On Intergenerational Transmission of Reading Habits in Italy: Is a Good Example the Best Sermon?

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THIS VERSION: May 2011

ABSTRACT

The intergenerational transmission of preference and attitudes has been less investigated in the literature than the intergenerational transmission of education and income. Using the Italian Time Use Survey (2002-2003) conducted by ISTAT, we analyse the intergenerational transmission of reading habits: are children more likely to allocate time to studying and reading when they observe their parents doing the same activity?
The intergeneration transmission of attitudes towards studying and reading can be explained by both cultural and educational transmission from parents to children and by imitating behaviours. The latter channel is of particular interest, since it entails a direct influence parents may have on child's preference formation through their role model, and it opens the scope for active policies aimed at promoting good parents' behaviours. We follow two fundamental approaches to estimation: a "long run" model, consisting of OLS intergenerational type regressions for the reading habit, and "short run" household fixed effect models, where we aim at identifying the impact of the role model exerted by parents, exploiting different exposure of sibling to parents' example within the same household. Our long run results show that children are more likely to read and study when they live with parents that are used to read. Mothers seems to be more important than fathers in this type of intergenerational transmission. Moreover, the short run analysis shows that there is a pure imitation effect: in the day of the survey children are more likely to read after they saw their parents reading.

1.Introduction

The intergenerational transmission has been the object of a great deal of attention in the economic literature, mainly for its effect on mobility across generations. In fact, most of the research focused on intergenerational transmission of education and income[1] and, more recently, on the transmission of cognitive abilities[2].

Another stream of literature has studied the intergenerational transmission of preferences, habits and attitudes. Lindbeck and Nyberg (2006) analyse the transmission of norms related to work; Alvarez and Miles (2008) look at children's attitude to women work and domestic tasks while Dohmen *et al.* (2011) show how parents transmit to their children risk and trust attitudes.

The recent development of time use data makes it possible to look at the transmission across generations of behaviours such as time use choices, a topic on which the existing research is scarce and mainly concentrated on labour supply decisions (Del Boca *et al.*, 2000; Fernandez *et al.*, 2004; Kawaguchi and Miyazaki, 2010).

In this paper we look at intergenerational transmission of the time devoted to an activity that is crucial in the production of human capital accumulation: the studying and reading activity. Reading is relevant for its positive links with educational outcomes and subsequent earnings (Connolly *et al.*, 1992). Therefore it is a concern for educators and policy makers to stimulate young people to read and study and parents may transmit preferences and attitudes to their children also acting as good role models in promoting reading behaviours (Mullan, 2010).

Our analysis relies on the Italian Time Use Survey (2002-2003) conducted by ISTAT. While most time use surveys only consider one member of the household, and hardly children in primary school age, the Italian dataset makes it possible to analyse the relationship between the time parents devote to studying and reading and the time children devote on their own to the same activity in a given day. Certainly reading and studying are not the only human capital building activities, but we want to focus on those activities that can be done on their own by children in the age range we consider (6-15).

Looking at attitudes in doing activities that produce human capital accumulation is probably more relevant than looking only at intergenerational transmission of IQ, because behaviours are more matter of choices than intelligence. Moreover, if compared to the transmission of education, intergenerational transmission of attitudes for reading and studying is less affected by the economic status of the family, but it is crucial for its consequences on the continuous investment in human capital along individual's life.

A further advantage of our intergenerational transmission analysis is the objective measure of behaviour we look at, that is the time parents' and children devote to the activity, as opposed to research based on answers to qualitative questions such as the wiliness to take risk and to trust other people (Dohmen *et al.*, 2011)

[1] For a survey on intergenerational transmission of education and earnings see Black and Devereux (2010).
[2] Brown *et al.* (2010) and Anger and Heineck (2010)

In a recent piece of research, Cardoso *et al.* (2010) document a positive association between parents and children time allocations into human capital building activities in France, Germany and Italy.

The intergeneration transmission of attitudes towards studying, reading and socializing activities can be explained by both cultural and educational transmission from parents to children (parents teach their children the importance of reading and studying and provide them with books) and by imitating behaviours (children see their parents to read and decide to read as well). The latter channel is of particular interest, since it entails a direct influence parents may have on child's preference formation through their role model, and it opens the scope for active policies aimed at promoting good parents' behaviours.

In this paper we extend Cardoso *et al.* (2010) analysis by distinguishing between these two mechanisms, exploiting a larger and richer time use dataset, which collects information about when, with whom and in the presence of whom any particular activity is performed, as well as information on a large number of siblings that allow us to control for family fixed effects.

We investigate if children are more likely to allocate time to studying and reading activities when they live in families where they see their parents to read (long run effect) and when they observe their parents doing this activity in the day of the survey (short run or imitation effect). We also look separately to the effect of mothers and fathers since past researches have shown that each parent can affect differently her children's decisions and behaviour (Anger S. and Heineck G., 2010; Ermish an Francesconi, 2002; Louriero *et al.* 2006; Bjorklund *et al.*, 2006; Farré *et al.*, 2009; Dohmen *et al.*, 2011; and Mullan, 2010).

In particular, we start by estimating a long run model, in which we consider how the reading and studying activity of a child depends on whether the parents are used to read in the presence of their children. In this long run analysis we insert variables at family level to control for the effects of observed family characteristics and background. The intergenerational coefficient of this model is not able to separate the transmission that occurs through the parents' role model effect from the transmission that arises from genetic and environmental unobserved factors at the household level – including educational attitudes- that are potentially associated with both parental and children decisions to engage in human capital building activities.

Then, taking advantage of the presence of siblings in the data, we improve upon the identification of the effect of parental time use on children time use choices and we identify the short run effect of imitation using a family fixed effect approach. In doing this we exploit the variation that occurs at siblings level: different children, for exogenous reasons, may have been exposed differently to parents' reading activities in the survey day. This within family variation allows us to isolate the effect of imitation from the effects of the household environment and education received from the parents, that are shared by sibling.

Our results show that children are more likely to read and study when they live with parents that are used to read in their presence (long run effect): given a starting probability of about 20% that a child engages in the reading and studying activity, we estimate an increase of about 10 percentage points when either parent is used to read in the presence of their children, 10 percentage points when we look at the mother's habit alone and 5 percentage points when we look at the father. We therefore find a more relevant role of the mother in the intergenerational transmission of the reading habit. Moreover, with our short run analysis, we show the existence of a pure imitation effect: in the day of the survey children are more likely to read after they saw their parents reading, with a probability of reading that doubles. This seems to confirm the saying "a good example is the best sermon", since children imitate the observed parents behaviours.

Generally speaking, our findings suggest that the role model played by parents is a channel through which parental time use may affect children behaviour and time allocation decisions, and thereafter future children outcomes. This piece of research therefore can be useful in the analysis of intergenerational transmission and in particular on the analysis of the effects of parenting style and role. Are parents able to influence their children preferences and choices? Do children imitate what their parents do? Do therefore policies targeted to adults produce effects also on individuals of the next generation and are, for that reason, more fruitful?

