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Attainment in the Era of High Expectations: Racial and Ethnic Differences in the Effects of Adolescent Plans on Educational Success in Young Adulthood

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Attainment in the Era of High Expectations:

Racial and Ethnic Differences in the Effects of Adolescent Plans on

Educational Success in Young Adulthood

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Sociology

by

Amber Dyan Villalobos

2021

ABSTRACT OF THE DISSERTATION

Attainment in the Era of High Expectations:

Racial and Ethnic Differences in the Effects of Adolescent Plans on

Educational Success in Young Adulthood

by

Amber Dyan Villalobos

Doctor of Philosophy in Sociology

University of California, Los Angeles, 2021

Professor Jennie Elizabeth Brand, Chair

Adolescents with high educational and occupational expectations are more likely to experience positive attainment outcomes in young adulthood. While most adolescents express high expectations, continued racial/ethnic disparities in attainment warrant renewed investigation of the expectation-attainment relationship. I examine racial/ethnic heterogeneity in the expectation-attainment relationship using nationally representative data from the Education Longitudinal Study of 2002 (ELS) and the High School Longitudinal Study of 2009 (HSLS). In Chapter 2 I examine whether the relationship between adolescent educational expectations and enrollment in a four-year college differs by race/ethnicity and whether this relationship changed over time. I find that the expectation-enrollment relationship is positive for all students, but it is smaller for black and Hispanic students in the ELS cohort. However, for the HSLS cohort, the gaps have

largely closed. In Chapter 3 I use ELS to examine the relationship between adolescent educational expectations and college completion, whether this relationship varies by race/ethnicity, and how much of the relationship is direct versus mediated. I find a positive effect of high educational expectations on college completion for all groups. Thus, pre-college social background factors appear to account for much of the explanation as to why black and Hispanic students do not translate their expectations into completion. Yet, the mediating effects of on-time college enrollment are significantly larger for those who are black and Hispanic. Although black and Hispanic students are less likely to enroll in college, enrolling in college on-time helps link their expectations for college to college completion. In Chapter 4 I use ELS to examine the effects of having uncertain occupational expectations (relative to high) during adolescence on two educational outcomes. I find that occupational uncertainty during adolescence is negatively associated with degree attainment in young adulthood such that adolescents who report occupational uncertainty are less likely to attain bachelor degrees and less likely to attain advanced degrees or be enrolled in an advanced degree program by age 26 than their peers with high occupational expectations. Although white and Hispanic students were more likely to be uncertain, the effects of uncertainty on degree attainment were similar across racial/ethnic groups in the sample.

The dissertation of Amber Dyan Villalobos is approved.

Jeffrey J. Guhin

Meredith Phillips

Vilma Ortiz

Jennie Elizabeth Brand, Committee Chair

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2021

For Todd and Julian.

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ACKNOWLEDGEMENTS

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To my husband Todd: thank you. Your support of me is unwavering and unmatched. You believed in me even, as graduate students often do, when I stopped believing in myself. You have been with me on every single step of this journey in the smallest and biggest ways. You listen to my fears, elevate my hopes, remind me of who I am and what I am capable of. Writing a dissertation can be a lonely process, but with your support I have not once felt alone on this journey. One year ago, at the start of the pandemic, I could not see a way in which I could finish this program as a new mom and during an unusually difficult job market. You could. With your optimism and your faith in me, you continued to remind me that I was capable and things were going to work out. Here we are one year later, and I'm happy to find that you were right.

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           David P. Gardner Seminar, Berkeley CA

Villalobos, Amber and Jennie E. Brand. 2019. *"Does College Prevent Single Parenthood, and for Whom?"*
           American Sociological Association: New York, NY.
           Population Association of America: Austin, TX.

Villalobos, Amber. 2016. *"Teacher Social Origins and Student Success: The Effect of Teacher Race and Socioeconomic Background on Teacher Perceptions of Students and Student Achievement."*
           American Sociological Association: Seattle WA.
           Population Association of America: Washington D.C

Chapter 1: Introduction

Adolescent educational and occupational expectations have long been associated with educational attainment (Bozick, Alexander, Entwisle, Dauber, Kerr 2010; Grodsky and Riegle-Crumb 2010; Morgan, Leenman, Todd, and Weeden 2013) and occupational attainment (Brown, Ortiz-Nunez, and Taylor 2011; Schoon and Parsons 2002; Sewell et. al., 1969; Sikora 2018; Staff et. al. 2010) in young adulthood. Several factor warrant the continued investigation of the relationships between adolescent expectations and attainment in young adulthood. First, today most adolescents have high educational and occupational expectations such that most expect to earn a four-year degree (Goyette 2008; Jacob and Wilder Linkow 2011; Schneider and Stevenson 1999) or attain professional level occupations (Reynolds, Stewart, McDonald, Sischo 2006). Second, in spite of similarly high levels of expectations, racial/ethnic heterogeneity persists in both expectations and attainment (Eller and DiPere 2018; Flores, Park, and Baker 2017; Hanson 1994; Hoffman 1987; Kao and Tienda 1998; Mello 2009; Xie and Goyette 2003;). Finally, while many adolescents do have high occupational expectations, a nontrivial percentage have uncertain occupational expectations (Staff, Harris, Sabates, Briddell 2010; Yates, Harris, Sabates, Staff 2010). This is consequential as there may be variation in which students can afford to be uncertain (Armstrong and Hamilton 2013; Edin, DeLuca, Clampet-Luncquist 2016; Holland and DeLuca 2016). In this dissertation, I make three distinct contributions to the expectation-attainment literature by examining racial/ethnic heterogeneity in these relationships in light of changing demographics, changing patterns in the transition to adulthood, and by capitalizing on previously unexplored aspects of these relationships.

Overview of the Chapters

Chapter 2

Chapter 2 is the first substantive chapter of this dissertation and is a modified version of Villalobos, Amber D. 2021. "College-Going in the Era of High Expectations: Racial/Ethnic Disparities in College Enrollment, 2006-2015." *Socius: Sociological Research for a Dynamic World*. 7: 1-19. doi 10.1177/23780231211009994. It is made available under the Creative Commons Attribution-NonCommercial license (CC BY-NC 4.0). In this chapter I examine the expectation-enrollment relationship by race/ethnicity and over time in light of changing racial/ethnic demographics whereby the Hispanic population is rapidly increasing in size and college enrollment. There is a well-established relationship between expectations and enrollment such that adolescents with high educational expectations are more likely to apply to and enroll in college than their peers with low educational expectations (Bozick, Alexander, Entwisle, Dauber, Kerr 2010; Grodsky and Riegle-Crumb 2010; Morgan, Leenman, Todd, and Weeden 2013). Today, most adolescents report high educational expectations such that they expect to earn a four-year degree or more (Goyette 2008; Jacob and Wilder Linkow 2011; Schneider and Stevenson 1999); yet, there is important heterogeneity in both adolescent educational expectations and college enrollment patterns by race/ethnicity. Despite findings suggesting higher net educational expectations for some students of color (Hanson 1994; Hoffman 1987; Kao and Tienda 1998; Reynolds and Pemberton 2001), we still observe lower levels of college enrollment among those who are black and Hispanic relative to their white peers. I use data from the Educational Longitudinal Study 2002 (ELS) and the High School Longitudinal Study 2009 (HSLS) to examine racial/ethnic differences in educational expectations and enrollment in four-year college. I find that the expectation-enrollment relationship is positive for all students but is smaller for black and Hispanic students in the ELS

cohort. However, by the HSLS cohort, the gaps have largely closed.

Chapter 3

In Chapter 3 I use the ELS data to examine the expectation-completion relationship by race/ethnicity. While scholars have often examined the expectation-enrollment relationship and found that those with high educational expectations are more likely to enroll in four-year colleges (Bozick, Alexander, Entwisle, Dauber, Kerr 2010; Jacob and Wilder Linkow 2011 Morgan, Leenman, Todd, and Weeden 2013), they have less often examined whether those with high educational expectations are more likely to go on to earn a four-year degree. While there is indeed an important gap of time between adolescent educational expectations measured during high school and college completion that is typically observed during young adulthood, educational expectations have long been associated with a key step of college completion - college enrollment (Jacob and Wilder Linkow 20113; Morgan et. al 2012; Villalobos 2021). I thus consider whether pre-college adolescent educational expectations to earn a four-year degree affect eventual college completion. Additionally, given the racial/ethnic variation in the effects of expectations on college enrollment (Villalobos 2021), and continued racial/ethnic disparities in college completion (Bowen, Chingos, and McPherson 2009), I ask whether any relationship between educational expectations and college completion differs by race/ethnicity. Finally, given the time frame between stated adolescent educational expectations and college completion, it is important to consider the potential pathways through which the effects of educational expectations on college completion might operate. I use the ELS data to examine whether there is an effect of educational expectations on college completion, whether it differs by race/ethnicity, how much of the effect of educational expectations is direct and how much is mediated by the key college process of enrolling in college on-time, and whether these mediating

effects vary by race/ethnicity. I find a positive effect of adolescent educational expectations on college completion across racial/ethnic groups. While the effects of high educational expectations on college completion are smaller for black and Hispanic students than they are for white students and the differences are sizeable in magnitude, these differences do not reach statistical significance. Thus, pre-college social background factors appear to account for much of the explanation as to why black and Hispanic students do not translate their expectations into completion. Yet, the mediating effects of on-time enrollment are significantly larger for those who are black and Hispanic. Although black and Hispanic students are less likely to enroll in college, enrolling in college on-time helps link the relationship between their adolescent educational expectations for college and college completion.

Chapter 4

In Chapter 4 I use the ELS data to examine the relationship between occupational uncertainty and educational outcomes by race/ethnicity. While many adolescents today report high occupational expectations and expect to attain high status professional level jobs (Reynolds, Stewart, MacDonald, and Sischo 2006; Schneider and Stevenson 1999), a nontrivial percentage of students report being uncertain about their occupational expectations (Staff, Harris, Sabates, Briddell 2010; Yates, Harris, Sabates, Staff 2010). Scholars have examined the effects of uncertain occupational expectations in adolescence on occupational outcomes in young adulthood such as wage attainment with older NELS 1988 data (Staff et. al. 2010). Yet, the delayed transition to adulthood in the US warrants examining the effects of occupational uncertainty in adolescence on educational outcomes in young adulthood using data on a more recent cohort. Indeed, educational outcomes are important indicators of eventual occupational destinations, arguably more so than jobs in young adulthood, as young adults may still be in

school and not have yet started their career paths. Additionally, there is likely variation in which students can afford to be uncertain during this transitional period. For example, while white middle and upper class students often have social supports and safety nets to help them as they move through any uncertainty they may encounter during their college pathways (Armstrong and Hamilton 2013), black and lower income students have been found to struggle to adapt, and leave programs without credentials when they change their minds during their college paths (Holland and DeLuca 2016; Edin, DeLuca, Clampet-Lundquist 2016). Given structural and racial inequality, black and Hispanic students may have less social support needed to navigate any uncertainty. In this chapter I find that occupational uncertainty during adolescence is negatively associated with degree attainment in young adulthood such that those who report that they are uncertain and "don't know" the occupation they expect to have at age 30 during adolescence are less likely to attain bachelor degrees and also less likely to attain advanced degrees or be enrolled in an advanced degree program than their peers who expect to attain professional level occupations. The effects of uncertainty are more negative for the advanced degree outcome. Although white and Hispanic students were the most likely to be uncertain in the sample, the effects of uncertainty on educational attainment were similar across racial/ethnic groups in the sample.

In this dissertation, I find that the effects of educational and occupational expectations as stated during adolescence are consequential for both college enrollment and college completion outcomes for students of all racial/ethnic backgrounds, net of controls for social background. Thus, social background accounts for much of the explanation as to why we may not see black and Hispanic students translating their expectations to attainment. Additionally, college processes such as enrolling in college on-time can help link adolescent expectations for college

to college completion. The process of on-time enrollment is more beneficial for those who are less likely to enroll – those who are black and Hispanic. Finally, having uncertain occupational expectations in adolescence is negatively associated with educational attainment for all groups. This research suggests the importance of fostering high expectations for all students and for helping students-especially those from racial/ethnic groups that are underrepresented in higher education- actualize their expectations through securing access to college going processes.

Chapter 2: College-Going in the Era of High Expectations: Racial/Ethnic Disparities in College Enrollment, 2006 to 2015 [1]

Background

College enrollment is a key precursor to college completion, occupational attainment, and social mobility. Adolescents with high educational expectations are more likely to apply to and enroll in college than their peers with low educational expectations (Bozick, Alexander, Entwisle, Dauber, Kerr 2010; Grodsky and Riegle-Crumb 2010; Morgan, Leenman, Todd, and Weeden 2013). In today's society, most adolescents report high educational expectations such that they expect to earn a BA or above (Goyette 2008; Jacob and Wilder Linkow 2011; Schneider and Stevenson 1999); however, there is important heterogeneity in both adolescent educational expectations and college enrollment patterns by race/ethnicity. For example, previous research based on the high school classes of 1979, 1980, and 1992 showed that at every level of socioeconomic status black and Hispanic students had higher educational expectations than their white peers (Hanson 1994; Hoffman 1987; Kao and Tienda 1998). However, data from the high school classes of 1999 and 2000 showed that while black students' educational expectations remained higher than those of their white peers, there were no longer real differences between the educational expectations of Hispanic students and their white peers (Reynolds and Pemberton 2001). Despite findings suggesting higher net educational expectations for some students of color, we still observe lower levels of college enrollment among those who are black and Hispanic relative to their white peers. Although some scholars suggest that the

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effect of expectations on enrollment has declined due to the decoupling of one's social background and their educational expectations as well as the saturation of high educational expectations, these same scholars and others have shown that the expectation-attainment relationship remains (Bozick et. al. 2010; Goyette 2008; Jacob and Wilder Linkow 2011; Reynolds and Pemberton 2001; Reynolds, Stewart, MacDonald, and Sischo 2006; Schneider and Stevenson 1999).

The relationship between high educational expectations yet lower college enrollment for students of color has been dubbed the 'expectation-attainment paradox.' The most recent research on the expectation-enrollment relationship by race/ethnicity uses data from the high school class of 2004 (Jacob and Wilder Linkow 2011). However, it is important to continue to unravel this paradox, particularly with data from newer cohorts of high school students, given changing racial/ethnic demographics and changing patterns in college enrollment. For example, the gap between white and Hispanic students in total college enrollment narrowed by 10 percentage points between 2003 and 2013, while the enrollment gap between white and black students changed little. Additionally, Hispanic enrollment increased by more than 100 percent between 2003 and 2013 (Musu-Gillette, Robinson, McFarland, Kewal Ramani, Zhang, Wilkinson-Flicker, 2016). While enrollment for black and white students also increased, these increases were much more modest such that the white-black enrollment gap did not change much even between 2000 and 2017 (McFarland, Hussar, Zhang, Wang, Wang, Hein, Diliberti, Forrest Cataldi, Bullock Mann, and Barmer 2019). As enrollment trends by race/ethnicity change, it is important to examine any racial/ethnic differences in educational expectations, college enrollment, and the expectation-enrollment relationship.

Different explanations have been offered as to why we may see racial/ethnic differences in the expectation-attainment relationship. For example, students who are racial/ethnic minorities may be less likely to exhibit a consistent college-going habitus (Grodsky and Rieglecrumb 2010) or their expectations may be more volatile throughout the life course as they may be more likely to experience socioeconomic constraints (Bozick et. al. 2010; Kao and Tienda 1999). However, within these analyses there are important gaps. First, some populations have been largely understudied. Most notably, a majority of the quantitative work on racial/ethnic differences in expectations and attainment has often focused primarily on black-white differences while leaving out Hispanic students. It is especially important to include Hispanic students in these analyses, given the large and growing size of the population as well as their historically low educational attainment. (Perna 2000). Finally, it is important to investigate racial/ethnic differences in the expectation-attainment relationship in a context in which high educational expectations are now the norm among adolescents.

I use data from the Educational Longitudinal Study 2002 (ELS) and the High School Longitudinal Study 2009 (HSLS) to examine racial/ethnic differences in educational expectations and enrollment in four-year college. I ask: (1) which racial/ethnic groups have the highest educational expectations in each cohort; (2) whether the relationship between adolescent educational expectations and enrollment in a four-year college differs by race/ethnicity; (3) whether this relationship has changed over time; and (4) whether the overall effect of educational expectations on enrollment in a four-year college has changed over time.

Literature Review

The Formation of Adolescent Educational Expectations

Scholars have long linked social psychological factors, such as one's own educational

expectations, to educational attainment (Feliciano and Rumbaut 2005; Kao and Tienda 1998; Reynolds et. al. 2006; Sewell, Hauser, and Portes 1969). However, there is some debate in the literature about the formation of educational expectations. Scholars of social stratification have used socialization models which consider educational expectations to be a function of family influence and socialization (Sewell, Hauser, and Portes 1969) and allocation models which suggest that expectations may be reflections of one's own understanding of the constraints they face in the attainment process such as their own academic abilities or economic barriers (Kerchoff, 1976). Yet, cultural models suggest that educational expectations may simply be reflections of the normative culture in which one is embedded (Frye, 2012).

Understanding the factors associated with educational expectation formation is important for understanding racial/ethnic differences in the expectation-enrollment relationship (Perna, 2000). For example, while parental influence is associated with a child's educational expectations in socialization models, an existing body of literature shows that parents' educational expectations are not always aligned with the student's own educational expectations. These gaps and mismatches affect student outcomes (Marcenaro-Gutierrez and Lopez-Agudo 2017; Wang and Benner 2014), and the effects of parental expectations on student expectations and student outcomes often differ by race/ethnicity (Cheng and Starks 2002). Additionally, parents' expectations and children's expectations can often influence one another. Thus, including both in the model can create issues with examining the effect of a student's own expectations. Thus, in order to understand the expectation-enrollment relationship, I measure student's own educational expectations. Financial constraints and academic ability can also affect educational expectations, per allocation models. However, black students experience a greater positive effect on college enrollment when they receive financial aid whereas the effects

of financial aid on enrollment disappear for Hispanic students once factors such as academic background are controlled (Jackson 1990). Academic achievement is also associated with expectations and enrollment, but while achievement is an important predictor of the number of applications white students submit it is less important for black students (Hurtado, Inkelas, Briggs, and Rhee 1997). Thus, evidence suggests differential effects of the factors associated with expectations by race/ethnicity.

While scholars of stratification are particularly concerned with the social constraints that impede attainment and reduce the likelihood of achieving mobility, sociologists of culture are concerned with how the culture in which one is embedded shapes one's aspirations and the actions that one takes to achieve those aspirations. It is important to note that expectations and aspirations, while related, are not one in the same. One's expectations are what they expect they can achieve while aspirations are what they would hope to be able to achieve. Based on ethnographic work in rural Malawi, Frye (2012) argues that one's adolescent aspirations are a response to the culture in which one is embedded and a form of asserting one's identity or moral claims about who one is. Frye suggests that adolescents may state certain aspirations not necessarily because they believe they will achieve them but as a response to the culture around them. This work was conducted on the educational aspirations of one group. I extend this concept of being influenced by the culture in which one is embedded to my work on educational expectations across multiple racial/ethnic groups.

