Children, Household Specialization and Relationship Quality

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Having children changes people's lives

- More responsibilities = Reorganize time
  - Mothers reduce labor market time [Kleven et al., 2019; Goldin, 2021]
  - Readjust home production accordingly [Aguilar-Gomez et al., 2019; Siminski and Yetsenga, 2022]
  - No more leisure nor sleep [Aguiar and Hurst, 2007; Costa-Font and Flèche, 2020]
- What are the deeper consequences of these adjustments?

Relationship Quality and Children

- *Relationship Quality:* Non-material gains from being in a couple
  - Incorporated in models of couple formation and dissolution [Browning et al., 2014; Chiappori, 2020]
  - With little empirical guidance [Weiss and Willis, 1997; Chiappori et al., 2018]
- **In the context of children:**
  - Influence investments in child education [Chiappori and Weiss, 2007]
  - Couple dissolution affecting children [Gruber, 2004; Björklund et al., 2007], even before dissolution [Piketty, 2003; Björklund and Sundström, 2006]
  - Inform policies to encourage fertility [Olivetti and Petrongolo, 2017; Avdic and Karimi, 2018; Farré and González, 2019]

In this paper

What is the impact of having a child on couples' relationship quality?

- Novel measure of relationship quality (RQ)
- Dynamic DiD around the birth of the first child

▷ First child birth significantly and persistently reduces RQ

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Can changes in household specialization explain this relation?

- Changes in labor market and housework times
- Share out of household total done by women
  - Divide couples depending on baseline division
- Impact on RQ by couple type

  - Increase in housework, borne by women, reducing labor time
  - Gender-based specialization after birth, regardless of baseline arrangement
  - Larger time rearrangement = Larger decrease in RQ

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Literature and contribution

Models of family formation and dissolution [Weiss and Willis, 1997; Browning et al., 2014; Chiappori, 2020]

- ▷ Empirically proxy non-material component

Novel measure of RQ [Carlson and VanOrman, 2017; Joel et al., 2020]

- ▷ Better quality data allowing quasi-experimental design and parsimonious measure

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

- ▷ Outcome affecting both couple members and children

Household time allocation [Sevilla and Smith, 2020; Alon et al., 2020; Hupkau and Petrongolo, 2020; Aguilar-Gomez et al., 2019; Siminski and Yetsenga, 2022]

- ▷ Previous arrangement heterogeneity & impact on outcomes

Data and Empirical Strategy

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

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

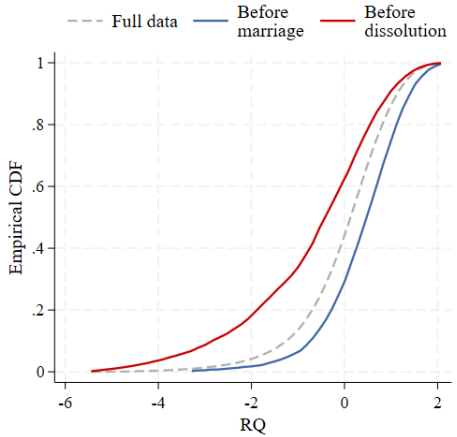
Factor analysis to construct RQ

- Standardized and increasing — Distribution
- Explains 40.49% of the variation in the items — Factor Loadings

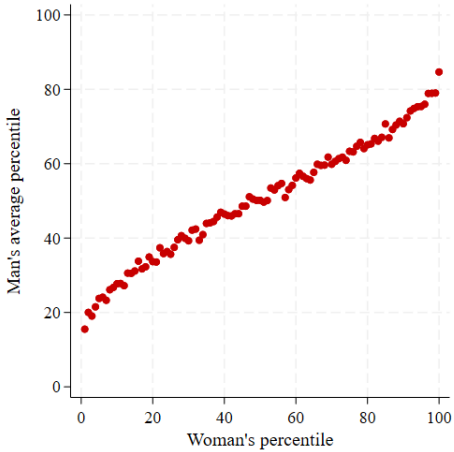
Measure of Relationship Quality

Validity exercises

(a) Measurability: Behavior prediction



(b) Interpersonal comparability



Empirical Strategy

- Dynamic DiD: Two-Way Fixed Effects specification

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

  - $t - G_i$: time since i's first child was born (*event time*)

- Estimated using Callaway and Sant'Anna [2021] method

- Under some assumptions δ_j provide the ATT

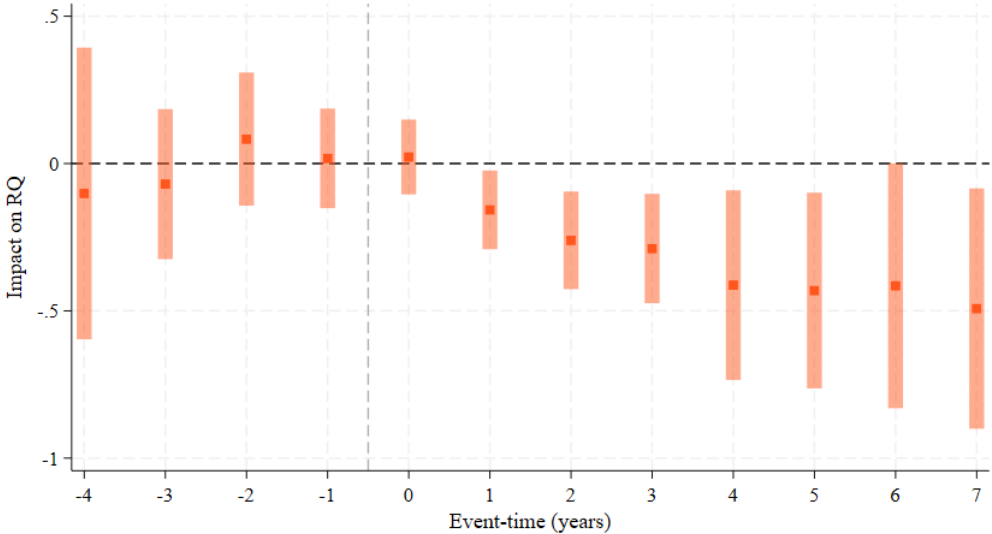
  A1. **No anticipation** - *RQ does not predict when individuals have their first child*

