Looking for status appeal? Act interested in your child's education

Salvador Contreras
Department of Economics and Finance, University of Texas Rio Grande Valley, Edinburg, Texas, USA

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Abstract

Purpose – The purpose of this paper is to study how positional concerns influence a parent's time investment decisions of her/his child.
Design/methodology/approach – The author presents a theoretical and empirical analysis of household positional and non-positional time investment choices in the education of her/his child.
Findings – The author shows that a parent who is mindful of her/his relative position in the income distribution will use her/his time investment choices to influence her/his perceived status. The theoretical model predicts that visible time investment increases as members of her/his reference group move up in rank. The author shows that moving down in rank lowers utility. The author employs National Education Longitudinal Studies (1988) data set to test the model prediction and shows that visible time invested in child's education is explained by place on the income distribution.
Originality/value – The author extends the positional literature to account for parent time investment in her/his child's education. The work suggests that time investment in one's child's education is based on more than altruistic preferences and resources. It leaves open the possibility that perceived social standing influences a household's time investment in their child's education. From a policy perspective, the findings provide a new way to think about drivers of parental involvement.

Keywords Human capital, Education, Positional strategies
Paper type Research paper

> So your absolute achievement – not merely your relative success – may depend on your relative position in some other space (Sen, 1983).

1. Introduction

Adam Smith is often cited in the economics literature as one of the first to give importance to the idea of relative consumption. However, Thorstein Bunde Veblen was the first to formalize the notion of status consumption. Subsequent research over the last century has found that individual's consumption of luxury (status) goods largely serve a signaling function (Heffetz, 2011). In general, one's career choice (i.e. lawyer, dentist, etc.), job position (i.e. manager, assistant director, etc.), office location (i.e. corner office, 18th floor, etc.) gives some general information of a person's income. Because this information is not always available to others, individuals resort to status (positional) goods to correct information asymmetries (i.e. size of home, car make, etc.).

This paper is a study of how positional concerns influence a parent's time investment decisions of her/his child. The work by Heffetz (2011) and Solnick *et al.* (2007) have shown that a person's education and his/her child's education behave like a status good. However, to our knowledge visible investment in own child's education (which affects educational attainment) status, good properties have not been fully explored. For the most part parent investment in own child's education has been thought to be a function of altruistic preferences (see e.g. Contreras, 2011). There are broad range policy implications from having a parent use her/his time investment in her/his child's education as a status good.

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For example, school outreach programs to attract greater parental involvement may face resistance from more pressing societal standing.

We construct a theoretical model that posits a household with status and altruistic preferences. The model predicts that a household with preferences over goods that serve a dual purpose (signal and function) allocate disproportionally a higher share of its endowment on the status good *vis-à-vis* status only consumption or altruistic only consumption. We find that the effect of rank on household allocation choices is more pronounced (more elastic) close to the top of the resource distribution. Further, we find that in societies where distinguishing from others is difficult (more equal), the returns to status good consumption are large. This latter result is consistent with the work of Hopkins and Kornienko (2004) who employ a game theoretic model to show that more equal societies will have greater incentives to differentiate oneself by consuming more of the status good. The literature shows that higher shares of total expenditures will go to the positional good as the incomes of the reference group rise and cause measures of well-being to fall (Luttmer, 2005). Finally, our theoretical model predicts that the poor end up worse off (total utility).

We use data from the National Education Longitudinal Study (1988) to test the predictions of the model and show that parent time investment in her/his child's education are driven by status concerns. We follow the work by Charles *et al.* (2009) and construct reference groups by racial classifications within the state. We find strong evidence that households use visible time investment in their child's education as a status good. Further, we observe that income has a stronger effect (in magnitude) than rank. This is important because educational investment affects status and the educational attainment of the child. We expect the income effect to be large because of the level and altruistic effects. Controlling for income, we find that rank lowers consumption of the status good. That is, as the income of the reference group falls the household lowers its visible time investment in the child's education. These results are similar to that alluded to by Frank (1985b) who states that as one moves up in the income distribution, the share of income devoted to (visible) consumption falls *vis-à-vis* the (non-visible) savings rate.

The paper is organized as follows. The next section provides a brief overview of the literature. Section 2 introduces a simple model and derives a set of testable predictions. Section 3 sets up the estimating equations and presents the data. Section 4 produces the estimating results. Finally, in Section 5, we provide concluding remarks.

1.1 Status good review

> I was never one for keeping up with the Joneses, but it's pretty embarrassing to have the worst house on the block […] Gloria Naylor (Linden Hills, p. 51).

The work by Frank (1985a, b) has rekindled intense interest in the mechanics of how social interaction, in particular, relative social standing influences consumer behavior. The theory offers clear predictions of human behavior when it comes to positional and non-positional consumption. The theory calls for income rank to influence the degree of positionality (broadly defined as the proportion of total expenditures devoted to the status good). The theory states that poorer households will allocate a higher share of their incomes to positional goods. As an example, Frank (1985b) presents evidence that savings rates (a non-positional good) are lower in poorer households.

The work in the area of positional goods is now extensive. The research covers a wide array of areas in theoretical applications by Eaton and Eswaran (2009), Hopkins and Kornienko (2004), Glazer and Konrad (1996), and Cole *et al.* (1995). Applied work by Carlsson *et al.* (2007), Solnick and Hemenway (2005), and Alpizar *et al.* (2005) have established that people give great importance to their relative standing in society[1]. In particular, they find

that visible goods like cars, jewelry, housing, etc. are more positional than non-visible goods (Charles *et al.*, 2009; Gasana, 2009).

The positional literature however needs to be looked at in context. Some goods, like Rolex watches, philanthropy, etc. are not accessible by a large share of the population. Veblen states that "the possession of wealth confers honour; it is an invidious distinction." Glazer and Konrad's (1996) work shows that charitable donations (like gifts to a university) are positional and that they crowd out gifts from less wealthy individuals. That is, markets where exclusivity is well defined confer upon its participant's exclusivity. In exclusive markets, the literature shows that moving up in the income distribution causes demand for status goods to rise. The rationale is that as one moves up in income there is a desire to signal this fact to others via status goods (Glazer and Konrad, 1996). Exclusive status goods markets by definition are not open to the general population and therefore produce results that are opposite to those presented in this paper.

While rarefied markets offer strong signals of wealth, so do other (blemished) visible consumption goods. Work by Heffetz (2011) shows that the share of income devoted to a large number of goods can be explained by its visibility index. For example, he finds that income shares on goods like food at home are decreasing with income while eating out is increasing. His work shows that there are a multitude of status goods that derive its positional value by its degree of visibility (to others). This leaves open the ability to compete (as it were) in the status market of noisier goods. While a rich person may pay for a posh summer camp for her/his child, the less fortunate can participate in the education market by sending her/his child to a public sponsored summer camp in her/his local reference group. Therefore the less fortunate can still differentiate himself in the status good market.

The literature has established that individual's behavior respond to local status markets. That is, individuals are concerned with the consumption behavior of their social group. Luttmer (2005) shows that measures of well-being are declining in the earnings of his neighbors. Similarly, Kuhn *et al.* (2011) show that the demand for status goods by non-lottery winners is affected (positively) by the unlikely event that her/his neighbor wins the lottery. In this paper, we use a proxy measure of visible and non-visible time investment in child education. By most accounts parental time is not (in the modern world) a resource exclusive to the wealthy. That is, time investment does not offer exclusivity in some global sense. Rather, time investment is for the benefit of the local status market. We show that as one moves up in rank there is less demand for (differentiating) visible time investment in one's child education.

