Quality-Adjusted Gaps in Parental Time with Children

Katie Vinopal
(Katie.Vinopal@student.american.edu)

Seth Gershenson[1]
(gershens@american.edu)

School of Public Affairs
American University

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Abstract

Parental involvement is thought to influence children's cognitive and social development as well as important long-run socioeconomic outcomes. Numerous studies document differences by socioeconomic status (SES) in parental time with children, which may contribute to observed SES gaps in children's socioeconomic outcomes. However, the existing literature largely examines the total time parents spend interacting with children, despite the fact that the quality of such interactions likely varies by SES as well. We begin to fill this gap in the literature by using time-use data from the 2003-2012 waves of the American Time Use Survey to test for differences by SES in two types of quality-adjusted parental time with children: "joint time" with both parents and "solo time" when no siblings are present. Preliminary results suggest that SES-based gaps in parental time with children are significantly larger when the quality of such time is considered.

[1] Corresponding author – comments are welcome. Assistant Professor, Department of Public Administration & Policy, American University, 4400 Massachusetts Avenue, NW, Washington, DC 20016-8070. Phone: (202) 885-2687. Fax: (202) 885-2347. Email: gershens@american.edu.

1. Introduction

Theories of household production (Becker & Tomes 1986) and cultural capital (Lareau 2003) seek to explain how households allocate scarce resources to children's cognitive and social development. One such resource—parental time—has been the object of considerable empirical attention. Parental time spent with children is thought to influence children's cognitive and social development, academic performance, and educational attainment (e.g., Avvisati, Besbas, & Guyon 2010; Guryan, Hurst, & Kearney 2008; Phillips 2011). Numerous studies document differences by socioeconomic status (SES) in parental time spent interacting with children, which may contribute to observed SES gaps in school readiness, academic achievement, and educational attainment (e.g., Bianchi 2000; Guryan et al. 2008; Kalil, Ryan, & Corey 2012). However, the existing literature primarily focuses on the total time parents spend with children, despite the fact that the qualitative aspects of this time may vary by SES as well (Kalil, Ugaz, & Guryan 2013). Indeed, in their analysis of the education gradient in parental time spent with children, Guryan et al. (2008) note that quality-adjusted measures of parental time with children might reveal even larger disparities.

The current study begins to fill this gap in the literature by using time-use data from the 2003-2012 waves of the American Time Use Survey (ATUS) to test for SES differences in two measures of the quality of parent-child time: "joint time" with both parents and "solo time" when no siblings are present. Specifically, the current study addresses two research questions:

1) Are there SES gaps in children's time spent simultaneously with both parents?
2) Are there SES gaps in children's time spent with parents when no siblings are present?

2. Conceptual Background

Despite substantial attention and resources having been devoted to eliminating gaps in educational achievement and attainment between students of different socioeconomic status (SES) in the United States over the past 25 years, such gaps have actually increased (Bailey & Dynarski 2011; Reardon 2011). These trends are concerning, as they likely reduce economic mobility across generations. Although the existence of these gaps is well documented, the underlying sources remain unclear. Understanding the sources of these gaps is crucial to devising an appropriate policy response (Fryer & Levitt 2004).

One potential source of SES-based gaps in educational achievement and attainment is differences by SES in parental time spent with children (Gershenson 2013; Guryan et al. 2008; Ramey & Ramey 2010). Specifically, parental involvement in children's home and school lives is thought to influence children's cognitive and social development, which in turn affects educational achievement and attainment (e.g., Avvisati et al. 2010; Guryan et al. 2008; Hill & Stafford 1980; Leibowitz 1977; Phillips 2011). For example, Dearing et al. (2006) find that achievement gaps by mothers' education are nonexistent in households where the mother is highly involved with their child's school life. More recently, Gould and Simhon (2011) provide arguably causal evidence that the relationship between parents' and children's schooling depends on the frequency and duration of parent-child interactions.

