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EXPECTATIONS AND ATTITUDES ON COLLEGE ATTENDANCE

Abstract. *The role of parental and teacher expectations on a student's success in secondary and postsecondary education have been documented in numerous research studies over the years. Building on the work of Gregory and Huang (2013), which showed positive expectations of students, parents, English, and mathematics teachers in the 10th grade, the purpose of this study was to investigate the relationship between positive expectations from both parents and high school students, student attitudes regarding education, socioeconomic status (SES), race, and gender on college attendance using a sample from the Education Longitudinal Study of 2002 through standardized college entrance exams. A factor analysis approach is used to analyze three variables. The variables of interest were: (a) How far in school parents expect their child to go, (b) How far in school student expects to go, and (c) How much the student likes school. Factor analysis followed by multiple linear regression identified those variables that correlated with college entrance exam scores. Results show that the positive expectations factor correlated positively with college entrance exam scores. SES also had a positive correlation with college entrance exam scores. Multiple regression analyses supported the conclusion that looking at parent and student expectations and how much a student likes school is a somewhat-good substitute for college entrance exam scores in predicting whether students will attend college.*

1. Introduction

Julian and Kominiski (2011) report that a worker with a high school degree earns \$23,000 less annually compared to a full-time worker with a bachelor's degree. This study draws on data collected in the 2002-2006 Educational Longitudinal Study (ELS). The ELS is a nationally representative study of 10th graders in 2002 and 12th graders in 2004. The decision to attend college is one that a student begins to ponder seriously while in high school. Some of the considerations include socioeconomic status, parental and student expectations, family structure, parental educational attainment, whether or not the student had positive or negative experience in school, and teacher expectations. The purpose of the present study was to examine the effect that the investigated factors have on whether or not a student attends college.

Educational researchers report good news on the education front. Balfanz et al (2013) reported that the national high school graduation rate increased 6.5% between 2006 and 2010 [1]. The national rate is now 78% and the United States is on track to graduate 90% of its citizens by 2020. The results were

largely driven by large gains in the Hispanic and African American rates of graduation. Hispanic students demonstrated the largest gains with a 10% increase in graduation rates between 2006 and 2010. In African American students, the graduation rate rose from 59.2% to 66.1%. Interestingly, the southern states of the United States led the way in improvements in high school graduation rates. About 50% of the top ten states that demonstrated improvement were from the southern region of the United States. The southern states also boasted the top seven states with the sharpest drop in schools categorized as 'dropout factories'. A high school is categorized as a 'dropout factory' when their 12th grade enrollment is 60% or less than their 9th grade enrollment from 3 years prior.

While this is good news, these gains are framed by a report produced by the Education Research Center stating that 30% of high school students in the United States do not graduate at all (2010). Of particular concern are the outcomes for non-white students. On average, non-white students are twice as likely to drop out of high school. The National Center for Education Statistics (NCES) reported that while 18% of white students do not graduate high school, that number climbs to 34% for Hispanic and 37% for African-American students [2].

The issues related to high school graduation rates, while containing some good news, are largely indicative of the plummeting college graduation rates. According to NCES, the United States currently ranks 16th in the world in terms of the number of 25-34 year-olds with college degrees. In 2000, the United States ranked first in developed nations. NCES also reported that 42% of students seeking a bachelor's degree do not graduate while 72% seeking an associate's degree do not graduate. The Bureau of Labor Statistics predict that at least 800,000 college graduates are needed each year to compete globally and as many as 16 million college-educated adults are needed for the workforce.

There is clearly a need to increase the number of students going to college, especially students whose failure rates are the highest [3]. There are significant consequences when people do not attain higher degrees.

There are many forms of support for students and a variety of people have expectations about the college-going potential of students. Gregory and Huang [4] adopted an ecological perspective [5] in examining the range of supports that could be mobilized to support students. One form of support is the belief in student potential for education attainment beyond high school. This phenomena is called positive expectancies. There have been few studies that examine the effects of positive expectancies for adolescents (students and parents). The ELS data set permits a longitudinal design with the appropriate covariates that can isolate the expectancy effects. Hamrick and Stage (2004) also assert that research needs to be done on at-risk populations to determine whether or not positive expectancies serve to mitigate the risks faced by low-income students and students of color.

Several studies have demonstrated associations between parental belief and children's subsequent performance [6; 7; 8].

2. Student Beliefs

Students' self-beliefs are also linked to their academic achievement [9]. Kim and Sherraden [10] found that early student expectations are predictive of later educational attainment. Wood et al (2011) found that for a sample of middle class African American boys, their educational expectations while they were in high school predicted postsecondary outcomes one year after high school graduation [11]. Mello (2008) took into account prior test scores and found that students' expectation at 14 years old were predictive of educational attainment at 26 [12]. These studies demonstrate that positive expectancies are promotive. Promotive, as defined by Gregory and Huang (2013), is defined as 'factors that increase the probability of positive outcomes regardless of students' risk status' [4]. Losel and Farrington (2012) use a similar term "direct protective factor" [13].

