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Expectations, education, and opportunity

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ABSTRACT

Using a long panel of youths, we establish a causal link between parental expectations regarding education and educational attainment. In particular, we use an instrumental variables approach to find that the child's chances of obtaining a high school or college degree are increasing in the parent's expectations of the likelihood of these events. We then use differences between the objective likelihood of a child's educational attainment and the parents' subjective probabilities to consider the hypothesis that lower educational outcomes among certain groups are driven by a "culture of despair," where children are low-achieving because they are expected to underachieve. While we do find that children from households with lower levels of income, wealth, and parental education are less likely to attain high school and college degrees, we reject the hypothesis that this is driven by low subjective expectations of educational success. Rather, we find that parents from disadvantaged groups have expectations for the educational outcomes of their children that differ more from the statistical likelihood of these outcomes than do parents of children from advantaged households. That is, we find that parents in more disadvantaged households are more optimistic about the educational outcomes of their children than those from more advantaged households.

1. Introduction

Perceptions may have a strong impact on economic outcomes, such as educational attainment. Consider the example of a youth whose reference group (i.e., the group she perceives herself to be a member of) is one where a strong emphasis is placed on academic success. Models of group identity, such as that in Akerlof and Kranton (2000), would predict that this youth would work harder in school to maintain her sense of group identity; her perceptions of herself influence her decisions to continue and excel in academics. Group affiliations and self-perceptions may also result in a "culture of despair" as described by Kearney and Levine (2014) and Genicot and Ray (2014). That is, groups who have low success attaining desirable economic outcomes may adjust their subjective probabilities of attaining these outcomes downward, resulting in decisions not to invest in or pursue these options. As an example relevant to our work, those in a low income group, where rates of high school graduation are relatively low, may adjust downward the subjective probability they assign to their children completing high school. The parents and students would then use this lower subjective probability of completion in their calculation of the costs and benefits to investments in schooling. As the lower probability reduces the expected value of education, the result is that more low income individuals underinvest in human capital. Indeed, Oyserman (2013) highlights the

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importance of parental expectations and the self-perceptions of students as key factors in educational achievement. Thus there is the potential for such a negative feedback loop, where expectations affect education, which affect opportunities and thus subsequent expectations.

We motivate the feedback between expectations and educational outcomes with a simple model of human capital investment. Next, we use panel data to quantify the significance of the channels through which the expectations of parents play a role in the educational outcomes of their children. In particular, we look at the expectations of parents regarding high school and college completion of their children. The expectations of the parents are especially relevant in educations, since they typically make the significant decisions regarding investments in human capital (e.g., the choice of school, investments in extracurricular studies or tutoring and so forth). In addition, the attitudes and expectations of parents directly affect the beliefs of the students themselves. We consider the degree to which parental expectations affect educational attainment. Our use of a long panel of youth allow us to observe expectations from parents when the students are of high-school age and then follow these students through age 30 to determine whether the outcomes the expectations were over, high school and college completion, were realized. In addition, our data allow us to observe detailed information on the students, including standardized test scores that proxy for cognitive ability, which allow us to control for many of the important factors affecting educational attainment and isolate the role expectations play. Using instrumental variables models, we find evidence for a causal effect of parental expectations on high school and college completion.

Next, we test the degree to which subjective probabilities of educational attainment vary by socioeconomic status. In particular, we test for differences in expectations of completing high school and college across households grouped by income, wealth, and parental education. We find that subjective and objective expectations differ significantly across groups. Children from lower income households, households with less wealth, and households headed by individuals with less education have much less likelihood of graduating high school by age 20 or college by age 30. As would be the case if the culture of despair effect of group identity were true, parents of these children have lower subjective expectations of these achievements for their children. This condition, however, is not what drives the negative feedback loop between perceptions and outcomes the defines the culture of despair. Rather, the key condition for the culture of despair model is found in the differences between subjective beliefs and the objective likelihood of the outcomes. In particular, the culture of despair arises when one believes that positive outcomes are less likely than they actually are. If economic agents have rational expectations, there can be no culture of despair belief traps. We find that the differences between the subjective and objective probabilities of achieving high school or college degrees are inversely related to income, wealth, and parental education. That is, parents from households at the bottom of the income distribution have the most optimistic expectations. On average, parents from households in the bottom income quintile assign a subjective probability 21 percentage points higher than the objective probability of their children attaining a high school degree by age 20. This compares to a bias of 8 percentage points for parents from households in the top quintile. The differences for the probabilities of obtaining a college degree by age 30 show a bias of 43 percentage points for households in the first income quintile and a bias of 28 percentage points for households in the top income quintile. Using wealth quintiles instead of income, or using the level of parental education, we see similar patterns. Thus our findings show a bias in subjective expectations that may mitigate the effects of group identity and the negative feedback loop between group outcomes and individuals' perceptions.

There is substantial support for the importance of aspirations and expectations in determining economic outcomes, such as the educational outcomes studied here. Appadurai (2004) calls the capacity to aspire to better outcomes a "meta-capacity." Genicot and Ray (2014) also note that income and aspirations work in a self-reinforcing way and are jointly determined. That is, higher income leads to higher aspirations, which begets higher income. Specifically relating to academic achievement, a number of studies find an important role for the expectations of both students and their parents in determining educational outcomes. Eccles (1983) explores expectancy-value theory and its relation to education, finding that greater expectations of success motivate students to do well. Jacob and Wilder (2011) find that students' expectations regarding schooling remain to be effective predictors of educational outcomes, even after controlling for a number of other student characteristics related to educational attainment. These authors also point to differences in expectations across income and demographic groups, citing a strong rise in the expectations of women and persistent differences across gender and race. Attanasio and Kaufmann (2009) survey high school and college students in Mexico and their parents. They find that students' and parents' expected returns from schooling matter for high school completion rates and that students' expectations matter for college completion rates. Kaufmann (2014) further uses these surveys of Mexican students' expectations to show that the differences in expectations across income groups cannot be a significant factor in explaining the differences in educational outcomes. We also find that while differences in subjective probabilities have effects on educational outcomes, they do not explain much of the differences in educational outcomes across groups. Jensen (2010) does a field experiment where he informs students of the actual returns to schooling and finds that students respond to this information through increasing graduation rates. Betts (1996) finds that U.S. students' expectations of the returns to schooling vary substantially and vary with income. Our survey data gauge the probability of completion and not expected income after completion. However, the subjective probability of completion is instrumental in determining the expected returns to schooling.

Bailey and Dynarski (2011) note the growing achievement gaps between children from low and high income families in terms of college entrance and graduation rates. Whether this is due to differences in the expectations of completion or something else is an open question. However, Case and Katz (1991) use a survey of Boston youth to show that students are more likely to drop out of high school if their parents or peers did. Murnane (2013) points out the dramatic differences in the graduation rates of youths from low and high income families. Bailey and Dynarski (2011) and Reardon (2012) highlight how this

gap has increased over the last several decades. Murnane (2013) suggests that the most important contributor to the students' decisions to dropout of high school are the non-monetary costs to completing school, which vary depending upon the students' cognitive abilities. As Cunha, Heckman, and Schennach (2010) and Fryer and Levitt (2004) show, lower income students get less investment in cognitive skills from an early age, thus making it more difficult for them to complete schooling than for children from high income families. Reynolds and Pemberton (2001) document changes in the expectations of students of achieving a college degree. They do not relate changes in expectations to changes in outcomes, but do show that family resources remain a strong predictor of the students' educational expectations. Kearney and Levine (2016) find that high school completion rates are affected by local income inequality, thus supporting the proposition of a "culture of despair." Our survey evidence shows that the negative feedback loop between educational outcomes and declining subjective expectations necessary for a culture of despair trap does not appear in the data. That is, despite the lower objective likelihood of educational success of children in low income families, their parents have much more optimistic expectations for their children's education than parents in families with higher income and wealth.

