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Do children mirror their parents' time use? The case of educational activities

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Agenda

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Background

- Analyses of the influence of the family background on children's human capital development focus on formal education
 - Bsp.: Probability of attending high school (Gymnasium) (Statistisches Bundesamt 2016) or university (OECD 2012)
- Parental education only weakly describes family background
 - Teachman 1987, Behrmann & Rosenzweig 2002, Plug 2004, Black et al. 2005, Björklund & Salvanes 2011
- Further influential inputs:
 - Parental education behaviour (e.g. reading: Sénéchal und LeFevre 2002)
 - Theoretical impact channels: preferences (Hill & O'Neill 1994), gender roles (Fernandez, Fogli & Olivetti 2004), endowments and skills (Cunha & Heckman, 2007, Apps und Rees 2002, Becker & Tomes, 1986), common environments (Calvó-Armengol & Jackson 2009)
 - Learning opportunities for the children (Bianchi, Robinson & Milkie 2006, Heckman 2000; Havemann & Wolfe 1995)

Aim and hypotheses

Aim of the study: analyze potential correlations of time use of parents and children on informal learning activities

Definition „informal learning activities“: time use for extra-curricular educational activities. (for parents, including VET)

Hypotheses:

1. Significant positive associations between parents' and children's informal learning activities (investment of parental time for intergenerational transmission of preferences (Zumbuehl et al. 2013))
2. Gender specific correlations (father: sports, games; mother: arts)
3. Stronger correlations on children's gaming activities for non-working parents
4. Age specific correlation: stronger correlations for younger children in general, but stronger correlations for media consumption for older age group

Data and sample

Microdata of the German time use survey 2012/2013

- 11,000 persons in 5,000 households
- Activities of three days (2 weekdays, 1 weekend day); main activity, secondary activity; presence of other people
- 9 main categories, 48 subcategories, 165 single activities

Sample

- 892 couples with 1,264 children, age 10-17
- Focus on main activities
- Joint activities of children with other household members are excluded
- Distinction between
 - working days and weekend days
 - children's age group (10-13, 14-17)

Informal learning activities

(Blaurock et al. 2017, Cornelißen & Blanke 2004)

Sports

- Walking
- Ball sports
- Cycling/Skating
- Winter sports
- Water sports
- Sports in school
- Jogging/Nordic Walking/Hiking

Media activities

- Reading newspaper
- Reading magazines
- Reading books
- TV/Movies
- Listening to the radio/music
- Gaining information by computer / smartphone
- Commucation via computer/smartphone

Aesthetic-artistic activities

- Art and music
- School activities: Music
- School activities: Arts
- School activities: Theater/Musical/Dancing
- School activities: Languages
- School activities: Literature

Cultural activities and volunteering

- Volunteering
- Cinema
- Library
- Sporting events
- Theatre/Concerts/Opera/Muscial
- Art exhibition/Museum
- Excursions/Zoo/Amusement parks

Games

- Board games with one another
- Computer games

Qualification (parents)

- Job-related learning activities during working hour
- Learning activities outside working hours (job-related, personal)

School-related learning activities (children)

- Homework/Studying
- Private tuition
- Preparation for class

Descriptive results

Average time for ... per day (all days; in minutes)

	Children	Boys	Girls	Children (10-13)	Children (14-17)	Fathers	Mothers
Games	45.2	65.0	23.8	48.5	42.0	6.3	3.9
Sports	19.7	26.9	12.0	19.7	19.7	11.6	9.8
Cultural activities and volunteering	10.5	9.5	11.5	9.8	11.1	11.8	10.7
Media activities	72.4	73.3	71.5	52.9	92.3	105.0	83.4
Aesthetic-artistic activities	8.6	5.8	11.6	8.6	8.6	4.3	5.0
School-related learning activities	30.7	28.3	33.2	25.8	35.7		
Qualification						4.6	3.0

Source: RDC of the Federal Statistical Office and Statistical Offices of the Länder, time use survey, 2012/2013, own calculations

Multivariate Analysis: Estimation Strategy (OLS)

Model: Ordinary Least Squares (OLS), standard errors clustered on family level

- Dependent variable
 - Children`s time spent on informal learning activities
- Independent variables
 - Socio-demographic characteristics
 - Child: age, gender, migration background, number of children, birth order, education
 - Parents: age, migration background, marital status, education, home office
 - Household: household net income, type of region
 - **Interaction terms: parents` employment status and parental time use**
 - Motivation: moderating effect of employment status

