

Race, Gender and Perceived Barriers: How Beliefs About
the Opportunity Structure Shape Postsecondary Pathways

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Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
of Philosophy in the Department of
Sociology in the Graduate School
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2020

ABSTRACT

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Abstract

Despite the positive benefits of higher education and policy efforts to reduce barriers, opportunities for college access are still not equitably distributed (Perna 2006). An overwhelming body of research reveals several troubling trends in college going, student persistence, and degree attainment. Black, Hispanic and low-income students are less likely to attend college than whites. When they do make it onto postsecondary education, Black and Hispanic students are underrepresented at the most selective and well-funded institutions (Carnevale and Strohl 2013). This is troubling because full-time students at elite universities are twice as likely to graduate within six years as their counterparts at less selective institutions, according to a 2011 report from Complete College America. Because degree attainment can be very consequential for later outcomes in life, the seeming immutability of racial and socioeconomic gaps in college access is perhaps one of the most pressing issues in the United States.

This dissertation explores how the process of college entry varies across race, gender and socioeconomic status. In particular, I examine an overlooked factor in the literature on college going by focusing on the role of anticipated barriers to upward mobility in the process of educational attainment. To do this, the dissertation draws on nationally representative data from the US Department of Education's High School Longitudinal Study of 2009 (HSL:09).

First, I explore group differences in students' perceptions of barriers around affordability, accessibility and achievability (Chapter 2). Second, I investigate the relationship between perceptions of limited opportunity and college seeking behaviors (Chapter 3). Third, I assess whether there are racial differences in the implications of perceived barriers for college seeking (Chapter 4). I find that beliefs about the opportunity structure matter differently for various

groups, are consequential for the decisions students make about whether and how to invest in education and represent a key dimension of the status attainment process.

Dedication

To Da'Janae and Savion, two of my greatest reasons.

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Acknowledgements

First, I must give all glory to God for the grace, strength and resolve to complete such a monumental feat. I literally could not have done this without the Lord on my side. The past 6 years that I spent in this program have been some of the most challenging times in my life—emotionally, mentally, spiritually, professionally and personally. I have learned so much about myself and grown in ways that I never even imagined. Despite every disappointment, distraction and delay along the journey, I am deeply grateful to have made it to this moment. My life’s testimony will forever sing of the goodness of God, even in the middle of a global pandemic.

I must thank the extraordinary group of scholars that make up my committee: Eduardo Bonilla-Silva, Tyson Brown, Royel Johnson, Lynn Smith-Lovin and Martin Ruef. Each of you have made an indelible mark on my scholarly and personal development. I cannot thank you enough for your support, patience, wisdom and genuine care, especially during this last stretch of the process. You all are the quintessence of the kind of scholars we need in the academy and the kind of people we need in the world.

To my chair, Eduardo, you have been so much more than I could ever ask for in a mentor, advisor and confidant. And I’m lucky to have found all these things in you. From the very first time that we interacted (when I was a lowly undergrad emailing about my application for admission to the program), you went above and beyond the call of duty to support me. I was already a fan of your intellectual bravado but that sealed the deal. You’ve had my back *every* single time I was faced with something and have been one of my greatest advocates. Thanks for all of the meals, laughs and counsel you have provided over the years. Thanks for reading my work, critiquing my writing, challenging me to be more critical and pushing me to think more

deeply about theory. Thanks for salvaging my experience in this department. I am forever indebted.

No matter how hard or frustrating things became, I always took comfort in knowing that I was never alone. I appreciate my cohort mates and fellow students who journeyed with me in navigating the vicissitudes of graduate school. During this time, I met some of the most beautiful souls and brilliant minds who have become dear friends. I am immensely grateful for my crew—John Bumpus, LesLeigh Ford, Emily Persons, Zimife Umeh and Bethany Young—also known as “The Durham 6”. I truly believe that I would not have been able to successfully finish at Duke if I did not have you all with me. You have provided enough laughs, emotional support, wisdom and love to last a lifetime. I am inspired by each of you and cannot wait to see all the amazing things that you will do in the world.

I have an overwhelming sense of gratitude for all of my friends and family who walked with me during some of the hardest seasons and transitions of my life. Earning a PhD isn't done alone; it takes a village and I have been blessed to be a part of some exceptional communities. I honor my family for all of their sacrifices and support. From the time I was a child, you have always believed in me. To my parents, thank you for doing the best you could to give me a better life. Mom, I love you dearly and appreciate all that you have done for me. Thanks for always being there even when we did not agree on something or when you could not understand what I was doing. Thanks to my grandparents, Leo and Elaine Cottman, for encouraging me to dream big and setting me up early in life to be where and who I am today. Da'Ja and Savion, being your big brother is one of the greatest joys of my life. My love for you knows no bounds. I hope I have made you proud. Family, this moment is your moment too. WE DID IT!

To all of my church families and Pastors (TOTLC, Cornerstone, Lifers, Compassion), your prayers and encouragement gave me the push I needed to keep going. I still vividly remember how my early days at the Tabernacle groomed me for moments like this. I would not have made it here without the support and love of dedicated teachers, mentors and advisors at James McHenry Elementary School and McDonogh School. Thanks for seeing things that I could not yet see in myself. Each of you pulled something out of me that propelled me to this place. To Sharon Howell, your diversity, equity and inclusion work changed my world and is a large part of how I ended up here doing this work. I would be remiss not to acknowledge all of my professors and mentors at Boston College, the place where I grew a strong sociological imagination and had invaluable opportunities to develop as a researcher. I am tremendously grateful to my mentor and friend, Shawn McGuffey, one of my favorite professors at BC. Your courses were challenging in the most productive ways. You always inspired me to be a better scholar and advocate. Thanks for still being there.

I must thank these mentors for their guidance along various points of my journey: Sebastian Cherng, Emily Hannum, Shaun Harper and Keon McGuire. To one of my favorite people on the planet, Terrell Winder, I am so glad that we continue to do life together, from McD to the Ph.D. I appreciate you always being in my corner. To Royel, you are so brilliant and I am privileged to call you mentor and friend. Thanks for everything. Lastly, I have to give a huge shout out to my amazing friends who were supportive, patient and gracious with me during this whole process: Kadeem and Sade Massiah, Ariel Perry, Johvian Jean, Paola Peguero, Ronald Greene, Marquita Galloway, Kimberly Truesdale, Marquita Wood-Powell and many others.

1. Introduction

From the beginning of the modern education system in America, there has been a strong belief that education provides unparalleled opportunities for social advancement, economic prosperity and global competitiveness. In 1848, Horace Mann, a state legislator and early school reformer, referred to education as the “great equalizer” which sparked the idea that education has the power to overcome the confines of being born into disadvantage. Mann argued bringing children of all social and economic classes together would create a common learning experience. He believed lower classes would have an opportunity to advance and move up the social ladder because of their proximity and connection to the high, elite classes. Some research even suggests higher education¹ can level the playing field among those who secure a college credential (Hout 1988; Torche 2011). Consequently, education is often seen as one of, if not, *the* most important institution for overcoming poverty and achieving upward mobility (Duncan and Murnane 2011).

Many youth are taught and socialized to believe that hard work and investment in education will pay off in the future (Hochschild 1995). These beliefs are foundational to the American ethos of meritocracy which suggests one’s success and life outcomes are solely predicated on an individual’s talent, work ethic and effort. However, the so-called “American Dream” is undermined by studies that consistently show that demographic factors such as race, gender, parental income and socioeconomic status are stronger predictors of educational and economic attainment than effort or merit (Conley 2001; Hearn 1984, 1988; Witteveen and

¹ For ease of reading, I will use the terms “college”, “postsecondary education”, and “higher education” interchangeably.

Attewell 2017). Moreover, scholars have found that students from disadvantaged groups often do not receive similar returns to their investments in education and schooling (Gaddis 2015, Alon and Haberfeld 2007, Tomaskovic-Devey, Thomas, and Johnson 2005).

Though some scholars argue schooling only works to maintain social and economic stratification (Bourdieu and Passeron 1977; Bowles and Gintis 1976), college still represents one of the best paths toward upward mobility and socioeconomic advancement (Avery and Turner 2012). Educational attainment is an important predictor of economic success, future stability and better health outcomes (Hout 2012; Mirowsky and Ross 2003; Perna 2003; Ross and Wu 1995). Studies show college graduates earn higher wages, have more job security and report greater life satisfaction than those who do not complete a bachelor's degree (Hout 2012). Recent estimates suggest the median value of earnings among those who obtain a bachelor's degree ranges from \$800,000 to over \$2 million in a lifetime (Carnevale, Rose and Cheah 2013; Hershbein and Kearney 2014). In fact, the college "premium" (or economic returns from a college credential) has risen over the last 30 years which suggests the value of postsecondary education has increased significantly (Oreopoulos and Petronijevic 2013).

Scholars have also argued that education (as a public good) is associated with positive benefits for the larger society such as increased productivity, less crime, greater civic engagement, more technological advancements, global competitiveness and a stronger economy (Baum and Payea 2004; Bowen 1997; Carnevale and Desrochers 2003; Leslie and Brinkman 1988). Despite the positive benefits of higher education and efforts to reduce barriers, opportunities for college access are still not equitably distributed (Perna 2006). Given the value of college as a public and private good, it is important to understand why some students attend

college and others do not. Though, to be sure, college is not necessarily the best choice for everyone.

While higher education is not the only path toward economic success, college choice has major implications for racial stratification in labor market outcomes and socioeconomic well-being (Bowen and Bok 2000). An overwhelming body of research reveals several troubling trends in college access, student persistence, and degree attainment. First, Black and Hispanic students are significantly more likely than whites to drop out of high school which is a prerequisite for gaining admission to college (Stark and Noel 2015). Many fully capable students are counted out before they even get the opportunity to begin the college process. Second, when students of color do make it onto postsecondary education, Black and Hispanic students are underrepresented at the most well-resourced institutions and overrepresented in open access colleges (Carnevale and Strohl 2013). This is troubling because full-time students at elite universities are twice as likely to graduate within six years as their counterparts at less selective institutions, according to a 2011 report from Complete College America. Time to degree completion is especially important given the rise of student loans and college debt. Third, not only are Blacks less likely than whites to graduate within six years (Snyder and Dillow 2013), research has shown that racial gaps in college completion have steadily increased since the 1970s (Gamoran 2014).

Despite significant efforts to eliminate disparities in college going and degree completion, opportunities for college access are still not equitably distributed (Perna 2006). I maintain more research is needed to assess group differences in the perceptions, motivations and barriers that shape students' post-high school trajectories. In order to reduce gaps in college-going, scholars and policymakers need to know which factors are most important for whom *and* which interventions would be most effective. This dissertation explores how the process of

college entry varies across race, gender and socioeconomic status. In particular, I examine an overlooked factor in the literature on college choice by focusing on the role of anticipated barriers to upward mobility in the process of educational attainment. Specifically, I ask how do students' beliefs shape educational investments?

In Chapter 2, I explore group differences in students' perceptions of barriers around affordability, accessibility and achievability. I find that in the first year of high school, Black and Latinx students are more likely than whites to believe that they will not gain admission to college even if they study and less likely than whites to believe that they cannot complete college. Females are less likely than males to perceive barriers to admission or academic ability. In Chapter 3, I investigate the relationship between perceptions of limited opportunity and college seeking behaviors. Overall, I find a negative relationship between perceptions of limited opportunity and some college seeking outcomes among students in the sample. As students anticipate more barriers, they are significantly less likely to attend college and less likely to enroll in a traditional four-year degree program. In Chapter 4, I examine whether there are racial differences in the implications of perceived barriers for college seeking. I find some evidence that Black students' awareness of future barriers leads them to invest in educational pursuits and academic endeavors even more than whites. These findings are in line with previous studies suggesting perceived barriers do not necessarily compromise minoritized² students' achievement or educational commitment. This dissertation argues that beliefs about the opportunity structure matter differently for various groups, are consequential for the decisions students make about

² I use the term "minoritized" not "minority" throughout the text to highlight how "[they] are rendered minorities in particular situations and institutional environments that sustain an overrepresentation of Whiteness" (Harper 2012:9).

whether and how to invest in education and represent a key dimension of the educational attainment process.

