method:**
  1. Compute cohort ATT estimates using only not-yet treated as controls in pairwise comparisons:

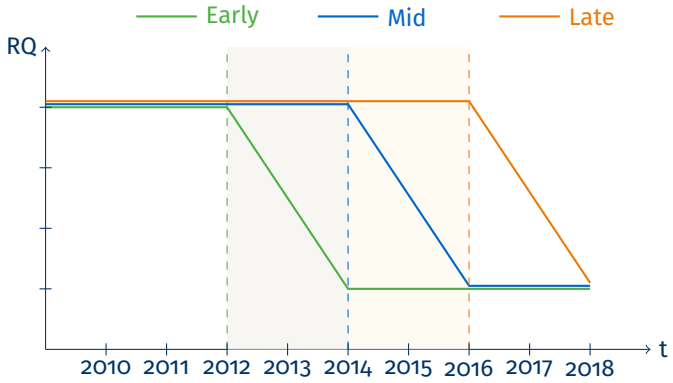
$$ATT(g,t) = \mathbb{E}[Y_{i,t} - Y_{i,g-1} | G_i = g] - \mathbb{E}[Y_{i,t} - Y_{i,g-1} | g' > t \geq g]$$

     $\rightarrow$ *Controls:* cohorts g' that were treated after the period t

  2. Aggregate ATTs at the event-time level using as weights the share of each cohort at every event-time

Illustration of comparisons - Consider 3 individuals:

Back to empirical strategy



Controls for	2013-2014	2015-2016	2017-2018
early	● ●	●	○
mid	-	●	○
late	-	-	○

Back to empirical strategy

A1. No anticipation - *RQ does not predict when individuals have their first child*

Formally: If a unit is untreated in period t, its outcome does not depend on when it will be treated in the future

$$Y_{i,t}(g) = Y_{i,t}(\infty) \text{ for all } i \text{ and } t < g$$

- First child birth is not preceded by changes in RQ

Back to empirical strategy

A2. Conditional parallel trends - *In absence of treatment, RQ would have evolved in parallel for all cohorts g*

Formally: All adoption groups would have evolved in parallel in absence of treatment. For all $t \neq t'$ and $g \neq g'$:

$$\mathbb{E}[Y_{i,t}(\infty) - Y_{i,t'}(\infty)|G_i = g] = \mathbb{E}[Y_{i,t}(\infty) - Y_{i,t'}(\infty)|G_i = g']$$

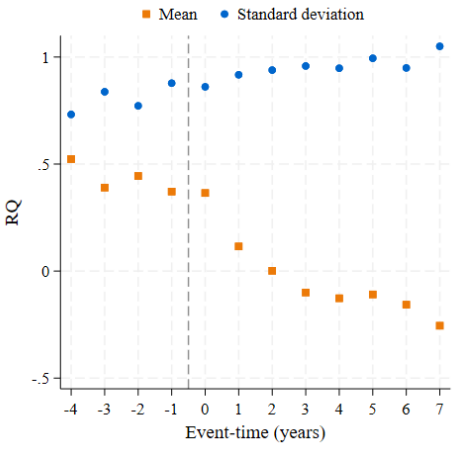
- Compare individuals that already had children with individuals that did not have children yet

