Parental Time Investments and Instantaneous Well-being

By J. IGNACIO GIMÉNEZ-NADAL AND ALMUDENA SEVILLA*

*Giménez-Nadal: Department of Economic Analysis, University of Zaragoza, C/ gran Via 2, Spain (ngimenez@unizar.es). Sevilla: School of Business and Management, Queen Mary University of London, Mile End, London E1 4NS, United Kingdom (a.sevilla@qmul.ac.uk).

We use the Well-being Modules of the American Time Use Survey to document that, despite spending about 30 minutes more in child careper day, higher educated mothers report lower levels of instantaneous well-being than less-educated mothers during child-related activities. Our results hold after controlling for a wide set of cofounders, including life satisfaction. Consistent with an economic identity model of intensive mothering, we find that the education gradient in maternal instantaneous well-being is unique to child care activities. There is no education gradient during non-child-related activities, among fathers or among non-mothers (JEL D13, I21, I31, J13, J60).

The time that parents invest in their children is a major determinant of human development (Lundberg 2015; Francesconi and Heckman 2016). Yet, in most developed countries more educated mothers tend to do more child care (Guryan, Hurst, and Kearney 2008).In this paper we document that mothers with a higher educational attainment spend 20 more minutes a day in child care, but report significantly lower levels of happiness and meaningduring child care activities.

The lower instantaneous well-being during child care activities experienced by higher educated mothers cannot be easily explained by a mother's socio-economic characteristics, by decreasing marginal utility from spending more time in child-related activities, or by higher general levels of maternal life satisfaction. Falsification tests reveal that these results are specific tomothers during child-related activities, and we fail to find the education gradient in instantaneous well-being for a sample of fathers and non-mothers.

Traditional theories based on opportunity cost of time cannot easily explain why higher educated mothers spend more time in child care activities (Guryan, Hurst, and Kearney 2008). In this paper we rule out heterogeneous preferences for child care time across the maternal education distribution as an explanation, and propose an economic identity model of intensive mothering.Identity considerations around what constitutes best parenting practices can explain higher parental time investments on the part of college-educated mothers despite being a behavior that appears detrimental, if the reason for this behavior is to "bolster a sense of self or to

salve a diminished self-image" (Akerlof and Kranton2000).

I. Data

We use the 2012 and 2013 American Time Use Survey (ATUS) Well-being Modules. ATUS respondents are asked to elicit time diary information on the previous dayover a telephone interview, alongside information on how they felt during three-randomly selected diary episodes using the day reconstruction method (Kahneman and Krueger2006).

Instantaneous well-being scores are obtained from the following questions: (1) How happy did you feel during this time? (2) How meaningful did you consider what you were doing? (3) How sad did you feel during this time? (4) How stressed did you feel during this time? (5) How tired did you feel during this time? Responses to these questions ranged from 0 (did not experienced the emotion at all) to 6 (the emotion was extremely strong). We standardize these scores by subtracting the mean and dividing by the standard deviation (Sacks, Stevenson, and Wolfers 2012).

In our main analysis we consider all episodes in which child care is reported as the primary activity. As in Guryan, Hurst and Kearney (2008) we divide child care episodes into basic, educational, recreationaland management child care (see Table A1 in Appendix A for activity codes in each child care category). We select mothers between 21 and 55 with children under the age of 13 in the household who reported instantaneous well-being scores during at least one child-related episode. Our final sample consists of 1,622 primary child care episodes from 1,326 mothers.

Figure 1 shows the relationship between maternal education, childcare, and well-being.We categorize maternal education into below high school (<12 years; reference category), high school (12 years), more than high school but below college (13-15 years), college (16 years), and more than college (+16 years) (Guryan, Hurst, and Kearney 2008).

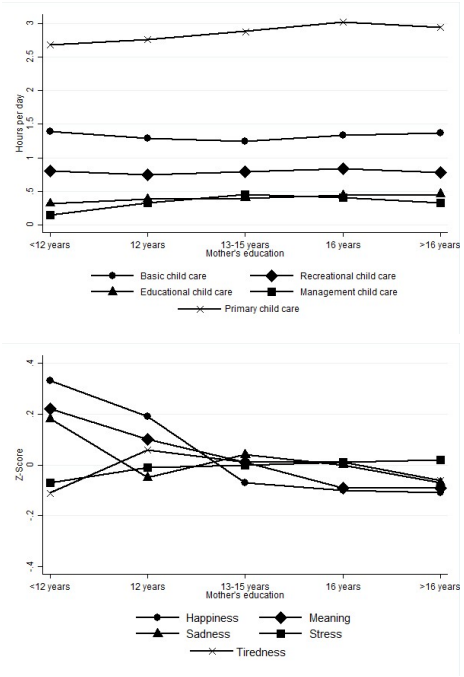

FIGURE 1—DIFFERENCES IN MOTHERS' TIME AND INSTANTANEOUS WELL-BEING IN PRIMARY CHILD-RELATED ACTIVITIES

*Note:*2012 and 2013 ATUS Well-Being Modules. Our sample consists of primary child-related episodes for mothers between 21 and 55 with at least one child under 13. Panel A: Mother's time in primary child care. Panel B: Instantaneous well-being scores.See Table A2 in Appendix for information on how Figure 1 is constructed.