The paper is organised as follows. Section 1 presents a review of the relevant literature. Section 2 describes the dataset used and the sample selection made for our empirical analysis. In Section 3 the time use variables are presented, while Section 4 examines the empirical strategy used. Results are discussed in Section 5. Conclusions follow.

2. Background literature

There is a vast literature on intergenerational transmission and the research on this topic can be divided into three main streams: studies that look at the transmission of education and income, analyses of the transmission of cognitive abilities and papers that consider the transmission of behaviours, habits and attitudes.

The literature on the intergenerational transmission of education and income (for a complete review see Black and Devereux, 2010) shows that the positive correlation between parents' and children is the result of both "nature" (genetic endowment), and choices, *i.e.* better educated parents invest more on their children's education. Moreover, better family environment and higher quality of child/parents relationship in household where parents are better educated, contribute to persistency of education and income across generations.

The transmission of cognitive abilities from parents to children has been less investigated. Brown *et al.* (2010) and Anger and Heineck (2010) consider the correlation in test scores for a British and a German sample respectively and find a strong transmission that is largely explained by the investments that parents do on their children. For the purpose of the present study, it is interesting to highlight that parents with better

reading skills are better able to help their children learn to read at home with positive effects on word fluency (see also Sènèchal and LeFevre, 2002). The opposite is true for the transmission of math abilities.

The last stream of the literature focuses on the transmission of preferences, habits and attitudes. In 1976 Robert Pollak discussed how preferences, especially in the short run, are influenced by other's people past consumption behaviours: individuals' preferences are such that they want to consume a given good when they observe other people around them already consuming that good. Waldkirch *et al.* (2004) analyse the transmission of consumption preferences and behaviours, Booth and Kee (2006) consider the intergenerational cultural transmission of norms regarding fertility, Jackson *et al.* (1997) and Louriero *et al.* (2006) look at smoking habits, Lindbeck and Nyberg (2006) at the intergenerational transmission of norms related to work hard, while Wilhelm *et al.* (2008) study the intergenerational transmission of generosity and Dohmen *et al.* (2010) discuss the transmission of risk and trust attitudes. All these works, that aim at understanding how habits are transmitted and therefore which policies may be put into action to promote "good" habits and attitudes and to reduce "bad" ones, find that parents' influence their children preferences with their parental role, educational choices and behaviours.

The literature on the intergenerational transmission of time use preference and time allocation is certainly more scant and, as already mentioned, focuses more on labour supply (Del Boca *et al.*, 2000; Fernandez *et al.*, 2004; Kawaguchi and Miyazaki, 2010) and on domestic work time (Alvez and Miles, 2008). Only Mullan (2010) and Cardoso *et al.* (2010) study the time allocation of parents and children in human capital accumulating activities. Due to data limitation, none of these studies is able to identify the pure imitation effect. In particular, Mullan (2010), using a time use dataset for UK, found a positive association between parents' and children's reading, in the age range 13-18. Cardoso *et al.* (2010), investigate the association between parents and children time allocations in France, Germany and Italy. In their paper they use the Multinational Time Use Study and they focus on how adolescents in the age range 15-19 allocate their time into three different activities (reading and studying, socialising and watching TV) and how this time is affected by parents' time use decisions. By considering children between 6 and 15 years of age, we therefore extend their analysis to younger children. The Italian dataset, in fact, is one of few Time Use dataset that provides a time diary also for children older that three years. This allows us to study which activities both parents and children do in the selected day, where they perform these activities and which family member is present. Moreover, compared to the harmonised dataset used by Cardoso *et al.* (2010), our dataset contains a richer set information and a large sample of siblings in the age range of interest that allow us to identify the imitation effect.

All the studies on intergenerational transmission share the methodological problem of how to separate "nurture" from "nature", *i.e.* of how to isolate the effect of the parents' variable of interest on the children's variable from the effect of a more general family effect, including common genetic traits between parents and children. This problem has been solved in different ways: Loureiro *et al.* (2006) and in Brown *et al.*

(2010) use instrumental variables, Akee *et al.* (2008), Black *et al.*., 2005 and Holmlund *et al.* (2008) use diff in diff estimation when changes and reforms occur. Other authors exploit datasets in which either twins or adopted children are present to use a fixed effect approach. The presence in a dataset of individuals that share the same genetic traits but that live in different families (for example the children of twins, as in Behrman and Rosezweig, 2002, in Currie and Moretti, 2007, and in Pronzato, 2011) or that have a common family background, but did not receive the same genetic transmission (for example natural and adopted children as in Plug, 2004) or, finally, individuals for which information is available for both natural and adoptive parents (as in Bjorklund *et al.*, 2006) allows to disaggregate the effects of genetic transmission form the effects of family environment.

In our dataset the number of twins is too small and we are not able to isolate the effect of nature from the effect of nurture. By exploiting the presence of a large number of siblings, however, we are able to disentangle, in our short run model, the effect of pure imitation from the overall effect of nature and nurture, comparing the reading decisions of a child who has seen her parents reading, with that of her brother or sister not exposed to the same example from parents.

3. Data and sample selection

In order to spot the existence of intergenerational transmission of preference for reading and studying activities we resort to the Time Use Survey (2002-2003) conducted by ISTAT, that covers 21,075 households and reports information on each household member.

An individual questionnaire containing socio-demographic information and a time diary were collected. All members older than three years completed the time diary on a selected day[3]. In each municipality covered by the survey, households were divided into three groups and each group was asked to fill in the daily diary on a different day: a weekday, Saturday or Sunday[4]. Our analysis is based on diaries completed both during weekdays and weekend days. The diary reports information on the time spent on a large number of tasks. Activities are coded by the respondent as main or secondary activities[5].

For our empirical analysis we selected a sample of children in the age range 6-15, having at least one sibling in the same age range and living in a household where both parents are present. We excluded children for which the diary was filled in on a "special" day (own, sibling or parents' vacation or sickness day) and for which not all parents or not all children in the relevant age range filled the diary. We also excluded all children for which one or more variables used in the econometric analysis of Section 4 were missing. Our final sample consists of 1,447 children from 681 households.

[3] The time diary of very young children was completed by parents.
[4] The oversampling of weekend diaries was a deliberate choice of the data collector (ISTAT).
[5] For example, someone may be cooking and watching television or cooking and looking at the children. It is the respondent that chooses which of the activities is the main one and which is the secondary one.

3.1. Time use variables definition and sample descriptive statistics

The aim of our analysis is to run intergenerational-type regressions to investigate whether children are more likely to allocate time to studying and reading activities when their parents have the habit of reading in their presence and when they observe their parents doing the activity in the day of the survey. Crucial to this purpose is the availability of information on where the activities are performed, that allows us to derive a measure of the time spent by parents reading or studying in the presence of their kids.

