Togetherness in the Household

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RES Annual Conference
online, April 2021

Introduction

- Spending time together with a partner is a major source of gain from marriage/partnership
  - lots of empirical evidence across disciplines
  - e.g. Sullivan 1996; Hamermesh 2002; Cano et al. 2019; Flood et al. 2020
- But most models of household time use abstract from togetherness
  - exceptions: Fong and Zhang 2001; Browning et al. 2021

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- But most models of household time use abstract from togetherness
  - exceptions: Fong and Zhang 2001; Browning et al. 2021
- As a result, we know very little about
  - how households value togetherness
  - what benefits and costs it accrues
  - how it interacts with other time uses
- **This research** addresses precisely these points

What this paper does

- Study how couples with children allocate time across **paid work**, **leisure**, and **childcare**
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  - **private**, time spent alone
  - **joint**, time spent together
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- Togetherness naturally requires spouses to synchronize their schedules so as to be physically together at the same time
  - choice of hours and timing of market work
- Characterize household behavior theoretically, and also empirically using revealed preferences
  - test model, estimate value of togetherness, ...

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4. **intra-household inequality:** togetherness mitigates inequality in resource sharing

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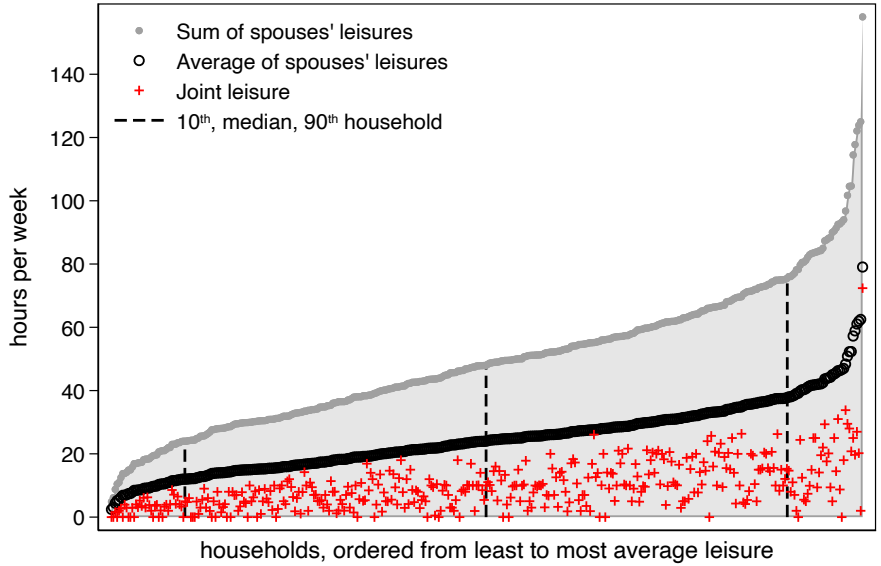
1.
Togetherness

Joint leisure

- Benefits of joint leisure: **companionship**
  e.g. Becker 1973; Sullivan 1996; Hamermesh 2002; Qi et al 2017

▸ data

Joint leisure



- Benefits of joint leisure: **companionship**
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- We observe joint leisure, separately from all other uses of time
  - most couples (92%) have some joint leisure
  - large fraction of each person's overall leisure

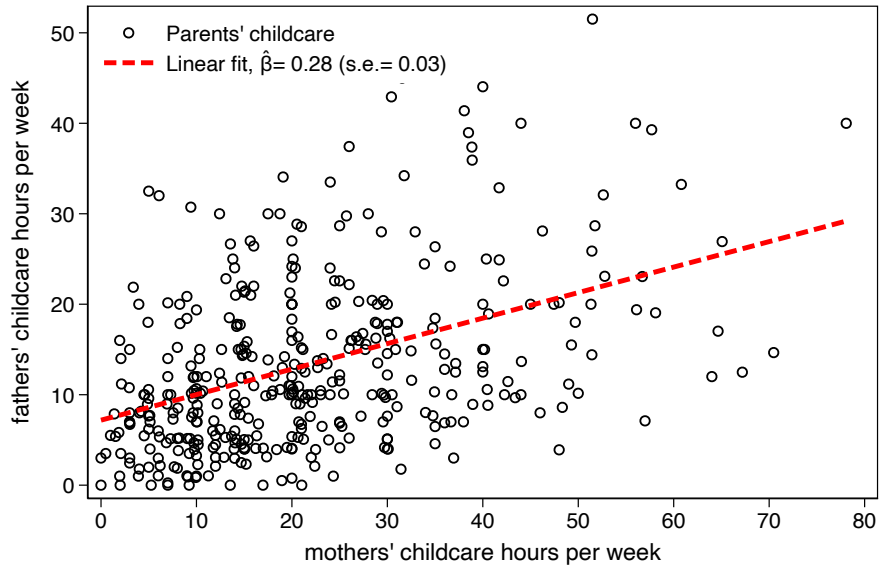
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Joint childcare