A1. No anticipation - Checks

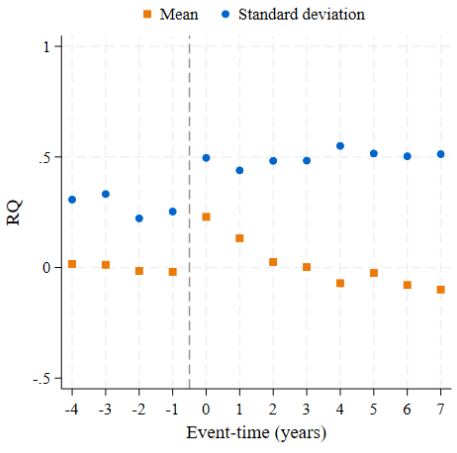
Back to empirical strategy

No large variation in pre-birth year-to-year changes

(a) RQ levels



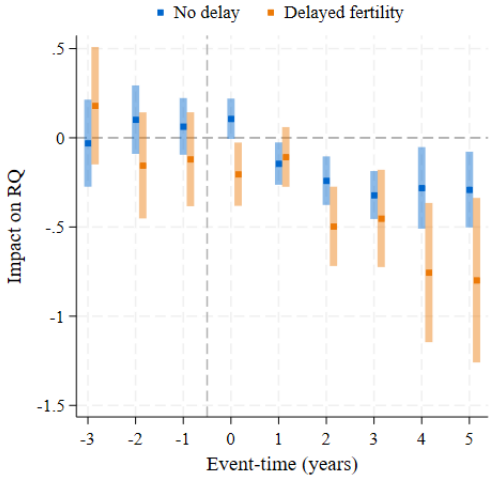
(b) Deviations from individual mean



A2. Conditional parallel trends - Checks

Back to empirical strategy

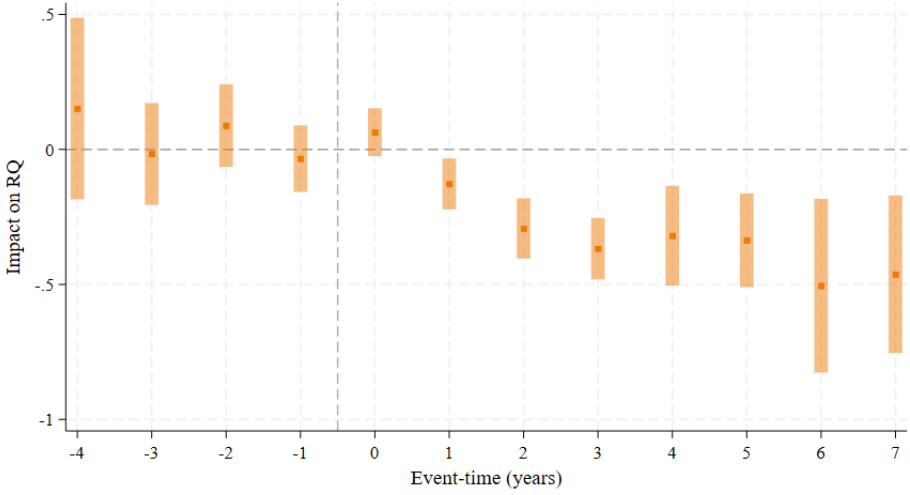
No differences with delayed fertility



A2. Conditional parallel trends - Checks

Back to empirical strategy

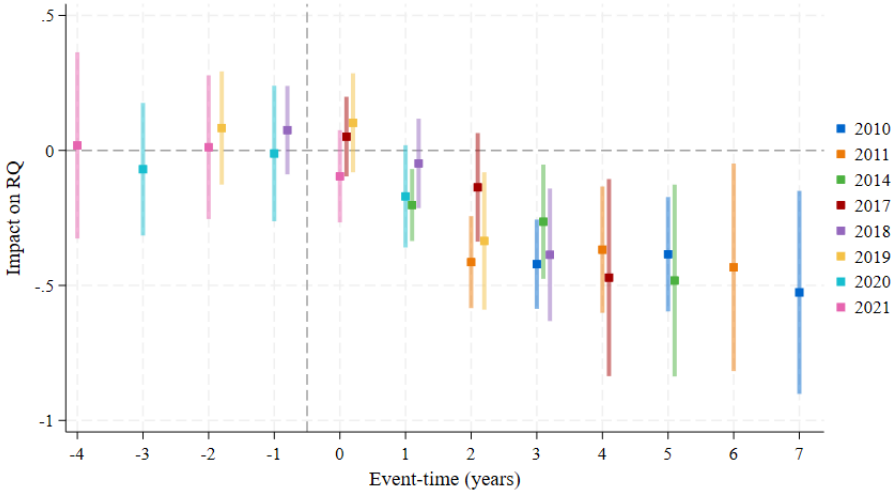
Comparisons among individuals with similar ex-ante RQ