Mothers engage in more child care as their educational levels go up (Panel A), but maternal instantaneous well-being during child-related activities decreases with maternal education (Panel B). Mothers with a college degree or more spend almost 3 hours per day in child care, whereas mothers with less than a high school degree spend a bit more than 2 and a half hours, which is mostly driven by human-capital enhancing activities (Ramey and Ramey 2010).

In contrast to the positive education gradient in child care time, Panel B shows a negative education gradient ranging between 30 and 40 percent of a standard deviationin instantaneous happiness and meaning scores during child care activities between the two extremes of the education distribution.

II. Maternal Instantaneous Well-being and Educational Attainment

Traditional theories cannot easily explain why higher educated mothers spendmore time in child-related activities. A simple model of time allocation would predict that child care decreases with maternal education because the opportunity cost of time is generally higher for higher-educated mothers. Even if higher educated mothers had a higher marginal return from parental time investments (either because higher educated mothers have higher productivity in the production of child-related outputs or because the children of higher educated mothers have greater potential or opportunities), higher levels of maternal education will still lead to lower levels of parental time investments relative to less educated mothers unless there is a high degree of complementarity between time and market expenditures.[1] Allowing preferences for time spent with children (relative to other uses of time such as leisure) to vary by maternal education would tautologically explain the education gradient in maternal time investments (Guryan, Hurst and Kearney 2008). However, this utility-based hypothesis is hard to square with results from Panel B in Figure 1.

This Section tests a new Economic Identity Model of Intensive Mothering, whereby higher educated mothers experience utility losses as they deviate from the behavioral prescriptions about best mothering practices (see Appendix B). We first show that the results from Figure 1 are robust to controlling for a wide set of cofounders. We then perform

[1]This result follows because of a higher marginal return to spending an additional unit of time in child-related activities.

several falsification tests that rule out alternative explanations for the two seemingly contradictory stylized facts in Figure 1. Weestimate separate random-effect models for each instantaneous well-being score as:

$$W_{j,i} = \alpha_0 + \alpha_1 E_i + \alpha_2 X_j + \alpha_3 Z_i + \varepsilon_{j,i} (1)$$

where $W_{j,i}$ represents mother's i reported instantaneous well-being during a given child-related episode j. E_i is a vector of maternal education dummies, and Z_i is a vector of person-level covariates commonly used in the literature. Importantly, we additionally control for a standardized measure of life satisfaction to rule out that lower levels of life satisfaction among more educated mothers drives the negative education gradient in instantaneous well-being scores.$\boldsymbol{X}_j$is a vector of episode-level covariates that controls for the duration of the activity and the type of child-related activity, and $\varepsilon_{j,i}$is a random error term (see Tables A3and A4).Our coefficient of interest is α_1, which captures the average number of standard deviation changes in instantaneous well-being associated with a one unit change in maternal education with respect to the reference educational group.

Panel A in Table 1 confirms the results from Figure 1. More educated mothers consistently report lower levels of instantaneous well-being, particularly lower levels of instantaneous happiness and instantaneous meaning, even after controlling for a wide set of cofounders (see Table A5 in Appendix for the full set of coefficients).

The instantaneous well-being gap increases as we move up the education distribution.The gap in instantaneous happiness between mothers with more than high school but less than a college degree and mothers without a high school degree is 0.25 standard deviations, it increases to 0.33 standard deviations for mothers with a college degree, and peaks at 0.38 standard deviations for mothers with more than a college degree.[2] The educationgradient in instantaneous well-being holds for working and non-working mothers, and for mothers with children of different ages (see Table A7 in Appendix A).

The lower levels of instantaneous well-being during child care activities by the higher educated shown in Panel A of Table 1 are consistent with an economic identity model of intensive mothering. However, our results could also be explained by some unobservable factor correlated with educational attainment and instantaneous well-being, and not with being a mother. Panels B-D perform additional falsification tests.

[2] Statistical tests show that the coefficients for the education dummies of 16 and more years of education are significantly different from the coefficients on the other education dummies (See Table A6 in Appendix).

Panel Bconsiders child-related activities in which child care is not reported as the primary activity, but the mother reports to have a child in her care or to be in the presence of a child during the activity.[3]The fact that mothers record an activity as non-primary child care may suggest a lower quality value that mothers place onto non-primary child care, which tends involve less active interactions than parental time in primary child care. Non-primary child care has also been shown not to be as human capital enhancing for the child as primary child care activities. Social prescriptions of the ideology of intensive mothering maintain that the ultimate goal of a mother's continuous time and attention is a child's future development (Lundberg 2015). As a result, spending time in child-related activities that are not necessarily conductive to higher human capital may have a stronger negative impact on maternal instantaneous well-being than spending time in high-quality human-capital enhancing child care activities.

