

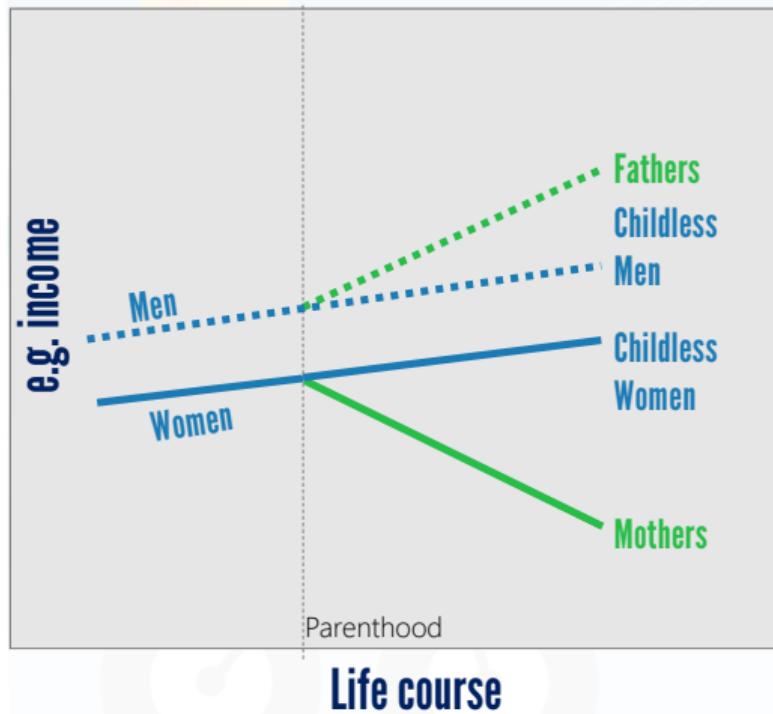
PARENTHOOD AND PHYSICAL ACTIVITY IN GERMANY – A LONGITUDINAL PERSPECTIVE

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MOTIVATION: Parenthood and Social Inequality



Previous research has identified the transition to parenthood as critical event for the formation and development of social inequality in life domains such as

- Family (e.g. division of domestic labour),
- Labour market (e.g. income),
- Health (e.g. mental wellbeing).

(e.g. Evertsson & Boye 2016, Arránz Becker et al. 2017)

MOTIVATION: Research on Parenthood and Health

Mortality and Health in Older Age

- Disadvantages for childless persons and persons with many children

(e.g. Hank 2010)

Physical Health and Mental Wellbeing

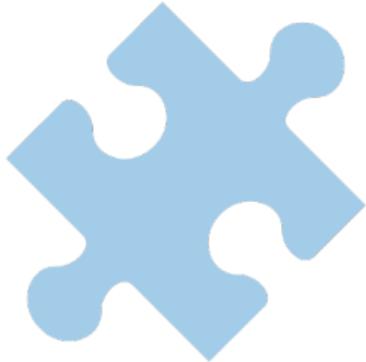
- Role of social context
(e.g. social background, family structure)
- Lack of life course perspective that
differentiates between children in
different age groups

(e.g. Arránz Becker et al. 2017)

Health Behaviour

- Potential mechanism of
parenthood → health
 - Mostly cross-sectional studies or short
observation periods
- Lack of life course perspective and
control for selection effects

(e.g. Reczek et al. 2014)



1

2

How does parenthood influence (weekly) physical activity of women and men?

Does this effect change over time?

SOCIAL CONTROL

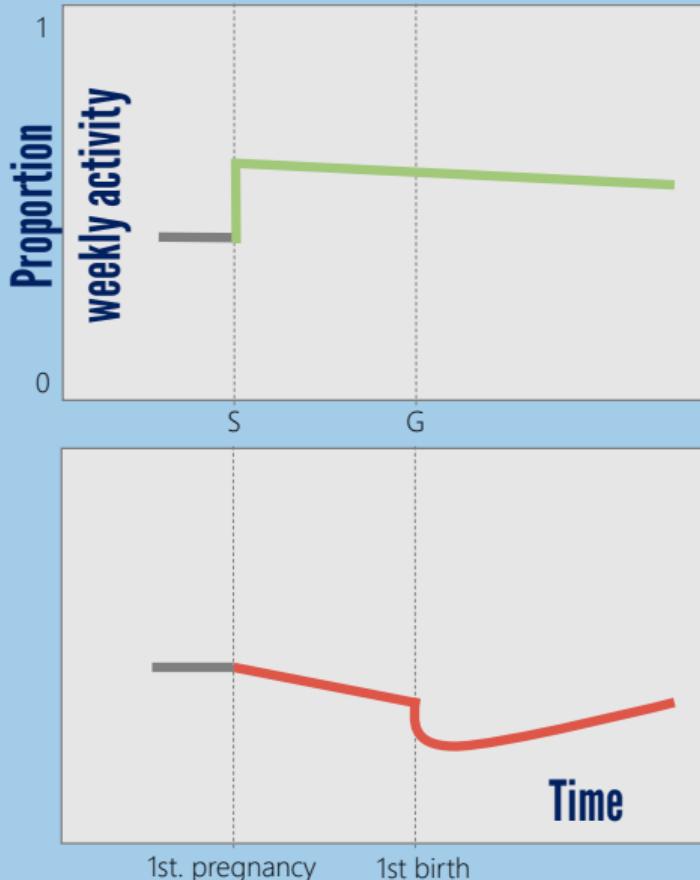


ROLE CONFLICT



Thesis: Parenthood connected with societal expectations of being a role model, which work through peers, family members and other social contacts (e.g. Umberson 1987).