A3. Homogeneous treatment effects - Checks

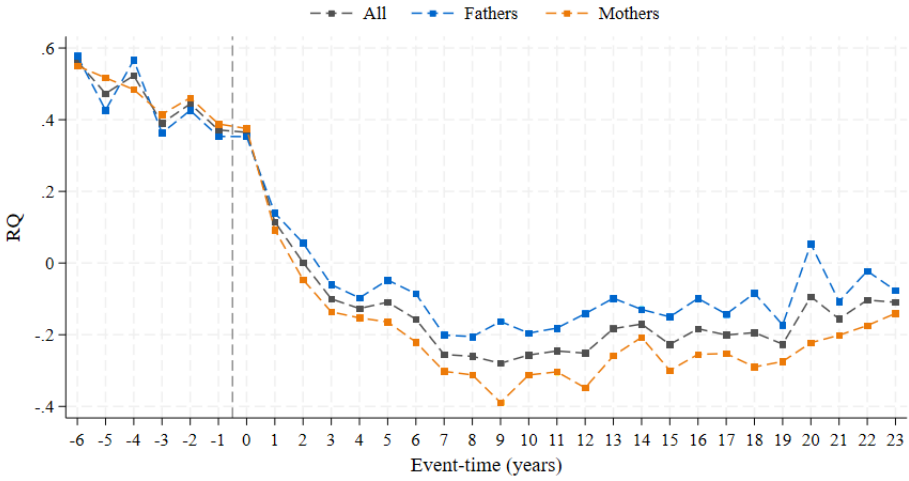
Back to empirical strategy

No differences across cohorts



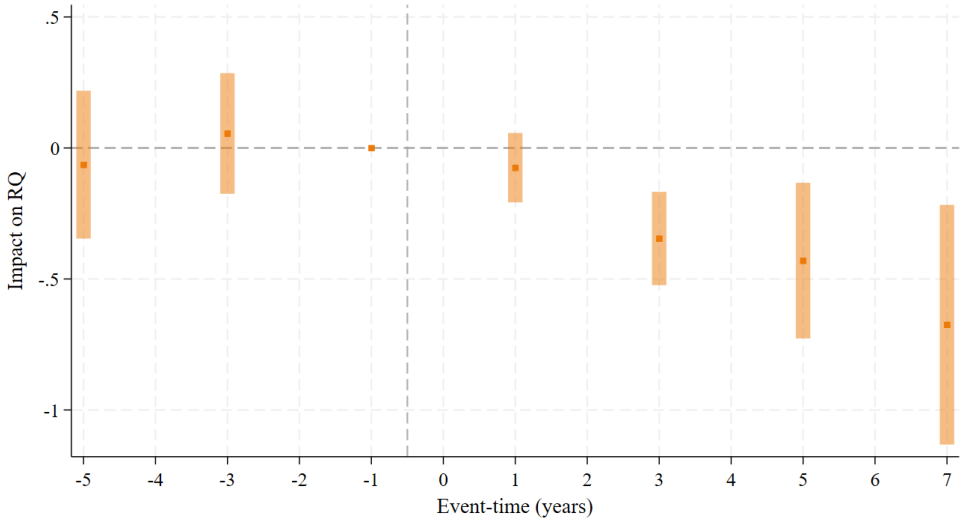
Average RQ around first child birth

Back to empirical strategy Back to results



Impact of first child birth on RQ: long comparison

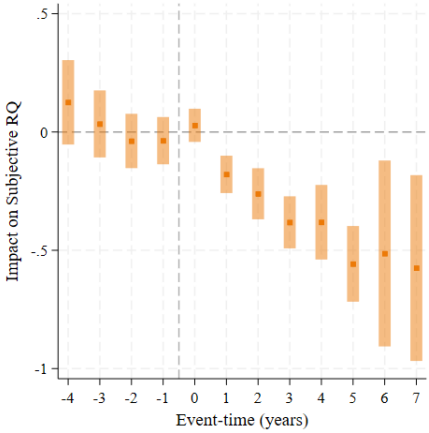
Back to results



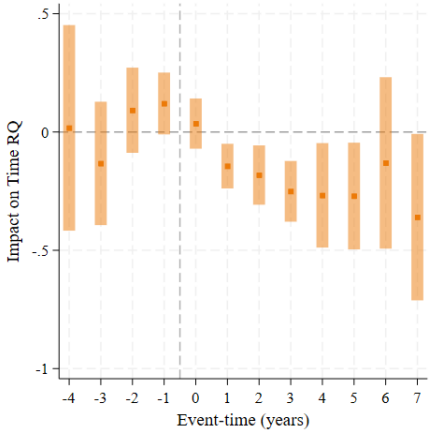
1. Time invariance of RQ: by item block

Back to results

(a) Subjective assessment



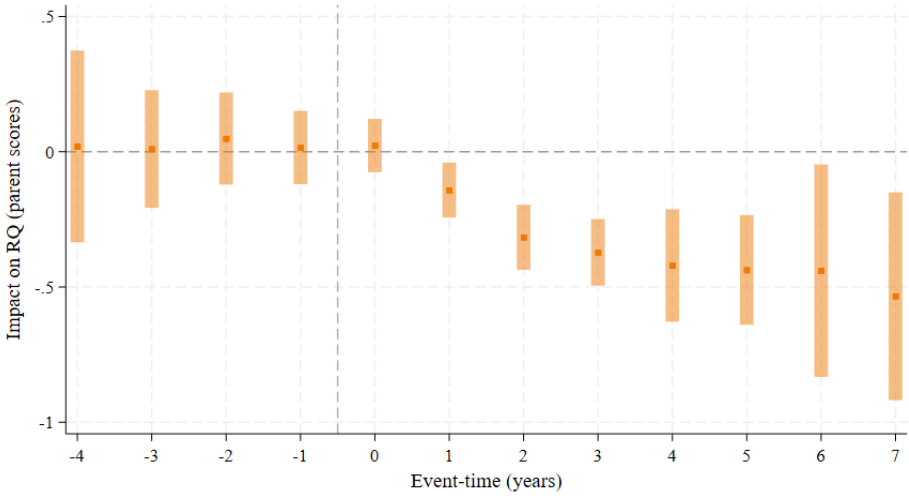
(b) Couple time use



Factor Loadings
Distribution
By item: subjective assessment
By item: time use

1. Time invariance of RQ: using parent scores

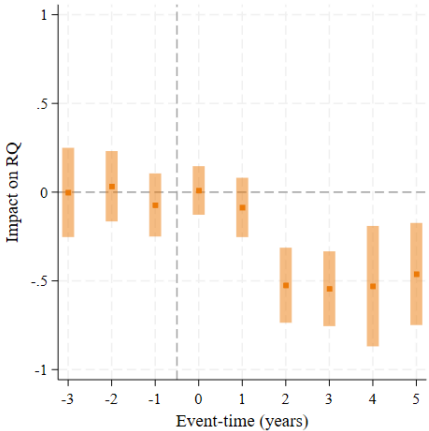
Back to results



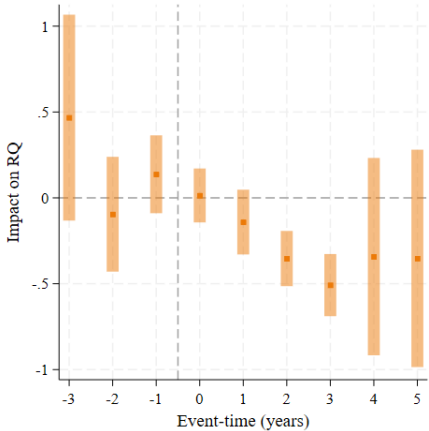
2. Subsequent fertility

Back to results

(a) One child



(b) More than one child



2. Subsequent fertility

Back to results

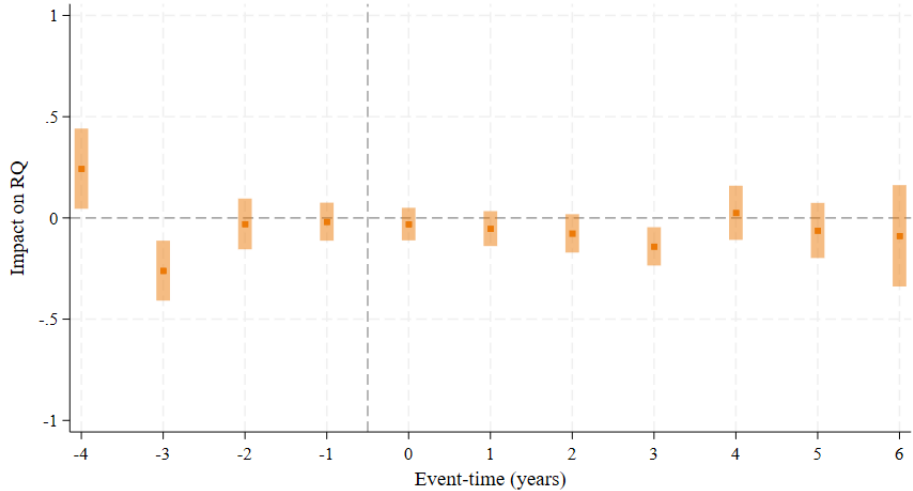
Individuals observed at the end of their fertility cycle

	(1) One child	(2) More than one
ATT	-0.360***	-0.212*
	(0.102)	(0.101)
Observations	693	1041

2. Subsequent fertility

Second child birth

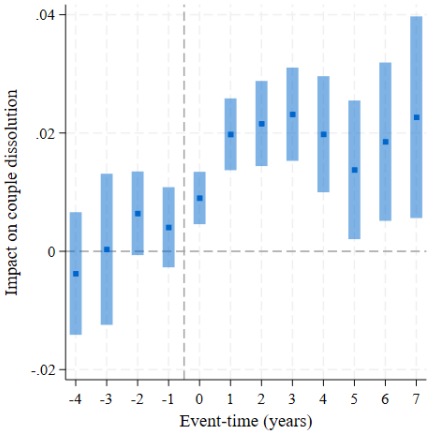
Back to results



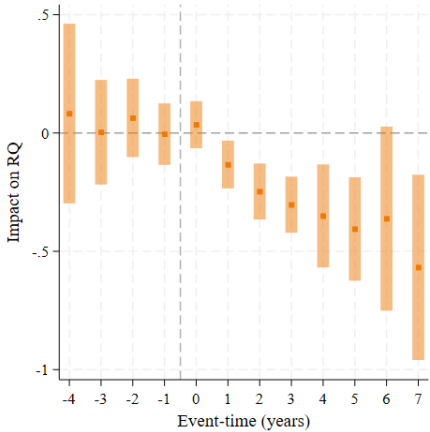
3. Selected sample

Back to results

(a) Divorce



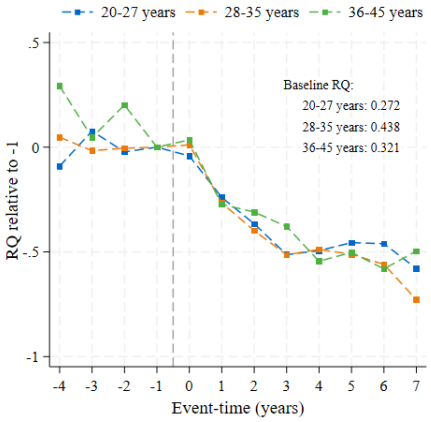
(b) Non-separating couples



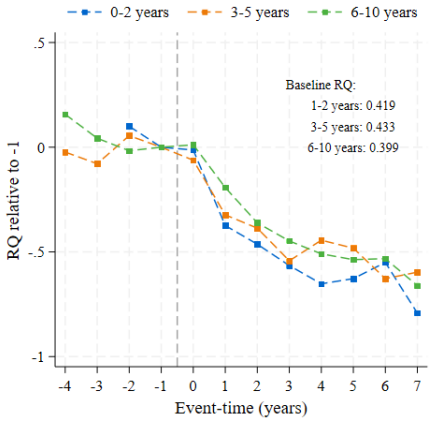
4. Timing of birth: Average RQ by age and tenure bin

