

Parent's education as determinant of educational childcare time

J. Ignacio Gimenez-Nadal, University of Zaragoza and CTUR

J. Alberto Molina, University of Zaragoza and IZA

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Introduction

Importance to the topic

The study of parents' childcare time is important

- Leibowitz's seminal work on parental childcare time and increased human capital of children (Leibowitz, 1972;1974;1977).
- Positive relationship between parental time investment and children's outcomes. \Rightarrow Datcher-Loury (1988), Blau and Grossberg (1990), Cooksey and Fondell (1996), Han, Waldfogel and Brooks-Gunn (2001), Brooks-Gunn, Han and Waldfogel (2002).
- The study of what factors influence the time parents devote to their children may be important for both parents and policymakers.

Factors affecting parents' time on childcare time

Among factors affecting childcare time

- Positive relationship between parents' education and parental childcare time \Rightarrow Guryan, Hurst and Kearney (2008) for a review.
- Highly educated parents devote more time to their children than low educated individuals.
- Several explanations for such gradient:
 - 1 Parents may see investing in children's education as a luxury good.
 - 2 Highly educated parents may see that market-purchased childcare options are poor substitutes of parental time.
 - 3 Altruism

In this paper

- We study factors influencing parents' time devoted to childcare activities, with a focus on parental education.
- We analyze the time that heterosexual couples with children under 18 devote to 3 types of childcare: *basic childcare*, *educational childcare* and supervisory childcare \Rightarrow Focus on parental *educational childcare* time.
- We account for joint household decisions and joint provision of child care \Rightarrow 6-equation Seemingly Unrelated Regression (SUR) model.
- We use the MTUS data from the United Kingdom (2000) and Spain (2002).

Findings

- Mother's education is associated with an increase in the time devoted to educational childcare by fathers in both Spain and the United Kingdom.
- Mother's education is associated with an increase in the time devoted to educational childcare by Spanish mothers.

What really matters to determine the time devoted to educational childcare at the couple level is the educational level of the mother.

- The time devoted to educational childcare by the two members of the couple are complementary in both Spain and the United Kingdom.

Highly-educated couples devote more time to educational childcare than their low educated counterparts (assortative mating by education).

Contributions

- Previous research on childcare time, by focusing on the time devoted to educational childcare \Rightarrow Hill and Stafford (1974), Zick and Bryan (1996), Bianchi (2000), Gauthier, Smeeding and Furnstenberg (2004), Sayer, Bianchi and Robinson (2004), Kimmel and Connelly (2007), Guryan, Hurst and Kearney (2008).
- We analyze 2 European countries with different welfare regimes (Esping-Andersen, 1999) in an attempt to extract common patterns for the time devoted to *educational childcare*.
- Our analysis at the couple level takes into account that the time one parent spends may serve as a substitute for the time another parent spends, giving evidence on the relationship between the times devoted to childcare by the members of the couple.

Data and Childcare Time

Data and Sample

- Version W58 of the Multinational Time Use Study (MTUS).
- Non-retired/non-student individuals between the ages of 21 and 65 living in couple (married or cohabiting).
- Heterosexual couples with at least one child under age 18, and where both members of the couple report information on their time allocation decisions.
- The United Kingdom (2000) and Spain (2002).
- 1,527 couples for the United Kingdom, and 4,499 couples for Spain.

Childcare Time

Childcare time measured as primary activities:

- Basic childcare: Time spent on the basic needs of children, including breastfeeding, rocking a child to sleep, general feeding, changing diapers, providing medical care (either directly or indirectly), grooming, and so on \Rightarrow "physical/medical care of children (main28)".
- Educational childcare: Time spent teaching children, reading to/with children, talking with children, helping children with homework, attending meetings at a child's school, and similar activities \Rightarrow "teach/help with homework (main29)" and "read to, talk or play with children (main30)".
- Supervisory childcare: Time spent attending a child's sporting event or dance recital, going to the zoo with children, and taking walks with children, that is, supervising children during their leisure activities \Rightarrow "supervise, accompany, other childcare (main31)".