- Benefits of joint childcare: **child development**, **parental well-being**
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Joint childcare



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  e.g. Cano et al 2019; Flood et al 2020; Le Forner 2021
- We only observe each parent's overall childcare, but:
  - only 2% of fathers do not do any childcare at all
  - mothers' and fathers' hours positively correlated
  - parents spend equal times on many childcare activities

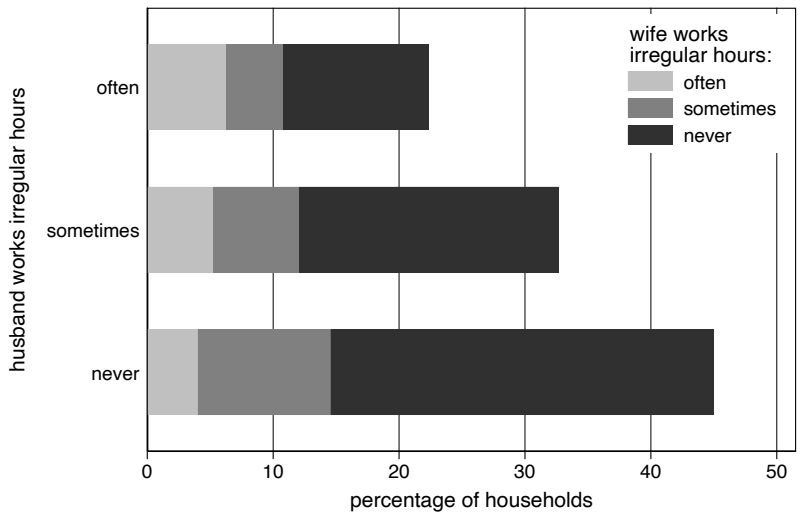
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Costs of togetherness: forgone flexibility at work

- Togetherness requires both spouses to be together at the same time
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- Togetherness requires both spouses to be together at the same time
  - requires synchronization of schedules to be away from work at same time
- But spouses may differ in timing of work – many work irregular hours



- If irregular work pays $$$ and workers do not control its precise timing, synchronization may be impossible without:
  - **restricting labor market flexibility** of one spouse
  - **forgoing premium** associated with irregular hours

Costs of togetherness: forgone specialization at home

- Cost associated with joint childcare
- Young children require attention and care for given # hours
- Parents must forgo 2 units of private childcare (1 by mother, 1 by father) to gain 1 unit of joint childcare, reflecting quantity-quality trade-off

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  - **cost:** the parents **need additional childcare** to fill the gap, perhaps from the costly market

2.
Collective Model with Private and Joint Times

Time use

- Household consists of two spouses, $m = \{1, 2\}$, and young children
- Each spouse has $\mathcal{T}_m$ units of time after sleep and personal care, allocated to **leisure** L_m, **childcare** T_m, and **market work** H_m

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$$h_m^R + h_m^I = H_m \tag{2}$$

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  - *regular*: scheduled at specific hours/days, precise times known
    $$: pays wage w_m
  - *irregular*: precise timing not known in advance, subject to change
    $$$$: pays wage w_m + premium p_m

Togetherness constraints

1. **Forgone flexibility** at work

$$\underbrace{l_J + t_J}_{\text{togetherness}} \leq \mathcal{T}_m - \underbrace{\left(\max\left\{ h_1^R, h_2^R \right\} + h_1^I + h_2^I \right)}_{\text{market work}} \tag{3}$$

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   - regular hours overlap between spouses, irregular hours do not $\Rightarrow$ irregular work puts more pressure on togetherness

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2. **Forgone specialization** at home

$$\underbrace{\sum_m t_m}_{\substack{\text{parents'} \\ \text{private childcare}}} + \overbrace{t_J}^{\substack{\text{joint} \\ \text{childcare}}} + \underbrace{t_K}_{\substack{\text{market} \\ \text{childcare}}} = \mathcal{T}_K \tag{4}$$

   - similar to a child time budget when child needs attention for $\mathcal{T}_K$ hours
   - trade-off between private t_m and joint childcare t_J
   - market childcare is costly, hourly rate w_K