The implications of this research are important as it shows both theoretically (Eaton and Eswaran, 2009) and empirically (Luttmer, 2005) that lifetime utility (happiness) is influenced by both absolute and relative incomes. Eaton and Eswaran (2009) shows that status seeking preferences produce resource misallocations. That is, overconsumption of status goods reduce consumption of the non-status good from which utility is also drawn[2]. In practical terms, this means that the household over consumes in the present and under invests for future consumption (Bowles and Park, 2005; Kosicki, 1987; Frank, 1985a).

2. Motivation model

In this section, we introduce a household decision model. Due to data constraints our empirical exercise will measure positional and non-positional with a proxy measure of time investment. To keep the theoretical model consistent with our empirical model, we evaluate a household that faces time allocation choices. For simplicity, we assume that the representative agent is born with a finite endowment, $e_{i,j} > 0$. Further, we measure the endowment of household i, a member of reference group j in time consumption units $\psi e_{i,j} > 0$. Let $\psi > 0$ be a constant that scales the endowment into time units. The endowment is used to satisfy personal consumption $c_{i,j}$ and child's time educational investments $x_{i,j} + y_{i,j}$.

The consumption equation is as follows:

$$c_{i,j} = \psi e_{i,j} - x_{i,j} - y_{i,j} \tag{1}$$

the above equation is measured in time endowment units. Where x is the endowment time devoted to positional (visible) investment in child education, and y is the endowment time devoted to non-positional (not visible) investment in child education. The parent choice of x and y determine the child's acquired level of education. Let the human capital function be defined by:

$$h_{i,j} = x_{i,j}^{a} y_{i,j}^{1-a} \tag{2}$$

where $h_{i,j}$ is the educational attainment level of child of household i in reference group j. Further, $0 < a < 1$. In addition, household i cares about her/his perceived relative standing in her/his reference group. Consistent with the positional literature (Frank, 1985a; Hopkins and Kornienko, 2004) it is assumed that individual i is concerned with her place (status) in the social distribution in reference group j. Let, household i's rank (status) in reference group j is given by:

$$v_{i,j} = \frac{x_{i,j}}{x_{i,j} + S_j} \tag{3}$$

where $v_{i,j}$ is i's rank in group j. Let S_j be the sum of visible time allocations of $-i$ in reference group j. This set up is consistent with theoretical relationship expressed in most of the positional literature (Hopkins and Kornienko, 2004; Kuziemko *et al.*, 2014). The construction of (3) is most related to the treatment by Fershtman *et al.* (1996). Equation (3) states that rank is an increasing function of her/his positional time investment and decreasing in the sum total visible time allocations by members of her reference group. Household i's utility (objective) function is given by:

$$u_{i,j} = \beta_1 ln(c_{i,j}) + \beta_2 ln(v_{i,j}) + \beta_3 ln(h_{i,j}) \tag{4}$$

where β's $\gg 0$ are discount parameters and $\beta_1 + \beta_2 + \beta_3 = 1$. β_2 measures the marginal degree of positionality[3]. And β_3 is a measure of altruism. The literature generally has the positional good enter the utility function through its effect on rank. Here, we add the status good to education production. This set up is useful in that it allows us to see how status seeking may affect educational attainment when there is over investment in a good with diminishing marginal returns.

The objective of parent i is to maximize Equation (4) subject to Equations (3), (2), and (1).

2.1 Educational investment allocations

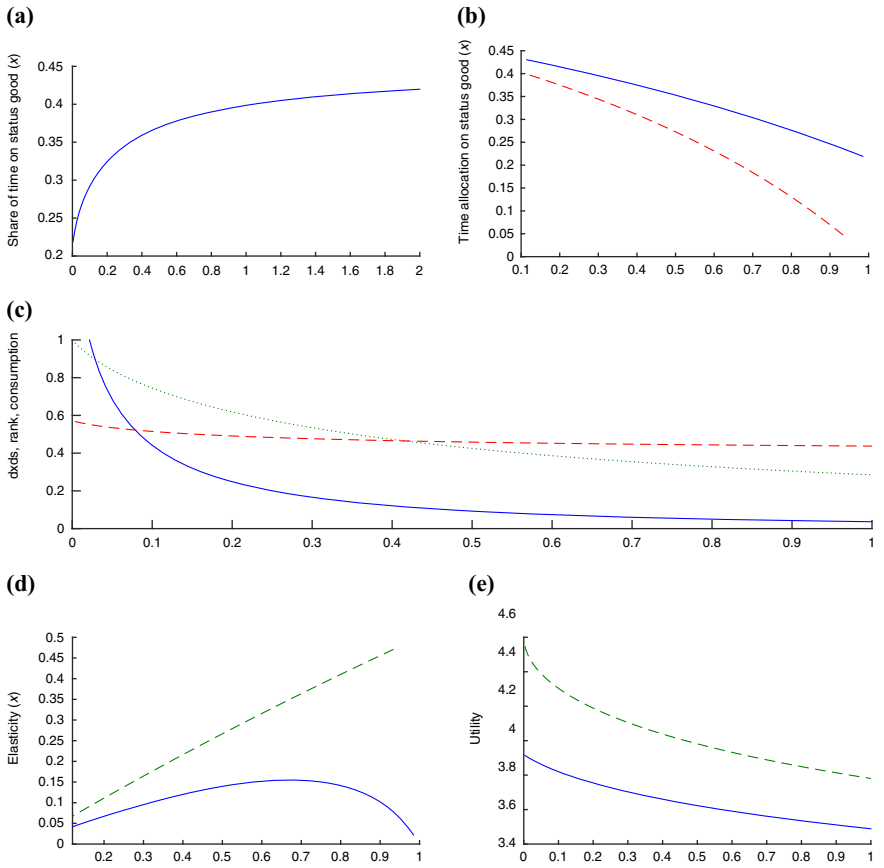
For exposition purposes, we drop subscripts unless otherwise warranted to avoid confusion. The optimal allocation of visible x and non-visible y time to child's education investment is given by:

$$x^* = \frac{-S + \psi e\beta_3 a + \left((S - \psi e\beta_3 a)^2 + 4(\beta_1 + \beta_3)\psi eS(\beta_2 + \beta_3 a)\right)^{1/2}}{2(\beta_1 + \beta_3)} \tag{5}$$

$$y^* = B\left(\psi e + \frac{S - \psi ea - \left((S - \psi e\beta_3 a)^2 + 4(\beta_1 + \beta_3)\psi eS(\beta_2 + \beta_3 a)\right)^{1/2}}{2(\beta_1 + \beta_3)}\right). \tag{6}$$

where $B = \beta_3(1-a)/(\beta_1 + \beta_3(1-a))$. The optimal allocation to visible time investment x and non-visible investment y are clearly increasing in endowment e. As expected, when $S = 0$ i's time allocation on visible investment is equal to the share of endowment allocated to altruism weighted by its share in the education production ($x|_{S=0} = \psi e \beta_3 a/(\beta_1 + \beta_3)$). That is, when household rank is equal to one ($v = 1$) parent i allocates a constant share of its time endowment on the positional (visible) good. For exposition, we present the implications of the model in Figure 1.

