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# Diverging Destinies: Maternal Education and the Developmental Gradient in Time with Children

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# Diverging destinies

“.. forces are leading to two divergent trajectories for women - with different implications for children. One trajectory - the one associated with delays in childbearing and increases in maternal employment - reflects gains in resources, while the other - the one associated with divorce and nonmarital childbearing - reflects losses. Moreover, the women with the most opportunities and resources are following the first trajectory, whereas the women with the fewest opportunities and resources are following the second.” (Sara McLanahan, 2004)

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# Parental time as a resource

## ■ Economic view

- Child “quality” is a product of parents’ inputs of time and money (Becker, 1965/1991)

## ■ Sociological view

- Parental time as a means for socialization (Coleman, 1990)

## ■ Developmental view

- Parental time as an opportunity for nurturing, stimulating, enriching interactions (Bornstein, 2002)
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# Education gradient in parental time

- Parents with higher levels of education spend more time overall with children
    - Hill & Stafford (1974)
    - Gauthier, Smeeding, & Furstenberg (2001)
  - Parents with higher levels of education spend more time in enriching activities with children
    - Sayer, Gauthier, & Furstenberg (2004)
    - Guryan, Hurst, & Kearney (2008)
  - Possibly, education gradient has expanded over time
    - Ramey & Ramey (2010)
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# Developmental gradient in time

- Maternal education shapes not only the *amount* of time that mothers spend with children, but possibly its *composition*.
  - Composition of parents' time with children ideally changes as children age to suit their developmental needs and challenges.
  - Hypothesis: Highly educated mothers tailor the composition of their child time to children's developmental needs more than less educated mothers
    - ➔ The Developmental Gradient
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# Theoretical frameworks

- Economic: Education contributes to individuals' efficiency in non-market behavior - as consumers, home laborers, and possibly as parents (Becker, 1965; Michael, 1972)
  - Sociological: Middle-class parents engage in “concerted cultivation” whereas poor and working-class parents adopt the “accomplishment of natural growth” strategy (Lareau, 2003)
  - Developmental: Higher SES parents interact more “sensitively” with children on average (Duncan & Brooks-Gunn, 1997)
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# Developmental perspective on time

- Children require different types of parental interactions in different periods of development.
  - **During infancy** (0 – 12 mths) “**basic care**”
    - Feeding, bathing, soothing and physically caring for the child
  - **During toddlerhood** (13 – 35 mths) “**play**”
    - Playing games, doing art projects, and pretending
  - **During preschool period** (3 – 5 yrs) “**teaching**”
    - Reading to/with the child, talking to, helping with homework
  - **During middle childhood** (6 – 13 yrs) “**management**”
    - Attending events, organizing/monitoring child’s extrafamilial life
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# Hypothesis: Developmental gradient

- 1) Highly educated parents invest more time in an activity *when it is developmentally important than at other stages of development*
    - e.g., Highly educated parents should invest more time in basic care during children's infancy than during preschool or middle childhood.
  
  - 2) Highly educated parents tailor their time to children's developmental needs *to a greater degree than less educated parents*
    - e.g., Highly educated parents should not only invest more time in basic care during infancy relative to other stages, but during infancy the difference across education groups in child care time should be largest for basic care.
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# Data

- 5 waves of American Time Use Surveys (ATUS) 2003 – 2007 ( $N \approx 85,000$ ), as pooled cross-sections
    - Ongoing national survey conducted by Census Bureau in conjunction with the CPS.
  - By telephone, asks randomly selected HH member over age 15 to recount previous day in time diary format (4am – 4am)
  - Sample covers all days of week, all months of year
    - Day weights adjust estimates for fact sample split evenly by weekday/weekend
  - Distinguishes primary from secondary activities allowing us to isolate primary child care time
  - High-quality demographic information
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# Sample

- Women with at least 1 child  $\leq 13$  years old in home ( $N = 6,640$ )
  - Excluded mothers interviewed on weekdays
  - Excluded mothers with HH children  $>$  own children ( $n = 1756$ )
- Mothers' education groups
  - $<$  High School (12%)
  - High School Degree/GED (28%)
  - Some College/AA Degree (29%)
  - College Degree (31%)
- Child age groups = age of youngest child in HH (as in Aguiar & Hurst, 2009)
  - 0 – 2 years old (32%)
  - 3 – 5 years old (23%)
  - 6 – 13 years old (45%)