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

  A3. **Homogeneous effects across treatment cohorts** *(for aggregation)*

Impact of the birth of the first child on Relationship Quality

First child birth significantly and persistently reduces RQ

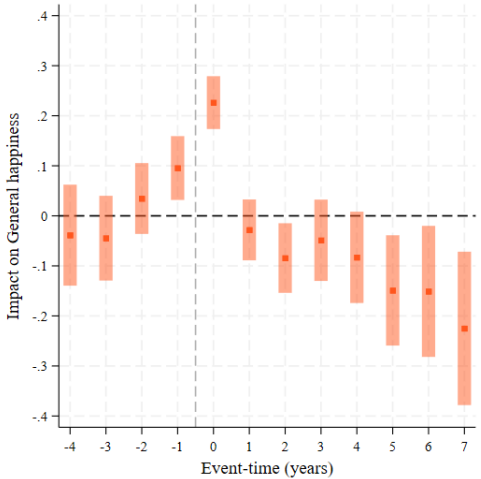


The results are not driven by...

- changes in time use items only or in item valuation after birth
- parents of more than one child
- attrition due to couple dissolution
- timing of birth, in terms of age and relationship tenure

More

What is the relative importance of this result?



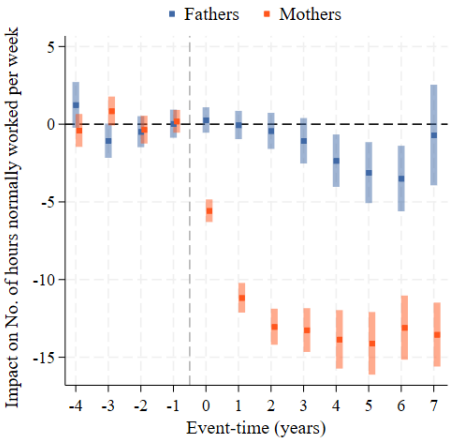
- Standardized measure of **general happiness**: *"Have you recently been feeling reasonably happy, all things considered?"*
- Very different from RQ:
  - Adapt to life events over time
  - Benefits of children balance out drawbacks in RQ

RQ and couple dissolution Other shocks: Unemployment

Mechanism: Changes in Household Specialization

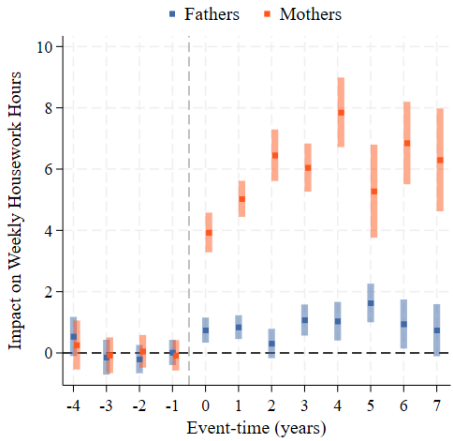
Changes in time use

(a) Paid work hours



Baseline: Men 32 hours, women 27 hours

(b) Unpaid housework hours



Baseline: Men 5 hours, women 8 hours

Time rearrangement

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

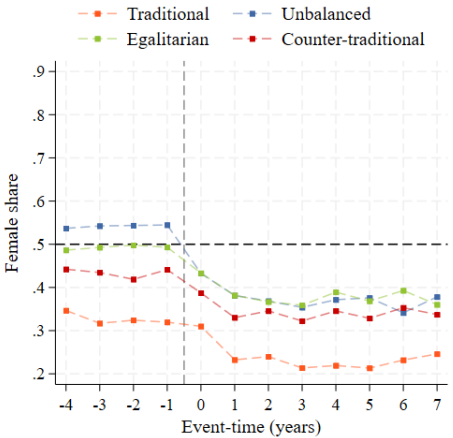
$$\textit{female share} = \frac{\text{woman's hours}}{\text{man's hours} + \text{woman's hours}}$$

Classify couples by split before the birth of the first child:

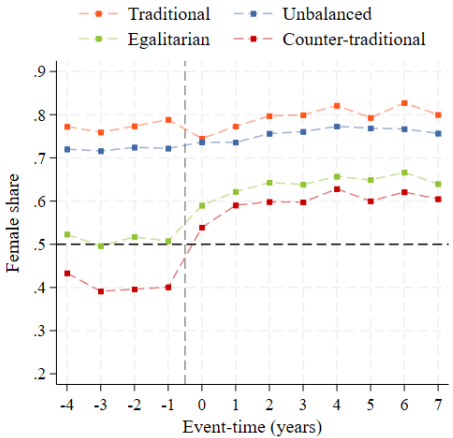
- **Traditional**: women specialize in housework and men in paid work
- **Unbalanced**: women take a larger share of both
- **Egalitarian**: no specialization, 50-50 split of both
- **Counter-traditional**: men take a larger share of housework

Gender-based specialization after childbirth

(a) Paid work hours



(b) Unpaid housework hours



Who experiences the largest changes?

- Traditional: Roles **sustained**
- Unbalanced: Predominant role in **labor** market transferred **to fathers**
  - Women reduce total contribution
- Egalitarian: Adopt gender-based **specialization**
- Counter-traditional: Predominant role at **home** transferred **to mothers**

Not optimally responding to skill substitutability within the couple

→ 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 DiD estimates by couple type, using Callaway and Sant'Anna [2021]

	Traditional	Unbalanced	Egalitarian	Counter-traditional
Baseline RQ	0.300 (1.018)	0.428 (0.788)	0.513 (0.635)	0.489 (0.777)
Impact	-0.149 (0.183)	-0.107 (0.092)	-0.218*** (0.078)	-0.353*** (0.097)
Observations	267	817	515	665

- Larger changes in housework associated with larger decreases in RQ
- More equal distribution of overall time mitigates the impact

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

- *Implications:* Policies effectively inducing more equitable divisions of responsibilities may mitigate the negative impact on RQ
- *Next steps:*
  - How does RQ influence fertility decisions?
  - Can we disentangle the impact of parental divorce and low RQ on children?