While models offer different explanations for understanding adolescent expectation formation, all also provide important understandings of how this may happen – social background, the influence of significant others, structural constraints, and culture. Importantly, while some previous work has suggested that there may be differences in how these expectations

are formed based on one's racial/ethnic background, those analyses are based on older cohorts or qualitative data. I incorporate key aspects of each of these models in order to account for the different factors that play into expectation formation across race/ethnicity as I aim to uncover whether the effect of expectations on enrollment differ.

Trends in Educational Expectations by Race/Ethnicity

Adolescent educational expectations have increased over time for all racial/ethnic groups from the 1970's (Reynolds and Pemberton 2001; Reynolds et. al. 2006) through the most recent studies on expectations using data from the high school class of 2004 (Jacob and Wilder Linkow 2011). However, there remain important racial/ethnic differences in educational expectations, and these have varied over time. In their early and influential book *The Ambitious Generation,* Schneider and Stevenson (1999) used nationally representative data and case studies to chronicle their argument about how teens in the 1990s were much more ambitious- in terms of having higher educational expectations- than those of the 1950s, with a large majority (80 percent) expecting to attend college or graduate school. They argued that students across all racial groups were similarly likely to have either aligned or misaligned ambitions. Later, using data from the high school classes of 1979, 1980, and 1992, others found that at every level of SES black and Hispanic students have higher educational expectations than their white peers (Hanson 1994; Hoffman 1987; Kao and Tienda 1998). Reynolds and Pemberton (2001) used data from the high school classes of 1999 and 2000 and found that adolescents indeed became more ambitious over time such that more adolescents in the more recent cohort expected to obtain a college degree. They also showed that racial/ethnic differences in educational expectations declined such that individuals across all racial/ethnic groups were likely to have high educational expectations. However, even in spite of the decreases in gaps in educational expectations between white and

Hispanic students, black students still report higher expectations than whites, net of family SES. Still, patterns across race/ethnicity may change over time. I use more recent data from the high school class of 2004 and the high school class of 2013 to examine racial/ethnic differences in the expectation-enrollment relationship. This is especially important to reexamine in light of large increases in college enrollment for Hispanic students and more modest increases in enrollment for black and then white students (McFarland et. al. 2019).

Scholars who have focused in more detail on understanding the mechanisms underlying racial/ethnic differences in educational expectations have demonstrated the importance of socioeconomic status (SES) in this relationship (Bozick et. al. 2010; Kao and Tienda 1998). SES will be an important consideration in this study given that students of color are often more likely to be of lower SES, which is consequential in the educational expectation-attainment process. For example, similar to the trends we observe with educational expectations, the educational aspirations of black and Hispanic students are often high during high school, but they are less stable over time than those of their white peers (Kao and Tienda 1998). SES is an important factor in having high and consistent aspirations, but black and Hispanic students, who are more likely to be low SES, show more unstable aspirations and are less informed about college (Kao and Tienda 1998). Consistent with prior work, Bozick and colleagues (2010) also showed that youth from higher SES families tend to have more stable educational expectations throughout their life course than children from middle and lower SES families. These findings suggest long-term inequality in expectations between low and high SES youth. While the study finds important SES differentials, they focus less on race differences and Hispanic students were not included in these analyses. I expand on examining racial/ethnic differentials by including black, white, and Hispanic students with more recent, nationally representative data.

Differentials in the Relationship Between Expectations and Enrollment

Scholars have also examined how educational expectations translate into college enrollment; however, they have done so with less attention to racial/ethnic heterogeneity in the relationship. Recent work in this area used the nationally representative ELS data and found that high school students who state uncertain or inaccurate beliefs about the educational requirements for their expected jobs had lower rates of college entry than those who stated certain and accurate beliefs (Morgan et. al. 2013). While they provide evidence to suggest that adolescent educational and occupational beliefs and expectations are key to college enrollment, they do not further explore heterogeneity in the relationship between expectations and enrollment by race/ethnicity. Additional work using the ELS data found that the gaps in expectations between white students and their black and Hispanic peers have decreased over time. Additionally, while expectations were still predictive of enrollment net of social and academic factors, the effects have decreased over time (Jacob and Wilder Linkow 2011). I extend these studies by specifically focusing on racial/ethnic differences in the expectation-enrollment relationship in both the ELS data and the newer HSLS data.

Other work in this area has more explicitly examined the expectation-enrollment relationship with attention to racial/ethnic heterogeneity. Grodsky and Reigle-Crumb (2010) showed that students with a college-going habitus, i.e., a long-standing assumption that they will go to college, are more likely to apply to college during their senior year of high school. However these same students who seemingly take college enrollment for granted are often likely to be white, native-born, and have college educated parents. Using Texas based data on high school sophomores in 2002, they find only modest racial differences in college going habitus such that black and Hispanic students are less likely to have always expected to complete

college. However, after controlling for factors such as social origins and preparatory commitment, one's race/ethnicity was not strongly associated with having a college-going habitus, and students of all backgrounds did benefit from having a college-going habitus. These findings suggest similar net benefits across racial/ethnic background of having longstanding beliefs that one will complete college. While the authors account for race/ethnicity, these data are not nationally representative. I elaborate on this work by using two nationally representative datasets from more recent cohorts of students.

Overall, studies have shown the clear association between educational expectations and enrollment in college. However, the few studies that examine the expectation-enrollment relationship do not strategically examine racial/ethnic differences, and those that do have not done so using nationally representative data of more recent cohorts. To address changing racial/ethnic trends in college enrollment, I draw on nationally representative and more recent data.

Hypotheses

As described above, research on educational expectations has suggested changes in racial/ethnic educational expectations over time. Given work suggesting increasing expectations over time for all groups (Goyette 2008; Reynolds and Pemberton 2001; Reynolds et. al. 2006; Schneider and Stevenson 1999) and closures in gaps in expectations held by white students and their black and Hispanic peers (Jacob and Wilder Linkow 2011), I hypothesize that I will find similar descriptive levels of expectations for all groups. However, results will likely differ when examining net educational expectations by race/ethnicity. Black and Hispanic students had the highest educational expectations net of SES among cohorts completing high school in 1979, 1980, and 1992, (Hanson 1994; Hoffman 1987; Kao and Tienda 1998). However, in cohorts

completing high school in 1999 and 2000 there were no longer differences in educational expectations between white and Hispanic students net of family SES (Reynolds and Pemberton 2001). Additionally, recent data on enrollment in four-year colleges shows that enrollment rates have increased modestly for white and black students but substantially for Hispanic students from 2000 to 2017 (McFarland et. al. 2019). I hypothesize that, using more recent nationally representative cohorts of the high school classes of 2004 and 2013, I will observe higher net educational expectations among black and Hispanic students relative to white students.

In spite of expecting to observe higher net expectations among black and Hispanic students, I hypothesize that I will find that black students remain less likely to see their educational expectations translate into college enrollment while net enrollment may look more similar between white and Hispanic students. I base this hypothesis on previous empirical work which finds that black and Hispanic students may be less likely to see their educational expectations translate into college enrollment (Perna 200) and often face structural barriers such as lack of information about college (Kao and Tienda 1998; Perna 2000). However, given increases in college-going behavior in the Hispanic population coupled with decreases in enrollment for black and white students, I expect that the relationship between expectations and enrollment will look more similar between white and Hispanic students net of SES in a more recent cohort.

Data and Sample

Educational Longitudinal Study of 2002 (ELS)

I use data from the restricted-use Educational Longitudinal Study of 2002 (ELS) and the

restricted-use High School Longitudinal Study of 2009 (HSLS).[2] One of the primary goals of this paper is to conduct a cohort comparison. Thus, throughout the analyses, I include measures that are available for both cohorts and conduct analyses similarly for each cohort in order to optimize the ability to draw comparisons. The ELS data follow a cohort of students who are sophomores in high school in the spring of 2002. Students are interviewed again in 2004, 2006, and 2012, I examine enrollment in a four-year college within two years of high school graduation based on the educational expectations held during the 10th grade year of high school. 10th grade educational expectations are known predictors of college enrollment (Jacob and Wilder Linkow 2011).[3] In 10th grade students are asked, "As things stand now, how far in school do you think you will get?" I use this question and measure high educational expectations as expecting a BA or above with anything less listed as the reference category.[4]

I include relevant controls from the base year, 10th grade, as they are measured concurrently with stated educational expectations and are known to be associated with both educational expectations and college enrollment. I begin with approximately 16,200 respondents. I focus on those who are non-Hispanic white, non-Hispanic black, and Hispanic, reducing the sample to approximately 12,920.[5] I also include those who have complete data on whether or not they enrolled in college by 2006 (10,660) and those who provide educational expectations during

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[2] In accordance with NCES restricted data disclosure rules, all N's for these data will be rounded to the nearest 10 throughout the paper and in all tables.

[3] Additionally, the other data option for measuring educational expectations is taken during the spring of 12th grade. At this point, students may already know their post high school plans and factor them in to their 12th grade educational expectation response. Thus, I use spring of 10th grade educational expectations.

[4] I use this cut point based on literature suggesting that most adolescents today expect to complete a four-year degree. I also use it to be consistent with previous literature that has examined educational expectations at this cut point.

[5] In additional analyses, I include Asian students. While Asian students have the highest educational expectations and highest college enrollment rates, their small sample size in both the ELS and HSLS does not allow for enough statistical power to render their interactions or comparisons against the interactions of other racial/ethnic groups significant.

their sophomore year of high school (10,660). I perform multiple imputation by chained equation (MICE) using STATA software in order to address missing data across the remaining covariates. MICE allows for each variable to be imputed using its own imputation model, which is important given that I have continuous, ordinal, and binary variables in my model. I perform 10 imputations in order to stabilize my results (White, Royston, and Wood 2011). In my imputation model, I include all covariates including the treatment (expectations) and the outcome (college enrollment). However, after the imputation, I drop cases without observed values on race, the outcome college enrollment by 2006 (Allison 2012; White et. al., 2011), and the treatment variable of educational expectations held in 10th grade.[6]

I measure race/ethnicity as non-Hispanic white, non-Hispanic black, and Hispanic (including those who specify and do not specify their race). I do this in order to investigate any changes in the expectation-enrollment paradox between white students and students of color who have been traditionally underrepresented in higher education. I also include controls for sex (binary for female/male) given the association between sex and educational attainment. I include a categorical composite measure of SES that includes information on mother's education, father's education, family income, mother's occupation and father's occupation and is divided into quartiles.[7] To account for prior achievement of the student, I include a math test score, standardized for ease of interpretation.[8] In order to account for potential differences in stated educational expectations and actual behavior towards college going, I include dichotomous

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[6] Results are robust when imputing the treatment, but as it is the primary measure of interest, I include the model where I do not impute the treatment.

[7] Results were similar using separate measures of parent's education and income. The SES composite includes more information and is consistent with previous literature on this point.

[8] In an attempt to keep my analyses for ELS and HSLS as parallel as possible, I do not include the corresponding reading standardized test score, as it is not available in the HSLS data. However, results in the ELS analysis were robust when using both the math and reading scores or only the math score.

variables for whether the student plans to take the SAT and AP exams. Additionally, educational expectations may be assertions of identity rather than actual plans that adolescents expect or intend to work towards, and assertions of identity may be a response to the culture in which one is embedded and a form of asserting one's identity or moral claims about who one is (Frye 2012). Thus, I include controls for both peer and school culture through dichotomous measures of how important college is to respondent's peers (not important/somewhat or very important) as well as a dichotomous measure of the percentage of students who went to four-year colleges in the graduating class immediately prior to the respondents'. Finally, in order to account for school level influence, I include measures of the school respondents attend: urban or non-urban, located in the south or other region, and school is public, private, or Catholic.

My outcome measure is whether the respondent enrolled in any type of four-year college within two years of high school graduation, 2006. To construct this measure, I use data from the ELS F3 (follow up three) institutional file, which contains information on any postsecondary school associated with the student through 2012. I use these data as they allow me to examine all institutions on file for the student through the end of the 2006 calendar year whereas in the F2 institutional file, some students are interviewed as early as January 2006 meaning that I may miss students who enrolled in a four-year college during Fall 2006. Thus, I construct the variable to include all who participated in the F3 interview. Respondents are then coded as enrolling in a four-year college if they had enrolled in any type of four-year college by the 2006 calendar year." [9]

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[9] This outcome variable was coded many different ways in order to conduct sensitivity analyses - those who enrolled in any four-year college by 2006, not for profit four-year colleges by 2006, and for profit four-year colleges by 2006. Results did not differ when removing subsamples that enrolled in for profit or not for profit four-year colleges. Thus, I use the outcome measure that includes more respondents- enrolled in any four-year college.

High School Longitudinal Study of 2009 (HSLS)

I also use data from the High School Longitudinal Study of 2009 (HSLS) restricted data file.[10] The HSLS is a nationally representative dataset that follows a group of approximately 25,200 students who are 9th graders in 2009. They are interviewed again in 2012, 2013, and 2016. These data are ideal to use for this study as they include many of the same questions that are asked in the ELS dataset. The ELS and HSLS high school graduation dates are also about a decade apart - 2004 and 2013 respectively. This allows for a sufficient timeframe to examine any changes in the expectation-enrollment relationship over time. I aim to make the HSLS analysis as parallel to the ELS analysis as possible in order to optimize comparison. Thus, I also focus on enrollment in a four-year college within two years of high school graduation, 2015, based on the educational expectations held during high school. The HSLS uses the same wording as ELS to ask about educational expectations, and I dichotomize high educational expectations in the same manner. However, the question is asked in Fall 2009 when students are freshmen and again in Spring 2012 when the students are in 11th grade. I measure educational expectations from Spring of 11th grade, which allows me to capture HSLS respondents at a time when they would be more developmentally similar to the ELS respondents who were asked about expectations during the Spring of 10th grade.[11] I include relevant controls from the base year known to be associated with educational expectations and enrollment in college. I restrict my sample to respondents who are non-Hispanic white, non-Hispanic black, and Hispanic, reducing the sample to 18,910. I also include only those who had data on college enrollment by 2015 (13,530) and provided

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[10] I use the restricted data file here as the institutional file needed to create the outcome variable is only available on the restricted file for the HSLS data. Given the restricted nature of the dataset, all N's must be rounded to the nearest 10 in accordance with NCES restricted data policies.

[11] In analyses below I show that results would have been similar if using HSLS 9th grade expectations as opposed to 11th grade expectations.

educational expectations during 11th grade (12,540). As done with the ELS cohort, I use MICE to address missing data on the additional covariates in the model. I also perform 10 imputations and include all covariates in the imputation model. I then drop those without observed data on race, the outcome of college enrollment by 2015, and the treatment variable of educational expectations.

In the interest of keeping the ELS and HSLS analyses as parallel as possible, I measure HSLS covariates in the same way I measure them in the ELS analysis wherever possible. Race/ethnicity is trichotomized as non-Hispanic white, non-Hispanic black, and Hispanic (including those who specify and do not specify their race) and sex is binary for female/male. Socioeconomic status is again measured from the composite measure of SES that includes information on mother's education, father's education, family income, mother's occupation and father's occupation. However, in the HSLS, the SES composite is measured in quintiles as opposed to quartiles. I measure prior achievement again from the base year (9th grade) standardized math test score. To measure behavior towards college going, I again include measures of the SAT and AP exam. The SAT measure for whether the student took or plans to take the SAT is taken from the same question as that used in the ELS analysis, but it is measured from 9th grade as opposed to 10th as in the ELS. For the AP exam measure, I create a dichotomous measure from the junior year question for whether the student has taken one or more AP exams. I again include controls for both peer and school culture through dichotomous measures of how many friends plan to attend a four-year college. The question is the same but is taken from 11th grade. I also include a parallel measure of the school culture for percentage of how many students in the graduating class ahead of our cohort went to four-year colleges. While in the ELS this measure is taken from the senior class immediately prior to the respondents', in

HSLS this information is only available for the class of 2009 who were seniors when the respondents were freshmen. I also include parallel measures of school urban/non-urban, school region, and whether the school is public, private, or catholic.

The outcome measure is whether the respondent enrolled in any type of four-year college within two years of high school graduation. To construct this measure, I use data from the HSLS 2016 F3 (follow up three) file, which contains information on any college associated with the student through 2016. I use these data from the third follow up (2016) as this allows me to see all institutions on file through the full 2015 calendar year. Thus, when creating the outcome measure I include all who participated in the F3 interview. Respondents are then coded as enrolling in a four-year college if they enrolled in a four-year college by the end of the 2015 calendar year.[12]

Analytic Strategy

To begin, I conduct a descriptive analysis of the educational expectations and enrollment trends in the three racial/ethnic groups of interest in this study: non-Hispanic white, non-Hispanic black, and Hispanic students. In these analyses, I examine the percentages within each racial/ethnic group with high educational expectations (expects a BA or above), the percentage who enroll in any four-year college within two years of high school graduation, and those with high educational expectations who enroll in four-year colleges.[13] I do this for both the ELS and HSLS cohorts in order to describe the descriptive trends across two time points. I also examine which groups have the highest educational expectations, net of SES, in each cohort.

For the second part of the analysis, I aim to answer whether the relationship between educational expectations and enrollment in a four-year college differs by race/ethnicity. I begin

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[12] This outcome, similar to the ELS outcome variable, was also coded many different ways, including those who enrolled in any four-year college by 2015 and only non-for profit four-year colleges. Results were robust, so I use the one of enrolled in any four-year college by 2015 as it includes more respondents.

[13] The descriptive analyses for ELS and HSLS are all weighted by their respective panel weights.

the analysis by examining results from the ELS cohort. Using logistic regression, I regress enrollment in a four-year college by 2006 on the main effects for race/ethnicity (black and Hispanic with white as the reference category) and high educational expectations (expects BA or above). Next, I include interactions for educational expectations by race/ethnicity in order to examine whether the effects of expectations on enrollment differ by race/ethnicity, without relevant controls. I proceed by using nested models to add in controls for family background, prior achievement, peer/school culture, and finally school characteristics. In the fully specified model, I examine the effects of expectations on enrollment, by race/ethnicity, net of relevant controls.

In these analyses, I examine both nonlinear effects and interactions, as I believe that the effect of dichotomous educational expectations on whether or not one enrolls in a four-year college differs by their racial/ethnic background. Thus, I use best practices for both estimating and interpreting nonlinear interactions (Mize 2019). I do not use the coefficient of the interaction term to interpret the interaction effect. Rather, I use predicted probabilities of enrolling in a four-year college as the natural metric to interpret the magnitude of the interaction effect. I then calculate the average marginal effect (AME) of having high educational expectations on enrolling in a four-year college for each racial/ethnic group. I estimate the AME in two ways: 1) by calculating the marginal effect (in predicted probability) of having high educational expectations on enrolling in a four-year college for all observations in the sample that are white, black, or Hispanic, and 2) by averaging these effects by the subsample of interest (e.g. white, black, Hispanic). The former allows for each group to have the same covariate distribution and the latter results can sometimes be influenced by the differing covariate distributions of the subgroups. I provide both to confirm results. Next, I calculate the second difference. The second

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difference is a test of whether the AME for one group is the same as the AME for a different group. I subtract the AME of each group from each other group to get the difference in the AME for each group relative to other groups. The test of second difference allows us to see whether the AME of one group is statistically different from the AME of another group, and this confirms whether the interaction effect exists.