## Child time (as a primary activity)

Activity	Example ATUS Codes	Minutes Per Day
Total care	—	86.84 (111.7)
Basic care	<ul style="list-style-type: none"><li>■ Physical care for HH children</li><li>■ Looking after HH children</li><li>■ Caring for and helping HH children</li></ul>	44.4 (68.7)
Play	<ul style="list-style-type: none"><li>■ Playing with HH children, not sports</li><li>■ Arts and crafts with HH children</li><li>■ Playing sports with HH children</li></ul>	23.5 (62.3)
Teaching	<ul style="list-style-type: none"><li>■ Reading to/with HH children</li><li>■ Helping/teaching HH children</li><li>■ Talking with/listening to HH children</li></ul>	6.7 (22.1)
Management	<ul style="list-style-type: none"><li>■ Attending events for HH children</li><li>■ Organization/planning for HH children</li><li>■ Travel related to caring for/helping HH children</li></ul>	12.2 (45.6)

# Sample characteristics

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Variable	Mean	SD
Maternal Age	35.34	7.53
White / Asian / Other	0.69	--
African American	0.12	--
Hispanic	0.18	--
Number of Own Children At Home	2.03	0.96

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*Note.* All descriptive statistics are weighted.

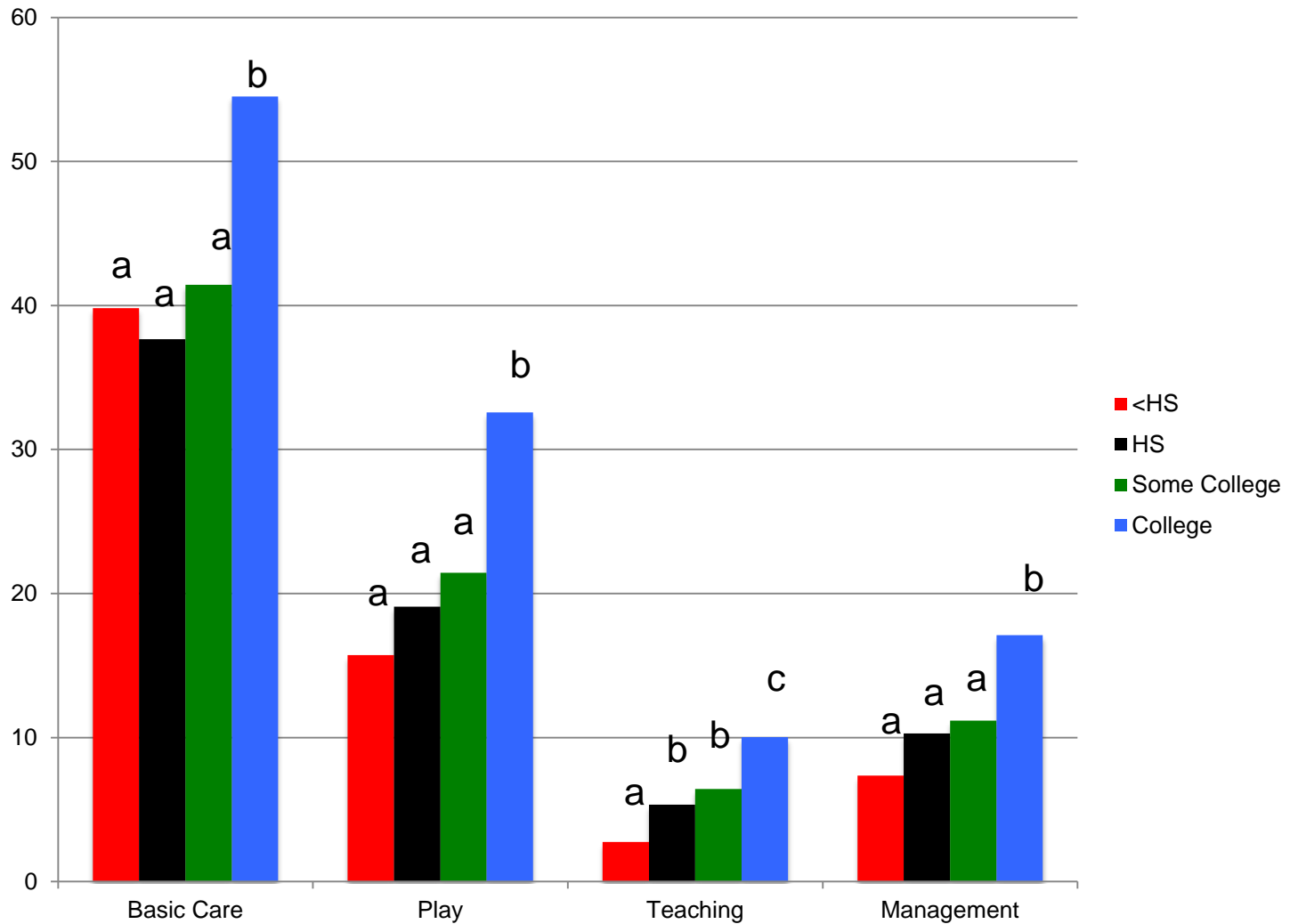
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# Analytic strategy