Preferences and household problem

- Spouse m preferences $U_m(l_m, l_J, C_P)$
- Child preferences $U_K(t_1, t_2, t_J, C_K)$

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- Spouse m preferences $U_m(l_m, l_J, C_P)$
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- **Household problem:** choose private and joint time use, consumption, and market childcare to

$$\max \ \mu_1 \ U_1(l_1, l_J, C_P) + \mu_2 \ U_2(l_2, l_J, C_P) + \mu_K \ U_K(t_1, t_2, t_J, C_K)$$

  subject to all previous constraints and a budget constraint

- Utility weights μ_m and μ_K

Characterization

- Welfare gains from togetherness $>>$ gains from sum of private times
- We monetize these welfare gains by exploiting that, in equilibrium, marginal benefits and costs of togetherness are equal:

$$\underbrace{\mu_1(U_{1,l_J} - U_{1,l_1}) + \mu_2(U_{2,l_J} - U_{2,l_2})}_{\text{benefits of joint leisure}} = \underbrace{\lambda p_m}_{\substack{\text{forgone} \\ \text{flexibility}}} \tag{5}$$

$$\underbrace{\mu_K(U_{K,t_J} - U_{K,t_1} - U_{K,t_2})}_{\text{benefits of joint childcare}} = \underbrace{\lambda p_m}_{\substack{\text{forgone} \\ \text{flexibility}}} + \underbrace{\lambda w_K}_{\substack{\text{forgone} \\ \text{specialization}}} \tag{6}$$

3.
Empirical Application and Implications

Testing the model

- Revealed preferences characterization: testable conditions

pass rates: comparison of different collective models with time use

model	pass rate (max. 1.0)	number of observations (max. 398)
(1) private times only	0.06	19
(2) private & joint times, no togetherness constraints	0.25	87
(3) private & joint times, full togetherness	0.67	250

- Discriminatory power of full model (ability to reject random data) large
- Results suggest that togetherness prevalent in the data

Value of togetherness

- Necessary ingredients to estimate value of togetherness *relative* to its private counterparts
  - joint over private leisure: $\delta_{1,l_J} + \delta_{2,l_J} - \delta_{1,l_1} - \delta_{2,l_2}$
  - joint over private childcare: $\delta_{K,t_J} - \delta_{K,t_1} - \delta_{K,t_2}$
- How much household willing to pay for 1 hour of joint time *over* price of 1 hour of private time by each spouse

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- How much household willing to pay for 1 hour of joint time *over* price of 1 hour of private time by each spouse
- €1.22 per hour -10% of wage- to convert private leisure to joint
- €2.08 per hour -17% of wage- to convert private childcare to joint
- Average amounts, there is distribution across households

▸ joint childcare results

Togetherness and the gender wage gap

1: More market work $\Rightarrow$ less togetherness
   - spouse who works fewer regular hours h_m^R
     can replace irregular (salary $= w_m + p_m$) with regular work (salary $= w_m$)
     and increase togetherness without working fewer total hours
   - irregular work more damaging to togetherness

2: Value of togetherness higher in households where female works fewer regular hours than male $h_2^R < h_1^R$

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- **1** & **2** together imply **women likelier to forgo** irregular work
  - $\Rightarrow$ forgo labor market flexibility
  - $\Rightarrow$ forgo premium associated with flexibility
  - $\Rightarrow$ reinforce any preexisting gender wage gap further
- Goldin 2014 relates timing of female work to gender wage gap

Togetherness and intra-household inequality

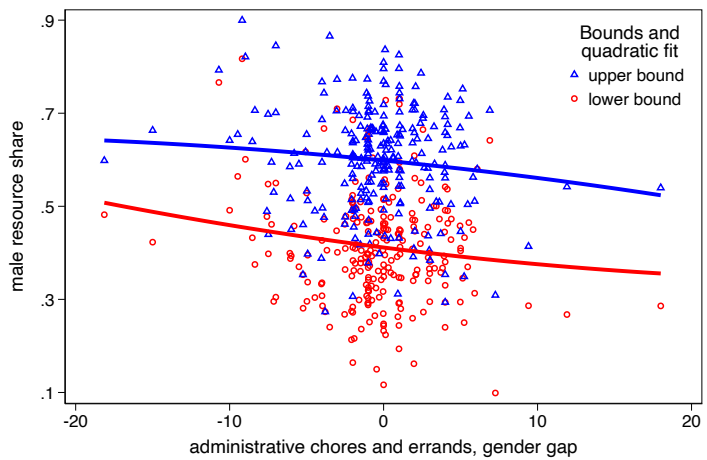
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- Consider increase in one spouse's wage $\rightarrow$ improves bargaining power
  - **standard model:** increases H_{-m} and decreases L_{-m} *of the partner*
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- Male resource shares ≈ 0.5 on avg, here against gender gap in chores:



4.
Conclusions

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- Extend collective model to allow for togetherness in leisure & childcare
- Characterize benefits and costs of togetherness
- Several empirical applications on Dutch data
- Togetherness is an **important aspect of household time use** despite being relatively overlooked in econ literature

Appendix

Literature

- Two main strands of literature:
  1. collective model
     e.g. Chiappori 1988 ++
  2. time use
     Becker 1965; Hamermesh 1998
- Revealed preferences setting
  e.g. Cherchye et al 2007 ++
- Joint leisure
  e.g. Fong and Zhang 2001; Browning et al 2020
- Joint chidcare
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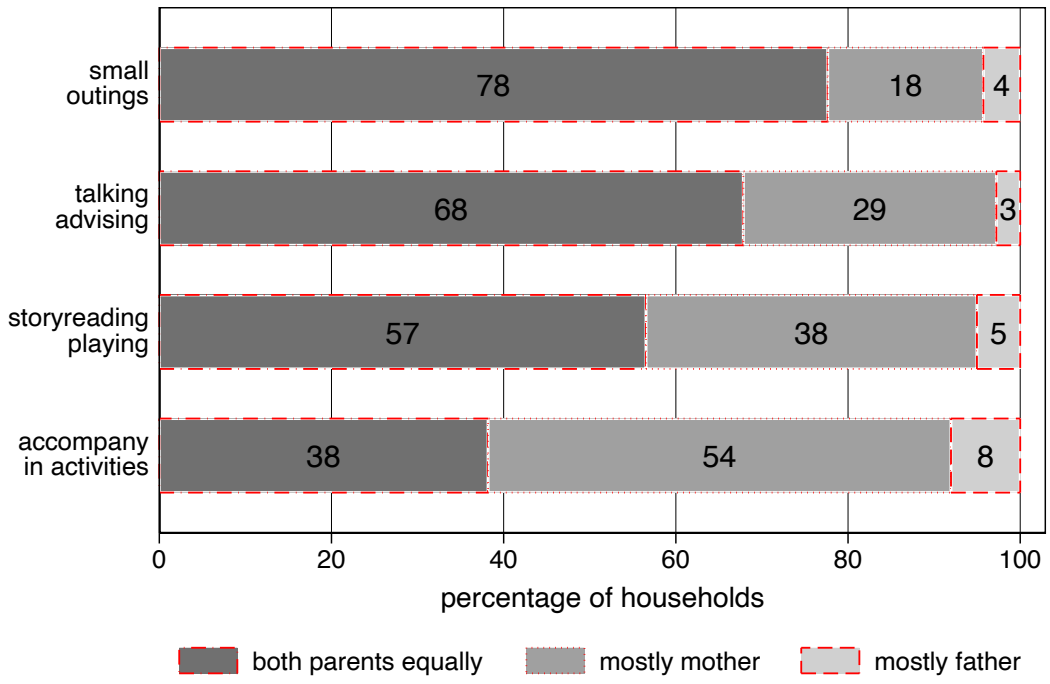
Data

- Longitudinal Internet Studies for the Social sciences (LISS) in the Netherlands, CentERdata 2012
  - draw from three waves, covering calendar years 2009, 2010, 2012
- Baseline sample: **married** or **permanently cohabiting** couples with children up to 12 years old
- Households where both adult members **participate** in the labor market
  - among couples with young children, 98% of men and 76% of women work
  - time use patterns similar to larger sample with non-participation
- Baseline leisure and childcare statistics:

	mean	median	10^{th} pct.	90^{th} pct.
leisure male	25.9	25.0	9.0	43.0
leisure female	23.6	21.0	8.9	41.4
joint leisure	9.5	8.2	1.5	20.0
childcare male	13.3	10.6	3.1	26.9
childcare female	21.7	20.0	5.1	41.7

Joint childcare activities

- We do not observe joint childcare; but we observe who engages in certain childcare activities, and by how much
- Weekly childcare: engagement of parents in select childcare activities



Bounds on joint childcare

- **Bounds on unobserved joint childcare:** 3.8 and 11.9 hours per week, representing up to 92% of total childcare of the father

t_J	estimated lower bound	estimated upper bound	naive upper bound
Distribution across households:			
min	0	0	0
first quartile	0	5.12	5.37
mean	3.75	11.92	12.90
third quartile	5.54	16.65	17.78
max	34.75	51.49	51.49