Results (1/3): Socio-demographic factors

- Age:
 - games (-)
 - media, school (+)
- Gender (Dummy female=1):
 - computer games, sports (-)
 - Aesthetic-artistic activities, school-related learning activities, reading books (+)
- Weak correlations between parents' education and children's activities
- Income:
 - sports, learning activities (-)
 - games, media (+)
- Migration status
 - father: games (-), aesthetic-artistic activities (+)
 - mother: games (+)

Results (2/3): parents' time use

age 10-17

Dependent Variable: <i>Child's time use</i>		Games	Sports	Cultural activities and volunteering	Media activities	Aesthetic-artistic activities	School-related learning activities
Games	Non-working father	0.279	-0.101***	-0.012	-0.004	-0.033	-0.105**
	Working father	.510*	-0.070	0.048	-0.128	-0.012	-0.132**
	Non-working mother	0.610	-0.002	-0.130*	0.515	-0.049	-0.264*
	Working mother	-0.175	-0.014	-0.078	0.200	0.028	0.139
Sports	Non-working father	0.190	0.128	-0.081	-0.362	0.003	-0.131
	Working father	-0.105	0.182***	0.000	0.013	0.015	-0.084
	Non-working mother	0.135	-0.042	0.076	0.060	-0.004	0.097
	Working mother	0.185	0.176	0.033	-0.059	-0.094*	0.058
Cultural activities and volunteering	Non-working father	0.148	-0.058	0.006	-0.156	-0.047	-0.048
	Working father	0.088	0.041	0.031	0.127	0.007	-0.016
	Non-working mother	0.033	0.129	0.093	-0.050	0.034	0.001
	Working mother	-0.016	0.030	0.086	0.125	0.043	0.007
Media activities	Non-working father	0.036	-0.008	-0.013	0.212***	-0.006	0.013
	Working father	0.037	0.005	0.015	0.170***	0.010	0.033
	Non-working mother	0.135*	-0.015	-0.029	0.169**	-0.003	0.031
	Working mother	0.145***	0.016	0.003	0.147**	0.010	0.000
Aesthetic-artistic activities	Non-working father	-0.318	-0.395*	0.192	-0.574	-0.091	0.059
	Working father	0.044	-0.131	-0.165*	-0.117	0.152	0.201
	Non-working mother	0.343	0.612*	-0.007	-0.464**	0.241	-0.463**
	Working mother	-0.032	-0.007	-0.041	0.181	0.108**	-0.120
Qualification	Non-working father	-1.94***	0.800***	-0.007	2.704***	-0.192	-0.771**
	Working father	0.022	0.045	-0.030	-0.034	0.002	0.045
	Non-working mother	0.339	-0.179***	0.007	0.099	0.054	0.069
	Working mother	0.110	-0.010	0.051	-0.087*	-0.014	-0.009

Results (3/3): Hypotheses

Hypothesis 1: confirmed

- „Mirror correlations“ between children`s activities and respective activities of parents

Hypothesis 2: confirmed

- Gender specific correlations (father: sports, games; mother: arts)
- Less significant correlations with activities of mothers

Hypothesis 3: partly confirmed

- Stronger correlations with children`s gaming activities for non-working parents only for older children

Hypothesis 4: partly confirmed

- Similar associations for both age groups (games, sports); stronger associations for young children only for cultural activities
- Stronger correlations for media consumption for older age group

Conclusion

Results

- Results hint at intergenerational transmission of informal learning behaviour
- Strongest correlations for media activities (supports findings by Valkenburg et al. (1999))

Limitations and further research

- Gender-specific estimations
- Distinction between participation and intensity
- Causality? Influence of unobserved variables (e.g. behavioural norms acquired in early childhood)

Thank you very much for your attention.