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Summary Statistics the period before birth

Back to data

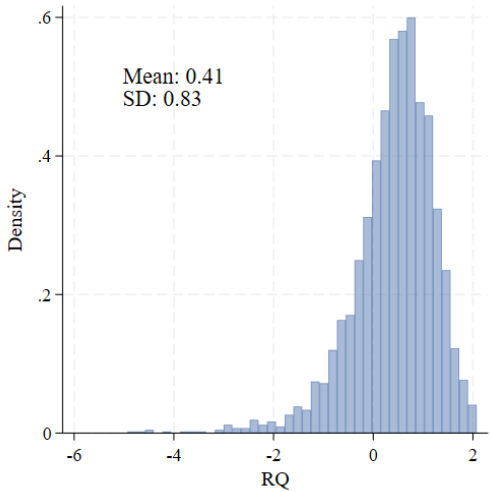
	(1) Fathers	(2) Mothers
Age	32.01	28.36
	(6.377)	(6.075)
College educated (%)	33.16	36.05
	(47.09)	(48.02)
Active in labor mkt (%)	87.86	84.54
	(32.64)	(36.16)
Employed (%)	83.38	78.10
	(37.18)	(41.35)
Weekly work hours	31.79	27.38
	(16.82)	(16.11)
Weekly housework hours	5.139	8.566
	(4.051)	(6.258)
RQ	0.345	0.372
	(0.866)	(0.908)
Observations	2611	3131

	(3) Couples
Tenure	4.206
	(3.331)
Married (%)	42.01
	(49.15)
Monthly household income	3976.6
	(2574.4)
Female share of paid work	0.469
	(0.207)
Female share of housework	0.632
	(0.204)
Observations	3944

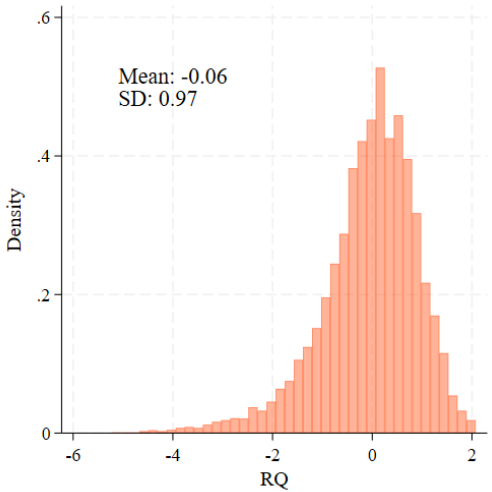
Distribution of RQ

Back to measure Back to results

(a) Before birth



(b) After birth



Factor loadings of RQ

Back to measure

(a) Subjective assessment

How often do you... ?	
consider splitting	0.642
regret getting married	0.697
quarrel	0.618
get on each others nerves	0.672
What is the... ?	
degree of happiness w/ couple	0.669

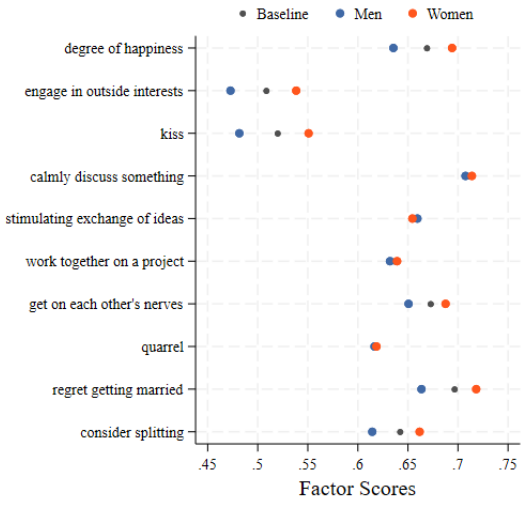
(b) Couple time use

How often do you... ?	
work together on a project	0.636
stimulating exchange of ideas	0.657
calmly discuss something	**0.711**
kiss partner	0.520
Do you and your partner... ?	
engage in outside interests (number)	**0.508**

- Factor loadings are the correlation coefficient between an item and the factor
- RQ (factor 1) has **eigenvalue 4.05**, the next factor 1.45, the rest are below 1
- RQ explains **40.49%** of the variation

Factor loadings of RQ

Back to measure

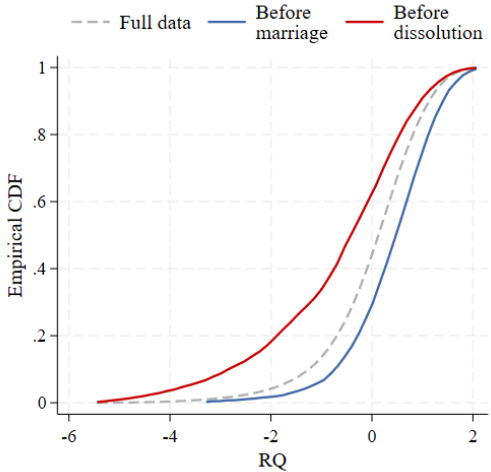


Validity: Informativeness

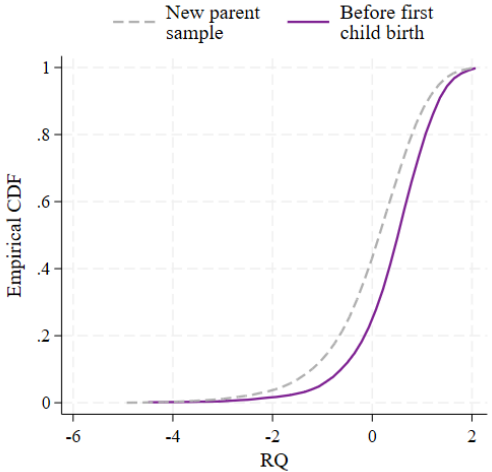
Back to measure

Behavior Prediction

(a) Marital transitions



(b) Fertility decisions



Validity: Interpersonal comparability

Back to measure

Within Couple Correlation

	Woman RQ	
	(1)	(2)
Man RQ	0.608***	0.593***
	(0.008)	(0.008)
Controls		✓
Age × Tenure × Wave		✓
Observations	37380	36851
R^2	0.3139	0.3237