Back to results

(a) Age bins

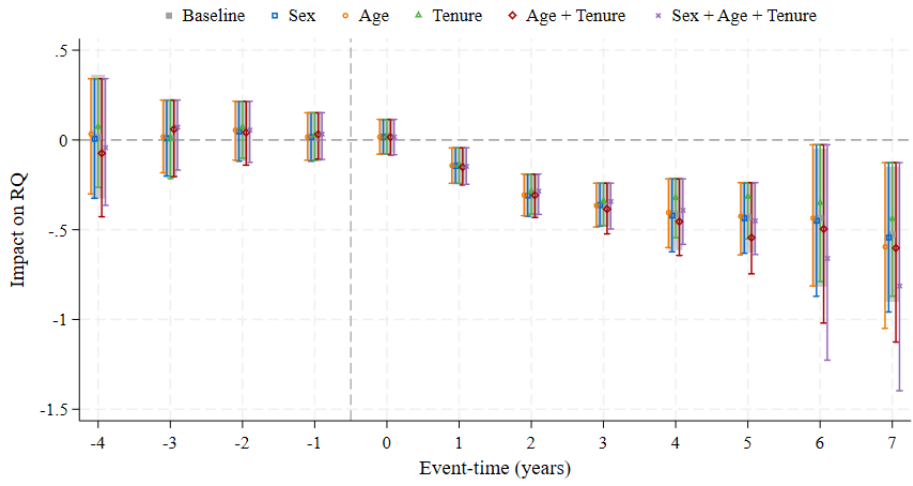


(b) Tenure bins



4. Timing of birth: Control for baseline

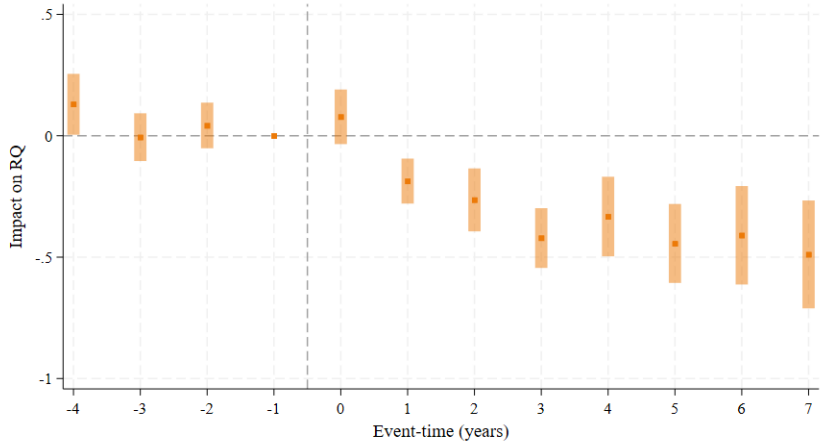
Back to results



4. Timing of birth: Using Kleven et al. [2019]

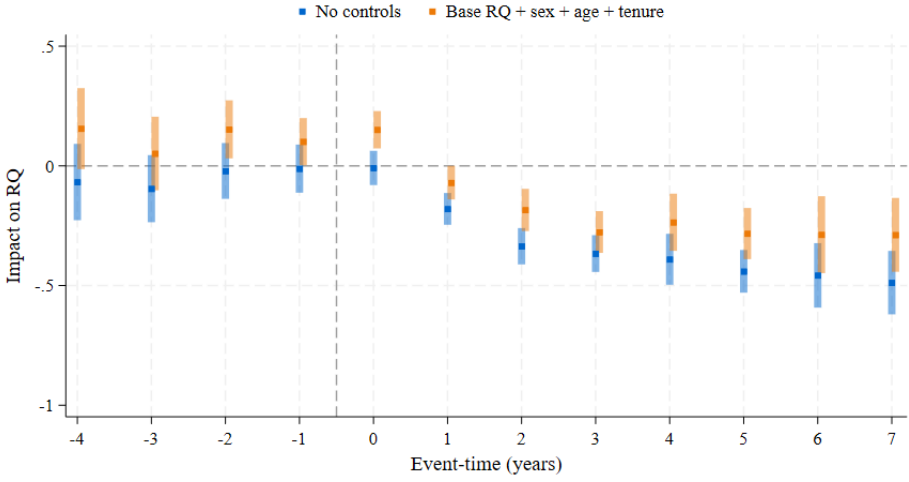
Back to results

$$y_{i,t} = \sum_{j \neq -1} \mathbb{1}\{j = t - G_i\}\delta_j + \sum_a \mathbb{1}\{a = \text{age}_{i,t}\}\alpha_a + \sum_d \mathbb{1}\{d = \text{tenure}_{i,t}\}\gamma_d + \sum_w \mathbb{1}\{w = \text{period}_t\}\psi_w + v_{i,t}$$



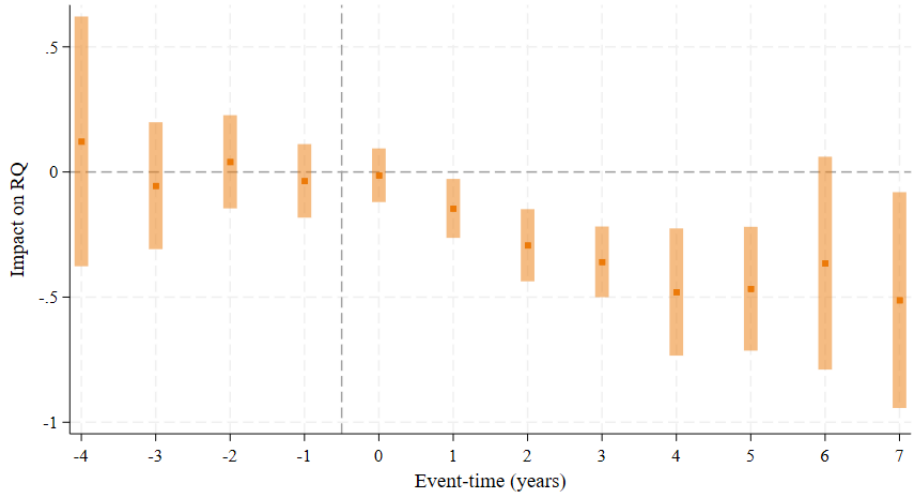
Robustness: Never parents as the control group