2. Are There Group Differences in Perceived Barriers? Examining Considerations of Access, Affordability and Ability

2.1 Introduction

A robust literature on college choice has identified a combination of factors that predict students' application behaviors and college decisions. Some studies focus on economic factors such as family income and socioeconomic background (Hearn 1991; Toutkoushian 2001) or financial aid policies (Kim 2004). Other research highlights school factors such as high school characteristics and climate (Avery et al. 2006; Roderick et al. 2011; Strayer 2002) or guidance counselors and college support (Hill 2008; Plank and Jordan 2001), while other studies focus on institutional factors such as geography, proximity to home (Do 2004; Griffith and Rothstein 2009; Turley 2009) and recruiting strategies (Hill and Winston 2010; Hoxby and Avery 2012). Research has shown that Black, Latinx and low-income students tend to apply to college at lower rates than their white, high SES counterparts and often enroll in less selective institutions (Bowen et al. 2005; Hoxby and Avery 2012; Pallais and Turner 2006). Thus, a key question still remains: why do some students go to college and others do not?

I maintain more research is needed to assess group differences in the perceptions, motivations and barriers that shape students' post-high school trajectories. In order to reduce gaps in college-going, scholars and policymakers need to know which factors are most important for whom *and* which interventions would be most efficacious. In this chapter, I review prominent frameworks and theories used to explain the high school to college transition. Second, I use nationally representative data to assess whether racial and/or gender differences exist in students'

perceptions of barriers. I find significant variation across groups in students' beliefs around their abilities to gain entry to college, pay for college and successfully complete college.

2.2 Background

Most empirical research on college choice is informed by either economic or sociological conceptual frameworks. Economists focus on the effects of tuition, financial aid and income using rational choice models (Breen and Goldthorpe 1997; Hoxby 2004; Manski and Wise 1983). Sociologists integrate theories of status attainment (e.g., Wisconsin model) and social capital to examine the impacts of networks and influences such as friends, families and schools (McDonough 1997; Perna 2000; Sewell, Haller, and Portes 1969). By combining rational choice and status socialization models, scholars such as Stephen Morgan (2005) have been able to advance a stochastic, decision tree model to consider the role of information, beliefs and individual agency (Grodksy and Jones 2007). More recent work leverages the strengths of economic, sociological and ecological approaches to the study of college access to acknowledge the importance of larger social structures and context (Perna 2000, 2006), underscore environmental influences at the school level (Oakes 2003, 2005) and highlight the institutional behaviors and strategic decisions of colleges themselves (Bergerson 2009; Paulsen 1990; Perna 2006). Below, I highlight the frameworks that inform most research and policy discourse on college choice.

2.2.1 Economic Frameworks: Exploring Concerns about Finances

One of the predominant frameworks in economics for investigating students' transitions to college is the rational choice model (Breen and Goldthorpe 1997; Hoxby 2004; Manski and Wise 1983). Scholars contend that given their preferences and the information available to them,

rational actors (e.g., students and parents) make individual choices in their best interests that minimize risks and maximize rewards (Becker 1993; Ellwood and Kane 2000; Paulsen 2001). Economic theories are quite useful for understanding how finances and other human capital factors influence college going patterns (Manski 1993). However, econometric models of college enrollment have several limitations (Perna 2006). First, since these models often show how the availability of financial and academic resources shape college decisions, many studies only focus on the final stage of the college entry process—*whether* and *where* to enroll (Perna 2006). Previous research has examined the effects of family income, tuition and financial aid policies on college enrollment (Avery and Hoxby 2004; Hearn 1991; Kim 2004; Long 2004; Terenzini, Cabrera, and Bernal 2001). Some research suggests perceptions of and decisions about higher education are shaped way before the actual choice to apply or enroll (Hearn 1984; Jackson 1997; Rosenfeld 1980). Thus, more research is needed to examine earlier stages of the college entry process.

Second, economic frameworks do not fully explain demographic gaps in patterns of college attendance (Perna 2000). Though scholars acknowledge the importance of the quantity and quality of information available to actors (Goldthorpe 1996; Morgan 2005), most studies do not consider how differences in available information has implications for how individuals understand and make decisions about college (DesJardins and Toutkoushian 2005). Research has shown there are significant differences in students and families' perceptions of the expected costs and benefits of college (Paulsen 2001). In general, many families have limited or inaccurate information about tuition costs and financial aid (Perna 2004). However, there is significant variation by race/ethnicity and socioeconomic status. Black, Hispanic and low-income parents are less likely to provide estimates of college costs and when they do, their tuition estimates have

larger standard errors (Grodsky and Jones 2007; Horn, Chen, Chapman 2003; Ikenberry and Hartle 1998). Blumer and Zafar (2018) found that while most respondents underestimated the average earnings of workers with a college degree, those from higher socioeconomic backgrounds had significantly lower absolute errors than their disadvantaged counterparts.

Finally, economic theories often fail to examine how preferences are formed, why they differ across groups and how they inform actions (DesJardins and Toutkoushian 2005). Most rational action models of college going make strong assumptions about an individual's values, tastes and preferences (Hechter and Kanazawa 1997; Raftery and Hout 1993). Though models allow for individual variation in utility, rational choice frameworks become unstable when preferences are *too* contextual (Hechter and Kanazawa 1997; Levin and Milgrom 2004). Research has shown that Black, Hispanic and poor families are more sensitive to changes in tuition, net college costs, and the presentation of aid information. In a sample of high-achieving high school college applicants, Avery and Hoxby (2004) found that students were “excessively attracted” (pg. 289) to loans and work study (forms of aid that increase debt burden) compared to grants (money they do not have to repay). Moreover, students from low-income families were more concerned about net sticker costs than the amount of aid offered (Avery and Hoxby 2004). Other research, including experimental studies, has found that the wording of financial aid offers matters for college enrollment; low-income students are more responsive to “scholarship” and “grant” awards (Caetano, Palacios and Patrinos 2011; Heller 1997; Field 2009).

While loans have become an increasingly popular way to finance higher education, many students and families are unwilling to participate in federal aid programs (Chan et al. 2019). In fact, research shows there are substantial racial/ethnic differences in students' willingness to borrow to pay for college (Boatman, Evans and Soliz 2017). Chan et al. (2016) examined

borrowing trends from 2000-2016 using institutional and federal data from the National Student Loan Data System. They found Black students were over 1.5 times more likely than white students to borrow net of socioeconomic background while Hispanics were nearly 1.5 times less likely to borrow (Chan et al. 2016). These borrowing patterns also mirror trends in student debt burdens. Black college graduates have more educational debt than any other racial/ethnic group (Grinstein-Weiss, Perantie, Taylor, Guo and Raghavan 2016; Jackson and Reynolds 2013; Scott-Clayton and Li 2016).

Despite the negative consequences of education debt for student persistence, degree completion and future financial decisions (Dowd and Coury 2006; Dwyer, McCloud and Hodson 2012; Kim 2007), the long-term benefits of educational attainment such as higher wages still outweigh the costs of earning a college credential (Avery and Turner 2012; Carnevale et al. 2013). However, students could have drastically different responses to the exact same information about costs or ways to reduce costs. For example, Hispanic and low-income students are less likely to think taking on any form of debt is acceptable, even if it is for a future investment such as college (Boatman et al. 2017). Hispanic students are also significantly less likely than whites to take on educational debt in the form of loans (Boatman et al. 2017). Scholars have suggested this aversion to risk and debt partially explains racial and socioeconomic gaps in student borrowing and subsequent college enrollment (Boatman et al. 2017; Cunningham and Santiago 2008; Goldrick-Rab and Kelchen 2013; Paulsen and St. John 2002; Perna 2008). The issue here is not in the seemingly 'irrational' decisions of actors but rather, the inability of econometric frameworks to reliably predict individual behavior across different situations. This is important because policymakers need to know what interventions are most effective for whom. For instance, if there are cultural differences in attitudes towards borrowing or financing higher education,

policymakers can use this information to develop targeted, culturally sensitive solutions in an effort to reduce disparities in college pathways. Research has shown that college counselors, strong advising programs and an “organizational habitus” of high college expectations are strongly linked to the application behaviors and college destinations of students from the most disadvantaged families (Corwin and Tierney 2007; Hill 2008; McDonough 1997; Perna et al. 2008; Robinson and Roksa 2016). Thus, I hypothesize the following:

H1: Financial concerns will not be as prevalent for Black, Latinx and female students after accounting for family background and income, academic preparation and college going resources at the school level (Long 2008).

2.2.2 Sociological Frameworks: Exploring Concerns about Access

In a true meritocracy, access to postsecondary education should be solely related to academic ability and effort (Hearn 1988). In other words, factors such as family income or parental education should not affect college destinations or patterns of college entry. However, research has consistently shown that access to college is deeply influenced by status characteristics such as race/ethnicity, gender and social class (Hearn 1984, 1988; Olson 1982). The system of higher education is set up in a way that reproduces inequality among the most disadvantaged groups in their pathways to postsecondary education. Students from advantaged backgrounds tend to amass more privilege in the high school to college transition by gaining admission to the most selective and well-funded schools. Meanwhile, those from marginalized backgrounds often fall further behind in educational attainment and economic mobility, even if they make it to college. Sociological understandings of college choice highlight the contributions of background factors derived from traditional status attainment models (Hearn 1984; Sewell,

Haller, and Portes 1969). Specifically, sociological approaches help us to understand the role of contextual factors (e.g., family, school, community) that shape students' educational and career trajectories (Lareau 2000; McDonough 1997; Paulsen and St. John 2002; Perna 2000; Walpole 2003).

Status attainment models illuminate the ways in which family, friends and significant others influence students' attitudes towards higher education and understand their chances of successful college enrollment and degree attainment (Perna 2006; Plank and Jordan 2001; Walpole 2003). For instance, parental encouragement is one of the strongest predictors of students' educational plans and eventual attainment (Hossler, Schmit and Vesper 1999; Kao and Tienda 1998). Students who have parents with a bachelor's degree are much more likely to aspire to attend college than those without (Walpole 2003). Status attainment models maintain that individuals' eventual social status destinations are primarily guided by familial and peer socialization (Hossler, Schmit and Vesper 1999). Parental education plays an influential role in the attainment process because it shapes student's own expectations and aspirations about future educational and occupational attainment (Sewell and Hauser 1972).

Contemporary sociological models also focus on the importance of social and cultural capital for understanding processes of college entry (McDonough 1997; Perna 2006; Perna and Titus 2005). One of the main avenues through which information about college is shared is via social networks. Proximity to college going resources or at least knowing how to access relevant information is critical for successfully gaining admission to college. Students from disadvantaged backgrounds have less access to resource rich, well connected networks (Tierney 1980). Moreover, Black, Latinx and low-income students often have less insight on how to navigate certain aspects of the application process (Teranishi and Briscoe 2006). Social capital represents a

key stratifying mechanism in the attainment process to the extent that social networks are used to exclusively procure benefits and advantages only for those who are a part of that group. Students from marginalized backgrounds tend to have less insider information and fewer people to give personal advice, tailored recommendations or speak to their own experiences with higher education (Cabrera and La Nasa 2001). In addition, Black and Hispanic families often encounter more obstacles when trying to develop or employ social capital resources, especially through interactions with guidance counselors, school staff and college personnel (McDonough 1994, 1997; Perna and Titus 2005; Stanton-Salazer 1997).

Cultural capital plays a big role in the transition from high school to college as well. First, cultural capital shapes the child's knowledge, cultural values and exposure which influences their general attitudes towards college (Bourdieu 1986). Through parental socialization and family upbringing, students develop a particular orientation towards higher education. Some students grow up with college educated parents and get early exposure to an overall college-going culture (McDonough 1997) or "college going habitus" (Grodksy and Riegle-Crumb 2010). For these students, the question is not *whether* they will attend college because they have grown up for most of their lives expecting to attend somewhere. Their "choice" is likely about *which* college they will decide to enroll in. Students from higher socioeconomic backgrounds are more likely to take a college preparatory course, visit college campuses and have regular conversations about their dream schools (Lareau and Weininger 2008; McDonough 1994; McDonough 1997; Plank and Jordan 2001). Students that do not have the same level of exposure are disadvantaged at multiple stages of the college entry process. They often lack the language, skills and resources needed to effectively navigate institutions, interact with gatekeepers/authority figures and gain "institutional know-how" (Calarco 2011, 2014; Perna and Titus 2005). For instance, families with

low levels of cultural capital may defer to school officials instead of challenging decisions, asking questions or seeking clarity about some aspect of the college search process. At the decision phase, students often do not know how to best negotiate or advocate for themselves, especially when considering financial aid, scholarship awards and admission offers. Thus, I hypothesize the following:

H₂: College acceptance barriers will be a prevailing concern for Black and Hispanic students.