- Tobit models predicting time in each activity
    - Model includes exogenous covariates and interaction terms interacting youngest child age groups \* mother education levels
    - High-school educated is reference category for maternal education
    - Child age reference category for each activity is the age at which that activity is most “developmentally appropriate”
    - To generate the post-estimation effects from the tobit models, we predict the  $Y^*$  value in Stata
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# Average Child Time by Activity and Education



# Average time by education and child age

## Youngest Child Aged 0-2

Education Level	<i>n</i>	All Care	Basic Care	Play	Teaching	Management
< HS	273	102.43	61.74	28.92	1.40	10.37
HS	374	117.70	70.69	34.25	4.43	8.32
Some College	547	139.99	81.40	46.05	4.68	7.86
College or Beyond	736	184.56	101.36	65.57	8.70	8.94

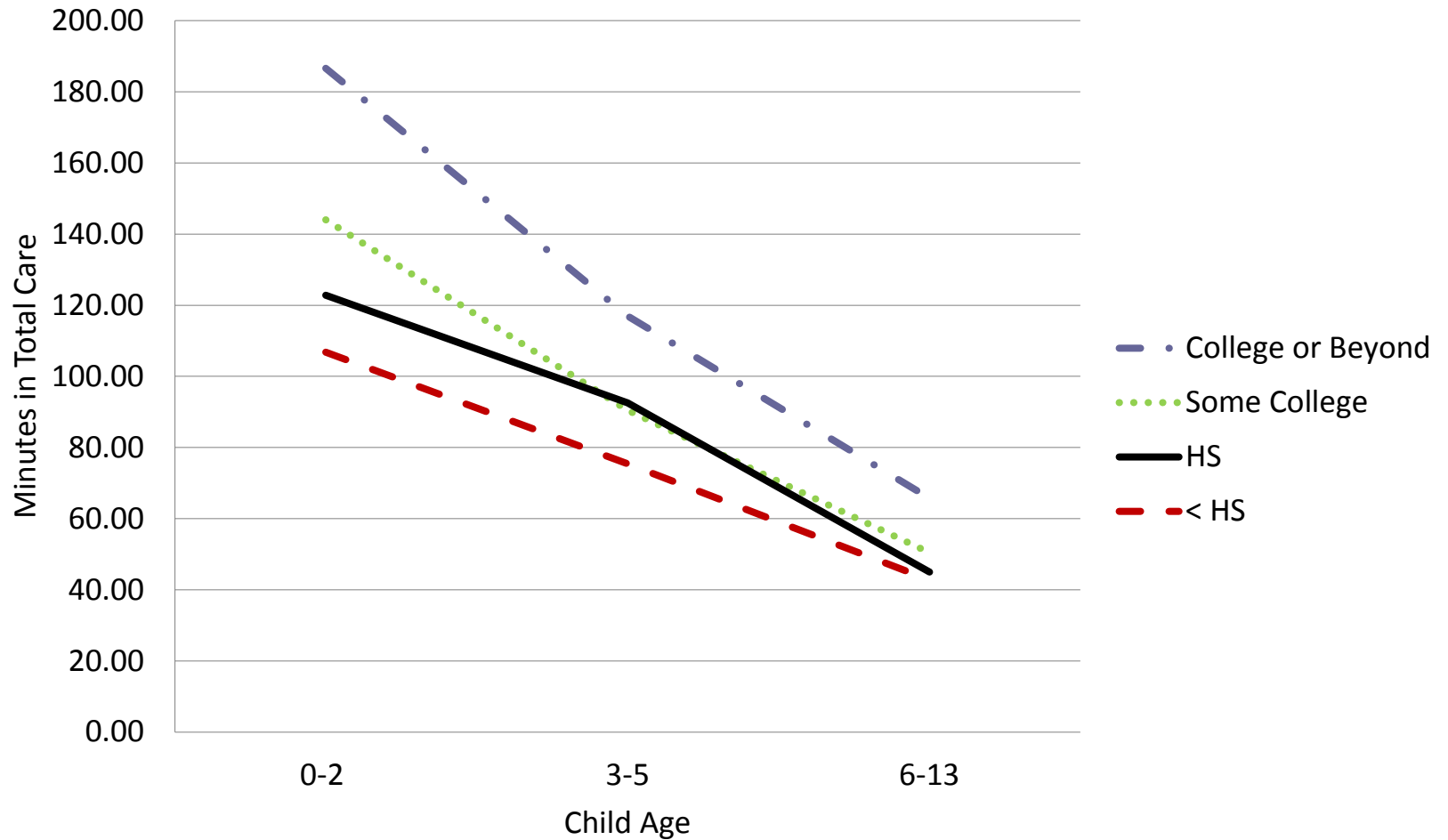
## Youngest Child Aged 3-5

Education Level	<i>n</i>	All Care	Basic Care	Play	Teaching	Management
< HS	200	66.45	44.41	16.19	3.44	2.40
HS	343	86.72	43.54	27.12	4.89	11.17
Some College	430	80.72	43.22	20.35	6.54	10.61
College or Beyond	552	108.69	48.98	32.23	12.51	14.97

