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Investing in Children: Changes in Parental Spending on Children, 1972–2007

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Abstract Parental spending on children is often presumed to be one of the main ways that parents invest in children and a main reason why children from wealthier households are advantaged. Yet, although research has tracked changes in the other main form of parental investment—namely, time—there is little research on spending. We use data from the Consumer Expenditure Survey to examine how spending changed from the early 1970s to the late 2000s, focusing particularly on inequality in parental investment in children. Parental spending increased, as did inequality of investment. We also investigate shifts in the composition of spending and linkages to children's characteristics. Investment in male and female children changed substantially: households with only female children spent significantly less than parents in households with only male children in the early 1970s; but by the 1990s, spending had equalized; and by the late 2000s, girls appeared to enjoy an advantage. Finally, the shape of parental investment over the course of children's lives changed. Prior to the 1990s, parents spent most on children in their teen years. After the 1990s, however, spending was greatest when children were under the age of 6 and in their mid-20s.

Keywords Children · Human capital · Inequality · Consumption

Introduction

Since roughly the late 1970s, income and wealth inequality increased steadily in the United States, except for a short reprieve in the late 1990s (Danziger and Gottschalk

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1995; Gilbert 2008; Levy 1998). A key question surrounding increases in inequality in the United States and elsewhere is the extent to which inequality will be re-created: in other words, how much do increases in *current* inequality contribute to *persistent* inequalities through the intergenerational transmission of disadvantage? Scholars and policy makers worry about the widening gap between rich and poor, and many researchers have begun to examine the nature of the gap (Magnuson and Votruba-Drzal 2009). Recent research finds that the achievement gap between rich and poor children has widened, and it appears that greater inequality in earnings is associated with increased differences in children's achievement (Reardon 2011).

A debate continues about why and how much resources and parental behaviors contribute to children's welfare, but broad consensus exists that children in families with more resources enjoy considerable advantages in their development and long-term prospects (e.g., Duncan and Magnuson 2005; Duncan et al. 2001; Mayer 1997). Parents of all social strata today appear to have become more aware and mobilized to invest in their offspring, choosing "quality" over "quantity" as they have fewer children, and mothers and fathers both spend more time caring for children (Becker 1975; Bianchi 2000; Bianchi et al. 2006; Gauthier et al. 2004; Sayer et al. 2004; Yeung et al. 2001). As changes in the labor market provide a greater premium for education and training, children require more investment in the form of time and money than even in the recent past.

Yet, although there is ample evidence about time use and family size, there is less evidence about the other major form of parental investment: spending on children. This is true even though it is presumably differences in monetary expenditure that make up a substantial portion of the advantage conferred by parents with higher income: spending buys access to higher-quality child care and education, and places children in environments that are more likely to build human and cultural capital.[1] Changes in spending should be an important component of changed investment in the face of increased social inequality. Some research has documented increased inequality in spending on children over a short time period (Bianchi et al. 2004), but there is relatively little evidence about how it has changed over the period of growth in income inequality or about how changes are linked to household income, family structure, and children's and parents' characteristics.

This article addresses the questions of whether and how spending on children has changed over the period roughly coinciding with the beginning of the growth in income inequality through the late 2000s and how investments in children vary with parental income and education and by children's gender and age. Despite the importance of spending as a measure of parental investment in children, there has been little research examining this question using this type of data (but see Bianchi et al. 2004; Lazear and Michael 1988; Lundberg and Rose 2004; Ziol-Guest et al. 2004). To track

[1] Becker (1975:9) defined investment in human capital as any "activities that influence future monetary and psychic income by increasing the resources in people," whereas Bourdieu (1984) referred to cultural capital as dispositions and cultural competences, particularly in areas of legitimate taste, which may play a role in career and school advancement. For this article, we are agnostic about the differences but note that parents likely are interested in some combination of these.

parental investments over time, we use a resource rarely used by sociologists or demographers: the Consumer Expenditure Survey (CES), which is a nationally representative survey of consumer spending conducted by the U.S. Bureau of Labor Statistics. We observe increases in inequality of spending over time, larger shares of income spent on children, and parental expenditures over longer periods of children's lives.

Spending as Parental Investment in Children

Spending on children is one of the most direct ways that parents can invest in children. Parental spending can buy children experiences that build human and cultural capital: high-quality education, residence in better neighborhoods, and potentially high-quality child care while children are young and parents are at work. Although many of these experiences have long been available for parents to purchase, their importance seems to have increased in recent years as expectations for children have changed. Apprehensions about public schools have grown over time, leading a growing percentage of parents to potentially opt for private education, thus incurring larger expenditures. The growing importance of higher education, often financed entirely or partly by parents, has similarly added to the costs of raising a child and extended the period of parental obligations.

Parental strategies designed to offer children appropriate learning experiences at all stages of their life may also have driven up spending when children are young. Hertz (1997:376) noted that "couples speak a new language of quasi-psychology that emphasizes developmentally appropriate educational experiences for preschoolers who are introduced to the rudiments of a structured day, develop positive peer group experiences, and begin to develop a positive relationship to learning," suggesting the importance even at early ages of parental expenditures to provide learning environments. This expectation is stronger among middle- and upper-class families. Indeed, Lareau (2003) examined class differences in child-rearing and found that middle- and upper-class parents seek structured educational, social, and athletic activities for their children in order to impart them with experiences necessary for a middle-class upbringing. At early ages, then, spending opens up unique forms of investment that parents seem to value more than in the past.

There have also been growing pressures on families to provide assistance for older children in the form of postsecondary education. A growing body of evidence suggests that parents at all income levels are increasingly willing to provide assistance to their offspring in late adolescence and early adulthood. Schoeni and Ross (2005) reported that one-fifth of all expenditures on children living in the household are provided to those older than 18, and there are differences in the level of transfers by parents' income. Parents in all strata, according to this study, provide about 10 % of their annual income to children older than the age of 18. Thus, it appears parents are reconciled to the reality that it takes longer for their children to reach economic maturity than it did a half-century ago (Danziger and Rouse 2007; Furstenberg et al. 2004).