Back to results



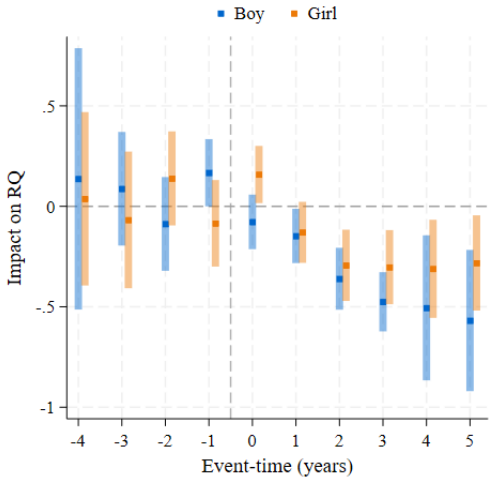
Robustness: Couple average RQ

Back to results



Robustness: First born boys vs. girls

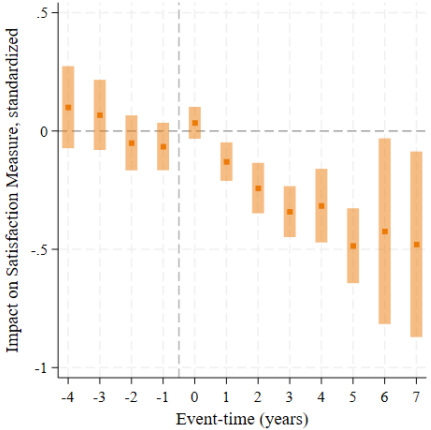
Back to results



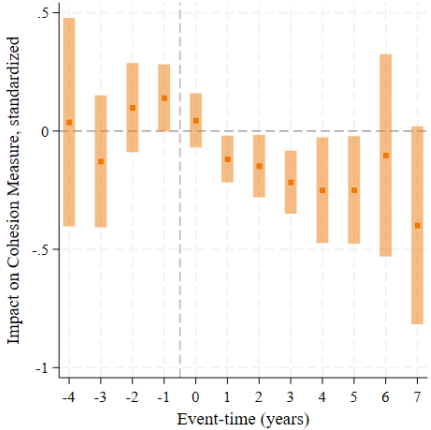
Robustness: Psychology measures

Back to results

(a) Satisfaction RDAS



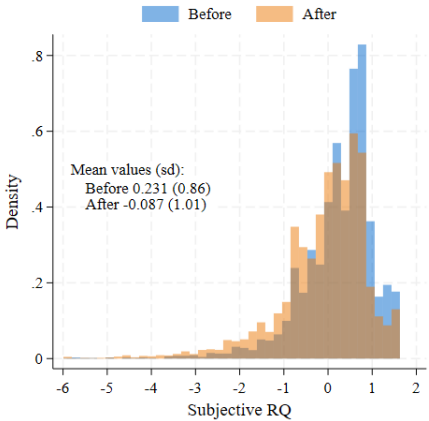
(b) Cohesion RDAS



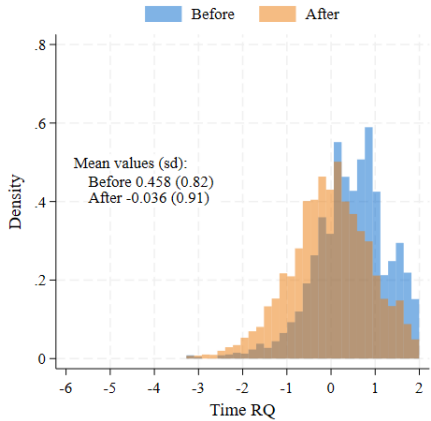
Distribution of Subjective and Time RQ

Back to results

(a) Subjective RQ



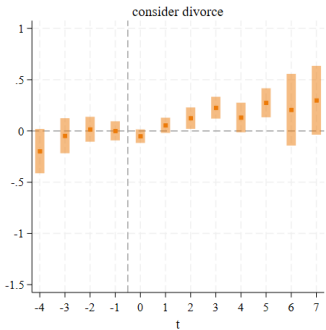
(b) Time RQ



Impact per item: Subjective assessment

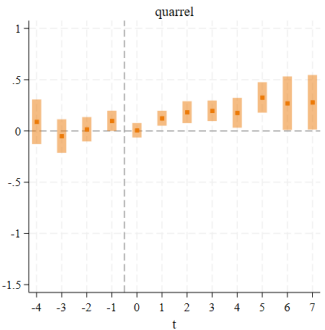
Back to results

(a) consider splitting



(b) regret getting married

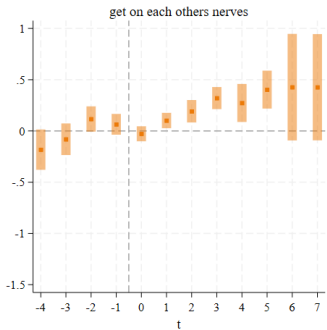
(c) quarrel



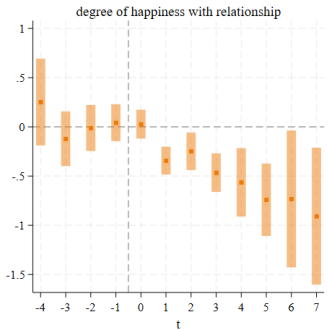
Impact per item: Subjective assessment

Back to results

(a) get on each other's nerves



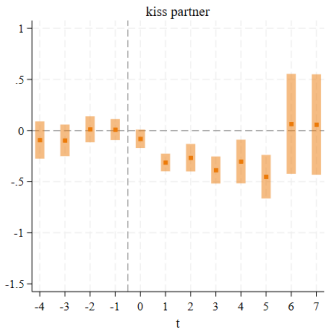
(b) degree of happiness



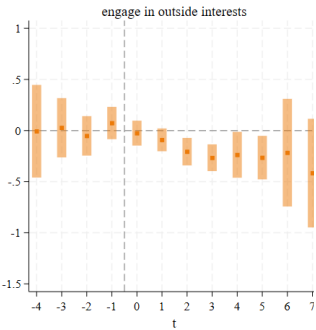
Impact per item: Couple time use

Back to results

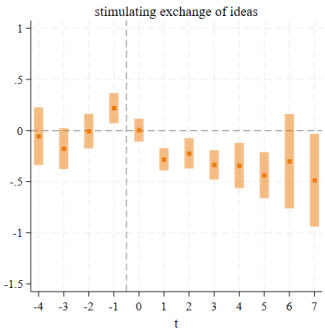
(a) kiss



(b) outside interests



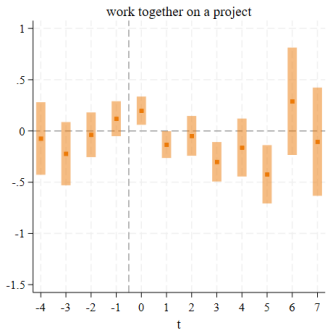
(c) exchange ideas



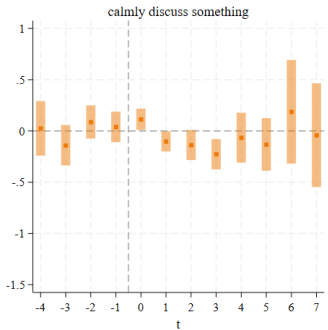
Impact per item: Couple time use

Back to results

(a) work together on a project

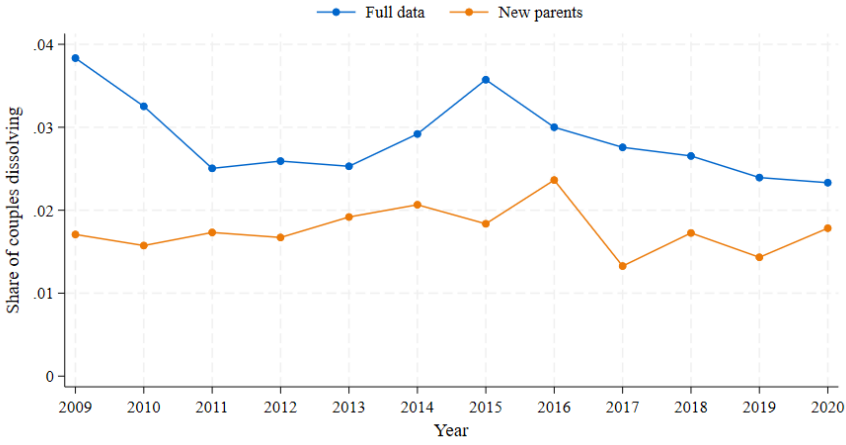


(b) calmly discuss something



RQ and couple dissolution

Back to results

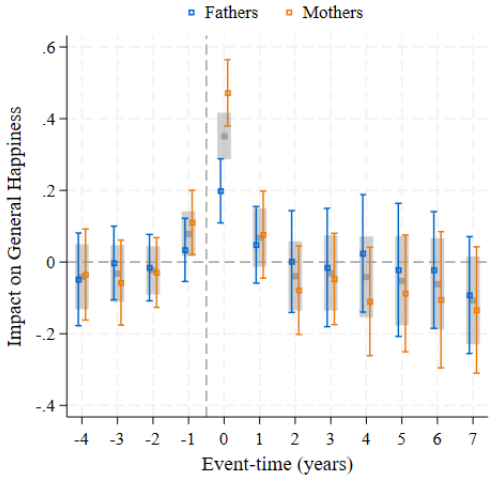