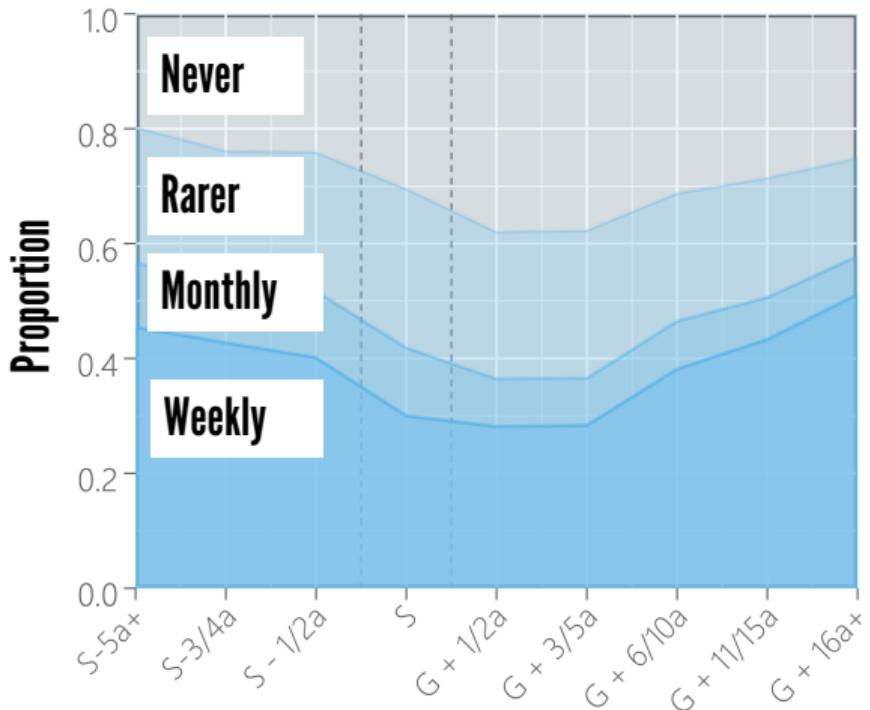
THEORETICAL EXPECTATIONS



Physical Activity

(Self reports with 4 answer categories)

Mothers



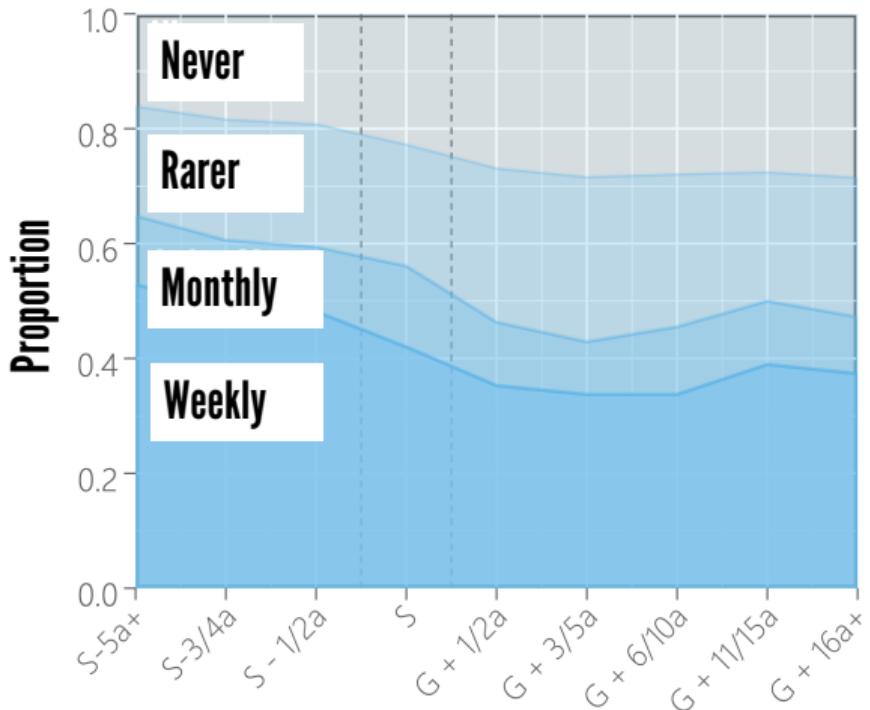
DATA: Socio-economic Panel

- 5 749 initially childless women living in Germany 1985-2019
- Birth cohorts 1960/91
- On average 7.3 observations per woman
- At least 2 observations before first birth
- Monthly birth histories
- Further information: age, survey year, education (Abitur yes/no), family structure

Physical Activity

(Self reports with 4 answer categories)