We define the content of the reading activities as follows:

- *For the children*: we consider whether the child is studying, reading or doing homework on her own, helping siblings in doing homework, talking and reading to the siblings. Notice that this measure only include time autonomously spent by the child in these activities (i.e. with no adult doing the activity with her) and that is defined by the child as primary activity.
- *For the parents*: we consider whether the parent is studying or reading in the presence of her children or helping children in doing their homework, talking and reading to the children. The above mentioned activities are included when declared both as a primary or secondary ones.

For simplicity, we refer to these activities as to "Reading and Studying" activities hereafter.

Table 1 reports the basic description of the allocation of time to reading and studying activities in our sample. Looking at participation rates, we observe about 34% of the mothers and 30% of the fathers engaged in the reading activity under the eyes of their children in the sampled day, and the percentage of children that read is 30%. This low percentage is certainly affected by the fact that 24% of our children spent in the survey day more than 5 hours in school and we excluded reading and studying activities done at school. As a consequence, the corresponding observed average times are very low, especially for the parents (about 12 minutes for mothers and 10 for fathers)[6].

Descriptive statistics reveal the association between parents' and children use of time: Table 2, in fact, shows that children have twice the probability of reading if at least one of the parents reads in their presence. This is true also when we disaggregate by birth order within the sample. The effect seems stronger for mothers than for fathers.

[6] If children spend many hours at school they are less likely to see their parents reading.

Table 1

Reading and Studying activity

Time allocated – Minutes				
	Child	Mother*	Father*	Mother or father*
Mean	29,8	12,1	9,9	16,8
Sd	(56.90)	(27.40)	(22.65)	(29.83)
Median	0	0	0	0
Obs	1447	1447	1447	1447
Participation rates				
	Child	Mother*	Father*	Mother or father*
Mean	0.30	0.34	0.29	0.47
Sd	(0.46)	(0.48)	(0.45)	(0.50)
Median	0	0	0	0
Obs	1447	1447	1447	1447

* in the presence of one of their children

Table 2

Child reading probability conditional on parental reading in their presence

Overall							
	Mother		Father		Parent		
	Not reading	Reading	Not reading	Reading	Not reading	Reading	Total
Child does not read	708	306	747	267	583	432	1014
%	74,6%	61,5%	72,3%	64,5%	76,7%	62,7%	70,1%
Child read	241	192	286	147	177	256	433
%	**25,4%**	**38,6%**	**27,7%**	**35,5%**	**23,3%**	**37,3%**	29,9%
Obs	949	498	1033	414	760	687	1447
First child							
Child does not read	308	118	315	111	254	171	426
%	68,6%	50,9%	65,0%	56,6%	70,6%	53,3%	62,6%
Child read	141	114	170	85	106	150	255
%	**31,4%**	**49,1%**	**35,1%**	**43,4%**	**29,4%**	**46,7%**	37,4%
Obs	449	232	485	196	360	321	681
Second child							
Child does not read	356	160	377	139	293	224	516
%	79,3%	69,0%	77,7%	70,9%	81,4%	69,8%	75,8%
Child read	93	72	108	57	67	97	165
%	**20,7%**	**31,0%**	**22,3%**	**29,1%**	**18,6%**	**30,2%**	24,2%
Obs	449	232	485	196	360	321	681

Table 3 shows parents' probability of reading by educational level. Education is certainly an important variable in explaining reading habits, and in fact our data show that more educated parents read more. Better educated parents teach their children the importance of reading and studying and provide them with books. By inserting parents' education in our long run empirical analysis we control for this effect, while with the short run analysis we underline the role of imitation that can become more relevant for children with low educated parents.

Table 3

Parents' reading probability in the presence of children by education

Mother education	Father education	Obs	Mother reading	Father reading
Compulsory school	Compulsory school	640	28,3%	22,8%
	High school	145	29,0%	43,4%
	University	10	40,0%	20,0%
High school	Compulsory school	152	28,3%	21,1%
	High school	335	43,3%	28,4%
	University	64	46,9%	45,3%
University	Compulsory school	7	71,4%	28,6%
	High school	48	47,9%	54,2%
	University	46	54,3%	41,3%

In Appendix 1 the summary statistics of the variables used in the empirical analysis are showed. The 681 families considered have on average 4.56 member. In particular, we have 434 families with two children in the relevant age range and 247 families where three or more children in the relevant age range are present.
Only 8% of fathers and 7% of mothers have a college education, while 55% of both mothers and fathers have less that secondary education. 30% of mothers never worked, while only 23% has a full time job and 9% works part time. Almost all fathers work: 7% as white collars, and 10% as self employed. Only 6% of the fathers is unemployed. More than half of the sample lives in the Southern regions (56%) while 31% lives in the North and 14% in the Centre.

4. Empirical strategy

The large proportion of zero values in the relevant time use variables highlighted in the previous section rules out any meaningful modeling of the amount dedicated to the reading and studying activity (through either tobit, or double hurdle specifications). Due to this feature, we chose as relevant measure of time the participation to the reading and studying activity (in the presence of the children as far as parents are concerned). In doing so, we also hope to mitigate measurement error problems that typically affect diary

based time use information, since the observed participation decision is likely to be a more reliable measure of the underlying behavior, compared to the exact amount of time spent.

We follow two fundamental approaches to estimation: a "long run" model, consisting of OLS intergenerational type regressions for the reading habit, and "short run" household fixed effect models, where we aim at identifying the impact of the role model exerted by parents, exploiting different exposure of sibling to parents' example within the same household.

In the long run approach we are interested in regressing an indicator for the participation of the child *i* of household *j* into reading and studying activities, say $child\_rs_{ij}$ on a measure of reading habit at the family level capturing whether the child is used or not to see their parents reading. Therefore, we take as crucial regressor a variable, say $parent\_rs_j$, indicating if the parent has been observed reading in the sampled day by any of the children of household *j*, arguing that this captures the family habit.
We look at parents jointly and also to mother and father role separately, and we estimate three specifications including: a) an aggregate measure of mother and father participation to the reading activity in the presence of their children, $(m+f)\_rs_{ij}$, which denotes participation of either the mother or the father; b) mother participation, m_rs_{ij}; c) father participation f_rs_{ij}.

In order to isolate the partial effect of parents' time allocation choice, we control for a number of exogenous characteristics of the child (Z_i), and of the household.
The intergenerational regressions are estimated with pooled linear probability models:

$$child\_rs_{ij} = \beta_0 + \beta_1 parent\_rs_j + \beta_2 Z_i + \beta_3 X_j + u_{ij}$$

On the right handside we control for child's age, inserted in Z_i through a dummy equal to one if the child attends middle or high school (*middle/high school*) since in terms of differences in time use and school habits the major change comes from the transition from primary school to middle school (and less from middle school to high school). We allow also the intergenerational coefficient β_1 to vary across child's age by interacting the parents' time variable with the child's age indicator. The gender dummy *girl* capture possible systematic differences in time use habits linked to the gender of the child. Moreover, we interact it with the parents' reading and studying time, in order to account for differences in the transmission of time use habits from parents to children related to the sex of the child (the literature emphasizes the relation between parents and same sex children). We also control for the child birth order inserting the dummies *birth order: second* and *birth order: third*.