For the third part of the analysis I examine whether the relationship between educational expectations and enrollment in a four-year college by race/ethnicity has changed over time. In order to do this, I repeat the analysis carried out on the ELS data using the HSLS data. I perform the nested logistic regressions followed by calculating predicted probabilities and AMEs for each racial/ethnic group. I then conduct tests of second differences where I compare the AME of expectations on enrollment for each group in order to examine which interactions are significant. If any of the interactions are revealed to be significant, I then compare the magnitudes of the second differences in those predicted probabilities in the HSLS and the ELS in order to determine if gaps in the effects of educational expectations on enrollment by race/ethnicity have increased or decreased over time by comparing the size of the gaps.

In the fourth part of the analysis, I examine whether the net effect of educational expectations on enrollment in a four-year college has changed over time. In order to do this, I include relevant controls for family background, prior achievement, school/peer culture, and school characteristics. I compare the coefficient for educational expectations in the ELS model and in the HSLS model.

Results

Descriptive Statistics

In Table 2.1, I present descriptive statistics of variable means by level of educational

expectations for the ELS sample. These means are consistent with the literature on educational expectations, and mostly all differences are significant at p < .05. Those with higher educational expectations are more likely to be white, of higher socioeconomic status, have higher prior achievement, take more actions towards college-going, and have peers and schools where college-going is both more likely to be expressed through both stated preferences and peer behavior. Those who have higher educational expectations are also more likely to enroll in a four-year college by 2006. In Table 2.2, I present the variables means for the HSLS sample. The same patterns hold true in for the HSLS cohort of 2013 high school seniors. One notable difference between the ELS and HSLS cohorts is that there are much more Hispanic students in the HSLS sample.

-TABLE 2.1 HERE-

-TABLE 2.2 HERE-

Trends in Educational Expectations and Enrollment

In Table 2.3, I further explore the trends in racial/ethnic differences in educational expectations and enrollment in a four-year college for both the ELS and HSLS cohorts. Largely, both cohorts follow similar raw patterns in these relationships. For example, white students are the most likely to express high educational expectations, while Hispanic students are the least likely to express high educational expectations. Importantly, the percentage of students in each racial/ethnic group who express high educational expectations is still high, but it has slightly decreased over time for all racial/ethnic groups[14]; the total percentage of students who have high

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[14] Approximately 26% of Hispanic students in ELS were born outside of the US or in PR. This number is approximately 19%. It is possible that this descriptive decrease in non US born Hispanics across the cohorts is associated with the descriptive decrease in educational expectations for Hispanic students from ELS to HSLS.

expectations has decreased from 73% in the ELS cohort to 64% in the HSLS cohort. [15] For college enrollment trends, Hispanic students remain the least likely to enroll in a four-year college within two years of high school graduation in both cohorts. I next present the percentage of students with high expectations who enroll in a four-year college, by race/ethnicity. The overall rates of enrollment in a four-year college within two years of high school graduation have increased from 61% to 65%. The increases are most pronounced for Hispanic students in the decade time span between the ELS and HSLS data collection as they have risen from 39% to 51%. The increases for white and black students are more modest. This descriptive result is consistent with reports that while white and black students have experienced modest increases in college enrollment, Hispanic students have experienced more substantial increase in enrollment. Still, in spite of the enrollment strides made by Hispanic students and the decreases experienced by white and black students, Hispanic students still have the lowest educational expectations and enrollment rates in the more recent HSLS data.

<center>-TABLE 2.3 HERE-</center>

Highest Educational Expectations, Net of SES

Previous work on the high school classes of 1979, 1980, and 1992 suggests that at every level of SES, black and Hispanic students have higher educational expectations than their white peers (Hanson 1994; Hoffman 1987; Kao and Tienda 1998). However, research using more recent data on the high school classes of 1999 and 2000 shows that net of SES there are no longer differences in educational expectations between white and Hispanic students. Rather, black students maintain higher net educational expectations than white students (Reynolds and Pemberton 2001). Table 2.4 shows that these patterns remain similar in the ELS cohort and the

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[15] This trend is consistent when comparing the full samples for ELS and HSLS as well and is available upon request. Samples discussed in this paper are those with complete data on race, expectations, and college enrollment.

HSLS cohort: net of SES, black students have higher educational expectations than white students and for the more recent HSLS cohort there are no net expectation differences between white and Hispanic students.

-TABLE 2.4 HERE-

Effects of Educational Expectations on Enrollment by Race/Ethnicity

I next examine whether the effect of high educational expectations on enrollment in a four-year college differs by race/ethnicity in the ELS cohort. Table 2.5 shows the results for the logistic regression of enrollment in a four-year college by 2006 using the ELS data from the high school class of 2004. First, I examine the main effects of race/ethnicity and educational expectations. Overall, I find that the net controls for family background, prior achievement, students' actions towards college-going, peers' actions and school culture, and school characteristics, the effect of 10th grade educational expectations on enrollment in a four-year college within two years of high school graduation remains high and black students have higher odds of enrollment than their white and Hispanic peers. Model 1 shows the main effects for race/ethnicity and educational expectations. Net of expectations, black and Hispanic students are less likely to enroll in a four-year college within two years of high school graduation such that the odds of enrollment are reduced by 45% for black students and 64% for Hispanic students relative to white students. In Model 2 I include interactions and in Model 3 I include controls for family background. By Model 4, net of all controls for family background, prior achievement, students' actions towards college-going, peers' actions and school culture, and school characteristics, there is no difference in enrollment in a four-year college within two years of high school graduation between Hispanic and white students (with low expectations). Additionally, the effect of high educational expectations on enrollment decreases across the

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models with interactions but remains large such that in the fully specified model having high educational expectations increases the odds of enrolling in a four-year college by about three times relative to having low educational expectations (for white students). This reveals a large net effect of high educational expectations on enrollment in a four-year college in the ELS cohort for our reference group of white students. The effects are also positive for black and Hispanic students as seen when examining the average marginal effects for each group in table 2.6.

-TABLE 2.5 HERE-

In Models 2 and 4 of Table 2.5, I examine the interactions between educational expectations and race/ethnicity in order to assess whether the effect of educational expectations on enrollment differs by race/ethnicity. I find that the effects of expectations on enrollment do differ by race/ethnicity such that the effect of high expectations on enrollment is lower for those who are black and Hispanic. Model 2 includes the main effects for race/ethnicity, educational expectations, and the race/ethnicity and expectations interactions. It reveals that the effect of expectations on enrollment is positive for all racial/ethnic groups, as evidenced by the high and positive main effect of educational expectations, but it is reduced for black and Hispanic students as evidenced by significant coefficients below 1. In Model 4, the fully specified model, the interaction effects appear to remain significant such that the effect of expectations on enrollment is positive for all students, but it is reduced for black students and marginally reduced for Hispanic students (alpha is .08).

For proper interpretation of these interaction effects, I present predicted probabilities of the fully specified model in Table 2.6. I present results that are calculated both by subsample and for all observations. Results are similar and show that net of socioeconomic, academic, and school characteristics, the effect of high educational expectations on enrollment in a four-year

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college is positive for all groups, however the average marginal effect (AME) is smaller for black and Hispanic students. I discuss the results calculated for all observations. The average marginal effect of high expectations on enrollment is largest for white students (0.169) and lower for black (0.098) and Hispanic (0.120) students. Thus, black and Hispanic students receive less of an increase than white students on their predicted probability of enrolling in a four-year college within two years of high school graduation when they have high educational expectations as opposed to low educational expectations. The tests of second difference and contrasts columns reveal that the AME for white students is significantly different from the AME for black and Hispanic students. This confirms that the effect of expectations on enrollment for black and Hispanic students is significantly different from and lower than that of white students and the interactions are significant.

-TABLE 2.6 HERE-

The Expectation-Enrollment Relationship over Time

In Table 2.7, I examine the effect of educational expectations on enrollment in a four-year college by race/ethnicity using the HSLS data. The fully specified Model 4 reveals that net of controls for family background, prior achievement, actions towards college-going, peer and school culture and school characteristics, the effect of educational expectations on enrollment in a four-year college within two years of high school graduation remains positive (as shown by the high coefficient on expectations), and the effects do not appear differ by race/ethnicity as evidenced by non-significant interactions. I first examine the main effects for race/ethnicity and educational expectations. In Table 2.7 Model 1, net of expectations, black and Hispanic students are less likely to enroll in college than their white peers such that the odds of enrolling are reduced by about 40% for each group. In Models 2-4, after controlling for covariates known to

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be associated with college enrollment, racial differences in enrollment disappear for those with low expectations (reference group). Additionally, the net effect of high educational expectations on enrollment is reduced but still large for the reference group white students. In the fully specified model, Model 4, having high educational expectations increases the odds of enrolling in a four-year college by about three times, net of other factors, for white students. These effects are also positive for black and Hispanic students as seen when examining the average marginal effects for each group in table 2.8. I further explore whether these interactions are meaningful below.

-TABLE 2.7 HERE-

Table 2.7 Model 4, the fully specified model, shows that net of relevant covariates the effect of educational expectations on enrollment does not differ by race/ethnicity such that the positive effect of expectations holds for all students. In Table 2.8, I present predicted probabilities of the fully specified model in Table 2.7. I present average marginal effects that are calculated both by subsample and for all observations. Results are similar with both calculations. I find that net of other variables, the effects of expectations on enrollment are positive for each racial/ethnic group, but there are no significant contrasts in the average marginal effects of having high expectations on enrolling in a four-year college for any racial or ethnic group. This holds whether I examine these effects by subpopulation or with all observations.

-TABLE 2.8 HERE-

In answering the question of whether the expectation-enrollment relationship varies by race/ethnicity and has changed over time, I find that it has. In examining Table 2.6 and Table 2.8 once more, Table 2.6 reveals that the second difference (all observations) - or rather the difference in the effect size of expectations on enrollment - for ELS are 0.07 between white and

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black students and .05 between white and Hispanic students. Both are significantly different. However, in the HSLS data, the magnitudes of these differences are about .03 and .02 respectively. Additionally, there are no longer significant differences between racial/ethnic groups in the HSLS, as shown by the lack of significant contrasts in table 2.8. Overall, while the effects of educational expectations on enrollment in a four-year college differ by race/ethnicity in the ELS 2004 cohort of high school seniors, they decrease in magnitude and do not differ in the HSLS 2013 cohort of high school seniors.

These results held against sensitivity tests that removed those who enrolled in four-year for-profit colleges. Thus, it is not the case that enrollment looks similar across racial and ethnic groups because certain groups are enrolling in for-profit colleges. Rather, net of other factors, the effect of educational expectations on enrollment in four-year colleges looks more similar across racial/ethnic groups in 2015 than it did in 2006.

Comparing 10th Graders to 11th Graders

A key feature of examining change in the expectation-enrollment relationship over time is to compare cohorts in parallel ways. Because the ELS and HSLS do not ask questions in the same years, I examine the ELS class of 2004 in 10th grade and the HSLS class of 2013 in 11th grade. It is important to note that the ELS sample used here is similar to the sample for those missing only on the outcome as seen in Table 2.9 and the HSLS sample is used here is similar to the sample for those missing only on the outcome as seen in Table 2.10. Yet, it is possible that comparing ELS 10th graders and HSLS 11th graders may distort the cohort comparison. I examine this in Table 2.11 and 2.12. In Table 2.11, I compare descriptive statistics for HSLS 9th graders to those for ELS 10th graders and HSLS 11th graders. I find that educational expectations decrease from ELS 10th graders to HSLS 11th graders. However, they also decrease

across the ELS and the HSLS cohorts. For example, we would expect younger students to have higher educational expectations than older students as their expectations have not been tempered by their time in the educational system (Jacob and Wilder Linkow 2011). However, the more recent HSLS 9th graders have lower expectations (58% are high) than the older ELS cohort 10th graders (73%) and even HSLS 11th graders (64%). HSLS 9th graders are interviewed in Fall 2009 when they have just started high school. It is possible that they are simply too far from graduation to have fully considered their expectations. Overall, HSLS students have lower expectations in 9th and 11th grade than ELS students have in 10th grade, signaling lower expectations across the cohorts.

In Table 2.12 I present comparative causal analyses using HSLS 9th and HSLS 11th grade expectations. I find that for both 9th and 11th grade expectations there are no significant contrasts such that the interaction effects for race/ethnicity and expectations on enrollment in a four-year college are not significant. Additionally, the tests of second differences for HSLS 9th grade expectations and HSLS 11th grade expectations are both smaller in magnitude than those for ELS 10th graders. In the case of the white-Hispanic tests of second difference, the magnitude decrease from ELS to HSLS is larger if we consider 9th grade expectations as opposed to 11th. Thus, using HSLS 11th grade expectations provides similar and in some cases more conservative estimates of the decrease in the expectation-enrollment relationship by race/ethnicity over time. Overall, the data reveal a decline in the racial/ethnic gaps over time whether comparing ELS 10th graders to HSLS 9th graders or HSLS 11th graders.

Expectations over Time

Given changes over time in college enrollment patterns by different racial/ethnic groups as well as the observed changes here in the expectation-enrollment relationship by race/ethnicity,

it is important to examine any potential changes in the net effect of educational expectations on enrollment. In Model 4 of Table 2.5 and Model 4 of Table 2.7, net of all other factors, having high educational expectations increases the odds of enrolling in a four-year college by about 3 times in the ELS cohort and about 3.4 times in the more recent HSLS cohort, for the reference group. Thus, the effect of high educational expectations on enrollment in a four-year college remains large, positive, and roughly similar over time. While it seems that the effect of expectations on enrollment has actually increased from the ELS to the HSLS cohort, it is important to keep in mind that HSLS 11th graders are closer to graduation than the ELS 10th graders. Thus it is possible that some of the increase in this effect size that we observe in the HSLS cohort is due to the expectations of HSLS students potentially being more accurate.

Discussion

Educational expectations are associated with educational attainment (Bozick et. al. 2010; Goyette 2008; Jacob and Wilder Linkow 2011; Morgan et. al. 2013; Reynolds and Pemberton 2001; Reynolds et. al. 2006; Sewell et. al. 1969). Despite prior work on the high school classes of 1979, 1980, and 1992 suggesting that black and Hispanic students have higher educational expectations than their white peers net of SES (Hanson 1994; Hoffman 1987; Kao and Tienda 1998; Perna 2000) and work on the high school classes of 1999 and 2000 suggesting that black students have higher net educational expectations than their white peers (Reynolds 2001), black and Hispanic students remain the least likely to enroll in higher education. The most recent work on the expectation-enrollment relationship used the ELS data on the high school class of 2004 without fully examining heterogeneity in the relationship by race/ethnicity such that they did not explore racial/ethnic differences in these relationships (Jacob and Wilder Linkow 2011; Morgan et. al. 2013). I build upon prior work on the expectation-enrollment relationship by using data

from both the ELS high school class of 2004 and HSLS high school class of 2013 and pay close attention to the underlying racial/ethnic heterogeneity in these relationships. Importantly, I include Hispanic students in my analysis, while much prior work in this area that did examine race focused primarily on black-white differences or uses older data or data that are not nationally representative.

I find that the relationship between educational expectations and enrollment in a four-year college differs by race/ethnicity such that the effect of high educational expectations is positive for all groups, but it is smaller for both black and Hispanic students in the ELS 2004 cohort high school seniors. However, by the time we observe the HSLS 2013 cohort of high school seniors, the effect of educational expectations on enrollment in a four-year college within two years of high school graduation is similar across all groups; the gap in the expectation-enrollment relationship between black and Hispanic students and their white peers is no longer statistically significant.

There are a few possible explanations for this gap closure. First, descriptive statistics show that white students maintain the largest enrollment rates to date. However, substantial increases in enrollment among Hispanic students and moderate increases in enrollment for black students between 2000 and 2017 (McFarland et. al. 2019) have led to overall declines in enrollment disparities by race/ethnicity. I also observe the HSLS cohort one year closer to their graduation year. Thus, as presented in the Table 2.3 row of students who state high educational expectations and enroll in a four-year college, it is possible that the HSLS students are slightly more accurate in their stated educational expectations than the ELS 10th graders, leading to more equality in the expectation-enrollment relationship in this cohort. Finally, educational expectations appear to decline not only as students age through the school system, but also across

cohort such that the more recent HSLS 9th graders had much lower educational expectations than ELS 10th graders. In spite of these changes, as seen in this study, even net of other factors associated with expectations and enrollment such as family background, student prior achievement, and school culture, the overall effect of high educational expectations on enrollment in a four-year college has remained large and significant across the ELS and HSLS cohorts. Thus, I provide evidence that the role of net expectations in enrollment in a four-year college remains strong and similar across racial/ethnic groups.

This study is subject to some limitations. First, although the two datasets used are very similar, they do not always ask the same questions at the same stages of high school. Thus, the primary variable of educational expectations is measured from the 10th grade year for the ELS cohort but the 11th grade year for the HSLS cohort. One's educational expectations typically become more accurate as respondents age and gain more information about their academic capabilities (Jacob and Wilder Linkow 2011). It follows that the educational expectations of the 11th graders in the HSLS cohort appear descriptively lower than those of the 10th graders in the ELS cohort. Thus, it is possible that we may be observing more accurate educational expectations for the newer HSLS cohort. Still, using data from the ELS 10th graders and HSLS 11th graders allows me to capture both cohorts at a time when they are developmentally similar as possible given the design of both datasets. Importantly, as seen in Table 2.12, using HSLS 9th grade expectations for the analyses would have produced the same story – racial/ethnic gaps in the expectation-enrollment relationship have declined over time. Additionally, I am only able to observe enrollment in a four-year college within two years of high school graduation for the newer HSLS cohort. Future research can conduct a cohort comparison by looking at later stage college enrollment as the HSLS cohort ages. Another limitation of this study is that I examine

only three racial/ethnic groups, given my focus on gaps between white students and students of color who have historically been underrepresented in higher education as well as the small sample sizes of remaining groups. However, as the diversity of this country continues to grow, future studies should include more racial/ethnic groups in the study of the expectation-enrollment relationship.

Through this cohort comparison, I find evidence for decreased racial/ethnic variation in the expectation-enrollment relationship. In the era of high educational expectations for all students, educational expectations remain important predictors of college enrollment, and the expectation-enrollment gap between racial/ethnic groups seems to be narrowing. This seemingly suggests that encouraging students to have high educational expectations can serve as a mechanism through which educational equity in college enrollment can be achieved. However, these gap closures in the expectation-enrollment relationship by race/ethnicity can likely also be explained by modest increases in enrollment by black and white students, larger increases in enrollment for Hispanic students, and the tempering of expectations not only as students age but also over time - across cohorts. Still, it is important to remember that these results are found net of several factors that are unequally distributed across racial/ethnic group such as parental SES, family structure, and prior achievement. Thus, net of other variables, high educational expectations remain important predictors of college enrollment, suggesting benefits of promoting college going for all students. As the racial/ethnic diversity of the U.S. increases, it is especially critical to understand factors that can promote college going for the most disadvantaged groups. Thus, it is important that we continue to understand racial/ethnic differences in the expectation-enrollment relationship given the increasing diversity in the U.S. and the implications of educational attainment at both the individual and societal level.