Figure 1(a) maps the optimal allocation of visible time investment (Equation (5)) as a function of reference group visible time allocations S. In Figure 1(c), solid line maps the slope of Equation (5) as a function of S. In Figure 1(c), solid line ($\partial x/\partial S$) shows that the marginal effect of status expenditures are large when rank falls from $v = 1$ and gets progressively smaller as rank approaches zero. The prediction is that parent i is more



Notes: (a) Reference group, sum of visible time (S) maps Equation 5; (b) Rank (v) is the rank-visible time allocation curve (solid line baseline model, dash line $\beta_3 = 0$); (c) Reference group, sum of visible time (S) solid line is slope of Equation 5 (dx/ds), dotted line is i's rank, and dash line is consumption (c); (d) Rank (v), elasticity of x (solid line baseline model, dash line $\beta_3 = 0$); (e) Reference group, sum of visible time (S) is the utility curve (solid line baseline model, dash line $\beta_3 = 0$)

Figure 1. The simulated model assumes parameter values ($\beta_1 = 0.4$, $\beta_2 = 0.3$, $a = 0.5$, $e = 100$, $\psi = 0.01$)

responsive to changes in rank the closer she/he is to 1. This is evident in Figure 1(a). For illustration we map out rank (v) as the green dotted line shown on Figure 1(c).

Figure 1(d) plots the elasticity of x ($\varepsilon_x = (\partial x/\partial S)S/x$). The solid line in Figure 1(d) clearly shows that x is more responsive at the upper end of the rank distribution. In particular, around $v = 0.7$ level. For example, at $v = 0.7$ a 10 percent increase in $-i$'s visible time investment leads i to increase her/his share of visible time by 1.5 percent. The effects are lower at $v = 0.8$ or $v = 0.6$. The actual magnitude of the effect is subject to parameter assumptions. The model produces a solution that suggests that individual's responsiveness to changing in rank is more pronounced not at the top ($v = 1$) but rather from those who are at a short distance from the top. The effect consents with Hopkins and Kornienko (2004).

For comparison, we change the parameters of the model to assume no altruistic preferences ($\beta_3 = 0$). The dashed line on Figure 1(d) assumes no altruism. Notice that under this assumption the elasticity is highest at $v = 1$. This also suggests that altruism dampens the effects of positionality on the positional time allocation choice. More interestingly is the inverse U-shaped relationship between the responsiveness in demand of the positional good and level of rank. We find that responsiveness in a rank adjusted basis is relatively small. This is important as it suggests that while positional good allocations choices are important other effects dominate.

In Figure 1(b), solid line shows the relationship between the visible time investment and household rank. The curve, which by construction is concave with respect to the origin, shows that visible time allocations are falling in household rank. A lower (higher) household rank is associated with a higher (lower) level of visible time allocation. This suggests that when on top of the reference group distribution the visible time allocation provides value only through its effect on the educational attainment of her child. In Figure 1(b), dash line plots visible good time allocation as a function of rank for $\beta_3 = 0$. Notice that the dash line is below the solid line. This suggests that at low rank levels the household choice of visible time investment is only slightly above the no altruistic preference allocation. However, as rank increases so to the gap between the two lines, suggesting that at high rank levels altruism is the primarily driver of status time allocation.

Two effects drive our results. A rise in the household endowment (higher rank) causes visible time investment to increase (level effect due to its impact on child's education) and visible time allocation to fall (rank effect as it is no longer needed to maintain appearances). Our model shows the total effect is negative. That is, as i moves up in rank, the time endowment allocation to the status good falls. This is consistent with the positional good literature. For example, Frank (1985a) presents the case that savings rates are positively associated with relative income. In the context of this paper, as a household moves up in rank, her desire to consume the visible good falls, and therefore, allocation of the non-visible time (propensity to save) rises (see also Bowles and Park, 2005).

Hopkins and Kornienko (2004) show that positional consumption is affected by the income distribution of the reference group. In more egalitarian societies, where it is difficult to differentiate from others, they find that individuals have a higher marginal return to the status good. Our model shows that for $x_i \approx x_{-i}$, $x > 0$ and reference group j being sufficiently large household i will appear much like everyone else in j and by Equation (3) v will be small. In this scenario, the marginal return to the status good consumption by i will be large. Figure 1(b) concave to the origin solid line shows that the opportunity cost of v on x is non-linear.

Eaton and Eswaran (2009) show that a utility function with positional preferences will have resource allocations that differ from those chosen by a benevolent social planner. Here, we expect overconsumption of the status good to increase at a decreasing rate as rank falls. Consistent with the positional literature we find that household utility is declining in rank. The reason is that household i over invests on the visible good. Notice from Figure 1(e)

that utility is decreasing at a decreasing rate as rank falls (S rises). Figure 1(a) shows the allocation of time on the visible good is increasing and concave. This states that the marginal effect is larger (smaller) at high (low) rank levels. That is, the extent of the over investment is more pronounced at the top of the resource distribution. Further, notice from Figure 1(e) dash line that when the household sets altruistic level to zero ($b_3 = 0$) the household achieves a higher level of utility.

Recent research suggests that there exists a negative relationship between parenting and measures of well-being (Lyubomirsky and Boehm, 2010; VanLaningham *et al.*, 2001; McLanahan and Adams, 1987). Lyubomirsky and Boehm (2010) refer to the parenthood negative effect on well-being as the parenthood paradox. Our model offers a simple explanation to this paradox. Consider social planner who is not concerned with social status ($\beta_2 = 0$). The social planners optimal choice for household i's allocation of visible time investment is as follows:

$$x^p = \frac{\beta_3 a \psi e}{\beta_1 + \beta_3}. \tag{7}$$

Where the superscript p denotes the social planners choice of x. Notice that Equation (5) is larger than (7). Moreover, caring for status will produce a larger x at every point along the rank distribution. Observe that evaluating Equation (5) at $S = 0$ (i.e. $v = 1$) produces:

$$x^* = \frac{\beta_3 a \psi e}{\beta_1 + \beta_3}. \tag{8}$$

In a world where a parent is not concerned with social status, the denominator of Equation (7) ($\beta_1 + \beta_3$) becomes 1. However, ($\beta_1 + \beta_3$) in the denominator for Equation (8) is less than 1. Positional preferences will always lead to an outcome where $x^* > x^p \ \forall v \in (0, 1)$. Because of the concavity assumption placed on Equation (2), it follows that $u^* < u^p \ \forall v \in (0, 1)$. The model suggests that the parenthood paradox can be in part explained by status signaling.

3. Estimating strategy

Our model suggests that households view their child's educational visible time investment as a positional good. Our strategy is to estimate household visible time investment in her/his child's education as a function of her/his endowment rank in reference group j. We estimate parent i's status (visible) time investment by the following equation:

$$\text{Visibletimeinvestment}_{i,j} = \alpha_1 + \text{Rank}_{i,j}\alpha_2 + \text{SES}_i\alpha_3 + X_{i,j}\alpha_4 + \varepsilon_{i,j} \tag{9}$$

where visible time investment ($x_{i,j}$) is the time parent i, a member of reference group j invests on her/his child's education. Rank is parent i's index measure of social-economic status (SES) rank in reference group j[4]. SES is the index level of social economic status of parent i and is our endowment proxy. It is important to include rank as well as the level of household resources to separate the two effects[5]. Rank $\in (0, 1)$ is parent i's rank minus 1 divided by total population in j. X is a set of control variables that include eighth grader's school academic achievement, race, gender, number of siblings, and mom's highest level of education. Lastly, $\varepsilon_{i,j}$ is the error term.

3.1 Data

We use the National Center for Education Statistics, US Department of Education (1988) National Education Longitudinal Studies (NELS:88) data set. This is a four-wave nationally representative sample. Beginning in 1988, the cohort was composed of eighth graders that were subsequently followed in two-year intervals as they progressed through high school[6].

The last wave took place in 2000, about eight years out of high school. Our study uses the fourth wave data set. There are a total of 12,140 observations. However, we restrict the sample to questions that have a response to all questions we employ in the student, parent, and school surveys. This cuts the number of observations to 8,280. However, we further restrict the sample to large states that further restricts the sample to 4,600. We restrict the sample to large states to accommodate race-based reference groups defined in Subsection 3.2.