2.2.3 Combined Frameworks: Exploring Concerns about Ability

Perna's (2006) conceptual model integrates economic and sociological approaches and acknowledges the contribution of larger social and structural influences such as schools, neighborhoods, state and federal policies and postsecondary institutions themselves. The greatest challenge that Black and Hispanic students face in the process of college entry is often gaps in material resources. Research has shown that after controlling for socioeconomic status, students of color fare the same or even better as their white counterparts. They have higher educational aspirations, apply to more schools, are more likely to enroll in college and are more likely to start a four-year rather than two-year degree program (Hurtado et al. 1997; Kao and Tienda 1998; Perna 2006; Plank and Jordan 2001). Thus, many of their concerns about whether they can get into college and successfully complete a baccalaureate program are likely driven by disparities in social and economic resources that would bolster their academic preparations. As I will discuss in Chapter 4, studies have found that minoritized students are “unusually” motivated, optimistic and resilient (given the stark realities of racism, discrimination and poverty that they will face in society). Thus, I hypothesize the following:

H₃: Perceived barriers around ability level will be less important for Black, Latinx and female students.

2.2.4 Research on Group Differences

The present study makes several contributions to the literature. First, I examine both general and specific forms of barriers. Second, I measure students' perceptions at two critical junctures; at the beginning of high school and right before the final year. Lastly, I highlight the relative importance of different factors to the college going pathways of students from diverse backgrounds. This chapter is guided by the following research question; are there racial and/or gender differences in perceptions of barriers?

Survey research on racial attitudes has found significant racial differences in beliefs about the causes of inequality with Blacks being more likely to acknowledge structural explanations (e.g., racism and discrimination) than whites (Bobo 2001; Krysan 1999; Hunt 2007). Blacks are also significantly more likely than whites to report experiencing racism and discrimination (Bonilla-Silva 2006; Lucas 2008). Previous studies have also shown that Black students perceive fewer returns to their education, are less optimistic about their ability to control their future and are more likely to view racism as a potential barrier to future success (Harris 2011; Matthew 2011; Mickelson 1990).

Though Latinos often experience more racial discrimination than whites, some scholars note that certain ethnic subgroups are moving towards "honorary white status" in a new tri-racial order (Bonilla-Silva 2002, 2004). Research has shown that skin tone, age and acculturation are associated with perceived discrimination among Latinos leading to variation in experiences of discrimination among subgroups in the population (Perez, Fortuna and Alegria 2008). Still,

Hispanics, on average, report lower levels of perceived discrimination than African Americans (Kessler, Mickelson and Williams 1999).

Though gender bias and discrimination are an unfortunate reality for many female students and magnified for girls of color (Crenshaw et al. 2015; Morris 2016; Morris and Perry 2017), research suggests they are outperforming their male peers. In fact, recent evidence documents a “reversed gender gap” in which female students are applying to, enrolling in and graduating from college at significantly higher rates than males (Alon and Gelbgiser 2010; Buchmann and DiPrete 2006; Riegle-Crumb 2010). Moreover, this female advantage persists across all racial/ethnic groups as well. As I have already outlined in the previous sections, I hypothesize that there will be significant racial and gender differences in perceived barriers during the first year of high school.

2.3 Methods

2.3.1 Data

Data for this study comes from the High School Longitudinal Study of 2009 (HSL:09). The HSL is a nationally representative, longitudinal study of over 21,000 9th graders during the 2009 fall term. The first follow-up was conducted in the spring of 2012 when most respondents were in the 11th grade. The next wave was a postsecondary update that took place during the summer/fall of 2013 after most respondents had graduated from high school. In addition, the National Center of Education Statistics (NCES) collected and coded high school transcripts for all student respondents during the fall of 2013/spring of 2014.

The sample was developed using a two-stage stratified sampling procedure. In the first stage of stratified random sampling, 1,889 eligible schools were identified from a national

sampling frame stratified by geographical region (Northeast, Midwest, South or West), school type (public, Catholic, or other private), and metropolitan status (urban, suburban, or rural), as well as schools providing instruction to both 9th and 11th graders. Of the eligible institutions, 944 schools participated in the study, resulting in a weighted response rate of 56 percent. In the second stage of sampling, more than 25,000 eligible 9th graders were randomly selected from the participating schools (about 27 students per school). Of the students able to take the base-year survey, 21,444 9th graders¹ completed the student questionnaire, which resulted in a weighted response rate of 86 percent.

The HSLs is ideal for this study because the purpose of the dataset was to explore the determinants of postsecondary education and investigate how school, home, and contextual factors shape a student's decision to attend college and choice of institution. The HSLs follows students through the adolescent and early adulthood years, specifically tracing their secondary and postsecondary or work trajectories. The HSLs data were collected for the purpose of understanding how students' motivation, beliefs, and interests are linked to future educational and occupational goals and outcomes. Given the richness of measures and information from multiple stakeholders, the data provide researchers with an unrivaled opportunity to examine the relationship between perceptions of opportunities, barriers, and students' choices about their education.

¹ The HSLs also has base-year questionnaire data for 16,995 parents, 17,882 mathematics teachers, 16,269 science teachers, 888 school administrators, 852 school counselors, as well as student mathematics assessment data for 20,781 students. These other sources of information provide important student-level contextual data at multiple levels—school, classroom, and home. Also, the parent was self-selected, using the criterion that the responding parent should be the one most knowledgeable about the ninth-grader's current experiences (Ingles et al. 2011).

To handle missing data, I use multiple imputation by chained equation algorithm ($m = 5$) on predictors with missing values. The final analytic sample did not differ significantly from the restricted sample. Further, the results yielded the same substantive conclusions as models run with listwise deletion. I focus on the imputed data to retain more cases.

2.3.2 Measures

2.3.2.1 Dependent Variables

The dependent variable for these analyses is perceptions of barriers to college access, which are taken from the first wave (fall of 9th grade). The HSLs asks respondents to what extent they agree with the following statements: “even if you study, you won’t get into college”, “even if you study, your family can’t afford college” and “you have the ability to complete a Bachelor’s degree” (1=strongly agree, 2=agree, 3=disagree, 4=strongly disagree). Thus, lower values correspond to a greater perception of barriers. I created a dichotomous variable to measure whether students perceived any barriers (0=strongly disagree and disagree; 1=strongly agree and agree).

In the second configuration of perceived barriers used for these analyses, I create a scale by using the discrepancy between respondents’ educational aspirations and expectations. In the second wave, the HSLs asks respondents during their junior year “if there were no barriers, how far in school would you want to go?” (aspirations) and “as things stand now, how far in school do you think you will actually get?” (expectations). I recode both variables so that the response categories are equivalent (“less than high school”, “complete high school diploma/GED/alternative high school program”, “complete certificate/diploma for occupational training program”, “complete associate’s degree”, “complete bachelor’s degree”, “complete

master's degree", "complete PhD/MD/JD/other professional degree"). To operationalize students' perceptions of barriers, I subtract the respondents' stated educational expectations from their stated educational aspirations. Scores range from -5 (min) to 6 (max) with larger differences corresponding to a greater mismatch between the two². A value of zero on the perceived barriers scale equals perfect alignment between respondents' aspirations and expectations while negative values indicate that expectations are higher than aspirations (i.e., fewer barriers) and positive values indicate that aspirations are higher than expectations (i.e., greater barriers).

2.3.2.2 Independent and Control Variables

Since I examine group differences, the main predictor for these analyses is race. Race is indicated with three dummy variables for respondent's self-reported race with whites as the reference group. Sixty-five percent of the students in the sample are white, 14 percent are Black, and 21 percent are Latinx. I control for a host of demographic, socioeconomic and school level factors to minimize the possibility that the associations between race and perceived barriers are confounded by any number of unobserved variables. Gender is included as a dichotomous variable (0 = male, 1 = female) since it predicts college going and completion (DiPrete and Buchmann 2006). To account for socioeconomic background, I used a composite variable constructed by NCES from parent questionnaire data (Ingels et al. 2005). I followed prior research and created a proxy for social class by dividing the SES variable into quintiles so that upper class, middle class, and low class are represented by the top 20%, middle 60%, and bottom

² Although results are not substantively changed when I include students who do not know about their aspirations or expectations, I chose to exclude respondents that indicated uncertainty about their educational aspirations or expectations ($n = 2,426$) because I conceptualize this kind of uncertainty (being unsure about any of their plans) as distinct from perceived barriers (Morgan, Leenman, Todd and Weeden 2013; Schneider and Stevenson 1999; Staff, Harris, Sabates and Briddell 2010).

20%, respectively, of the SES distribution in the sample. Because family income, parents' education and family structure are associated with college attendance (Charles et al. 2007; Hearn 1991), I adjusted for parental arrangements with a dummy variable coded 1 if respondents lived in a two-parent household during the base year survey. Family size is accounted for by a continuous variable that indicates the number of people living in the respondent's household during the base year.

I accounted for achievement by controlling for prior mathematics course taking patterns in eighth grade. Research has shown that advanced mathematics coursework is positively associated with math achievement, college enrollment and degree persistence (Attewell and Domina 2008; Byun, Irvin and Bell 2015; Riegle-Crumb and Grodsky 2010). Thus, I included a dummy variable coded 1 if students took algebra 1 or a higher-level math course in eighth grade and 0 if they were placed in math 8, advanced/honors math 8 or pre-algebra. In addition, I controlled for students' self-reported grades in their eighth grade math course (4-point scale; A = 4.0, B = 3.0, C = 2.0, D = 1.0, F=0). Lastly, I included a dummy variable coded 1 if students expected to complete at least a bachelor's degree in 9th grade (prior educational expectations). Parental expectations are indicated by a dummy variable coded 1 if a respondent's parent or guardian expects them to complete at least a bachelor's degree

I used two scales from the base year student questionnaire to capture respondents' sense of school belonging (Cronbach's alpha = .72) and level of school engagement (Cronbach's alpha = .67). The variables were coded so that higher values indicate a more positive affect towards school and greater levels of engagement and academic preparedness. Since school context has a strong effect on achievement and educational attainment (Morgan 2005), I included the following school variables measured in the base year: geography, urbanicity, school type (public, Catholic,

or other private), socioeconomic composition (% of students in respondent's school that receive free or reduced-price lunch) and the presence of college counseling resources. Table 1 presents a detailed description of all the measures used in this analysis.

Table 1: Means, Standard Deviations and Descriptions for Variables Used in the Analysis (HSLs 2009)

Variable	Description	Metric	Means (SD)			Alpha
			Whites	Blacks	Hispanics	
<i>Outcomes – Perceived Barriers (G9)</i>						
Access	Whether respondent believes he/she won't get into college, even if they study.	0 = No 1 = Yes	.09 ^{BH}	.12 ^{WH}	.14 ^{WB}	---
Affordability	Whether respondent believes his/her family can't afford college, even if they study.	0 = No 1 = Yes	.23 ^{BH}	.25 ^W	.33 ^W	---
Ability	Whether respondent believes he/she has the ability to complete a bachelor's degree.	0 = No 1 = Yes	.10 ^{BH}	.06 ^{WH}	.12 ^{WB}	---
<i>Educational Plans – Student responses to the following: (G11)</i>						
Educational Aspirations	If there were no barriers, how far in school would you want to go?	0 = Unsure/Don't Know 7 = Complete a Ph.D./ M.D./Law Degree/Other	5.62 ^{BH} (1.50)	5.71 ^{WH} (1.48)	5.60 ^{WB} (1.59)	---
Educational Expectations	As far as things stand now, how far in school do you think you will actually get?	0 = Unsure/Don't Know 7 = Complete a Ph.D./ M.D./Law Degree/Other	4.85 ^H (1.52)	4.97 ^H (1.60)	4.55 ^{WB} (1.66)	---
<i>Perceived Barriers (G11)</i>						
Perceptions of Limited Opp.	Difference between respondents' educational aspirations and educational expectations.	-5 = Min 6 = Max	.70 ^H (1.19)	.72 ^H (1.30)	1.00 ^{WB} (1.40)	---
<i>Background Characteristics</i>						
Race	Self-reported race (proportion in sample).	---	.66	.13	.21	---
Sex	Whether respondent is female.	0 = No / 1 = Yes	.48 ^B	.47 ^{WH}	.49 ^B	---
SES _p	Weighted and standardized composite of: parent(s) highest level of education, parent(s) occupational	-1.75 = Min. 2.57 = Max	.14 ^{BH} (.73)	-.20 ^{WH} (.71)	-.44 ^{WB} (.71)	---

prestige, total family income.