Chapter 3: Does the Process Linking Educational Expectations to College Completion Differ by Race/Ethnicity

Introduction

Most adolescents have high educational expectations such that they expect to earn a four-year degree (Goyette 2008). While we observe high educational expectations across racial/ethnic groups, we also observe continued racial/ethnic disparities in college completion (Bowen, Chingos, and McPherson 2009; McFarland, Hussar, Zhang, Wang, Wang, Hein, Diliberti, Forrest Cataldi, Bullock Mann, and Barmer 2019). Scholars have found that those with high educational expectations are indeed more likely to enroll in four-year colleges (Bozick, Alexander, Entwisle, Dauber, Kerr 2010; Jacob and Wilder Linkow 2011 Morgan, Leenman, Todd, and Weeden 2013), but these relationships vary by race/ethnicity (Villalobos 2021). Scholars have less often examined whether those with high educational expectations are more likely to go on to earn a four-year degree. Indeed, there is a meaningful gap of time between adolescent educational expectations measured during high school and college completion that is typically observed during young adulthood. Yet, educational expectations have long been associated with a key step of college completion - college enrollment (Jacob and Wilder Linkow 20113; Morgan et. al 2012; Sewell et. al. 1969; Villalobos 2021). Thus, it is important to consider whether pre-college adolescent educational expectations to earn a four-year degree affect college completion and whether any relationship between educational expectations and college completion also differs by race/ethnicity. Given the aforementioned time frame between stated adolescent educational expectations and college completion, it is also important to consider the role of postsecondary factors in helping to explain the racial/ethnic college completion gap (Flores, Park, and Baker 2017). Indeed, postsecondary factors may serve as

potential pathways through which the effects of educational expectations on college completion might operate and can offer insight into why we may see racial/ethnic differences in the ability to realize educational expectations.

Although the number of black and Hispanic students enrolling in college has increased, black and Hispanic students remain underrepresented in both college enrollment and college completion (McFarland et. al. 2019). While students of color remain less likely to enroll in college than their non-Hispanic white peers, when they do enroll, they are often less likely to complete college, even after controlling for pre-college academic preparation (Bowen et. al. 2009). While much of the college completion gap by race/ethnicity can be explained by pre-college characteristics (Eller and DiPrete 2018), a nontrivial amount of this gap can be explained by postsecondary factors that occur during the college-going process (Flores, Park, and Baker 2017). Indeed, pre-college educational expectations stated during adolescence are important such that youth who actively plan for their futures have been found to have higher attainment over the life course (Clausen 1991), while adolescents who are uncertain about their educational expectations are less likely to enroll in college and more likely to drop out if they do enroll (Freelin and Staff 2020). While having high educational expectations and planning for next steps are important factors in college completion, it is also important to actualize these plans and expectations via key postsecondary college processes such as enrolling in college on-time (Bozick and DeLuca 2005).

Postsecondary factors have been associated with the racial/ethnic gaps in college completion (Flores, Park, and Baker 2017). Indeed there is known heterogeneity and inequality in college processes between students of different backgrounds. For example, while students from less advantaged families are less likely to have the supports in place to navigate college

pathways and processes (Armstrong and Hamilton 2013; Holland and DeLuca 2016), students from more advantaged backgrounds often have parents who have been shown to play "the long game" in that they have been carefully crafting and planning futures with and for their children (Hamilton, Roska, and Nielson 2018).). These more affluent youth navigate college pathways and processes with the financial and social safety net afforded by their families (Armstrong and Hamilton 2013). Students with less supports in place to navigate college processes, sometimes even in spite of having entered college with a plan, are more likely to leave college with debt and without a degree (Armstrong and Hamilton 2013). Given these differential patterns in college processes, it follows that students from less advantaged racial/ethnic backgrounds may benefit more from having access to key college processes on their path to complete a four-year degree. A key college process for college completion is on-time enrollment. Failure to enroll on-time has been negatively associated with ever enrolling and with completing a four-year degree (Bozick and DeLuca 2005). Thus, I examine whether enrolling on-time is more consequential in linking one's educational expectations for college completion to eventual college completion for students of color.

I use data from the Educational Longitudinal Study of 2002 to examine whether there is an effect of educational expectations on college completion, how much of the effect of educational expectations is direct and how much is mediated by key college pathways such as enrolling in college on-time, and whether these direct and mediating effects vary by race/ethnicity. I extend the literature on educational expectations by examining the effects on college completion and by focusing on mediating factors in the process to better understand the pathways through which the educational expectations for college completion may operate. Given continued racial/ethnic disparities in college completion despite high expectations, I consider

racial/ethnic heterogeneity in these relationships. We know that black and Hispanic students have higher expectations than they realize relative to white students. While these differences may be attributable in part to pre-college characteristics (Flores, Park, Baker 2017; Eller DiPrete 2018), the pathway to college indeed extends beyond high school, and college processes themselves have been found to vary such that those who are more well resourced typically have the safety nets necessary to navigate the opaque college processes and pathways (Armstrong and Hamilton 2013; Holland and DeLuca 2016). While there are many factors that may limit college completion among racial and ethnic minorities, here I focus on to what extent they are unable to realize those expectations because they do not follow traditional college pathways and processes of on-time college enrollment.

Background

Educational Expectations and College Completion

Educational expectations have been explained as products of family influence and socialization (Sewell et. al. 1969), reflections of one's own understanding of their own constraints and what they believe they can attain (Kerckhoff 1976), and reflections of the culture in which one is embedded (Frye 2012). While there are several explanations behind how adolescent educational expectations are formed and what they reflect, there is generally a consensus that having high educational expectations is positively associated with college enrollment relative to those with lower educational expectations (Bozick, et. al. 2010; Jacob and Wilder Linkow 2011; Morgan et. al. 2012; Villalobos 2021). While youth who are considered planful and state educational and career plans tend to have more positive attainment outcomes than those who do not (Clausen 1991), not being certain about one's educational plans during adolescence has been associated with less positive outcomes such as being less likely to enroll in

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college and more likely to drop out if one does enroll (Freelin and Staff 2020). Given the consistent relationship between high educational expectations and college enrollment, it is important to investigate whether this relationship extends to eventual college completion. Indeed, scholars have found that educational expectations that form as early as elementary school can be sustained and are associated with college enrollment (Bozick et. al. 2010). Yet others have found that educational expectations are more volatile over time for black and Hispanic students (Kao and Tienda 1998). If educational expectations formed from a young age can be consequential for college enrollment, it is likely that educational expectations stated during high school may affect eventual college completion. Given the differences in sustaining expectations across racial/ethnic groups, it is important to examine differences in how educational expectations affect college completion.

Racial/Ethnic Differences in College Completion

Examining racial/ethnic variation in the relationship between adolescent educational expectations and college completion is important given that we see similar levels of expectations across racial/ethnic groups alongside differential rates of college completion. Bowen, Chingos, and McPherson (2009) argue that although the returns to a college education have largely increased over the last few decades, college completion rates have not increased at a similar rate and they have not grown at equal rates across groups. Accordingly, six-year college completion rates for those who entered college in 2010 were 64% for white students but only 54% for Hispanic students and 40% for black students (US Department of Education 2016). Although people of color are on track to outnumber non-Hispanic whites by about the year 2046, there are significant disparities in the completion rates of black and Hispanic students and their white peers (Bowen et. al. 2009). Jacob and Wilder Linkow (2011) find that there is greater

misalignment between the educational expectations and attainment of disadvantaged students. Students of color are indeed more likely to be disadvantaged in the educational system given historical underrepresentation of these communities in higher education relative to their white peers. Thus, it is important to examine the relationship between educational expectations and college completion by race/ethnicity.

Mediators in the Expectation - Completion Relationship

While more than half of the college completion gap by race/ethnicity can be explained by pre-college characteristics, approximately 35% can be explained by postsecondary factors (Flores, Park, and Baker 2017). Indeed, while pre-college factors such as background (Eller and DiPrete 2018) and one's adolescent educational expectations may affect college completion, much can happen after high school and during the college process to affect college completion and potentially help link one's educational expectations to their college educational attainments. First, when a student chooses to enroll in college is a key part of the college-going process and a potential mediating factor in the educational expectation – college completion relationship. Scholars have found differences in who enrolls on-time (Morgan et. al. 2012). Not enrolling on-time is negatively associated with college completion as delays often lead to not enrolling in four-year colleges (Bozick and Deluca 2005). Thus, on-time enrollment is an important factor to explore in the expectation-completion relationship.

When examining the role of on-time college enrollment in the expectation-completion relationship, it is important to consider that enrollment processes vary across racial/ethnic groups (Perna, Rowan-Kenyon, Bell, Thomas, and Li 2008). Indeed, black students are now more likely to enroll in less selective institutions over time relative to white and Hispanic peers (Baker, Klasik, Reardon 2018). Yet, there is a well-established relationship between educational

expectations and enrollment in four-year colleges (Bozick et. al. 2010; Jacob and Wilder Linkow 2011; Villalobos 2021), and I will explore the effects of educational expectations on college completion that are direct and those that are mediated by on-time enrollment in a four-year college. I will also examine whether this process varies by race/ethnicity in order to better understand why students of different racial/ethnic backgrounds may be less able to translate their educational expectations for college into college completion. While the indirect effects via on-time college enrollment can be thought of as operating through the student acting on their educational expectation to earn a four-year degree by enrolling in college within six months of high school, any remaining direct effect of educational expectations on college completion can be said to be due to the direct effect of having an educational expectation during adolescence and being planful.

Literature on inequality in college processes suggests that the role of on-time enrollment in facilitating the expectation-completion relationship may vary by race/ethnicity. For example, scholars have found heterogeneity in which students can successfully navigate their educational expectations and plans during the college process (Armstrong and Hamilton 2013; Holland and Deluca 2016). In their ethnography of white college women, Armstrong and Hamilton (2013) found that more affluent women often had the support and safety nets of families to successfully help them navigate college via knowledge of the college process and skills needed in order successfully navigate paths. Yet, working class women often did not have similar supports to navigate their way through the college path. Similarly, Holland and Deluca (2016) find that working class black students often seek quick pathways to adulthood, end up changing their plans, dropping out, and leaving school without credentials and with debt. These studies reveal the difficulty that more disadvantaged students face when navigating their plans during the

college process. While both look only within racial groups. Others, however, have indeed found racial/ethnic differences in college processes (Dickson 2010) such that that black and Hispanic students are often equally as likely to enter college with STEM majors as their white peers, but they are less likely to graduate with these majors than other peers who entered with the same plans (Dickson 2010). I will examine whether the role of the college process of on-time enrollment in facilitating the expectation-completion relationship is differentially consequential for students of different racial/ ethnic backgrounds.

Research Questions and Hypotheses

I ask the following questions:

1) Do educational expectations affect college completion and do the effects differ by race/ethnicity?

2) How much of the effect of educational expectations on college completion is direct and how much is indirect as mediated by key college processes such as enrolling in college on-time? And do the effects of these mediators vary by race/ethnicity?

I hypothesize that given the established relationship between educational expectations and college enrollment (Bozick et. al. 2010; Jacob and Wilder Linkow 2011), I will find a significant positive relationship between educational expectations and college completion. Given racial/ethnic variation in the relationships between educational expectations and college enrollment (Villalobos 2021), I also hypothesize that I will find racial/ethnic differences in the relationship between expectations and completion by race/ethnicity such that the effects of expectations will be lower for black and Hispanic students than for white students. Given the time frame between the expectations and completion and the known relationship between on-time enrollment (Bozick and Deluca 2005), I hypothesize that much of the effect of educational

expectations on college completion will operate through mediators of enrolling on-time and declaring a major. Additionally, I hypothesize that the mediating pathways will also differ by race/ethnicity such that on-time pathways will be more consequential for students who have traditionally been underrepresented in higher education such as black and Hispanic students.

Data and Sample

Educational Longitudinal Study of 2002, Public Use Data (ELS)

I use data from the public use Educational Longitudinal Study of 2002 (ELS). The ELS data follow a cohort of students who were sophomores in high school in the spring of 2002. These students were interviewed again in the spring of 2004 when most were seniors in high school. They are also interviewed again in 2006 and 2012. My outcome is whether respondents earned a four-year degree by the 2012 interview, which occurs eight years after high school graduation. My treatment is high educational expectations, as stated during the spring of 10th grade. While the data also contain measures of expectations stated in 12th grade, I use 10th grade educational expectations as they are known predictors of college (Jacob and Wilder Linkow 2011), and I am interested in mediators such as enrollment within six months of high school graduation. Thus, it is important to consider expectations from 10th grade as 12th grade may be too close to enrollment and be endogenous to the process of enrollment. In 10th grade students are asked, "As things stand now, how far in school do you think you will get?" I use this question to measure high educational expectations as expecting a BA or above with any expectations for less than a BA listed as the reference category.

Because my treatment of high educational expectations is measured in the base year of the survey, 10th grade, I also include controls from the base year. These controls are measured concurrently with stated educational expectations and are also known to be associated with both

educational expectations and college completion. I begin with the full sample of approximately 16,200 respondents. I then focus only on those who are non-Hispanic white, non-Hispanic black, and Hispanic. This reduces the sample to approximately 12,920. I include those who have complete data on the highest level of education attained by the 2012 survey (10,660) those who list their educational expectations during 10th grade (10,660), and those who have data on whether or not they enrolled in college immediately (10,491).[16] Given that I include a large set of predictors, I perform multiple imputation by chained equation (MICE) using STATA software to address missing data across these remaining covariates. With MICE, I can impute each variable with its own imputation model, which is important given that I have both continuous and binary variables in my model. In my imputation model, I include all the covariates including the treatment of high educational expectations and the outcome of four-year college completion by 2012. After performing the imputation, I drop cases without observed values on race, my outcome of college completion by 2012, the treatment variable of educational expectations held in 10th grade, and the mediator of on-time college enrollment.

I measure three categories of race/ethnicity: non-Hispanic white, non-Hispanic black, and Hispanic (including all who specify or do not specify their race). I focus specifically on these groups as I am interested in the expectation-achievement relationship between white students and students of color who have been traditionally underrepresented in higher education. I control for sex and a binary composite measure of socioeconomic status (SES) high/low that includes information on mother's education, father's education, family income, mother's occupation and father's occupation. To account for prior achievement of the student, I include a math test score that is standardized for ease of interpretation. To account for potential differences in a student's

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[16] I include this restriction so that the N for my first analysis can match the N for my mediation analysis which includes the mediator of on-time college enrollment. Results for the first analysis were similar with and without this additional sample restriction.

stated educational expectations and their actual behavior towards educational attainment, I include binary variables for whether the student took or plans to take the SAT and AP exams. Additionally, as stated by Frye (2012) educational expectations may be a response to the culture in which one is embedded and a form of asserting one's identity or moral claims about who one is (Frye 2012). Thus, I include controls for peer culture and school culture through dichotomous measures of how important college is to respondent's peers (not important/somewhat or very important). I also include a dichotomous measure of the percentage of students who went to four-year colleges in the graduating class immediately prior to the respondents'. I also account for school level influence by including measures of the school respondents attend: urban or non-urban, located in the south or other region.

A key aspect of this research is mediation. In examining the relationship between educational expectations and college completion, it is important to consider that several processes and experiences take place between the time respondents state their educational expectations for a four-year degree in 10th grade and potentially earn that degree by 2012, eight years after high school graduation. I am interested in how much of the effect of high educational expectations on college completion is direct and how much is mediated by the processes of on-time college enrollment. On-time college enrollment is measured as whether respondent enrolled in a four-year college on-time, i.e., within six months of high school graduation (Morgan et. al. 2012). I measure on-time enrollment as enrolled in a four-year college by December 2004 or not. In my imputation models for the enrolled mediation analysis, I include the measure for enrolled by 2004 along with previously mentioned covariates, outcome, and treatment. For this mediation model I also use multiply imputed data following the same procedure outlined above and dropping the same cases for an N of 10,491. My outcome measure is whether the respondent

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earned a four-year college degree within eight years of high school graduation, 2012. To construct this measure, I use a variable from 2012, which measures the highest level of educational attainment on file for respondents by 2012. Respondents are coded as college completers if they earned a four-year degree by 2012.

Analytic Strategy

I begin with a descriptive analysis of educational expectations and college completion trends by race/ethnicity. In these analyses, I examine the percentages within each racial/ethnic group with high educational expectations (expects a BA or above), the percentage who complete a four-year college by 2012, the percentage who enrolled on-time, those with high expectations who enrolled on time, and those with high educational expectations who complete four-year college. Examining these trends provides a baseline assessment of the sample. For the second part of the analysis, I ask do educational expectations affect college completion, and do the effects of educational expectations on college completion differ by race/ethnicity? Using logistic regression, I regress college completion by 2012 on the main effects for race/ethnicity (black and Hispanic with white as the reference category) and high educational expectations (expects BA or above). I include interactions for educational expectations by race/ethnicity to examine whether the effects of expectations on college completion differ by race/ethnicity, without controls. I proceed by using nested models to add in controls for family background, prior achievement, peer/school culture, and finally school characteristics. In the fully specified model which includes interactions for race/ethnicity and expectations, I address whether educational expectations affect college completion for the reference group (white) by examining the effects of expectations net of relevant controls and interactions. I assess whether educational

expectations affect college completion for other racial groups using the marginal effects based on this fully specified model.

To address whether the effects of educational expectations on college completion differ by race/ethnicity, I use predicted probabilities of completing a four-year degree to interpret the magnitude of the interaction effect (Mize 2019). I calculate the average marginal effect (AME) of having high educational expectations on earning a four-year degree for each racial/ethnic group (first difference). I calculate the AMEs (in predicted probability) of having high educational expectations on completing a four-year degree using all observations in the sample that are white, black, or Hispanic. This method allows for each group to have the same covariate distribution. Next, I calculate the second difference. The second difference is a test of whether the AME for one racial/ethnic group is the same as the AME for a different racial/ethnic group. I subtract the AME of each group from each other group to get the difference. This test confirms whether the interaction effects between educational expectations and race/ethnicity exist.

Causal Mediation Analysis

Using causal mediation analysis, I consider how much of the effect of educational expectations on college completion is direct and how much is indirect as mediated by a key college processes of on-time enrollment, and whether the direct and mediating effects vary by racial/ethnicity. I decompose the effects of educational expectations as stated during high school on college completion by 2012 into direct and indirect effects, using this mediator. While direct effects measure the effect of educational expectations directly on college completion, indirect effects measure the effects of educational expectations that are transmitted through the mediating variable to the outcome of college completion. These causal mediation methods have been

increasingly used to better understand the pathways through which treatments affect outcomes (VanderWeele 2016; Brand, Moore, Song, and Xie 2019).

I begin by measuring the total effects of educational expectations on college completion. Given that my outcome of college completion by 2012 is dichotomous, the total effect is measured as the product of the natural direct effect and natural indirect effect odds ratios (Valeri and VanderWeele 2013). I then examine the mediating or indirect effects of two separate mediators. Finally, I calculate the proportion of the total effects of high educational expectations on college completion that is transmitted through the mediator of on-time enrollment in a four-year college within six months of high school graduation. Because my outcome is dichotomous, the proportion mediated is calculated by first converting the indirect, direct, and total effects from odds ratios to risk ratios. This conversion is necessary when the outcome is not rare such that greater than 10% of the sample is at risk for the outcome of college completion (Valeri and VanderWeele 2013). After this conversion, the proportion is calculated by taking the ratio of the natural indirect effect to the total effect. I next examine the proportion of the effect of expectation on college completion that is mediated by on-time enrollment for each racial/ethnic group. I further describe the mediation analysis below.