Tables I and II provide the descriptive statistics and variable descriptions, respectively. Our main outcome variable is an index of visible time investment (defined in Section 3.3 and Table II). Visible time investment has a mean of 0.24. A second outcome variable is an index of non-visible time investment with a mean value of 0.57. Household resources across reference groups have a mean rank of 57 percent. Households have a SES index mean of 0. The average child in the sample is a B student (SAA = 3). The sample is composed of 72 percent white, 6 percent Asian or Pacific Islander, 11 percent Hispanic, and 7 percent African American. Native Americans for the most part did not respond to all survey questions used in this paper and are therefore not included. Male students make up 47 percent of the sample. The average household has a mean of three children. There is no significant difference in the means of the full sample and restricted large state sample. However, the reduced sample is affected by in-sample bias. To address this we employ inverse probability weighting (IPW)[7]. Of the 11 large states, California is the largest state with 16 percent of the sample and New Jersey the smallest with 5 percent.

	Full sample				Large states sample	
	Mean	SD	Min.	Max.	Mean	SD
Visible time investment	0.24	0.26	0	1	0.24	0.26
Non-visible time investment	0.57	0.15	0	1	0.57	0.15
SES rank	0.52	0.29	0	1	0.52	0.29
Social economic status (SES)	0.00	0.76	−2	1.9	−0.00	0.77
Mom's highest level of education	3.70	1.17	1	7	3.68	1.20
Hispanic	0.11	0.31	0	1	0.14	0.35
Black	0.07	0.26	0	1	0.06	0.24
White	0.72	0.45	0	1	0.69	0.46
Asian Pacific Islander	0.06	0.24	0	1	0.08	0.27
Male	0.47	0.50	0	1	0.48	0.50
Number of children	3.18	1.49	1	7	3.18	1.50
Student academic achievement	3.01	0.73	0	4	3.00	0.74
California					0.16	0.37
Florida					0.06	0.24
Illinois					0.08	0.27
Michigan					0.08	0.27
Missouri					0.06	0.23
New Jersey					0.05	0.23
New York					0.10	0.30
Ohio					0.10	0.30
Pennsylvania					0.11	0.31
Texas					0.13	0.34
Wisconsin					0.07	0.26
n	8,280				4,600	

Notes: Full sample is the number of observations that contained positive values to variables employed. The restricted sample is based on large states (shown on table). Asian Pacific Islander, Hispanic, black, and white are race dummies. Male is the child gender dummy. Student academic achievement is a self-reported measure of Jr high school's grades
Source: NELS: 88

Table I.
Descriptive statistics

Variable	NELS: 88 data set	Description
SES	BYSES	Social-economic status composite
SES_{rk}	SES	Social-economic status rank in reference group
SAA_i		Student academic achievement
	BYS81A, BYS81B, BYS81C, BYS81D	Statement that best describes student grades from sixth grade to now. (Mostly A's, B's, C's, D's, below D's) English, mathematics, science, social studies
Pipri		Parent involvement in child life/education (private)
	BYP58A, BYP58B, BYP58C, BYP58E, BYP64A, BYP64B, BYP64C, BYP64D, BYP65A, BYP65B, BYP65C, BYP66, BYP67, BYP68, BYP69	Since last fall how often have you contacted the school about (child's school performance, academic program, behavior, information update). Family rules about television (programs, time, hours, hours during school day). Enforcement rules dealing with (grade point averages, homework, chores). Discuss school experiences, high school plans, post high school plans, and help student with homework
Pipui		Parent involvement in child life/education (public)
	BYP58D, BYP58F, BYP59A, BYP59B, BYP59C, BYP59D, BYP59E	Since last fall how often have you contacted the school about (participating in school fund raising, volunteering). Parent involvement in (belong to parent–teacher–organization (PTO), attend PTO meetings, participate in PTO activities, volunteer at school, belong to other organizations)
API	BYS31A	Race dummy: 1 if Asian or Pacific Islander
Hispanic	BYS31A	Race dummy: 1 if of Hispanic ancestry regardless of race
Black	BYS31A	Race dummy: 1 if non-Hispanic Black
White	BYS31A	Race dummy: 1 if non-Hispanic White
Native	BYS31A	Race dummy: 1 if American Indian or Alaskan Native
Sib		Total number of children
	BYP3A + 1	Number of sibling eight grader has + one
Hmom	BYP30, BYP31	Mom's highest level of education

Table II.
Data descriptions

3.2 Reference group

The data set is meant to capture a nationally representative sample; as such it does not provide information on an individual's neighbors or peers. Consistent with Charles *et al.* (2009), we define reference groups as individuals of *i*'s racial group in the state[8]. State variable is from the restricted data set that identifies the eighth graders' school location. We restrict our sample to large states (California, Florida, Illinois, Michigan, Missouri, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin). We omit states that have few racial groups and those having only one individual representing a state's racial group. Table I shows the population averages of the restricted data set are similar to the full sample. Figure 2 further shows that the SES distribution by race of the full and subsample have similar distributions.

3.3 Status time investment

As in Carlsson *et al.*'s (2007) second hypothesis, we postulate that more visible investments in child's education are positional (emit status) while non-visible investments are non-positional (Frank, 1985b). The non-positional investment (pipri) is an index that captures private or non-visible investment in the child's education. This non-positional investment index is based on the answers to 15 NELS: 88 survey questions. These questions ask the parent about her/his child's education involvement. For example, contacting the school, having rules on television use, family rules on grades, discussion of school experiences, discussion of future plans, helping with homework, etc. Positional investment (pipui)