## Youngest Child Aged 6-13

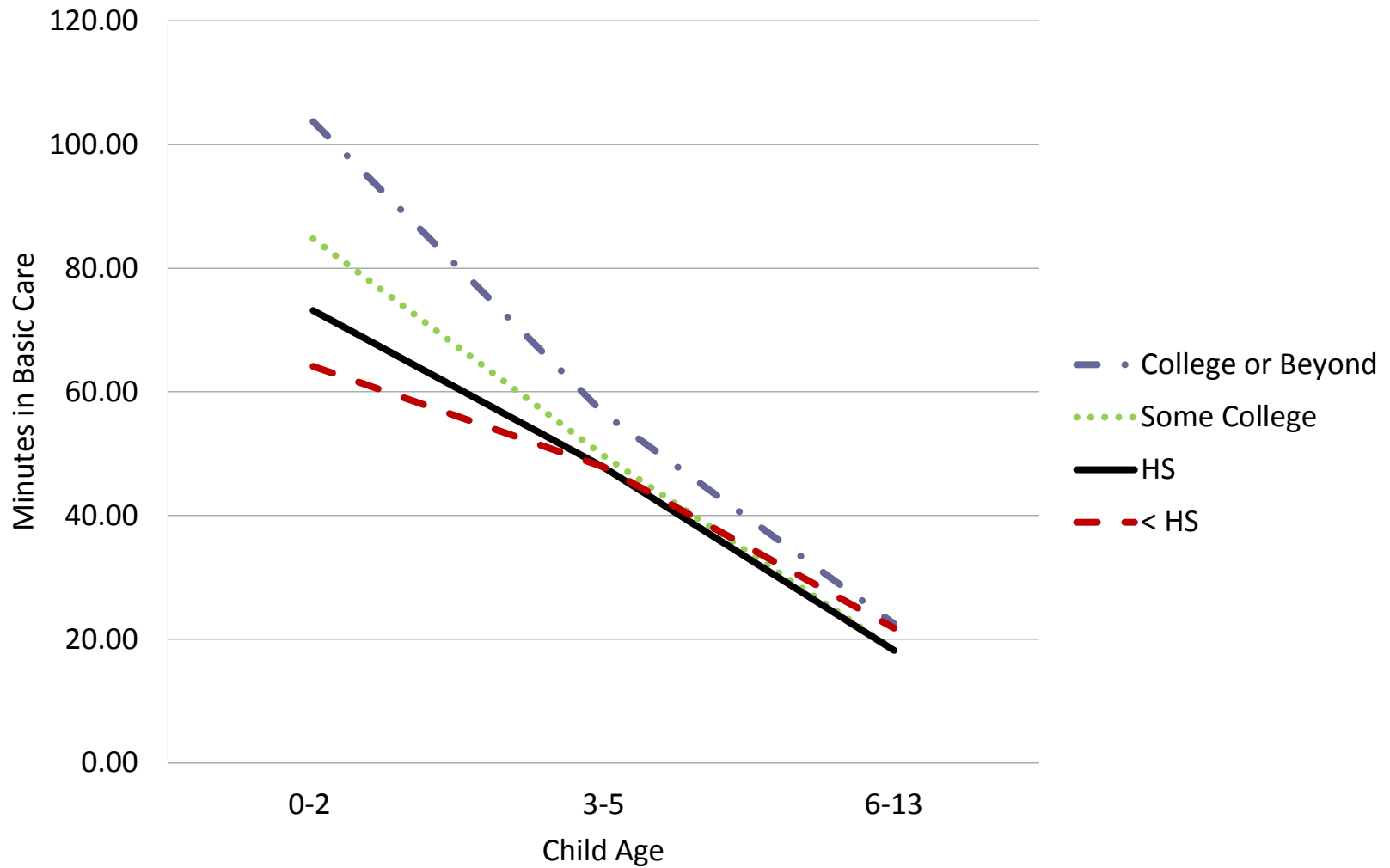
Education Level	<i>n</i>	All Care	Basic Care	Play	Teaching	Management
< HS	359	34.53	19.03	4.44	3.49	7.57
HS	746	38.22	15.06	6.02	6.13	11.01
Some College	1,061	44.60	16.61	7.10	7.46	13.43
College or Beyond	1,019	59.63	19.18	5.70	9.73	25.01