Social Class _p (Based on SES Quintiles)	Upper Class (Top 20%)	0 = No / 1 = Yes	.28 _{BH}	.14 _{WH}	.10 _{WB}	---
	Middle Class (Middle 60%)	0 = No / 1 = Yes	.61 _H	.62 _H	.51 _{WB}	---
	Lower Class (Bottom 20%)	0 = No / 1 = Yes	.11 _{BH}	.24 _{WH}	.39 _{WB}	---
Family Structure _p	Whether respondent lives in a two-parent household.	0 = No / 1 = Yes	.63 _{BH}	.34 _{WH}	.56 _{WB}	---
Family Size _p	Number of household members in base year.	2—14	4.31 _H (1.31)	4.30 _H (1.60)	4.68 _{WB} (1.51)	---
Grade 8 Math Score	Student's self-reported final grade in 8 th grade math course.	0—4.0	3.01 _{BH} (1.00)	2.71 _{WH} (1.00)	2.74 _{WB} (1.04)	---
Grade 8 Math Placement	Whether student completed algebra 1 or higher math course in 8 th grade.	0 = No / 1 = Yes	.40 _{BH}	.30 _{WH}	.35 _{WB}	---
Prior Educ. Expectations	Whether student expects to complete at least a bachelor's degree (base year).	0 = No / 1 = Yes	.57 _H	.60 _H	.46 _{WB}	---
Parental Expectations _p	Whether parent expects student to complete at least a bachelor's degree (base year).	0 = No / 1 = Yes	.70 _{BH}	.71 _{WH}	.64 _{WB}	---
Sense of Belonging	How much respondent feels: (a) safe at their school; (b) proud being part of their school; (c) they always have teachers/adults to talk to; (d) school is often a waste of time; (e) getting good grades in school is important.	-4.35 = Min. 2.72 = Max	.05 _H (1.02)	.07 _H (1.01)	-.02 _{WB} (.98)	.720
School Engagement	How often respondent goes to class: (a) without pencil/paper; (b) without books; (c) without homework done; (d) late.	-3.38 = Min. 3.04 = Max	.06 _{BH} (.97)	-.05 _{WH} (.99)	-.18 _{WB} (1.06)	.670
<i>School Characteristics</i>						
Geography _a	Northeast	0 = No / 1 = Yes	.15 _B	.13 _W	.14	---
	Midwest	0 = No / 1 = Yes	.27 _H	.27 _H	.22 _{WB}	---
	South	0 = No / 1 = Yes	.42 _{BH}	.47 _{WH}	.39 _{WB}	---
	West	0 = No / 1 = Yes	.15 _{BH}	.13 _{WH}	.25 _{WB}	---

Urbanicity ^a	Urban	0 = No / 1 = Yes	.27 _H	.27 _H	.31 _{WB}	---
	Suburb	0 = No / 1 = Yes	.34 _{BH}	.37 _{WH}	.36 _{WB}	---
	Town	0 = No / 1 = Yes	.14 _{BH}	.11 _W	.10 _W	---
	Rural	0 = No / 1 = Yes	.26 _H	.26	.24 _W	---
School Type ^a	Public	0 = No / 1 = Yes	.81 _{BH}	.85 _W	.86 _W	---
	Catholic	0 = No / 1 = Yes	.11 _H	.11 _H	.08 _{WB}	---
	Other Private	0 = No / 1 = Yes	.08 _{BH}	.05 _{WH}	.05 _{WB}	---
% Free Lunch ^a	Percent of students receiving free or reduced price lunch at respondent's school.	0 – 100	30.76 _{BH} (22.44)	44.32 _W (28.46)	43.38 _W (27.81)	---
School Climate ^a	Administrator's assessment of school climate: reported freq. of physical conflict, robbery, vandalism, drug sales, alcohol use, possession of weapons, bullying, racial tensions, in-class misbehavior, & physical/verbal abuse and disrespect of teachers.	-4.22 = Min. 3.54 = Max	-.31 _{BH} (1.01)	-.57 _W (1.11)	-.58 _W (1.13)	.650
College Going Culture ^c	Percent of 08-09 seniors who went to a 4-year Bachelor's-granting institution after high school.	0 – 100	57.66 _H (28.96)	57.47 _H (29.74)	55.53 _{WB} (30.35)	---
College Counseling ^c	Whether school has formal dropout prevention program.	0 = No / 1 = Yes	.44 _{BH}	.48 _{WH}	.50 _{WB}	---
	Whether school emphasizes college as primary goal.	0 = No / 1 = Yes	.52 _H	.50 _H	.46 _{WB}	---
	Whether school has formal programs encouraging college.	0 = No / 1 = Yes	.75 _{BH}	.78 _{WH}	.81 _{WB}	---
	Whether school has designated counselors for college assistance.	0 = No / 1 = Yes	.61	.63	.60	---
	Number of full-time and part-time high school counselors.	0 – 17	3.45 _{BH} (2.12)	3.84 _{WH} (2.27)	4.23 _{WB} (2.52)	---

Notes: Number of observations is 17,204, 17,154 and 17,198 for barriers related to admission, finances, and likelihood of completion, respectively. Numbers in parentheses are standard deviations. Subscripts indicate significant racial/ethnic group differences according to Tukey-Kramer post hoc tests ($p < .05$); for example, subscript B indicates that a group differs significantly from Blacks; H = Hispanic/Latinx; W = white. ^a Taken from school administrator questionnaire. ^c Taken from counselor questionnaire. ^p Taken from parent questionnaire.

2.3.3 Analytic Plan

I use logistic regression to explore the associations between race, gender and perceived barriers. I present each of these relationships under several conditions. For the configuration of early barriers (9th grade), the first model establishes the raw or unadjusted estimates. The second model accounts for socioeconomic status and family structure. The third model adds prior achievement, academic preparation and social-psychological factors such as educational expectations. The fourth model includes school characteristics, sense of belonging and level of school engagement. The final model accounts for the college going culture/level of college support at respondents' schools. For perceptions of limited opportunity (11th grade), I follow a very similar approach. In analyses not shown here, I run all the models with school fixed effects and the main results are substantively unchanged. Thus, to increase analytic power, I present results from models without controlling for the school respondents attended. Within the text, I reference all logistic coefficients with either an odds ratio or risk ratio (RR) for ease of interpretation.

2.4 Results

The descriptive statistics presented in Table 1 reflect many features of the structural racial disadvantage found in society—Black and Latinx students in the sample are from families with significantly less income and education than whites, have lower grades and poorer academic preparation. Whites in the sample are more likely to attend private schools with economic resources, higher teacher expectations, positive school climates, and a stronger college going culture. Blacks are significantly more likely than white and Latinx students to have a parent that expects them to complete college. Consistent with previous research (Farkas et al. 2002; Kao and

Tienda 1998), Blacks have higher educational aspirations than whites and Hispanics, even when those dreams do not materialize. Latinx students in the sample reported significantly lower educational expectations for themselves. At the beginning of high school, Black and Latinx students are more likely than whites to perceive barriers to college. Specifically, Latinx students in the sample are the most likely group to believe that they will not gain admission to college and lack the ability to complete a bachelor's degree. Black students are the least likely group to believe that they cannot finish a baccalaureate program. White students are the least likely group to believe that their families cannot afford higher education. By junior year of high school, Latinx students still have significantly greater odds of perceiving barriers than whites, while Black students do not differ from whites in their perceptions of limited opportunity.

Table 2 contains findings for odds of perceiving access barriers. In the unadjusted model (Model 1), there are significant differences by race and gender. Black and Latinx students have significantly greater odds than whites of believing that they will not be able to gain access to a four year college ($\exp(b) = 1.61$ and $\exp(b) = 1.86$; $p < .001$, respectively). The odds of perceiving access barriers for females are .52 times smaller than those of males. These patterns still hold in the final model (Model 5) after controlling for social class, prior achievement, school variables, social psychological factors and college support. In the final model, socioeconomic status has a negative relationship with perceived access barriers; students from higher social class backgrounds are less likely than their economically disadvantaged peers to believe that they will not get into college even if they study ($\exp(b) = 0.69$; $p < .01$). However, this trend seems to reverse at the highest levels of the SES distribution. Students from the top 20% of the distribution are significantly more likely ($\exp(b) = 1.81$; $p < .05$) than those from the bottom 20% to believe that a college acceptance is out of the picture for them. Prior skills ($\exp(b) = 0.80$; $p < .001$),

parental expectations ($\exp(b) = .65$; $p < .001$), prior educational expectations ($\exp(b) = .43$; $p < .001$), school engagement ($\exp(b) = .92$; $p < .05$) and sense of belonging ($\exp(b) = .70$; $p < .001$) are all significant predictors of perceived access barriers. Students with these resources are significantly less likely to believe that they will not earn acceptance into college. Finally, none of the college going resources or college counseling school supports had a relationship with perceived access barriers.

Table 2: Odds Ratios for Perceived Access Barriers on Race and Controls

	Model 1 (Unadjusted)	Model 2 (+Social Class)	Model 3 (+Prior Skills)	Model 4 (+School/Social Psych.)	Model 5 (+College Supp.)
BARRIER					
(Access)					
<i>Covariates</i>					
Black	1.611*** (.124)	1.373** (.133)	1.272* (.127)	1.587*** (.191)	1.601*** (.204)
Hispanic	1.855*** (.115)	1.429*** (.116)	1.373*** (.114)	1.465*** (.143)	1.532*** (.161)
Female	.524*** (.029)	.501*** (.034)	.530*** (.037)	.589*** (.047)	.597*** (.050)
SES	---	.489*** (.049)	.564*** (.059)	.692** (.084)	.694** (.088)
Upper Class	---	1.333 (.310)	1.430 (.340)	1.722* (.466)	1.808* (.516)
Middle Class	---	1.230 (.145)	1.207 (.146)	1.242 (.172)	1.270 (.185)
Math Coursework	---	---	.688*** (.051)	.831* (.072)	.799* (.074)
Math Grade (8 th)	---	---	.670*** (.021)	.815*** (.032)	.801*** (.033)
Parental Expectations	---	---	---	.660*** (.057)	.653*** (.060)
Prior Educ Expectations	---	---	---	.435*** (.038)	.432*** (.040)
School Engagement	---	---	---	.902* (.037)	.916* (.040)
Sense of Belonging	---	---	---	.706*** (.028)	.702*** (.030)
School Climate	---	---	---	1.026 (.044)	1.026 (.049)
College Going Culture	---	---	---	---	.999 (.002)
College Focus	---	---	---	---	1.071 (.090)
Num. of Counselors	---	---	---	---	.996 (.022)
College Programs	---	---	---	---	.987 (.097)
College Staff	---	---	---	---	1.070 (.094)
Constant	.107*** (.004)	.078*** (.013)	.271*** (.051)	.139*** (.046)	.139*** (.055)

Notes: Numbers in parentheses are robust standard errors. Whites and lower class are the omitted reference groups. SES includes variables for family structure and household size. School variables include geography, urbanicity, type and % free/reduced price lunch. $N = 10,135$.

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

Table 3 contains findings for odds of perceiving affordability barriers. In the unadjusted model (Model 1), the odds of perceiving financial barriers are 1.23 times and 1.78 times greater for Black and Latinx students, respectively, than whites. In addition, females have significantly lower odds than males ($\exp(b) = .86$; $p < .001$) of believing that they cannot afford college. After controlling for social class in Model 2, Black students are less likely than whites to perceive financial barriers ($\exp(b) = 0.85$; $p < .05$) and the odds ratio for Hispanic decreased by 35%. As socioeconomic status increases, students have lower odds of believing that they cannot finance higher education. However, students in the middle 60% of the distribution are more likely than those in the bottom 20% to perceive affordability barriers ($\exp(b) = 1.18$; $p < .05$). Although, this coefficient becomes nonsignificant in Model 3 after adjusting for prior achievement.

Once controlling for school level variables, social psychological factors and respondents' level of school attachment in Model 4, the coefficients for Black and female become nonsignificant. Students that enjoy the learning environment, come to class prepared and have positive feelings toward their schools are significantly less likely to believe that they cannot afford college. Lastly, with the addition of college support and college going resources in Model 5, the coefficient for Hispanic becomes nonsignificant. There seem to be no differences by race or gender in terms of perceived financial barriers, net of social class, prior academic preparation, school factors and level of college counseling support. This finding underscores the reality that students of color often face significantly more structural disadvantage than their white peers.