◂ 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:

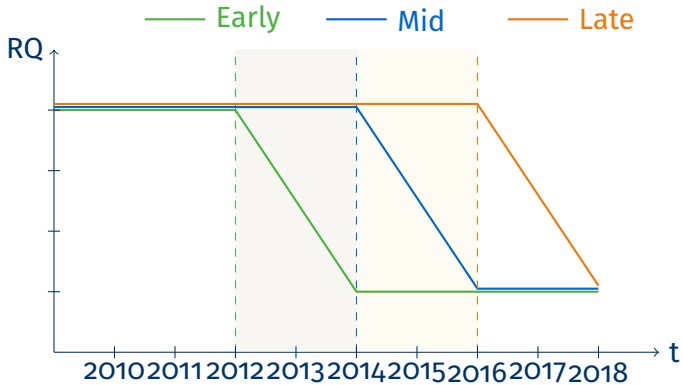
$$ATT(g,t) = \mathbb{E}[Y_{i,t} - Y_{i,g-1} | G_i = g] - \mathbb{E}[Y_{i,t} - Y_{i,g-1} | g' > t \geq g]$$

     → *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 $g \neq g'$:

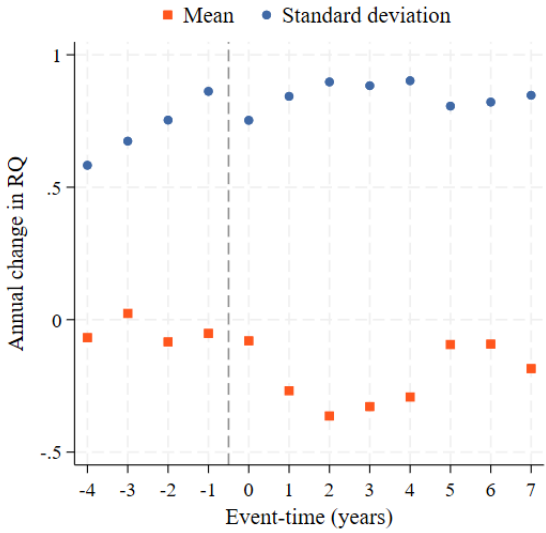
$$\mathbb{E}[Y_{i,t}(\infty) - Y_{i,t'}(\infty)|G_i = g] = \mathbb{E}[Y_{i,t}(\infty) - Y_{i,t'}(\infty)|G_i = g']$$