The remainder of the paper proceeds as follows. We propose a simple model illustrating the relationship between subjective expectations, objective likelihoods, and education in Section 2. Section 3 discusses the data we use, and presents some descriptive statistics from those data. In Section 4, we establish the causal link between educational expectations and outcomes. Section 5 outlines the empirical methodology in forming objective probabilities for the outcomes of interest. We then compare these objective probabilities to survey respondents subjective expectations in Section 6. In Section 8, we offer concluding remarks.

2. A model of expectations and education

To illustrate how parental expectations influence educational outcomes, consider the following model. Parents derive utility over their own consumption and the utility of their children. For simplicity, assume the child's utility is determined solely by the child obtaining a given educational outcome (e.g., graduating high school or college).[1] Parents choose to allocate their scarce resources (i.e., time and financial resources) between their own consumption and investment in the human capital of the child. Investing in the human capital of the child increases the child's likelihood of obtaining a given educational outcome. Thus, we can write the problem of the parents as:

$$\begin{aligned} &\max_i u(c) + \mu p(i,\mathbf{X}) v^g + (1 - \mu p(i,\mathbf{X})) v^{ng} \\ &\text{subject to } : c + i \leqslant y, \end{aligned} \tag{1}$$

where y are total resources available to the household and i is investment in the child's human capital. The function $p(i,\mathbf{X})$ represents the objective probability that the child will achieve the desired educational outcome, g, given investment in the child, i, and other factors summarized in the vector $\mathbf{X}$ (e.g., ability, parental education, household wealth). The parameter μ represents the expectations of the parent, so that $\mu \times p(i,\mathbf{X})$ are the subjective expectations of the parent. Thus if $\mu = 1$, the parent has rational expectations and if $\mu < 1 (> 1)$ the parent is relatively pessimistic (optimistic) about the child's outcome. The terms v^g and v^{ng} represent the value to the parent of the child obtaining educational outcome g or not, respectively. It is assumed that $v^g > v^{ng}$ and that utility is increasing and concave in c.

Maximization yields the necessary condition that the marginal utility of parental consumption equal the marginal change in subjective probability for a change in child investment times the difference in utilities from the two educational outcomes. That is,

$$u'(c) = \mu \frac{\partial p(i,\mathbf{X})}{\partial i} [v^g - v^{ng}]. \tag{2}$$

In words, the parent will invest in the child's human capital up to the point that the marginal expected benefits of doing so are equal to the marginal utility of the forgone consumption. Let the amount of human capital investment that satisfies this condition be i^*. If the objective probability of outcome g (given by $p(i,\mathbf{X})$) is increasing and concave in i, then we know that i^* is increasing in μ. Specifically, the comparative static is:

$$\frac{\partial i^*}{\partial \mu} = \frac{\frac{\partial p(i,\mathbf{X})}{\partial i}[v^g - v^{ng}]}{-u''(c) - \mu \frac{\partial^2 p(i,\mathbf{X})}{\partial^2 i}[v^g - v^{ng}]} > 0 \tag{3}$$

Thus, higher subjective expectations increase parental investment and lower subjective expectations decrease investment. This is the feature at work in the "culture of despair" described by others. Parents with low subjective expectations (i.e., a low μ) invest less in their children and thus the objective likelihood of the children having a desirable outcome is lower. The key here is the difference between subjective and objective probabilities as represented by the μ parameter. If parents have rational expectations (i.e., $\mu = 1$), then optimal investment by the parent is the same as if the parent were using the objective probability function. If expectations are higher (lower), parents over (under) invest relative to what they would

[1] The deterministic and simplistic nature of this assumption is not necessary. It need only be the case that increases in education increase the likelihood of a higher well-being for the child and that this is valued by the parent (or that the parent places intrinsic value on the child's education).

do had their expectations been rational. Because the probability of educational attainment is a function of investment, the subjective expectations of the parent affect educational outcomes. These outcomes then feed back into the subjective probabilities (through updates to the objective probability function, $p(i, \mathbf{X})$) that affect investment decisions.

Note that this model is only illustrative of the general process and abstracts from the role parental expectations play on the youth themselves. Just as the higher subjective expectations of the parent increases her investment, the youth may also respond to the positive influences of the parent. In particular, if the child's parent has higher expectations of her success, she may internalize these expectations and invest more resources in her own human capital. Thus, the model for the child's human capital investments and their relation to parental expectations is similar to the model outlined above, which takes the view point of the parent. Indeed, expectancy-value theory has been applied to education by Eccles (1983). She finds that increases in expectations of success do materialize into increased effort and interest on the part of the student. That is, higher expectations of success in education increase investment in human capital.

The goal of the empirical analysis that follows is twofold. First, we test the comparative static directly. In particular, is there a relationship between expectations and outcomes? If so, what is the sign of this effect? In the description above, we are implicitly assuming rational economic agents who increase investment in response to increases in expected returns to that investment. On the other hand, a more behavioral mechanism may be at play. For example, consider the reactant theory of Brehm (1966). This theory would suggest the opposite relationship between expectations and human capital investment than that posited above, as youth facing low expectations of success from their parents would put in more effort to overcome the obstacles they face. Second, we use empirical models to understand how μ varies across demographic groups. That is, are some groups more optimistic or pessimistic than others? The degree to which some groups are more optimistic or pessimistic may itself influence the educational outcomes of those groups. If some groups are pessimistic, this may lead them into an expectations trap, where low expectations beget low outcomes.

3. Data on expectations and outcomes

Data on expectations and outcomes come from the National Longitudinal Survey of Youth 1997 (NLSY97). Conducted by the U.S. Department of Labor's Bureau of Labor Statistics, this annual survey began in 1997 and consists of 8984 respondents born between the years 1980 and 1984. The survey instrument was designed to track the significant life events of Americans, especially their labor market experiences, and contains high quality survey weights[2] that transform the pool of respondents into a nationally-representative sample. Major educational events are captured by these surveys. In the initial survey round, the respondent's parents were also interviewed.