Bozick et al (2010) found that low-income students are less likely to attend college than their higher-income peers [14]. Sciarra and Ambrosino (2011) reported that racial and ethnic group membership is a powerful predictor of college enrollment [15]. They found that Hispanic and African American students are less likely to attend college than their White and Asian counterparts. Rutter (1995) argued that researchers need to identify 'malleable' factors that could be protective of high risk groups [16]. Malleable factors, in terms of this paper, refer to variables over which intervention packages can exert influence without addressing systemic issues such as poverty or racism. Variable such as gender and race are fixed. SES, as a variable, difficult to address through a simple intervention. Malleable variables include student expectation, teacher expectation and whether or not a student views their school favorably. What is promising is the fact that some studies have found larger expectancy effects for groups with the great risk factors. Sandefur et al (2006) found that high parental expectations for Hispanic students would increase their likelihood of attending college [17]. Benner and Mistry (2007) found that varying sources of expectations including students and parents had positive effects on student outcomes. They also found that maternal expectations were uniquely associated with academic achievement.

Ultimately, it would appear that student self-beliefs are one of the most important factors regarding college enrollment. The cumulative effect of these studies suggest that positive student and parent expectations promote positive, upward trajectories of college attendance regardless of risk status, including; socio-economic, race factors, and gender factors.

The authors anticipate that the multiple sources of expectations will have an additive role and that the expectancy effects will vary between and within groups. Based on prior research, it is hypothesized that positive expectations (from both parents and high school students), as well as student attitudes regarding education, are a greater influence on college attendance than SES, race, or gender.

3. Method

Sample. The sample was taken from the Education Longitudinal Study of 2002. ELS: 2002 represents a major longitudinal effort designed to provide trend data about critical transitions experienced by students as they proceed through high school and into postsecondary education or their careers. The 2002 sophomore cohort was followed at two-year intervals to collect policy-relevant data about educational processes and outcomes.

These data points pertain to student learning and predictors of dropping out, high school correlates of students' access to and persistence and attainment in postsecondary education, and their entry into the workforce. In the spring term of 2002, the base year of the study, high school sophomores were surveyed and assessed in a national sample of high schools with 10th grades. Their parents, teachers, principals, and librarians were surveyed as well.

In the first of the follow-ups, base-year students who remained in their base-year schools were resurveyed and tested two years later, along with a freshening sample that makes the study representative of spring-term 2004 high school seniors nationwide. Students who had transferred to a different school, had switched to a home school environment, graduated early, or who had dropped out were administered a questionnaire. In the first follow-up, academic transcripts were requested for all students who participated in either the base year or the first follow-up. The transcripts normally cover 4 years of coursework – for students who were seniors in 2004, typically 9th through 12th grade. School course offerings information for the base-year schools was also collected.

4. Variables

College entrance exam scores correlated moderately positively with college attendance ($r=.489$) The categorical nature of college attendance would have violated several assumptions of multiple regression, but the continuous variable of college entrance exam scores met these assumptions, and we were confident that using college exam scores in place of college attendance due to the high correlation analysis.

Three continuous variables were selected from the ELS dataset and used in a factor analysis: (a) How far in school parents expect their child to go, (b) How far in school student expects to go, and (c) How much the student likes school. How far in school parents expect their child to go was measured on a Likert scale ranging from 1 (less than a high school diploma) to 7 (PhD). How far in school the student themselves expect they will go was also measured on a Likert scale ranging from 1 (less than a high-school diploma) to 7 (PhD, MD, or other advance degree). Finally, How much a student liked school was measured on a Likert scale ranging from 1 (student does not like school at all) to 3 (student likes school a great deal).

In addition to these three factor analysis variables, independent and control variables were selected for the multiple regression. As noted above, these included (a) College entrance exam scores (which were measured on a Likert scale ranging from 0=no college attendance, 1=attendance at an open

admissions college, 2= entrance exam scores in lowest quartile, 3= entrance exam scores in the middle two quartiles, and 4=entrance exam scores in the highest quartile), as well as (b) Student sex, (c) Student race, and (d) Student socio-economic status.

5. Methods of Analysis

5.1. Factor Analysis

The factor analysis variables were chosen with the goal of reflecting student and parent expectations and attitudes regarding college attendance. Expectations and attitudes are difficult to quantify; however, the chosen variables concretely illustrated ways that beliefs can shape college attendance. If parents expected success in school, they may encourage their children to attend college; for this reason, “how far in school parents expect their child to go” was selected. If students expect to go far in school, then they are likely to plan to fulfill those expectations. “How far in school student expects to go” was selected. Finally, if students like/enjoy school during their pre-secondary education, then they are more likely to continue by attending college; for this reason, “How much a student likes school” was chosen. These variables were used in a factor analysis to create a factor variable called “Positive Expectations” in order to express the role of excitement about future learning that comes with the decision to participate in college.