- 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



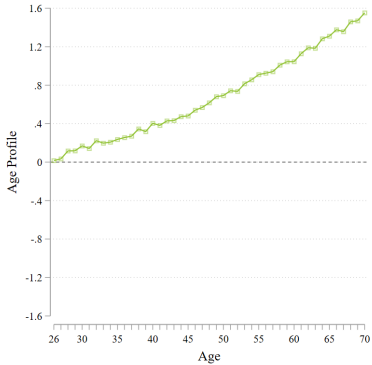
A1. No anticipation - Checks

Back to empirical strategy

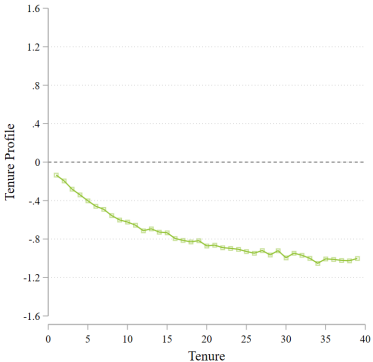
Smooth evolution of RQ

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

(a) Life-cycle: α_a



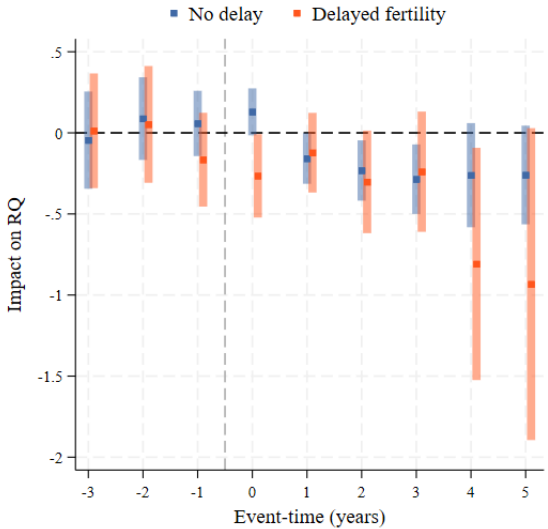
(b) Relationship cycle: γ_d



A2. Conditional parallel trends - Checks

Back to empirical strategy

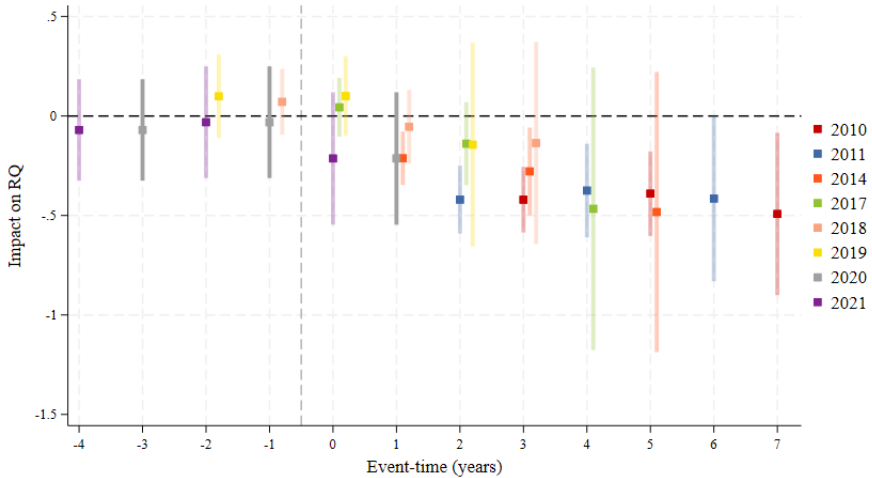
No differences with delayed fertility



A3. Homogeneous treatment effects - Checks

Back to empirical strategy

No differences across cohorts



RQ and couple dissolution

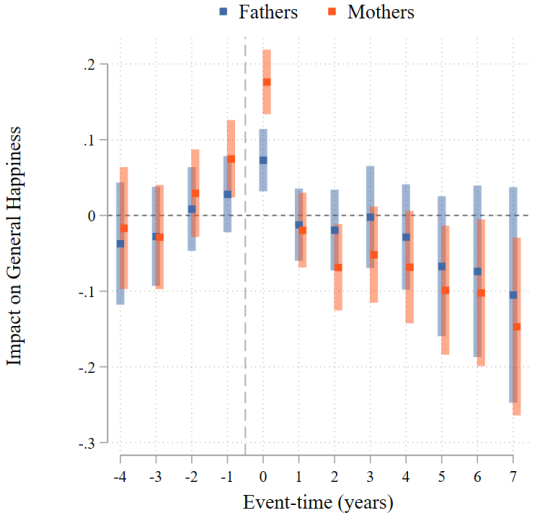
Back to results

	Dependent variable: Couple dissolution		
	(1)	(2)	(3)
RQ	-0.00895***	-0.00911***	-0.00736**
	(0.002)	(0.002)	(0.003)
Controls		✓	✓
Individual FE			✓
Observations	14096	12719	12719
R^2	0.007	0.031	0.044

- On average, one standard deviation increase in RQ is associated with a 0.9 percentage point lower probability of dissolution
- Around 2% of the existing couples dissolve yearly in our sample

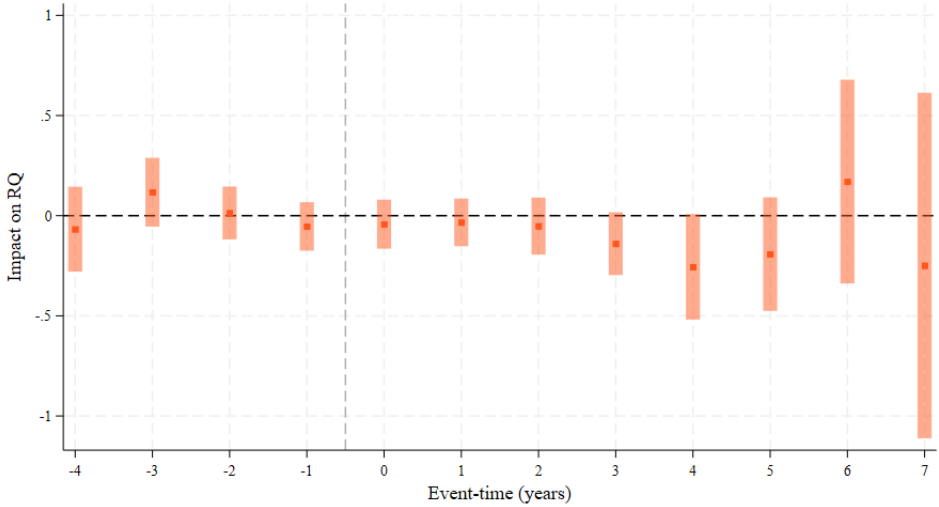
General happiness: “Have you recently been feeling reasonably happy, all things considered?”