A subsample of these parents were asked seven additional questions pertaining to their predictions of their child's life outcomes.[3] Of these, four are related to the child's education. Parents were asked to rate the percent chance that their child would (i) be enrolled in school next year; (ii) be both enrolled in school next year and work a job requiring 20 or more hours per week; (iii) graduate high school by the age of 20; and (iv) earn a college degree by the age of 30. Parents could respond with any whole number percent between and including 0 and 100 percent. Here, we are particularly interested in the last two predictions, high school and college graduation. Table 1 presents the mean responses to these two questions for the full sample and separately by socio-economic group, specifically across the five household income and wealth quintiles and increasing levels of parental education. Income quintiles are given by the following ranges: less than $25,343, $25,343–$47,269, $47,270–$70,890, $70,891–$106,454, and more than $106,454, measured in 2016 dollars. The wealth quintiles are given by the ranges: less than $11, $11–$5,023, $5,024–$38,591, $38,592–$102,167, and more than $102,167, also measured in 2016 dollars.[4] The full sample mean responses for graduating high school and college were an approximate 94 and 69 percent chance, respectively. The educational expectations of children increase, both at the high school and college levels, as we move up both the income and wealth distributions. This is perhaps unsurprising. More interesting are the sizes of the differences in predictions across these two distributions. Even for the lowest income quintile, the mean responses are that children have an approximate 87 and 56 percent chance to graduate high school and college, respectively. For the highest income quintile, these mean responses are approximately a 98 and 80 percent chance, respectively. As we will show, these differences in educational expectations across income and wealth groups are much smaller than the objective probabilities of the educational outcomes across these groups. Lastly, we present these mean predictions within four categories of parental education level. As one might expect, increases in parental education correlate with higher expectations for the educational attainment of children.

Using data from NLSY97 survey waves 1997 through 2011, we are able to create indicator variables for these two events actually coming to fruition. That is, we create a dummy variable that equals one for respondents who graduated from high school by the age of 20, and zero otherwise, and another for those that earned a college degree by age 30, and zero otherwise. Table 2 presents means for these educational outcomes across all subsamples examined. For comparison, means for the parental predictions subsample are shown as well as those for the NLSY97 as a whole. Generally, the means for the parental expectations subsample are very close to those for the entire NLSY97. The actual outcomes follow a pattern similar to the expectations. Moving up the income and wealth distributions, a greater and greater share of children complete both high

[2] We make use of these survey weights (NLSY97 variable T52132.00) throughout our analysis.

[3] In particular, 3026 of the 8984 households surveyed for the NLSY97 were given these additional questions on their expectations for their child.

[4] A significant portion of respondents report a net wealth of $0, which is perhaps unsurprising given some estimates show the current percent of Americans with zero net wealth could be as high as 25% (Kersley, 2015) or even 50% (Saez & Zucman, 2016).

Table 1
Mean expectations of educational attainment, NLSY survey of parents.

Sample	High school graduate by age 20	College graduate by age 30	N
Full	94.113	69.197	3026
Income quintile 1	86.850	56.201	608
Income quintile 2	92.427	61.882	589
Income quintile 3	94.337	70.501	614
Income quintile 4	95.954	71.585	608
Income quintile 5	97.598	79.844	607
Wealth quintile 1	88.893	57.820	540
Wealth quintile 2	91.753	60.503	706
Wealth quintile 3	92.294	68.735	573
Wealth quintile 4	95.772	68.940	605
Wealth quintile 5	97.840	80.511	602
Parent with no HS	89.783	60.533	961
Parent with HS	94.215	66.430	1634
Parent with some college	95.119	73.337	1157
Parent with college +	95.854	75.801	1062

Notes: The primary respondent's parents were asked to rate the percent chance their child would complete the above and could respond with any whole number percent between and including 0–100.

Table 2
Empirical frequency of educational outcomes.

Sample	Entire NLSY97			Parental predictions subsample		
	High school graduate by age 20	College graduate by age 30	N	High school graduate by age 20	College graduate by age 30	N
Full	75.6	30.4	8984	75.8	31.1	3026
Income quintile 1	59.2	11.8	1797	56.0	12.8	608
Income quintile 2	70.6	20.6	1797	70.2	19.3	589
Income quintile 3	72.0	28.3	1796	73.2	28.8	614
Income quintile 4	81.6	32.5	1797	81.4	34.2	608
Income quintile 5	89.4	52.1	1797	88.7	51.5	607
Wealth quintile 1	67.7	17.0	1797	65.0	17.2	540
Wealth quintile 2	69.0	20.7	1796	65.5	20.0	706
Wealth quintile 3	70.5	26.9	1797	71.1	28.0	573
Wealth quintile 4	80.6	30.6	1797	80.3	28.7	605
Wealth quintile 5	89.1	52.0	1797	88.8	52.6	602
Parent with no HS	63.7	16.3	2980	63.6	17.1	961
Parent with HS	74.7	25.2	4771	74.7	26.4	1634
Parent with some college	79.0	33.1	3350	78.7	34.2	1157
Parent with college +	82.4	45.3	3111	83.2	44.8	1062

Notes: Values are percents (decimal place already moved).

school and college. A similar pattern is shown across the parental education categories. However, note that the gradient of the likelihood of educational outcomes is much steeper across the income and wealth distribution than is the gradient for the expectations of these outcomes. Similarly, parents with lower education tend to overestimate the likelihood of their child's educational attainment to a greater degree than parents with more education.

4. Expectations and educational outcomes

Before delving into differences in subjective expectations across groups, we establish the relationship between expectations and educational outcomes. Economic theory suggests a positive relation, since increases in subjective expectations increase the expected value of, and thus investment in, education. To test this empirically, we use microdata to test whether expectations matter after controlling for a host of family characteristics. In particular, we estimate the following logit models:

$$y_i = \alpha + \beta \mathbf{X}_i + \gamma p_i + \varepsilon_i, \tag{4}$$

where y_i an indicator variable for the educational outcome of interest (high school graduate or college graduate) p_i is the parental expectation, and $\mathbf{X}_i$ is a vector of educational outcome predictors. Table 3 presents summary statistics for these independent variables in our education prediction models. Note that all variables used in the logit models are determined at the time of the parental expectation survey. That is, all variables we use to construct the objective probabilities of the

Table 3
Summary statistics, educational determinants.