Turning to characteristics at the household level X_j, they comprise *father* (*mother*) *age* (linear and quadratic term); and education, distinguished among 8 years of schooling (reference group), lower or upper

secondary schooling (2 to 5 year of secondary education), *father* (*mother*) *high school*, some university degree (2 or more years), *father* (*mother*) *college*. A further set of dummies captures heterogeneity in preferences for work and possibly income across families, considering information about parents' occupational status, profession and working histories. These are *mother always housewife*, that isolates the effect of living in a household where the mother never worked, neither when the children were younger, nor currently; *mother full time*; *father unemployed*, including both unemployed and out of the labour force; *father high professional position* and *father self-employed*. We also control for family size, given by the total *number of components* in the household, adults and children. Moreover, we control for systematic differences across different Italian regions, due to different unemployment rates, labour market conditions, childcare availability and living costs faced by households (dummies *Center*, *South*, while North is the reference group). We also control for the type of sampled day using two different dummies: *time diary completed during the week end*, that is child specific since siblings may compile the diary in different days, and *time diary completed during the summer* that is household specific (since the month of the interview is the same for the whole family). The introduction of this last variable has been motivated by the fact that during the summer children have no school and spend more time in physical activities outdoor. Therefore, it is likely that they read and study less and that they are less exposed to the reading example by their parents.

In the short run approach, since we want to measure the imitation effect, we only consider the child's reading episodes that occurred after having seen the parents reading. The dependent variable is therefore a binary measure, say $child\_rs\_im_{ij}$ indicating whether the child participates to the reading activity. For children who observe their parent to read we restrict the observational period from the first time when the parent has been seen reading to the end of the day; for children whose parents did not read at all in their presence, we look at the participation into reading activity during the whole day.

The core of our short run empirical strategy for identification is to exploit repeated observations on siblings to purge out unobserved heterogeneity at the household level. Therefore, the crucial regressor we rely on is a child-specific measure of parents' engagement into the reading activity that occurred in the presence of each child, say $parent\_rs_{ij}$. The latter measure is child-specific because siblings may have seen or not their parents reading in the survey day, and, given the fixed weekly scheduling of children engagements in this age range, this difference in exposure to treatment in the survey day is likely to be either random or exogenous to the child's reading decision in that day[7].

Our short run model is a household fixed effect linear probability model:

[7] We investigate to what extent the time spent at home by each child depends by her own preferences. To proxy for child's preferences we constructed three indicators of child's preferences over engaging in physical or mental activities and on spending time outdoors. We did not find any significant correlation between time spent at home and child's preferences after controlling for child's and family characteristics. Analytical results are shown in Appendix 3.

$$child\_rs\_im_{ij} = \gamma_0 + \gamma_1 parent\_rs_{ij} + \gamma_2 Z_i + \mu_j + \varepsilon_{ij}$$

Within this estimation approach all the observable regressors that are invariant within the family (X_j) are swept out, but the intergenerational parameter γ_1 captures the imitation effect (the parents' example) γ_1 can be estimated net of the whole set of unobservable confounders at the family level (μ_j). These include unobserved environmental and genetic factors, that influence both the parents and children preference toward the reading activity as well as the educational message towards the importance of the reading activity that parents transmit to their kids (the parents sermon). It is well known that child specific unobserved heterogeneity is not eliminated through a fixed effect approach and can still be a source of bias for the parameter of interest. In the literature on child production function (see Todd and Wolpin, 2007, among others) where the interest lies in estimating the effect of parental investment on the child's outcome, it has been emphasized that child specific unobserved ability is a potential source of bias since parents might choose to invest more on kids with lower (unovserved) ability, and thereafter lower previous outcomes, in order to compensate for their disadvantage. In our framework this criticism is less likely to apply, since we look at the time allocation of parents into activity that are not directly targeted to children, and that, therefore, are not an input measure that is likely to react to unobserved child characteristics, as well as to previous children outcomes.

In Table 4 we cross-tabulate the observed reading activity of the children by treated and control group, where the first group is composed by children who have observed the parent reading activity, while the second by children who have not observed the same activity. The estimated probability that the child reads increases by about 50% (rising from 21% to 30%) for a kid who happens to observe either parents, and the pattern seems to be arising from observation of the mother: when the child see the mother reading her probability to read almost doubled (rising from 24% to 44%). On the contrary, no effect seems to emerge for fathers.

Table 4

Sample frequency of children's reading activity by observation of parents' reading activity

	Not reading	Reading	Obs
Mother			
Child does not read	807	210	1.017
%	75,1	56,3	70,3
Child read	267	163	430
%	24,9	43,7	29,7
Obs	1.074	373	1.447
Father			
Child does not read	840	236	1.076
%	74,0	75,6	74,4
Child read	295	76	371
%	26,0	24,4	25,6
Obs	1.335	312	1.447
Parents			
Child does not read	731	359	1.090
%	79,4	68,3	75,3
Child read	190	167	357
%	20,6	31,8	24,7
Obs	921	526	1.447

Tables 5 displays some evidence about the existence of within family variability on which we base our identification strategy for the short run model. In this table we report the number of cases (individuals) belonging to families in which we observe at least one variation across components for the reading activity. More precisely, looking at the upper part of the table, we have 241 cases (families) where we have within sibling variation in the exposure to reading example from the mother, 204 cases of variation in exposure to reading from father, and 315 from either parents. As far as children are concerned, we observe 451 cases in families where one of the siblings reads after the mother, while another of the siblings does not, 384 cases with sibling variation after the father and 382 after either parents. Notice that among the above mentioned cases of useful variations on the right hand side, we are left with variability on the left hand side as shown in the bottom part of Table 5, where we count the records corresponding to within family variation of both adult reading and child reading.

Table 5. Within family variability (individuals)

Adult reading			
	Mother	Father	Mother or father
Obs	241	204	315
%	16,65	14,09	21,77
Number of obs	1447	1447	1447
Child reading after			
	Mother	Father	Mother or father
Obs	451	384	382
%	31,17	26,53	26,39
Number of obs	1447	1447	1447
Adult reading and child reading after			
	Mother	Father	Mother or father
Obs	112	56	116
%	46,47	27,45	36,83
Number of obs	241	204	315

Finally, in Table 6 we present the same cross-tabulation of Table 4, restricted to the above mentioned subsamples of cases exhibiting within family variation. It is interesting to notice that while the pattern for the mother is very similar to that of Table 4, indicating that the subsample is representative of the original sample of size 1447, for the father now a very large difference emerges between treated and control group. We interpret this finding as evidence that the former is a selected subsample, i.e. children for which the father is observed reading by one of the siblings and not by the others are systematically different from the children entering our original sample.