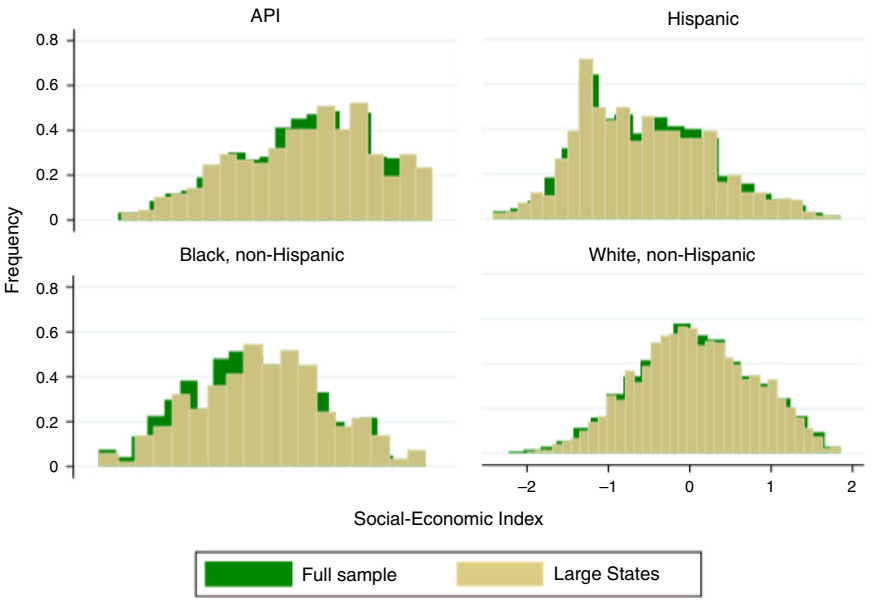


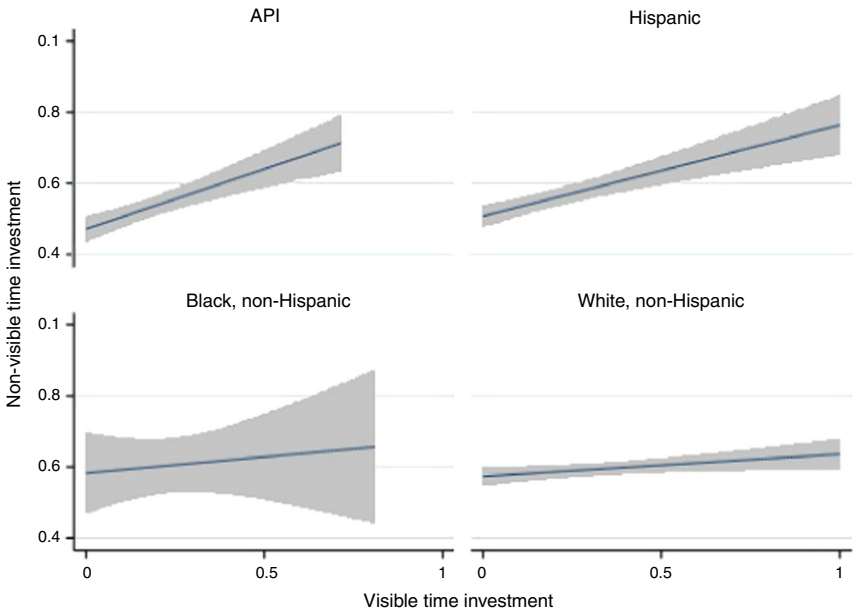
Figure 2.
Frequency distribution of SES index by race

Notes: The histogram in the background is for the full sample. SES is a composite variable made up of five separate variables from the base-year parent questionnaire representing both parents' education levels, both parents' occupations, and family income
Source: NELS: 88

captures public or highly visible investment in child's education. For example, the questions asked how often the parent contacted the school about participating in fundraising, becoming involved in parent-teacher-organization (PTO), attending PTO meetings, volunteering in school, etc. Details of the variables used appear in Table II. These two variables are proxy measures of status and non-status time investment in child's education.

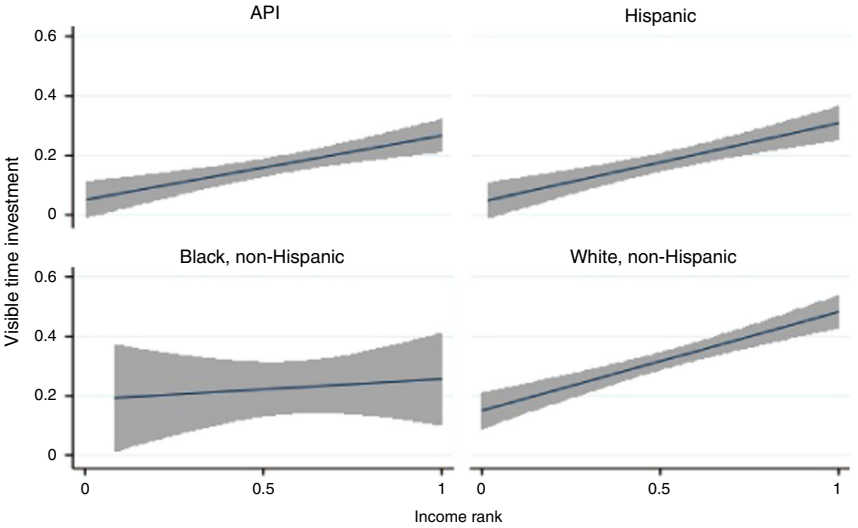
Figure 3 plots the relationship (regression line) of our proxy index measure of non-visible and visible time investment for each racial group in the state of California. The relationship between visible and non-visible time investment is clearly positive. The slopes of these lines (API (0.34), Hispanic (0.26), black (0.09), white (0.06)) are less than 1. A one standard deviation change in visible time investment is associated with a 0.37 (API), 0.34 (Hispanic), 0.11 (black) 0.12 (white) standard deviation rise in non-visible time investment. These two time investment types appear more complementary for Asian Pacific Islanders and Hispanics in the state of California relative to blacks and whites. Interestingly, about one-third of usable observations had a visible time investment index of zero. That is, about one-third did not contact their child's school, volunteered at school, nor involved themselves with a parent organization. This compares with less than ten observations that reported not contacting school about their child's performance, having TV rules, rules about academic performance, discuss school experiences, etc. Excluding the visible investment index equal to zero observations flattens the regression lines in Figure 3 further (to a range between 0.01 and 0.12 for all for reference groups in California).

The positional goods literature shows that there is a positive correlation between positional good consumption and income rank. In our case, the positional good is visible time investment and income rank is a measure of SES rank among members of own racial group in the state. Figure 4 plots regression line and 95 percent confidence intervals of



Notes: The graph shows non-visible and visible time investment fitted line with 95 percent confidence intervals for each reference group in the state of California
Source: NELS: 88

Figure 3. Relationship of non-visible and visible time investment



Notes: The graph shows visible time investment and income rank fitted line with 95 percent confidence intervals for each reference group in the state of California
Source: NELS: 88

Figure 4. Relationship of visible time investment and rank

income rank and visible time investment for each racial group in the state of California. The slopes of these lines are positive (API (0.22), Hispanic (0.26), black (0.07), white (0.33))[9]. The relationship between household income rank and visible time investment is clearly positive. For comparison, the coefficients for non-visible investment as a function of income rank are API (0.15), Hispanic (0.23), black (− 0.18), and white (0.02)[10].

The visible time investment variable does not appear as a good candidate for OLS estimation. Figure 5 is a quantile plot of visible time investment by racial group across all states in the restricted sample. It shows a large number of outcomes with a value of zero. The presence of zeros can potentially bias our estimates. To overcome this we estimate Tobit model with lower limit censor of zero. In Section 4.2, we present Tobit estimation alternatives. We use OLS when estimating non-visible investment.

4. Results

We estimate Equation (9) and show the results in Table III. Panel (A) outcome variable is visible time investment, while Panel (B) estimates non-visible time investment. A positional good should fall as a household moves up in rank. It also follows from the theory that non-positional goods should not respond to household rank. As noted earlier, Panel (A) is estimated with a Tobit censored model with robust clustered standard errors at the state level. Panel (A) reports marginal effects computed at average levels using the expected likelihood of an uncensored outcome method (i.e. $\partial E(pos|x)/\partial x_k = \beta_k \Phi(x\beta/\sigma)$).