Variable	Mean	Std Dev	Min	Max
Parental survey				
Family net worth ($0,000, 2016 dollars)	99.630	186.460	0	900
Family income ($0,000, 2016 dollars)	50.984	62.217	0	370
Youth ever lived through hardship	0.048	0.215	0	1
Youth survey				
Male	0.512	0.500	0	1
African-American	0.260	0.439	0	1
Hispanic	0.212	0.408	0	1
Mixed or other race	0.009	0.096	0	1
Number of siblings	2.319	2.430	0	45
ASVAB math/English percentile	35.779	31.832	0	100
Rural residence	0.226	0.418	0	1
Num. days suspended (last yr)	1.190	8.367	0	180
Num. days absent (last yr)	4.731	7.518	0	200
Num. times changed schools	0.417	0.603	0	5
Age of mother when born	25.370	5.263	10	45
Age of mother, her first child	23.000	5.031	10	45
U.S. citizen	0.765	0.424	0	1
Emotional/learning handicap	0.092	0.288	0	1
Ever arrested	0.081	0.273	0	1
Summer enrichment courses	0.005	0.074	0	1
Summer make-up courses	0.005	0.074	0	1
Other summer courses	0.086	0.280	0	1
Good teachers, strongly agree	0.175	0.380	0	1
Good teachers, agree	0.689	0.463	0	1
Good teachers, disagree	0.107	0.310	0	1
Intact family	0.489	0.500	0	1
Female household head	0.282	0.450	0	1
Excellent health	0.387	0.487	0	1
Very good health	0.337	0.473	0	1
Good health	0.225	0.418	0	1
Fair health	0.048	0.213	0	1
Physical handicap	0.063	0.244	0	1
Highest grade completed, mother	12.530	2.995	1	20
Highest grade completed, father	12.990	3.309	1	20
Has driver's license	0.145	0.352	0	1
Ever smoked marijuana	0.200	0.400	0	1
Ever used hard drugs	0.058	0.233	0	1
Ever sold marijuana	0.050	0.219	0	1
Ever sold hard drugs	0.026	0.161	0	1
Ever been in a fight	0.182	0.386	0	1
Ever been in a gang	0.053	0.223	0	1
Ever carried a gun	0.096	0.294	0	1
Not enrolled in school but should be	0.025	0.157	0	1
Num. times threatened at school	0.965	5.194	0	99
Raised by bio mother & stepfather	0.110	0.313	0	1
Num. times ran away	0.252	1.474	0	30
Jewish	0.008	0.090	0	1
Muslim	0.004	0.064	0	1
Christian	0.841	0.366	0	1
Religious, other	0.006	0.078	0	1
Num. places lived	3.357	3.192	1	50
Region: northeast	0.176	0.381	0	1
Region: northcentral	0.228	0.420	0	1
Region: south	0.374	0.484	0	1

Notes: Omitted categories for race, region, "My teachers are good," & health are white, west, strongly disagree, & poor, respectively. $N = 8984$.

outcomes were potentially in the information set of the parents at the time they elicited their subjective probabilities. Among these are several general demographics including the child's gender and race (four categories, omitted category white); a rural residence indicator; geographic region (four categories, omitted category West); and U.S. citizenship status.[5] We also include several parental and familial characteristics including family net worth; family income; the age of the mother when the child was born; her age when she birthed her first child; number of siblings; an intact family indicator (both biological parents present); an indicator for a female head of household; an indicator for those raised by their biological mother and a stepfather; both of the parents' education levels; and the religion in which the child was raised (five categories, omitted

[5] Gender, race, geography, and citizenship status have all been previously shown to be highly related to educational success and other educational outcomes. See, e.g., Cornwell, Mustard, and Van Parys (2013) or Psacharopoulos (2014).

category "no religion").[6] Importantly, we include as a proxy for cognitive ability, the child's score on the math and English portions of the Armed Services Vocational Aptitude Battery (or ASVAB), and its square.[7] A useful characteristic of the NLSY97 is that all respondents were administered this multiple choice test, regardless of military service aspirations.

We also make use of responses to the survey's education- and school-specific questions as independent variables, as school characteristics, student attitudes towards education and their teachers, and their previous educational experiences are known to influence future educational outcomes (see, e.g., Bridge, 1979; Fowler & Walberg, 1991; Niu & Tienda, 2013; Crawford & This, 2014). These variables include the number of days the child was suspended from school the prior year; the number of days absent from school in the prior year; the number of times the child has changed schools to date; indicators for whether, during the last summer, the child took enrichment courses (meaning anything additional to what is required and/or courses to help the child get ahead of their peers), make-up courses, and/or summer courses for other reasons; indicators for the child's agreement level with the survey statement "I have good teachers" (four categories, omitted category "strongly disagree"); an indicator for individuals that are not currently enrolled in school but legally should be; and the number of times the child has been physically threatened at school. Additionally, we include variables related to behavior and criminal activity, health and sexuality, and life experiences. All of these have been shown by others to be, at least in part, educational determinants (see, for example, Ribar, 1994 & Gaviria & Raphael, 2001). These include a dummy for those that have ever been arrested; an emotional and/or learning handicap indicator; a physical handicap indicator; the child's general health status (five categories, omitted category "poor health"); a dummy for those that already have a driver's license; separate indicators for those that have ever smoked or sold marijuana; similar indicators for hard drugs; a dummy for those that have ever been in a fight; another for those that have ever been in a gang; a dummy for those that have ever carried a gun (either legally or otherwise); the number of times the child has run away from home; the total number of places the child has ever lived; and a "hard times" indicator (which equals one if the parent reports that the child has ever experienced hardship). The three variables describing familial income, wealth, and whether or not the youth has lived through hardship come from the parental survey. All other variables come from the survey of the youth, the primary respondents.

The estimated γ's from Eq. (4) are presented in Table 4. We find that, even having controlled for a large number of covariates determined at the time of the expectations survey, parental expectations have a positive and statistically significant effect on both educational outcomes of interest. A one percentage point increase in parental expectations increases the probability of high school graduation by age 20 and college graduation by age 30 by over one percentage point. This provides justification for the assumptions of the model in Section 2, which imply a causal relationship between parental expectations and educational outcomes. These results are also consistent with those of others, such as Hossler and Stage (1992) and Kim, Sherraden, and Clancy (2013), who find that parental expectations positively affect students' educational outcomes. Cowan (2011) provides evidence that the channel through which these expectations act is through the investment in human capital, as illustrated in the theoretical model.

However, the estimated effect of expectations may be biased to the extent that the parent knows something about the child that the econometrician does not. A priori, we cannot sign the direction of this bias as the parents may have information on positive or negative influences on the child's educational outcomes that are not available in the survey data. However, omitted variable bias is likely, although we do control for factors that should mitigate this bias (and may not necessarily be in the information set of the parent) such as the child's cognitive ability, the child's schooling history, and interactions with drugs and alcohol. To mitigate the potential for omitted variable bias, we estimate instrumental variables (IV) models of the effects of expectations on outcomes. In particular, we instrument for the expectations of the parent with dummy variables for the age of the child at the time of the survey. The survey question was asked in 1997, when children in high school were between 15 and 17 years of age. Within this range, the age of any given child at the time of the survey was exogenous. Thus age of the child at the time of the survey is potentially a valid instrument since it is likely unrelated to school outcomes conditional on other covariates, but may influence parental expectations since parents with older children may have more accurate expectations of their future outcomes.[8,9] This may be because they have a longer history on which to base their expectations and because the child is closer to the age to which the questions are in reference to (20 years old for high school completion, 30 for college completion). We also include an instrument relating the gender of the parent responding to the survey. Conditional on other covariates, such as family structure, the gender of the respondent is plausibly orthogonal to the education outcomes of the child.[10] However, it has been documented that perceptions of child systematically differ between the

[6] Family structure, parental characteristics, religiosity, and socioeconomic status have all been long argued (and more recently shown) to have significant effects on educational outcomes by many other researchers. See, as examples, Bridge (1979), Ginther and Pollack (2004), Walpole (2003) and Boppart, Falkinger, Grossmann, Woitek, and Wuthrich (2013).

[7] While this standardized test score is influenced by both nature and nurture, it is nonetheless a useful proxy to control for cognitive ability and has been widely used as such a control.

[8] Later in our analysis, we indeed find this to be the case. We use the difference between parents' subjective probabilities and empirically estimated objective probabilities of educational attainment as a measure of prediction accuracy, with smaller values representing greater accuracy. For high school completion predictions, mean differences are 20.5, 18.9, and 16.7 for 15, 16, and 17 year old youths, respectively. For college completion predictions, mean differences are 39.9, 37.6, and 35.6, respectively.