Table 3: Odds Ratios for Perceived Affordability Barriers on Race and Controls

	Model 1 (Unadjusted)	Model 2 (+Social Class)	Model 3 (+Prior Skills)	Model 4 (+School/Social Psych.)	Model 5 (+College Supp.)
BARRIER					
(Afford)					
<i>Covariates</i>					
Black	1.227*** (.068)	.852* (.061)	.834* (.060)	.941 (.079)	.937 (.082)
Hispanic	1.781*** (.077)	1.164*** (.065)	1.145* (.065)	1.148* (.075)	1.116 (.078)
Female	.863*** (.031)	.860*** (.038)	.895* (.040)	.949 (.048)	.937 (.050)
SES	---	.387*** (.026)	.417*** (.029)	.444*** (.035)	.445*** (.037)
Upper Class	---	1.211 (.186)	1.236 (.193)	1.359 (.237)	1.324 (.241)
Middle Class	---	1.175* (.093)	1.154 (.093)	1.179 (.107)	1.170 (.111)
Math Coursework	---	---	.892* (.043)	.947 (.052)	.929 (.053)
Math Grade (8 th)	---	---	.792*** (.018)	.900*** (.025)	.901*** (.026)
Parental Expectations	---	---	---	.810*** (.047)	.807*** (.049)
Prior Educ Expectations	---	---	---	.795*** (.045)	.792*** (.045)
School Engagement	---	---	---	.873*** (.024)	.878*** (.026)
Sense of Belonging	---	---	---	.784*** (.021)	.781*** (.022)
School Climate	---	---	---	.999 (.029)	.995 (.032)
College Going Culture	---	---	---	---	1.000 (.001)
College Focus	---	---	---	---	1.044 (.056)
Num. of Counselors	---	---	---	---	1.009 (.014)
College Programs	---	---	---	---	1.035 (.066)
College Staff	---	---	---	---	1.049 (.059)
Constant	.287*** (.008)	.231*** (.026)	.480*** (.062)	.273*** (.055)	.240*** (.060)

Notes: Numbers in parentheses are robust standard errors. Whites and lower class are the omitted reference groups. SES includes variables for family structure and household size. School variables include geography, urbanicity, type and % free/reduced price lunch. $N = 10,254$.

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

Table 4 contains findings for odds of perceiving ability barriers. In the unadjusted model (Model 1), the odds of perceiving ability barriers are 1.34 times greater for Latinx students and .67 times smaller for Blacks than whites. In addition, females have significantly lower odds than males ($\exp(b) = .59$; $p < .001$) of believing that they cannot complete a baccalaureate program. With controls for socioeconomic status in Model 2, the odds ratio for Hispanic relative to whites decreased by 38% ($\exp(b) = 0.83$; $p < .05$). As social class increases, students are less likely to doubt that they can complete a bachelor's degree. Students with higher educational expectations, stronger academic backgrounds and positive attitudes toward school have significantly lower odds of believing that they lack the ability to complete college. In the final model, net of social class background, prior achievement, school factors and college going resources, the odds of perceiving ability barriers are .67 and .77 times smaller for Black and Hispanic students, respectively, than whites. In addition, females have lower odds than males of perceiving ability barriers ($\exp(b) = 0.82$; $p < .05$).

Table 4: Odds Ratios for Perceived Ability Barriers on Race and Controls

	Model 1 (Unadjusted)	Model 2 (+Social Class)	Model 3 (+Prior Skills)	Model 4 (+School/Social Psych.)	Model 5 (+College Supp.)
BARRIER					
(Ability)					
<i>Covariates</i>					
Black	.671*** (.065)	.448*** (.057)	.408*** (.054)	.635** (.103)	.673* (.115)
Hispanic	1.341*** (.086)	.834* (.071)	.759** (.069)	.725** (.083)	.769* (.096)
Female	.587*** (.033)	.605*** (.042)	.659*** (.048)	.818* (.071)	.815* (.075)
SES	---	.393*** (.042)	.465*** (.053)	.623** (.087)	.689* (.101)
Upper Class	---	.957 (.238)	1.098 (.285)	1.249 (.390)	1.025 (.336)
Middle Class	---	1.165 (.141)	1.173 (.148)	1.129 (.171)	.989 (.157)
Math Coursework	---	---	.579*** (.047)	.794* (.079)	.822 (.087)
Math Grade (8 th)	---	---	.569*** (.019)	.738*** (.032)	.732*** (.034)
Parental Expectations	---	---	---	.568*** (.053)	.592*** (.059)
Prior Educ Expectations	---	---	---	.047*** (.009)	.046*** (.009)
School Engagement	---	---	---	.873** (.039)	.854** (.040)
Sense of Belonging	---	---	---	.667*** (.030)	.689*** (.032)
School Climate	---	---	---	.998 (.049)	.984 (.055)
College Going Culture	---	---	---	---	1.000 (.002)
College Focus	---	---	---	---	1.246* (.117)
Num. of Counselors	---	---	---	---	.936* (.027)
College Programs	---	---	---	---	.958 (.102)
College Staff	---	---	---	---	.847 (.081)
Constant	.117*** (.005)	.074*** (.012)	.371*** (.072)	.415* (.146)	.582 (.253)

Notes: Numbers in parentheses are robust standard errors. Whites and lower class are the omitted reference groups. SES includes variables for family structure and household size. School variables include geography, urbanicity, type and % free/reduced price lunch. $N = 10,226$.

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

2.5 Discussion and Conclusion

2.5.1 Differences in Specific Barriers to College (9th Grade)

I find support for each of my hypotheses. First, Black and female students are less likely to believe that they will not be able to afford college net of social class background and prior skills. In the final model that includes controls for family background, school factors and college going resources, the odds ratios for Black, Hispanic and female become nonsignificant which means that they do not differ from their white and male peers in terms of perceiving financial barriers to college access. It also appears that college counseling resources are especially important for Latinx students (Riegle-Crumb 2010; Robinson and Roksa 2016). Since students from disadvantaged backgrounds lack many of the personal and familial networks needed to navigate the transition to college, schools (specifically, advisors, school mentors, college counselors) become instrumental sources of support, encouragement and guidance (McDonough 1997). As previous research has found, students with stronger academic preparations, early college orientations and strong connections to school have greater success in managing all aspects of the high school to college transition (Perna 2000). This finding could also reflect the existence *and* awareness of local, state and federal financial aid policies designed to increase college access for those least likely to pursue higher education (Long 2008).

Second, I correctly hypothesized that gaining admission to college would be a chief barrier for Black and Hispanic students. Even net of social class, prior skills, school variables, social psychological factors and levels of college support, Black and Latinx students have significantly higher odds than whites of believing that they will not get accepted to any college. This belief could be shaped by a host of factors, although I can only speculate here. Since I

control for economic resources, prior achievement and school factors, it is less likely that the finding is being driven by gaps in school quality, students' lack of academic ability or the lack of financial means to engage in college-going behaviors. Thus, it could be that while minoritized students are in equally resource rich environments, they don't know how to navigate the resources available to them, still encounter obstacles to interacting with "gateholders" or maybe even have a negative encounter that discourages them from moving ahead (McDonough 1997). More qualitative research is needed to examine the nature of student-counselor interactions and better understand how access to information in schools shapes college destinations, especially among subgroups.

Increased access barriers among Black and Latinx students could also be due to students' awareness of and experiences with racism and discrimination (Bonilla-Silva 2006; Lucas 2008). Minoritized students are more likely to view racism as a potential barrier to future success (Matthew 2011) which may be one of the main reasons they do not think they could get accepted to a college. For example, previous work has examined the negative effects of banning race-conscious (i.e., affirmative action) admissions policies on student racial diversity and the likelihood of minoritized students applying and enrolling in these institutions (e.g., Garces and Cogburn 2015).

Third, Black and Latinx students have smaller odds than whites of believing that they lack the ability to finish a bachelor's degree once controlling for socioeconomic status, academic background, school factors, social psychological resources and college support. Some may view this level of confidence as "misguided ambition" (Farkas, Lleras and Maczuga 2002) arguing that minoritized students have limited understandings of what it will actually take to complete a baccalaureate program (Schneider and Stevenson 1999). Alternatively, some scholars highlight

structural constraints suggesting that because students of color are more likely to drop out of high school (Stark and Noel 2015), less likely to have access to college-level courses (Roderick, Coca and Nagaoka 2011), and less likely to develop core college readiness competencies (Conley 2010), they often enter postsecondary education severely underprepared and end up experiencing longer time to degree completion. However, there is also a body of research that suggests Black and Hispanic students are particularly resilient (O'Connor 1997, 1999). Moreover, after controlling for social and economic resources, Blacks are equally or even more likely than similar whites to matriculate in and finish traditional degree programs.

Fourth, female students have lower odds than males of perceiving access or ability barriers and do not differ with concerns about paying for college net of background factors. As previous research has shown, women are outpacing men in terms of getting to and graduating from college (Riegle-Crumb 2010). This advantage is also larger among Black women (Buchmann and DiPrete 2006). Though scholars debate why these patterns persist (Alon and Gelbgiser 2010), most agree that girls have stronger academic orientations, get higher grades and possess more social capital than boys (Buchmann and DiPrete 2006; Downey and Yuan 2005; Riegle-Crumb 2010). In analyses not shown here, I included interactions between race and gender to test whether perceptions of barriers varied by subgroups and I found no significant differences. However, the inclusion of race and gender interactions for ability barriers made the coefficients for Black and Hispanic only marginally significant ($p=0.050$ and $p=0.052$, respectively), suggesting the finding of lower perceived ability barriers is being driven by females ($\exp(b) = 0.79$; $p = .037$).

2.5.2 Differences in General Barriers to College (11th Grade)

By junior year of high school, Latinx students have significantly higher odds of perceiving barriers than white and Black students. Hispanics had the lowest educational aspirations and expectations of all groups in the sample. In addition, Latinx students had a greater mismatch between aspirations and expectations which means they perceived more constraints and obstacles to future educational opportunity than Blacks and whites. Overall, less than 25% of Latinx adults have an associate degree (2 year program) or higher, which is troubling because Hispanics are one of the largest and fastest growing demographic groups in the United States (Schneider, Martinez, and Owens 2006). Research has found that Latinx students have the highest high school dropout rates (Pew Research Center 2017), are the least likely to engage in positive college-going behaviors such as taking college entrance exams (Fry 2004) and have the lowest college completion rates (Pew Research Center 2016). It is important to make note of the variation in rates of college enrollment and degree attainment among Hispanic subgroups (Schneider et al. 2006). Prior work has identified several factors that might account for gaps in Hispanics' educational outcomes such as family background (Kao and Thompson 2003), schooling conditions (Flores 2007; Schneider et al. 2006), immigration status and language barriers (Alvarez, Michaels, Hurtado, Roldan and Duran-Graybow 2016). For instance, undocumented students may encounter obstacles when navigating the financial aid process, seeking student housing or managing their own mental health. While much research has focused on black-white achievement gaps, more studies are needed that explore the causes, consequences and potential solutions to poor educational outcomes among Latinx students. This is especially important given that Hispanics are projected to comprise over 30% of the labor workforce by 2050 (Carnevale and Smith 2013).

These findings offer several implications. First, different aspects of the transition to college matter more for certain groups which is consistent with prior research (Hurtado et al. 1997; Perna 2000). Relative to whites, Black and Latinx students appear to be most worried about whether they will get into any college and less worried about their ability to complete a bachelor's degree. Students need accurate and relevant information to explore all of their college going options. Parents, counselors and college recruiters should be honest and realistic with students about what they need to do to prepare for postsecondary education *and* discuss the consequences of entering college without a clear plan or an understanding of how to make adequate progress toward degree. Several consequences of the disconnect between student preparation and institutional fit are underscored by the large literature on college mismatch (Alon and Tienda 2005; Bowen et al. 2009; Dillon and Smith 2013; Hoxby and Avery 2012; Smith, Pender and Howell 2013).

Second, college counseling supports offered at school continue to be an important resource for students and families who may lack exposure to these opportunities elsewhere (Perna 2006; Robinson and Roksa 2016). For students who lack the social, cultural and economic capital necessary to navigate the college search process, high schools represent a key source of information sharing and networking opportunities. Counselors should make every effort to build strong relationships with students and their communities. This is especially important for parents and families that may struggle to connect in the school environment whether due to work and scheduling conflicts, language barriers, or general mistrust. Research suggests these connections may matter even more for students that have strong familial commitments or ties (Desmond and Lopez Turley 2009).

Though understanding which types of barriers are most consequential for students'

college destinations helps develop more targeted interventions, this research is limited in that I only explore concerns of access, affordability and ability. It is possible that I am missing other very important concerns around college going. Further, I can only hypothesize how perceived barriers to college might shape postsecondary access which I will explore in the next chapters.