For each respondent, the total treatment effect (TE) of educational expectations on college completion is defined as the differences between the treated (those who state that they expect to obtain a BA or above) and the untreated (those with other expectations). Thus, I ask whether respondents who had high educational expectations would have had different outcomes if they had lower expectations. However, given that my data are observational, I cannot examine situations in which respondents experience both outcomes. Thus, I employ the ignorability assumption, which in this case states that educational expectations are not correlated with any

unobserved factors that affect college completion. To better support this assumption, I control for a variety of covariates (previously mentioned) known to be associated with both educational expectations and college completion. I also assess whether total effects of expectations vary by race/ethnicity. I note that these variations may result given the differences in expectation levels observed such that white students typically have the highest raw educational expectations while black and Hispanic students tend to have higher expectations net of SES (Hanson 1994; Hoffman 1987; Kao and Tienda 1998).

The mediation effect is measured as the natural indirect effect (NIE) on the outcome through the mediator. This indirect effect shows what change would occur to the outcome if the mediator changed from treated to untreated, while holding the treatment constant at high expectations. This means that the only pathway operating is that of the mediator (Brand et. al. 2019). I then estimate the proportion of the total effect that is indirect by taking the ratio of the natural indirect effect to the total effect. The causal mediation models allow me to examine the direct effect of educational expectations on college completion as well as the indirect effects transmitted through the mediators. The mediation models are set up as follows: First, I run a regression that predicts the of mediator on-time enrollment and contains covariates for family background, student achievement, actions towards college, peer culture, and school factors. Next, I fit a regression of the outcome college completion on the mediator of on-time college enrollment, race/ethnicity, and pretreatment (pre-expectations) covariates. For pretreatment covariates, I include a rich set of covariates such as parental education, family structure, parental occupations, and students' prior achievement. I then stratify the results by repeating this analysis for each racial/ethnic group to examine any heterogeneity.

Results

Descriptive Statistics

In Table 3.1, I present descriptive statistics of variable means for my full sample as well as by the treatment of educational expectations. These means are consistent with the literature on educational expectations. Like the sample in chapter 1, students who report higher educational expectations are more likely to be white, have higher socioeconomic status (SES), have higher prior achievement as measured by math test scores, have peers with higher educational expectations, and attend schools where college-going is more likely. Those who report higher educational expectations are also more likely to experience the meditator of enrolling in college on-time by 2004. These respondents also have higher means for the outcome of college completion by 2012.

-TABLE 3.1 HERE-

Descriptive Trends in Educational Expectations and College Completion by Race

In Table 3.2, I explore the descriptive trends in racial/ethnic differences in educational expectations and college completion for my sample. The patterns are aligned with the literature on expectations such that white students are more likely to express high educational expectations, enroll in college, and complete college than black and Hispanic students. For college completion trends, Hispanic students remain the least likely to complete a four-year degree, completing at almost half the rate of their white peers. When examining trends for on-time enrollment, black and Hispanic students are less likely to enroll in college on-time. Even when examining those with high expectations who enroll on-time the numbers are highest for white students. Finally, black and Hispanic students with high educational expectations complete college at half the rate of their white peers, even within eight years of high school completion.

Effects of Educational Expectations on College Completion by Race/Ethnicity

I next examine whether there is an effect of educational expectations on college completion, whether the effect of high educational expectations on college completion differs by race/ethnicity, and what the role of the mediators is in these relationships as well. As I am interested in how the effect sizes of expectations as well as the interactions change as I account for covariates. I present the results for the logistic regressions with model building in Table 3.3.

First, to answer whether there is an effect of educational expectations on college completion, I examine the main effects of educational expectations in Table 3.3. In Model 1, I find that net of race/ethnicity the effect of 10th grade educational expectations on college completion is large and positive such that having high educational expectations increases the odds of completing college within eight years of high school graduation by about 6 times. Across the models, I include the interactions by race/ethnicity and expectations as well as various controls family background, prior achievement, school and peer culture. In the fully specified Model 4, net of all others I find a positive effect of educational expectations on college completion for the reference group of white students such that having high educational expectations increases the odds of completing college by about 2 times relative to those who do not have high educational expectations. Results in Table 3.4 for the test of first difference of average marginal effects show that there is also a positive effect of expectations on completion for black and Hispanic students.

Next, I examine whether the effect of expectations on college completion differs by race/ethnicity. In Model 1, net of expectations, black and Hispanic students are less likely to complete college within eight years of high school graduation such that the odds of completion

are reduced by about 60% for black and Hispanic students relative to white students. In Model 2 I include interactions for race/ethnicity and expectations. In this model, the interactions are significant such that the effects of expectations are positive for all groups, but they are smaller for black and Hispanic students, as seen in the odds ratios below 1. However, across the models with interactions, as I add controls for family background, there is no longer a difference in college completion between black Hispanic and white students with low educational expectations (reference group). Additionally, the effect of high educational expectations on completion decreases across the models with interactions but remains large such that in the fully specified model having high educational expectations increases the odds of earning a four-year degree by about 2 times relative to having low educational expectations, for white students. Importantly, the interaction effects are null by Model 3, which accounts for family background. Thus, it appears that net of others, the effect of expectations on college completion does not differ by race/ethnicity and social background helps account for differences in the relationship between expectations and completion.

-TABLE 3.3 HERE-

For proper interpretation of these interaction effects, I present predicted probabilities of the fully specified model in Table 3.4. I present results that are calculated for all observations. Results are similar and show that net of socioeconomic factors, academic, and school characteristics, the effect of high educational expectations on four-year college completion is positive for all groups. The average marginal effect of high expectations on enrollment is largest for white students (0.142) and lower for Hispanic (0.092) and black (0.098) students. It is clear from these magnitude differences that Black and Hispanic students, even net of social background factors accounted for in these models, receive less of an increase than white students

on their predicted probability of earning a four-year degree when they have high educational expectations as opposed to low educational expectations. Thus, sizeable differences seem to exist in the magnitudes of the effect of expectations on completion. However, the tests of second difference and contrasts columns reveal that the AME for white students is not significantly different from the AME for black and Hispanic students. This suggests that the effect of expectations on enrollment for black and Hispanic students is not significantly different from that of white students, the interactions are not significant, and it is social background that accounts for much of the racial/ethnic differences in the relationship between expectations and completion. Even though these differences are not statistically significant after having accounted for social background factors, the magnitudes of the differences in the expectation-completion relationship between white students and their black and Hispanic peers are important to consider.

-TABLE 3.4 HERE-

In Table 3.5 I answer how much of the effect of educational expectations on college completion is mediated by enrolling in a four-year college on-time, within six months of high school graduation. I present these results for total effects, mediation effects, and percent of effect mediated, by race/ethnicity. Because my outcome of completed college by 2012 is binary, I have converted my results from odds ratios to risk ratios to properly interpret proportion mediated. This is because when the outcome is not rare (such that more than 10% of the population is at risk for the outcome), odds ratios do not approximate risk ratios and are not proper for interpreting mediation effects (Vanderweele and Vansteelandt 2010). I find large effects for white, black, and Hispanic students such that enrolling in a four-year college by 2004 increases the probability of college completion by about 51%, 55%, and 60%, respectively. The mediation effects are also large at 17%, 29% and 34%. Overall, the percent mediated is large and

significant for each group at 77%, 83%, and 84%. The mediation effects for black and Hispanic students are   significantly different than those for white students. This suggests that on-time enrollment plays a key role in transmitting educational expectations into completion, especially for those who are black and Hispanic.

- TABLE 3.5 HERE -

Overall, these results suggest that while educational expectations have an effect on college completion, a large percentage of these effects of expectations on enrollment are mediated by key college process of enrolling in college on-time that occur in the years between stated high school educational expectations and college completion.

Discussion

There is known heterogeneity in the expectation-completion relationship such that educational expectations for college are high across racial/ethnic groups, yet black and Hispanic students are less likely to earn four-year degrees. I extend the previous work on educational expectations and college enrollment by examining how adolescent educational expectations for college influence eventual college completion. As the path between expecting a college degree and earning one is long, I also examine the role of the postsecondary process of enrolling in college on-time in mediating the expectation- completion relationship. I assess race/ethnicity differentials in these relationships. I find that adolescent educational expectations continue to matter for eventual college completion. While the effects of high educational expectations on college completion are positive but smaller for black and Hispanic students than they are for white students and the differences are sizeable in magnitude, these differences do not reach statistical significance. Thus, pre-college social background factors appear to account for much of the explanation as to why black and Hispanic students do not translate their expectations into

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completion. Yet, given inequality in college processes, it is important to consider the role of college processes in translating educational expectations into completion. In the causal mediation analysis, I find that the mediating effects of on-time enrollment are significantly larger for those who are black and Hispanic. Thus enrolling in college on-time helps facilitate the expectation-completion relationship more for those who are black and Hispanic than for those who are white.

My results align with literature suggesting that racial/ethnic variation in college completion can be attributed largely to pre-college characteristics (Eller and DiPrete 2018), but also to postsecondary factors (Flores et. al. 2017). While pre-college social background factors accounted for much of the relationship between expectations and enrollment for students of color, I also examined the role of the postsecondary factor of on-time enrollment via causal mediation analysis. On-time enrollment played a significant role in mediating the relationship between educational expectations and college completion. Large percentages of the effect of educational expectations on college completion are meditated by on-time enrollment for all groups. This aligns with work that suggests benefits to enrolling in college immediately for college completion (Bozick and Deluca 2005). Taking this early step to actualize the original plan to complete a four-year degree by enrolling in college within six months of high school helps transmit expectations into completion. Importantly, this effect is larger for those who are black and Hispanic. While black and Hispanic students have high educational expectations, they are less likely to enroll in and complete college. Yet, enrolling on-time helps facilitate completion more for these groups.

These findings align with work that suggests inequality in college processes for our most disadvantaged students (Armstrong and Hamilton 2013). While pre-college social background accounts for much of the racial/ethnic differences in the relationship between expectations and

completion, the college process of enrolling in a four-year college on-time particularly helps translate expectations into completion for those who are black and Hispanic. These findings highlight the importance of college processes such as on-time enrollment for those who are less likely to enroll and enroll on-time. Facilitating on-time enrollment for those who are underrepresented in higher education can help address the racial/ethnic expectation-completion gap by helping to link the pathway from expecting a four-year degree to earning one.

Chapter 4: Effects of Uncertain Adolescent Occupational Expectations on Educational Outcomes

Introduction

Adolescent educational and occupational expectations have long been associated with educational outcomes (Bozick, Alexander, Entwisle, Dauber, Kerr 2010; Grodsky and Riegle-Crumb 2010; Jacob and Wilder Linkow 2011; Morgan, Leenman, Todd, and Weeden 2012; Sabates et. al. 2011; Sewell et. al. 1969; Sikora 2018), and there is known heterogeneity in these relationships such that educational expectations (Villalobos 2021) and occupational expectations (Brown, Ortiz-Nunez, and Taylor 2011) affect educational outcomes differentially for students of different backgrounds. Given these long-standing associations, several scholars have examined how adolescent expectations have changed over time - often citing the large increase in both educational and occupational expectations among newer cohorts of adolescents (Schneider & Stevenson 1999; Reynolds &Pemberton 2001; Reynolds, Stewart, MacDonald, and Sischo 2006; Goyette 2008). Just as several adolescents expect to attain BAs and advanced degrees, they also expect to attain high status, professional jobs (Reynolds, Stewart, McDonald, Sischo 2006). When considering educational expectations, high expectations tend to be the norm (Goyette and Mullen 2006; Jacob and Wilder Linkow 2011; Schneider and Stevenson 1999). And while large percentages of adolescents also have high occupational expectations and expect to attain high status professional level jobs, a nontrivial percentage of students are uncertain as to their occupational expectations (Staff, Harris, Sabates, Briddell 2010). Today, the transition to adulthood is often delayed such that adolescents take longer to finish school, start careers, and marry (Staff, Ramirez, Vuolo 2014). Thus, it is important to consider the effects of having uncertain occupational expectations in a time when adolescents generally spend a longer amount

of time in emerging adulthood. Additionally, while those who have examined occupational expectations often examine effects on occupational outcomes (Brown, Ortiz-Nunez, and Taylor 2011; Schoon and Parsons 2002) or wage attainment (Staff et. al. 2010), examining effects of occupational uncertainty on educational outcomes in young adulthood helps elucidate the process by which uncertainty impacts future occupational attainment. Finally, given racial/ethnic differences in occupational uncertainty, potential differences in which groups can afford to be uncertain, and continued racial/ethnic disparities in educational attainment, it is important to examine racial variation in the effects of occupational uncertainty in adolescence on educational outcomes in young adulthood.

Studies on occupational uncertainty have suggested that uncertain occupational expectations might signal "role exploration" such that adolescents are using this time to explore what they prefer to do through continued career and educational development, or it might signal aimlessness or lead to aimlessness if it means no degree conferral or frequent job changes, etc. (Staff et. al. 2010). Using NELS 1988 data, Staff and colleagues (2010) examined how uncertain occupational expectations during adolescence affected wage attainment in young adulthood and found that those who were uncertain in adolescence were more likely to have lower wages at age 26. Yet young adults take longer to finish school, wait to marry, and wait to start families. It follows that certain adult roles may not occur on a typical timeline as young adults may be prolonging such transitions (Staff et. al. 2014). Thus, educational outcomes are salient indicators of eventual occupational destinations, arguably more so than jobs in young adulthood, as young adults may still be in school and not have yet started their career paths. Additionally, scholars have found that outcomes such as wages and careers can be more volatile or less established during young adulthood and are better studied at later points in the life course (Spilerman 1977).

Given disparities in occupational expectations by race/ethnicity (Mello 2009; Xie and Goyette 2003) as well as continued racial/ethnic disparities in educational attainment, it is important to examine whether the effects of uncertain adolescent occupational expectations on degree attainment differ by race/ethnicity.

Additionally, while more youth are delaying the transition to adulthood, there is likely variation in which students can afford to be uncertain during this transitional period. For example, while white middle and upper class students often have social supports and safety nets to help them as they move through any uncertainty they may encounter during their college pathways (Armstrong and Hamilton 2013), black and lower income students have been found to struggle to adapt, and leave programs without credentials when they change their minds during their college paths (Holland and DeLuca 2016; Edin, DeLuca, Clampet-Lundquist 2016). Given structural and racial inequality, black and Hispanic students may have less social support needed to make their way through college and navigate any uncertainty. Thus, it is important to examine whether there are racial/ethnic differences in who is able to afford to be uncertain about occupational plans.

I extend the research on occupational uncertainty using a more recent sample of ELS 2002 respondents (a sister study of the NELS 1988 data) to examine the effects of uncertain occupational expectations on two different forms of degree attainment (earning a BA by age 26 and earning an advanced degree/being enrolled in an advanced degree program by age 26) in a time when the transition to adulthood is delayed. Given continued racial/ethnic disparities in both occupational expectations and degree attainment as well as potential differences in who can afford to be uncertain, I also examine whether these relationships vary by race/ethnicity.

Literature Review

Occupational Uncertainty and the Delayed Transition to Adulthood

Adolescent occupational expectations are associated with early adult outcomes of educational attainment, wages, occupational attainment, and educational attainment (Brown, Ortiz-Nunez, and Taylor 2011; Schoon and Parsons 2002; Sewell et. al., 1969; Sikora 2018; Staff et. al. 2010). While many adolescents express increasingly high educational and occupational expectations (Reynolds et. al. 2006; Schneider and Stevenson 1999), a nontrivial number of adolescents also express uncertain occupational expectations such that they state that they do not know which occupation they expect to have in adulthood. Indeed, occupational uncertainty has been less studied, but it has been associated with lower wages in young adulthood (Staff et. al. 2010) and lower likelihood of BA attainment among youth in Australia (Sikora 2018), and wage attainment in the mid-30s among those in Britain (Sabates, Harris, Staff 2011).

In longitudinal surveys of youth, adolescents are often asked which occupation they expect to have at age 30, and occupational uncertainty has often been operationalized as those who state that they "don't know" which occupation they expect to have during adulthood (Morgan et. al. 2012; Staff et al. 2010; Sikora 2018). It follows that there have been questions around how certain adolescents can be about their careers during high school and how predictive these measures can be of future attainment. In their analysis of the "don't know" group, Morgan and colleagues (2012) found that those who "don't know" are indeed different from those with high expectations. However, the "don't know" students were not internally different enough to suggest that they are simply composed of two different groups of 1) low status students who truly do not have a plan and 2) high status students who likely will attain high status work but are not certain enough to list an occupational expectation. Rather, using a complex weighting

strategy, Morgan and colleagues (2012) conclude that those in the "don't know" category are a group of students who likely do have uncertainty during adolescence about their occupational plans for adulthood.

While there is evidence to suggest that those who state that they "don't know" which occupation they expect to have in adulthood truly may not know, there are questions as to what occupational uncertainty signals in the era of the delayed transition to adulthood. Previous work has theorized that occupational uncertainty may represent a potential marker of role exploration or, to the contrary, it may represent aimlessness (Sikora 2018; Staff et. al. 2010). These distinctions often consider the context of more recent cohorts of youth in which the transition to adulthood is delayed. Indeed, newer generations spend more time in a state of emerging adulthood (Arnett 2000) and take longer to obtain higher education, marry, and have children (Reynolds et. al. 2006; Staff 2010; Sikora 2018). It is plausible that occupational uncertainty signals role exploration especially in a time when youth take longer to transition to adulthood. Yet, previous literature finds that those who state occupational uncertainty during adolescence have lower wage attainment at age 26 among those in the U.S. (Staff et. al. 2010), lower educational attainment at age 26 among those in Australia (Sikora 2018), and lower wage attainment at age 34 among those in Britain (Sabates, Harris, Staff 2011). It is important to examine effects of occupational uncertainty in adolescence as the delayed transition to adulthood continues for those in the U.S. using the more recent ELS data.

Racial/Ethnic Differences in Occupational Uncertainty and Educational Outcomes

Racial/ethnic groups vary in both adolescent occupational expectations (Mello 2009; Xie and Goyette 2003) and in degree attainment (Jacob and Wilder Linkow 2011). Many adolescents report high occupational expectations and occupational expectations have been found to be high

across racial/ethnic groups (Reynolds et. al. 2006). However, there is still variation by race/ethnicity such that the highest occupational expectations in adolescence have been found among those who are Asian (Xie and Goyette 2003) and black (Mello 2009), even net of factors such as SES. While occupational expectations have been associated with outcomes in young adulthood such as wages, occupational attainment, and educational attainment, group differences in these effects have often been examined by socioeconomic status (Staff et. al. 2010) or by gender (Brown, Ortiz-Nunez, and Taylor 2011). Yet, there are important differential rates of both occupational expectations and degree attainment by race/ethnicity in the U.S. For example, black and Hispanic students have the lowest levels of educational attainment. Specifically, six-year college completion rates for those who entered college in 2010 were 64% for white students but only 54% for Hispanic students and an even smaller 40% for black students (US Department of Education 2016). The disparities in advanced degree attainment by race/ethnicity are much more pronounced.