[9] Note that subjects must be in a certain age-range to be surveyed, but not a certain grade or school status. Thus, there is no correlation between age and relative-age for one's grade. Relative age, not age, has been found to be correlated with educational outcomes (see, for example, Bedard & Dhuey, 2006).

[10] We are aware that NLSY surveyors have a preference to survey the female parent/guardian if she is present. Thus the gender of the survey respondent may be correlated with household characteristics that are related to educational outcomes of the child (such as a child having a single male parent). This is why controls for household characteristics, including family structure, are in the set of independent variables in both the first and second stage regressions.

Table 4
Parental expectations as an explanatory variable.

	High school graduate by age 20	College graduate by age 30
Parental expectations	0.0195***	0.0117***
	(0.0004)	(0.0004)
χ^2 p-value	0.810	0.718
Pseudo R^2	0.307	0.298
Observations	3026	3026

Notes: Standard errors in parentheses. *$p < 0.10$; **$p < 0.05$.
*** $p < 0.01$.

mother and father (see, for example. Frome & Eccles, 1998). The results of the IV estimates are given in Table 5, where we include both the 1st and 2nd stage results as well as diagnostic tests of the instruments.

We see that expectations have significant and positive effects on educational outcomes, with point estimates from the OLS and IV models being very similar. A one percentage point increase in parental expectations is found to have a greater than one percentage point increase in the probability of both high school graduation by age 20 and college graduation by age 30. The parental expectations affect educational outcomes in statistically and economically meaningful ways.

Model diagnostics support the use of IV, with the Wu-Hausman F-test (Wu, 1973 & Hausman, 1978) rejecting the null that expectations are exogenous at standard levels of significance. The set of excluded instruments are all significant in the first stage regressions for the high school graduate model and only parental gender is insignificant in the college graduate model. Instrument relevance is further supported by the results of an F-test for joint significant of the instrument set. Finally, we conduct a Sargan over-identification test (Sargan), which fails to reject the models' over-identifying restrictions, providing further support for the validity of the instruments.

These empirical results provide support for a model such as that in Section 2. With evidence that parental expectations affect educational outcomes in hand, we next explore how these subjective expectations vary across different family types.

5. Objective probabilities of educational outcomes

We test for differences in expectations of high school and college completion across socio-economic status. The important variable will be the difference between subjective and objective probabilities of each outcome. Thus, our analysis will proceed in two stages. First, we model the likelihood of the two educational outcomes of interest. It is from these statistical models that we are able to construct objective probabilities. In the second stage, we analyze the difference between parents' subjective probabilities and our model-estimated objective probabilities.

We use logit models to estimate the likelihood a child obtains a high school degree by age 20 or a college degree by age 30. In these two models, we use a large set of NLSY97 variables which have been shown to be educational determinants in prior literature. For example, Belley and Lochner (2007) find important roles for income and ability in both high school and college completion rates, Ginther and Pollak (2004) show that family structure is an important determinant in educational outcomes, and Lynskey and Hall (2000) find the drug use of students to be an important factor. When estimating these models, we make use of the full NLSY97 sample, not just the parental predictions subsample. We additionally use the NLSY97 sample weights to make the sample nationally-representative. Thus, these logit models take the form

$$y_i = \mu + \delta \mathbf{X}_i + \varepsilon_i \tag{5}$$

where y_i is the binary degree (either high school or college) completion outcome; μ is an intercept; $\mathbf{X}_i$ a vector of educational outcome predictors and is the same as in Eq. (4), with δ its corresponding vector of coefficients; and ε_i a well-behaved error term.

Table 6 shows the results of the logistic regressions we use to form predicted values. We report the marginal effects of the independent variables on the probability of achieving the outcome in question; a high school degree by age 20 or a college degree by age 30. These marginal effects generally have the sign one might expect. For example, higher income, wealth, parental education, and ability all enter positively in both models. Overall, the model fit is good, with a pseudo-R^2 of about 0.30, and a χ^2 p-value of about 0.81 for the model of high school completion and of 0.72 for the model of college completion.

6. Differences between expectations and predicted values

With the model estimates in hand, we form predicted values of the outcome variables. These predicted values represent the objective probabilities of the outcome variables since they relate the probability of achieving the outcome conditional on all relevant, observable characteristics, but without the bias that a parent may have regarding her own child. We then use these predicted values to construct a variable that is the difference between the parental expectations (as measured through the survey responses) and the predicted probability of the outcome occurring (based on the logistic regression models described in the prior section). It is differences between the objective and subjective probabilities that drive the culture

Table 5
Parental expectations as an explanatory variable, IV estimation.

	High school graduate by age 20	College graduate by age 30
Second stage		
Parental expectations	0.0174***	0.0106***
	(0.0035)	(0.0006)
First stage		
16 at parental survey	3.6489***	1.1025***
	(0.2431)	(0.2580)
17 at parental survey	3.8565***	1.9422***
	(0.3335)	(0.3537)
Male parental respondent	0.6104**	−0.0012
	(0.2431)	(0.0026)
Diagnostics		
Wu-Hausman F (prediction exogenous)	2.9060	3.5491
p-value	0.0883	0.0596
F-test (instrument relevance)	1,436.83	1,916.88
Sargan χ^2 (instrument validity)	0.2405	2.1013
p-value	0.8867	0.3497
R^2 first stage	0.8994	0.9245
R^2 second stage	0.3018	0.2972
Observations	3026	3026

Notes: Standard errors in parentheses. *$p < 0.10$.
** $p < 0.05$.
*** $p < 0.01$.

of despair trap. In their study on the determinants of parental expectations regarding the educational outcomes of their children, Yamamoto and Holloway (2010) find that while many researchers have focused on the feedback from the child's past performance in school in determining expectations, they find a gap between expectations and performance that varies across socio-economic groups. They conclude that culture is an important antecedent to these expectations. In the same vein, we focus on differences between objective probabilities, which we construct using observations of the youths' school experience (and other characteristics), and the parents' subjective probabilities. This difference nets out the role of school outcomes in the formation of parental expectations and allows us to measure the role culture plays. And by examining how the differences between subjective and objective probabilities vary across groups, we are able to shed light on the empirical significance of the culture of despair theory.

Table 7 summarizes the mean difference for each educational outcome. The table also notes how these differences vary across socio-economic groups. Note that the differences are given as the survey expectations minus the predicted values. Therefore, one can read a positive average difference as "over-optimism" about the outcome.

For both outcomes, and each group, we see positive differences on average. That is to say that parents, in general, overestimate the likelihood that their child will earn a high school diploma or college degree.[11] Parents being overly optimistic about the abilities of their children is not surprising. It is worth noting, however, that expectations are not uniformly rosy. In fact, we find that 6% of parents have expectations of high school completion that fall below the objective probabilities of the event. The corresponding number for expectations of college completion is 14%.