3. Do Perceptions of Barriers Undermine College Going? Exploring the Role of Beliefs in Processes of Educational Attainment

3.1 Introduction

The postsecondary transition is undoubtedly one of the most difficult and important choices that students and families are tasked with making. Moreover, the decision to apply to, enroll in and attend college can be a very complex and confusing process. One of the challenges for researchers is how to parsimoniously capture such an intricately interconnected process. Early models of college choice sought to simplify conceptual and empirical frameworks by breaking down the high school to college transition into a few key steps (e.g., Hanson and Litten 1982; Hossler and Gallagher 1987; Kotler 1976). Hanson and Litten (1982) proposed a conceptual model involving five stages: college aspirations, search process, gathering of information, sending of applications and enrolling. Figure 1 shows Hanson and Litten's (1982) model which positions student-level decision making at the core of the college entry process. However, their conceptual framework highlights the embeddedness of student decisions and underscores the importance of larger environmental, institutional and social influences on these choices.

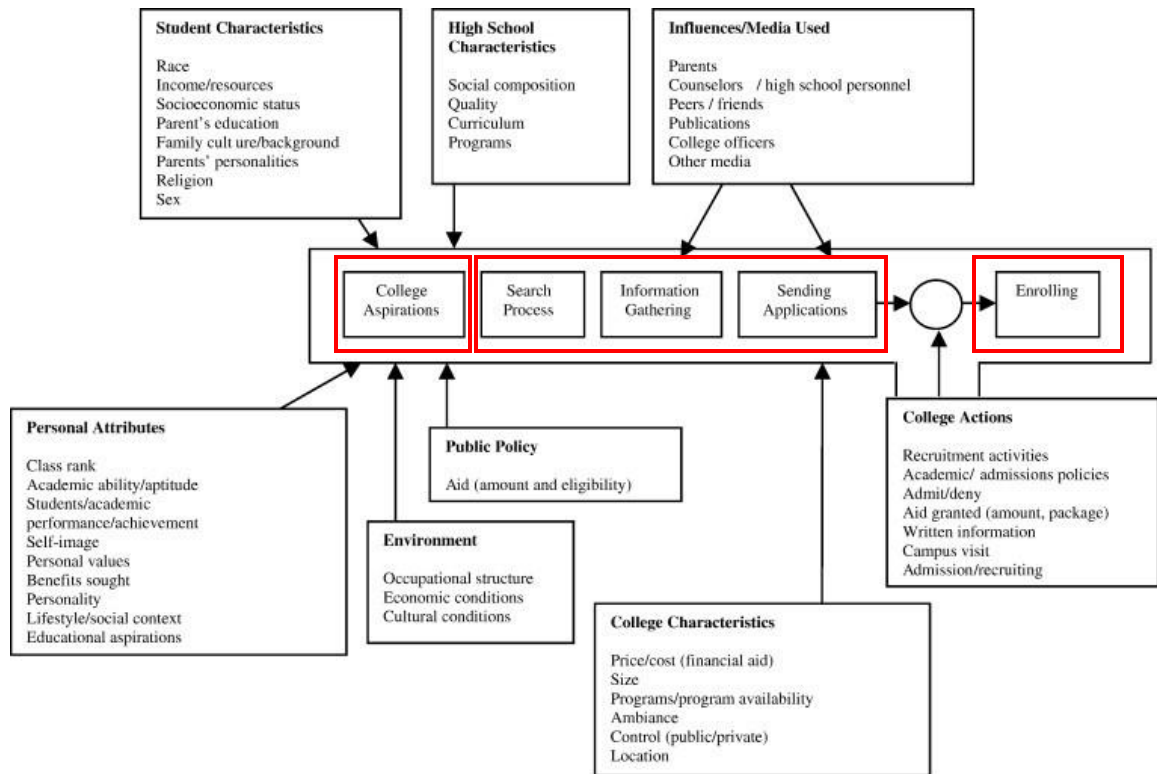


Figure 1: College Choice Framework. Adopted from Vrontis et al. (2015); Hossler and Gallagher’s Three-Phase Model (1987) outlined in red boxes.

For the sake of simplicity, I will focus on Hossler and Gallagher’s (1987) three-stage model of college choice (predisposition, search, choice). The first phase of Hossler and Gallagher’s framework, which is indicated by the first red box also seen in Figure 1, represents the “predisposition” stage. This stage is where students develop aspirations, educational expectations and beliefs about their own chances of successfully gaining admission to and completing a bachelor’s degree program. The second phase is the search process which encapsulates the three intermediate stages of Hanson and Litten’s (1982) model. During this critical stage of the transition to college, students are seeking information about colleges, searching for resources and building lists of potential schools. The third and final phase (captured

by Hanson and Litten's enrollment stage) represents the actual decision in which students make the choice *whether* and *where* to enroll based on their available options, among other considerations (e.g., net sticker price, college characteristics, parents/family/peers).

This chapter brings in the first stage of Hossler and Gallagher's (1987) college choice model by examining the role of perceived barriers in the process of college entry (Morgan 2005). In the last chapter, I focused on group differences in students' perceptions of barriers around affordability, accessibility and achievability. Here, I argue perceptions of limited opportunity represent a key dimension of the attainment process that has implications for how students approach their college search and where they ultimately end up. I use nationally representative data to examine whether perceived barriers are consequential for students' educational investments, particularly college-seeking behaviors. Overall, I find a negative relationship between perceptions of limited opportunity and two out of the four college seeking outcomes that I examined. As students anticipate more barriers to upward mobility, they are significantly less likely to enroll in college directly after high school and to enroll in a four-year program (versus a two-year degree program or no college at all).

3.2 Background

3.2.1 How Do Beliefs Structure Action?

Recent models of college choice have focused on the importance of information, beliefs, and their implications for student behavior (Grodksy and Jones 2007; Morgan 2002, 2005; Morgan, Leenman, Todd and Weeden 2013). While there are many different conceptual frameworks of college choice, scholars generally agree that the predisposition phase is central to students' college decisions and destinations (Morgan 2002, 2005; Plank and Jordan 2001).

Moreover, research has shown that families, schools and peers play a key role in shaping students' knowledge about, understanding of and choices pertaining to college (Hearn 1984; Jackson 1977; Perna 2006; Rosenfeld 1980). The information gleaned from these sources affect the decisions that students, parents and families make about whether, where and when to invest in college going or college readiness activities (Olson 1982; Olson and Rosenfeld 1984; Perna 2006).

Students' personal beliefs about whether college is a conceivable reality or a distant dream heavily influence how they manage the college search process. Morgan (2002, 2005) highlights different aspects of the postsecondary planning process by distinguishing between "prefigurative commitment" and "preparatory commitment". *Prefigurative commitment* represents an individual's "cognitive attachment to a future course of behavior", while *preparatory commitment* consists of the "observable course of everyday behavior that positions an individual to realize [their] prefigurative commitment" (Morgan 2002:392). With regard to postsecondary destinations, prefigurative commitment represents a student's desires, plans, attitudes about and orientation towards attending college. Preparatory commitment, on the other hand, is reflected in the concrete actions students take to accomplish their goal such as enrolling in college prep courses, taking college entrance exams, speaking with counselors, or going on campus visits. Prefigurative commitment (e.g., aspirations and expectations) factors prominently in the predisposition stage of the transition to college. Similarly, preparatory commitment is tightly linked to both the predisposition and search phases. Though the predisposition stage is fundamental to the entire process of college entry, most empirical research focuses on connections between the latter stages (i.e., search process and enrollment decisions).

The predisposition stage of Hossler and Gallagher (1987)'s college choice model focuses on how students develop their educational and occupational plans for the future (Cabrera and La Nasa 2001; Perna 2006). During this phase which can start as early as seventh grade (Nora and Cabrera 1992), students are receiving messages from family, friends and their schools about potential career pathways and how postsecondary education may or may not factor into their plans. Research has found that most students develop clear educational aspirations by the ninth grade (Nora and Cabrera 1992; Stage and Hossler 1989). However, scholars have pointed out the inadequacy of solely relying on educational aspirations as the operationalization of the predisposition phase (Plank and Jordan 2001).

An increasing amount of evidence underscores the role of uncertainty in structuring students' future beliefs and educational transitions (Grotsky and Jones 2007; Morgan 2005; Morgan et al. 2013; Schneider and Stevenson 1999). In a study on the link between students' expressed occupational plans and their understandings of the associated education necessary, Morgan et al. (2013) found that students with inaccurate and/or uncertain beliefs had significantly lower levels of four-year college enrollment. The authors contend that these beliefs "have autonomous effects on ultimate decisions about college entry...[and] structure daily commitment decisions to performance in high school" (Morgan et al. 2013:214). In other words, the way that students perceive their future probabilities of success has far-reaching consequences for the daily choices they make about investing in education, both immediate and future.

3.2.2 Aspirations vs. Expectations

Research has shown that educational aspirations and expectations have strong associations with academic effort, mathematics course taking patterns and persistence in school

(Domina, Conley and Farkas 2011; Goyette 2008; Sewell et al. 2003). However, some scholars suggest aspirations and expectations may not have a causal relationship with educational attainment (Morgan 2005). Previous scholarship on the relationship between students' attitudes toward education and academic investments has yielded mixed results (Ogbu 1978; Harris 2008; Tyson, Darity, and Castellino 2005). One possible explanation for the inconsistent findings is that the measures employed in the literature are too general (Matthew 2011), conflate different concepts (Harris 2011), or fail to include relevant aspects of the beliefs-behaviors link (Fishman 2019). Early studies of status socialization underscored the conceptual and analytic distinctions between aspirations and expectations (Bohon, Johnson, and Gorman 2006; Morgan 1998; Reynolds and Pemberton 2001; Portes et al. 2010). For example, Haller (1968, 1982) referred to educational expectations as "realistic aspirations". Similarly, Kerckhoff (1974, 1976, 1977) and Alexander and Cook (1979) emphasized the importance of an individual's perceptions of the opportunity structure in the process of forming educational beliefs (Morgan 1998). In other words, while students may set goals and have dreams about future opportunities, their plans could be tempered or reevaluated in the context of their social location or their beliefs of what is actually possible for someone with their circumstances.

Since few studies explicitly examine the impact of perceived barriers (Harris 2006), I follow prior work by operationalizing perceived barriers as the difference between a respondent's stated educational aspirations and educational expectations as a proxy for perceptions of limited opportunity (Harris 2011). This framing captures what Matthew describes as "effort optimism" which is the "balance between the influence of attitudes about education and attitudes about the influence of social structure" (2011:227). This chapter is guided by the following research question; what is the relationship between perceived barriers and college-seeking behaviors?

3.3 Methods

3.3.1 Measures

3.3.1.1 Dependent Variables

Data for this study comes from the HSLs:09. I used most of the same predictors and control variables from the previous chapter. The dependent variable for these analyses is college-seeking behaviors, which are taken from the third wave (summer/fall after 12th grade). I focus on four postsecondary outcomes: number of colleges applied to, college enrollment status, type of degree program, and level of college selectivity. Breadth of college search is measured by a continuous variable that captures how many colleges the respondent applied to. The HSLs asks respondents “will you be enrolled in college full-time or part-time as of November 1st?” so I created a dichotomous variable to measure enrollment status (0=no, 1=yes). The HSLs also captures what kind of program respondents are enrolled in (if any): “4-year institution” (Bachelor’s degree program), “2-year institution” (Associate’s degree program), “Less than 2-year institution” (Certificate or diploma program), and “No Specific Program” (respondent has taken courses). Since the predictors of four-year versus two-year college attendance are different (Perna 2000, 2006), I created an ordinal variable to include various enrollment patterns (0=no college, 1=two-year college, 2=four-year college). Finally, I created a dichotomous variable to measure college selectivity using the NCEs Barron’s Admissions Competitiveness Index. I coded the variable 1 if students were enrolled in a “highly selective” or “moderately selective” institution and coded 0 if students were enrolled in a school that was not selective.

3.3.1.2 Independent Variable

The independent variable for these analyses is perceptions of barriers. To capture perceived barriers, I create a scale by using the discrepancy between respondents' educational aspirations and expectations. In the second wave, the HSLs asks respondents during their junior year "if there were no barriers, how far in school would you want to go?" (aspirations) and "as things stand now, how far in school do you think you will actually get?" (expectations). I recode both variables so that the response categories are equivalent ("less than high school", "complete high school diploma/GED/alternative high school program", "complete certificate/diploma for occupational training program", "complete associate's degree", "complete bachelor's degree", "complete master's degree", "complete PhD/MD/JD/other professional degree"). To operationalize students' perceptions of barriers, I subtract the respondents' stated educational expectations from their stated educational aspirations. Scores range from -5 (min) to 6 (max) with larger differences corresponding to a greater mismatch between the two¹. A value of zero on the perceived barriers scale equals perfect alignment between respondents' aspirations and expectations while negative values indicate that expectations are higher than aspirations (i.e., fewer barriers) and positive values indicate that aspirations are higher than expectations (i.e., greater barriers).