Explaining Changes in Spending

Changes in aggregate spending may be understood in three ways. First, there are changes in the level of spending, which capture the extent of parental investment. Higher levels reflect more extensive, intense, and perhaps more valuable investments in children. Of course, spending is not purely a measure of parents' desire to invest because the cost of goods plays a role. In this article, we adjust spending figures for inflation, but the price of some goods—notably higher education—has increased more rapidly than inflation. Although changes in prices have certainly occurred, parents could respond to increased prices by contributing the same dollar amount over time rather than increasing their investment as prices increase. Thus, a willingness to pay for college or other goods that become more costly reflects a greater commitment to investment in children.[2]

The second important way to evaluate changes is to consider the composition of spending: that is, what households buy with money they spend on their children. The amount spent on each of the three categories that we examine—namely, education, child care, and a range of consumer goods—shows whether households spend more investing in education or in other areas.

The third set of changes is relationships between spending and household characteristics—or, loosely, the "determinants" of spending. Shifts linked to household characteristics tell us how parents respond to changing social demands on the family and whether this differs for different segments of the population. We examine both children's and parents' characteristics.

Children's Characteristics

We focus on children's age and gender to gauge how norms of responsibility across the course of children's development and gender norms have changed over time. First, in relation to the age of children, parents may allocate investment very differently across the course of children's lives. For example, parents could invest heavily in children when they are young but relinquish responsibility at later ages, or they could provide increased resources as children transition from the parental home to help them establish independent lives, residences, and households. Given the aforementioned qualitative evidence that parents today place great importance on *both* early childhood development and postsecondary education, we ask whether parents assume responsibility over a longer period of the life cycle of children today than in the past.

Children's gender may also influence spending. The presence of sons instead of daughters in the home influences a variety of marital outcomes, including stability, fathers' involvement, and gender traditionalism (Harris and Morgan 1991; Katzev et al. 1994; Lundberg and Rose 2002). We expect that in the 1970s, when women's

[2] An alternative explanation is that parental commitment to investment has driven up the price of college, as demand has risen and supply has not kept pace. Whether this is the case or instead costs have gone up independently and parents feel compelled to pay, we argue that payment reflects a commitment by parents to invest in their college-age children.

careers were more circumscribed and gender ideologies less oriented to egalitarianism, parents would invest more in male children.

Although parents may have invested more in sons in the past, changes in gender norms toward egalitarianism and steps toward gender inequality may mean that contemporary parents make roughly equal investments in male and female children. Indeed, evidence on third births suggests that parents today are indifferent about the gender of their children, unlike parents of the past (Pollard and Morgan 2002). Similarly, evidence in the early 1990s found few differences between the spending of households with male children and households with female children, although households with only male children spent slightly less on clothing and more on personal care services (Lundberg and Rose 2004). We thus expect that expenditures will be divided more equally between boys and girls in recent years than in the 1970s.

Parents' Characteristics

We examine a range of parental characteristics, including income, wives' share of earnings and labor force participation, parents' age, and parental education. We focus particularly on the role of income, given our interest in the extent to which inequality has shifted investment. Herein, we discuss literature that drives expectations about spending.

From 1972 to 2007, inequality increased in the United States (Levy 1998). We thus investigate inequality in spending across the income distribution as well as the overall level of spending. The increase in inequality came from increased income at the top of the income distribution and income stagnation for those at the bottom and middle of the distribution, so there should be greater spending at the top of the income distribution. However, it is less clear how spending changed near the bottom of the income distribution as real incomes declined. Those with low incomes could cut back, but they may also attempt to maintain levels of spending because households can, to some extent, "smooth" consumption by borrowing or using savings. If households maintain spending despite declining incomes, spending as a portion of income would be higher among those with low incomes, and this would increase over time. We thus examine changes in expenditures in both dollar amounts and as a portion of current income. We also examine income adjusted for household size because household size may shape household budget constraints.

In addition to total income, the source of income within the family may matter. Research suggests that women, more than men, use their income and general household resources on children. When control of a child benefit in the United Kingdom shifted to the mother from the father, households spent more on children's goods, suggesting that when women "control" income, they use it on children (Lundberg et al. 1997). Similarly, children are less likely to experience food insecurity when parents' pooled income is controlled by a mother or is jointly controlled than when it is controlled by the father alone, again suggesting that when mothers rather than fathers control income, they use it to invest in children's well-being (Kenney 2008). Although the CES does not contain measures of who "controls" household income, marital bargaining perspectives suggest that husbands and wives roughly control their own individual incomes and use them for goods that they are more interested in (De Ruijter et al. 2005). We thus expect that households in which the wife's share of earned income is higher will invest more in children.

Parents' age and education and the structure of the family may also influence spending. Older parents will likely have longer labor force histories and higher savings, leading to a greater willingness to spend. Educated parents, as discussed earlier, are more likely to have tastes for structured child care experiences and likely value education more highly, leading to higher spending. Given changes in family structure over the time period that we examine, such as the greater likelihood that children live in single-parent households, we include measures of family structure.

Spending: Cost and Investment

There has been little quantitative research charting changes in parental expenditures. One reason for this absence may be the difficulty of identifying expenditures on children (cf., Folbre 2008; Lazear and Michael 1988). The best source of data on expenditures in the United States, the CES, does not specify who incurred expenditures or the target of expenditures, thus making it difficult to assign individual goods and services.

One method to construct estimates of the cost of raising a child to age 18, used by the United States Department of Agriculture (USDA), is to use allocation rules to assign household spending to children. The USDA allocates food, transportation, and health care using rules generated from other surveys, goods with obvious child recipients on a dollar basis, and other spending on a per capita basis (Lino and Carlson 2009). This approach is useful in estimating the additional expenditures—the cost—that a family might incur to raise a child. However, changes in these estimates are not necessarily linked to parental motivations to invest; instead, they are influenced heavily by shifts in the cost of housing, food, and transportation, and on the choice of rules determining what share of expenses should be allocated to children. In the USDA method, nearly one-half of the cost of raising a child to age 18 results from food and housing (Lino and Carlson 2009).