Table 6. Within family variability (individuals) in relevant subsamples

Mother			
	Not reading	Reading	Obs
Child doesn't read	99	66	165
%	79,2	59,6	68,5
Child read	26	50	76
%	20,8	43,1	31,5
Obs	125	116	241
Father			
Child doesn't read	93	75	1.076
%	91,2	73,5	74,4
Child read	9	27	371
%	8,8	26,5	25,6
Obs	102	102	204
Parents			
Child doesn't read	147	105	1.090
%	91,3	68,2	75,3
Child read	14	49	357
%	8,7	31,8	24,7
Obs	161	154	315

5. Results

We report in the following Tables 7 to 9 the estimated coefficients of main interest. Full estimation results are displayed in Appendix 2.

In Table 7 we display OLS estimation results for the long run model, where the intergenerational coefficient captures the association between parents' and children habit to read. We look at three separate specifications having as crucial regressor respectively a) an indicator for the cumulative parents' time (i.e. either the father or the mother engages into the reading activity in the presence of any children), b) the mother time only c) the father time only. For each of these three specifications we start by estimating raw correlations without inserting any controls (first column), then we condition to child's characteristics X (second column) and, finally, we extend the specification to the whole set of child and family characteristics Z , the interactions of parental time with child gender and child age, and the type of sampled day dummies (third column).

Starting with the parents' results in the upper part of the table, in column 1 the intergenerational correlation is estimated without controlling for any concomitant factor and it reveals that the probability that the child reads -predicted to be around 23% for children who do not observe their parents reading- significantly increases of about 14 percentage points when the children observe their parents to engage in the reading activity. In column 2 we added controls for child's characteristics. The intergenerational transmission

variable has a small decrease and remains significant. We also observe a strong positive age effect on the reading probability, with kids in middle or high school age displaying a reading probability which is twice as much the reading probability of kids in primary school age, regardless the parents' reading behavior. In the following column 3, the intergenerational coefficient is purged out from an extended set of controls at the family level, and it is cut down to about 10 percentage points. Notice that the intergenerational coefficient keeps statistically significant and sizeable, since the estimated probability that a child engages in the reading activity in the absence of the example of their parents is estimated to be about 18% (implying a relative increase in the reading probability of the kid of over 50%). Finally, column 4 testifies that we did not succeed in our attempt to identify separate effects of parental influence according to the child's age and the child's gender, since in the presence of the corresponding interaction terms all the intergenerational coefficients loose their statistical significance.

Looking at mother and father separately, in the central and lower part of Table 7 respectively, we observe that the intergenerational parameter for the mother is uniformly much higher than that of the father in all specifications. In column 3, the mother's coefficient is double with respect to father's one (10 percentage points vs 5). The greater importance of mother effect compared to father effect is in line with recent finding in intergenerational transmission of IQ (Anger and Heineck, 2010) and confirms the results of Cardoso *et al.* (2010).

We also performed a robustness check aimed at verifying if the observation of the reading activity of parents is not masking the effect of time spent at home by the kids. From these estimation results, contained in column 5 of Table A.1-A.3 in Appendix 2, it can be noticed that the intergenerational coefficient keeps unchanged with the inclusion of this further conditioning variable.

Overall, our long run results show that the intergenerational positive association in the reading habit, and in particular the transmission effect from mother to child, persists and keeps a relevant magnitude even after controlling for a set of observable child and family characteristics. Despite conditional on a large set of covariates, this positive association is likely not to capture the causal effect of the role model exerted by parents, and might be arising from unobserved factors including, beside others, the parents' sermons.

Within the short run identification strategy, we look at the child specific experience in the observation of the reading activity of parents, rather than at the reading habit of the latter, and at the child's behavior at the same time or after observing the parents (imitating behavior). The intergenerational coefficient captures now the effect of the parent's example and, within a family fixed effect approach, this is causal as far as unobservable differences between siblings are unrelated to their difference in exposure to parent's reading example.

Table 8 shows that the imitation effect is significant and of considerable magnitude for all three specification considered. Let's take column 2 as the preferred specification, since again interactions of parent's time variable with child's age and gender proves not to be significant. Having observed either parent reading

makes a child about three times more likely to engage herself into the same activity either contemporaneously or afterword. The direct imitation of the mother alone leads to a probability that the child reads that is double with respect to children not observing their mothers reading. It is interesting to relate this family fixed effect coefficients with its OLS counterparts displayed in Table A5 in Appendix 2, which is similar in magnitude when estimated both on the family FE sample (241 children) and on the original sample (1447 children). This comparison suggests on the one side that unobserved heterogeneity is not a major source of bias in this short run setting and that the FE and original samples are not systematically different (a pattern that was already spotted in the previous section). Coming to the father's result, his direct imitation leads again to a doubling in the probability of reading. However, in Table A6 we find a confirmation that the FE subsample for father (204 children exposed differently to father's reading example) is strongly selected, since OLS estimates on the FE sample and on the original one diverge largely from each other. As a consequence, the father's finding should be interpreted with great caution.

In Table 9 we present a set of results we derived as a robustness check to corroborate our finding on the existence of an the imitation effect. The strategy we adopt here is much more stringent since we fix a point in time (4 pm) before which the parents can be observed by their children reading or not, while the behavior of children is observed after 3 pm (i.e. we allow activity overlapping for one hour span). Not surprisingly, the number of useful cases for estimation is now quite low, so that we can not identify separate effects, and only estimate the first specification, spotting a significant imitation effect directed to either parent, leading to a 100% increase of the probability that the child engages in the reading activity.

Table 7

Estimated Intergenerational coefficients. Linear probability model, OLS results (long run)

Child variable: *child_rs* (=1 if child engages in reading or studying activity)
Parent variables: *parents_rs* (=1 if any parent observed reading by any chidren)
mother_rs (=1 if mother observed readiny by any children)
father_rs (=1 if father observe reading by any children)

VARIABLES	(1) Raw corr	(2) Child	(3) Family	(4) Inter
Reference Prob(child_rs=1)[*]	*0,232*	*0,159*	*0,176*	*0,184*
parents_rs	0.140	0.127	0.100	0.076
	(0.000)	(0.000)	(0.000)	(0.052)
middle and high school		0.153	0.146	0.127
		(0.000)	(0.000)	(0.000)
*parents_rs*middle/high school*				0.040
				(0.382)
*parents_rs*girl*				0.007
				(0.878)
Reference Prob(child_rs=1)	*0,24*	*0,18*	*0,18*	*0,18*
mother_rs	0.132	0.123	0.099	0.045
	(0.000)	(0.000)	(0.001)	(0.296)
middle and high school		0.154	0.138	0.126
		(0.000)	(0.000)	(0.000)
*mother_rs*middle/high school*				0.030
				(0.544)
*mother_rs*girl*				0.078
				(0.131)
Reference Prob(child_rs=1)	*0,277*	*0,199*	*0,208*	*0,209*
father_rs	0.078	0.066	0.045	0.058
	(0.012)	(0.035)	(0.165)	(0.209)
middle and high school		0.156	0.151	0.146
		(0.000)	(0.000)	(0.000)
*father_rs*middle/high school*				0.017
				(0.741)
*father_rs*girl*				-0.048
				(0.366)

[*]This is the sample average estimated probability for a young child conditional to *parents_rs*=0