Column (1) starts with the two variables of interest (without controls), adding controls in subsequent columns. Column (2) adds mother's education, (3) race, (4) gender, (5) number of household children, (6) student academic performance, (7) the mean academic achievement of children in the reference group, and (8) state fixed effects. For presentation reasons we do not report coefficients for control variables[11]. All specifications show that our proxy measure of visible time investment is increasing in household resources (SES). The marginal effects are all positive, ranging from 0.16 to 0.25, and are significant at the 1 percent level. The relationship simply states that households with more resources appear to give greater importance to being visibly involved in their child's education. On the other hand, our measure of rank is always

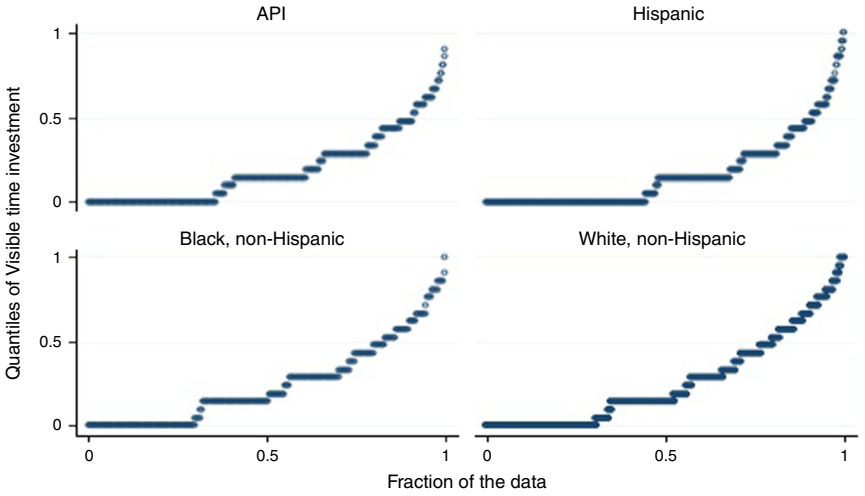


Figure 5.
Quantile plots by race of visible time investment

Source: NELS: 88

Table III. Estimates of rank within own in state racial group on own child time investment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel (A): index of visible time investment ($n = 4,770$)								
SES rank	−0.067 (0.074)	−0.070 (0.074)	−0.154 (0.070)**	−0.153 (0.071)**	−0.152 (0.072)**	−0.152 (0.073)**	−0.149 (0.075)**	−0.004 (0.062)
Social economic status (SES)	0.201***	0.211***	0.250***	0.248***	0.246***	0.233***	0.231***	0.160***
Panel (B): index of non-visible time investment ($n = 4,750$)								
SES rank	0.046 (0.017)**	0.052 (0.016)**	−0.003 (0.022)	−0.002 (0.022)	−0.002 (0.021)	0.001 (0.021)	0.001 (0.021)	−0.009 (0.028)
Social economic status (SES)	0.008 (0.011)	−0.007 (0.010)	0.019 (0.012)	0.018 (0.011)	0.017 (0.011)	0.021 (0.010)*	0.020 (0.010)*	0.024 (0.011)*
Control variables								
Mom's education	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Gender	No	No	No	Yes	Yes	Yes	Yes	Yes
Number of children	No	No	No	No	Yes	Yes	Yes	Yes
Student academic achievement (SAA)	No	No	No	No	No	Yes	Yes	Yes
Mean of own group SAA in state	No	No	No	No	No	No	Yes	Yes
State fixed effects	No	No	No	No	No	No	No	Yes

Notes: Panel (A) reports marginal effects estimated at means of a Tobit lower sensored model. Panel (B) reports coefficients of an OLS model. Standard errors are clustered at the state level and shown in parenthesis. We restrict the sample size to large states (California, Florida, Illinois, Michigan, Missouri, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin). Column (1) has no additional controls. Race is a set of dummy variables for Hispanic, Black, and Asian Pacific Islander. Gender is a male dummy. Student academic achievement is a four-point scale score of junior high school grades. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Source: NELS: 88

negative and becomes significant only after including mom's education and race (column (3)). The significance of rank persists for additional controls up to column (7). Column (7) is added to control for the likelihood that a parent may respond not to income rank but to child's academic rank. In column (7), we include a measure of the average academic achievement of eighth graders of own race in the state. A higher mean, the thinking goes, can lead a parent to raise their time investment in their child's education. Adding mean academic performance of students of own race in the state (coefficient is not statistically different than zero) alters the effect that rank has on visible time investment. Roughly, a standard deviation rise in rank lowers visible time investment index by 0.16 standard deviations. In contrast, a standard deviation rise in income (SES) raises visible investment by 0.67 standard deviations evaluated at average levels. That is, the absolute level of household resources (SES) has a greater impact on visible time investment decisions than her relative position. The effect of rank in column (8) continues to be negative albeit no longer statistically significant at conventional levels.

Panel (B) estimates the non-visible time investment in child's education. Household resources (SES) are mostly positive (except in column (2)) and significantly different than zero in half the specifications. Further, rank is only significant when a few controls are included (mom's education). Panel (B) suggests that non-visible time investment is not driven by household relative or absolute income position. Although, income level is significant in the fully specified model (columns (7) and (8)) the effect is small. For example, a one standard deviation rise in SES leads to a rise in non-visible time investment of 0.13 standard deviations. This is less than the effect rank had on visible time investment.

To further ascertain the robustness of our results in Table IV we present various definitions of relative income. Columns (1)-(4) are based on the specification of column (7) of Table III. Columns (5)-(8) add state fixed effects. As before Panel (A) estimates visible time investment while Panel (B) non-visible time investment. In column (1) we add the mean SES of own race in state variable. This variable measures the mean household resources available to members of own race in the state. Theory suggests that a higher mean would compel a household to appear more positional (consume more of the positional good) so as to appear socially in the same place. When own group mean SES is added, it is positive and significant although the rank variable loses its significance. The pseudo R^2 is unaffected from the inclusion of this variable, which suggests that no additional explanatory power is added with this variable. It should be emphasized that rank measures one's position in the distribution. So that a higher rank means that there are more individuals with lower resources. A higher mean in own group resources marks the middle of the distribution. Therefore they are measuring a different vantage view of the same overall concept. The coefficients therefore are independently consistent. In column (7) of Table III we showed that a higher rank (more people in the rearview mirror) leads a parent to ease up on visible time investment. On the other hand, column (1) of Table IV states that as the average of own members' social group increases it lead to higher investment in the positional good.

Column (2) of Table IV has rank and the coefficient of variation of resources of members of own race in the state. The coefficient of variation measures the dispersion of SES. A higher coefficient of variation indicates higher inequality in household resources. Panel (A) shows that a one-unit rise in the coefficient of variation leads to a rise in visible time investment of 0.002 or one standard deviation rise in the coefficient of variation leads to a 0.06 standard deviation rise in visible time investment. A small effect that suggests that higher inequality leads to more investment in the positional good. When mean income and coefficient of variation are in the specification (column (3)) both are significant. Column (4) adds all the three measures of relative position. Notice that mean resources and coefficient of variation maintain their positive and significant effect. Once state fixed effects are added

Table IV. Estimates of own child time investment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel (A): index of visible time investment ($n = 4,770$)								
SES rank	0.072 (0.106)	−0.126 (0.080)		0.064 (0.105)	0.061 (0.096)	−0.010 (0.062)		0.059 (0.096)
Mean SES of own race in state	0.150 (0.073)**		0.106 (0.052)**	0.132 (0.073)*	0.057 (0.065)		0.038 (0.045)	0.061 (0.066)
Coefficient of variation of SES for own race in state		0.002 (0.001)**	0.002 (0.001)*	0.002 (0.001)*		0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Panel (B): index of non-visible time investment ($n = 4,750$)								
SES rank	0.015 (0.040)	0.002 (0.021)		0.015 (0.040)	0.017 (0.040)	−0.009 (0.029)		0.017 (0.040)
Mean SES of own race in state	0.009 (0.024)		0.003 (0.012)	0.008 (0.022)	0.022 (0.016)		0.016 (0.012)	0.022 (0.017)
Coefficient of variation of SES for own race in state		0.000 (0.000)	0.000 (0.000)	0.000 (0.000)		−0.000 (0.001)	0.000 (0.000)	0.000 (0.000)
Control variables								
State fixed effects	No	No	No	No	Yes	Yes	Yes	Yes

Notes: Panel (A) reports marginal effects estimated at means of a Tobit lower sensored model. Panel (B) reports coefficients of an OLS model. Standard errors are clustered at the state level and shown in parenthesis. We restrict the sample size to large states (California, Florida, Illinois, Michigan, Missouri, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin). The reported specifications use control variables specified in columns (7) and (8) of Table III. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Source: NELS: 88

(columns (5)-(8)), none of these measures of relative standing have a significant effect on visible time investment. Panel (B) shows no significant effect on non-visible time investment from any of our relative measures.