Table: Hours per Day Spent in Child Care Activities ^{1,2,3}

	Basic childcare	Educational childcare	Supervisory childcare	Total childcare
Panel A: The United Kingdom				
All fathers	0.333 (0.775)	0.250 (0.564)	0.029 (0.192)	0.612 (1.098)
All mothers	0.916 (1.307)	0.414 (0.700)	0.066 (0.269)	1.395 (1.704)
Panel B: Spain				
All fathers	0.315 (0.757)	0.218 (0.556)	0.040 (0.233)	0.573 (1.094)
All mothers	1.024 (1.478)	0.254 (0.556)	0.089 (0.373)	1.367 (1.756)

Notes: ¹ Standard deviations in parentheses ² Sample consists of respondents aged 21-65 from the Spanish Time Use Survey 2002-2003 ³ Time devoted to time use activities is measured in hours per day.

- The average time spent in childcare for all women with children is 1.40 hours, and 1.37 hours per day, in the United Kingdom and Spain, respectively.
- This total is dominated by time spent in *basic childcare*.
- For the time devoted to *educational childcare*, mothers in the United Kingdom and Spain devote 0.41 and 0.25 hours per day to such activities.
- Women spend roughly twice as much time in child care as do men.
- For both men and women, *basic childcare* consumes the largest amount of time spent in childcare, but men do spend proportionately more of their childcare time in *educational childcare*.

Table: Hours per Day Spent in Childcare Activities by Educational Attainment ^{1,2,3}

Panel A: The United Kingdom	Basic childcare	Educational childcare	Supervisory childcare
Fathers			
Primary education	0.337	0.238	0.028
Secondary education	0.322	0.269	0.029
University education	0.346	0.232	0.031
Difference University education-Primary education	0.009	-0.006	0.003
P-Value difference	(0.862)	(0.885)	(0.832)
Mothers			
Primary education	0.876	0.344	0.069
Secondary education	0.943	0.420	0.052
University education	0.914	0.481	0.084
Difference University education-Primary education	0.039	0.137	0.015
P-Value difference	(0.664)	(0.004)	(0.412)
Panel B: Spain			
Fathers			
Primary education	0.152	0.130	0.025
Secondary education	0.277	0.207	0.035
University education	0.500	0.295	0.061
Difference University education-Primary education	0.348	0.165	0.036
P-Value difference	(0.000)	(0.000)	(0.001)
Mothers			
Primary education	0.750	0.144	0.050
Secondary education	0.961	0.232	0.102
University education	1.356	0.381	0.088
Difference University education-Primary education	0.606	0.237	0.037
P-Value difference	(0.000)	(0.000)	(0.030)

Notes: ¹ Standard deviations in parentheses ² Sample consists of respondents aged 21-65 from the Spanish Time Use Survey 2002-2003 ³ Time devoted to time use activities is measured in hours per day.

Childcare by education

- In the case of the United Kingdom, we do not observe any statistically significant difference in the time devoted to basic, educational and supervise childcare of men.
- For women, the only statistically significant difference is found in the time devoted to educational childcare, where highly-educated mothers devote 0.14 more hours per day to such activities.
- In Spain, both highly-educated fathers and mothers devote more time to basic, educational and supervise childcare than their low educated counterparts.

Empirical Strategy and Variables

Empirical Strategy

- Failing to account for joint household decisions and joint provision of child care would be a critical failure that would affect the interpretation of the results \Rightarrow We take into account that the time one parent spends may serve as a substitute for the time another parent spends.
- Seemingly Unrelated Regression (SUR) Tobit system on the time devoted to *basic*, *educational* and *supervise childcare* by the 2 members of the couple (6 equations).
- For each time use of mothers and fathers we estimate a Tobit regression, and we allow for correlations in the unobserved determinants of the activities by allowing the error terms to be jointly normally distributed, with no restrictions on the correlation.
- This specification accounts for:
 - ① Time constraint that may require individuals to spend more time on one childcare activity and, therefore, less time on another.
 - ② Time one parent spends in one activity may serve as a substitute for the time another parent spend in the same activity.