5.2. Factor Analysis Assumptions

Before the factor analysis could be run, the data had to be examined to see if it met the necessary assumptions. These include making sure the data is continuous, does not violate multinormality, an absence of outliers, an absence of high collinearity, and maintains linearity. As noted above, the data was continuous, though it was not equally spaced. One important observation about the values in two of the variables, “How far in school parent expects child to go” and “How far in school student expects to go” is that the fourth value, “Attend college-4 year degree incomplete,” is very low. This low value was not surprising, considering that few students would plan to attend but not complete college, and few parents are likely to wish an incomplete degree on their child.

The histograms for the three variables followed a normal curve; “How far in school parent expects their child to go” and “How far the student expects to go” were slightly bimodal/negatively skewed, but this bimodal shape is attributable to the low 4th value in these variables. How much the student likes school was clearly normal and bell shaped. No outliers were observed, and high collinearity was absent as all correlations were under .99. The factor was extracted using the principal component extraction method, with one elbow found in the scree plot.

5.3. Multiple Regression

We weighted the data using the same panel weight, making it more in line with the data as a whole. Missing data for the factor score and dependent

variable were not highly correlated at .373, making the missing data MCAR, (missing completely at random). The races had a combined 6.79 % missing data and gender had 5.95% missing data. The dependent variable had 43% missing data; while this amount of missing data might seem high, this was due to the fact that the second follow up study attempted to track students after graduating from high school. We imputed the data to make up for the gaps presented by the missing data.

The dependent variable used in the multiple regression was college entrance exam scores. College entrance exam scores were selected as a substitution for college attendance because this variable provided a concrete quantitative variable for comparison. The control variables included the factor score Positive Expectation, student sex, student race, and student SES.

5.4. Assumptions of Multiple Regression

Before we ran the multiple regression, we determined whether or not we had violated the assumptions of analysis. These included normality, no presence of outliers, equality of variance, and absence of high collinearity. The histograms were normal-shaped, and the data did not show any outliers. The residual plot showed a various, mostly normal scattering of data. Despite running the data multiple times, we were unsure of what caused the anomaly (often called a floor effect) on the scatterplot. Collinearity was not a problem as all VIFs were well under .5. Our regression equation was thus; $H_0: \beta$, and PositiveExpectation = 0 and $H_a: \beta$ and PositiveExpectation > 0.

5.5. Results

The researchers initially hypothesized that positive expectation from parents and students as well as students' attitudes regarding education would bear a greater influence on college attendance than any other factor, including SES, gender, or race. While all of these factors were statistically significant in regards to effecting college entrance exam scores, and in turn, college attendance, the created factor Positive Expectation, had the second highest relationship.

5.6. Factor Analysis

After checking the assumptions for factor analysis and finding that the analysis would not violate any assumptions, the ELS data was used to extract one factor through principal component analysis, "Positive Expectation." Regarding the communalities, "How much student likes school" has the weakest relationship at .305. It is interesting to note that despite a student feeling less motivated about their schooling at the time of the study, how much they like school, their motivation and self-expectation for their future was still very high.

The results of the factor analysis were excellent overall and the new factor, Positive Expectation, was used in the multiple regression.

5.7. Multiple Regression

Running the multiple regression resulted in the factor score, "Positive Expectation," having a moderately high positive correlation with college entrance exam scores at .605. This proved to be the most powerful variable as well, with a $\beta=.362$. SES also had a

positive correlation with college entrance exam scores, being the second most powerful variable, with a $\beta=.341$. As discussed in the literature review, higher socio-economic status regularly leads to higher college attendance rates. Females had a weak positive correlation with the exam scores, and there were weak negative correlation scores for all races in our regression except for Asians, who had a weak positive correlation. It has also been well documented that race has traditionally been a determining factor with college acceptance and attendance, particularly for Asian and Caucasian populations.

Since the factor analysis factor correlated positively with college entrance exam scores, the conclusion can be made that looking at parent and student expectations and how much a student likes school makes a somewhat-good substitute for college entrance exam scores in predicting whether students will attend college.

5.8. Discussion

Although the factor created was highly successful and the hypothesis that parent and student expectations in education were instrumental in college attendance, as seen through accepted college exam scores, the researchers believe that there were ways in which this study could have been enhanced.

Looking past the scope of this project, a logistic regression rather than multiple regression could have been run. This would have allowed more direct correlations with the data. Logistic regression allows for binary results from binary predictor variables. This means that instead of creating a multiple regression using college entrance exams scores, continuous data, as a predictor for college entrance and attendance the researchers could have directly used college attendance data, yes or no binary nominal data. Additionally, a different data set other than ELS: 2002 could have been used that contained more variables for predicting college attendance on a continuous scale. One of the trials and tribulations of using another researcher's data is not controlling how it is collected, categorized, reported.

This research does give hope and light to the idea that college attendance is as much about positive expectation and self-motivation as it is about socio-economic status and is more important than gender or race. Positive expectation is a resource that can easily be tapped into by parents, teachers, and school counselors. It is free and socially based, therefore accessible by all. Imagine a school system that adopted into its programming models for self-visualization and more motivating environments. This study shows that attitude is as important as the socio-economic status we were born into and more important than race and gender.

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