Because we are interested in spending on children that approximates investment, we avoid a cost-based approach and instead focus on goods and services intended for children, such as education, child care, and a range of consumer goods, including clothing for boys, girls, and infants; and various toys and games. These three do not identically capture parental investment in children: although education is clearly a form of parental investment, the other two are perhaps less so. And although child care is not a pure investment in children, given that it is a necessity for working parents without other care options, parents try to choose high-quality child care environments for their children. In addition, many middle- and upper-class parents now see exposure to these structured environments as a key way to help children develop. Finally, spending on books, toys, games, and clothing may be a way that parents expose their children to materials that grant cultural capital and thus help develop class-appropriate tastes. Throughout the remainder of the article, we use the terms "spending on children" and "investment" interchangeably.

Data

We use data from the CES, a nationally representative survey of Americans administered by the U.S. Bureau of Labor Statistics and generally considered the best source of

nationally representative data on spending. Before 1979, CES data were gathered only sporadically, with the most recent wave conducted in 1972–1973. After 1979, the survey has been conducted annually. We use two-year blocks of data from more recent years to chart changes in the patterns and determinants of spending over time. We use the most recent set of data available at the time of writing—from the 2006 and 2007 survey years—and two sets of years roughly equal in time from our endpoints: 1983–1984 and 1994–1995.[3]

Our sample includes households with a child younger than age of 24 in the home. This includes children who receive parental support but are away from home, such as children attending college because parents are instructed to report these children in the survey. To the extent that parents underreport children living away from home, our estimates of expenditures may be downwardly biased. If parents today less often report the presence of children who are in college because more children attend college and receive some support, then results for change over time would be downwardly biased, meaning that our estimate of increasing spending would underestimate a true increase.

Because the surveys are not identical over time, we harmonize them in several ways. To construct comparable measures over time, we aggregate spending into three categories: child care, education, and all other specifically child-related expenses. Details on these categories are listed in Online Resource 1. Differences in the data also require harmonization. Surveys from all years are conducted over the course of four quarters. However, data from 1972–1973 are reported only annually. For later years, responses are reported quarterly. Because households are followed over four quarters, it is possible to construct an annual estimate. However, substantial numbers of households are not present in the survey for all quarters. Roughly 40 % of cases are missing, with higher rates for subgroups such as those never married or divorced.

Existing research using the CES has used two approaches to deal with missing data. Most research relies on the analysis of households that were present in all four quarters of the survey and that fully reported income (e.g., De Ruijter et al. 2005; Lundberg and Rose 2004; Ziol-Guest et al. 2004). Other research avoids dropping cases by relying on data from only one quarter (e.g., Cohen 1998). This approach avoids bias from the deletion of missing data, but it does mean relying on only a portion of available data.

To create annualized estimates without dropping cases, we use data from all quarters that a household is present in the survey and has resident children age 24 or younger in the home.[4] We average household characteristics for all quarters and create annual measures. In addition to preserving cases, this has the benefit of not overweighting households with more observations. The central drawback is that it eliminates within-household variation in spending across quarters. Although explaining both within- and between-household variation would strengthen an account of spending on children, the goal of this analysis is to provide a comparison across households over time. Additionally, most variables are stable over the course of four quarters within households.

[3] Additional analysis suggests that the choice of intermediate years does not substantially affect results.

[4] A small portion of households reported the presence of children in some quarters but not others. In these cases, we use data only when children are reported in the home.

Although this strategy deals with missing quarters, missing data can still exist for individual items. To address these missing values, we use multiple imputation, which generates several estimates of values for missing data using the relationships between variables for cases without missing data. These data sets are then analyzed separately, and estimates are combined to produce overall estimates of coefficients and standard errors. We use maximum likelihood estimation as implemented in the PROC MI procedure in SAS. For general information on multiple imputation, see Allison (2001) and Rubin (1987).

Our primary concern for imputation is missing values for household and individual income. We impute data for those with no responses and those who are classified as incomplete income reporters. Because individuals often report education, weeks worked, and hours worked even when they do not report individual incomes, we use these variables, husbands' and wives' ages, and total household expenditures to impute missing values for individual and household earnings, with separate imputations for households with only one parent. We then use imputed values to generate the share of earnings from the wife. To do so, we replace imputed values of income less than zero with zero. Rounding can lead to bias in parameter estimates (Allison 2001), but it is necessary in this case because we use men's and women's income to generate a measure of the share of earnings from wives, and negative values for income produce additional uncertainty in parameter estimates when creating a ratio.

Measures

Spending Measures

Spending is measured by self-reports of expenditures over the past three months. To increase the accuracy of responses, households are visited before their first interview and asked to keep records to help them respond to the survey at later visits. The relatively long reporting period of three months can downwardly bias estimates for irregularly occurring and small purchases. However, for the items that we consider, we expect that expenses will be large or regular enough to prevent substantial bias.

We examine three categories of spending: child care, education, and other miscellaneous goods and services for children. Child care includes both day care and babysitting. Educational expenses include room and board at school; tuition, fees, and books; private recreational lessons; and other educational expenses.[5] Finally, we include a category of miscellaneous goods and services for those goods: clothes and accessories for boys, girls, and infants; and toys, games, musical equipment, bicycles, tricycles, and camping equipment; and services and repairs for these goods. One weakness of this category is that the CES records spending on children's clothing only until age 15. After age 15, clothing intended for males is simply listed as male adult clothing, and a similar change of definition occurs with clothing for women.

[5] One important question about educational expenses is the extent to which children go to college versus the extent to which parents are willing to pay college expenses. Our data show only whether expenditure occurred, so we have no practical way of determining whether spending changes because of attendance or because of parental support given attendance. We suspect that both play a role in changing expenditures, but we are unable to differentiate the influence of each in this analysis.

Thus, spending on this category declines near age 16. Details of the CES codes and their components are included in Online Resource 1.

We use the Consumer Price Index Research Series (CPI-U-RS) to inflate expenditures to 2008 dollars (Sahr 2009).[6] To compare households with different numbers of children, we use a per-child measure because the goods and services we examine are largely indivisible. Another option would be to use equivalence scales, which take into account economies of scale that occur with goods such as housing, food, or transportation. Economies of scale do not exist or are smaller for the items we examine, so we measure spending per child.