¹ Although results are not substantively changed when I include students who do not know about their aspirations or expectations, I chose to exclude respondents that indicated uncertainty about their educational aspirations or expectations ($n = 2,426$) because I conceptualize this kind of uncertainty (being unsure about any of their plans) as distinct from perceived barriers (Morgan, Leenman, Todd and Weeden 2013; Schneider and Stevenson 1999; Staff, Harris, Sabates and Briddell 2010).

3.3.1.3 Control Variables

I control for a host of demographic, socioeconomic and school level variables to minimize the possibility that the associations between perceived barriers and college-seeking behaviors are spurious. Race is indicated with three dummy variables for respondent's self-reported race with whites as the reference group. Sixty-five percent of the students in the sample are white, 14 percent are Black, and 21 percent are Hispanic. Gender is included as a dichotomous variable (0 = male, 1 = female) since it predicts college going and completion (DiPrete and Buchmann 2006). To account for socioeconomic background, I used a composite variable constructed by NCES from parent questionnaire data (Ingels et al. 2005). I also created a proxy for social class by dividing the SES variable into quintiles so that upper class, middle class, and low class are represented by the top 20%, middle 60%, and bottom 20%, respectively, of the SES distribution in the sample. Because family income, parents' education and family structure are associated with college attendance (Charles et al. 2007; Hearn 1991), I adjusted for parental arrangements with a dummy variable coded 1 if respondents lived in a two-parent household during the base year survey. Family size is accounted for by a continuous variable that indicates the number of people living in the respondent's household during the base year.

I adjusted the analyses for academic preparation and prior achievement since both are strongly correlated with college destinations and degree attainment (Morgan 2005). Low-achieving students that have not succeeded academically or have had negative experiences in the classroom because they lack skills are more likely to disengage, feel disconnected, and not fully invest in educational pursuits (Harris and Robinson 2007; Ogbu 2003; Tyson 2002). First, I accounted for prior achievement by including self-reported grade point averages (GPA) in grades 9 and 10 (4-point scale; A = 4.0, B = 3.0, C = 2.0, D = 1.0). Second, I controlled for students'

scores on the SAT and/or ACT (standardized entrance exams still required for most accredited postsecondary institutions in the US²). Lastly, I included a dummy variable coded 1 if students expected to complete at least a bachelor's degree in 9th grade (prior educational expectations) and another dummy variable coded 1 if students ever participated in a college readiness/preparation program³.

Research has also documented the importance of interpersonal influences such as parents and peer networks on academic performance and educational investments (Fryer and Torelli 2010; Goldsmith 2004; Ogbu 1987; Sewell and Hauser 1972). In fact, parental expectations are one of the strongest predictors of student achievement and attainment (Cheng and Starks 2002; Goyette and Xie 1999; Morgan 2005). Parental expectations are indicated by a dummy variable coded 1 if a respondent's parent expects them to complete at least a bachelor's degree. I averaged four survey items to create a single variable for peer influence (Cronbach's alpha = .61). Higher values on the peer influence scale indicate a respondents' belief that their best friends are *more* supportive of pro-academic behaviors (i.e., getting good grades, attending class regularly, being interested in school, planning to go to college). Finally, I used two scales from the base year student questionnaire to capture respondents' sense of school belonging (Cronbach's alpha = .72) and level of school engagement (Cronbach's alpha = .67). The variables were coded so that higher values indicate a more positive affect towards school and greater levels of engagement and academic preparedness.

² An increasing number of colleges and universities have moved to test-optional policies in the admission process, though this is only a recent trend (FairTest.org).

³ The programs included Upward Bound, Talent Search, Gear Up, AVID, and any college camp.

Because students of color are more likely than whites to attend poorer, under resourced schools (Coleman et al. 1966) and experience racialized tracking (Tyson 2011), I also adjusted for school level factors that might predict both perceived barriers and college seeking behavior: school climate, college counseling support, and teacher expectations. I combined and averaged fourteen survey items taken from the administrator questionnaire that measure the reported frequency of certain problems in the school during the base year to create a single variable for school climate (Cronbach's alpha = .65). Higher values indicate lower levels of school conflict and disorder (1="happens daily", 2="happens at least once a week", 3="happens at least once a month", 4="happens on occasion", 5="never").

I used a scale of survey items taken from the counselor questionnaire that measure whether counselors believe adults in a respondents' school have high expectations of students and are fully invested in their success (Cronbach's alpha = .65). College counseling support is captured by the number of full-time and part-time school counselors in a respondents' school, college-going culture (% of previous year's graduating seniors from respondent's school who enrolled in a four year college after high school), and extent of resources, support and attention given to college-going in a respondents' school. Although this is not an exhaustive set of controls, they mitigate concerns that the relationship between barriers and college seeking behaviors is challenged due to severe omitted variable bias. Table 5 presents a detailed description of all the measures used in this analysis.

Table 5: Means, Standard Deviations, and Descriptions for Variables Used in the Analysis (HSLs 2009)

Variable	Description	Metric	Means (SD)			Alpha
			Whites	Blacks	Hispanics	
<i>Outcomes – College-Seeking Behavior (G12)</i>						
Search Breadth	Number of colleges applied to during high school.	0 – 50	2.52 _B (2.63)	2.91 _{WH} (2.99)	2.43 _B (2.63)	---
Enrollment Status	Whether respondent is enrolled in college in fall after senior year of high school.	0 = No 1 = Yes	.71 _{BH}	.63 _{WH}	.60 _{WB}	---
Degree Program	Whether respondent is enrolled in a 4 year college or university.	0 = No 1 = Yes	.64 _{BH}	.50 _W	.48 _W	---
College Selectivity	Applied and/or enrolled at a selective postsecondary institution in the fall after senior year of high school.	0 = No 1 = Yes	.58 _{BH}	.39 _W	.38 _W	---
<i>Educational Plans – Student responses to the following: (G11)</i>						
Educational Aspirations	If there were no barriers, how far in school would you want to go?	0 = Unsure/Don't Know 7 = Complete a Ph.D./ M.D./Law Degree/Other	5.62 _{BH} (1.50)	5.71 _{WH} (1.48)	5.60 _{WB} (1.59)	---
Educational Expectations	As far as things stand now, how far in school do you think you will actually get?	0 = Unsure/Don't Know 7 = Complete a Ph.D./ M.D./Law Degree/Other	4.85 _H (1.52)	4.97 _H (1.60)	4.55 _{WB} (1.66)	---
<i>Perceived Barriers (G11)</i>						
Perceptions of Limited Opp.	Difference between respondents' educational aspirations and educational expectations.	-5 = Min 6 = Max	.70 _H (1.19)	.72 _H (1.30)	1.00 _{WB} (1.40)	---

Background Characteristics

Race	Self-reported race (proportion in sample).	---	.65	.14	.21	---
Sex	Whether respondent is female.	0 = No / 1 = Yes	.49 _B	.47 _{WH}	.50 _B	---
SES _p	Weighted and standardized composite of: parent(s) highest level of education, parent(s) occupational prestige, total family income.	-1.75 = Min. 2.57 = Max	.18 _{BH} (.74)	-.18 _{WH} (.72)	-.41 _{WB} (.72)	---
Social Class _p (Based on SES Quintiles)	Upper Class (Top 20%) Middle Class (Middle 60%) Lower Class (Bottom 20%)	0 = No / 1 = Yes 0 = No / 1 = Yes 0 = No / 1 = Yes	.29 _{BH} .60 _H .10 _{BH}	.14 _{WH} .62 _H .20 _{WH}	.10 _{WB} .51 _{WB} .35 _{WB}	---
Family Structure _p	Whether respondent lives in a two-parent household.	0 = No / 1 = Yes	.83 _{BH}	.61 _{WH}	.77 _{WB}	---
Family Size _p	Number of household members in base year.	2—14	4.37 _H (2.83)	4.48 _H (4.88)	4.79 _{WB} (3.87)	---
Prior Achievement	Student's self-reported Grade 9 & Grade 10 GPA.	.04 – 4.0	2.72 _{BH} (1.38)	1.57 _{WH} (2.53)	1.94 _{WB} (2.19)	---
College Entrance Exam Scores	Standardized SAT/ACT scores.	10 – 36	22.01 _{BH} (4.74)	18.22 _{WH} (4.00)	19.38 _{WB} (4.50)	---
Prior Educ. Expectations	Whether student expects to complete at least a bachelor's degree (base year).	0 = No / 1 = Yes	.61 _H	.62 _H	.49 _{WB}	---
Parental Expectations _p	Whether parent expects student to complete at least a bachelor's degree (base year).	0 = No / 1 = Yes	.79 _{BH}	.83 _{WH}	.77 _{WB}	---
College Program	Whether student participated in any college readiness or preparation program (AVID, GearUp, Talent Search, Upward Bound, College Camps)	0 = No / 1 = Yes	.15 _{BH}	.29 _{WH}	.18 _{WB}	---

Sense of Belonging	How much respondent feels: (a) safe at their school; (b) proud being part of their school; (c) they always have teachers/adults to talk to; (d) school is often a waste of time; (e) getting good grades in school is important.	-4.35 = Min. 1.59 = Max	.10 _H (1.01)	.08 _H (1.00)	.00 _{WB} (.98)	.720
School Engagement	How often respondent goes to class: (a) without pencil/paper; (b) without books; (c) without homework done; (d) late.	-3.38 = Min. 1.39 = Max	.11 _{BH} (.96)	-.03 _{WH} (.99)	-.13 _{WB} (1.04)	.670
Peer Influence on Value of Schooling	Whether respondent's closest friend: (a) gets good grades (b) is interested in school; (c) attends class regularly; (d) plans to go to college.	-2.95 = Min. 0.46 = Max	.00 _{BH} (.67)	.05 _{WH} (.64)	-.08 _{WB} (.76)	.610
<i>School Characteristics</i>						
Geography _a	Northeast	0 = No / 1 = Yes	.16 _B	.14 _W	.15	---
	Midwest	0 = No / 1 = Yes	.28 _H	.29 _H	.23 _{WB}	---
	South	0 = No / 1 = Yes	.42 _{BH}	.44 _{WH}	.38 _{WB}	---
	West	0 = No / 1 = Yes	.15 _{BH}	.13 _{WH}	.34 _{WB}	---
Urbanicity _a	Urban	0 = No / 1 = Yes	.27 _H	.27 _H	.46 _{WB}	---
	Suburb	0 = No / 1 = Yes	.35 _{BH}	.39 _{WH}	.37 _{WB}	---
	Town	0 = No / 1 = Yes	.13 _{BH}	.09 _W	.09 _W	---
	Rural	0 = No / 1 = Yes	.24 _H	.24	.23 _W	---
School Type _a	Public	0 = No / 1 = Yes	.80 _{BH}	.84 _W	.84 _W	---
	Catholic	0 = No / 1 = Yes	.12 _H	.11 _H	.10 _{WB}	---
	Other Private	0 = No / 1 = Yes	.08 _{BH}	.05 _{WH}	.06 _{WB}	---
% Free Lunch _a	Percent of students receiving free or reduced price lunch at respondent's school.	0 – 100	29.35 _{BH} (22.26)	42.89 _W (28.72)	42.58 _W (28.30)	---
School Climate _a	Administrator's assessment of school climate: reported freq. of physical conflict, robbery, vandalism, drug sales, alcohol use, possession of weapons, bullying, racial tensions, in-class misbehavior, & physical/verbal abuse and disrespect of teachers.	-4.22 = Min. 1.97 = Max	-.28 _{BH} (1.01)	-.51 _W (1.09)	-.52 _W (1.12)	.650

Teacher Expectations ^c	Counselors' perceptions of whether teachers: set high standards for teaching and learning, believe all students can do well, have given up on some, care only about smart students, expect very little, or work hard to ensure students learn.	-4.92 = Min. 1.56 = Max	.02 _{BH} (1.00)	-.04 _{WH} (1.14)	-.17 _{WB} (1.18)	.650
College Going Culture ^c	Percent of 08-09 seniors who went to a 4-year Bachelor's-granting institution after high school.	0 – 100	54.16 _H (26.51)	53.27 _H (26.30)	49.73 _{WB} (26.23)	---
College Counseling ^c	Whether school has formal dropout prevention program.	0 = No / 1 = Yes	.43 _{BH}	.47 _{WH}	.50 _{WB}	---
	Whether school emphasizes college as primary goal.	0 = No / 1 = Yes	.54 _H	.53 _H	.46 _{WB}	---
	Whether school has formal programs encouraging college.	0 = No / 1 = Yes	.74 _{BH}	.77 _{WH}	.81 _{WB}	---
	Whether school has designated counselors for college assistance.	0 = No / 1 = Yes	.62	.63	.61	---
	Number of full-time and part-time high school counselors.	0 – 17	3.47 _{BH} (2.13)	3.93 _{WH} (2.31)	4.31 _{WB} (2.65)	---

Notes: Number of observations is 12,696, 14,499, 10,364 and 9,910 for search breadth, college attendance, college choice and selectivity, respectively. Numbers in parentheses are standard deviations. Subscripts indicate significant racial/ethnic group differences according to Tukey-Kramer post hoc tests ($p < .05$); for example, subscript B indicates that a group differs significantly from Blacks; H = Hispanic/Latino; W = white. ^aTaken from school administrator questionnaire. ^cTaken from counselor questionnaire. ^pTaken from parent questionnaire.