Back to results



Timing around unemployment event

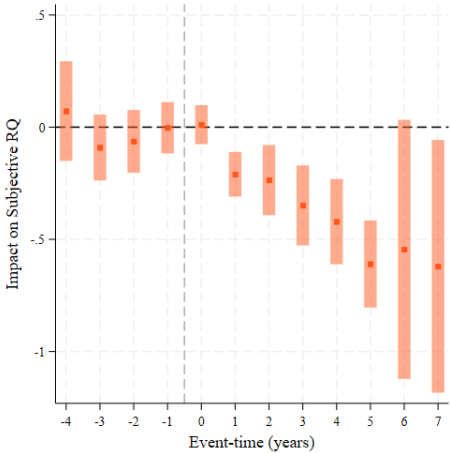
Back to results



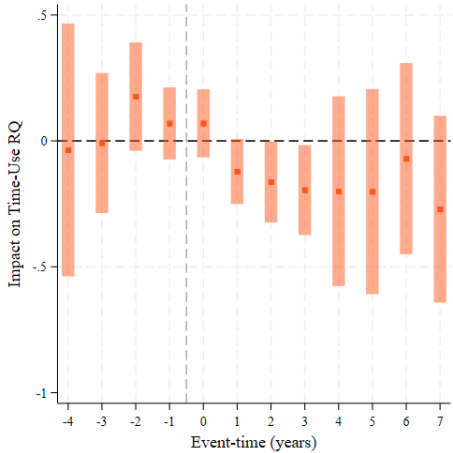
1. Time invariance of RQ: by item block

Back to results

(a) Subjective assessment



(b) Couple time use

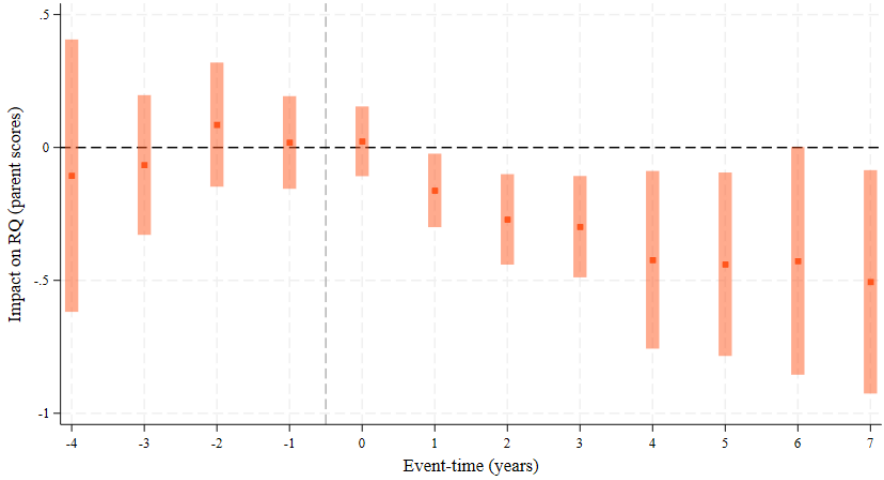


By item: subjective assessment

By item: time use

1. Time invariance of RQ: using parent scores

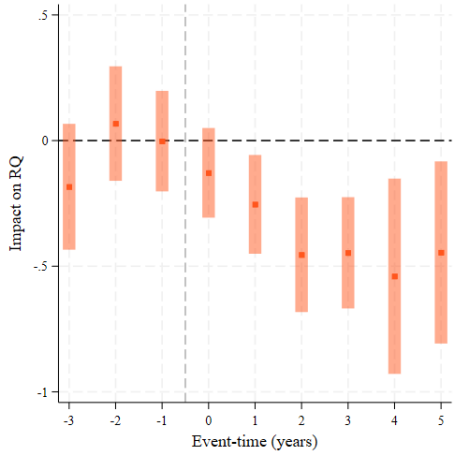
Back to results



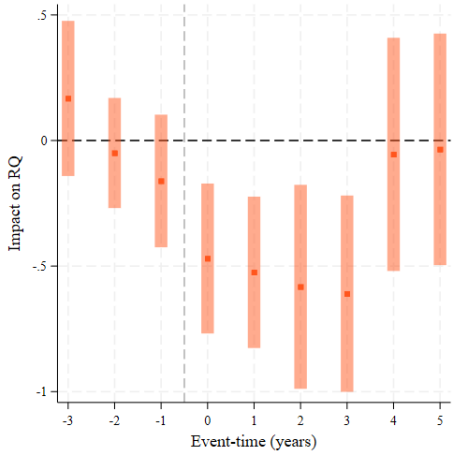
2. Subsequent fertility

Back to results

(a) One child

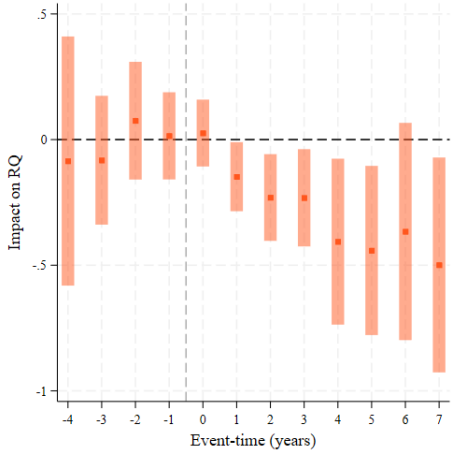


(b) More than one child



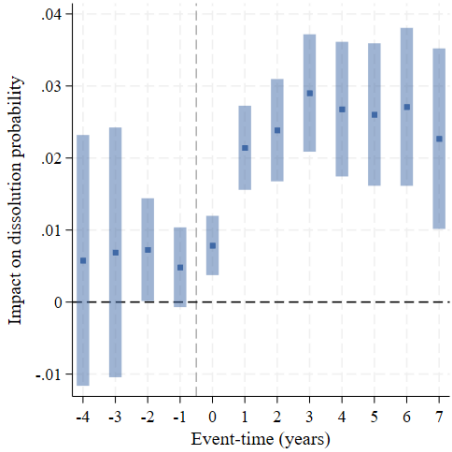
3. Selected sample: Non-separating couples

Back to results



3. Selected sample: Impact on separation

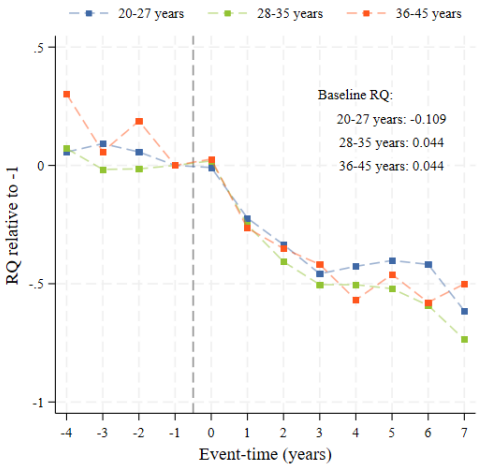
Back to results



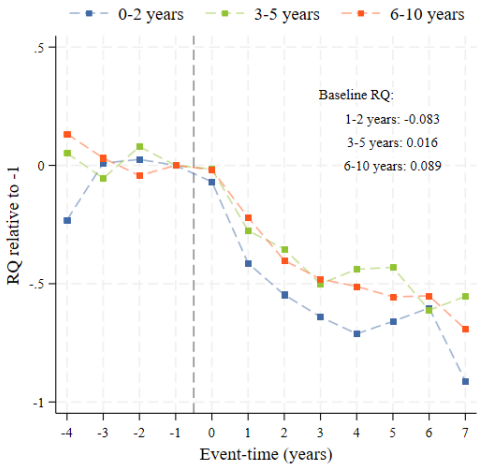
4. Timing of birth: Average RQ by age and tenure bin