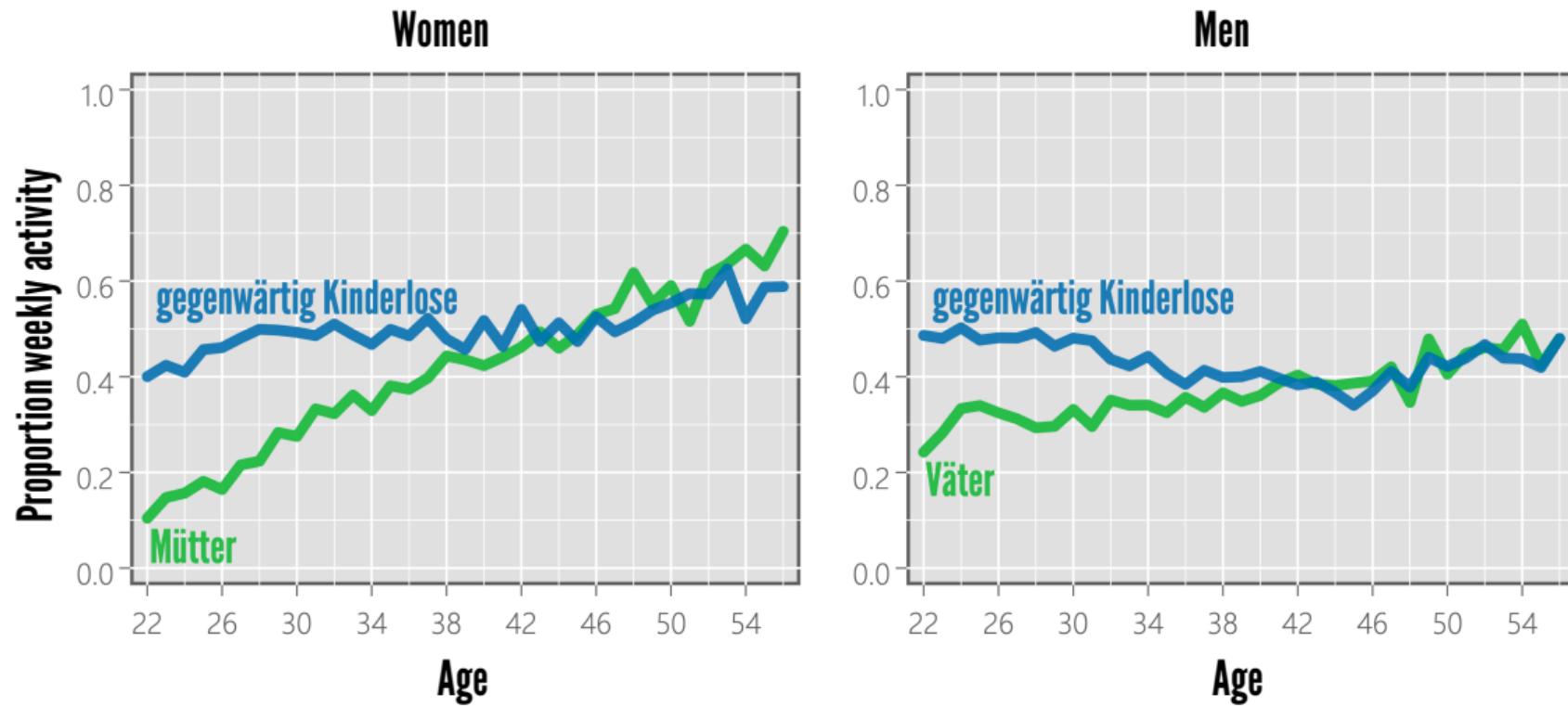
Fathers



DATA: Socio-economic Panel

- 5 257 initially childless men living in Germany 1985-2019
- Birth cohorts 1960/91
- On average 7.9 observations per man
- At least 2 observations before first birth
- Monthly birth histories
- Further information: age, survey year, education (Abitur yes/no), family structure

WEEKLY ACTIVITY: DIFFERENCES BETWEEN PARENTS AND CHILDLESS PERSONS BY AGE



WHAT IF...? THE CAUSAL EFFECT OF PARENTHOOD

Defined as difference, Δ , in the proportion of weekly activity, $P[A_w = 1]$, between parents, $E = 1$, and that proportion if the same people had not become parents, $E = 0$:

$$P[A_w^{E=0} = 1 | E = 1]$$
$$\Delta = P[A_w^{E=1} = 1 | E = 1] - P[A_w^{E=0} = 1 | E = 1]$$

WHAT IF...? THE CAUSAL EFFECT OF PARENTHOOD

$$P[A_w^{E=0} = 1 | E = 1]$$



$$P[A_w = 1 | E = 1]$$

Defined as difference, Δ , in the proportion of weekly activity, $P[A_w = 1]$, between parents, $E = 1$, and that proportion if the same people had not become parents, $E = 0$:

$$\Delta = P[A_w = 1 | E = 1] - P[A_w^{E=0} = 1 | E = 1]$$

The first proportion is observable as the factual proportion of parents.

The second proportion is counterfactual and therefore not observable.
So the difference, Δ , of interest cannot be calculated directly.

But we can make assumptions about where $P[A_w^{E=0} = 1 | E = 1]$ could be located and estimate Δ on the basis of these assumptions.

Depending on the assumptions, Δ can be positive, negative, more or less pronounced or even zero.

ANALYTICAL STRATEGY

Group difference

Assumption: No (unmeasured) differences between childless persons and parents w/o parenthood

$$P[A_W = 1|e, z] = \beta_0 + \boxed{\beta_1 e_t} + \beta_k z_k \\ \rightarrow \Delta = \beta_1$$

Difference in differences

Assumption: Parallel trends for childless persons and parents w/o parenthood

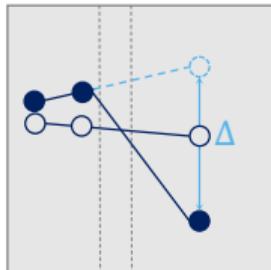
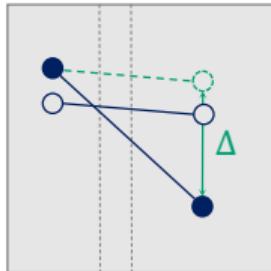
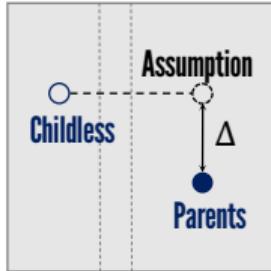
$$P[A_W = 1|e, z] = \delta_0 + \boxed{\delta_1 e_t + \delta_2 e} + \delta_k z_k \\ \rightarrow \Delta = \delta_1$$