Independent Variables

Income

The CES includes measures of earned and unearned income as well as income before and after taxes. We use measures of final income before taxes after 1980, and the closest comparable measure—total family income—for 1972–1973 data. Because these measures are total income, they include welfare benefits such as food stamps, which results in some equalization of income levels. However, relying on after-tax income rather than pretax income would likely result in greater equality because of progressivity in U.S. income taxes. We choose the pretax measure of income because we expect that reporting on this measure will be more reliable than after-tax income. As with spending variables, we use the CPI-U-RS to inflate income to 2008 dollars.

One caveat about income is important. To ensure confidentiality, the CES censored data near the top and bottom of the distribution for 1972–1973. Thus, estimates of incomes for that year are not exact but are a rough average taking censoring into account. However, only a small portion of households have censored outcomes: roughly 10 % of those in either the top or bottom decile in the 1972–1973 data have censored incomes. As we noted earlier, income is one of the most frequently missing variables, particularly when incomplete income reporters are treated as missing. However, because respondents often report a range of correlated variables, including total expenditure, which is highly correlated with income (with values of r near .6), we are comfortable using multiple imputation for missing income.

Wife's Share of Income

To gauge the effect of women's provision of income to the home, we measure the proportion of reported earned income from the wife. For single-parent households, we set the measure to 0 (zero) and introduce an additional set of controls for family structure to differentiate these households from male breadwinner households.

[6] The CPI-U-RS is a new series incorporating methodological improvements, such as the use of rental equivalence for homeowner costs and quality adjustments for prices (Stewart and Reed 1999).

Family Structure

We use three dichotomous variables to examine family structure, using two-parent households as the reference category: one for single-mother families, one for single-father families, and a final category for all other families. The last category includes, among others, households in which multiple generations reside in one household.

Wife's Work Status

Although wife's share of income partially controls for wife's employment, we introduce two dichotomous variables to control for wife's time in addition to her monetary contributions. These variables measure whether a wife is at work part-time or full-time, with the reference category being a household in which the wife reports no work.

Education

Because education may change parental incentives to spend on children, we also control for parents' educational level. For the 1972–1973 data, the head of the household is always listed as the husband; to maintain consistency, we use husband's educational level in the later data. For single-parent households, we simply use the education of the parent in the household. We include variables for completion of high school, attending some college, and a college degree or higher. We do not differentiate between the completion of college and advanced degrees because the latter category does not exist in the 1972–1973 data.

Children's Characteristics

We control for a number of characteristics of children. We include a measure of the age of the youngest child in the home to examine the link between children's age and spending. We also include a squared term to capture nonlinearities in this relationship. Because more children may mean resources that are stretched further, we include a measure for the total number of children ages 0 to 24 in the home. In supplementary analyses, described in Online Resource 2, we examine the effects of children's gender.

Results: Changes in Spending

We begin by presenting descriptive results to establish whether and how this form of parental investment has changed over the period we examine. Table 1 shows average household spending per child for all households with children ages 0 to 24 for each year, and the share spent on each category, as well as total household spending on all categories. Figure 1 shows per capita spending among households by the age of the youngest child in the household for three aggregate categories: child care; education; and a category of miscellaneous goods, which includes children's clothes, toys, games, musical equipment, and other goods. As an example of interpretation, Fig. 1 shows that for the early 1970s, households in which the youngest child was

Table 1 Average spending per child by year and percentage of expenditures in each area for all households with children age 0 to 24

	1972–1973		1983–1984		1994–1995		2006–2007	
	$	%	$	%	$	%	$	%
Children's Accessories	513	39	605	36	641	32	463	21
Education	621	47	743	44	937	46	1,189	54
Day Care	22	2	170	10	294	14	416	19
Babysitting	159	12	172	10	161	8	128	6
Child Care Total	179	14	343	20	455	22	544	25
Total Spending on Children	1,315	100	1,690	100	2,031	100	2,196	100
% Change From Previous Period			28.5		20.2		8.1	
Household Spending, All Goods	42,704		49,629		52,875		60,559	
% Change From Previous Period			16.2		6.5		14.5	
n	10,181		7,177		7,223		8,575	

age 12 spent on average $600 on education, a small amount on child care, and roughly an additional $700 on miscellaneous goods for children. Because we include households with more than one child, these results do not necessarily reflect spending on a child of each given age. Indeed, many households have older children, offering an explanation for educational expenditures among households with very young children.

Figure 1 and Table 1 show two important patterns. First, spending increased substantially from the early 1970s to the late 2000s, although much of the increase occurred between the early 1970s and mid-1990s, with increases after the 1990s at a slower rate. Not all components of spending increased at similar rates. Expenditures on children's toys, clothes, and games increased slightly from the early 1970s to the early 1980s, but the share spent on these goods declined after this period. Although some accounts of the commercialization of youth suggest that the advent of a consumer culture targeted to children in the 1980s led households to spend excessively on consumer goods (Schor 2004), our results do not support this perspective. Rather than consumer goods, parents increased spending on child care and education, presumably to attempt to invest in human capital. To place these figures in context,

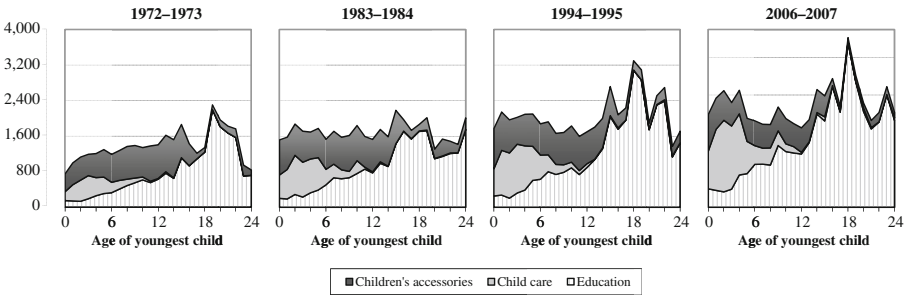

Fig. 1 Per child spending on education, child care, and children's toys, games, and clothes by year and age of youngest child in the household. Spending for all years is inflated to year 2008 dollars

we also show shifts in household spending among families with children over this time period. Household spending increased less rapidly than spending on children, with the exception of the shift from the mid-1990s to the late 2000s, implying that households were redirecting resources to children.

