

Parental Spending on Children and Children's Social-emotional Development

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Abstract (150 words)

This paper examines the causal relationship between parental spending on children and children's social-emotional development. Extensive research has related children's developmental outcomes to material resources through family income and wealth. However, scholars have long noted the inconsistency between reported income and expenditures. Spending on children is one of the most direct ways parents can invest in children. Hence expenditure on children is a more accurate measure of intergenerational transmission of economic resources to children. We use data from the PSID and its Child Development Supplement, which provides child-specific expenditure data for a national longitudinal sample of children. We draw theories from multiple disciplines and use instrumental variable approach to address the endogeneity issue to establish the causal relationship. This study will contribute to the body of literature on the growing social and economic inequality for parents by social class and race and the implications for parenting and child outcomes.

Parental Spending on Children and Children's Social-emotional Development

This paper examines the causal relationship between parental spending on children and children's social-emotional development. Extensive research has related children's developmental outcomes to material resources through family income (Eggebeen and Lichter 1991; Duncan and Brooks-Gunn, 2007) and family wealth (Conley 1999; Hao 1996; Yeung and Conley 2008). However, scholars have long noted the inconsistency between reported income and expenditures (Edin and Lein 1997; Meyer and Sullivan 2008). Income-poor families can be substantially different from consumption-poor families, and the time trend of income inequality does not correspond to that of consumption inequality (Johnson and Smeeding 2005; Meyer and Sullivan 2008). Spending on children is one of the most direct ways parents can invest in children. Hence expenditure on children is a more accurate measure of intergenerational transmission of economic resources to children. We use data from the PSID and its Child Development Supplement which provides child-specific expenditure data for a national longitudinal sample of American children. We draw theories from multiple disciplines and use instrumental variable approach to address the endogeneity issue to establish the causal relationship. Through nuanced analysis on the relationship between parental spending patterns and children's well-being, we hope to shed insight on the body of intergenerational transfers literature about the growing social and economic inequality for parents by social class and race and the implications for parenting and child outcomes.

Among all institutions investing in children, including governments, social-service programs, and health-care programs, the family is by far the largest, taking up almost two thirds of the total amount and almost 15% of the US gross domestic product (GDP) that was invested in children under the age of 18 in 1992 (Haveman and Wolfe 1995). Household

spending on children aged 0-24 has increased over 50% from 1972 to 2007 (Kornrich and Furstenberg 2013). Some argued that the growth of household spending on goods for children was a result of the children-targeted consumption culture in the 1980s (Schor 2004); others suggested that the soaring college education costs drove this substantial growth. Investment in children is a crucial mechanism by which advantages and disadvantages are transferred intergenerationally with long-term implications for children's future life chances.

Research in multiple disciplines has documented parents adopt different strategies to shape their children's human capital and social emotional well-being. Parenting behavior in the 20th century has evolved into a child-centered, labor intensive, and financially expensive endeavor, as illustrated by terms such as "intensive mothering" in work by Hays (1996). Laureu (2003) reports the social class differences in child-rearing behavior, with middle-class parents invest much more than their working-class counterparts to provide their children with life experiences that enhance their human, social, and cultural capital. Researchers have recognized for many years that economic hardship creates challenges for parents and is linked with problems in children's adjustment, development, and well-being. Along these lines, McLanahan (2004) warns of the potential "divergent destinies" of children as a result of the increasing social class disparities in children's access to resources. In addition to social class variation in parenting behavior, whether there are significant differences by race remains debatable. In this paper, we also stress another significance factor to consider - parents' educational expectation for the child that shapes parents' value of child development and their preference in how to invest in children. Our main research questions are whether and how relationship between parental spending and children's

social-emotional well-being vary by parents' social class, ethnicity, and their expectations to children's achievement.

Two major methodological challenges in establishing the relationship between parental spending and children's well-being are: (1) most expenditure data are collected at the household level as the total family consumption, therefore, lacking child-specific consumption measures, (2) the difficulty in handling the endogeneity of parental spending. In this paper, we draw theories from sociology, economics, and child psychology and base our analysis on the unique child-level consumption data and family shared consumption data from the Panel Study of Income Dynamics and its Child Development Supplement. We will use instrumental variable approach to address the endogeneity issue.