- On average, 1.44% of the married couples in fertility ages (20-45) living in England and Wales divorce every year in 2009-2021 [Office for National Statistics, 2022]

General happiness: “Have you recently been feeling reasonably happy, all things considered?”

Impact on mothers and fathers

Back to results



General happiness and RQ

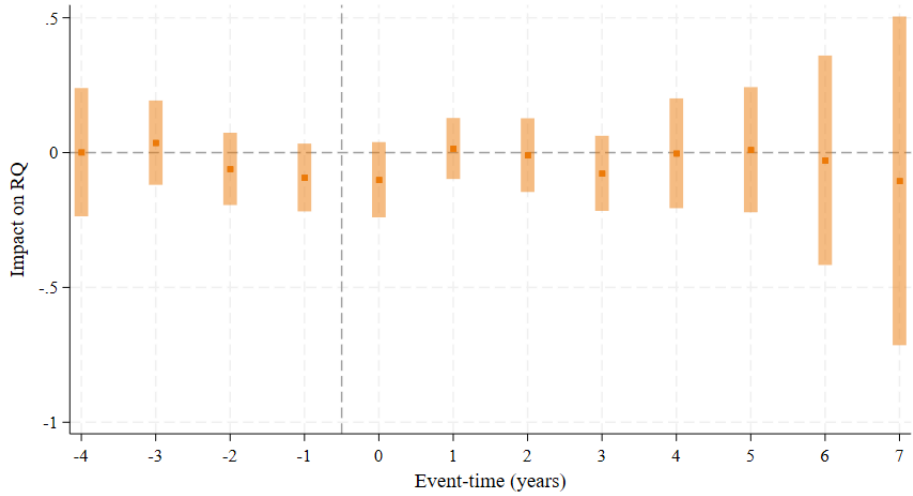
Back to results

Association in sample of never parents

	Dependent variable: General Happiness		
	(1)	(2)	(3)
RQ	0.222***	0.206***	0.185***
	(0.011)	(0.012)	(0.019)
Controls		✓	✓
Individual FE			✓
R-squared	0.047	0.069	0.033
Observations	18231	14953	14953

Timing around unemployment event

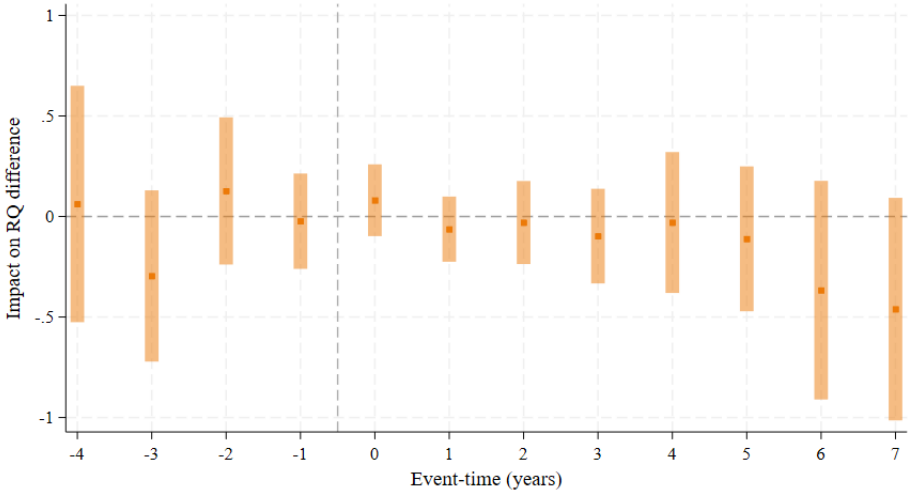
Back to results



Gender differences in impact on RQ

Back to results

RQ difference = Wife RQ - Husband RQ



Parental leave schemes in the United Kingdom

Back to mechanism

Leave with employment rights protected: pay rises, holidays, return to work

Statutory Maternity Leave (SML):

- *Leave:* Up to 52 weeks, 2 compulsory
- *When:* Up to 11 weeks before expected week of birth
- *Pay:* Up to 39 weeks, 6 weeks at 90% and rest at £184.03 or 90% (lowest)

Statutory Paternity Leave:

- *Leave:* 1 or 2 weeks, continuously or separately since Apr-2024
- *When:* Within 56 days after birth
- *Pay:* £184.03 or 90% (lowest)

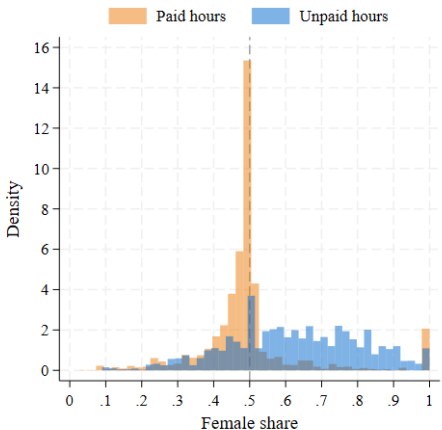
Shared Parental Leave:

- *Leave:* Up to 50 weeks from SML
- *When:* From 2 weeks after birth (compulsory SML)
- *Pay:* Up to 37 weeks from SML, £184.03 or 90% of household average (lowest)