Second, the link between children's age and spending changed over time. In the early 1970s, concentrated spending occurred directly before age 16 and after age 18, and spending was lowest in households with very young children or those of college age. In the early 1980s, in contrast, spending was roughly constant across children's age, although spending declined after age 18. In the 1990s and 2000s, spending was highest for young children and for children over age 18, and lower for children ages 6–12. More than in the past, parents during the 1990s and 2000s spent earlier and extended their support for children into the later ages. Later in the article, we investigate whether this shift persists when we control for household characteristics.

Next, we ask how investment changed across the income distribution with increasing income inequality. In Table 2, we present total spending on children, total income, and the share of income spent on children for all households by income deciles. Because these measures do not capture differences in the needs of households related to household composition, we also present per-person and per-child equivalent estimates of income and spending in Table 3. We equivalize income by dividing by the square root of household size, an equivalence scale used in recent OECD research (OECD 2009), and equivalize spending on children by dividing by the number of children in a household because there are presumably few economies of scale for spending on these goods. Figure 2 illustrates results from both tables.[7]

Spending on children grew more unequal over time as income inequality grew. High-income households in the 2000s spent more relative to both those with high-income in the past and the contemporary poor, and some of this growth can be traced directly to increases in income, as incomes rose rapidly. However, the fact that the proportion of income spent increased across the entire income distribution means that increases did not result exclusively from increased income. Instead, increasing proportions of income spent suggest that parents feel greater pressure to invest regardless of their income, leading households in later periods to spend greater shares of their income. Interestingly, there is a break from the overall trend of increasing shares of income spent on children during the 2000s because for nearly all deciles, the share of income spent was lower than in the 1990s. Part of this reduction is attributable to increasing income. Yet, for the first time, some parents spent less in real dollars than in the previous period. Parents in the bottom half of the income distribution spent less in the late 2000s than in the mid-1990s. Thus, the transition from the 1990s to the 2000s marked a distinct break with the trend of increasing spending, although spending *inequality* continued increasing. Whether this marks the formation of a new pattern of spending is unclear, but it is worth pursuing in future research.

At the bottom of the income distribution, the share of income spent on children was quite high and increased over time. Among households in the bottom decile, the

[7] For figures using household equivalized income, decile cut points also use equivalized income.

Table 2 Total spending on children, income, and spending as a percentage of income, by income decile

	Income Decile	1972–1973	1983–1984	1994–1995	2006–2007
Total Spending on Children					
	1	1,126	1,522	1,429	1,318
	2	1,495	1,378	1,558	1,516
	3	1,763	1,623	2,010	1,813
	4	1,953	2,021	2,277	1,878
	5	2,230	2,524	2,527	2,217
	6	2,468	2,481	2,851	3,081
	7	3,001	2,870	3,192	3,355
	8	3,337	3,452	3,991	4,585
	9	4,115	4,007	5,139	5,857
	10	6,246	6,276	8,389	11,013
Income (in 1,000s)					
	1	12.9	7.6	7.9	8.6
	2	25.6	16.8	17.8	21.2
	3	36.1	25.0	26.8	30.8
	4	45.0	33.3	36.3	40.6
	5	53.1	42.1	45.6	52.0
	6	61.1	50.9	55.8	64.2
	7	70.0	60.9	67.7	78.1
	8	80.9	73.5	81.7	96.6
	9	96.2	91.6	101.8	125.3
	10	135.4	139.2	155.5	228.5
Spending as a % of Income					
	1	8.72	24.24	21.33	19.26
	2	5.83	8.76	8.83	7.16
	3	4.89	6.19	7.20	6.32
	4	4.34	5.83	6.35	4.81
	5	4.20	6.45	5.40	4.58
	6	4.04	4.84	5.74	5.25
	7	4.29	4.68	4.96	4.67
	8	4.13	4.70	4.82	5.18
	9	4.28	4.31	5.31	4.91
	10	4.61	4.47	5.48	5.33

Note: Dollar figures adjusted to year 2008 dollars using the CPI-U-RS.

share of income spent on children more than doubled, although this is partially attributable to changes in the treatment of income between the 1972–1973 data and later data.[8] However, an increase in spending is also present in the second and third

[8] For the lowest income decile, some of the decline in income is due to the BLS practice of bottom-coding income in the CES data in 1972–1973, which was abandoned at later time points. Roughly 5 % of cases had their income recoded to protect confidentiality, inflating incomes slightly.

Table 3 Spending per child, one-person equivalent household income, and spending as a percentage of equivalized income, by equivalized income decile

	Income Decile	1972–1973	1983–1984	1994–1995	2006–2007
Spending per Child					
	1	607	961	779	750
	2	701	737	850	900
	3	845	1,049	1,204	1,117
	4	952	1,029	1,306	1,087
	5	1,143	1,493	1,548	1,421
	6	1,195	1,553	1,651	1,809
	7	1,342	1,702	1,947	2,003
	8	1,611	2,026	2,297	2,616
	9	1,933	2,597	3,192	3,701
	10	2,832	3,759	5,551	6,573
Income (in 1,000s)					
	1	7.7	4.1	4.3	4.6
	2	14.1	8.8	9.4	11.0
	3	19.3	13.1	14.2	16.1
	4	23.5	17.4	19.0	21.4
	5	27.4	21.8	23.9	27.1
	6	31.3	26.4	29.1	33.3
	7	35.7	31.4	35.0	40.3
	8	41.6	37.8	42.3	49.6
	9	49.7	47.0	52.7	64.4
	10	69.3	71.7	80.5	117.4
Spending as a % of Income					
	1	7.9	23.4	18.1	16.3
	2	5.0	8.3	9.0	8.2
	3	4.4	8.0	8.5	6.9
	4	4.1	5.9	6.9	5.1
	5	4.2	6.8	6.5	5.2
	6	3.8	5.9	5.7	5.4
	7	3.8	5.4	5.6	5.0
	8	3.9	5.4	5.4	5.3
	9	3.9	5.5	6.1	5.8
	10	4.1	5.2	6.9	5.6

Note: Dollar figures adjusted to year 2008 dollars using the CPI-U-RS.

deciles, suggesting a pattern not purely attributable to changes in data coding. For those in the second decile of earners, spending increased by roughly 50 % from 5.8 % of income to 8.8 % of income, although this declined to 7.2 % by the late 2000s; for those in the third decile, spending similarly increased from 4.9 % to 7.2 %, with this figure also declining by the mid-2000s.