# Predicted minutes in total care

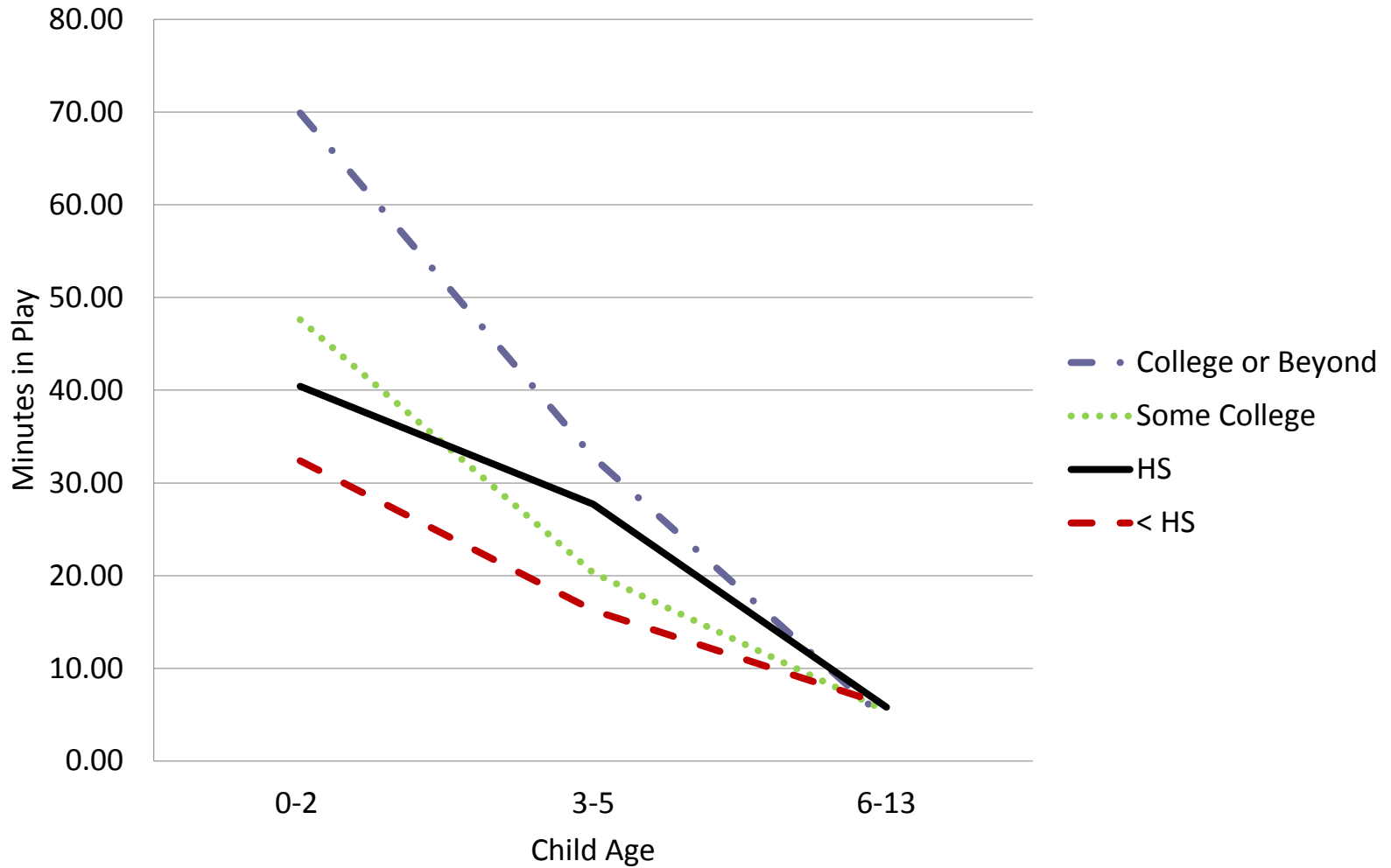




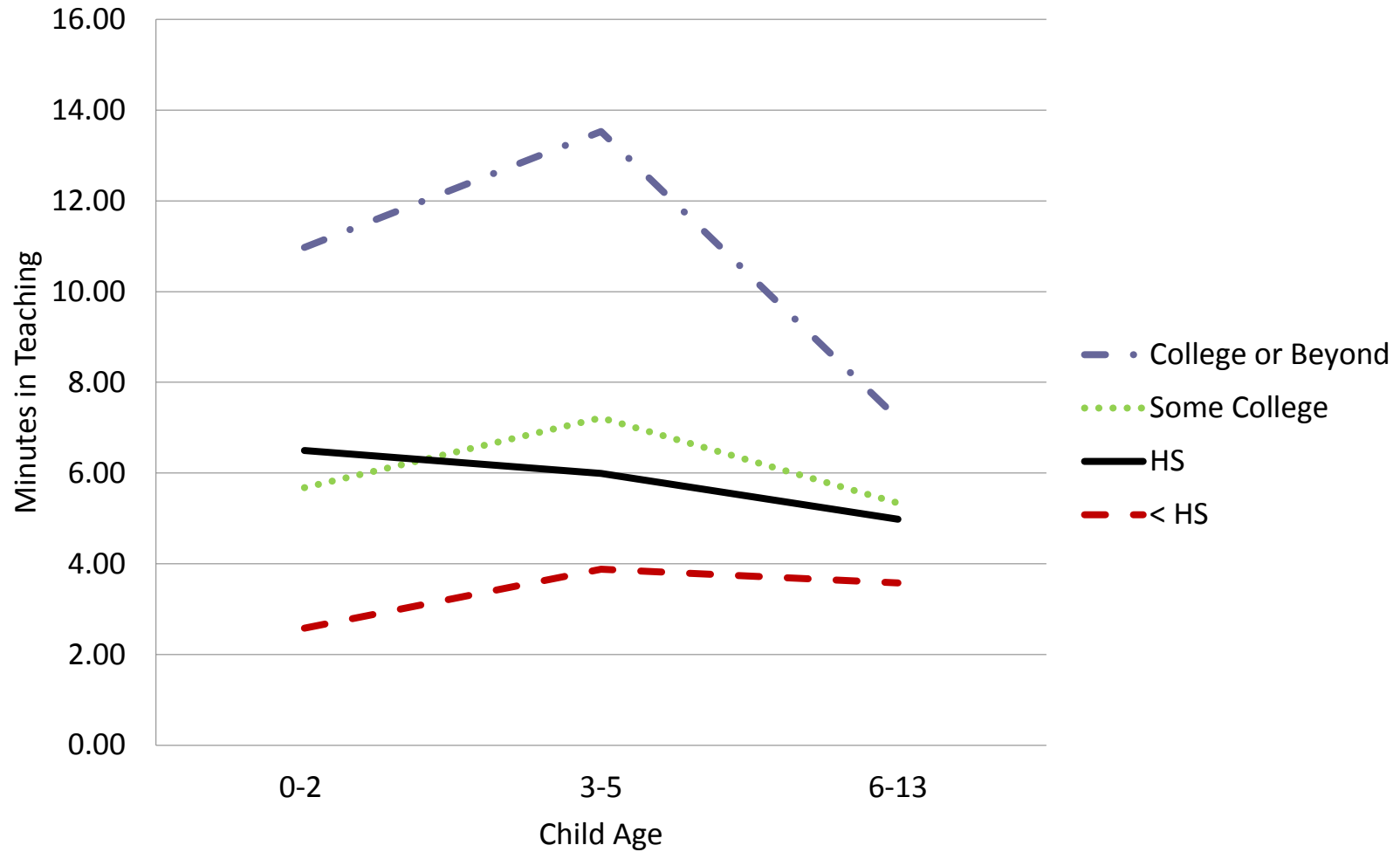
# Predicted minutes in basic care



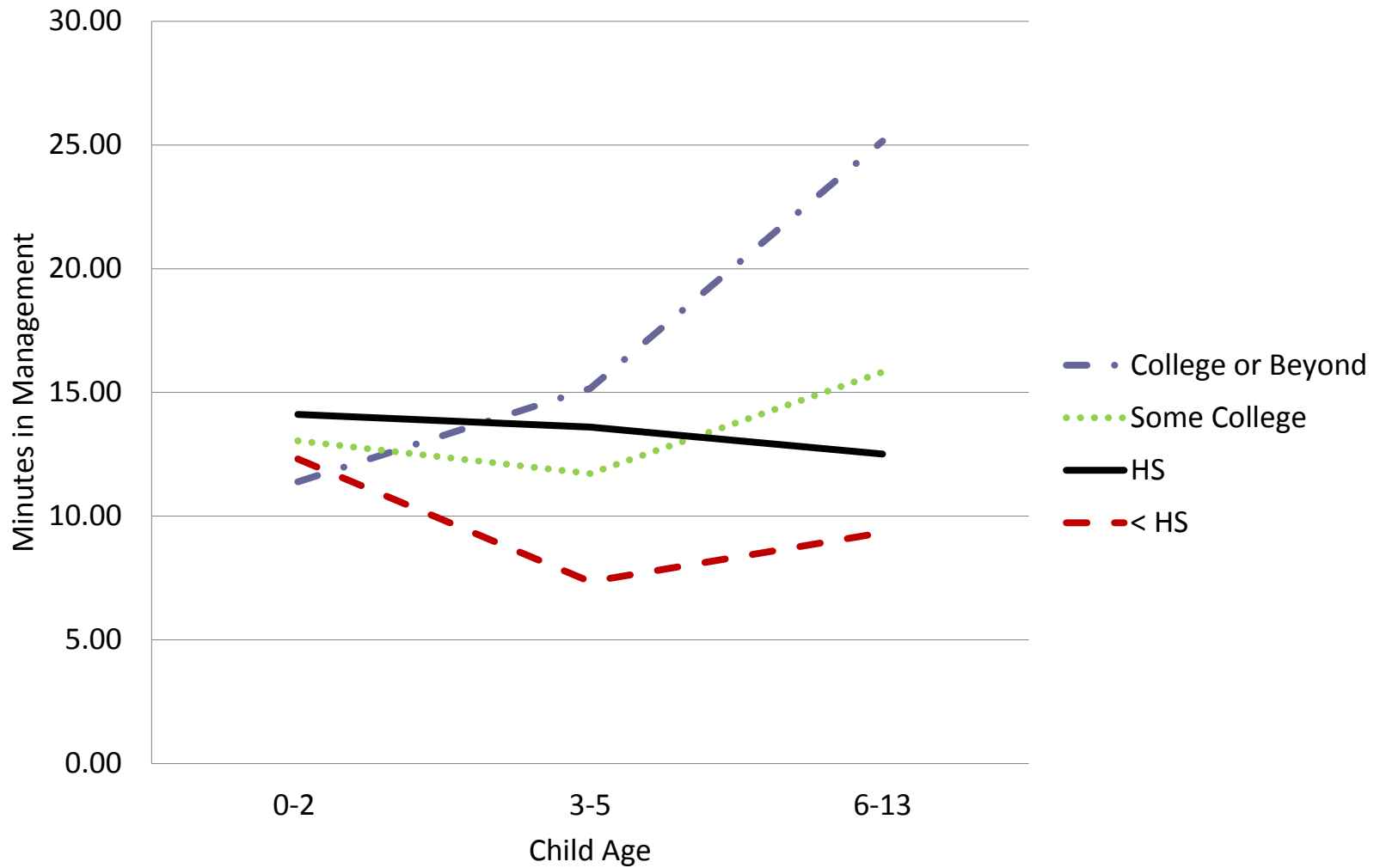
# Predicted probability of playing



# Predicted probability of teaching



# Predicted probability of management



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# How meaningful are the gradients?

- The education “basic care gap” for infants and toddlers is 30 minutes per (weekend) day
    - Equals extra 15 days of interaction with infants when fundamental attachments are forming
  - The education “play gap” for infants and toddlers is also 30 minutes per day
    - Equals extra 6 months of half-day preschool