Panel C tests whether our results may be due to some other identity considerations that are unrelated to maternal identity, such as prescriptions and ideals about gender roles and identity considerations in relation to work and being a *good wife*(Akerlof and Kranton 2000). Thus, we look at instantaneous well-being scores during activities in which the mother does not interact with a child.[4]

Panel D looks at instantaneous well-being scores during child care activities for a similar sample of fathers to test whether our results are due to parenting more generally rather than specific identity considerations in relation to motherhood.[5] Compared to mothers, fathers are generally less involved in child-related activities (Guryan, Hurst, and Kearney 2008), and arguably less likely to consider intensive parenting practices as part of their identity. In Panel E we also look at instantaneous well-being scores for a similar sample of non-mothers to test whether our results are due to some unobservable characteristic that is correlated with having higher levels of education for women, and not necessarily with being a mother.[6]

Results from Panels B-E suggest that alternative explanations unrelated to

[3] We use the questions "who else was present" and "Was at least one of your own household/non-household children <13 in your care during this activity" to construct non-primary child care (Guyran et al., 2008). About 80% of all child care is in the form of non-primary child care, and almost 80% of all leisure and housework episodes, about 60% of all personal care episodes, and 10% of all paid work episodes include some form of non-primary child care.

[4] In Panels A-C we select mothers with at least one episode in one of the corresponding activities. Limiting the sample to be the same mothers yield the same results (Table A8 in Appendix A).

[5]We consider primary and non-primary child care activities for fathers in order to increase the number of episodes in the sample. Results hold if only primary child care activities are considered. See Table A9 in Appendix A.

[6]We also checked a sample of non-fathers and results did not vary. See Table A9 in Appendix A.

motherhood are hard to sustain. Panel B shows that instantaneous well-being decreases with maternal education to a greater extent during non-primary child careactivities.[7] Panel C shows that the education gradient in instantaneous well-being is not present during non-child-related activities, and Panels D and E reveal that the education gradient in instantaneous well-being is limited to mothers.

III. Conclusion

We propose an economic identity model of intensive mothering that is consistent with more educated mothers investing more time in children, as well as reporting lower levels of instantaneous well-being during child care. Falsification tests rule out alternative hypothesesunrelated to motherhood. Overall, these results emphasize the importanceof incorporating identity considerationintoparental time investment models.

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[7] The coefficients from Panel B are not statistically significantly different from those in Panel A. See Table A6 in Appendix.

TABLE 1 – EDUCATIONAL ATTAINMENT AND INSTANTANEOUS WELL-BEING IN CHILD-RELATED ACTIVITIES

Instantaneous well-being score	(1) Happiness	(2) Meaning	(3) Sadness	(4) Stress	(5) Tiredness
Panel A. Primary child care (mothers)					
12 years	-0.14	-0.09	-0.08	0.03	0.10
13-15years	-0.27**	-0.15	-0.13	0.04	0.13
16 years	-0.33***	-0.23*	-0.10	0.00	0.14
16+ years	-0.38***	-0.32**	-0.21	0.04	0.13
Nº episodes	1,622	1,622	1,622	1,622	1,622
Number of mothers	1,326	1,326	1,326	1,326	1,326
R-Squared	0.13	0.06	0.06	0.06	0.07
Panel B. Non-primary child care (mothers)					
12 years	-0.23***	-0.20***	-0.07	0.11	0.17**
13-15 years	-0.31***	-0.21***	-0.10	0.16**	0.26***
16 years	-0.43***	-0.38***	-0.12	0.20**	0.30***
16+ years	-0.49***	-0.53***	-0.13	0.23***	0.31***
Nº episodes	5,630	5,630	5,630	5,630	5,630
Number of mothers	2,763	2,763	2,763	2,763	2,763
R-Squared	0.15	0.10	0.06	0.11	0.06
Panel C.Non-child care (mothers)					
12 years	-0.07	-0.19*	-0.15	-0.12	-0.05
13-15 years	-0.17	-0.16	-0.13	-0.07	-0.06
16 years	-0.17	-0.31***	-0.23*	-0.08	-0.09
16+ years	-0.20	-0.35***	-0.30**	-0.04	-0.07
Nº episodes	2,587	2,587	2,587	2,587	2,587
Number of mothers	1,491	1,491	1,491	1,491	1,491
R-Squared	0.03	0.07	0.03	0.07	0.03
Panel D. Primary and non-primary child care (Fathers)					
12 years	0.08	-0.05	-0.22	-0.26	-0.34
13-15 years	-0.08	-0.03	-0.21	-0.01	0.02
16 years	-0.17	-0.31*	-0.09	0.05	-0.07
16+ years	-0.20	-0.12	-0.06	0.03	-0.03
Nº episodes	1,179	1,179	1,179	1,179	1,179
Number of fathers	445	445	445	445	445
R-Squared	0.18	0.16	0.13	0.18	0.10
Panel E. Non-child care (non-mothers)					
12 years	-0.08	-0.09	-0.20	-0.17	-0.03
13-15 years	-0.07	-0.03	-0.37**	-0.23	-0.09
16 years	-0.17	-0.10	-0.32*	-0.18	0.02
16+ years	-0.30**	-0.23	-0.33*	-0.10	0.05
Nº episodes	2,537	2,537	2,537	2,537	2,537
Number of non-mothers	900	900	900	900	900
R-Squared	0.13	0.11	0.14	0.15	0.09

Notes: Our sample consists of all child-related episodes in the diary of mothers between 21 and 55 with children under 13 in the household. Estimates refer to Equation (1).