The results become more interesting as we drill down to the differences among socio-economic groups. If a "culture of despair" has empirical validity, we should see that parents in households which are more disadvantaged in terms of income, wealth, or education would be less optimistic than parents from more advantaged households. Looking at the differences by income and wealth quintile, we see the opposite story. The most optimistic parents are those from the lowest income and wealth quintiles, while the parents from the top quintiles have expectations much more in line with the predicted likelihood of the educational outcomes. For example, parents from the lowest income (wealth) quintile overestimate the probability of their child attaining a high school degree by age 20 by over 20 (17) percentage points. Parents in the highest income (wealth) quintile overestimate this same probability by just over 8 (8) percentage points.

Expectations about children attaining a college degree by age 30 follow a similar pattern, though the differences between expected and predicted values are greater. Parents in the lowest income (wealth) quintile overestimate the likelihood their child attains a college degree by over 42 (41) percentage points. Parents in the highest income (wealth) quintile overestimate the likelihood their child attains a college degree by 28 (27) percentage points. Fig. 1 shows how these predictions vary by income quintile. For college completion rates, the degree of over-optimism is monotonic, with the exception of the second income quintile, that monotonicity is true of expectations of high school completion as well. This means that those in the upper end of the income distribution have expectations for educational attainment that are more in line with the objective

[11] Note that when considering negative questions, such as expectations about incarceration, parents are also overly optimistic, under-estimating the likelihood of these negative events.

Table 6
Probability of educational outcomes, logit regression marginal effects.

Variable	High school graduate		College graduate	
	Effect	Std err	Effect	Std err
Male	−0.043***	0.063	−0.096***	0.010
Net worth ($0,000)	0.009*	0.005	0.001***	0.000
Family income ($0,000)	0.003**	0.001	0.001***	0.000
African-American	0.055***	0.010	0.024	0.014
Hispanic	0.014	0.013	−0.030**	0.014
Mixed or other race	0.045	0.018	0.039	0.052
Number of siblings	0.003*	0.001	0.009***	0.002
ASVAB math/English percentile	0.008***	0.001	0.007***	0.001
ASVAB percentile - squared	−0.001***	0.000	−0.001***	0.000
Rural residence	0.026**	0.010	0.015	0.012
Num. days suspended (last yr)	−0.002***	0.000	−0.018***	0.004
Num. days absent (last yr)	−0.003***	0.000	−0.006***	0.001
Num. times changed schools	−0.005	0.007	−0.005	0.009
Age of mother when born	0.001	0.001	0.003***	0.001
Age of mother, her first child	0.003***	0.001	0.002	0.001
"Hard times" indicator	−0.039*	0.020	−0.070***	0.023
U.S. citizen	−0.017	0.013	−0.098***	0.019
Emotional/learning handicap	−0.043**	0.017	−0.089***	0.017
Ever arrested	−0.052***	0.017	−0.059***	0.020
Summer enrichment courses	0.008	0.059	−0.069	0.046
Summer make-up courses	−0.025	0.015	−0.072	0.060
Other summer courses	−0.037**	0.013	−0.031*	0.017
Good teachers, strongly agree	0.082***	0.018	0.078*	0.044
Good teachers, agree	0.067***	0.025	0.048	0.035
Good teachers, disagree	0.026	0.022	0.024	0.042
Intact family	0.091***	0.013	0.112***	0.017
Female household head	0.033***	0.012	0.072***	0.020
Excellent health	0.126**	0.056	0.010	0.100
Very good health	0.125**	0.052	0.016	0.100
Good health	0.117***	0.045	0.036	0.094
Fair health	0.086**	0.040	0.075	0.076
Physical handicap	−0.007	0.017	−0.007	0.025
Highest grade completed, mother	0.009***	0.002	0.019***	0.002
Highest grade completed, father	0.004***	0.001	0.011***	0.002
Has driver's license	0.119***	0.010	0.043**	0.017
Ever smoked marijuana	−0.026**	0.013	−0.047***	0.014
Ever used hard drugs	−0.018	0.017	−0.031	0.021
Ever sold marijuana	−0.010	0.024	0.025	0.032
Ever sold hard drugs	−0.037	0.024	0.018	0.044
Ever been in a fight	−0.001	0.001	−0.035**	0.014
Ever been in a gang	−0.043**	0.021	−0.045*	0.026
Ever carried a gun	−0.013	0.015	−0.040**	0.018
Not enrolled in school, but should be	−0.280***	0.042	−0.154***	0.022
Num. times threatened at school	0.001	0.001	−0.003**	0.001
Raised by bio mother & stepfather	0.046***	0.013	0.050**	0.024
Num. times ran away	−0.005*	0.003	−0.002	0.005
Jewish	−0.011	0.069	0.141*	0.072
Muslim	−0.025	0.071	0.093	0.088
Christian	0.033**	0.016	0.044***	0.016
Religious, other	0.025	0.057	0.010	0.062
Num. places lived	−0.003**	0.001	−0.005***	0.002
Region: northeast	0.054***	0.016	0.008	.015
Region: northcentral	−0.046***	0.015	−0.040***	0.014
Region: south	−0.049***	0.013	−0.027**	0.013
Pseudo R^2	0.236		0.279	
χ^2 p-value	0.809		0.716	
Observations	8984		8984	

* $p < 0.10$.
** $p < 0.05$.
*** $p < 0.01$.

likelihood of attainment, whereas those in the lower end of the income distribution believe their children will be more likely to achieve high school and college degrees than evidence suggests. Fig. 2 shows the same patterns persist across the wealth distribution.

Table 7
Mean differences between expectations and predicted probabilities.

Sample	High school graduate by age 20	College graduate by age 30
Full	18.030	37.611
Income quintile 1	20.879	42.721
Income quintile 2	29.764	42.543
Income quintile 3	22.796	40.805
Income quintile 4	14.320	36.437
Income quintile 5	8.165	28.586
Wealth quintile 1	17.065	41.770
Wealth quintile 2	28.573	40.692
Wealth quintile 3	25.932	40.336
Wealth quintile 4	17.251	39.544
Wealth quintile 5	8.113	27.541
Parent with no HS	25.411	43.996
Parent with HS	19.227	38.976
Parent with some college	14.996	35.368
Parent with college +	10.670	27.729

Notes: Difference = survey prediction – predicted value.

If we look across categories of parental education, a similar pattern emerges. Parents with more education still have overly optimistic expectations for their children, but the difference between their expectations and reality are much closer than for parents with less education.

That the degree of over-optimism is greater for college than for high school completion is interesting. There are at least a few causes of this. First, the rate of high school graduation is higher, thus the gap cannot be as large by construction. Second, high school graduation is closer in time to when the survey responses were elicited, so parents are more likely have accurate predictions. Indeed, the results of our IV models reported in Section 4 support the idea that parental expectations are related to amount of time between the elicitation of the expectations and the timing of the event those expectations relate to. Finally, there maybe a more psychological mechanism driving these differentials. College completion is an important mechanism through which individuals are able to change their socio-economic status. Because of this, belief in college completion may be especially strong even if circumstances make it unlikely. As shown by Biner, Angle, Park, Mellinger, and Barber (1995), when the perceived value of an event increases, so may its perceived likelihood, an example of the optimistic bias. over-optimism To show the importance of income, wealth, and parental education in driving these differences we regress the differences in expectations and predicted values on a large set of control variables that includes income, wealth, and parental education. Thus, these models are of the form

$$p_i - \hat{y}_i = \eta + \Omega \mathbf{Z}_i + \varepsilon_i \tag{6}$$

where p_i is the parental expectation and Z_i is a vector of relevant characteristics. Table 8 presents the results. Even controlling for a measure of the child's ability using their ASVAB score, we find that income, wealth, and parent's education are important in explaining these differences and have the same sign as suggested by the group means in Table 7.[12] For example, for each $25,000 in income, the gap between expectations and predicted values of attaining a high school degree by age 20 shrinks by about one percentage point. While parents do overestimate the child's likelihood of achieving these educational outcomes, they do account for their child's individual ability. We see that as ability increases, the differences between the subjective and objective probabilities decrease.