It is important to consider that the effects of occupational uncertainty may vary by race/ethnicity such that some groups may be better able to afford to be uncertain. For example, while middle class youth are more likely to delay the transition to adulthood and explore various paths before settling on careers (Arnett 2000), less advantaged youth often engage in a path of expedited adulthood as a way to move forward from the struggles of their adolescence (Holland and DeLuca 2016). Indeed, Armstrong and Hamilton (2013) found that those who had a safety net to fall back on or use for support (the middle- and upper-class women in their study of all white women) were able to stumble through college, change their minds, and earn their degrees due to the networks and resources of their families. Yet, Holland and Deluca (2016) found that low-income black youth often moved quickly and haphazardly through educational programs in

search of financial security, realized they did not want to follow that path, were unable to navigate this change, and left programs with debt and without credentials. Conversely black and low-income youth in this study who had identity projects - passions tied to schooling or careers - were more likely to persist in school (Edin, DeLuca, Clampet-Lundquist 2016).

Given structural disparities and racial inequality, black and Hispanic students may face more barriers and have less social support needed to make their way to and through college. As an example, there are racial/ethnic disparities in representation in high status jobs such that 39% of employed whites, 30% of employed blacks, and 21% of employed Hispanics work in management or professional occupations, which is the highest paying occupational category (Bureau of Labor Statistics, 2014). Thus, black and Hispanic youth may be embedded in structural contexts in which they are less likely to see members of their community hold higher status jobs and hold four-year degrees. Thus, black and Hispanic may be less likely to have networks available to help coach and support them through attainment processeses. I expect that the limited resources and social safety nets will render occupational uncertainty more harmful for black and Hispanic students.

Research Questions and Hypotheses

I ask the following questions:

1.   How does occupational uncertainty vary by race/ethnicity?

2.   How does occupational uncertainty affect educational attainment?

3.   Do the effects of occupational uncertainty on educational attainment vary by race/ethnicity?

I hypothesize that I will find variation in uncertain occupational expectations by race/ethnicity in the recent cohort of ELS 2002 data such that while white, black, and Hispanic

students will all have high levels of professional occupational expectations (Reynolds et. al. 2006), I will find higher levels of uncertainty among those who are white and Hispanic. I base this on previous work, which shows that black students have quite high occupational expectations (Mello 2009). I also hypothesize that uncertain occupational expectations will continue to be negatively associated with BA completion and they will be more negatively associated with advanced degree attainment. While previous work has theorized that uncertain expectations may signal aimlessness or flexibility, scholars have ultimately found that uncertain expectations are associated with less favorable outcomes in young adulthood (Sikora 2018; Staff et. al. 2010; Yates, Harris, Sabates, Staff 2010). While I use the more recent ELS data, and it is possible that being uncertain about one's occupational expectations during adolescence is less consequential today than it was for the NELS cohort given the continued delayed transition to adulthood, I anticipate that the outcomes for those who are uncertain will still be less favorable relative to those who have high occupational expectations. I base this on work that has shown that high occupational expectations are associated with more favorable outcomes in young adulthood (Staff et. al. 2010; Brown et al. 2011). Finally, while the work in this area that has focused on group differences has examined gender and SES differences, I focus on racial/ethnic differences. Given that more advantaged students may be better able to afford to be uncertain about their futures with the support, knowledge, and social networks of their families and resources (Armstrong and Hamilton 2013), and students with less resources may be more harmed by uncertainty and benefit from having a plan as well as supports in place to see those plans through (Edin et. al. 2016; Holland and DeLuca 2016), I hypothesize that the effects of occupational uncertainty in adolescence on educational attainment during young adulthood will be more consequential for students who are black and Hispanic, relative to their white peers.

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Given structural racial/ethnic inequality in the U.S. I believe these groups may have less supports in place, outside of SES, such that they may have less access to networks who have both obtained professional careers or BA and advanced degrees.

Data and Sample

I use data from the public use Educational Longitudinal Study of 2002 (ELS). The ELS data are comprised of a cohort of students who were sophomores in high school during the spring of 2002 and are interviewed again in the spring of 2004, 2006 and 2012. I examine the effects of adolescent occupational expectations on two different educational outcomes in young adulthood. For the first outcome, I examine whether respondents earned a BA (four-year degree) by the 2012 interview, which occurs eight years after the expected high school graduation when respondents are roughly age 26. For the second outcome, I examine whether respondents earned or are currently enrolled in an advanced degree program by age 26. My treatment is the occupational expectations stated during the spring of 12th grade when respondents are approximately 18 years old. Previous work has examined the effects of occupational expectations on young adult outcomes in both 10th grade (Staff et. al.) and 12th grade (Xie and Goyette 2003). While occupational expectations in both years have been associated with outcomes in early adulthood, Xie argues that 12th grade occupational expectations are consistent with previous research on occupational expectations and young adult attainment (Sewell et. al. 1969) and they are the most realistic occupational expectations of the pre-college years. Thus, I use 12th grade occupational expectations. Here, students are asked what occupation they expect to have at age 30. They write down their responses. The publicly available ELS data collapses their written responses into 17 broad categories based on occupational prestige scores. From these 17 categories, I create three separate categories: expects professional occupation

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(Professional A, Professional B, School Teacher, Manager/Administrator), uncertain (don't know), expects less than professional occupation (clerical, craftsperson, farmer, homemaker, laborer, military, operative, proprietor or owner, protective service, sales, service, technical, other). I use these categorizations based on prestige score. For example, professional A, professional B, schoolteacher, and manager all have prestige scores around 70). In sensitivity tests where I include only professional A, B, and schoolteacher in professional categorization, results remain the same.

I include controls from the base year, 10th grade that are known to be associated with both occupational expectations and degree attainment. I begin with the full sample of approximately 16,200 respondents. I then focus only on those who are non-Hispanic white, non-Hispanic black, and Hispanic. This reduces the sample to approximately 12,920. I include those who have complete data on the highest level of education attained by the 2012 survey (10,660) and those who list their occupational expectations during 12th grade (9,750). Because I am interested in racial/ethnic interactions and want to keep cell sizes large enough for sufficiently drawing conclusions from the interaction results, I perform multiple imputation by chained equation (MICE) using STATA software to address missing data across these remaining covariates. Using MICE, I impute each variable with its own imputation model, which is important given that I include continuous, binary, and multinomial variables in my model. I include all the covariates that are used in my causal models, including the treatment of high occupational expectations and the outcomes of degree attainment by 2012. After performing the imputation, I drop cases without observed values on race, my outcome of degree attainment, and the treatment variable of 12th grade occupational expectations.

I include three categories of race/ethnicity: non-Hispanic white, non-Hispanic black, and Hispanic (including respondents who specify or do not specify their racial background). I focus specifically on these groups as I am interested in the role occupational expectations play in the degree attainment gaps between white students and students of color who have been traditionally underrepresented in higher education. I include controls for sex (binary for female) given the association between sex and degree attainment. I also include a categorical composite measure of socioeconomic status (SES) that includes information on mother's education, father's education, family income, mother's occupation, and father's occupation. To account for family background, I include measures of whether respondent lives with both parents or not and how many siblings they have. I also account for psychosocial skills such as effort measured by teacher ratings of whether students work hard for grades. To account for prior achievement of the student, I include a math test score that is standardized for ease of interpretation. I account for high school program of the student categorized as college track, general, or vocational. I also account for school level influence by including measures of the school respondents attend: urban or non-urban, located in the south or other region. [17]

My first outcome measure is whether the respondent earned a BA (four-year college degree) by age 26. To construct this measure, I use a variable from 2012 (follow up three), which measures the highest level of educational attainment on file for respondents by 2012. Respondents are coded as college completers if they earned a BA by 2012. I also examine whether respondents earned an advanced degree or are currently enrolled in an advanced degree program at age 26. I construct this variable using same variable from follow up three regarding

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[17] Some find that occupational expectations are affected by the level of educational attainment a student thinks they can achieve (Morgan et. al. 2012) while others find that occupational expectations affect educational expectations (Xie and Goyette 2003). While I do not control for educational expectations in these analyses, results were similar in analyses where I did control for educational expectations.

the highest level of educational attainment on file by 2012. Respondents are coded as advanced degree holders if they have earned any post BA degree. I then combine this with respondents who are currently enrolled in a post BA program. I do this for theoretical and methodological reasons. First, the average age of graduate students in the US is approximately 33 years old. Thus, it is possible that several students who will attain a graduate degree are just entering or are still in graduate school at age 26. Additionally, in the sample, very few students of color have obtained an advanced degree by age 26. Thus, by examining those who either have an advanced degree or are enrolled in an advanced degree program at age 26, I have sufficient numbers to allow for examination of interactions between race/ethnicity and occupational expectations.

Analytic Strategy

Descriptive Analysis

I begin with a descriptive analysis of occupational expectations and degree attainment trends by race/ethnicity. In these analyses, I examine the percentages within each racial/ethnic group with professional, uncertain, and less than professional occupational expectations, the percentage who earn BA degrees or advanced degrees/ enrolled in an advanced degree program, and those with uncertain occupational expectations who earn degrees. Examining these trends provides a descriptive picture of the sample.

Nonlinear Interaction Effects

For the second part of the analysis, I examine how uncertain occupational expectations affect the educational outcomes of obtaining a BA and obtaining or being enrolled in an advanced degree program. Using logistic regression, I regress BA completion by age 26 on the main effects for race/ethnicity (black and Hispanic with white as the reference category) and occupational expectations (uncertain, less than professional, and professional as the reference

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category). Next, I include interactions for occupational expectations by race/ethnicity in order to examine whether the effects of expectations on college completion differ by race/ethnicity, without relevant controls. I proceed by using nested models to add in controls for family background, prior achievement, effort, school program, and finally school characteristics. In the fully specified model, I answer question 1 as to how occupational expectations affect degree attainment by examining the effects of occupational expectations on BA completion net of relevant controls and interactions (for the reference group). I then repeat this process with the outcome of earned advanced degree/enrolled in advanced degree program.

To answer question 2 as to whether the effects of occupational expectations on college completion differ by race/ethnicity, I use best practices for both estimating and interpreting nonlinear interactions (Mize 2019). Thus, I do not use the coefficient of the interaction term to interpret the interaction effect. Instead, I use predicted probabilities of degree attainment to interpret the magnitude of the interaction effect. I calculate the average marginal effect (AME) of having high educational expectations on earning a BA for each racial/ethnic group. I calculate the marginal effect (in predicted probability) of having uncertain occupational expectations on earning a BA for all observations in the sample that are white, black, or Hispanic. This method allows for each group to have the same covariate distribution. Next, I calculate the second difference. The second difference is a test of whether the AME for one racial/ethnic group is the same as the AME for a different racial/ethnic group. I subtract the AME of each group from each other group to get the difference. This test confirms whether the interaction effects between educational expectations and race/ethnicity exist on BA completion exists. I then repeat this process for the outcome of completed advanced degree/enrolled in advanced degree program.

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Results

Descriptive Statistics

      In Table 4.1, I present descriptive statistics of variable means for my full sample as well as by the treatment of occupational expectations. These means are consistent with what we would expect based on the literature on occupational expectations. Overall, students with professional expectations display the most advantaged statuses followed by those who are uncertain and finally those who state less than professional occupational expectations. For example, while students who report professional occupational expectations are most likely to be high SES (37%) and those who report less than professional expectations are most likely to be low SES (29%), those who are uncertain are about equally as likely to fall into each SES quartile. While students who report professional occupational expectations are most likely to be in college track (60%), those who are uncertain are less likely (49%) and those with less than professional expectations are the least likely (42%). These patterns hold throughout the different covariates. While white students are equally likely to have high or uncertain expectations, black students are as likely to have low or high expectations, yet Hispanics are as likely to have low or uncertain expectations. Those who state professional occupational expectations are most likely to have completed BA or advanced degrees, followed by those who are uncertain and then those who stated less than professional occupational expectations.

<div align="center">-TABLE 4.1 HERE-</div>

Descriptive Trends in Educational Expectations and College Completion by Race/Ethnicity

      In Table 4.2, I explore the descriptive trends in racial/ethnic differences in occupational expectations and degree completion for my sample. The patterns are aligned those previewed in Table 4.1 such that in Table 4.2 I find that Hispanic students are the most likely to express

uncertainty followed by white and then black students. For college completion trends, black and Hispanic students are less likely to complete BAs and advanced degrees than their white peers, completing at almost half the rate of their white peers for both BAs and advanced degrees. When examining those with uncertain occupational expectations who completed college, the descriptive results vary by race/ethnicity such that black and Hispanic students who are uncertain earn degrees at about half the rate of their white peers.

<center>-TABLE 4.2 HERE-</center>

Effects of Occupational Expectations on Degree Attainment by Race/Ethnicity

    I next examine whether there is an effect of occupational expectations on degree attainment (BA and advanced degrees) by age 26 and whether the effect of uncertain occupational expectations on degree attainment differs by race/ethnicity. I am interested in how the effect sizes of occupational expectations and the interactions for race/ethnicity and occupational expectations change as I account for covariates. Thus, I present the results for the logistic regressions with model building in Table 4.3.

    First, I examine the effects of uncertain occupational expectations on BA completion by age 26 in Panel 1 of Table 4.3. In Model 1, I find that net of race/ethnicity, the effect of 12th grade uncertain occupational expectations on BA completion is negative such that being uncertain about one's occupational expectations relative to having professional occupational expectations in 12th grade decreases the odds of BA completion by age 26 by about 44%. Similarly, having less than professional occupational expectations relative to professional expectations decreases the odds of BA completion by about 79%. Thus, while the decrease seems larger for those with low expectations, both uncertain and low expectations decrease the odds of BA completion relative to professional expectations. As we move across the models, I

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add the interaction effects for race/ethnicity (Model 2), controls for family background (Model 3), and controls for ability, effort, and school type (Model 3). Across the models with interactions, the effects of uncertain occupational expectations on BA completion do get smaller (for the reference group white), but they remain negative and substantial. By the fully specified model, having uncertain occupational expectations relative to professional expectations decreases the odds of BA completion by about 30% for white students. The effects of uncertainty are also negative for black and Hispanic students as seen when examining the average marginal effects for each group in Table 4.4. I next examine whether this effect varies by race/ethnicity.

In Model 1, net of occupational expectations, black and Hispanic students are less likely to earn a BA by age 26 such that the odds of completion are reduced by about 62% for both groups relative to white students. In Models 2, 3, and 4, I include the interactions for race/ethnicity and occupational expectations. In Model 2, which only includes the main effects and interactions without controls, the effects of uncertain occupational expectations on BA completion do not appear to significantly vary by race/ethnicity as the interactions do not reach significance. By Model 4, the fully specified model, the effect of occupational expectations on college completion does not appear to differ by race/ethnicity. I examine the interactions further with the AME models.

In Panel 2 of Table 4.3, I examine the effects of uncertain occupational expectations on whether respondent has completed an advanced degree or is currently enrolled in an advanced degree program by age 26. In Model 1, I find that net of race/ethnicity the effect of 12th grade uncertain occupational expectations on advanced degree attainment is negative such that being uncertain about one's occupational expectations relative to having professional occupational

expectations in 12th grade decreases the odds of BA completion by age 26 by about 50%. Similarly, having less than professional occupational expectations relative to professional expectations decreases the odds of BA completion by about 81%. Again here, while the decrease seems larger for those with low expectations, both uncertain and low expectations decrease the odds of advanced degree completion relative to professional expectations. As we move across the models, I add the interaction effects for race/ethnicity (Model 2), controls for family background (Model 3), and controls for ability, effort, and school type (Model 3). Across the models, the effects of uncertain occupational expectations on BA completion do get smaller (for the reference group of white students), but they remain negative and substantial. By the fully specified model, having uncertain occupational expectations relative to professional expectations decreases the odds of advanced degree attainment by about 43% for white students. It is important to note that these effects of uncertain occupational expectations on advanced degree attainment are more negative than those for BA attainment. I next explore whether these effects vary by race/ethnicity.

In Model 1, net of occupational expectations, black and Hispanic students are less likely to earn a BA by age 26 such that the odds of completion are reduced for both groups relative to white students. Across all models, the effects of uncertain occupational expectations on advanced degree attainment do not seem to vary by race/ethnicity. Rather, having less than professional or uncertain occupational expectations relative to professional occupational expectations seems to decrease the odds of completing an advanced degree by age 26 for all racial/ethnic groups, net of others. In Model 4, the fully specified model, there appear to be no racial/ethnic differences in the relationship between occupational expectations and advanced degree attainment, and the

effect of occupational expectations on advanced degree attainment does not appear to differ by race/ethnicity.

<div align="center">-TABLE 4.3 HERE-</div>

To interpret the race/ethnicity by occupational expectation interaction effects, I present predicted probabilities of the fully specified model in Panels 1 and Panel 2 of Table 4.4. Overall, I find that net of family background, prior achievement, effort, school program, and school characteristics, the effects of uncertain occupational expectations on BA completion and on advanced degree attainment or enrollment is negative for all racial/ethnic groups. In Panel 1, the average marginal effect of uncertain occupational expectations on BA completion (AME) is largest for Hispanic students (-0.074) and lower for white (-0.059) and black (-0.025) students. However, the tests of second difference and contrasts columns reveal that the AMEs for each are not different from one another. Similarly, in Panel 2, the AMEs are largest for white (-.060), black (-.036), and then Hispanic (-.021) students, these AME's are not significantly different from one another. Thus, these results confirm that those who are uncertain about occupational expectations in 12th grade are less likely to earn degrees by age 26 than those who stated professional expectations in 12th grade, this is true across all racial/ethnic groups. In auxiliary analyses I also confirm that those who state less than professional occupational expectations in 12th grade are less likely to earn degrees than those who are uncertain. These relationships are true for all in the sample, and do not vary by racial/ethnic groups.

<div align="center">-TABLE 4.4 HERE-</div>

Discussion

In this paper I use the ELS 2002 dataset to examine whether occupational uncertainty in adolescence is associated with BA attainment and advanced degree attainment/enrollment at age

26, and whether this varies by race/ethnicity. I find that indeed, occupational uncertainty during adolescence is negatively associated with degree attainment in young adulthood such that those who report that they are uncertain or rather "don't know" the occupation they expect to have at age 30 are less likely to attain degrees by age 26 than their peers who expect to attain professional level occupations. White and Hispanic students were the most likely to be uncertain, but net of controls for social background, the effects of uncertainty on completion were similar across racial/ethnic groups in the sample

These results align with previous work that finds that uncertainty in adolescence is associated with lower wages at age 26 among U.S. youth (Staff et. al. 2010), lower likelihood of BA attainment by age 26 among youth in Australia (Sikora 2018), lower wage attainment at age 34 among those in Britain (Sabates, Harris, Staff 2011), and not in employment, education, or training status (NEET) among youth in Britain (Yates et. al., 2010). This paper makes the important contribution of examining the effects of occupational expectations in adolescence on educational attainment in young adulthood among those in the U.S. Given that the transition to adulthood is delayed (Staff et. al. 2014), it is important to examine educational outcomes in young adulthood as wages and career may still be volatile in young adulthood (Spilerman 1977) especially among more recent cohorts. Additionally, educational attainment in young adulthood may be a more salient indicator of future occupational attainment. Particularly, with youth spending more time on schooling, it is important to examine effects not only on BA attainment but also on advanced degree attainment/enrollment. Indeed, I find that uncertain occupational expectations in adolescence are negatively associated with BA attainment by age 26, but they are more negatively associated with being enrolled in an advanced degree program or obtaining an advanced degree by age 26.