Data

We draw data from the Panel Study of Income Dynamics (PSID) and its Child Development Supplement (CDS-II, conducted in 2002-2003 and CDS-III conducted in 2007). The PSID is a longitudinal study initiated in 1968 with a nationally representative sample of approximately 5,000 American households, with an oversample of low-income black families. The CDS-II includes a set of questions about the amount of money the family and others outside of the family unit pay for various aspects of consumption for the target child over the past 12 months for a specific child. These items include tuition, tutoring programs, lessons, school supplies, sports, toys or presents, vacation, and clothes or shoes. The core PSID data also provide family-shared spending such as housing (mortgage-interest payments or rent, property tax, home insurance, and utilities), shared food (including food at and away from home), transportation, and family health insurance. The sample with consumption data includes 2,907 children.

Measures

Child-Specific Spending – Endogenous Variables. Four variables are created to measure child-specific spending: a total amount and three selected categories. Total child-specific spending includes spending on school-related, social-cultural, status-signaling, and all other items. The school-related category includes tuition, school supply, and tutoring. The social-cultural category includes extracurricular lessons such as drawing and music, sports, community activities, cultural activities such as museum/theater going, toys and presents, and vacations. The third category, labeled as status-signaling spending, includes clothes, shoes, and car-related costs. Other expenditure items include weekday and weekend daycare, summer care, food, additional health insurance for the focal child, healthcare costs, and allowance. These child-specific consumption measures are used in conjunction with information on the family-shared consumption in the core PSID data.

Children's Social-emotional Development

We measure child developmental outcome at two time points, with both the second and third wave of the CDS data, to assess children's social emotional development with self-esteem, social skills, emotional distress, and behavior problem index. The Behavior Problem Index, a 30-item Achenbach index, was used to assess the extent to which a child had emotional problems. NLSY-type subscales may be generated – externalizing (aggression/conduct disorder) and internalizing (depression/anxiety) behaviors (Parcel & Menagham, 1988). See the User Guide for The Child Development Supplement (Hofferth, Davis-Kean, Davis, and Finkelstein 1998) for details about these measures.

Distal Cause Variables

The first key distal cause is parental SES, indicated by parental education (the higher of two parents), parental occupational prestige, and family income. The second distal cause is race: non-Hispanic Black and other race, with non-Hispanic White as the reference. The third distal cause is parental expectation in years of schooling parents expect the focal child to attain at the same time when the spending variables were measured.

Control Variables. Control variables are grouped at the family level and the child level. At the family level we measure family income in 2003, family wealth in 2001, public assistance in 2003 (and whether the family received assistance in housing, food, and energy), family structure (two biological parents, single mother, and other type), householder's age, number of children, metropolitan residence, and region of residence. At the child level we include child age, gender, only-child, first-born of two or more children, and low-birth weight.

Analysis Plan

We will use the instrumental variable (IV) approach to establish causal relationship between parental spending and child outcomes. Given the distal causes (class, race, and parental expectation) affect both parental spending and child outcome and parental spending affects child outcome, ignoring the endogeneity of parental spending will cause a biased estimate for parental spending. Even with an extensive vector of control variables at the family and child levels, unobserved family and individual heterogeneity, including the history of family process and the child's psychological disposition, still potentially affect both parental spending and child outcome. The rationale of the IV approach is to partial out the common component in the error term of the spending equation and the child outcome equation. Our candidates for instrumental variables are at both family-level (e.g., transitory income and intro vivo transfers to parents) and contextual-level (e.g., state regulations on the share of local tax for public education and

county/city consumer price). The IV should strongly affect parental spending but have no direct relationship with child outcome. The validity and strength of each candidate will be evaluated to determine which candidate best serves as the instrument. We will use simultaneous equation modeling (SEM) to estimate the parental spending and child outcome simultaneously.

Let y be a parental spending variable, z be the child socio-emotional outcome, D the vector of the distal causes, X a vector of the control variables, and IV an instrumental variable, our SEM is pressed below:

$$y = \alpha_0 + \alpha_1 D + \alpha_2 X + \alpha_3 IV + \varepsilon$$

$$z = \beta_0 + \beta_1 y + \beta_2 D + \beta_3 X + \pi$$

We will use Stata 13 to estimate the SEM.