*Source:*2012 and 2013 ATUS Well-Being Modules.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

APPENDIX A: Tables

TABLE A1– DESCRIPTION OF ACTIVITY CODES AND CHILD CARE CATEGORIES

ATUS code	Description of activity
Basic child care	
030101	Physical care for householdchildren
030109	Looking after household children (as a primary activity)
030199	Caring for and helping household children, not specified
Recreational child care	
030103	Playing with household children, not sports
030104	Arts and crafts with children
030105	Playing sports with household children
Educational child care	
030102	Reading to/with household children
030106	Talking with/listening to household children
030201	Homework (household children)
030202	Meetings and school conferences (household children)
030203	Home schooling of household children
030204	Waiting associated with household children's education
030299	Activities related to householdchild's education, not specified
180302	Travel related to household children's education
30186	Talking with/listening to household children
Management child care	
030108	Organization and planning for household children
030110	Attending household children'sevents
030111	Waiting for/with household children
030112	Picking up/dropping off household children
030301	Providing medical care to household children
030302	Obtaining medical care for household children
030303	Waiting associated with household children's health
030399	Activities related to householdchild's health, not specified
080101	Usingpaidchild careservices
080102	Waiting associated w/purchasing child care services
080199	Using paid child care services, not specified
160103	Telephone calls to/from education services providers
180301	Travel related to caring for and helping householdchildren
180303	Travel related to household children's health

Source: American Time Use Survey (https://www.bls.gov/tus/)

TABLE A2 –FIGURE 1

	(1) <12 years	(2) 12 years	(3) 13-16 years	(4) 16 years	(5) 16+ years
Panel A. Time devoted to child care					
Basic child care	1.39	1.29	1.24	1.33	1.37
Recreational child care	0.81	0.75	0.79	0.84	0.78
Educational child care	0.32	0.39	0.40	0.44	0.46
Management child care	0.15	0.33	0.45	0.41	0.33
Total child care	2.68	2.76	2.88	3.02	2.94
Panel B. Instantaneous well-being					
Happiness	0.33	0.19	-0.07	-0.10	-0.11
Meaning	0.22	0.10	0.01	-0.09	-0.09
Sadness	0.18	-0.05	0.04	0.00	-0.07
Stress	-0.07	-0.01	0.00	0.01	0.02
Tiredness	-0.11	0.06	0.01	0.01	-0.06
Number of episodes	100	287	424	479	332
Number of mothers	83	239	352	395	257

Notes: Our sample consists of primary child-related episodes in the diary of mothers between 21 and 55 with at least one child under 13 in the ATUS Well-Being Module 2012 and 2013. Primary child careactivities are defined as those where the respondent reports to engage in child care as the primary activity, and are classified in the following categories: basic child care, recreational child care, educational child care and management child care. Coefficients for the time devoted to primary child-related activities and life satisfaction are obtained from estimating the equation s $Y_i = \beta \text{Education}_i + \varepsilon_i$, where Y_i represents the time devoted to the child care activity of references/life satisfaction by individual "i", Education_i reprensents the educational level of individual "i", and ε_i represents the error term. The reference level of education are mothers with less than 12 years of education. All regression coefficients are calculated using fixed demographic weights adjusted to equally represent each day of the week within subgroups (Guryan et al., 2008). Coefficients for the instantaneous well-being are obtained from estimating the equation s $Y_{ij} = \beta \text{Education}_i + \varepsilon_{ij}$, where Y_{ij} represents the value given to the reference feeling (Happiness, Meaning, Sadness, Stress and Tiredness) by individual "i" in episode "j", Education_i reprensents the educational level of individual "i", and ε_{ij} represents the error term.