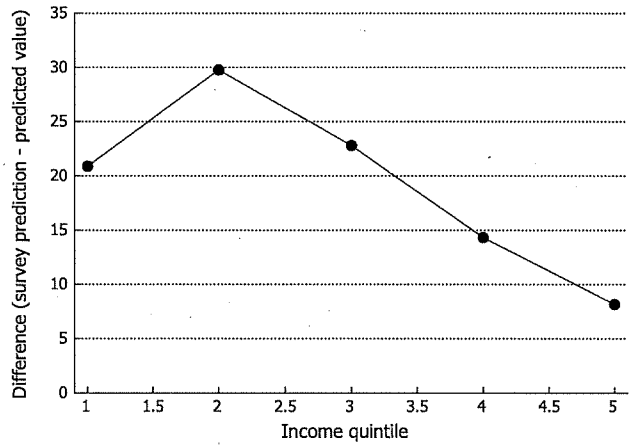
Overall, the regression models explain a substantial amount of the cross-sectional variation in the differences between the subjective and objective probabilities. The model of differences in expectations of high school completion account for about 30 percent of the variation and the model of college completion accounts for about 12.3 percent of the variation.

7. Discussion

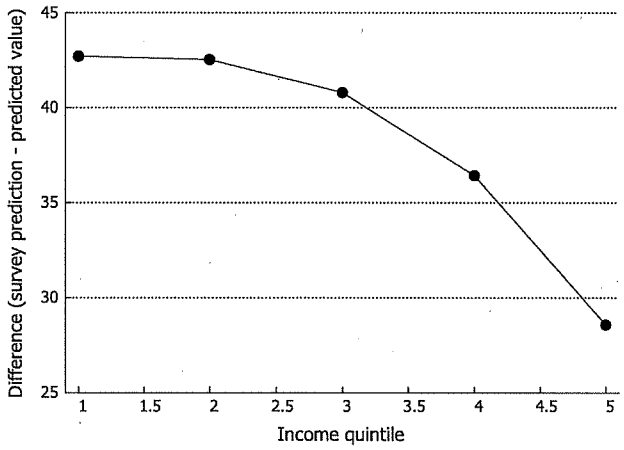
The results suggest that expectations do matter for educational outcomes and that parents from households with lower income or wealth, or parents with lower educational status tend to be more optimistic about outcomes than objective probabilities warrant. To more fully understand these results, their implications, and their psychological roots, we now offer a discussion of two important issues. First, we develop the relationship between expectations of success and the expectations of *what it takes* to be successful in school. Second, we discuss how parental perceptions and educational outcomes affect, and are affected by, features of one's personality, namely one's locus of control.

Expectations of educational success of the youth, as elicited in the NLSY survey, summarize a great deal of information. These expectations are influenced by the parents own experiences in school, knowledge of the child's interest in education,

[12] The exception here is that income is not found to be a statistically significant predictor of the difference between expectations and predicted values for the attainment of a college degree by age 30.



(a) High School Completion Predictions

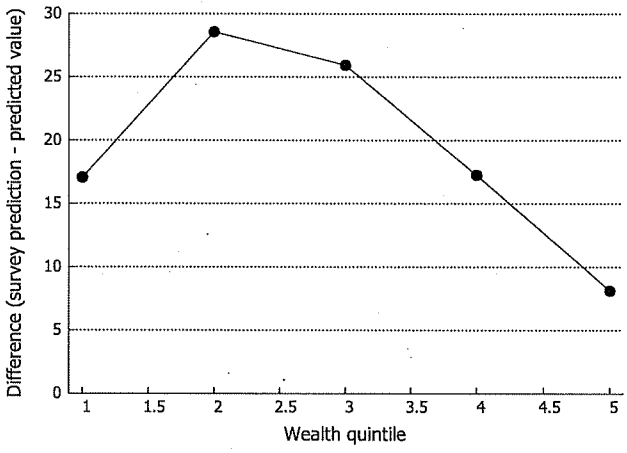


(b) College Completion Predictions

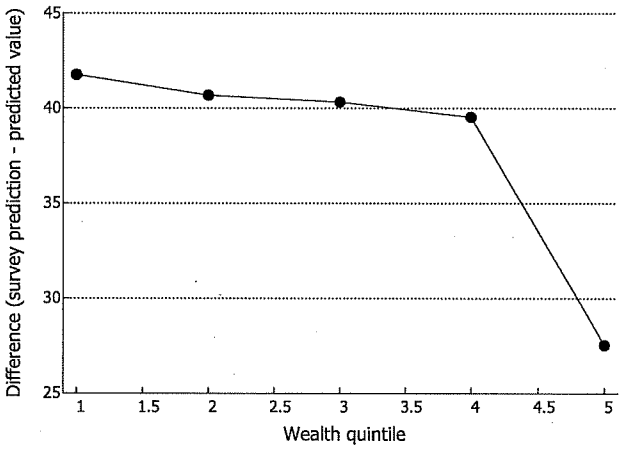
Fig. 1. Prediction accuracy by income quintile.

the child's own performance in school, and other factors. Among these other factors are the parents' projections of what resources the child will need to be successful in school - and whether she will have access to such resources. Let us bifurcate all of the information that goes into the parent's expectations into two types: intrinsic factors and extrinsic factors. Let the intrinsic factors be things such as the child's ability and motivation to finish school. The extrinsic factors are those such as whether the child has the financial and other resources necessary to complete school. The single expectation of success that is elicited is a function of both of these factors and while we are not able to disentangle the influence of each in a precise manner empirically, it is worthwhile to think about how these expectations might be formed and how the underlying drivers of those expectations would affect the interpretation of the results.

It may be that parents are overly optimistic with respect to both the intrinsic and extrinsic factors, leading to expectations of educational success that are above their objective probabilities. It may be that the parent understands accurately how the child's intrinsic factors will affect their education, but are overly optimistic about success because they under estimate the resources necessary. Finally, it may be that the over optimism we find is driven by accurate predictions of the resources necessary, but a biased (upward) view of the child's intrinsic factors. In the most general sense of the model of Section 2, it does not matter which of these reasons drives the overly optimistic beliefs. No matter the reason for the optimism, we see increases in human capital investment. In addition, our conclusions about the culture of despair theory remain intact; regardless of the reason, we find that those with lower economic status are have larger optimistic biases, which work against the theory. On the hand, identifying the mechanisms at work are important for drawing policy conclusions and explaining some of the trends across household income, wealth, and education status. For example, if parents are underestimating the resources necessary to succeed, then the under-resourced parents would be more likely to over estimate the probability of success relative to other groups. This may then explain why the gaps between objective and subjective probabilities are larger for parents from households with lower income, wealth, or education. Policy implications also hinge on understanding



(a) High School Completion Predictions



(b) College Completion Predictions

Fig. 2. Prediction accuracy by wealth quintile.

the mechanism. If the driver is indeed misperceptions of the resources necessary, then one can close the expectations gaps across households by putting more resources behind the education of youth from households with low socio-economics status.