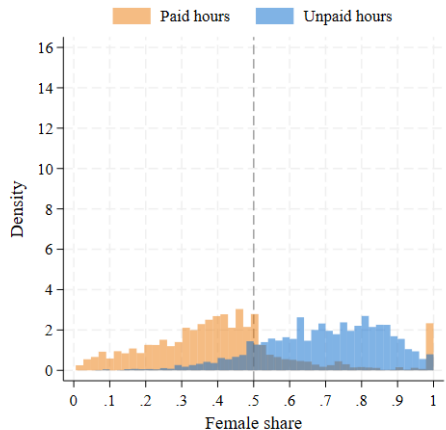
Distribution of female shares

Back to mechanism

(a) Before birth



(b) After birth



Summary statistics by couple type, before birth

Back to mechanism

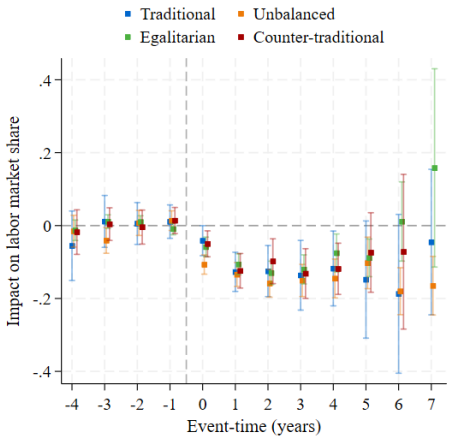
	Traditional	Unbalanced	Egalitarian	Counter-tradit.
Age	30.31	31.34	31.31	31.33
	(5.746)	(5.139)	(4.870)	(5.383)
College educated (%)	32.75	41.00	46.15	45.80
	(46.98)	(49.21)	(49.90)	(49.87)
Active in labor mkt (%)	92.03	95.65	99.83	94.74
	(27.01)	(20.40)	(4.181)	(22.35)
Employed (%)	87.66	94.23	98.95	92.92
	(32.84)	(23.33)	(10.20)	(25.67)
RQ	0.258	0.165	0.520	0.391
	(1.006)	(0.736)	(0.585)	(0.853)
Tenure	4.539	4.824	4.679	4.749
	(3.267)	(3.085)	(2.816)	(2.995)
Married (%)	65.73	70.36	65.68	68.23
	(46.99)	(45.09)	(47.28)	(46.25)
Monthly household income	3866.9	4220.8	4631.9	4500.1
	(2290.6)	(2253.4)	(2266.8)	(2425.8)
Observations	458	1058	572	551

Household specialization: Impact of first child birth

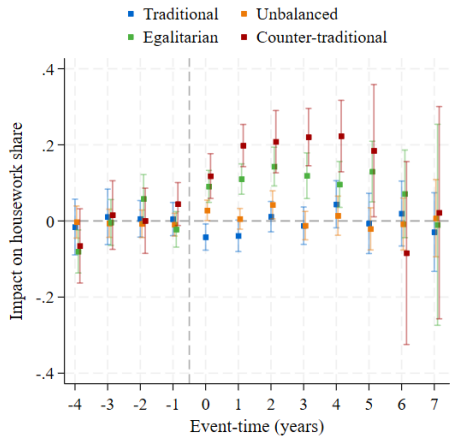
Back to mechanism

Using Callaway and Sant'Anna [2021] separately by group

(a) Paid work hours



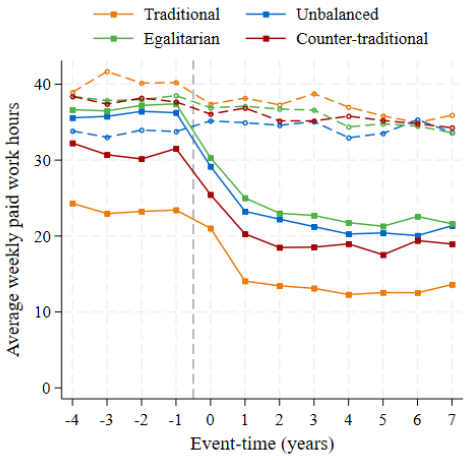
(b) Unpaid housework hours



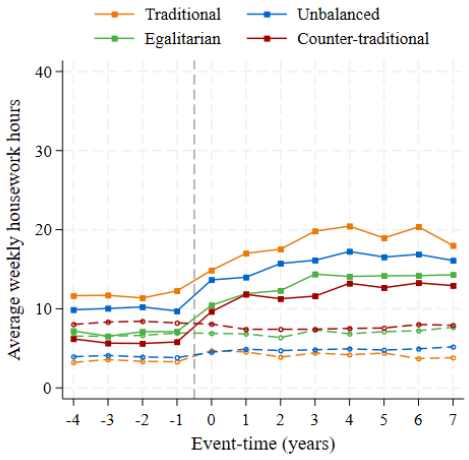
Household specialization: Changes in time use

Back to mechanism

(a) Paid work hours



(b) Unpaid housework hours



Post-birth separation and female LFP

Back to mechanism

	Traditional	Unbalanced	Egalitarian	Counter-tradit.
Separate after birth (%)	21.18	17.75	16.73	15.93
Female LFP at base $t = -1$ (%)	89.18	99.81	99.65	96.39
Female LFP right after birth, $t = 1$ (%)	67.83	86.74	93.33	83.82
Female LFP at school age, $t = 5$ (%)	79.57	93.37	96.14	87.87

Staggered DiD - Static specification

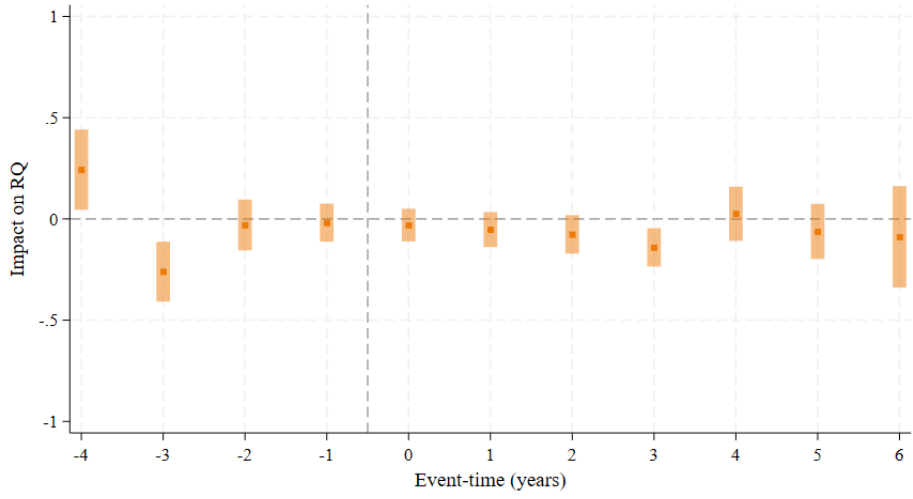
Back to mechanism

$$y_{i,t} = \alpha_i + \mu_t + \delta D_{i,t} + u_{i,t}$$

- $D_{i,t} = 1$ if i has already had the first child in period t
- Estimated through Callaway and Sant'Anna [2021] separately by couple type
- *Assume:* Treatment effect homogeneity with time relative to event
  - Not plausible in this context