Difference in trends

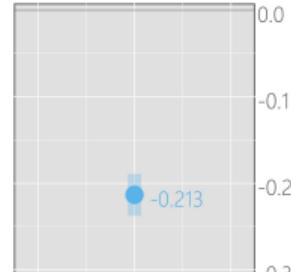
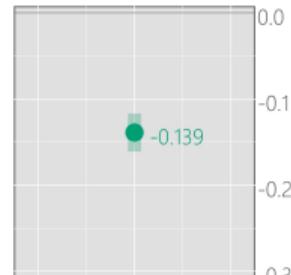
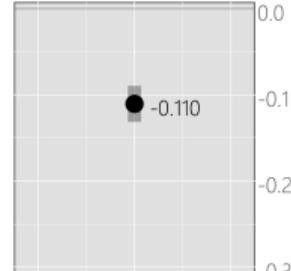
Assumption: Continuation of pre-birth trends w/o parenthood

$$P[A_W = 1|e, z] = \theta_0 + \boxed{\theta_1 e_t + \theta_2 e + \theta_3 e \times a} + \theta_k z_k \\ \rightarrow \Delta = \theta_1$$

DIFFERENCE



ESTIMATE Δ_{women}



Difference in proportion weekly activity

ANALYTICAL STRATEGY

Group difference

Assumption: No (unmeasured) differences between childless persons and parents w/o parenthood

$$P[A_W = 1|e, z] = \beta_0 + \boxed{\beta_1 e_t} + \beta_k z_k \\ \rightarrow \Delta = \beta_1$$

Difference in differences

Assumption: Parallel trends for childless persons and parents w/o parenthood

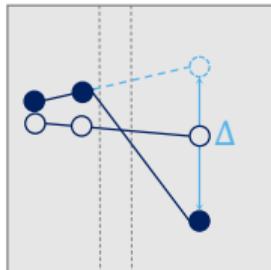
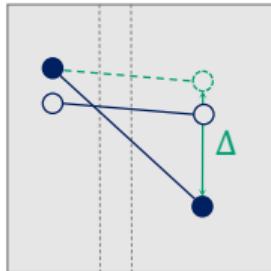
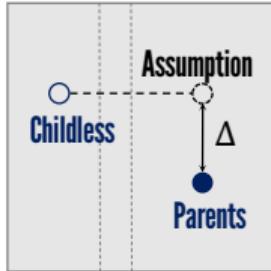
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Difference in trends

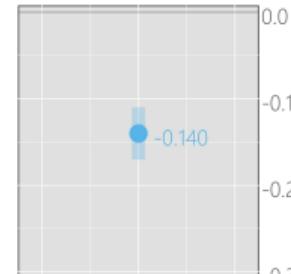
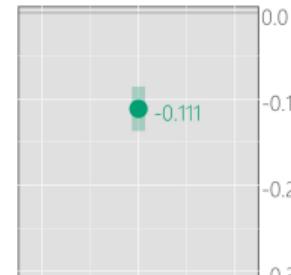
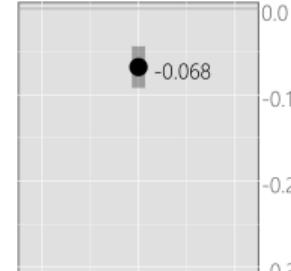
Assumption: Continuation of pre-birth trends w/o parenthood

$$P[A_W = 1|e, z] = \theta_0 + \boxed{\theta_1 e_t + \theta_2 e + \theta_3 e \times a} + \theta_k z_k \\ \rightarrow \Delta = \theta_1$$

DIFFERENCE



ESTIMATE Δ_{men}



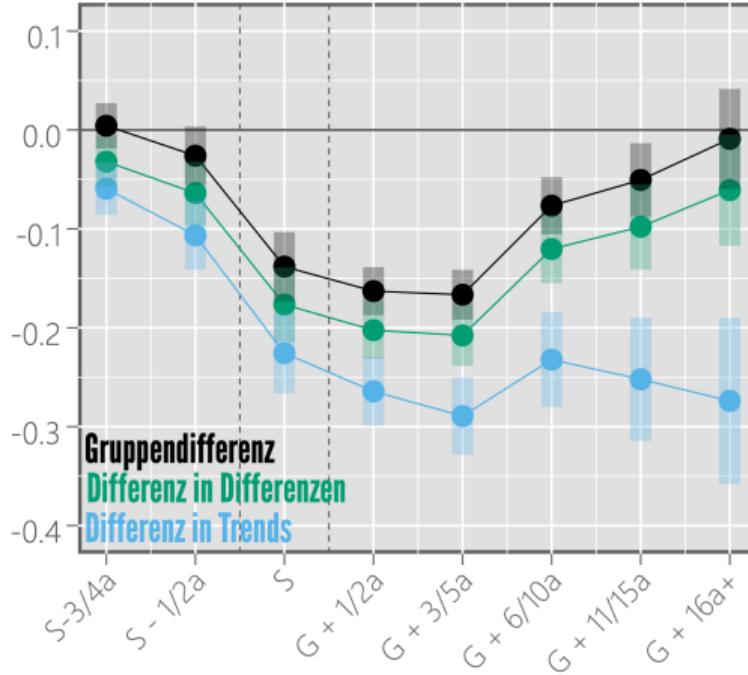
Difference in proportion weekly activity