Table 8

Estimated imitation effect. Linear probability model, family fixed effects (short run)

Child variable: *child_rs_im* (=1 if child engages in reading activity after observing the parent reading)

Child specific parent variables: *parents_rs* (=1 if any parent observed reading by the child)
mother_rs (=1 if mother observed reading by the child)
father_rs (=1 if father observed reading by the child)

VARIABLES	(1) Raw (FE)	(2) Child (FE)	(3) Inter (FE)
*Reference Prob(child_rs_im=1)**	*0,16*	*0,11*	*0,11*
parents_rs_im	0.228	0.218	0.220
	(0.000)	(0.000)	(0.000)
middle/ high school		0.103	0.106
		(0.002)	(0.004)
*parents_rs_im*middle/high school*			-0.010
			(0.846)
*parents_rs_im*girl*			0.006
			(0.903)
*Reference Prob(child_rs_im=1)**	*0,24*	*0,18*	*0,18*
mother_rs_im	0.206	0.195	0.181
	(0.001)	(0.001)	(0.021)
middle and high school		0.134	0.124
		(0.000)	(0.001)
*mother_rs_im*middle/high school*			0.044
			(0.481)
*mother_rs_im*girl*			-0.018
			(0.793)
*Reference Prob(child_rs_im=1)**	*0,21*	*0,15*	*0,15*
father_rs_im	0.197	0.183	0.201
	(0.000)	(0.000)	(0.001)
middle/high school		0.135	0.135
		(0.000)	(0.000)
*father_rs_im*middle/high school*			0.009
			(0.863)
*father_rs_im*girl*			-0.051
			(0.377)

*This is the sample average estimated probability for a young child conditional to *parents_rs_im*=0

Table 9

Estimated imitation effect. Linear probability model, family fixed effects (short run, alternative strategy)

Child variable: *child_rs_im* (=1 if child engages in reading activity after 3 pm)
Child specific parent variables: *parents_rs* (=1 if any parent is observed reading by the child before 4 pm)

VARIABLES	FE raw	FE child
Reference Prob(child_rs_im=1)[*]	*0,186*	*0,119*
parents_rs_im	0.116	0.122
	(0.021)	(0.015)
middle/high school		0.128
		(0.000)

[*]This is the sample average estimated probability for a young child conditional to *parents_rs*=0

Conclusions

We exploit the household multimember Italian time use dataset to learn about intergenerational transmission of preferences for human capital building activities such as reading and studying between parents and their kids in the age range 6-15. In particular, we investigate if children are more likely to allocate time to studying and reading activities when they live in families where they observe their parents to read (long run effect) and when they observe their parents doing this activity in the day of the survey (short run or imitation effect). Indeed, with our empirical strategy, we aim at measuring both the general long run effect of education and transmission of attitudes and the pure imitation effect in the short run.

Overall, our long run results show that there is an intergenerational positive association in the reading habit, and in particular the transmission effect from mother to child, persists and keeps a relevant magnitude even after controlling for a set of observable child and family characteristics. Given a starting probability of about 20% that a child engages in the reading and studying activity, we estimate an increase of about 10 percentage points when either parent is used to read in the presence of their children, 10 percentage points when we look at the mother's habit alone and 5 percentage points when we look at the father.

Within the short run identification strategy, the estimated intergenerational coefficient captures the effect of the parent's example, and we find evidence of a pure imitation effect: in the day of the survey children are more likely to read after they saw their parents reading, with a probability that doubles in all our specification (*i.e.* for the example of either parents, mother alone and father alone). The short run results rely on a family fixed effect approach and therefore disentangle the parents' example (experienced differently

from siblings of the same family in the survey day) from the parents' sermon (the unobserved educational attitude shared by sibling living in the same family environment).

Since children imitate the observed parents behaviours, we corroborate the saying "a good example is the best sermon" and conclude that the role model played by parents is a channel through which parental time use may affect children behaviour and time allocation decisions, and thereafter future children outcomes.

Our results confirm previous findings on the relevance of intergeneration transmission of preferences and attitudes that can be important for targeting human capital accumulation policies. If parents influence with their behaviour children's actions, more attention should be put on adults' habits. Educational and training programs targeted to older individuals may therefore produce positive spillovers.

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Appendix 1

Summary statistics

Variables	Mean	SD
Child reading and studying	0,30	0,46
Mother reading and studying	0,34	0,48
Father reading and studying	0,29	0,45
Middle and high school	0,52	0,50
Girl	0,47	0,50
Birth order: first	0,41	0,49
Birth order: second	0,46	0,50
Birth order: third or more	0,14	0,34
Time diary compiled in the summer	0,21	0,41
Child's time at home (hours)	7,68	2,53
Time diary compiled in the weekend	0,61	0,49
Mother age	38,73	4,46
Mother compulsory school	0,55	0,50
Mother high school	0,38	0,49
Mother college	0,07	0,25
Mother always housewife	0,30	0,46
Mother full time	0,23	0,42
Father age	42,57	5,05
Father compulsory school	0,55	0,50
Father high school	0,36	0,48
Father college	0,08	0,28
Father unemployed	0,06	0,24
Father white collar	0,07	0,26
Father self employed	0,10	0,30
Number of family components	4,56	0,90
North	0,31	0,46
Center	0,14	0,34
South	0,56	0,50
Number of observations	1447	
Number of families	681	

Appendix 2

Table A1. Linear probability model, OLS results (long run). Parents

VARIABLES	(1) Raw corr	(2) Child	(3) Family	(4) Inter	(5) Time at home
parents_rs	0.140	0.127	0.100	0.076	0.067
	(0.000)	(0.000)	(0.000)	(0.052)	(0.084)
Middle and high school		0.153	0.146	0.127	0.129
		(0.000)	(0.000)	(0.000)	(0.000)
Girl		0.041	0.042	0.038	0.033
		(0.088)	(0.081)	(0.228)	(0.288)
Birth order: second		-0.020	-0.026	-0.025	-0.025
		(0.434)	(0.319)	(0.337)	(0.341)
Birth order: third or more		-0.076	-0.103	-0.102	-0.102
		(0.053)	(0.022)	(0.024)	(0.023)
Time diary compiled in the summer		-0.057	-0.051	-0.051	-0.058
		(0.088)	(0.114)	(0.116)	(0.073)
Time diary compiled in the weekend		-0.013	-0.021	-0.021	-0.029
		(0.641)	(0.442)	(0.454)	(0.285)
Mother age			0.055	0.056	0.049
			(0.077)	(0.072)	(0.125)
Mother age squared			-0.001	-0.001	-0.001
			(0.126)	(0.119)	(0.191)
Mother high school			-0.033	-0.033	-0.032
			(0.361)	(0.363)	(0.375)
Mother college			0.000	0.001	0.003
			(0.994)	(0.983)	(0.957)
Mother always housewife			-0.103	-0.103	-0.106
			(0.002)	(0.002)	(0.002)
Mother full time			-0.088	-0.088	-0.082
			(0.015)	(0.016)	(0.022)
Father age			0.069	0.069	0.072
			(0.010)	(0.010)	(0.008)
Father age squared			-0.001	-0.001	-0.001
			(0.007)	(0.007)	(0.005)
Father high school			0.033	0.033	0.036
			(0.353)	(0.354)	(0.309)
Father college			0.052	0.051	0.048
			(0.422)	(0.430)	(0.460)
Father unemployed			-0.049	-0.050	-0.053
			(0.414)	(0.404)	(0.380)
Father white collar			0.096	0.097	0.098
			(0.110)	(0.107)	(0.096)
Father self employed			0.027	0.027	0.025
			(0.590)	(0.587)	(0.623)
Number of family components			0.012	0.013	0.007
			(0.402)	(0.388)	(0.636)