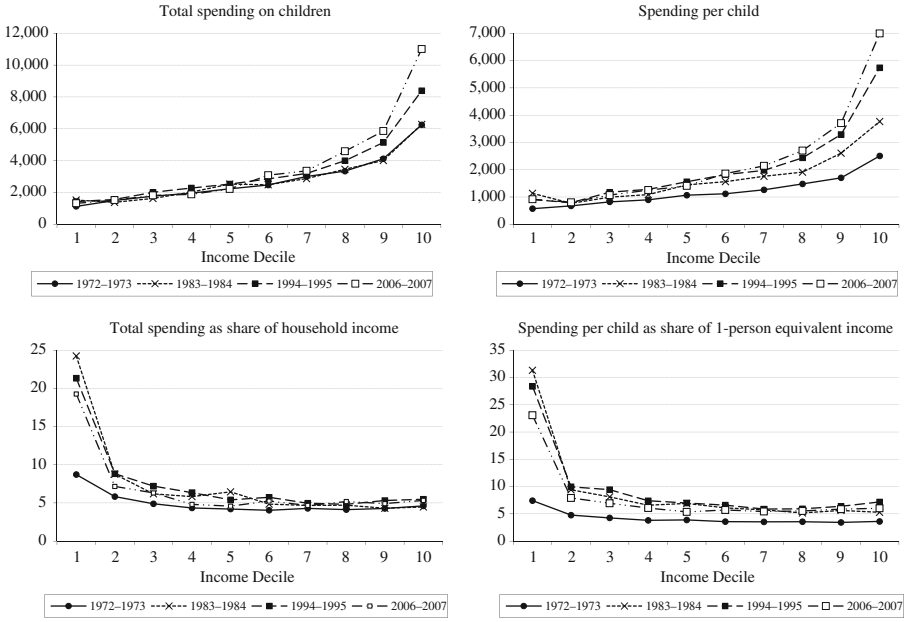

Fig. 2 Total spending on children by income decile by year

The apparent cause of this increase is declining income over time, perhaps because of higher numbers of single-parent households.[9] Households spent similarly over time, but investment composed a larger share of their income as income declined. Parents at all points in the income distribution spent more, but households near the bottom of the income distribution felt a greater burden as more of their income went to children. These results become even stronger when we consider spending per child as a share of one-person equivalized income. The presence of high shares of income devoted to spending on children suggests a "floor" for spending: parents do not lower spending on children to devote income to other purchases, even under conditions of relative hardship.

Parental Investment by Gender of Child

To capture the effect of children's gender on spending, we compare households with only male children to those with only female children. Table 4 shows changes in the influence of children's gender on spending. In the early 1970s, parents in households with only male children spent significantly more than parents in households with only female children, with a gap of roughly $200 in spending. Nearly all additional spending occurred because parents with only male children spent more on education. In the 1980s and 1990s, overall spending equalized, although there were still differences in the target of parental expenditures. In the early 1980s, households with only

[9] Average household income declined in these data after 1972–1973 and did not rebound even by the early 1990s. Although we are concerned that differences in coding and reporting of income lead to this result, children experienced increases in poverty over the course of the 1980s and 1990s (Levy 1998), consistent with declining incomes among households with children.

Table 4 Comparison of spending in households with only female and only male children age 0 to 24

	1972–1973		1983–1984		1994–1995		2006–2007	
	All Male Children	All Female Children	All Male Children	All Female Children	All Male Children	All Female Children	All Male Children	All Female Children
Children's Accessories	531.8	526.1	637.4	694.3*	691.6	704.0	458.5	540.8***
Day Care	30.2	22.9	210.4	208.5	317.9	395.5*	440	510.9
Babysitting	201.4	194.3	211.4	216.7	179.7	184.8	107.5	166.4*
Education	896.1	636.6***	834.6	889.2	1,141.0	1,088.6	1,239.6	1,557.1*
Total	1,659.5	1,379.8***	1,893.7	2,008.7	2,330.2	2,373.0	2,245.5	2,775.1***
n	2,313	3,024	2,257	2,005	2,270	2,057	2,739	2,532

Notes: Totals may not equal sum of components due to rounding. All spending figures are in adjusted (2000) dollars.

*$p < .05$; ***$p < .001$ (two-tailed *t* tests for differences in means, performed with assumption of unequal variances)

female children spent significantly more on children's accessories; in the 1990s, households with only female children spent significantly more on day care.

By the 2000s, however, these data show a reversal: households with only female children spent more than households with only male children. Indeed, there were significant differences in spending on goods, education, and babysitting, and the overall difference was significant. To check whether differences in spending were caused by differences on other characteristics related to spending, such as household income or education, we used regression analyses (presented in Online Resource 2), which confirm that other household characteristics cannot account for these differences.

As we expected, our results show that parents spent more on male children in the early 1970s. We also find equalization in the pattern of parental investment in the 1980s and 1990s. An unexpected result, however, is that in the 2000s, households with only female children spent more than those with only male children. Whether this pattern will persist remains uncertain, but it merits further investigation.

Multivariate Results

Finally, we use regression analysis to examine how shifts in overall spending are linked to household and child characteristics. We present results using spending per child, pooling the four years into a single analysis to enable tests for differences in coefficients across years. Means and standard deviations for variables in the regression analysis are in Table 5, and coefficients are in Table 6. Coefficients and levels of significance for 1972–1973 are for that year; for other years, coefficients and levels of significance are for differences between those years and the earlier time period. We also list within-period significances in the right-most columns.