EFFECT OF PARENTHOOD OVER TIME

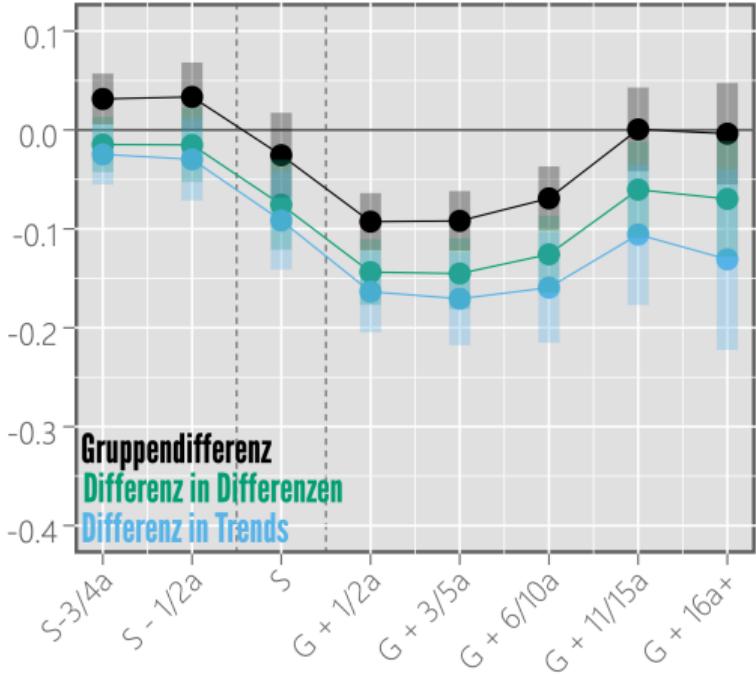
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Difference in proportion weekly activity

Women

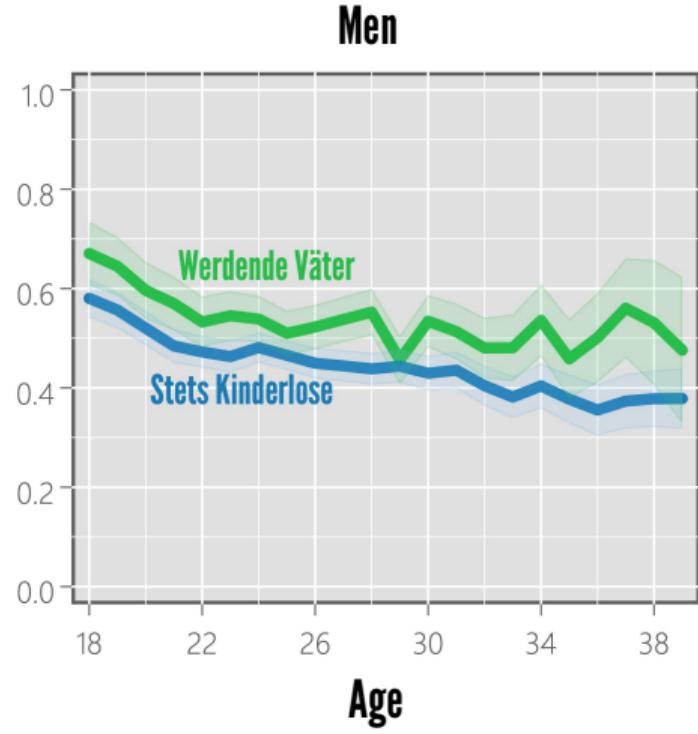
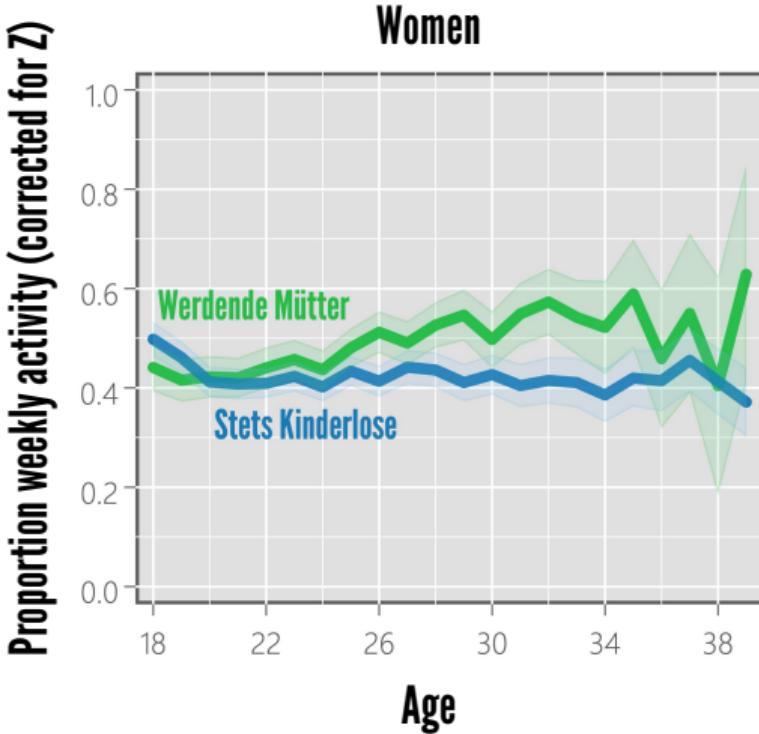


Men



Reference: Observations of always childless persons and to-be parents more than 4 yrs before 1st pregnancy

TRENDS BEFORE FIRST PREGNANCY



→ Rather consult Difference in Trends

→ Rather consult Difference in Differences





a

Parenthood markedly and lastingly reduces the probability of weekly physical activity, especially for women.

b

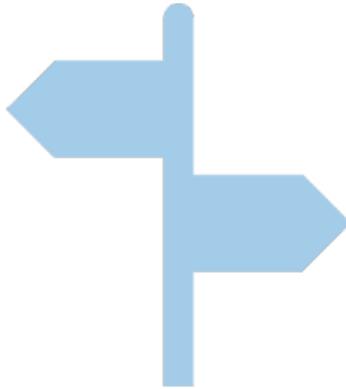
Constraints from **role conflict** outweigh mechanisms of social control (at least regarding physical activity).

c

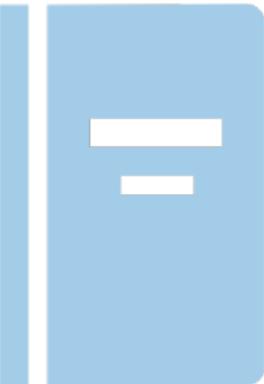
Transition to parenthood contributes significantly to inequality in health behaviour.

d

Measures to alleviate role conflict may not only matter for the labour market, but may also have implications for parents' health.