Center			-0.026	-0.026	-0.020
			(0.542)	(0.540)	(0.638)
South			0.021	0.020	0.022
			(0.522)	(0.530)	(0.494)
Child's time at home				0.040	0.039
				(0.382)	(0.388)
parents_rs*middle/high school				0.007	0.000
				(0.878)	(1.000)
parents_rs*Girl					0.000
					(0.000)
Constant	0.233	0.179	-2.555	-2.561	-2.600
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	1447	1447	1447	1447	1447
R-squared	0.023	0.064	0.099	0.100	0.110

Table A2. Linear probability model, OLS results (long run). Mother

VARIABLES	(1) Raw corr	(2) Child	(3) Family	(4) Inter	(5) Time at home
mother_rs	0.132	0.123	0.099	0.045	0.041
	(0.000)	(0.000)	(0.001)	(0.296)	(0.334)
Middle and high school		0.154	0.138	0.126	0.127
		(0.000)	(0.000)	(0.000)	(0.000)
Girl		0.039	0.037	0.010	0.004
		(0.110)	(0.123)	(0.739)	(0.886)
Birth order: second		-0.021	-0.032	-0.033	-0.033
		(0.421)	(0.217)	(0.203)	(0.209)
Birth order: third or more		-0.082	-0.117	-0.118	-0.117
		(0.039)	(0.008)	(0.008)	(0.008)
Time diary compiled in the summer		-0.063	-0.058	-0.059	-0.066
		(0.056)	(0.074)	(0.069)	(0.044)
Time diary compiled in the weekend		-0.017	-0.023	-0.022	-0.030
		(0.545)	(0.419)	(0.438)	(0.283)
Mother age			0.092	0.093	0.087
			(0.001)	(0.001)	(0.003)
Mother age squared			-0.001	-0.001	-0.001
			(0.003)	(0.003)	(0.007)
Mother high school			-0.001	0.001	0.002
			(0.961)	(0.985)	(0.939)
Mother college			0.053	0.056	0.057
			(0.382)	(0.355)	(0.351)
Mother always housewife			-0.097	-0.096	-0.099
			(0.004)	(0.005)	(0.004)
Mother full time			-0.084	-0.084	-0.079
			(0.023)	(0.022)	(0.030)
Number of family components			0.011	0.011	0.005
			(0.474)	(0.460)	(0.730)
Center			-0.030	-0.028	-0.022
			(0.482)	(0.514)	(0.609)
South			0.017	0.017	0.018
			(0.601)	(0.598)	(0.575)
mother_rs*Middle/high school				0.030	0.032
				(0.544)	(0.524)
mother_rs*Girl				0.078	0.069
				(0.131)	(0.176)
Child's time at home					0.000
					(0.000)
Constant	0.254	0.202	-1.752	-1.749	-1.750
	(0.000)	(0.000)	(0.002)	(0.002)	(0.003)
Observations	1447	1447	1447	1447	1447
R-squared	0.019	0.062	0.086	0.087	0.099

Table A3. Linear probability model, OLS results (long run). Father

VARIABLES	(1) Raw corr	(2) Child	(3) Family	(4) Inter	(5) Time at home
father_rs	0.078	0.066	0.045	0.058	0.050
	(0.012)	(0.035)	(0.165)	(0.209)	(0.277)
Middle and high school		0.156	0.151	0.146	0.149
		(0.000)	(0.000)	(0.000)	(0.000)
Girl		0.044	0.045	0.058	0.050
		(0.072)	(0.063)	(0.041)	(0.077)
Birth order: second		-0.020	-0.023	-0.023	-0.023
		(0.440)	(0.377)	(0.390)	(0.385)
Birth order: third or more		-0.074	-0.098	-0.097	-0.098
		(0.058)	(0.029)	(0.030)	(0.028)
Time diary compiled in the summer		-0.071	-0.065	-0.065	-0.072
		(0.033)	(0.048)	(0.050)	(0.029)
Time diary compiled in the weekend		-0.019	-0.021	-0.022	-0.031
		(0.499)	(0.445)	(0.441)	(0.269)
Father age			0.095	0.096	0.096
			(0.000)	(0.000)	(0.000)
Father age squared			-0.001	-0.001	-0.001
			(0.000)	(0.000)	(0.000)
Father high school			0.031	0.030	0.034
			(0.327)	(0.347)	(0.281)
Father college			0.071	0.070	0.067
			(0.257)	(0.263)	(0.288)
Father unemployed			-0.052	-0.055	-0.055
			(0.374)	(0.354)	(0.352)
Father white collar			0.099	0.101	0.103
			(0.111)	(0.105)	(0.091)
Father self employed			0.035	0.034	0.033
			(0.479)	(0.484)	(0.505)
Number of family components			0.016	0.016	0.009
			(0.293)	(0.292)	(0.571)
Center			-0.016	-0.016	-0.012
			(0.717)	(0.714)	(0.786)
South			-0.012	-0.011	-0.010
			(0.710)	(0.734)	(0.756)
Child's time at home					0.000
					(0.000)
father_rs*middle/high school				0.017	0.013
				(0.741)	(0.810)
father_rs*Girl				-0.048	-0.052
				(0.366)	(0.319)
Constant	0.277	0.225	-2.022	-2.036	-2.178
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Observations	1447	1447	1447	1447	1447
R-squared	0.006	0.050	0.073	0.073	0.087