Numerous studies document differences by SES in the quantity of parental time spent interacting with children (e.g., Bianchi 2000; Guryan et al. 2008; Kalil et al. 2012; Ramey & Ramey 2010). However, the *type* of parental time with children may matter for child outcomes at least as much as the total amount of time (Bianchi 2000; Bianchi & Robinson 1997; Kalil et al. 2013; Leibowitz 1977). Several authors have posited that maternal education is associated with both the quantity *and* quality of time mothers spend with their children (e.g., Bianchi 2000; Hill & Stafford 1980). The very reason more educated parents spend more time with their children may be that they are more effective in producing human capital; that is, that the quality of the time with their children is higher (Gould & Simhon 2011; Guryan et al. 2008). Indeed, there is some evidence that highly educated mothers engage their children in a wider variety of activities and spend more time in activities that are more developmentally appropriate and especially beneficial for educational outcomes (e.g., reading, talking) (Kalil et al. 2012; Bianchi 2000; Bianchi & Robinson 1997).

However, in addition to activity type, the quality of parent-child time is likely a function of who is present for the activity (Folbre et al. 2005). Accordingly, two relatively understudied dimensions of parent-child time quality are (1) "joint time" with both parents and (2) "solo time" when no siblings are present. Joint time may benefit children through increased attention, parents' reduced stress, and watching adults interact (Folbre et al. 2005). Specifically, Kalil et al. (2013) discuss three theories from developmental psychology that further articulate why children benefit from joint time with both parents. First, family systems theory (Cox & Paley 2003) suggests that family time—when all parents and children are present—may enhance familial relationships. Second, social learning theory (Bandura 1977) suggests that observing adults interacting and solving problems in a constructive manner provides children with unique learning opportunities that may develop pro-social behavior. Finally, theories of co-parenting suggest that shared time might allow parents to learn from one another and develop stronger parenting skills.

The benefits of "solo time" with parents in the absence of siblings are less clear, as older siblings may either increase the quality of care by assisting parents or decrease the quality of care by competing for parents' attention (Folbre et al. 2005). However, solo time might confer unique benefits: Downey (1995) finds that both the time per-child and benefits of such time decrease with the number of household children. In other words, even holding quantity of time constant, children with more siblings—those more likely to share parental time with other children—benefit less from time with parents.

Why might gaps by SES in joint and solo time with children exist? Generally, non-work time that parents spend together is a decreasing function of household children (Hamermesh 2000), perhaps because parents intentionally work non-overlapping shifts to reduce child care costs (Hattery 2001; Presser 1994). These behaviors may be especially common in low-SES households who are less able to pay for child care, as lower-paid jobs often have more rigid work schedules (Bianchi 2000; Bianchi & Robinson 1997).

3. Data and Methodology

Time-use data comes from the 2003 – 2012 waves of the American Time Use Survey (ATUS). The ATUS is an ongoing, nationally-representative survey conducted by the U.S Census Bureau and sponsored by the Bureau of Labor Statistics. The ATUS collects a 24-hour retrospective time-use diary from one individual over age 15 per household from the existing sample of the Current Population Survey (CPS). Importantly, the ATUS contains detailed data on who was present for each activity recorded in respondents' time diaries. The ATUS also provides information on all members of respondents' households and is linked to rich demographic, employment, education, and income data from the CPS. All analyses adjust for unequal probabilities of sample selection (across both days and households) using ATUS-provided sampling weights. For research questions 1 and 2, the analytic samples are restricted to households containing married parents and multiple children under the age of 13, respectively.

We address the two research questions identified in section 1 by analyzing the practical and statistical significance of SES indicators in a series of time-use regressions. SES is measured by categorical indicators of household income and parents' educational attainment, as the existing literature stresses the growing differences between the time use of college-educated and less-educated parents (Guryan et al. 2008; Ramey & Ramey 2010) and household budget constraints likely govern parents' non-work time use. Because both type of activity and who was present for each activity likely affect the quality of parental time with children, we estimate a series of time-use regressions using different dependent variables that reflect minutes spent in various activities for a variety of configurations of individuals present (e.g., including one parent and one child, both parents and one child, and so on). Activity types include child care, physical care, playing and sports, homework help/time spent reading, planning activities and chauffeuring, eating and drinking, attending entertainment and religious events, and watching television, among others.

Specifically, we estimate time-use regressions of the form

$$T_i = \beta_0 + \boldsymbol{\beta_1}\mathbf{SES_i} + \boldsymbol{\beta_2}\mathbf{r_i} + \varepsilon_i, \quad (1)$$

where *i* indexes respondents, *T* is the time spent in a particular activity with a particular set of household members, **SES** is a vector of categorical indicators describing parents' education and household income, **r** is a vector of statistical controls typically included in time-use regressions (e.g., Zick & Bryant 1996; Gershenson 2013), and ε is an idiosyncratic error term.