Impact of second child birth on RQ

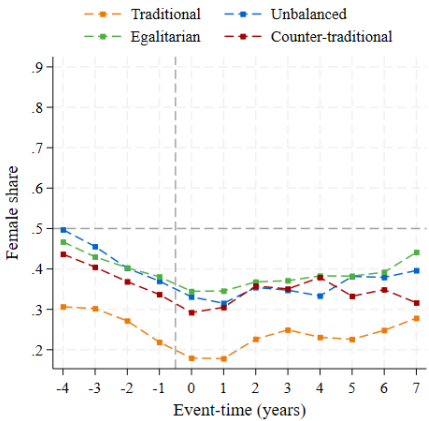
Back to mechanism



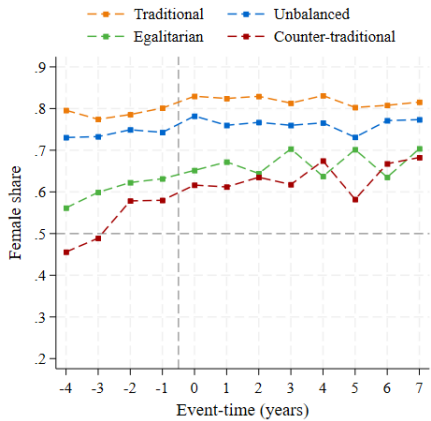
Female share changes after second child birth

Back to mechanism

(a) Labor market work

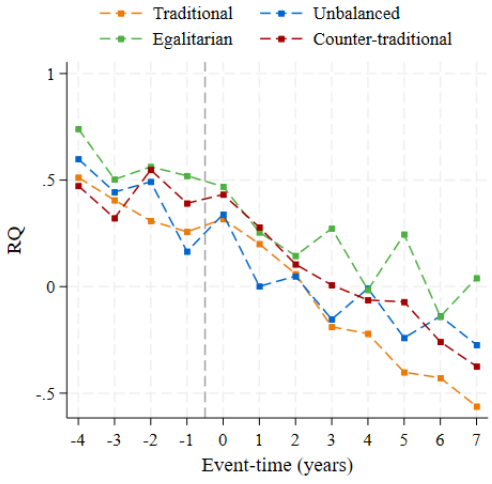


(b) Housework



Average RQ by couple type

Back to mechanism



Coefficient as a percentage of the pre-birth mean

Back to mechanism

	Traditional	Unbalanced	Egalitarian	Counter-traditional
Baseline RQ	0.345 (0.993)	0.424 (0.749)	0.568 (0.633)	0.459 (0.784)
ATT	-0.107 (0.180)	-0.0992 (0.086)	-0.175* (0.069)	-0.243** (0.075)
Percentage Post level	31.01 0.238	23.40 0.325	30.81 0.393	52.94 0.216
Observations	273	876	611	856

Controlling for observables

Back to mechanism

Education, labor force activity, employment, household income, marital status

	Traditional	Unbalanced	Egalitarian	Counter-traditional
Baseline RQ	0.345 (0.993)	0.424 (0.749)	0.568 (0.633)	0.459 (0.784)
ATT	0.314 (0.191)	-0.0750 (0.092)	-0.862* (0.337)	-0.546*** (0.149)
Observations	273	876	611	856

Separately for men and women

Classify by baseline housework split

Back to mechanism

	Traditional		Egalitarian	
	(1) Fathers	(2) Mothers	(3) Fathers	(4) Mothers
Baseline RQ	0.350	0.459	0.415	0.423
ATT	-0.0562	-0.239*	-0.270***	-0.377***
	(0.116)	(0.117)	(0.061)	(0.082)
Observations	499	524	1635	1782

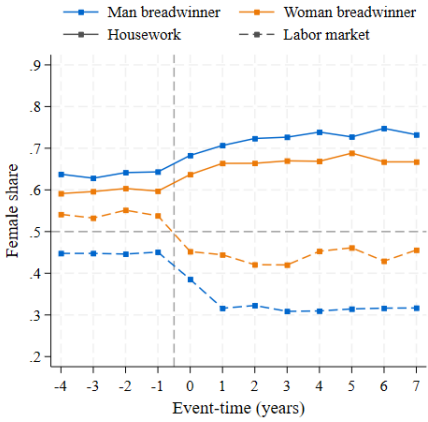
Other potential mechanisms and post-birth outcomes

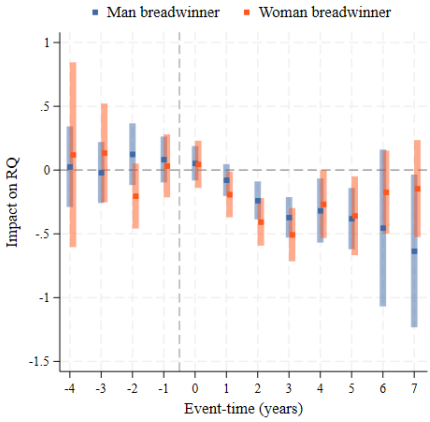
Back to mechanism

- Baseline breadwinner gender See
- Baseline household income quartile See
- Fathers taking paternity leave See
- Mothers return to work See

Baseline breadwinner gender

Back to other mechanisms





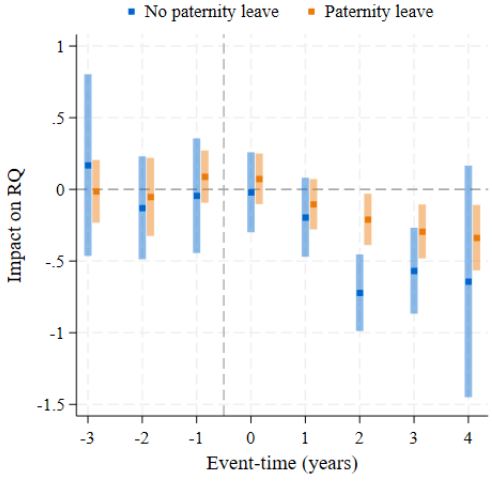
Baseline household income quartile

Back to other mechanisms

	(1) Bottom	(2) Second	(3) Third	(4) Top
ATT	-0.341*	-0.196**	-0.328***	-0.262***
	(0.147)	(0.071)	(0.077)	(0.070)
Baseline RQ	0.212	0.444	0.477	0.490
Observations	941	1198	1163	1146

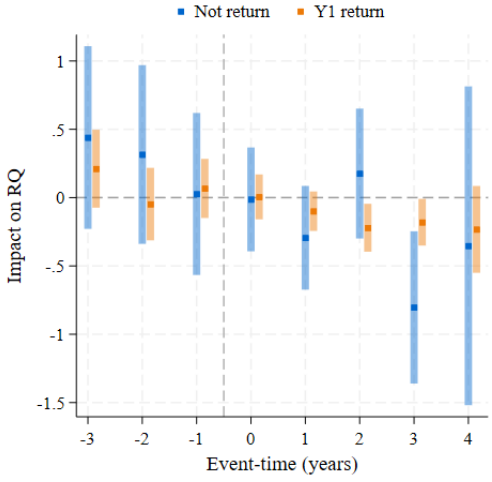
Paternity leave

Back to other mechanisms



Mothers return to work

Back to other mechanisms



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