Back to results

(a) Age bins

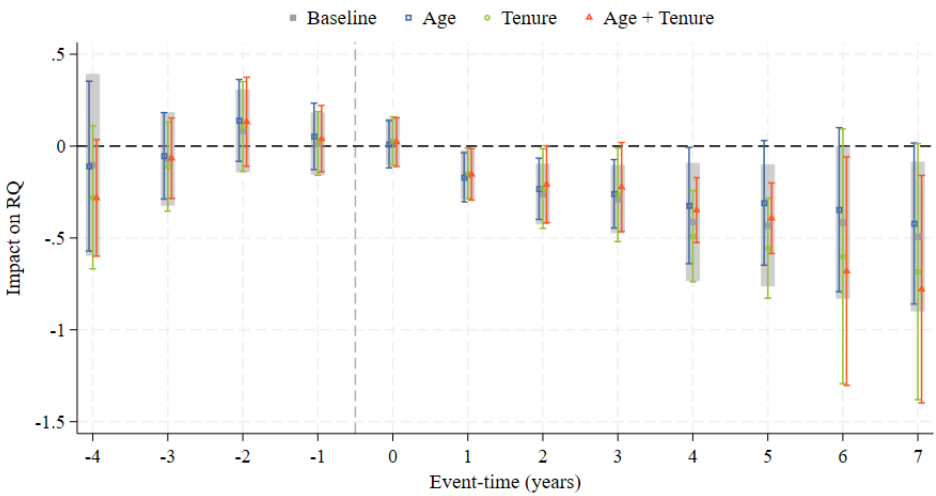


(b) Tenure bins



4. Timing of birth: Control for baseline

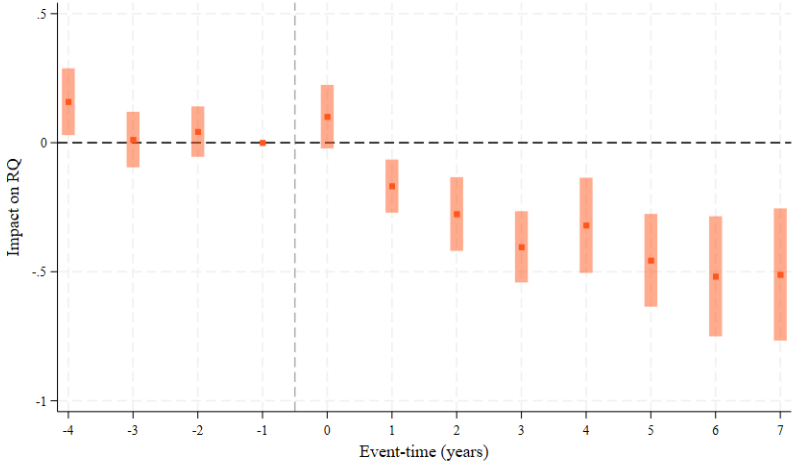
Back to results



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

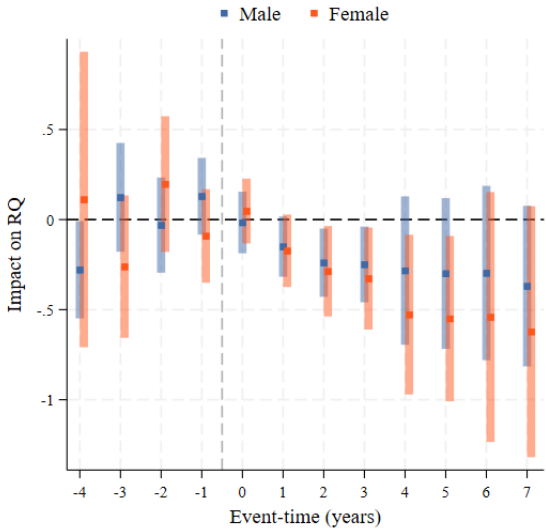
Back to results

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



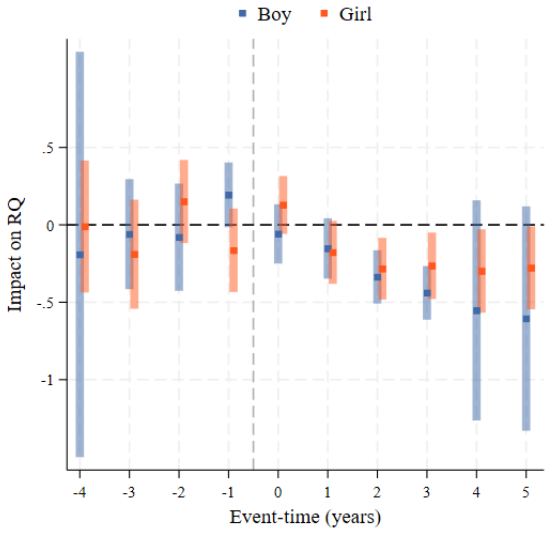
Robustness: Separately for mothers and fathers