4.1 Group alternative

We claim that the results presented in Tables III and IV are conservative estimates. This is because while people care about relative positions of one's place in own racial group individuals are likely more troubled by their position in more immediate groups. The problem with national represented data as mentioned prior is that it is difficult to build groups without a set of reference group assumptions. However, the place where one lives and the school that the child attends are likely endogenous to choices made by members in own reference group. In particular, a parent may be associated with members who, like him/herself, care about the quality of the school, neighborhood, etc. As a further test, we construct reference groups based on the quality of the child's school.

Table V presents results for reference groups based on school quality. We create a measure of school quality using 14 survey questions from the first follow-up survey about school characteristics (questions F1C95A-F1C95M). We create four school quality quintile reference groups in each state. The results we present are not sensitive to the number of groups. Employing the school quality measure reduces the total number of observations. In the earlier regressions, we focused on larger states because some racial groups had few if any observations. Since we no longer group by race we relax this restriction and add observations by state size to have a similar sample size. In particular, we now include Indiana, Kentucky, Louisiana, Massachusetts, North Carolina, South Carolina, Tennessee, and Virginia.

Panel (A) of Table V presents Tobit marginal effects on positional time investment and Panel (B) OLS coefficients on non-positional time investment. All results include the full set of controls reported earlier (household resources, mom's education, race, gender, siblings, and eighth grade GPA). Column (1) does not include state fixed effects. Panel (A) of column (1) is comparable with the results presented in column (7) of Table III. The marginal effect of household resource rank is slightly bigger here -0.122 compared to -0.149 in Table III. In column (2)-(6) we include state fixed effects. Column (2) shows that adding state fixed effects maintains the significance of rank on positional investment. This was not the case for racial groupings (column (8) of Table III). In column (3) we add the mean resources level of each group in the state. As in column (8) of Table IV the effect is positive. However, we now have a significant effect at the 95 percent level. Adding the coefficient of variation of resources within each school quality group in the state in column (4) produces a result similar to columns (1) and (2). Column (5) includes the group mean and coefficient of variation variables. Finally, column (6) (includes all measures of relative income) shows that the effect of relative income on visible time investment is driven primarily by group mean.

Panel (B) of Table V presents relative resource coefficients on non-positional investment. Panel (B) clearly shows that rank and mean of group does not significantly affect non-positional investments. The coefficient of variation coefficient is negative and significant for specifications in columns (4)-(6). However, the magnitude of the effect is zero.

The results presented in Table V are statistically more pronounced compared to the specifications when grouping by race. Both grouping specifications provide suggestive evidence that on average individuals visible time investment on their child's education is dependent on the households' relative position. As a household pulls away from other households in terms of resources, the incentive to invest in visible time investment falls. Further, the data show that the mean resources level in the reference group influences the amount of visible time investment. The evidence suggests that as the mean of group moves

Table V. Estimates of rank within own in state school quality group on own child time investment

	(1)	(2)	(3)	(4)	(5)	(6)
Panel (A): index of visible time investment (n = 4,760)						
SES rank	−0.122 (0.070)*	−0.123 (0.063)*	0.114 (0.135)	−0.123 (0.063)**		0.114 (0.135)
Mean SES of own school quality group in state			0.152 (0.074)**		0.110 (0.039)***	0.153 (0.074)**
Coefficient of variation of SES for own school quality group in state				−0.000 (0.000)	−0.000 (0.000)	−0.000 (0.000)
Social economic status (SES)	0.224 (0.031)***	0.213 (0.047)***	0.115 (0.071)	0.213 (0.045)***	0.160 (0.036)***	0.115 (0.071)
Panel (B): index of non-visible time investment (n = 4,740)						
SES rank	0.023 (0.030)	0.013 (0.036)	−0.008 (0.055)	0.011 (0.036)		−0.008 (0.055)
Mean SES of own school quality group in state			−0.013 (0.024)	−0.009 (0.016)		−0.012 (0.024)
Coefficient of variation of SES for own school quality group in state				−0.000 (0.000)***	−0.000 (0.000)***	−0.000 (0.000)***
Social economic status (SES)	0.017 (0.014)	0.020 (0.016)	0.029 (0.023)	0.020 (0.016)	0.025 (0.005)***	0.028 (0.023)
Control variables						
State fixed effects	No	Yes	Yes	Yes	Yes	Yes

Notes: Panel (A) reports marginal effects estimated at means of a Tobit lower censored model. Panel (B) reports coefficients of an OLS model. Standard errors are clustered at the state level and shown in parenthesis. We restrict the sample size to large states (California, Florida, Illinois, Michigan, Missouri, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin) plus Indiana, Kentucky, Louisiana, Massachusetts, North Carolina, South Carolina, Tennessee, and Virginia. All specifications include controls for mom's education, race, gender, academic achievement, and number of siblings. $*p < 0.10$; $**p < 0.05$; $***p < 0.01$
Source: NELS: 88

up so too the household's investment in the visible investment. Finally, the data show that the non-visible time investment does not respond to relative concerns. These set of results are consistent with the positional preferences literature.

4.2 Robustness checks

Panel (A) in Tables III and IV was estimated with a Tobit model. However, Tobit models are often criticized for how it treats zeros. Foster and Kalenkoski (2013) has pointed out that Tobit models are more likely to draw non-significance in the presence of large number of zeros. Further, the Tobit model assumes that the mechanism that governs the likelihood of engaging in the activity also drives its allocation choice (Stewart, 2013). As an alternative to Tobit, Foster and Kalenkoski (2013) suggest the use of OLS. Further, the double hurdle model proposed by Cragg (1971) has been advance as a better alternative to Tobit (Burke, 2009). The double hurdle model first estimates the probability of having a positive time investment and then conditional on having invested estimates the time invested (index of time). For robustness to our baseline Tobit model we produce OLS on Table VI and double hurdle estimates on Table VII.

Column (1)-(4) on Table VI produce OLS results based on the specifications presented in columns (5)-(8) on Panel (A) of Table IV. The last four columns (columns (5)-(8), Table VI produces OLS estimates based on specifications on columns (3)-(6) in Panel (A) of Table IV Recall that Table IV evaluates the effect that relative resources among members of own racial group and Table V among members of own school quality group have on visible time allocation. Notice that OLS specification now makes coefficient of variation significant in columns (3) and (4) and of equal magnitude. Differences between Tables V and VI are the insignificance of SES rank in column (6) of Table VI. In general, OLS estimates on Table VI agree with our Tobit results.

Table VII reports double hurdle results. Tier 1 estimates the probability of having a positive time investment index. Tier 2 estimates the effect of relative resource measures on visible time investment conditional on positive time investment. As with all past specification, we cluster standard errors at the state level and employ IPW. Again, columns (1)-(4) estimate relative resources among members of own racial group. The results in Tier 1 are similar in significance levels to those reported in columns (5)-(8) of Table IV. However, notice that on Tier 2 the coefficient of variations are significant at the 99 percent level. In addition, mean SES is also significant in column (3). This suggests that differences in relative resources among members of own racial group have a pronounced effect conditional on giving a positive level of time investment.