Following Stewart (2009), we will estimate both linear and Tobit versions of (1). Standard errors will be clustered at the state level, which makes inference robust to arbitrary forms of heteroskedasticity, serial correlation within states over time, and spatial correlation within states. Finally, we will consider Heckit-style corrections for selection into marriage (Heckman 1976).

4. Preliminary Results

Preliminary results for research question 1 are presented below in Table 1. The results largely confirm the hypothesis that there are sizable SES-based gaps in quality-adjusted parental time

with children. Consistent with prior research (e.g., Guryan et al. 2008), column 1 shows that in households where the respondent has at least a four year college degree, parents spend, on average, about 16 more minutes per day caring for and helping household children—including physical care, reading, playing, arts and crafts, etc.—than in households where the respondent does not have a high school diploma. However, columns 2 and 3 show that half of this gap is time when only the respondent is with the child and half is when both parents are present; thus about 50% of the SES gap in parental time with children is "higher quality" time. Columns 4-6 show similar results for time spent eating and drinking with children.

More nuanced analyses of question 1 that decompose activities into the sub-categories described above (e.g., physical care, planning and chauffeuring, homework help/reading) and the analysis of research question 2 and are currently in progress.

Table 1: Linear Time-Use Regressions (OLS estimates)

Activity:	**Caring For Household Children**			**Eating and Drinking**		
	Total Time	R alone	R & S	Total Time	R alone	R & S
	1	2	3	4	5	6
Respondent's Highest Degree						
No H.S. (omitted)						
H.S. diploma	0.01	-3.19	3.2	0.11	0.88	-0.78
	(3.07)	(2.96)	(0.95)***	(1.15)	(0.42)**	(1.15)
Some college	5.68	0.18	5.5	2.76	1.75	1
	(3.50)	(3.14)	(1.30)***	(1.42)*	(0.70)**	(1.18)
4 year college	15.56	7.57	7.98	6.5	2.51	3.99
	(3.25)***	(2.98)**	(1.62)***	(1.74)***	(0.65)***	(1.500)**
Household income						
< $20K	-8.28	-8.6	0.32	0.39	-0.29	0.68
	(3.91)**	(3.69)**	(1.33)	(1.12)	(0.52)	(1.01)
$20K - $30K	-7.03	-3.53	-3.5	1.36	0.38	0.98
	(3.80)*	(3.486)	(1.16)***	(1.09)	(0.58)	(1.06)
$30K - $40K	-2.95	-1.21	-1.74	0.5	-0.29	0.79
	(2.66)	(2.59)	(1.14)	-1.11	(0.45)	(0.98)
$40K - $50K	2.27	2.53	-0.26	0.94	0.81	0.13
	(3.31)	(2.75)	(1.25)	(0.90)	(0.56)	(0.97)
$50K - $60K	-1.34	-0.21	-1.12	0.88	0.11	0.78
	(2.59)	(1.83)	(1.49)	(0.79)	(0.46)	(0.75)
$60K - $75K	0.73	0.7	0.03	1.15	0.33	0.82
	(1.82)	(1.22)	(1.31)	(0.86)	(0.48)	(0.77)
> $70K (omitted)						
R-squared	0.23	0.21	0.09	0.12	0.08	0.12

Notes: N=29,203. R refers to the respondent (parent). S refers to the respondent's spouse. Dependent variables count minutes in activities for which the child was present. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All regressions include a full set of statistical controls as well as day, month, year, and state fixed effects. All regressions are weighted by ATUS sampling weights.

References

Avvisati, F., Besbas, B., & Guyon, N. (2010). Parental involvement in school: A literature review. *Revue d'Economie Politique,* 120(5), 759-778.

Bailey, M. J., & Dynarski, S. M. (2011). Gains and gaps: Changing inequality in US college entry and completion (No. w17633). National Bureau of Economic Research.

Bandura, A. (1977). *Social Learning Theory*. New York, New York: General Learning Press.

Becker, G.S., & Tomes, N. (1986). Human capital and the rise and fall of families. *Journal of Labor Economics, 4*(3), 1-39.