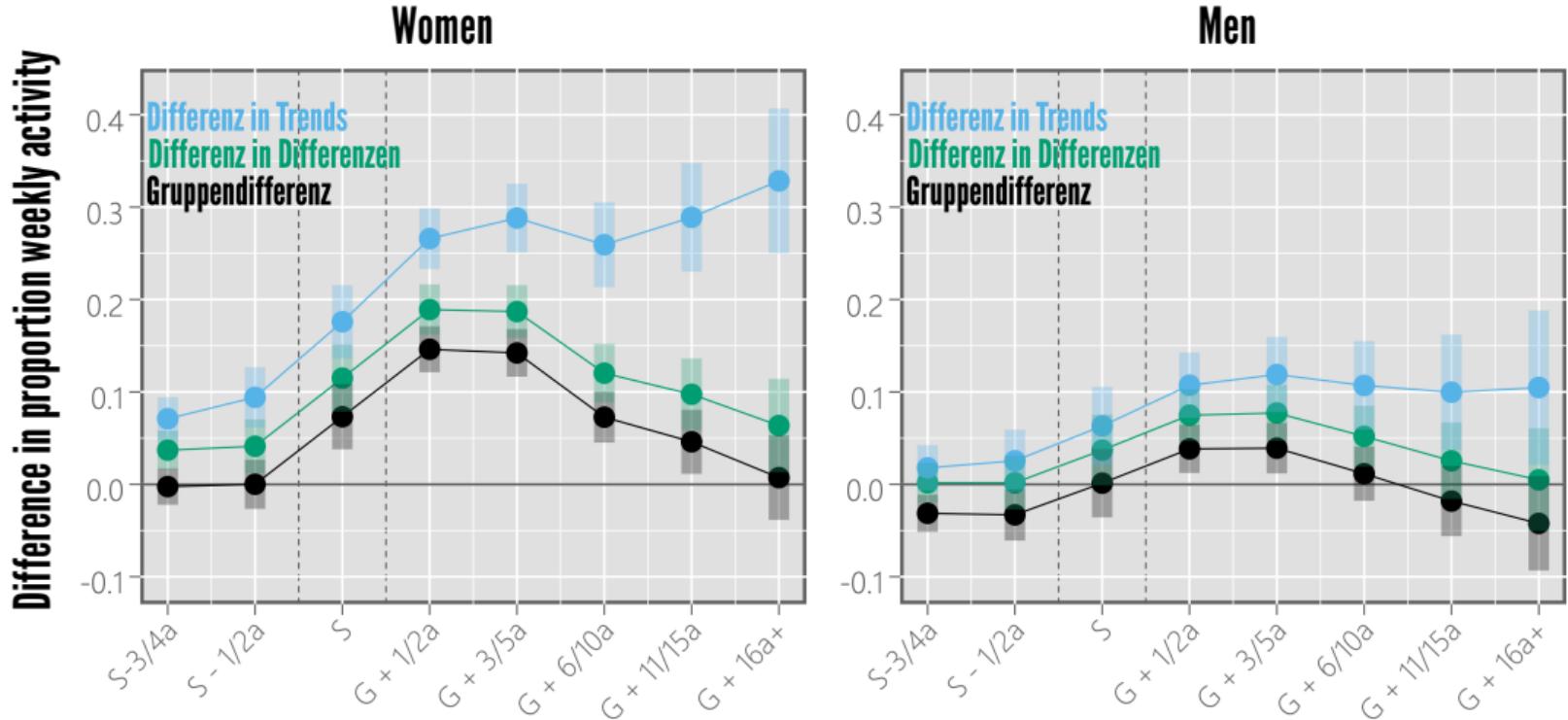
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- **Project for further research:**
 - Role of cultural and institutional contexts
 - Qualitative country comparison
(up to 7 countries, most-similar/different-systems)
 - Additional health behaviours
(Tobacco and alcohol consumption, diet, sleep)
 - **Further analyses (in the appendix)**
 - 'No activity' as dependent variable
 - Linear vs. quadratic trend prior to first birth
 - Group differences (education, birth cohort)

**THANK YOU
FOR YOUR ATTENTION**

- 
- Arránz Becker, O., Loter, K., & Becker, S. (2017). Familie und Gesundheit: Ein methodenkritischer Blick auf die aktuelle Forschung. In P. Kriwy & M. Jungbauer-Gans (Hg.), Handbuch Gesundheitssoziologie (S. 1-25). Wiesbaden: Springer.
 - Evertsson, M., & Boye, K. (2016). The gendered transition to parenthood: Lasting inequalities in the home and in the labor market. In R. Scott, M. Buchmann, & S. Kosslyn (Hg.), Emerging Trends in the Social and Behavioral Sciences. Hoboken: Wiley.
 - Goode, W. J. (1960). A theory of role strain. *American Sociological Review*, 25, 483-496.
 - Hank, K. (2010). Childbearing history, later-life health, and mortality in Germany. *Population Studies*, 64, 275-291.
 - Reczek, C., Thomeer, M. B., Lodge, A. C., Umberson, D., & Underhill, M. (2014). Diet and Exercise in Parenthood: A Social Control Perspective. *Journal of Marriage and Family*, 76, 1047-1062.
 - Umberson, D. (1987). Family status and health behaviors: Social-control as a dimension of social integration. *Journal of Health and Social Behavior*, 28, 306-319.

