1. What do we study and why?

- Spending time together with a partner is a major source of gain from marriage (lots of empirical evidence across disciplines about this).
- But most models of household time use abstract from togetherness (exceptions are Fong & Zhang 2001; and Browning et al. 2021).
- As a result, we know very little about:
  1. how households value togetherness,
  2. what benefits and costs togetherness accrues,
  3. how togetherness interacts with other time uses.
- Our paper addresses precisely these points; our aim is to:
  1. study how couples with children allocate time across work, leisure, and childcare,
  2. characterize the costs & benefits of togetherness,
  3. estimate the value of togetherness in the data.
- Distinctive features of our paper:
  - we divide the time each spouse spends on leisure and childcare to:
    - private: time spent alone,
    - joint: time spent together with the partner.
  - Togetherness naturally requires spouses to synchronize their schedules to be physically together at the same time.
  - We give the decision-making spouses a choice over their hours of work and over the timing of such work.

2. Togetherness

- Our data and sample: Dutch data in 2009-12 (the LISS panel), couples with children up to 12 years old.

**JOINT LEISURE**

- First aspect of togetherness, leisure time spent together with the partner.

**ADDITIONAL COST OF JOINT CHILDCARE: forgone specialization at home**

- Young children require attention and care for given # hours. A child time budget takes childcare by parents and external carers as inputs.
- The parents must forgo 2 units of private childcare (1 by mother, 1 by father) to provide 1 unit of joint childcare by both.
- They need extra childcare, perhaps from the costly market, to fill the 1-unit gap in the child time budget caused by the provision of joint childcare.

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

3. Model and results

- A household consists of two spouses, \( m = \{1, 2\} \), and young children. All time use variables below are choice variables.
- Each spouse has \( T_m \) units of time after sleep and personal care, allocated to leisure \( L_m \), childcare \( T_m \), and market work \( H_m \): \( L_m + T_m + H_m = T_m \).
- Leisure and childcare have private and joint components, such that \( I_m + I_j = L_m \) and \( t_m + t_j = T_m \).
- We divide market work into two types: regular \( R \) and irregular \( I \), such that \( H_m = H_{Rm} + H_{Im} \).
- Irregular work is asynchronous between spouses (by assumption).
- Collective household problem (Chiappori 1988, 1992): choose private and joint time use, consumption, and market childcare to maximize

\[
\mu \cdot \left( t_1 + t_2 + t_3 + t_4 + t_5 \right) + \delta \cdot \left( t_1 + t_5 \right) + \mu \cdot \left( t_1 + t_2 + t_3 + t_4 + t_5 \right) + \mu \cdot U_{R}(t_{1}, t_{2}, t_{3}, t_{4}, C_{E})
\]

where \( U_{R} \) is parental utility, \( U_{S} \) is child utilities, and the \( \mu \)'s are utility weights.
- The problem is subject to two togetherness constraints reflecting
  1. Forgone flexibility at work: the more a spouse works in the market, the less togetherness the couple can enjoy:
     \( t_{1} + t_{2} \leq T_{m} - \left( \max \{t_{1}, t_{2}\} + H_{Rm} + H_{Im} \right) \)
  2. Forgone specialization at home: child time budget reflecting trade-off between private and joint childcare.
- REVEALED PREFERENCE CHARACTERIZATION & RESULTS

- We obtain necessary and sufficient nonparametric conditions that the data must satisfy if behaviour is rational and consistent with our model.
- Pass rates: results suggest that togetherness is prevalent in the data.
- Value of togetherness: benefits and costs must be equal at equilibrium. The togetherness constraints monetize the costs at (1) value of forgone earnings and (2) value of external childcare, respectively.
- Value of togetherness - how much a household is willing to pay for 1 hour of joint time over price of 1 hour of private time by each spouse:
  - 1.22 euro per hour - 10% of wage - to convert private leisure to joint
  - 2.08 euro per hour - 17% of wage - to convert private childcare to joint
- Togetherness and the gender wage gap:
  - model and results suggest women likelier to forgo better paid irregular work to align their schedules with their husbands' and enjoy togetherness,
  - women thus forgo earnings for the sake of togetherness, which tends to reinforce the wage gap between women & men,
  - the model thus links the timing of female work with the gender wage gap, a point made by Claudia Goldin (2014) and other scholars.
- But togetherness mitigates intra-household inequality: spousal resource sharing less unequal between spouses vs. setting without togetherness.