  - The education “management gap” for pre-teens is 14 minutes per day
    - Equals extra 85 hours a year doing socially, academically or artistically enriching parent-supervised activities
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# Limitations

- Child care time is self-reported, possibly biased
    - College educated mothers could emphasize different activities when reporting their time
      - Given activity (e.g., talking to children while watching TV) could be reported as “primary activity” by mothers with one level of education and “secondary activity” by mothers with another
  - “Ideal” amount of time spent in different childcare tasks not uniform across families
    - May differ for children with different developmental characteristics or needs, by maternal education level or socioeconomic circumstances, as well as by the goals that parents in different contexts may have for their children
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# Conclusions

- Results demonstrate role of maternal education not just in amount of time invested in children, but in the composition of that time.
  - Highly educated mothers appear to be more “developmentally effective” in their time with children than less educated mothers.
  - Source of this “developmental gradient” unclear
    - Demographic correlates of education (e.g., maternal work status and/or schedules, marital status, income)
    - Differences in preferences for/beliefs about “investment” and its later-life economic returns for children (Heckman, 2011)
    - Differences in preferences for “consumption” of child care (Sacks & Stevenson, 2010)
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# Policy Implications

- Notion that parenting knowledge or values drive parenting differences by social class informs well-known interventions.
    - E.g., Harlem Children's Zone
  - Another approach would be increasing parent education, hoping parenting behavior would change accordingly.
  - Without knowing whether education and parenting are causally linked, policy implications are unclear.
- Clearer is the notion that the time gap could have long-term implications for children's achievement and attainment.
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