Bianchi, S. (2000). Maternal employment and time with children: Dramatic change or surprising continuity? *Demography*, 37(4), 401-414.

Bianchi, S.M., & Robinson, J. (1997). What did you do today? Children's use of time, family composition, and the acquisition of social capital. *Journal of Marriage and Family*, 59(2), 332-344.

Cox, M. J., & Paley, B. (2003). Understanding Families as Systems. Current Directions in Psychological Science, 12(5), 193–196.

Dearing, E., Kreider, H., Simpkins, S., & Weiss, H. B. (2006). Family involvement in school and low-income children's literacy: Longitudinal associations between and within families. *Journal of Educational Psychology*, 98(4), 653–664.

Downey, D. B. (1995). When Bigger Is Not Better: Family Size, Parental Resources, and Children's Educational Performance. *American Sociological Review*, 60(5), 746.

Folbre, N., Yoon, J., Finnoff, K., & Fuligni, A. S. (2005). By what measure? Family time devoted to children in the United States. *Demography*, 42(2), 373–90.

Fryer Jr, R. G., & Levitt, S. D. (2004). Understanding the black-white test score gap in the first two years of school. *Review of Economics and Statistics*, 86(2), 447-464.

Gershenson, S. (2013). Do summer time-use gaps vary by socioeconomic status? Forthcoming, *American Educational Research Journal*. DOI: 10.3102/0002831213502516

Gould, E.D. & Avi, S. (2011). Does Quality Time Produce Quality Children? Evidence on the Intergenerational Transmission of Human Capital Using Parental Deaths. IZA Discussion Paper No. 5487.

Guryan, J., Hurst, E., & Kearney, M. (2008). Parental education and parental time with children. *The Journal of Economic Perspectives*, 22(3), 23-46.

Hamermesh, D. S. (2000). Togetherness: Spouses Synchronous Leisure, and the Imapct of Children. (No. 7455). National Bureau of Economic Research.

Hattery, A. J. (2001). Tag-team parenting : Costs and benefits of utilizing nonoverlapping shift work in families with young children. *Families in Society*, *82*(4), 419–427.

Heckman, J. J. (1976). The common structure of statistical models of truncation, sample selection and limited dependent variables and a simple estimator for such models. In *Annals of Economic and Social Measurement, Volume 5, number 4* (pp. 475-492). NBER.

Hill, C. R., & Stafford, F. P. (1980). Parental Care of Children : Time Diary Estimates of Quantity , Predictability , and Variety. *The Journal of Human Resources*, 15(2), 219–239.

Kalil, A., Ryan, R., & Corey, M. (2012). Diverging destinies: maternal education and the developmental gradient in time with children. *Demography*, 49(4), 1361–83.

Kalil, A., Ugaz, J., & Guryan, J. (2013). Parents' shared and solo time with children: Composition and correlates. Unpublished Manuscript.

Lareau, A. (2003). *Unequal childhoods: Class, race, and family life*. Berkeley, CA: University of California Press.

Leibowitz, A. (1977). Parental Inputs and Children's Achievement. *The Journal of Human Resources*, 12(2), 242–251.

Linn, R. L. (2009). The concept of validity in the context of NCLB. In R.W. Lissitz (Ed.). *The concept of validity: Revisions, new directions and applications* (195-212). Information Age Publishing.

Phillips, M. (2011). Parenting, time use, and disparities in academic outcomes. In G. Duncan & R. Murnane (Eds.). *Whither opportunity? Rising inequality, schools, and children's life chances* (pp. 207-228). New York: Russell Sage Foundation.

Presser, H. B. (1994). Employment Schedules Among Dual-Earner Spouses and the Division of Household Labor by Gender. *American Sociological Review*, 59(3), 348–364.

Ramey, G., & Ramey, V.A. (2010). The rug rat race. Brookings Papers on Economic Activity, Spring, 129-199.

Reardon, S. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In G. Duncan and R. Murnane (Eds.). *Whither opportunity? Rising inequality, schools, and children's life chances* (pp. 91-116). New York: Russell Sage Foundation.

Stewart, J. (2009). Tobit or Not Tobit? IZA Discussion Paper No. 4588.

Zick, C. D., & Bryant, W. K. (1996). A new look at parents' time spent in child care: Primary and secondary time use. Social Science Research, 25(3), 260–280.