As Rose, Kumar, and Yen (2006) demonstrate, one's locus of control is an important personality trait in determining one's success at obtaining objectives. In particular, those with an internal locus of control tend to be more self-driven and, as a result, more successful. While the NLSY79 did ask questions from which one could infer the subject's locus of control, the NLSY97 (which asks the education expectations questions we utilize) does not. Thus, since we cannot measure and control for the locus of control of the youth directly, it is worth discussing how our results can be interpreted through the lens of the psychological construct. From the perspective of our econometric models, omitting a control variable for the youth's locus of control may bias our estimates of the effects of the role of expectations of outcomes and of the determinants of gap between subjective and objective probabilities. The direction of this omitted variable bias is unclear. If the degree to which one has an internal locus of control is independently and identically distributed over the population, then the omission of the control variable will bias our results towards zero since additional noise will be introduced into the estimator. On the other hand, if one's locus of control is not evenly distributed across the population, or if it interacts with other individual characteristics, then the omitted variable bias will push our estimates in a particular direction. Consider, for example, that children raised in under-resourced families may be challenged by the hurdles they face and become reactant. These individuals would be more likely to adopt an internal locus of control and push harder than others to overcome these obstacles (Brehm, 1966). In this case, our estimates of the effect of family resources (e.g., income, wealth, parental education) on educational outcomes would be biased upwards since these resources would be correlated with the degree to which the youth adopts an internal locus of control. Furthermore, when looking at the correlates driving the differences between subjective and objective probabilities, we would also have biased estimates on the impact of family resources such as income and wealth. Because the internal locus of control was not accounted for in the objective probabilities, but is presumably incorporated into the par-

Table 8
Prediction Accuracy and Familial Characteristics.

Variable	High school graduate by age 20	College graduate by age 30
Net worth ($0,000)	−0.008**	−0.017***
	(0.003)	(0.005)
Income ($0,000)	−0.046***	−0.021
	(0.010)	(0.015)
African-American	−2.195**	9.624***
	(0.966)	(1.459)
Hispanic	−1.260	7.943***
	(1.078)	(1.627)
Mixed race	4.195	−5.196
	(4.062)	(6.101)
Number of siblings	−0.101	−0.510**
	(0.149)	(0.224)
ASVAB percentile	−0.343***	−0.142***
	(0.012)	(0.019)
Rural residence	−3.431***	−5.462***
	(0.864)	(1.300)
Highest grade completed, mother	−0.617***	−0.615***
	(0.141)	(0.213)
Highest grade completed, father	−0.256**	−0.627***
	(0.116)	(0.175)
Jewish	−0.905	−7.981
	(4.491)	(6.755)
Muslim	−2.090	−20.480***
	(5.042)	(7.780)
Christian	−2.900	−1.556
	(1.934)	(2.920)
Region: northeast	5.722***	1.974
	(1.201)	(1.819)
Region: north central	3.424***	1.384
	(1.120)	(1.686)
Region: south	2.109**	2.235
	(1.050)	(1.582)
Constant	46.345***	59.600***
	(2.894)	(4.372)
Adjusted R^2	0.307	0.123
Observations	3,026	3,026

Notes: Standard errors in parentheses. *$p < 0.10$.
** $p < 0.05$.
*** $p < 0.01$.

ents' subjective probabilities of success, the effect here is to bias the results toward greater over-optimism by parents in families with less resources. Of course, the effects could be in the opposite direction as well. That is, youth from under-resourced families may adopt an external locus of control from feelings of hopelessness or helplessness, such as Sullivan and Maier (1967) and Geis and Ross (1998) suggest. The direction of family resources on the locus of control of these youth and the size of such effects on parental expectations and outcomes are empirical questions, which we cannot address with our data. Others have found data to test role of this psychological construct, with mixed results. Cebi (2007) finds that one's locus of control has no significant relationship with educational outcomes. In contrast, Coleman and DeLeire (2003) find that a youth's locus of control is related to her human capital investments.

A related, although distinct, personality trait that is also not measured in our survey data is the grit, or determination, of the child. It is possible that our results are biased in the direction of finding over-optimism among low socio-economics status families because children from these families have higher levels of determination as a result of their difficult circumstances. Perhaps the parents are observing this and thus form expectations that account for the higher level of grit their children have. The existing literatures in psychology and economics do shed some light on this mechanism. A trait of determination in the face of adversity is shown to develop among youth, but Kim-Cohen and Gold (2009) note that the mechanisms are not entirely clear. Furthermore, they find that responses to adversity are heterogeneous, with some individuals becoming more resilient to adversity and some less able to cope with it. Blanden, Gregg, and Macmillan (2007) find that, non-cognitive traits, including measures of determination, are positively correlated with the youth's household resources,

but also causally affect earnings later in life. Future research into how personality traits such as one's locus of control and grit develop and how they relate to a culture of despair promises to be fruitful.

8. Conclusion

We find that expectations play a causal role in the determination of educational outcomes, with a one percentage point increase in parental expectations resulting in a greater than one percentage point increase in educational outcomes. Thus, expectations do matter and expectations about educational outcomes have effects on opportunities for the student later in life. However, we find little empirical support for the idea of a culture of despair, such as that described by Genicot and Ray (2014), with respect to educational outcomes. We find that those from groups with lower objective probabilities of achieving given educational outcomes have the most optimistic expectations. Thus the optimistic expectations of parents in households with lower income, wealth, or parental education work against, not in the direction of, the other factors common to these households that negatively affect educational attainment.

On average, parents from households in the bottom income quintile assign a subjective probability 21 percentage points higher than the objective probability of their children attaining a high school degree by age 20. This compares to a bias of 8 percentage points for parents from households in the top quintile. The differences for the probabilities of obtaining a college degree by age 30 show a bias of 43 percentage points for households in the first income quintile and a bias of 28 percentage points for households in the top income quintile. Highly similar comparisons are found using wealth quintiles and parental education. In addition, we find that expectations positively contribute to high school and college completion rates, holding constant other household factors. That is, higher expectations of success lead to increases in educational success.

These two facts are contrary to the negative feedback loop implied by the culture of despair. Positive expectations do beget positive outcomes, but we find the most optimistic expectations from those with the lowest likelihood of achieving those positive educational outcomes. In short, expectations matter, but the objective likelihood of educational outcomes do not appear to drive subjective expectations downwards.

Understanding this link between expectations and outcomes is important. The link points to an ability to increase educational attainment, not just through the access, but through perceptions of success. The results also underscore the importance of economic mobility and perceptions of such mobility, which can have causal effects on educational outcomes.

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