TABLE A3 – CONSTRUCTION OF VARIABLES

	Description
Panel A. Person-Level Variables	
Education	Codedfrom peeduca: what is the highest level of school you have completed or the highest degree you have received?."
<12 years	Dummy variable: value "1" for the categories 31 "less than 1st grade", 32 "1st, 2nd, 3rd, or 4th grade", 33 "5th or 6th grade", 34 "7th or 8th grade", 35 "9th grade", 36 "10th grade", 37 "11th grade". Value "0" otherwise
12 years	Dummy variable: value "1" for the categories 38 "12th grade - no diploma" and 39 "High school graduate - diploma or equivalent (GED)". Value"0" otherwise
13-15 years	Dummy variable: value "1" for the categories 40 "Some college but no degree", 41 "Associate degree - occupational/vocational" and 42 "Associate degree - academic program". Value "0" otherwise
16 years	Dummy variable: value "1" for the category 43 "Bachelor's degree (BA, AB, BS, etc.)". Value "0" otherwise
16+ years	Dummy variable: value "1" for the categories 44 "Master's degree (MA, MS, MEng, MEd, MSW, etc.)", 45 "Professional school degree (MD, DDS, DVM, etc.)" and 46 "Doctoral degree (PhD, EdD, etc.)". Value "0" otherwise
Age	Codedfromprtage: Age", measured in years.
Race	Coded fromptdtrace (topcoded).
White	Dummy variable: value "1" for the category "White only", value "0" otherwise
Black	Dummy variable: value "1" for the category "Black only", value "0" otherwise
Otherrace	Dummy variable: value "1" for the rest of categories, value "0" if "White only" or "Black only".
Employmentstatus	Coded from pemlr: monthly labor force recode"
Working	Dummy variable: value "1" for the categories 1 "Employed – at work" and 2 "Employed – absent". Value "0" otherwise
Not working	Dummy variable:value "1" for the categories 3 "Unemployed - on layoff", 4 "Unemployed - looking", 5 "Not in labor force - retired", 6 "Not in labor force - disabled" and 7 "Not in labor force - other". Value "0" otherwise
Age of youngestchild	Minimum age of individual if age <18 and relation with person of reference in household (perrp) is 4 "Own child" or 9 "Foster child".
Youngestchild 0-2	Dummy variable: value "1" ifyoungestchild in householdisaged 0-2, value "0" otherwise.
Youngestchild 3-5	Dummy variable: value "1" ifyoungestchild in householdisaged 3-5, value "0" otherwise.
Youngestchild 6-12	Dummy variable: value "1" ifyoungestchild in householdisaged 6-12 value "0" otherwise.
Numberofchildren in household	Coded from trchildnum: Number of household children < 18". Cases with more than 3 children are coded with value three (3 or more children).
Familyincome (%)	Coded from hefamincç: Family Income." Thismeasureincludestheincomeofallmembersofthehouseholdwho are 15 yearsofageorolder.Incomeincludesmoneyfromjobs; net incomefrombusiness, farmorrent; pensions; dividends; interest; Social Security payments; and anyothermonetaryincomereceivedbyfamily members.
<25,000$	Dummy variable:value "1" iffamilyincomeis<$25,000, value "0" otherwise.
$25,000-$74,999	Dummy variable: value "1" iffamilyincomeis $25,000-$75,000, value "0" otherwise.
>$75,000	Dummy variable: value "1" iffamilyincomeis>$75,000,value "0" otherwise.
Life satisfaction	Please imagine a ladderwithstepsnumberedfromzero at thebottomtotenatthetop. The top oftheladderrepresentsthebestpossiblelifeforyou and thebottomoftheladderrepresentstheworstpossiblelifeforyou. Ifthe top step is 10 and thebottom step is 0, onwhich step oftheladder do youfeelyoupersonally stand at thepresent time? Standardized to its z-score (e.g., value – sample mean/standard deviation).
Panel B. Activity-Level variables	
Duration of activity	Coded from tuactdur24: Duration of activities in minutes, last activity truncated at 4:00 a.m."
Activity type	Coded from trcodep: Pooled six-digit activity code". Primary child care activities are classified as basic, recreational, educational and management, following Guryan et al. (2008), and codes can be found in Table A1 in Appendix. Non-primary child care activities are classified as personal care, market work, non-market work, TV watching and leisure, following the same classification than Aguiar and Hurst (2007).

Source: 2012 and 2013 ATUS Well Being ATUS.

TABLE A4 – SUMMARY STATISTICS, BY MATERNAL EDUCATIONAL ATTAINMENT

Controls	(1) <12 years		(2) 12 years		(3) 13-15 years		(4) 16 years		(5) 16+ years	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Panel A. Person-level controls										
Age	30.62	(6.66)	32.20	(7.03)	34.43	(7.06)	36.36	(5.84)	37.61	(5.50)
White (%)	86.99	(33.84)	82.35	(38.20)	85.12	(35.64)	85.87	(34.88)	81.26	(39.10)
Black (%)	9.31	(29.23)	7.96	(27.12)	11.96	(32.49)	4.91	(21.63)	3.31	(17.91)
Working (%)	30.41	(46.28)	44.69	(49.82)	62.11	(48.58)	68.31	(46.58)	87.28	(33.38)
Youngest child 0-2 (%)	47.65	(50.25)	40.55	(49.20)	37.66	(48.52)	46.25	(49.92)	42.96	(49.60)
Youngest child 3-5 (%)	32.23	(47.02)	30.98	(46.34)	25.32	(43.55)	22.74	(41.97)	25.37	(43.60)
Number of children	2.42	(0.79)	1.92	(0.76)	1.92	(0.76)	1.89	(0.73)	1.95	(0.69)
<$25,000 (%)	28.19	(45.27)	52.59	(50.04)	44.72	(49.79)	38.12	(48.63)	23.75	(42.64)
$25,000-$74,999 (%)	2.58	(15.96)	14.92	(35.71)	35.18	(47.82)	56.24	(49.67)	74.27	(43.80)
Life satisfaction	-0.04	(0.99)	-0.12	(0.98)	-0.15	(1.05)	-0.01	(0.90)	0.30	(0.82)
Panel B. Episode-level controls										
Duration of activity (hours)	0.95	(1.17)	0.72	(1.13)	0.67	(0.82)	0.66	(1.10)	0.56	(0.74)
Basic childcare (%)	60.00	(49.24)	56.79	(49.62)	54.25	(49.88)	52.40	(49.99)	50.90	(50.07)
Recreational childcare (%)	15.00	(35.89)	11.15	(31.53)	12.50	(33.11)	12.73	(33.37)	14.46	(35.22)
Educational childcare (%)	11.00	(31.45)	11.15	(31.53)	13.21	(33.90)	16.91	(37.52)	14.76	(35.52)
Management childcare (%)	14.00	(34.87)	20.91	(40.73)	20.05	(40.08)	17.95	(38.42)	19.88	(39.97)
Nº Episodes	100		287		424		479		332	
Nº of mothers	83		239		352		395		257	

Notes: Standard deviation in parenthesis. Sample consists of child care episodes for mothers between 21 and 55 with at least one child under 13 in the ATUS Well-Being Module 2012 and 2013. Life Satisfaction is standardized to its Z-score. The duration of activities is measured in hours. The percentage for each primary child care activity represents the percentage of episodes reported in each category.