Column (5)-(8) show the double hurdle results of relative groups composed of members who send their children to schools with similar quality characteristics. Here, the results are opposite to those observed in columns (1)-(4). In columns (5)-(8) we get significant relative measurement effects in Tier 1 while we are unable to rule out zero effects in Tier 2. This suggests that relative resources in school quality comparison groups are responsive to the likelihood of giving time investment. That is, the decision to be visibly engaged in a child's education behaves as though responding to positional concerns. However, conditional on giving time, relative measurements no longer have a significant effect on the amount of visible time given.

Tables VI and VII provide evidence that our Tobit results at worse produce lower bound estimates of relative standing on visible time investment in child's education. In addition, both Tobit and OLS results suggests that the effects likely mask the effects of two decisions (to give time and duration). This suggests that our Tobit results are conservative estimates of visible time investment.

4.3 Alternative explanations

The previous section produce evidence that an individual's visible time investment in child's education responds to the household's relative position. Our results are not as strong as

Table VI. OLS Estimates of rank within own in group on own child visible time investment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Own racial group ($n = 4,770$)				Own school quality group ($n = 4,760$)			
SES rank	0.040 (0.055)	−0.016 (0.035)		0.037 (0.054)	0.087 (0.087)	−0.077 (0.049)		0.088 (0.087)
Mean SES of own group in state	0.043 (0.039)		0.032 (0.027)	0.047 (0.039)	0.107 (0.051)*		0.075 (0.031)**	0.107 (0.051)*
Coefficient of variation of SES in own group		0.001 (0.001)	0.001 (0.001)*	0.001 (0.001)*		−0.000 (0.000)	−0.000 (0.000)	−0.000 (0.000)
Social economic status (SES)	0.086***	0.110***	0.102***	0.087***	0.074*	0.142***	0.108***	0.074*
Full set of control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1)-(4) reports OLS results of similarly specified estimates on Table IV columns (5)-(8). Columns (5)-(8) reports OLS results of similarly specified estimates on Table V columns (3)-(6). Standard errors are clustered at the state level and shown in parenthesis $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$

Source: NELS: 88

Table VII. Double hurdle estimates of rank in own group on own child visible time investment

Tier 1	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Own racial group ($n=4,770$)				Own school quality group ($n=4,760$)			
SES rank	0.179 (0.457)	0.052 (0.256)		0.185 (0.455)	0.359 (0.586)	−0.589 (0.249)**		0.359 (0.586)
Mean SES of own group in state	0.130 (0.305)		0.039 (0.175)	0.115 (0.293)	0.657 (0.307)**		0.519 (0.139)***	0.655 (0.307)**
Coefficient of variation of SES in own group		−0.006 (0.005)	−0.005 (0.005)	−0.005 (0.005)		0.000 (0.000)*	0.000 (0.000)	0.000 (0.000)
Social economic status (SES)	0.353 (0.192)*	0.406 (0.098)***	0.425 (0.035)***	0.350 (0.192)*	0.302 (0.255)	0.695 (0.115)***	0.445 (0.043)***	0.302 (0.255)
Tier 2								
SES rank	−0.008 (0.109)	−0.087 (0.090)		−0.022 (0.104)	0.056 (0.121)	−0.029 (0.078)		0.057 (0.122)
Mean SES of own group in state	0.049 (0.065)		0.069 (0.041)*	0.061 (0.044)	0.050 (0.061)		0.030 (0.040)	0.052 (0.062)
Coefficient of variation of SES in own group		0.004 (0.001)***	0.004 (0.001)***	0.004 (0.001)***		−0.000 (0.000)	−0.000 (0.000)	−0.000 (0.000)
Social economic status (SES)	0.141 (0.044)***	0.174 (0.033)***	0.138 (0.014)***	0.147 (0.042)***	0.121 (0.048)***	0.157 (0.028)***	0.143 (0.017)***	0.120 (0.048)**
Full set of control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Columns (1)-(4) reports double hurdle results of similarly specified estimates on columns (5)-(8) of Table IV. Columns (5)-(8) reports double hurdle results of similarly specified estimates on columns (3)-(6) of Table V. Standard errors are clustered at the state level and shown in parenthesis. *$p<0.10$; **$p<0.05$; ***$p<0.01$
Source: NELS: 88

those found by, for example Charles *et al.* (2009). Then there is the difference in signs of coefficients. For example, Charles *et al.* (2009) finds a negative effect of mean income of own group while we find a positive effect. These differences are likely due to the nature of the population, goods, and value of the expenditure types in Charles *et al.* (2009). Specifically, we use a proxy measure of time investment while Charles *et al.* (2009) uses value of expenditures (see also Perez-Truglia, 2013).

We are not able to extrapolate the value of each type of time investment. The best we have is a measure that proxies for a general measure of time investment. This measure can potentially mean different things to different people. For example, two individuals who have a score of 0.5 in our rank index may indeed provide unobserved different investment values (in some absolute sense). Consider, for example one parent who helps fundraise by selling raffle tickets to coworkers while the other buys the tickets outright. These non-pecuniary differences may indeed measure some component of time investment value that we claim are not critical to our story. This is because in some absolute sense controlling for income (SES) we deflate non-pecuniary differences in value. Further, the evidence presented here suggests that rank is negatively correlated with our proxy measure of time investment. Although this effect is not as strong as found in work using total expenditure values. This may suggest that parental visible time investment is a positional good albeit less positional than jewelry and clothing, for example.

5. Conclusion

In this paper we show that parents use their parental involvement in child's education as a status (positional) good. We first develop a theoretical model that predicts that positional time investment is falling in household rank. As the parent's position in the reference group improves. he/she lowers consumption of the status good. The model shows that having positional preferences lead to overconsumption of the status good. Therefore, a rise in rank partially alleviates the effect of overconsumption of the status good and raises utility. In addition, we show that positional preferences have varying effects on a household's well-being. A prediction of the model is that high rank households are more sensitive to changes in rank than low rank households. More importantly, our model produces an inverse U-shaped relationship in responsiveness to changes in rank. The model indicates that demand for the positional good is more elastic (sensitive) to changes in rank at around the 70th percentile (in income). Interestingly, we find small sensitivity at the two extremes of the income distribution.

We then test the model predictions that a parent uses her/his time investment in child's education as a status good. The coefficients and signs are indicative of behavior that suggests positional preferences. We show that household rank has an effect on time investment in child's education after controlling for household resources. In addition, we find that low ranked households are more positional than high ranked households.

Our work suggests that time investment in one's child's education is based on more than altruistic preferences and resources. It leaves open the possibility that perceived social standing influences a household's time investment in their child's education. From a policy perspective, our findings provide a new way to think about drivers of parental involvement. In particular, it provides a different way of looking at parental involvement of a low performing student.

Notes

1. See Powdthavee (2009) and Solnick *et al.* (2007) for a developing country analysis of status consumption.
2. Leisure in the case of Eaton and Eswaran (2009).
3. The change in utility that is attributed to a rise in relative positional time investment in child's education.

4. In the NELS (1988) data set SES "is a composite variable made up of five separate variables from the base-year parent questionnaire representing both parents' education levels, both parents' occupations, and family income".
5. See Powdthavee (2009) and Kosicki (1987).
6. See Sharkey and Goldhaber (2008), Hagy and Staniec (2002), and Aksoy and Link (2000) for expanded description of the data set.
7. All regression results employ IPW. The results are not significantly different when estimated without the population weights.
8. Frank (1985a) stated that "people in similar circumstances, even though located far away, can be even more important than people nearby whose circumstances are markedly different" (pp. 33-34).
9. The regression line for the black group is not significant at conventional levels.
10. Black and white coefficients are not significant at conventional levels.
11. Tables that include controls coefficients are available from author upon request.

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Corresponding author
Salvador Contreras can be contacted at: salvador.contreras@utrgv.edu