Back to results



Robustness: First born boys vs. girls

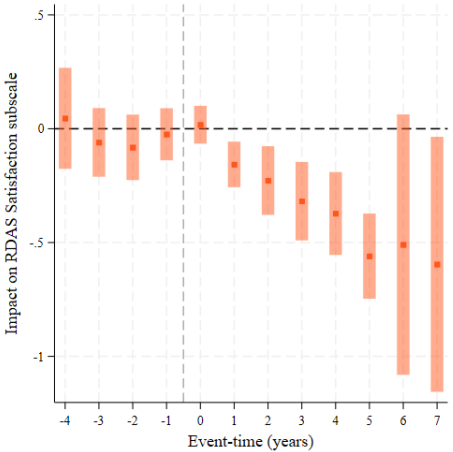
Back to results



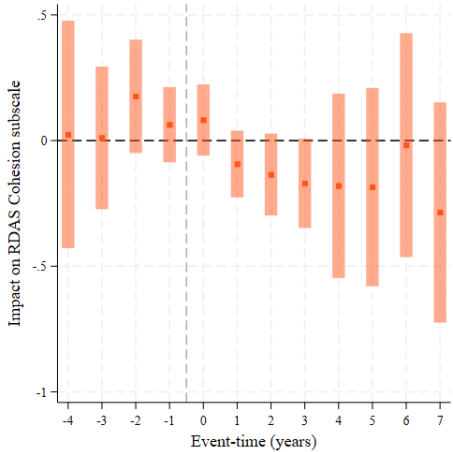
Robustness: Psychology measures

Back to results

(a) Satisfaction RDAS



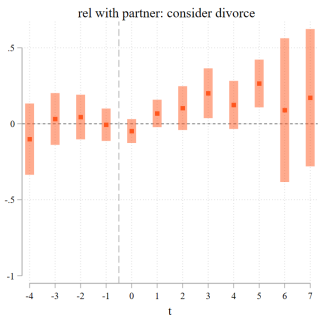
(b) Cohesion RDAS



Impact per item: Subjective assessment

Back to results

(a) consider splitting



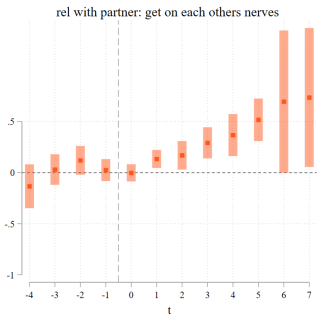
(b) regret getting married

(c) quarrel

Impact per item: Subjective assessment

Back to results

(a) get on each other's nerves



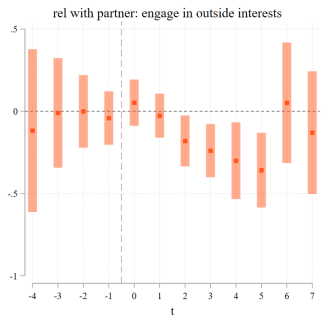
(b) degree of happiness

Impact per item: Couple time use

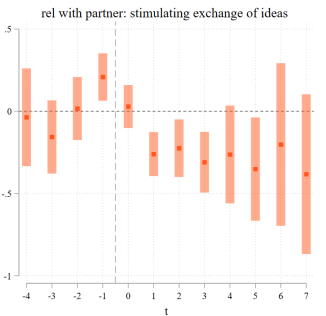
Back to results

(a) kiss

(b) outside interests



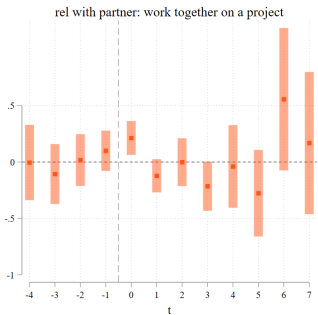
(c) exchange ideas



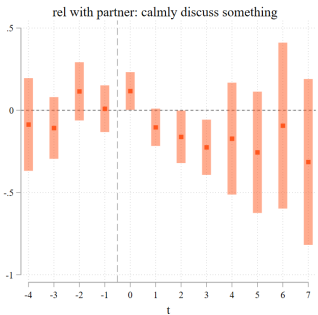
Impact per item: Couple time use

Back to results

(a) work together on a project



(b) calmly discuss something



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

Summary statistics by couple type, before birth

Back to mechanism

	Traditional	Burdened woman	Egalitarian	Counter-traditional
Age	29.72	30.12	30.04	29.88
	(5.593)	(5.294)	(4.865)	(5.123)
College educated (%)	32.34	39.89	46.93	47.45
	(46.80)	(48.98)	(49.92)	(49.95)
Employed (%)	87.67	94.24	96.80	93.59
	(32.89)	(23.30)	(17.59)	(24.51)
Gross monthly income	1627.1	1887.5	2068.0	2121.5
	(1351.3)	(1235.5)	(1152.2)	(1357.8)
Work hours (week)	36.26	37.23	37.94	37.53
	(11.45)	(6.266)	(4.523)	(8.499)
Housework hours (week)	7.770	6.921	6.983	7.012
	(6.694)	(5.370)	(3.811)	(4.230)
Tenure	4.160	4.045	4.055	4
	(3.555)	(3.305)	(2.770)	(2.771)
Married (%)	60.97	59.26	50	53.84
	(48.80)	(49.14)	(50.01)	(49.87)
RQ	0.300	0.428	0.513	0.489
	(1.018)	(0.788)	(0.635)	(0.777)
Observations	1363	3456	2098	1668

Summary statistics by couple type, after birth

Back to mechanism

	Traditional	Burdened woman	Egalitarian	Counter-traditional
Age	37.89	38.27	38.47	37.18
	(7.571)	(7.320)	(7.104)	(7.349)
College educated (%)	27.47	36.03	44.18	39.85
	(44.64)	(48.01)	(49.67)	(48.97)
Employed (%)	76.06	84.26	86.11	82.90
	(42.68)	(36.42)	(34.59)	(37.66)
Gross monthly income	2058.2	2283.5	2546.5	2248.2
	(2018.0)	(1686.2)	(1867.9)	(1754.2)
Work hours (week)	33.86	33.45	33.81	34.05
	(12.73)	(10.18)	(9.180)	(11.85)
Housework hours (week)	11.55	10.56	10.38	9.865
	(10.27)	(9.631)	(7.520)	(7.737)
Tenure	12.25	11.93	11.61	10.58
	(6.733)	(6.337)	(5.947)	(5.683)
Married (%)	93.90	95.10	94.01	92.05
	(23.93)	(21.59)	(23.73)	(27.05)
RQ	-0.134	-0.0360	0.145	0.0284
	(0.958)	(0.879)	(0.824)	(0.962)
Observations	3559	7939	4391	3007

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Back

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