TABLE A5 – INSTANTANEOUS WELL-BEING DURING PRIMARY CHILD CARE ACTIVITIES

	(1) Happiness	(2) Meaning	(3) Sadness	(4) Stress	(5) Tiredness
Panel A. Person-level Controls					
12 years	-0.14	-0.09	-0.08	0.03	0.1
	(0.13)	(0.12)	(0.14)	(0.14)	(0.14)
13-15 years	-0.27**	-0.15	-0.13	0.04	0.13
	(0.12)	(0.12)	(0.13)	(0.13)	(0.13)
16 years	-0.33***	-0.23*	-0.1	0.00	0.14
	(0.13)	(0.12)	(0.13)	(0.13)	(0.14)
16+ years	-0.38***	-0.32**	-0.21	0.04	0.13
	(0.14	(0.14)	(0.14)	(0.14)	(0.14)
Age	0.00	0.00	0.00	0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
White	-0.10	-0.05	-0.06	0.17*	0.19**
	(0.09)	(0.10)	(0.11)	(0.09)	(0.09)
Black	-0.05	0.02	-0.12	0.14	0.11
	(0.12)	(0.13)	(0.14)	(0.14)	(0.14)
Working	0.10*	-0.08	-0.02	0.00	0.10*
	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
Youngest child 0-2	0.11	0.07	-0.09	0.08	0.16**
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)
Youngest child 3-5	0.09	0.05	-0.05	-0.01	0.03
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)
Number of children	-0.16***	-0.08**	-0.01	0.05	0.02
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
$25,000-$74,999	-0.17**	-0.06	0.00	0.05	0.10
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
>$75,000	-0.25***	-0.14	0.12	0.08	0.02
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Life Satisfaction	0.14***	0.05***	-0.11***	-0.13***	-0.10***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Panel B. Episode-level Controls					
Duration of activity (hours)	0.02	0.07***	0.07	0.05	-0.08***
	(0.04)	(0.03)	(0.05)	(0.03)	(0.03)
Recreational child care	0.50***	0.31***	(0.09)	-0.24***	-0.20***
	(0.07)	(0.06)	(0.08)	(0.07)	(0.07)
Educational child care	0.17**	0.28***	(0.02)	(0.10)	-0.12*
	(0.08)	(0.06)	(0.07)	(0.06)	(0.07)
Management child care	(0.01)	-0.16**	0.20***	(0.07)	-0.27***
	(0.07)	(0.08)	(0.08)	(0.06)	(0.06)
Constant	-0.42*	0.02	0.88***	0.35	0.52*
	(0.25)	(0.27)	(0.28)	(0.28)	(0.29)
Nº episodes	1,622	1,622	1,622	1,622	1,622
Number of mothers	1,326	1,326	1,326	1,326	1,326
R-Squared	0.13	0.06	0.06	0.06	0.07

Notes: Robust standard errors in parenthesis. Our sample consists of all child care episodes in the diary of mothers between 21 and 55 with children under 13 in the household. Primary child care activities are defined as those in which the respondent reports to engage in child care as the primary activity. Non-primary child care activities are those where respondent reports that time is spent in the presence of a child, and episodes where the mother reports being at the care of any child under 13. Estimates refer to Equation (1) using a sample of mothers and fathers, where we apply the Random Effects (RE) estimator.

*Source:*2012 and 2013 ATUS Well-Being Modules.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE A6 – TEST FOR EQUALITY OF COEFFICIENTS IN REGRESSIONS

	(1) Happiness	(2) Meaning	(3) Sadness	(4) Stress	(5) Tiredness
Panel A. P-values for Coefficients for Panel A of Table 1					
16+ years - 16 years	0.51	0.27	0.13	0.55	0.90
16+ years - 13-15 years	0.14	0.05	0.31	0.97	0.96
16+ years - 12 years	0.01	0.03	0.21	0.85	0.73
16 years - 13-15 years	0.33	0.22	0.71	0.58	0.85
16 years - 12 years	0.03	0.10	0.86	0.78	0.63
13-15 years - 12 years	0.14	0.52	0.62	0.86	0.73
Panel B. P-values for Coefficients for Panel B of Table 1					
16+ years - 16 years	0.18	0.00	0.79	0.43	0.80
16+ years - 13-15 years	0.00	0.00	0.53	0.13	0.29
16+ years - 12 years	0.00	0.00	0.29	0.04	0.02
16 years - 13-15 years	0.00	0.00	0.65	0.35	0.32
16 years - 12 years	0.00	0.00	0.35	0.09	0.01
13-15 years - 12 years	0.13	0.75	0.55	0.33	0.08
Panel B. P-values for Coefficients for Panels A and B of Table 1					
16+ years	0.53	0.46	0.96	0.62	0.67
16 years	0.77	0.67	0.87	0.44	0.42
13 - 15 years	0.49	0.31	0.91	0.22	0.34
12 years	0.49	0.20	0.68	0.28	0.32

Notes: Values represents p-values of t-type tests where the null hypothesis indicates that coefficients are equal. Values lower than .05 indicates that coefficients are statistically different.