Table A4. Family fixed effects results (short run). Parents

VARIABLES	(1) FE raw	(2) FE child	(3) OLS inter	(4) OLS sel sam	(5) FE inter	(6) FE Time at home
Reference Prob(child_rs_im=1)	*0,16*	*0,11*	*0,15*	*0,11*	*0,12*	
parents_rs_im	0.228	0.218	0.096	0.215	0.219	0.191
	(0.000)	(0.000)	(0.017)	(0.002)	(0.000)	(0.001)
Middle and high school		0.100	0.115	-0.012	0.103	0.101
		(0.002)	(0.000)	(0.843)	(0.005)	(0.006)
Girl		0.009	0.040	-0.003	0.007	-0.003
		(0.728)	(0.151)	(0.938)	(0.838)	(0.925)
Birth order: second		-0.042	-0.022	-0.105	-0.042	-0.043
		(0.087)	(0.360)	(0.072)	(0.087)	(0.080)
Birth order: third or more		-0.136	-0.068	-0.089	-0.136	-0.143
		(0.007)	(0.065)	(0.225)	(0.007)	(0.004)
Time diary compiled in the weekend		0.043	0.012	0.056	0.044	0.042
		(0.721)	(0.668)	(0.216)	(0.717)	(0.730)
parents_rs_im*middle/high school			0.009	0.097	-0.007	-0.006
			(0.850)	(0.264)	(0.894)	(0.907)
parents_rs_im*Girl			0.004	-0.057	0.006	0.009
			(0.942)	(0.541)	(0.905)	(0.872)
Child's time at home						0.000
						(0.004)
Constant	0.164	0.123	0.143	0.118	0.122	-0.048
	(0.000)	(0.128)	(0.000)	(0.075)	(0.136)	(0.636)
Observations	1447	1447	1447	315	1447	1447
R-squared	0.043	0.114	0.044	0.114	0.114	0.125
Number of famID	681	681			681	681

Table A5. Family fixed effects results (short run). Mother

VARIABLES	(1) FE raw	(2) FE child	(3) OLS inter	(4) OLS sel sam	(5) FE inter	(6) FE Time at home
Reference Prob(child_rs_im=1)	*0,24*	*0,18*	*0,18*	*0,17*	*0,18*	*0,19*
mother_rs_im	0.206	0.196	0.149	0.290	0.183	0.150
	(0.001)	(0.001)	(0.003)	(0.003)	(0.020)	(0.053)
Middle and high school		0.134	0.139	0.101	0.122	0.119
		(0.000)	(0.000)	(0.259)	(0.001)	(0.002)
Girl		0.017	0.027	0.135	0.021	0.008
		(0.540)	(0.317)	(0.096)	(0.500)	(0.798)
Birth order: second		-0.036	-0.021	-0.074	-0.035	-0.037
		(0.195)	(0.411)	(0.364)	(0.201)	(0.172)
Birth order: third or more		-0.156	-0.090	-0.084	-0.158	-0.168
		(0.005)	(0.020)	(0.396)	(0.004)	(0.002)
Time diary compiled in the weekend		-0.069	-0.019	0.047	-0.068	-0.078
		(0.739)	(0.496)	(0.462)	(0.745)	(0.693)
mother_rs_im*middle/high school			0.031	0.018	0.047	0.049
			(0.579)	(0.882)	(0.454)	(0.432)
mother_rs_im*Girl			0.025	-0.180	-0.021	-0.018
			(0.679)	(0.168)	(0.749)	(0.791)
Child's time at home						0.001
						(0.000)
Constant	0.244	0.249	0.199	0.123	0.252	0.020
	(0.000)	(0.058)	(0.000)	(0.193)	(0.058)	(0.883)
Observations	1447	1447	1447	241	1447	1447
R-squared	0.023	0.112	0.071	0.099	0.113	0.131
Number of famID	681	681			681	681

Table A6. Family fixed effects results (short run). Father

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	FE raw	FE child	OLS inter	OLS sel sam	FE inter	FE Time at home
Reference Prob(child_rs_im=1)	*0,21*	*0,15*	*0,19*	*0,14*	*0,15*	*0,15*
father_rs_im	0.197	0.182	-0.013	0.074	0.198	0.162
	(0.000)	(0.000)	(0.773)	(0.364)	(0.002)	(0.012)
Middle and high school		0.135	0.141	-0.119	0.133	0.131
		(0.000)	(0.000)	(0.233)	(0.000)	(0.000)
Girl		0.023	0.056	-0.040	0.033	0.021
		(0.375)	(0.038)	(0.454)	(0.271)	(0.467)
Birth order: second		-0.030	-0.015	-0.152	-0.029	-0.031
		(0.255)	(0.557)	(0.054)	(0.264)	(0.233)
Birth order: third or more		-0.116	-0.072	-0.195	-0.115	-0.124
		(0.021)	(0.053)	(0.059)	(0.023)	(0.013)
Time diary compiled in the weekend		-0.069	0.005	0.086	-0.075	-0.080
		(0.682)	(0.867)	(0.142)	(0.652)	(0.623)
father_rs_im*middle/high school			0.015	0.179	0.012	0.014
			(0.767)	(0.132)	(0.825)	(0.805)
father_rs_im*Girl			-0.052	0.027	-0.049	-0.043
			(0.357)	(0.801)	(0.397)	(0.452)
Child's time at home						0.000
						(0.002)
Constant	0.214	0.208	0.176	0.204	0.207	0.030
	(0.000)	(0.055)	(0.000)	(0.031)	(0.055)	(0.798)
Observations	1447	1447	1447	204	1447	1447
R-squared	0.021	0.109	0.039	0.107	0.110	0.122
Number of famID	681	681			681	681

Table A7. Family fixed effects results (short run, alternative strategy). Parents

VARIABLES	(1) FE raw	(2) OLS child	(3) FE child	(4) FE Time at home
Reference Prob(child_rs_im=1)	*0,186*	*0,129*	*0,119*	*0,13*
parents_rs_im	0.116	0.073	0.122	0.080
	(0.021)	(0.013)	(0.015)	(0.112)
Middle and high school		0.130	0.128	0.125
		(0.000)	(0.000)	(0.000)
Girl		0.033	0.017	0.006
		(0.134)	(0.538)	(0.835)
Birth order: second		-0.032	-0.045	-0.046
		(0.178)	(0.093)	(0.081)
Birth order: third or more		-0.057	-0.112	-0.122
		(0.098)	(0.040)	(0.023)
Time diary compiled in the weekend		-0.078	-0.062	-0.068
		(0.002)	(0.724)	(0.697)
Time spent at home				0.001
				(0.000)
Constant	0.187	0.184	0.185	-0.039
	(0.000)	(0.000)	(0.101)	(0.749)
Observations	1447	1447	1447	1447
R-squared	0.008	0.050	0.090	0.107
Number of famID	681		681	681

Appendix 3

Time at home

VARIABLES	(1) Raw	(2) Child	(3) Family
mental activities	12.308	10.113	22.179
	(0.578)	(0.611)	(0.274)
outdoor	23.391	23.798	26.401
	(0.658)	(0.633)	(0.522)
sport	-22.347	-4.313	6.472
	(0.712)	(0.937)	(0.893)
Middle and high school		4.269	-3.218
		(0.663)	(0.745)
Girl		27.369	26.939
		(0.001)	(0.001)
Birth order: second		4.802	-1.017
		(0.504)	(0.888)
Birth order: third or more		33.874	0.443
		(0.012)	(0.975)
Time diary compiled in the summer		20.011	18.906
		(0.138)	(0.155)
Time diary compiled in the weekend		24.621	25.269
		(0.016)	(0.012)
Number of family components			24.245
			(0.000)
Center			-13.617
			(0.451)
South			-1.904
			(0.876)
Constant	461.910	421.002	325.242
	(0.000)	(0.000)	(0.000)
Observations	1439	1439	1439
R-squared	0.001	0.024	0.039