Table 5 Means and standard deviations of variables used in regression analysis

Variable	1972–1973		1983–1984		1994–1995		2006–2007	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total Spending per Child	1,315.12	2,072.68	1,690.35	2,634.79	2,031.82	3,504.94	2,196.74	4,838.34
Age of Youngest Child	9.34	7.16	9.19	7.17	8.87	6.98	9.14	6.91
Household Income in 1,000s of Dollars	61.63	34.92	52.70	39.49	57.01	44.13	66.42	68.41
Proportion of Earnings From Wife	.13	.21	.31	.37	.37	.39	.40	.39
Wife Works Part-Time	.31	.46	.29	.45	.26	.44	.23	.42
Wife Works Full-Time	.14	.35	.11	.32	.17	.37	.18	.38
High School Graduate	.35	.48	.34	.47	.35	.47	.27	.44
Some College	.14	.35	.20	.40	.24	.42	.29	.45
College Degree	.16	.37	.23	.42	.24	.42	.27	.44
Single Mother	.12	.32	.12	.32	.14	.34	.13	.33
Single Father	.01	.12	.01	.10	.02	.13	.02	.14
Other Families	.01	.11	.15	.34	.18	.38	.19	.39
Only Girls	.30	.46	.29	.45	.29	.45	.30	.46
Mixed Gender	.49	.50	.40	.49	.40	.49	.39	.49
One Child	.31	.46	.16	.37	.16	.36	.16	.37
Two Children	.31	.46	.39	.49	.38	.49	.38	.49
Three Children	.20	.40	.35	.48	.37	.48	.37	.48

Note: Numbers may not match others listed perfectly because of multiple imputation for missing data.

These regressions show stability in many determinants of spending over time. There were gradual changes, however, and the late 2000s in particular departed from earlier patterns. We begin by discussing children's characteristics and then move to parental and household characteristics. One shift occurs in the pattern of parental spending by the age of the youngest child in the home. In the early 1970s, the positive and significant coefficient for the age of the youngest child and the negative coefficient for age squared suggest that, controlling for other household characteristics, spending was low when children were quite young and again when they were older, with the highest spending when children were in their teenage years. This relationship reversed over time, as shown by the negative coefficients for the age of youngest child and the positive coefficients for age squared (significantly different in the 1990s and 2000s). Thus, in recent times, spending grew over the course of a child's life, including when they presumably left their parents' homes.

There is also variability in the intensity of parental investment by the number of children present. Parents with fewer children invest substantially more per child

Table 6 Regression results, pooled analysis using imputed data (R^2=.19)

Variable	1972–1973	1983–1984	1994–1995	2006–2007	Period Significance 83	94	06
Intercept	−1,735.7***	−368.2	−1,056.4	2,688.9***	***	***	*
Age of Youngest Child	67.5***	−43.2	−88.2***	−145.9***			**
Age of Youngest Child, Squared	−3.6***	1.5	3.0**	6.2***	**		*
Household Income in 1,000s of Dollars	25.1***	1.1	12.2*	−12.3*	***	***	***
Proportion of Earnings from Wife	407.9***	−40.1	−177.8	−222.8	***	*	
Wife Works Part-Time	−7.2	338.6**	190.7	519.8***	***		***
Wife Works Full-Time	141.4	308.7	244.7	211.5	***	**	*
Parental Education (ref. = no high school diploma)							
High school graduate	124.9**	162.4	145.8	85.0	***	*	
Some college	307.0***	356.9*	363.0*	388.4**	***	***	***
College degree	805.3***	798.6***	743.6***	931.3***	***	***	***
Family Structure (ref. = two-parent family)							
Single mother	521.7***	−559.0**	−481.3**	−379.3*			
Single father	240.0*	−78.5	−58.9	−320.8			
Other families	−97.4	−196.5	−254.1	−334.6	**	**	**
Gender of Children (ref. = boys only)							
Only girls	−120.1*	170.6	193.1	562.0***			***
Mixed gender	−51.3	47.3	193.9	272.0			
Number of Children (ref. = four or more)							
One	1,017.9***	318.4	863.1***	773.3***	***	***	***
Two	498.4**	62.5	297.0	348.2*	***	***	***
Three	230.0	−23.7	27.0	−43.5			
Earnings Decile (ref. = top decile)							
1	1,013.6***	839.3	1,212.4	−1,873.8**	***	***	*
2	942.1***	536.5	991.1	−2,461.6***	***	***	***
3	838.4***	347.7	809.9	−2,457.5***	***	***	***
4	715.1***	368.2	769.1	−2,286.3***	***	***	***
5	616.9***	603.6	475.2	−2,563.5***	***	**	***
6	438.8**	265.9	522.0	−2,055.3***	**	**	***
7	436.4**	172.3	153.3	−2,173.3***	**		***
8	295.9*	281.3	−5.9	−2,040.8***	**		***
9	285.4**	−101.8	−86.1	−1,637.4***			***

Notes: Significance levels for 1972–1973 are for the hypothesis that the coefficient is equal to zero while tests for other years are tests of whether the coefficient is significantly different than the coefficient for 1972–1973. Within-period significance levels are listed in the right 3 columns.

*p < .05; **p < .01; ***p < .001 (two-tailed t tests)

relative to those with more children. In the early 1970s, parents with only one child present spent roughly $1,000 more per child than did parents with four or more

children present in the home, a gap that grew greater over time. It is unlikely that increasing gaps in spending between those with few children and those with more children are driven by changes in economies of scale because the goods we examine have few economies of scale. Thus, it is likely that this pattern is driven by an increasingly sharp trade-off parents make between quantity and quality. Finally, these results show that the shift in spending related to children's gender remains even in a multivariate framework. In the early 1970s, parents with only boys spent significantly more than parents with only girls; this equalized throughout the 1980s and 1990s; and in the late 2000s, parents with only girls spent significantly more than parents with only boys.

Turning to family characteristics, the link between parental education and spending changed substantially. In the early 1970s, households in which parents had attended some college or held a college degree spent significantly more—about $800 more—than households in which the parents had no high school diploma. Additionally, the size of this difference increased significantly over time: in the early 1980s, households in which parents had a college degree are estimated to have spent roughly $1,700 dollars more than households in which the parents had no high school diploma (805.3 + 931.3 = 1,736.6). Parents with only some college also increased spending over time. The links between family structure and spending are less consistent. Both single-mother and single-father families reported higher expenditures in the early 1970s than did two-parent families, but this difference disappeared over time. However, within each time period, "other families" spent significantly less than two-parent families.