TABLE A7 – INSTANTANEOUS WELL-BEING DURING PRIMARY CHILD CARE ACTIVITIES (ROBUSTNESS CHECKS)

	(1) Happiness	(2) Meaning	(3) Sadness	(4) Stress	(5) Tiredness
Panel A. Primary child care activities for working mothers					
12 years	-0.03	0.02	0.15	-0.07	0.31
13-16 years	-0.18	-0.15	0.17	0.12	0.24
16 years	-0.25	-0.21	0.21	0.16	0.36
16+ years	-0.30	-0.31	0.01	0.22	0.41*
Nº episodes	1,011	1,011	1,011	1,011	1,011
Number of mothers	836	836	836	836	836
R-Squared	0.12	0.06	0.08	0.09	0.07
Panel B. Primary child care activities for non-working mothers					
12 years	-0.19	-0.17	-0.18	0.07	-0.05
13-16 years	-0.30**	-0.07	-0.27	-0.04	0.14
16 years	-0.36**	-0.22	-0.25	-0.24	-0.08
16+ years	-0.42**	-0.27	-0.14	-0.33	-0.32
Nº episodes	611	611	611	611	611
Number of mothers	490	490	490	490	490
R-Squared	0.17	0.09	0.12	0.09	0.09
Panel C. Primary child care activities youngest child 0-5					
12 years	-0.19	-0.13	-0.12	0.15	0.11
13-16 years	-0.27*	-0.20	-0.10	0.14	0.16
16 years	-0.32**	-0.28*	-0.18	0.02	0.12
16+ years	-0.40**	-0.42**	-0.34*	0.13	0.03
Nº episodes	1,113	1,113	1,113	1,113	1,113
Number of mothers	884	884	884	884	884
R-Squared	0.13	0.08	0.08	0.07	0.06
Panel D. Primary child care activities youngest child 6-12					
12 years	0.05	0.07	0.08	-0.22	0.05
13-16 years	-0.25	-0.05	-0.09	-0.15	0.05
16 years	-0.35	-0.11	0.11	-0.05	0.19
16+ years	-0.35	-0.15	0.10	-0.16	0.33
Nº episodes	509	509	509	509	509
Number of mothers	442	442	442	442	442
R-Squared	0.14	0.07	0.07	0.13	0.10

Notes: Robust standard errors in parenthesis. Our sample consists of all child care episodes in the diary of mothers between 21 and 55 with children under 13 in the household. Child care episodes are defined as those episodes in which the respondent reports to engage in child care as the primary activity, episodes in the diary where time is spent in the presence of a child, and episodes where the mother reports being at the care of any child under 13. Estimates refer to Equation (1) using a sample of mothers in child care episodes, where we apply the Random Effects (RE) estimator.

Source:2012 and 2013 ATUS Well-Being Modules.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

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TABLE A8 – INSTANTANEOUS WELL-BEING DURING PRIMARY CHILD CARE ACTIVITIES ROBUSTNESSCHECKS PANEL A OF TABLE 1 – USING THE SAME SAMPLE OF MOTHERS

	(1) Happiness	(2) Meaning	(3) Sadness	(4) Stress	(5) Tiredness
Panel A. Only primary child care activities					
12 years	-0.27**	-0.12	-0.12	0.14	0.09
13-16 years	-0.40***	-0.12	-0.22	0.23*	0.24*
16 years	-0.47***	-0.19	-0.15	0.16	0.21
16+ years	-0.47***	-0.36**	-0.25	0.11	0.21
Nº Episodes	1,274	1,274	1,274	1,274	1,274
Number of mothers	1,092	1,092	1,092	1,092	1,092
R-Squared	0.06	0.05	0.03	0.02	0.04
Panel B. Only non-primary child care activities					
12 years	-0.16	-0.12	-0.13	0.13	0.13
13-16 years	-0.38***	-0.35***	-0.06	0.23*	0.21
16 years	-0.52***	-0.45***	-0.08	0.22*	0.18
16+ years	-0.58***	-0.63***	-0.16	0.06	0.11
Nº Episodes	1,719	1,719	1,719	1,719	1,719
Number of mothers	1,092	1,092	1,092	1,092	1,092
R-Squared	0.07	0.09	0.02	0.03	0.01
Panel C. Non-child care activities					
12 years	0.55	1.02*	-0.43	-0.30	-0.35
13-16 years	-0.31	0.54	-0.34	0.24	0.19
16 years	-0.13	0.12	-0.41	-0.13	0.23
16+ years	-0.26	0.12	-0.73	-0.23	0.00
Nº Observations	271	271	271	271	271
Number of mothers	271	271	271	271	271
R-Squared	0.14	0.12	0.04	0.16	0.08

Notes: Robust standard errors in parenthesis. Our sample consists of all child care episodes in the diary of mothers between 21 and 55 with children under 13 in the household. Child care episodes are defined as those episodes in which the respondent reports to engage in child care as the primary activity, episodes in the diary where time is spent in the presence of a child, and episodes where the mother reports being at the care of any child under 13. Estimates refer to Equation (1) using a sample of mothers in child care episodes, where we apply the Random Effects (RE) estimator.