Explanatory Variables

- Husband and wife's age (and its square) and husband and wife's education, relative predicted wages of the partners, non-labour income, whether the younger child in the household is under 5, or between 5 and 12 years, the log of the number of household members, respondent's good health and disability, and whether the husband/wife works in the labour market (full-time or part-time).
- Educational level: 3 harmonized educational levels in the MTUS, 'uncompleted secondary or less', 'completed secondary', and 'above secondary education', which we identify with primary, secondary, and university education, respectively.
- We include predicted wages of the partners in order to control for differences in preferences or productivity in the production of child care between educational levels (ECHP) \Rightarrow Heckman (1979) corrected by bootstrapping.

Results

Table: SURE estimates on the time devoted to childcare, the United Kingdom ^{1,2,3}

	(1)	(2)	(3)	(4)	(5)	(6)
	Males	Females	Males	Females	Males	Females
Panel A: The United Kingdom	Basic	Childcare	Educational	Childcare	Supervisory	Childcare
Male's Secondary education	-0.258 (0.174)	-0.025 (0.136)	-0.183 (0.158)	0.217* (0.111)	0.061 (0.302)	0.024 (0.195)
Male's University education	-0.233 (0.244)	0.162 (0.190)	-0.513** (0.226)	0.241 (0.157)	-0.256 (0.468)	0.108 (0.263)
Female's Secondary education	0.059 (0.184)	-0.119 (0.132)	0.316** (0.156)	-0.045 (0.115)	0.197 (0.368)	0.041 (0.198)
Female's University education	0.247 (0.275)	0.007 (0.199)	0.614** (0.250)	0.108 (0.173)	0.605 (0.587)	0.291 (0.285)
Observations	1,527	1,527	1,527	1,527	1,527	1,527
Panel B: Spain	Basic	Childcare	Educational	Childcare	Supervisory	Childcare
Male's Secondary education	0.061 (0.107)	0.229* (0.125)	-0.103 (0.177)	0.013 (0.080)	-0.142 (0.091)	-0.043 (0.135)
Male's University education	0.387*** (0.121)	0.447*** (0.142)	0.221 (0.202)	0.097 (0.096)	0.039 (0.106)	0.142 (0.157)
Female's Secondary education	0.421*** (0.112)	0.149 (0.125)	0.444** (0.198)	0.160* (0.082)	0.375*** (0.099)	0.211 (0.138)
Female's University education	0.765*** (0.130)	0.403*** (0.144)	0.469** (0.229)	0.456*** (0.103)	0.814*** (0.119)	0.077 (0.165)
Observations	4,499	4,499	4,499	4,499	4,499	4,499

Notes: ¹ Robust standard errors in parentheses ² Sample includes all individuals from the United Kingdom (Panel A) and Spain (Panel B) between the ages of 21 and 65 (inclusive) living in a couple (married or cohabiting) and at least one child under the age of 18 ³ *Significant at the 90% level **Significant at the 95% level ***Significant at the 99% level Survey weights are used to represent each day of the week equally. We include day of the week dummies (ref.: Sunday) to control for the day of the week.

Results for the United Kingdom

- Main associations come from mother's education on father's time \Rightarrow Fathers whose partners have secondary and tertiary education devote 0.316 and 0.614 more hours per day to *educational childcare*.
- Father's university education is associated with a decrease in the time devoted to *educational childcare* by fathers (0.513 fewer hours per day).
- Positive assortative mating by education (Oppenheimer, 1988; Mare, 1991; Pencavel, 1998; Lewis and Oppenheimer, 2000; Blossfeld and Timm, 2003) \Rightarrow Highly-educated fathers match highly-educated mothers, and we still find that fathers with university education matching mothers with university education still devote 0.100 more hours per day to *educational childcare*, compared to fathers with less than high school matching mothers with less than high school.
- *Educational childcare* times of parents are positively related (correlations) \Rightarrow Highly-educated mothers devote more time to educational childcare, given that education increases the time devoted by fathers, and at the same time the complementarity between parents' time makes mothers to devote more time to such activities.