I also examine potential racial/ethnic variation in the occupational uncertainty and degree attainment relationship. I hypothesized that uncertainty would be more detrimental for black and Hispanic students given that these groups may be less likely to have social supports for navigating the transition to adulthood (Holland and DeLuca 2016; Edin et. al. 2016; Armstrong and Hamilton 2013) as these groups are less likely to be represented among those who complete BAs, complete advanced degrees, or hold professional status occupations. Conversely, white youth may be better able to afford to be uncertain given their social supports available to them that help them navigate uncertainty. I do not find racial/ethnic variation in these relationships. Rather, being uncertain about one's occupational expectations in adolescence relative to having professional occupational expectations is negatively associated with BA and advanced degree attainment for all racial/ethnic groups, net of others.

This study is subject to limitations. First, I focus on three racial/ethnic groups given my interest in understanding relationships between those who are underrepresented in degree attainment relative to those who are not. I leave out other groups due to their smaller sample sizes. Future work should include additional groups as the population of these groups grows.

Although youth spend more time in emerging adulthood (Arnett 2000), being uncertain about one's occupational expectations during adolescence is associated with less favorable outcomes during young adulthood. Thus, even in an era where youth are taking more time to move through the traditional phases of adulthood – educational attainment, marriage, family formation – certainty about occupational plans for one's future during adolescence leads to higher attainment. This is true regardless of one's racial/ethnic background.

Chapter 5: Conclusion

Most adolescents today have high expectations (Goyette 2008; Jacob and Wilder Linkow 2011; Schneider and Stevenson 1999) yet racial/ethnic heterogeneity persists in attainment (Eller and DiPrete 2018; Flores, Park, and Baker 2017; Hanson 1994; Hoffman 1987; Kao and Tienda 1998; Mello 2009; Xie and Goyette 2003;). I extend previous work on the expectation-attainment relationship by including the non-Hispanic white, black, and Hispanic populations to examine changes in the expectation-enrollment relationships over time, examining the effects of high educational expectations for college on college completion, including mediation analysis to examine college processes that may link expectations to completion, and examining effects of occupational uncertainty in adolescence on educational attainment in young adulthood. All analyses examine racial/ethnic heterogeneity in these relationships.

I find that educational and occupational expectations stated during adolescence are associated with college enrollment and with college completion outcomes for students of all racial/ethnic backgrounds. Most adolescents do expect to attain a four-year degree and as evidenced by the descriptive tables throughout this dissertation. Yet, I find that compared those with low expectations, those who express high educational expectations for a four-year degree are more likely to go on to enroll in a four-year college within two years of high school, and are more likely to complete a four-year degree within eight years of high school, net of controls for social background. Importantly, college processes such as enrolling in college on-time can help link adolescent expectations for college to college completion. This process of on-time enrollment is more beneficial for those who are less likely to enroll – those who are black and Hispanic. Additionally, I find that those who are uncertain about their occupational expectations are less likely to earn four-year degrees or earn advanced degrees/ be enrolled in an advanced

degree program by age 26 than those who state high and professional occupational expectations. This effect holds across racial/ethnic groups, net of others, and suggests a clear benefit to having high expectations in regards to educational attainment in young adulthood.

Racial/ethnic variation was a key element of this research. In Chapter 2, I find that for the newer HSLS sample there are no longer racial/ethnic differences in the expectation-enrollment relationship, net of others and once accounting for social background. Similarly, in Chapter 3 I find that there are no racial/ethnic differences in the expectation-completion relationship, net of others. Yet, today we observe racial/ethnic differentials in both enrollment and completion such that black and Hispanic students are less likely to achieve these educational milestones (Bowen, Chingos, and McPherson 2009; McFarland et. al. 2019). My findings suggest that the social background factors I account for in the models help explain much of why we do not see black and Hispanic students translate their expectations into enrollment and completion. Yet, I also find in Chapter 3 that the college process of enrolling on-time helps link expectations to completion, especially for black and Hispanic students who are less likely to enroll in college. In Chapter 4 I find that being uncertain about one's occupational expectations during adolescence is negatively associated with degree attainment in young adulthood, net of background factors. This holds for all racial/ethnic groups and signals the importance of having high occupational expectations as opposed to uncertain ones.

It is important that we continue to consider racial/ethnic differences in the expectation-attainment relationship given the increasing diversity in the U.S. and the implications of educational attainment at both the individual and societal level. This work focused primarily differences between those who are white, black, and Hispanic. Much previous work in this area focuses on black-white differences. Given the changing demographics whereby Hispanic

students are growing in size and college going patterns, I included this group. I was interested in examine relationships between those who are traditionally underrepresented in higher education. As the diversity of the US increases, future work should include other racial/ethnic groups in these analyses. There are also several directions for future work to build upon. First, the role of college processes such as on-time enrollment in linking the relationship between expectations for college and college completion signaled importance of college processes for actualizing expectations, especially for black and Hispanic students who are less likely to enroll in college. In future work I can examine other college mediators and their role in linking expectations to completion. Examining additional factors that may link expectations to completion can help us better understand how to address the racial/ethnic expectation-completion gap by linking the process from expecting a four-year degree to earning one.

Tables

Table 2.1

Descriptive Statistics of Student Characteristics and Enrollment Outcome, ELS Restricted Use Data

	Full Sample		Low Expectations		High Expectations	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Sociodemographic Factors						
Female (binary 0/1)	0.53		0.44		0.56	
Race						
White (binary 0/1)	0.68		0.63		0.70	
Black (binary 0/1)	0.15		0.15		0.15	
Hispanic (binary 0/1)	0.16		0.22		0.14	
Family Background Factors						
Socioeconomic Status						
Quartile 1	0.23		0.35		0.19	
Quartile 2	0.25		0.32		0.22	
Quartile 3	0.25		0.21		0.27	
Quartile 4	0.27		0.12		0.33	
Lives with "other" than both parents (binary 0/1)	0.41		0.49		0.39	
Student Prior Achievement						
Math Test Score (continuous -2.14, 2.60)	0.03	1.01	-0.55	0.91	0.24	0.96
Student Actions Towards College Going						
Took SAT (0/1)	0.70		0.40		0.81	
Took AP tests (0/1)	0.37		0.18		0.44	
School / Peer Culture						
Most Friends Plan to Attend College (binary 0/1)	0.57		0.36		0.64	
50% + of Prior Senior class attended four-year college (binary 0/1)	0.51		0.39		0.54	
School Factors						
School in Urban Area (binary 0/1)	0.30		0.27		0.30	
School in South (binary 0/1)	0.36		0.34		0.36	
School Type						
Private	0.03		0.02		0.04	
Public	0.92		0.96		0.90	
Catholic	0.05		0.02		0.06	
Outcome						
Enrolled in four-year college by 2006 (binary 0/1)	0.49		0.18		0.61	
Weighted sample proportion	1.00		27.00		73.00	
N	10660.00		2680.00		7990.00	

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Restricted Use Data. Sample is restricted to those who are nonmissing on race, college enrollment, and educational expectations. Educational expectations are measured from spring of 10th grade. Descriptives are weighted by the ELS panel weight. All N's rounded to nearest 10 in accordance with NCES restricted data use policies.

Table 2.2

Descriptive Statistics of Student Characteristics and Enrollment Outcome, HSLS Restricted Use Data

	Full Sample		Low Expectations		High Expectations	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Sociodemographic Factors						
Female (binary 0/1)	0.52		0.48		0.55	
Race						
White (binary 0/1)	0.61		0.53		0.65	
Black (binary 0/1)	0.15		0.15		0.15	
Hispanic (binary 0/1)	0.25		0.32		0.20	
Family Background Factors						
Socioeconomic Status						
Quintile 1	0.19		0.29		0.14	
Quintile 2	0.19		0.25		0.15	
Quintile 3	0.19		0.22		0.18	
Quintile 4	0.20		0.16		0.23	
Quintile 5	0.23		0.09		0.30	
Parents not married (binary 0/1)	0.26		0.32		0.23	
Student Prior Achievement						
Math Test Score (continuous -1.96, 2.6)	0.08	0.98	-0.37	0.89	0.33	0.95
Student Actions Towards College Going						
Took SAT (0/1)	0.64		0.47		0.73	
Took AP tests (0/1)	0.21		0.13		0.26	
School / Peer Culture						
Most Friends Plan to Attend College (binary 0/1)	0.49		0.28		0.61	
50%+ Senior Class '09 attended four-year college (binary 0/1)	0.47		0.38		0.52	
School Factors						
School in Urban Area (binary 0/1)	0.31		0.33		0.30	
School in South (binary 0/1)	0.38		0.37		0.39	
School Type						
Private	0.04		0.02		0.05	
Public	0.92		0.96		0.90	
Catholic	0.04		0.02		0.05	
Outcome						
Enrolled in four-year college by 2015 (binary 0/1)	0.48		0.19		0.65	
Weighted sample proportion	1.00		0.36		0.64	
N	12540.00		4210.00		8330.00	

Notes: Data are from the NCES High School Longitudinal Study of 2009 (HSLS) Restricted Use Data. Sample is restricted to those who are nonmissing on race, college enrollment, and educational expectations. Educational expectations are measured from spring of 11th grade. Descriptives are weighted by HSLS panel weight. All N's rounded to nearest 10 in accordance with NCES restricted data use policies.

Table 2.3 Percent of Students within Racial/Ethnic Group Expect Four-year, Enroll in Four-year College within Two Years of High School Graduation, and Expect and Enroll, ELS and HSLS Restricted Use Data

		White	Black	Hispanic	Total	N
Percent with High Expectations	ELS	75	73	64	73	10660
	HSLS	69	64	54	64	12540
Percent Enrolled in Four-year College	ELS	56	42	29	49	10660
	HSLS	56	40	33	48	12540
Percent with High Expectations who Enrolled in Four-year College	ELS	67	50	39	61	10660
	HSLS	71	56	51	65	12540

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Restricted Use Data and ELS and NCES High School Longitudinal Study of 2009 (HSLS) Restricted Use Data. Data are weighted by their respective panel weights. N's are rounded to the nearest 10 in accordance with NCES restricted data use policies.

Table 2.4 Odds Ratios of High Educational Expectations on Race/Ethnicity and SES, ELS and HSLS Restricted Use Data

| | ELS | | HSLS | |
	Model 1	Model 2	Model 1	Model 2
Black	0.798***	1.153*	0.898	1.252***
	(0.050)	(0.077)	(0.052)	(0.076)
Hispanic	0.567***	0.874*	0.622***	1.012
	(0.033)	(0.055)	(0.029)	(0.053)
2nd quartile SES		1.372***		1.419***
		(0.084)		(0.092)
3rd quartile SES		2.737***		1.943***
		(0.182)		(0.125)
4th quartile SES		5.841***		3.227***
		(0.432)		(0.216)
5th quartile SES				7.658***
				(0.541)
N	10660	10660	12540	12540

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Restricted Use Data and ELS and NCES High School Longitudinal Study of 2009 (HSLS) Restricted Use Data. Data are multiply imputed. White is the reference for race. 1st quartile is the reference for SES. N's are rounded to the nearest 10 in accordance with NCES restricted data use policies. *p < 0.05, **p < 0.01, ***p < 0.001.

Table 2.5 Odds Ratios of College Enrollment by 2006 on Student Characteristics, ELS Restricted Use Data

Main Effects	Model 1	Model 2	Model 3	Model 4
Black	0.556***	0.96	1.429*	2.316***
	(0.033)	(0.127)	(0.200)	(0.357)
Hispanic	0.367***	0.531***	0.747*	1.024
	(0.022)	(0.072)	(0.106)	(0.159)
Expects Bachelor's Degree (BA)	7.174***	8.499***	5.988***	2.859***
	(0.390)	(0.560)	(0.419)	(0.230)
Interactions				
Student Black x Expects BA		0.511***	0.611**	0.647**
		(0.075)	(0.095)	(0.108)
Student Hispanic x Expects BA		0.635**	0.731*	0.74 †
		(0.096)	(0.116)	(0.127)
Sex				
Female			1.228***	1.372***
			(0.057)	(0.072)
Family Background				
2nd quartile SES			1.513***	1.173*
			(0.103)	(0.087)
3rd quartile SES			2.799***	1.723***
			(0.189)	(0.129)
4th quartile SES			7.434***	3.219***
			(0.535)	(0.262)
Parents unmarried			0.617***	0.686***
			(0.030)	(0.037)
Student Prior Achievement				
Math Test Score Composite				2.281***
				(0.074)
Student Actions Towards College Going				
Took SAT				2.067***
				(0.137)
Took AP Test				1.363***
				(0.080)
Peers Actions/ School Culture				
Most Friends Plan to attend College				1.370***
				(0.097)
50% or more Peers Attended College				1.631***
				(0.113)
Schools Characteristics				
School in Urban Area				1.245***
				(0.074)
School in South				1.023
				(0.054)
Public High School				0.632***
				(0.063)
Catholic High School				1.282*
				(0.152)
N	10660	10660	10660	10660

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Restricted Use Data. Sample is restricted to those who are nonmissing on race, college enrollment, and educational expectations. Data are multiply imputed. White is the reference for race. 1st quartile is the reference for SES. Private high school is the reference for school type. All N's rounded to nearest 10 in accordance with NCES restricted data use policies . *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 2.6 Probability of Enrollment in a Four-year College by Expectations and Race/Ethnicity: Marginal Effects of Expectations and Differences in Effects of Expectations across Race/Ethnicity, ELS Restricted Use Data

	Race	Expects BA or Above	Expects Less than a BA	Expectation Gap (AME)/ First Difference	Comparison Groups	Second Difference	Significant Contrasts
Calculated by Subsample	a.White	0.632	0.461	0.171			b*,c*
	b. Black	0.480	0.370	0.110	White- Black	0.061	a*
	c. Hispanic	0.369	0.259	0.110	White- Hispanic	0.061	a*
					Black- Hispanic	0.000	
Calculated for All Observations	a.White	0.563	0.394	0.169			b** c †
	b. Black	0.627	0.529	0.098	White- Black	0.071	a**
	c. Hispanic	0.518	0.398	0.120	White- Hispanic	0.049	a †
					Black- Hispanic	-0.022	

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Restricted Use Data. Sample is restricted to those who are nonmissing on race, college enrollment, and educational expectations. Educational expectations are measured from spring of 10th grade. Includes controls for SES, family background, prior achievement, student's actions towards college going, peer and school culture, and school characteristics. Contrasts indicate which gaps are significantly different across student groups (second differences). Bachelor's Degree abbreviated as BA. All N's rounded to nearest 10 in accordance with NCES restricted data use policies. † $p<0.1.$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 2.7 Odds Ratios of College Enrollment by 2015 on Student Characteristics, HSLS Restricted Use Data

Main Effects	Model 1	Model 2	Model 3	Model 4
Black	0.594***	0.808	1.072	1.195
	(0.035)	(0.091)	(0.129)	(0.154)
Hispanic	0.531***	0.632***	1.009	0.959
	(0.027)	(0.059)	(0.100)	(0.102)
Expects Bachelor's Degree (BA)	7.170***	7.932***	5.724***	3.442***
	(0.315)	(0.424)	(0.325)	(0.217)
Interactions				
Student Black x Expects BA		0.658**	0.732*	0.842
		(0.087)	(0.102)	(0.127)
Student Hispanic x Expects BA		0.779*	0.807	0.887
		(0.087)	(0.095)	(0.113)
Sex				
Female			1.325***	1.363***
			(0.057)	(0.064)
Family Background				
2nd quintile SES			1.557***	1.355***
			(0.121)	(0.114)
3rd quintile SES			2.161***	1.555***
			(0.166)	(0.129)
4th quintile SES			3.475***	1.903***
			(0.268)	(0.161)
5th quintile SES			9.610***	3.589***
			(0.787)	(0.325)
Parents unmarried			0.870*	0.887
			(0.051)	(0.056)
Student Prior Achievement				
Math Test Score Composite				1.979***
				(0.058)
Student Actions Towards College Going				
Took SAT				1.431***
				(0.073)
Took AP Test				1.359***
				(0.082)
Peers Actions/ School Culture				
Most Friends Plan to attend College				2.059***
				(0.099)
50% or more Peers Attended College				1.452***
				(0.078)
Schools Characteristics				
School in Urban Area				0.908
				(0.050)
School in South				0.995
				(0.047)
Public High School				0.454***
				(0.047)
Catholic High School				1.361*
				(0.171)
N	12540	12540	12540	12540

Notes: Data are from the NCES High School Longitudinal Study of 2009 (HSLS) Restricted Use Data. Sample is restricted to those who are nonmissing on race, college enrollment, and educational expectations. Data are multiply imputed. White is the reference for race. 1st quintile is the reference for SES. Private high school is the reference for school type. All N's rounded to nearest 10 in accordance with NCES restricted data use policies. † $p<0.1$., *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 2.8 Probability of Enrollment in a Four-year college by Expectations and Race/Ethnicity: Marginal Effects of Expectations and Differences in Effects of Expectations across Race/Ethnicity, HSLS Restricted Use Data

	Race	Expects BA or Above	Expects Less than a BA	Expectation Gap (AME)/ First Difference	Comparison Groups	Second Difference	Significant Contrasts
			11th Grade Expectations				
Calculated by Subsample	a. White	0.649	0.439	0.210			
	b. Black	0.524	0.339	0.185	White- Black	0.025	
	c. Hispanic	0.478	0.294	0.184	White- Hispanic	0.026	
					Black- Hispanic	0.001	
Calculated for All Observations	a. White	0.605	0.395	0.210			
	b. Black	0.606	0.425	0.182	White- Black	0.029	
	c. Hispanic	0.578	0.388	0.190	White- Hispanic	0.021	
					Black- Hispanic	-0.008	

Notes: Data are from the NCES High School Longitudinal Study of 2009 (HSLS) Restricted Use Data. Sample is restricted to those who are nonmissing on race, college enrollment, and educational expectations. Educational expectations are measured from spring of 11th grade. Includes controls for SES, family background, prior achievement, student's actions towards college going, peer and school culture, and school characteristics. Contrasts indicate which gaps are significantly different across student groups (second differences). Bachelor's Degree abbreviated as BA. All N's rounded to nearest 10 in accordance with NCES restricted data use policies. † $p<0.1$., *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 2.9 Descriptive Statistics of Student Characteristics and Enrollment Outcome for those In Sample and Missing only on Outcome, ELS Restricted Use Data

	ELS	
	In Sample Mean	Missing only on Outcome Mean
Sociodemographic Factors		
Female (binary 0/1)	0.53	0.52
Expects Bachelor's (BA) (binary 0/1)	0.73	0.73
Race		
White (binary 0/1)	0.68	0.68
Black (binary 0/1)	0.15	0.15
Hispanic (binary 0/1)	0.16	0.16
Family Background Factors		
Socioeconomic Status		
Quartile 1	0.23	0.23
Quartile 2	0.25	0.25
Quartile 3	0.25	0.25
Quartile 4	0.27	0.27
Lives with "other" than both parents (binary 0/1)	0.41	0.41
Student Prior Achievement		
ELS Math Test Score (continuous -2.14, 2.60)	0.03	0.03
Student Actions Towards College Going		
Took SAT (0/1)	0.70	0.7
Took AP tests (0/1)	0.37	0.37
School / Peer Culture		
Most Friends Plan to Attend College (binary 0/1)	0.57	0.57
50% + of Prior Senior class attended 4 year college (binary 0/1)	0.51	0.5
School Factors		
School in Urban Area (binary 0/1)	0.30	0.3
School in South (binary 0/1)	0.36	0.34
School Type		
Private	0.03	0.04
Public	0.92	0.92
Catholic	0.05	0.05
Outcome		
Enrolled in four-year college by 2006 (binary 0/1)	0.49	0.49
weighted proportion	74.00	81.00
N	10660.00	13250.00

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS). Descriptives are weighted by ELS panel weights. All N's rounded to nearest 10 in accordance with NCES restricted data use policies.