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<http://www.hwwi.org/forschung/arbeit-bildung-und-demografie.html>

Appendix

Age 10-13

Dependent Variable: <i>Child's time use</i>		Games	Sports	Cultural activities and volunteering	Media activities	Aesthetic-artistic activities	School-related learning activities
Games	Non-working father	-0.074	-0.146***	-0.056	0.219**	-0.034	-0.087*
	Working father	0.623*	-0.051	0.005	0.045	0.015	-0.058
	Non-working mother	1.184	-0.116	-0.190	0.792*	0.035	0.053
	Working mother	0.196	0.024	0.079	-0.103	-0.067	0.011
Sports	Non-working father	0.054	-0.155	-0.057	-0.013	0.015	-0.127
	Working father	-0.139	0.141*	-0.010	0.125	0.024	-0.048
	Non-working mother	0.295	-0.025	0.026	-0.019	0.021	0.035
	Working mother	0.002	0.085	0.165	-0.094	-0.096*	-0.084
Cultural activities and volunteering	Non-working father	-0.304	0.017	0.164	0.129	-0.036	0.130
	Working father	-0.045	0.112	0.045	0.107	0.063	0.007
	Non-working mother	-0.110	0.238	0.167**	0.048	0.011	0.029
	Working mother	-0.122	-0.001	0.058	0.042	0.019	0.051
Media activities	Non-working father	-0.001	-0.020	-0.021	0.119*	-0.014	-0.007
	Working father	0.007	0.003	-0.016	0.122*	-0.003	0.015
	Non-working mother	0.090	-0.014	0.017	0.216**	0.003	0.032
	Working mother	0.098	-0.001	0.033	0.112*	0.028	0.039
Aesthetic-artistic activities	Non-working father	-0.433	-0.485	-0.028	-0.385	-0.072	-0.183
	Working father	0.263	-0.150	-0.130	-0.081	0.093	-0.072
	Non-working mother	-0.066	0.668*	-0.102	-0.202	0.290	-0.326**
	Working mother	-0.226	0.082	-0.075	-0.189	0.131*	0.009
Qualification	Non-working father	0.000	0.000	0.000	0.000	0.000	0.000
	Working father	-0.050	0.120*	-.0497899*	0.004	0.012	-0.022
	Non-working mother	0.276	-0.169**	0.045	-0.340*	0.016	0.202***
	Working mother	0.104	-0.038	0.068	-0.065	-0.009	-0.015

Source: RDC of the Federal Statistical Office and Statistical Offices of the Länder, time use survey, 2012/2013, own calculations

Age 14-17

Dependent Variable: <i>Child's time use</i>		Games	Sports	Cultural activities and volunteering	Media activities	Aesthetic-artistic activities	School-related learning activities
Games	Non-working father	2.132*	-0.1278	0.006	-0.906***	0.058	-0.171
	Working father	0.327	-0.111*	0.092	-0.271	-0.034	-0.209**
	Non-working mother	-0.123	0.120	-0.161	0.510	-0.129	-0.427**
	Working mother	-0.162	-0.027	-0.180*	0.384	0.065	0.245
Sports	Non-working father	0.050	0.149	-0.043	-0.344	0.001	-0.154
	Working father	-0.075	0.206*	0.008	-0.087	-0.010	-0.122*
	Non-working mother	-0.140	-0.093	0.127	0.129	-0.023	0.148
	Working mother	0.273	0.230	-0.040	0.028	-0.077	0.181
Cultural activities and volunteering	Non-working father	0.327	-0.048	-0.057	-0.266	-0.051	-0.108
	Working father	0.202	-0.006	0.001	0.155	-0.043	-0.035
	Non-working mother	0.196	0.020	-0.024	-0.190	0.070	-0.010
	Working mother	0.006	0.047	0.128	0.192	0.086*	-0.006
Media activities	Non-working father	0.021	-0.003	-0.023	0.301***	-0.002	0.026
	Working father	0.076	-0.006	0.036	0.196**	0.022	0.039
	Non-working mother	0.160*	0.005	-0.040	0.151	0.001	0.040
	Working mother	0.158**	0.059	-0.012	0.190*	-0.002	-0.043
Aesthetic-artistic activities	Non-working father	1.683***	0.197	1.487***	-2.237***	0.005	1.289***
	Working father	-0.152	-0.016	-0.176*	0.149	0.249	0.528*
	Non-working mother	1.424	0.287*	0.208	-0.943**	0.125	-1.178**
	Working mother	0.150	-0.058	-0.030	0.426***	0.086	-0.166*
Qualification	Non-working father	-1.853**	0.628*	0.120	2.632***	-0.295	-1.268***
	Working father	0.062	-0.031	0.008	-0.112	-0.017	0.129**
	Non-working mother	0.376	-0.135*	-0.054	0.410	0.083	-0.042
	Working mother	0.169	-0.002	0.024	-0.241	0.005	0.199

Source: RDC of the Federal Statistical Office and Statistical Offices of the Länder, time use survey, 2012/2013, own calculations