*Source:*2012 and 2013 ATUS Well-Being Modules.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE A9 – FATHERS INSTANTANEOUS WELL-BEING ROBUSTNESS PANELS C AND D OF TABLE 1

	(1) Happiness	(2) Meaning	(3) Sadness	(4) Stress	(5) Tiredness
Panel A. Fathers during primary child care activities only					
12 years	0.16	-0.01	-0.30	-0.09	-0.41
13-16 years	-0.12	-0.14	-0.24	0.19	-0.07
16 years	-0.18	-0.23	-0.16	0.22	-0.11
16+ years	-0.26	-0.11	-0.08	0.27	-0.08
Nº Observations	521	521	521	521	521
Number of fathers	445	445	445	445	445
R-Squared	0.12	0.08	0.10	0.16	0.07
Panel B.: Non-fathers					
12 years	0.02	-0.09	-0.41**	-0.12	-0.13
13-16 years	-0.14	-0.32**	-0.45**	-0.08	-0.13
16 years	-0.07	-0.34**	-0.47**	-0.17	-0.18
16+ years	-0.15	-0.23	-0.41**	-0.06	-0.20
Nº Observations	2,037	2,037	2,037	2,037	2,037
Number of non-fathers	710	710	710	710	710
R-Squared	0.16	0.13	0.15	0.09	0.06

Notes: Robust standard errors in parenthesis. Our sample consists of all child care episodes in the diary of fathers between 21 and 55 with children under 13 in the household, and non-fathers between 21 and 55. Child care episodes are defined as those episodes in which the respondent reports to engage in child care as the primary activity, episodes in the diary where time is spent in the presence of a child, and episodes where the mother reports being at the care of any child under 13. Estimates refer to Equation (1) using a sample of mothers in child care episodes, where we apply the Random Effects (RE) estimator.

*Source:*2012 and 2013 ATUS Well-Being Modules.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Appendix B An Economic Identity Model of Intensive Mothering

This section develops a stylized model to show that incorporating a mothering identity as a motivation for behavior, whereby higher educated women subscribe to time-intensive prescriptions about mothering, can explain the relatively larger amount of time devoted to primary child-related activities by higher educated mothers relative to lower educated mothers, despite relative lower levels of instantaneous well-being on the part of the higher educated. In this framework a higher educated mother loses identity when her parental time investments do not correspond to prescriptions of maternal behavior characteristic of the higher educated. These behavioral prescriptions are a shared set of cultural expectations, which assumes that less maternal time is detrimental for children and promotes more time-intensive forms of mothering that are "child-centered, expert-guided, emotionally absorbing, labor-intensive, and financially expensive" (Hays, 1998). Sociological evidence suggests that intensive mothering practices are more likely to resonate among women of higher educational levels, as education increasingly becomes the vehicle for the adoption of new norms about mothering (Rizzo et. al., 2013).Similarly, ethnographic studies suggest that mothers with a higher educational attainment use intensive mothering practices as status maker differentiating higher from lower social classes, and are more likely to subscribe to the so-called "concerted cultivation" approach to mothering, in the form of conversation, reasoning and intellectual stimulation child-related activities (Lareau, 2003).

Formally, identity considerations in the utility function may arise because mothers have identity-related payoffs from their own actions.[8] In this simple model the utility function is based on a set of social categories $\mathbf{C}$, which we classified intotwo for the sake of exposition: college-educated $\mathbf{C}_{c}$and non-college educatedmothers$\mathbf{C}_{nc}$. Each social category has a prescription about best mothering practices $\mathbf{P}$, which indicates the behavior that is appropriate for college educated mothers $\mathbf{P}_{c}$and non-college educated mothers $\mathbf{P}_{nc}$. For a mother j, the utility function $U_j$will depend on j's *mothering identity* as well as on the usual vector of j's action$\mathbf{a}_j$. In the case of the time use model above, actions include time devoted to leisure, housework, and parental time investments, so

[8]For the sake of simplicity, we abstract from externalities from others' actions on an individual's identity.

that $U_j=U_j(\mathbf{a}_j,I_j)$. A mother$j$'s identity depends on j's assigned social categories $\mathbf{C}j$, prescribed behavior for that category$\mathbf{P}j$, and the actions$\mathbf{a}_j$, so that $I_j=I(\mathbf{a}_j;\mathbf{C}j,\mathbf{P}j)$.

Incorporating a *mothering identity* as a motivation for behavior, whereby higher educated women subscribe to time-intensive prescriptions about mothering, can explain the relatively larger amount of time devoted to primary child-related activities by higher educated mothers relative to lower educated mothers, despite relative lower levels of instantaneous well-being on the part of the higher educated. In this augmented model, a higher educated mother loses identity when her parental time investments do not correspond to prescriptions of maternal behavior characteristic of the higher educated. In the simplest case, a mother j chooses her time allocation to maximize utility, taking as given $\mathbf{C}j$ and $\mathbf{P}j$. The impact of an action $\mathbf{a}_j$, such as spending time in child-related activities, on utility U_j depends in part on its effect on identity I_j.In our particular case, maximizing the utility of college-educated mothers impliesmaximizing a college-educated mother'ssense of identity by choosing a higher amount of time allocated to child-related activities ($\mathbf{a}_c$) than non-college educated mothers, to meet the behavioral time-intensive prescriptions about best mothering practices$\mathbf{P}_c$for the college-educated category. Thus, despite appearing to be detrimental to higher educated mothers, more time in child-related activities may be used to bolster their sense of self or identity as mothers (Akerlof and Kranton, 2000).

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