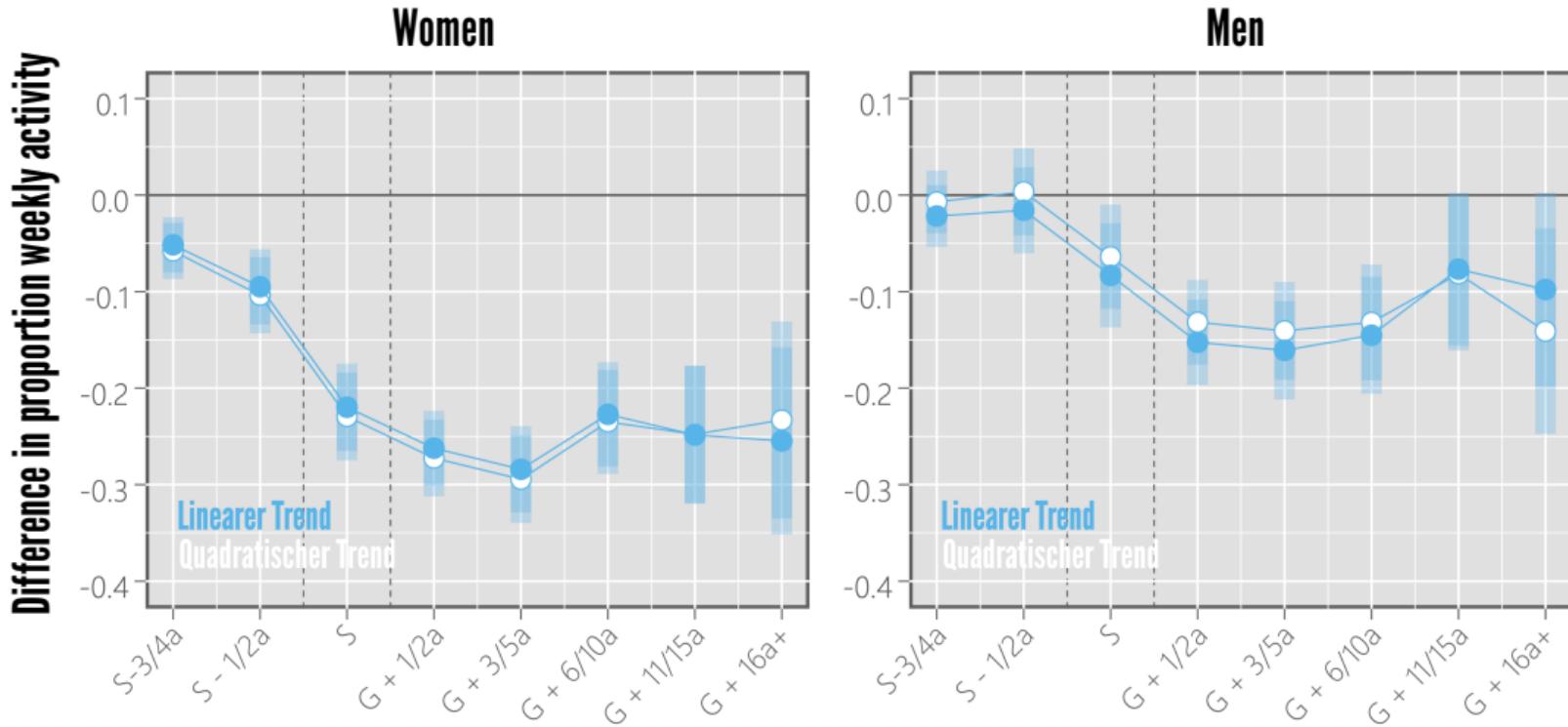
FURTHER ANALYSES

EFFECT OF PARENTHOOD OVER TIME (NO ACTIVITY)



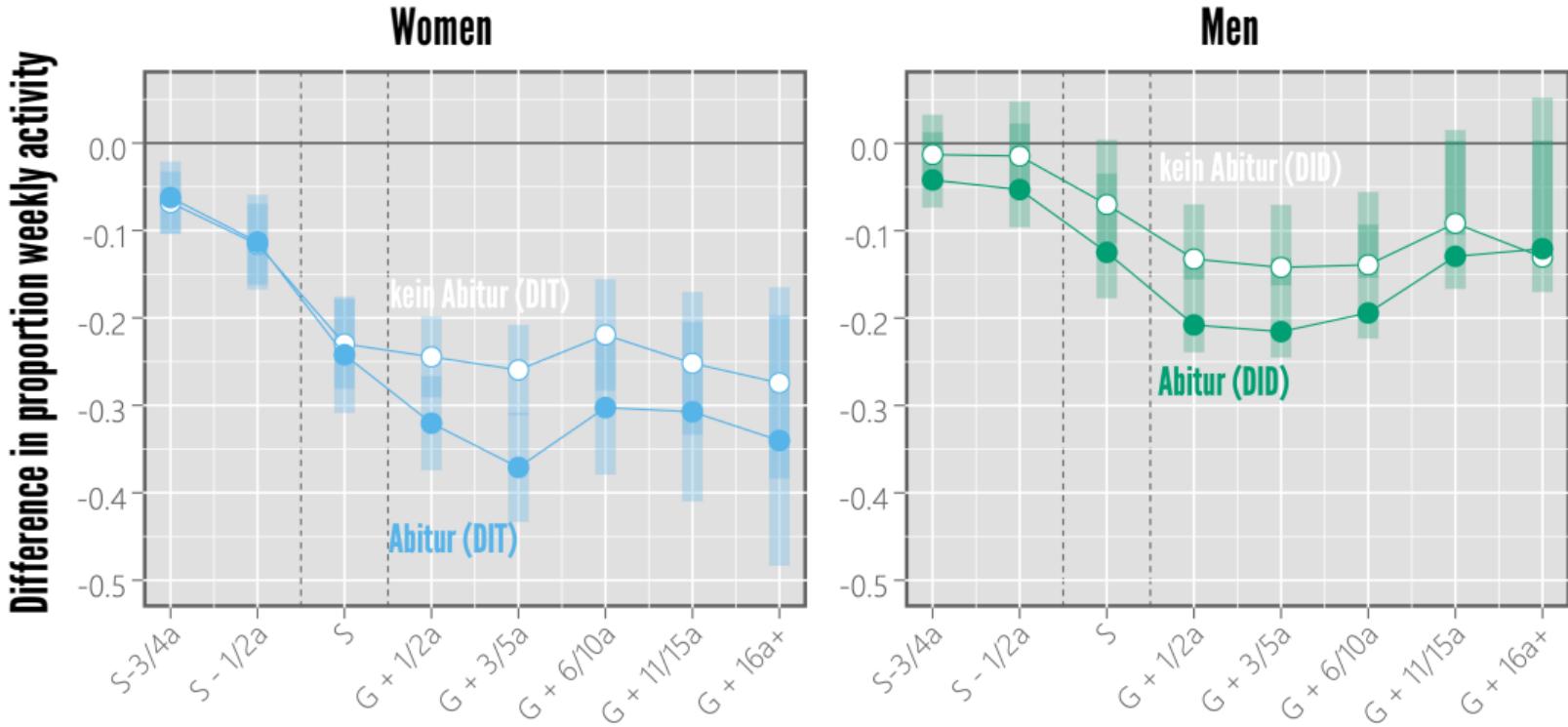
Reference: Observations of always childless persons and to-be parents more than 4 yrs before 1st pregnancy