Table 2.10 Descriptive Statistics of Student Characteristics and Enrollment Outcome for those In Sample and Missing only on Outcome, HSLS Restricted Use Data

	HSLS	
	In Sample Mean	Missing Only on Outcome Mean
Sociodemographic Factors		
Female (binary 0/1)	0.52	0.52
Expects Bachelor's (BA) (binary 0/1)	0.64	0.64
Race		
White (binary 0/1)	0.61	0.6
Black (binary 0/1)	0.15	0.15
Hispanic (binary 0/1)	0.25	0.25
Family Background Factors		
Socioeconomic Status		
Quartile 1	0.19	0.19
Quartile 2	0.19	0.19
Quartile 3	0.19	0.2
Quartile 4	0.2	0.2
Quartile 5	0.23	0.22
Lives with "other" than both parents (binary 0/1)	0.26	0.27
Student Prior Achievement		
HSLS Math Test Score (continuous -1.96,2.60)	0.08	0.07
Student Actions Towards College Going		
Took SAT (0/1)	0.64	0.64
Took AP tests (0/1)	0.21	0.22
School / Peer Culture		
Most Friends Plan to Attend College (binary 0/1)	0.49	0.5
50% + of Prior Senior class attended 4 year college (binary 0/1)	0.47	0.47
School Factors		
School in Urban Area (binary 0/1)	0.31	0.32
School in South (binary 0/1)	0.38	0.37
School Type		
Private	0.04	0.04
Public	0.92	0.92
Catholic	0.04	0.04
Outcome		
Enrolled in four-year college by 2006 (binary 0/1)	0.48	0.47
weighted proportion	58.00	72
N	12540.00	17340.00

Notes: Data are from High School Longitudinal Study of 2009 (HSLS) Restricted Use Data. Descriptives are weighted by HSLS panel weights. All N's rounded to nearest 10 in accordance with NCES restricted data use policies.

Table 2.11 11th grade and 9th grade Percent of Students within Racial/Ethnic group Expect Four-year, Enroll in Four-year college within two years of High School Graduation, and Expect and Enroll, ELS and HSLS Restricted Use Data

		White	Black	Hispanic	Total	N
Percent with High Expectations	ELS	75	73	64	73	10660
	HSLS (11th)	69	64	54	64	12540
	HSLS (9th)	62	58	50	58	13030
Percent Enrolled in Four-year College	ELS	56	42	29	49	10660
	HSLS (11th)	56	40	33	48	12540
	HSLS (9th)	55	39	32	47	13030
Percent with High Expectations who Enrolled in Four-year College	ELS	67	50	39	61	10660
	HSLS (11th)	71	56	51	65	12540
	HSLS (9th)	67	53	45	60	13030

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Restricted Use Data and ELS and NCES High School Longitudinal Study of 2009 (HSLS) Restricted Use Data. Samples are restricted to those who are nonmissing on race, college enrollment, and educational expectations. Data are weighted by their respective panel weights. N's are rounded to the nearest 10 in accordance with NCES restricted data use policies.

Table 2.12 11th grade and 9th grade Probability of Enrollment in a Four-year college by Expectations and Race/Ethnicity: Marginal Effects of Expectations and Differences in Effects of Expectations across Race/Ethnicity, HSLS Restricted Data

	Race	Expects BA or Above	Expects Less than a BA	Expectation Gap (AME)/ First Difference	Comparison Groups	Second Difference	Significant Contrasts
			11th Grade Expectations				
Calculated by Subsample	a. White	0.649	0.439	0.210			
	b. Black	0.524	0.339	0.185	White- Black	0.025	
	c. Hispanic	0.478	0.294	0.184	White- Hispanic	0.026	
					Black- Hispanic	0.001	
Calculated for All Observations	a. White	0.605	0.395	0.210			
	b. Black	0.606	0.425	0.182	White- Black	0.029	
	c. Hispanic	0.578	0.388	0.190	White- Hispanic	0.021	
					Black- Hispanic	-0.008	
			9th Grade Expectations				
Calculated by Subsample	a. White	0.607	0.509	0.098			
	b. Black	0.504	0.362	0.142	White- Black	-0.044	
	c. Hispanic	0.438	0.344	0.094	White- Hispanic	0.004	
					Black- Hispanic	0.048	
Calculated for All Observations	a. White	0.562	0.464	0.099			
	b. Black	0.588	0.451	0.137	White- Black	-0.038	
	c. Hispanic	0.542	0.448	0.094	White- Hispanic	0.005	
					Black- Hispanic	0.043	

Notes: Data are from the NCES High School Longitudinal Study of 2009 (HSLS) Restricted Use Data. Sample is restricted to those who are nonmissing on race, college enrollment, and educational expectations. Educational expectations are measured from spring of 11th grade and Spring of 9th grade. Includes controls for SES, family background, prior achievement, student's actions towards college going, peer and school culture, and school characteristics. All N's rounded to nearest 10 in accordance with NCES restricted data use policies. Bachelor's Degree abbreviated as BA. Contrasts indicate which gaps are significantly different across student groups (second differences). † p<0.1., *p < 0.05, **p < 0.01, ***p < 0.001.

Table 3.1

Descriptive Statistics of Student Characteristics and Completion Outcome, ELS Public Use Data

	Full Sample		Low Expectations		High Expectations	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Sociodemographic Factors						
Female (binary 0/1)	0.53		0.44		0.56	
Race						
White (binary 0/1)	0.68		0.62		0.71	
Black (binary 0/1)	0.15		0.15		0.15	
Hispanic (binary 0/1)	0.17		0.22		0.14	
Family Background Factors						
Socioeconomic Status (binary 0/1)	0.53		0.33		0.60	
Lives with "other" than both parents (binary 0/1)	0.41		0.49		0.38	
Student Prior Achievement						
Math Test Score (continuous -2.14, 2.60)	0.03	1.01	-0.54	0.91	0.24	0.96
Student Actions Towards College Going						
Took SAT (0/1)	0.71		0.40		0.81	
Took AP tests (0/1)	0.37		0.17		0.44	
School / Peer Culture						
Most Friends Plan to Attend College (binary 0/1)	0.58		0.36		0.64	
50% + of Prior Senior class attended four-year college (binary 0/1)	0.51		0.39		0.54	
School Factors						
School in Urban Area (binary 0/1)	0.29		0.27		0.30	
School in South (binary 0/1)	0.36		0.34		0.36	
College Mediators						
Enrolled in four-year college by 2004 (binary 0/1)	0.42		0.14		0.52	
Outcome						
Completed four-year college by 2012 (binary 0/1)	0.35		0.11		0.43	
Weighted sample proportion	1.00		27.00		73.00	
N	10491.00		2618.00		7873.00	

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Public Use Data. Sample is restricted to those who are nonmissing on race, college completion status as of 2012, and 10th grade educational expectations, and immediate college enrollment. Educational expectations are measured from spring of 10th grade. Descriptives are weighted by the ELS panel weight.

Table 3.2 Percent of Students within Racial/Ethnic group Expect Four-year, Complete Four-year College, and Expect and Complete, ELS Public Use Data

		White	Black	Hispanic	Total	N
Percent with High Expectations	ELS	76	73	64	73	10491
Percent Completed Four-year College	ELS	41	21	19	35	10491
Percent Enrolled in Four-year college on-time	ELS	48	35	23	42	10491
Percent with High Expectations enrolled in college on time	ELS	59	43	31	52	10491
Percent with High Expectations who Completed Four-year College	ELS	50	26	26	43	10491

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS). Data are weighted by ELS panel weights.

Table 3.3 Odds Ratios of College Completion by 2012 on Student Characteristics, ELS Public Use Data

Main Effects	Model 1	Model 2	Model 3	Model 4
Black	0.383***	0.582**	0.794	1.254
	(0.025)	(0.108)	(0.152)	(0.257)
Hispanic	0.401***	0.555***	0.744	1.017
	(0.026)	(0.092)	(0.126)	(0.185)
Expects Bachelor's Degree (BA)	6.189***	6.883***	4.989***	2.374***
	(0.400)	(0.521)	(0.391)	(0.207)
Interactions				
Student Black x Expects BA		0.623*	0.697	0.733
		(0.124)	(0.142)	(0.157)
Student Hispanic x Expects BA		0.684*	0.737	0.772
		(0.123)	(0.135)	(0.151)
Sex				
Female			1.297***	1.474***
			(0.059)	(0.075)
Family Background				
High SES			3.264***	2.056***
			(0.160)	(0.111)
Parents unmarried			0.580***	0.660***
			(0.028)	(0.035)
Student Prior Achievement				
Math Test Score Composite				2.195***
				(0.070)
Student Actions Towards College Going				
Took SAT				1.839***
				(0.129)
Took AP Test				1.337***
				(0.071)
Peers Actions/ School Culture				
Most Friends Plan to attend College				1.360***
				(0.070)
50% or more Peers Attended College				1.710***
				(0.096)
Schools Characteristics				
School in Urban Area				1.256***
				(0.069)
School in South				0.871**
				(0.044)
N	10491	10491	10491	10491

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Public Use Data. Sample is restricted to those who are nonmissing on race, college completion status as of 2012, and 10th grade educational expectation, and immidiate college enrollment. Reference for race is white. Data are multiply imputed . *p < 0.05, **p < 0.01, ***p < 0.001.

Table 3.4 Probability of Four-year College Completion by Expectations and Race/Ethnicity: Marginal Effects of Expectations and Differences in Effects of Expectations across Race/Ethnicity, ELS Public Use Data

	Race	Expects BA or Above	Expects Less than a BA	Expectation Gap (AME)/ First Difference	Comparison Groups	Second Difference	Significant Contrasts
Calculated for All Observations	a.White	0.410	0.268	0.142			
	b. Black	0.396	0.304	0.092	White- Black	0.050	
	c. Hispanic	0.369	0.271	0.098	White-Hispanic	0.044	
					Black-Hispanic	-0.006	

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS). Sample is restricted to those who are nonmissing on race, college completion status as of 2012, and 10th grade educational expectations. Educational expectations are measured from spring of 10th grade. Includes controls for SES, family background, prior achievement, student's actions towards college going, peer and school culture, and school characteristics. Bachelor's Degree abbreviated as BA. Contrasts indicate which gaps are significantly different across student groups (second differences).   † p<0.1., *p < 0.05, **p < 0.01, ***p < 0.001.

Table 3.5 Mediation Effects of Educational Expectations on College Completion, ELS Public Use Data

Mediator	Effects	White		Black		Hispanic	
	Total Effects	1.519	***	1.555	***	1.605	***
Enrolled in a four-		(0.029)		(0.108)		(0.102)	
year college by	Mediation Effects	1.171	***	1.293	***	1.341	***
2004		(0.029)		(0.047)		(0.035)	
	Percent Mediated	77%		83%		84%	

Notes: Results are reported in risk ratios. Data are from the NCES Educational Longitudinal Study of 2002(ELS). Data are multiply imputed. After imputation, sample for enrolled in a four-year college by 2004 is then restricted to those who are nonmissing on race, college completion status as of 2012, 10th grade educational expectations, and enrolling in a four-year college by 2004 (measured in F2) N=10,49. After imputation, sample for selected a major by 2006 is restricted to those who are nonmissing on race, college completion status as of 2012, and 10th grade educational expectations, and enrolling in a four-year college by 2004 (measured in F2) as well as only those who enrolled in college by 2004 and remained enrolled by 2006 in order to answer whether they had declared a major (N=4236) † p<0.1., *p < 0.05, **p < 0.01, ***p < 0.001.

Table 4.1

Descriptive Statistics of Student Characteristics and Completion Outcome, ELS Public Use Data

	Full Sample		Uncertain Expectations		Low Expectations		High Expectations	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Sociodemographic Factors								
Female (binary 0/1)	0.53		0.49		0.44		0.60	
Race								
White (binary 0/1)	0.69		0.7		0.66		0.7	
Black (binary 0/1)	0.15		0.13		0.16		0.15	
Hispanic (binary 0/1)	0.16		0.17		0.18		0.14	
Family Background Factors								
Socioeconomic Status								
Quartile 1	0.22		0.23		0.29		0.19	
Quartile 2	0.24		0.25		0.3		0.21	
Quartile 3	0.25		0.24		0.23		0.27	
Quartile 4	0.28		0.28		0.17		0.33	
Lives with "other" than both parents (binary 0/1)	0.4		0.41		0.46		0.37	
Number of Siblings (continuous 0,6)	2.26	1.48	2.34	1.49	2.42	1.55	2.14	1.44
Student Prior Achievement								
Math Test Score (continuous -2.14, 2.60)	0.07	1.00	0.02	1.03	-0.28	0.94	0.28	0.96
Student Effort								
Works hard for grades (binary 0/1)	0.7		0.67		0.60		0.77	
High School Program								
College Track (binary 0/1)	0.54		0.49		0.42		0.62	
General Track (binary 0/1)	0.36		0.42		0.43		0.3	
Vocational Track (binary (0/1)	0.1		0.09		0.15		0.08	
School Factors								
School in Urban Area (binary 0/1)	0.29		0.29		0.28		0.3	
School in South (binary 0/1)	0.35		0.35		0.34		0.36	
School Type								
Private	0.04		0.04		0.02		0.04	
Public	0.92		0.9		0.95		0.91	
Catholic	0.05		0.05		0.03		0.05	
Outcomes								
Completed BA (binary 0/1)	0.36		0.33		0.17		0.5	
Earned or enrolled in Advanced Degree	0.14		0.1		0.04		0.4	
Weighted sample proportion	1.00		29.00		24.00		47.00	
N	9749.00		2826.00		2216.00		4707.00	

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS) Public Use Data. Sample is restricted to those who are nonmissing on race, college completion by 2012, and occupational expectations. Occupational expectations are measured from spring of 12th grade. Descriptives are weighted by the ELS panel weight.

Table 4.2 Percent of Students within Racial/Ethnic group Uncertain, Complete
Four-year college, and Uncertain and Complete, ELS Public Use Data

	White	Black	Hispanic	Total	N
Percent with Uncertain Expectations	29	25	31	29	9749
Percent Completed Four-year College	43	22	20	36	9749
Percent with Uncertain Expectations who Completed Four-year College	39	18	16	36	9749
Percent Advanced Degree	16	9	7	14	9749
Percent with Uncertain Expectations with Advanced	12	7	5	11	9749

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS).
Data are weighted by ELS panel weights.

Table 4.3 Odds Ratios of Degree Attainment by Age 26 on Student Characteristics, ELS Public Use Data 2002

BACHELOR'S DEGREE ATTAINMENT

Main Effects	Model 1	Model 2	Model 3	Model 4
Black	0.378***	0.370***	0.647***	1.162
	(0.026)	(0.032)	(0.062)	(0.125)
Hispanic	0.380***	0.412***	0.693***	0.957
	(0.025)	(0.036)	(0.067)	(0.103)
Less than Professional Expectations	0.219***	0.218***	0.293***	0.395***
	(0.014)	(0.016)	(0.022)	(0.033)
Uncertain Expectations	0.568***	0.583***	0.628***	0.702***
Professional Expectations (ref)	(0.028)	(0.033)	(0.039)	(0.047)
Interactions				
Student Black x Less than Professional Expectations		1.199	0.959	1.020
		(0.239)	(0.201)	(0.225)
Student Black x Uncertain Expectations		0.996	1.089	1.229
		(0.161)	(0.188)	(0.231)
Student Hispanic x Less than Professional Expectations		0.863	0.829	0.827
		(0.177)	(0.178)	(0.189)
Student Hispanic x Uncertain Expectations		0.818	0.862	0.910
		(0.122)	(0.137)	(0.160)
N	9749	9749	9749	9749

ADVANCED DEGREE

	Model 1	Model 2	Model 3	Model 4
Main Effects				
Black	0.568***	0.557***	0.920	1.596***
	(0.052)	(0.062)	(0.108)	(0.205)
Hispanic	0.442***	0.431***	0.658**	0.847
	(0.044)	(0.053)	(0.085)	(0.117)
Less than Professional Expectations	0.199***	0.198***	0.277***	0.371***
	(0.020)	(0.023)	(0.033)	(0.045)
Uncertain Expectations	0.510***	0.501***	0.544***	0.572***
Professional Expectations (ref)	(0.034)	(0.038)	(0.042)	(0.047)
Interactions				
Student Black x Less than Professional Expectations		1.064	0.873	0.965
		(0.343)	(0.285)	(0.322)
Student Black x Uncertain Expectations		1.059	1.161	1.352
		(0.241)	(0.271)	(0.330)
Student Hispanic x Less than Professional Expectations		0.953	0.957	1.056
		(0.343)	(0.349)	(0.393)
Student Hispanic x Uncertain Expectations		1.114	1.251	1.446
		(0.248)	(0.285)	(0.345)
N	9749	9749	9749	9749

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS). Sample is restricted to those who are nonmissing on race, college, and occupational expectations. Model 3 contains controls for family background, Model 4 contrains controls for family background, student prior achievement, high school program, and school factors. White is the reference for race. Data are multiply imputed . *p < 0.05, **p < 0.01, ***p < 0.001.

Table 4.4 Probability of Degree Attainment by Occupational Expectations and Race/Ethnicity: Marginal Effects of Occupational Expectations and Differences in Effects across Race/Ethnicity, ELS Public Use Data

	Race	Uncertain Expectation	Expects Professional	Expectation Gap (AME)/ First Difference	Comparison Groups	Second Difference	Significant Contrasts
Earned BA							
Calculated for All Observations	a.White	0.380	0.439	-0.059			
	b. Black	0.440	0.465	-0.025	White- Black	-0.034	
	c. Hispanic	0.358	0.432	-0.074	White- Hispanic	0.015	
					Black- Hispanic	0.049	
Earned or Enrolled in Advanced Degree Program							
Calculated for All Observations	a.White	0.119	0.179	-0.060			
	b. Black	0.207	0.243	-0.036	White- Black	-0.024	
	c. Hispanic	0.139	0.160	-0.021	White- Hispanic	-0.039	
					Black- Hispanic	-0.016	

Notes: Data are from the NCES Educational Longitudinal Study of 2002(ELS). Sample is restricted to those who are nonmissing on race, college completion outcome by 2012, and occupational expectations. Occupational expectations are measured from spring of 12th grade. Includes controls for family background, student prior achievement, high school program, and school factors. Contrasts indicate which gaps are significantly different across student groups (second differences).   † $p<0.1$., *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

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