Preliminary Results

Table 1 presents the average amount and the percentage of child-specific total and component spending. The child-specific annual total expenditure was \$5,409 for a focal child aged 5-18. Mean school-related spending was relatively small (\$428), accounting for 7.9% of the child-specific total. The average school-related spending was low because only 10% of the children attended private schools, with an average tuition of \$3,069 per year. Spending on school supplied, tutoring and other are all very low. Social-cultural spending amounted to \$1,675 on average and accounted for 31% of the total. Average spending on status-signaling was \$732 a year, accounting for 13.5% of the total. Other big expenditure items included food (\$1,393) and health-related (\$629) for the child.

(Table 1 about here)

Table 2 shows various measures of inequality in child-specific total and three categories. The deciles at P10 to P90 express the degree to which the lower/higher deciles of parental spending spread out. The child-specific total spreads widely: \$1,665 at the first decile, \$4,540 at

the median, and \$10,417 at the ninth decile. The school-related spending is even more dispersed: \$20 for the first decile and \$725 for the ninth decile. The deciles for social-cultural and status-signaling spending also spread widely.

(Table 2 about here)

The P80/P20 decile ratio provides information about the degree of polarization. The ratio for child-specific total spending is at 3.3. The ratio is the largest at 6.7 for school related spending, second largest at 5.2 for social cultural, and the least of the three categories at 4.0 for status signaling. This fuller information on the distribution through deciles and decile ratios provides richer understanding of inequality while a summary measure, such as the Gini, gives an inequality measure that is overall for the entire distribution. The Gini is much lower for family-shared spending (0.284) than for the total parental spending on specific children (0.375). Among the three categories, the highest Gini is for school-related spending (0.800), the second highest is for status signaling (0.500) followed by social cultural (0.467), all of which are much higher than the Gini for family-shared and child-specific total.

The bottom part of Table 2 shows between-group inequality via the median differences of SES groups and racial groups. The differences in median child-specific spending total are larger at \$2,633, \$4,620, and \$6,120, respectively. While the SES group gaps also show a gradual increase for social cultural spending, the spending on school related and status signaling are divided between the low-SES group and the middle- and high-SES groups. The Black-White gaps in these spending variables are also large, especially for social cultural (\$735 for Blacks and \$1,540 for Whites), but an exception can be found for status signaling spending, which is \$400 for Blacks and \$500 for Whites.

The SES and Race Stratification of Parental Spending on Children. How do the stratification factors play out in parental spending on specific children? Table 3 focuses on the three categories of child-specific spending. The R-statistics in the last row of the tables show that the model fits less well for child-specific spending than for family-shared spending and among the three categories the model best fits social-cultural spending.

Of the three aspects of parent SES, parental education plays a more important role on parental spending patterns. At the 2nd decile, the estimate for parental education increases from 0.030 for family-shared spending, to 0.040 for child-specific total, to 0.056 for school-related spending, to 0.086 for social-cultural spending. Specifically, compared to a high-school-graduate parent, a college-graduate parent will spend 16% more in child-specific total, and 34.4% more in social-cultural spending. The same pattern can be found for the effects of parental occupation, albeit the magnitude is much smaller. Family income, however, does not follow such a pattern. Race is another variable that exhibits a similar pattern as parental education, with stronger effects on social-cultural and child total than family-shared spending. The 2nd decile regression results show that the child total in Black families is 73.6% ($e^{-.307} = .736$) of the White counterpart and the corresponding percentage is 60.4% for social-cultural spending. The SES aspects shift the location while race shifts the shape of the child-specific spending distributions.

The Role of Parental Expectation in Parental Spending on Children. Parental expectation is intended to capture parents' value on child development and preference for investing in types of spending that boost the probability of realizing this expectation. We find an increase of one year expected schooling raises the total spending by 4.5% at the 2nd decile, 3.7% at the median, and 2.8% at the 8th decile. Thus when compared with a parent whose

expectation is high school graduation, a parent whose expectation is college graduation will increase the total spending on this child by 18%, 14.8%, and 11.2% at the 2nd, 5th, and 8th deciles. Because the cross-quantile equivalence is not rejected, we can conservatively say that an increase in expectation from high school graduation to college education can boost up parents' total spending on this child by 11.2%. The boosting effect of parental expectation for an increase of one year schooling is larger for social cultural spending (8.3%, 5.6%, and 4.9%) and for school-related spending (7.2%, 5.3%, and 6.1%), and similar for status-signaling spending (4.6%, 3.8%, and 3.2%).