The effects of wives' labor force participation and earnings also vary over time. In the earliest period, wives' earnings were associated with increased spending on children. However, this coefficient becomes smaller over time, and is no longer significant for the 2000s. This may reflect greater gender ambivalence among parents as well, with both mothers and fathers spending their financial resources on children. However, this interpretation is contradicted by the effect of wives' work status because wives' work outside the home generally increases spending, albeit only in later periods, as shown by significant within-period coefficients.

Finally, we turn to the link between income and spending. Because we are interested in understanding changes in spending across the income distribution net of income changes, we include a measure of households' income in constant dollars and dummy variables capturing households' income decile, with the top decile as the reference category. The effect of income on spending is positive and significant, although it is somewhat higher in the 1990s and lower in the 2000s. The dichotomous variables capturing a households' position in lower income deciles are significant and positive in the early 1970s, indicating that households in these deciles spent more than would be predicted on the basis of their other characteristics, compared with those at the top of the income distribution. The fact that households near the bottom spent more than their income would predict provides support for the idea of a floor for spending below which parents will not spend. There are no significant differences until the late 2000s, when coefficients are negative, significant, and substantively large. Thus, spending among those in the lower earnings deciles is substantially behind that among the rich, and this difference cannot be explained by income. In other words, in the most recent time period, those at the top of the income distribution

increased spending beyond what would be predicted from the relationship between spending and income.

Conclusion

Using data from the CES, we examine changes in spending on children to capture trends in parental investment from 1972 to 2007. Rather than considering the "cost" of raising children, we focus on expenditures intended for children, which approximate parents' monetary investment in their children and presumably account for some substantial portion of the advantages that wealthier parents are able to confer on their children. To our knowledge, this is the first long-term study tracking parents' monetary investments. Understanding changes in investments over this time period is important because it may foreshadow persistent inequalities.

Our findings show, first and foremost, that parents are investing more heavily in their children now than in the past. While scholars debate exactly which resources matter most for children's development (Duncan and Magnuson 2005; Duncan et al. 2001; Mayer 1997), parents are demonstrating a substantial willingness to spend in order to better their children's circumstances. These results mirror other shifts in parental behavior: parents are having fewer children and, through a range of activities like spending time with their children and choosing activities that impart cultural capital, are investing more intensively in the children they do have.

Our findings also show that investment grew more unequal over the study period: parents near the top of the income distribution spent more in real dollars near the end of the 2000s than in the early 1970s, and the gap in spending between rich and poor grew. Some growth in inequality is attributable to higher incomes at the top of the income distribution. Still, both rich and poor spent greater shares of their income on children over time, suggesting that increasing investment and inequality of investment is not purely a result of changes in available income. Instead, increased parental investment may reflect growing pressures to invest in children. Ehrenreich (1989) suggested that worries about "falling" from the middle and upper classes have increased over time, as the risks of falling have increased along with income inequality. Middle- and upper-class parents may feel the most pressure to spend to ensure their children's futures, and this seems to be reflected in their expenditures.

Parents also shifted from heavier investment in boys to heavier investment in girls. Parents in households with only female children spent less than parents in households with only male children in the early 1970s, but spending in the 1980s and 1990s had equalized. This pattern suggests weakened gender preferences of parents, with parents valuing girls and boys equally. However, by the late 2000s, parents of girls appeared to spend more than parents of boys. Although research shows gender convergence in a variety of areas, relatively little research shows a preference for girls. This difference may be driven by events outside the home, in that women now out-enroll men in higher education, and parents assist with these payments. Still, because parents spend more on other goods when they report having only girls in the home, we are curious about the extent to which parental preferences have shifted and whether parents invest more heavily in girls in other areas as well.

These results match recent evidence about childhood achievement. Our finding that the gap in parental investment between the top and bottom of the income distribution matches recent findings (Reardon 2011) that the gap in test scores between children of parents at the 90th percentile of the income distribution and those at the 10th percentile has grown over time. Similarly, long-standing gaps between boys' and girls' performances on standardized math tests have eroded to parity over time (Hyde et al. 2008). Although there is no evidence to suggest that spending alone can account for these shifts, monetary investment should be related to achievement and, if nothing else, serves as a reflection of parents' level of motivation to invest in their children.

Finally, we find that the shape of parental investment over the course of children's lives has changed as well. Prior to the 1990s, parents appeared to invest most in children in their teen years. In the late 1990s and the 2000s, however, spending was greatest when children were quite young and when they were in their mid-20s. These results provide an important characterization of parents' monetary investment to complement existing research documenting parents' time with children.

Still, a number of unanswered questions deserve further scrutiny. First, in this article, we rely on pretax income rather than after-tax income in expectation that it was the most reliable measure and most consistent over time. Yet, taxes would lead to some equalization of the income distribution and would mean that the reported share of income spent on children would be higher among the rich than reported here. Local taxes may also be an interesting and important source of variation; because many of these taxes are dedicated to education, they can provide another measure of the extent of investment in children.

A second area deserving further investigation is the shift that occurs in the most recent time period. Unlike earlier periods, parental expenditures in at least some portions of the income distribution declined for the first time between the 1990s and the late 2000s. One possible explanation for this decline is simply that parents reduced their investments because they perceived them, for whatever reason, to be ineffective. However, another explanation could be that the years observed—2006 and 2007—were exceptional because they took place during a speculative boom in housing, leading households to extend themselves to purchase housing. Observing subsequent years might show whether these years were aberrations or represented a shift in the trajectory of parental investment.

Parents invest in their children's outcomes in many ways. This article tracks one measure of parents' contributions to their children—namely, their monetary investments—over time and finds that in the race to the top, higher-income children are at an ever greater advantage because their parents can and do spend more on child care, preschool, and the growing costs of postsecondary education. The costs borne by the family impose a growing burden on low- and moderate-income families, whose incomes have stagnated over the past several decades. It seems evident that unless constraints on less-advantaged households are reduced, the children of low- and moderate-income families will continue to lose ground. Thus, contemporary increases in inequality may lead to even greater increases in inequality in the future as advantage and disadvantage are passed across the generations through investment.

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