Table: Correlation matrix of residuals ^{1,2,3}

		Male			Female		
Panel A: The United Kingdom		Basic childcare	Educational childcare	Supervisory childcare	Basic childcare	Educational childcare	Supervisory childcare
Male	Basic childcare	1.000					
	Educational childcare	0.181**	1.000				
	Supervisory Childcare	0.021	0.002	1.000			
Female	Basic childcare	0.130**	0.028	0.014	1.000		
	Educational childcare	-0.018	0.194**	-0.037	0.160**	1.000	
	Supervisory Childcare	-0.026	0.029	0.169**	0.003	-0.003	1.000
Panel B: Spain		Basic childcare	Educational childcare	Supervisory childcare	Basic childcare	Educational childcare	Supervisory childcare
Male	Basic childcare	1.000					
	Educational childcare	0.164**	1.000				
	Supervisory Childcare	0.060*	0.012	1.000			
Female	Basic childcare	0.208**	0.051*	0.018	1.000		
	Educational childcare	0.037	0.242**	-0.002	0.073*	1.000	
	Supervisory Childcare	0.013	-0.006	0.362**	0.026	0.023	1.000

Notes: ¹ Robust standard errors in parentheses ² Sample includes all individuals from Spain between the ages of 21 and 65 (inclusive) living in a couple (married or cohabiting) and at least one child under the age of 18 ³ *Significant at the 90% level **Significant at the 95% level ***Significant at the 99% level Survey weights are used to represent each day of the week equally. We include day of the week dummies (ref.: Sunday) to control for the day of the week.

Results for Spain

- Parents' education influence the time devoted by the parents to *basic*, *educational* and *supervise childcare*.
- Mothers' education is positively associated with the time devoted by both fathers and mothers to such activities.
- *Educational childcare*, main associations come from mother's education on father' and mother's times \Rightarrow Fathers whose partners have secondary and tertiary education devote 0.44 and 0.47 more hours per day to *educational childcare*, and mother's with university education devote 0.46 more hours per day to such activities.
- The educational factor explaining the time devoted to *supervise childcare* is mother's education.
- *Educational childcare* times of parents are positively related (correlations).

Summary of Results

- At the couple level, the educational factor that influences the time devoted to childcare activities, especially to *educational childcare*, is mother's education \Rightarrow Couples with highly-educated mothers devote more time to such activities.
- We find differences at the country level \Rightarrow Mother's education in the United Kingdom influences the time devoted to *educational childcare* only; mother's education influences the time devoted to all childcare activities in Spain.
- Childcare times of parents are positively related (correlations)

Conclusions

Conclusions

- This paper studies the factors influencing parents' time devoted to childcare activities.
- We use time use data from 2 European countries, Spain and the United Kingdom, and we analyze the time that heterosexual couples with children under 18 devote to 3 types of childcare: *basic childcare*, *educational childcare*, and *supervise childcare*.
- We estimate a 6-equation Seemingly Unrelated Regression (SUR) model to take into account that the time one parent spends may serve as a substitute for the time another parent spends.
- In sum, at the couple level, the educational factor that influences the time devoted to childcare activities, especially to *educational childcare*, is mother's education, with couples with highly-educated mothers devoting more time to such activities.
- We find differences at the country level \Rightarrow To what extent such differences between the 2 countries are explained by differences in the provision of public childcare services, on the one hand, or in the mothers preferences, on the other hand, is worth to analyze.

Further Research

- We cannot ascertain whether differences by education come from different preferences, or different productivities in the provision of childcare. Unfortunately, no panels of time use data are available at this moment.
- We only consider childcare reported as primary childcare \Rightarrow We leave the inclusion of passive childcare for future research.

THANKS!