EFFECT OF PARENTHOOD OVER TIME (ALT. ASSUMPTIONS REG. TREND)



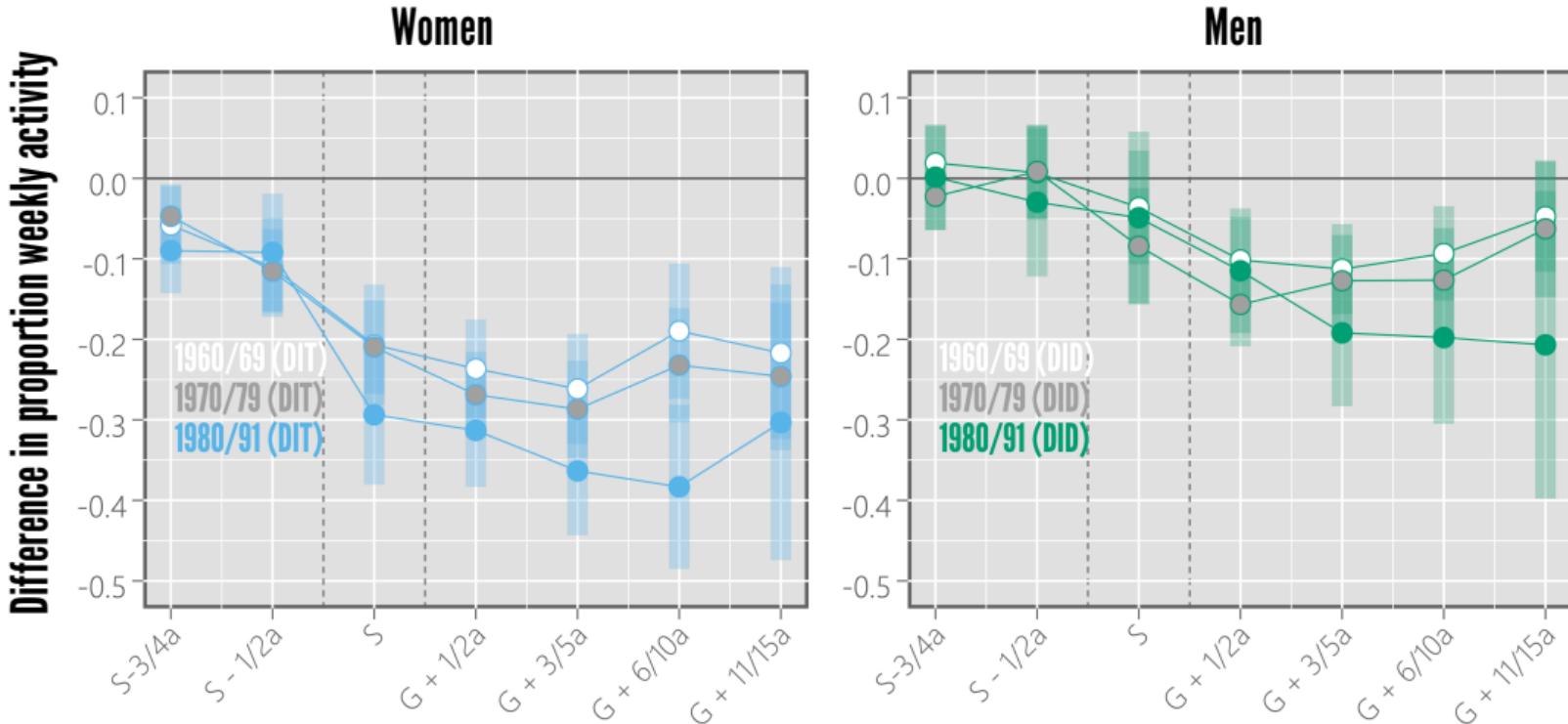
Reference: Observations of always childless persons and to-be parents more than 4 yrs before 1st pregnancy

EFFECT OF PARENTHOOD OVER TIME (BY EDUCATION)



Reference: Observations of always childless persons and to-be parents more than 4 yrs before 1st pregnancy

EFFECT OF PARENTHOOD OVER TIME (BY BIRTH COHORT)



Reference: Observations of always childless persons and to-be parents more than 4 yrs before 1st pregnancy