While parental expectation shifts the location of all child-specific spending variables' distribution, interestingly our quantile regression analysis reveals that parental expectation also shifts the shape of social-cultural spending. Because the positive effect of parental education is greater at the lower end than the higher end, parental expectation is an equalizer in that an increase in parental expectation in the population will contract the distribution and lower the inequality of social-cultural spending.

Next Steps

These preliminary results provide strong evidence for structural effect of parental SES (especially parental education), race, and parental expectation. Our estimates provide a nuanced understanding of how these factors stratify parental spending and show that they shape not only the level but also the shape of the spending variable in question. These results suggest race continues to be a significance predictor even when SES and other covariates are held constant. They also underscore the crucial role of parental expectation, suggesting the importance of a parents' value on child development and their preference for how to invest in children with their financial resources. Base on these results, we will examine the causal relationship between parental spending and children's social-emotional well-being in the next few months.

Table 1. Weighted Distribution of Spending Items for Children

Spending	Amount	Percentage
Child-specific total	5,409	100
<u>School-related - total</u>	<u>428</u>	<u>7.9</u>
school tuition	278	5.1
school-related - other	150	2.8
school supplied	113	2.1
tutoring	38	0.7
<u>Social-cultural - total</u>	<u>1,675</u>	<u>31.0</u>
Lessons – music, art	143	2.6
Sports	154	2.9
Community activities	34	0.6
Cultural activities	119	2.2
Toys/presents	759	14.0
Vacations	466	8.6
<u>Status-signaling</u>	<u>732</u>	<u>13.5</u>
Clothes/shoes	590	10.9
Car-related costs (age 16+)	142	2.6
<u>Other components</u>	<u>2,574</u>	<u>47.6</u>
Food	1,393	25.8
Health insurance & care	629	11.6
Childcare	335	6.2
Allowance	217	4.0
Number of children	2,893	

Table 2. Unequal Spending on Children: Total and Component Spending

Inequality Measures	Child-specific			
	Total	School-related	Social Cultural	Status Signaling
Decile				
P10	1,665	20	270	180
P20	2,330	30	490	249
P30	2,925	50	724	300
P40	3,620	60	940	400
P50	4,540	100	1,200	500
P60	5,328	100	1,490	550
P70	6,185	150	1,910	700
P80	7,710	200	2,550	1,000
P90	10,417	720	3,540	1,500
P80/P20 ratio	3.3	6.7	5.2	4.0
Gini	0.375	0.800	0.467	0.500
Group Median Difference				
Low SES	2,633	50	590	400
Middle SES	4,620	100	1,220	500
High SES	6,120	100	2,070	525
Black	3,220	60	735	400
White	5,252	100	1,540	500

Table 3. Quantile Regression Estimates for Component Spending on Specific Child: School-related, Social-Cultural, and Status-Signaling

Variable	School-related			Social-cultural			Status-signaling		
	P20	P50	P80	P20	P50	P80	P20	P50	P80
Higher parent education	0.056a***	0.029ac*	0.068c***	0.086***	0.075b***	0.060b***	0.019*	0.007c	0.028c*
Parent occupation	0.001	0.001c	0.007c*	0.005*	0.003*	0.004*	0.004*	0.001*	0.002*
Family income in \$10,000	0.021***	0.016***	0.020*	0.022**	0.026***	0.028***	0.010*	0.013***	0.016*
Black	-0.168*	-0.138*	-0.151*	-0.504a***	-0.379a***	-0.446***	-0.219b**	-0.135c**	-0.015bc
Parental expectation	0.072a***	0.053a***	0.061**	0.083a***	0.056b***	0.049ab***	0.046**	0.038***	0.032*
R	0.043	0.05	0.056	0.243	0.219	0.214	0.047	0.049	0.079

Note: The models controls for other race, mother part-time work, other family type, metro area, and region.

^a p20 and p50 are significantly different

^b p20 and p80 are significantly different

^c p50 and p80 are significantly different

* p < 0.5 ** p < 0.01 *** p < 0.001

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