3.3.2 Analytic Plan

The analyses proceed in two main steps. First, I present descriptive statistics for the full sample and highlight significant racial/ethnic group differences according to Tukey-Kramer post hoc tests ($p < .05$). Second, I use negative binomial, logistic and ordered logistic regression (respective to the dependent variable) to examine the association between perceptions of barriers and college-seeking behaviors (i.e., number of colleges applied to, odds of college enrollment, degree program, and college selectivity). The first outcome variable (i.e., number of colleges applied to) is a highly skewed¹ count variable. Thus, I used Poisson regression to avoid violating some of the assumptions of ordinary least squares regression. However, a goodness-of-fit test indicated that the Poisson regression was a poorly fitting model², so I used negative binomial regression to address overdispersion. I present each of these relationships under several conditions. The first model establishes the raw or unadjusted estimates. The second model accounts for variables that might explain the relationship between perceived barriers and college seeking such as students' prior achievement and academic preparation, SES, family structure, and attitudes toward school. The third model adds school level variables and the fourth model includes social-psychological factors that shape views about education such as parental and peer influence. The final model accounts for the college going culture and level of college support at respondents' schools. In addition, all analyses control for school attended. Within the text, I reference all logistic coefficients with either an odds ratio or risk ratio (RR) for ease of interpretation.

¹ I conducted a Shapiro-Wilk W test to test for the normality of the data and rejected the null hypothesis that the data was normally distributed.

² I conducted a likelihood-ratio test which indicated that Poisson was inadequate because overdispersion was present ($p=.000$) and alpha was not equal to zero ($\alpha=0.35$).

3.4 Results

Table 6 contains findings for breadth of college search. In the unadjusted model (Model 1), there is a positive relationship between perceived barriers and college search. The coefficients for female and Black are also positive and significant while the coefficient for Hispanic is negative and significant. With the addition of controls for social class and prior skills in Model 2, the association between barriers and college search becomes nonsignificant. In the final model (Model 5) controlling for school variables, social psychological factors and college support, there is no association between perceived barriers and college search. The coefficients for Black, female, SES, prior skills, and parental college expectations are positive and significant. In addition, students who participate in a college prep program or attend a high school with more college counselors and a stronger college going culture apply to significantly more schools. On average and regardless of perceived barriers, Black students apply to a greater number of colleges than whites and Hispanics.

Table 6: Regressions for Number of Schools to which Youth Applied on Barriers and Selected Controls

	Model 1 (Unadjusted)	Model 2 (+ SES/Skills)	Model 3 (+ School Variables)	Model 4 (+ Social Psych)	Model 5 (+ College Support)
BARRIERS	.057*** (.008)	-.004 (.013)	.002 (.015)	.004 (.016)	.001 (.017)
<i>Controls</i>					
Female	.153*** (.017)	.060* (.025)	.068* (.028)	.073* (.029)	.076* (.032)
Black	.154*** (.031)	.308*** (.046)	.316*** (.052)	.335*** (.056)	.319*** (.060)
Hispanic	-.058* (.223)	.060 (.038)	.085* (.040)	.083 (.043)	.066 (.046)
SES	---	.098** (.033)	.099** (.037)	.114** (.039)	.098* (.041)
Prior Skills	---	.154*** (.027)	.137*** (.030)	.126*** (.032)	.108** (.034)
SAT/ACT	---	.053 (.031)	.032 (.034)	.015 (.035)	.044 (.037)
College Prep Program	---	.073* (.029)	.071* (.033)	.075* (.035)	.092* (.037)
Prior Educ. Expectations	---	.075* (.030)	.070* (.033)	.045 (.035)	.049 (.037)
School Engagement	---	.025 (.013)	.018 (.015)	.021 (.016)	.026 (.017)
Sense of Belonging	---	.017 (.014)	.023 (.016)	.024 (.018)	.025 (.019)
School Climate	---	---	-6.250 (6.065)	-2.239*** (.316)	-8.868*** (.547)
Parental Expectations	---	---	---	.085 (.045)	.115* (.047)
Peer Influence	---	---	---	-.041 (.035)	-.034 (.037)
Teacher Expectations	---	---	---	-10.969*** (.257)	-1.529*** (.108)
College Going Culture	---	---	---	---	.271*** (.023)
College Focus	---	---	---	---	-1.283*** (.347)
Num. of Counselors	---	---	---	---	1.887*** (.092)
College Programs	---	---	---	---	-1.372*** (.288)
College Staff	---	---	---	---	7.175*** (.293)
Constant	1.299*** (.209)	.444 (.282)	791.634 (660.679)	-1018.905*** (.559)	529.493*** (1.291)
<i>N</i>	10,273	3,820	3,006	2,696	2,404
<i>Pseudo R</i> ²	.082	.131	.131	.132	.126

Notes: Numbers in parentheses are robust standard errors. SES includes variables for family structure, household size and social class. School variables include geography, urbanicity, type, racial composition and % free/reduced price lunch. All models control for school attended. * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed tests)

Table 7 contains findings for odds of college enrollment. In Model 1, there is a negative relationship between perceived barriers and enrollment ($\exp(b) = 0.80$; $p < .001$). The odds of college enrollment for females are 1.79 times larger than those of males and .79 and .57 times smaller for Black and Latinx students, respectively, compared to whites. However, this difference is no longer significant for students of color with the addition of social class background and academic skills in Model 2. When school-level and social psychological variables are added in Model 4, females do not differ significantly from males in their odds of enrollment. In Model 5, there is still a negative association between barriers and enrollment ($\exp(b) = 0.75$; $p < .01$) after including all controls. Latinx students have significantly lower odds than whites of enrolling in college one year after high school. In addition, prior achievement ($\exp(b) = 3.60$; $p < .001$), ACT scores ($\exp(b) = 1.75$; $p < .05$), parental expectations ($\exp(b) = 1.86$; $p < .01$), and peer influence ($\exp(b) = 1.65$; $p < .01$) are all significant predictors of college enrollment.

Table 7: Odds Ratios for College Enrollment on Barriers and Selected Controls

	Model 1 (Unadjusted)	Model 2 (+ SES/Skills)	Model 3 (+ School Variables)	Model 4 (+ Social Psych)	Model 5 (+ College Support)
BARRIERS	.802*** (.017)	.834** (.055)	.779** (.059)	.772** (.062)	.753** (.064)
<i>Controls</i>					
Female	1.788*** (.089)	1.478** (.213)	1.426* (.233)	1.347 (.234)	1.229 (.236)
Black	.789** (.070)	1.511 (.433)	1.740 (.557)	1.830 (.627)	2.022 (.781)
Hispanic	.570*** (.041)	.695 (.167)	.665 (.184)	.612 (.185)	.504* (.160)
SES	---	2.105** (.497)	1.790* (.462)	1.632 (.455)	1.365 (.412)
Prior Skills	---	3.592*** (.563)	3.760*** (.654)	3.634*** (.670)	3.600*** (.739)
SAT/ACT	---	1.501* (.244)	1.419 (.263)	1.715** (.348)	1.754* (.412)
College Prep Program	---	1.288 (.272)	1.373 (.328)	1.332 (.348)	1.308 (.357)
Prior Educ. Expectations	---	1.289 (.201)	1.402 (.247)	1.320 (.260)	1.178 (.256)
School Engagement	---	1.016 (.087)	.931 (.087)	.899 (.094)	.921 (.104)
Sense of Belonging	---	1.034 (.088)	1.103 (.106)	1.137 (.124)	1.122 (.135)
School Climate	---	---	.447 (.964)	.739 (.813)	.398 (4.660)
Parental Expectations	---	---	---	1.746** (.373)	1.857** (.437)
Peer Influence	---	---	---	1.500* (.235)	1.653** (.282)
Teacher Expectations	---	---	---	.545 (.387)	.947 (10.032)
College Going Culture	---	---	---	---	.963 (.558)
College Focus	---	---	---	---	79.371 (2101.48)
Num. of Counselors	---	---	---	---	.171 (.660)
College Programs	---	---	---	---	1.409 (5.506)
College Staff	---	---	---	---	.069 (3.485)
Constant	3.016 (1.939)	.148 (.193)	.000 (.000)	.000 (.000)	.000 (.000)
<i>N</i>	10,270	2,027	1,620	1,479	1,285
<i>Pseudo R</i> ²	.150	.286	.288	.312	.319

Notes: Numbers in parentheses are robust standard errors. SES includes variables for family structure, household size and social class. School variables include geography, urbanicity, type, racial composition and % free/reduced price lunch. All models control for school attended * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed tests)

Table 8 contains findings for odds of enrolling in a four year degree program (versus an associate's degree program or not college at all). In Model 1, there is a negative relationship between perceived barriers and enrollment ($\exp(b) = 0.82$; $p < .001$). The odds of enrolling in a bachelor's degree program for females are 1.23 times larger than those of males and .58 and .49 times smaller for Black and Hispanic students, respectively, compared to whites. However, this difference is no longer significant for female or Hispanic students with controls for SES and prior achievement in Model 2. After accounting for social class background, the odds of starting a bachelor's degree program are 1.77 times greater for Black students compared to whites which is consistent with prior findings (Bennett and Xie 2003). In the remaining models, this Black "advantage" (Merolla 2013) disappears and Black students do not differ from whites in their odds of enrollment. In Model 5 with full controls, there is a negative association between barriers and enrollment such that students exhibiting greater levels of perceived barriers have significantly lower odds of starting a traditional undergraduate degree program. Prior educational expectations, academic preparation and ACT scores are significant predictors of enrolling in a four year degree program right after high school.

Table 8: Odds Ratios for 4-Yr Degree Program on Barriers and Selected Controls

	Model 1 (Unadjusted)	Model 2 (+ SES/Skills)	Model 3 (+ School Variables)	Model 4 (+ Social Psych)	Model 5 (+ College Support)
BARRIERS	.822*** (.023)	.877* (.054)	.892 (.061)	.854* (.062)	.853* (.066)
<i>Controls</i>					
Female	1.229*** (.068)	.943 (.115)	.873 (.118)	.895 (.129)	.866 (.137)
Black	.578*** (.057)	1.767* (.408)	1.548 (.392)	1.470 (.396)	1.587 (.467)
Hispanic	.494*** (.041)	1.153 (.219)	1.076 (.232)	1.093 (.259)	.909 (.231)
SES	---	.928 (.157)	.995 (.188)	.947 (.196)	.947 (.211)
Prior Skills	---	2.957*** (.388)	3.187*** (.476)	3.237*** (.516)	3.392*** (.595)
SAT/ACT	---	1.147 (.163)	1.292 (.208)	1.378 (.231)	1.443* (.267)
College Prep Program	---	1.207 (.196)	1.317 (.242)	1.095 (.213)	1.108 (.237)
Prior Educ. Expectations	---	1.619*** (.221)	1.597** (.241)	1.646** (.266)	1.658** (.287)
School Engagement	---	.944 (.067)	.909 (.072)	.903 (.076)	.930 (.085)
Sense of Belonging	---	1.089 (.077)	1.064 (.086)	1.059 (.090)	1.079 (.101)
School Climate	---	---	1.393 (.976)	.826 (1.067)	3.770 (3.670)
Parental Expectations	---	---	---	1.079 (.208)	1.134 (.236)
Peer Influence	---	---	---	1.202 (.174)	1.330 (.211)
Teacher Expectations	---	---	---	1.076 (2.449)	.564 (1.403)
College Going Culture	---	---	---	---	.969 (.056)
College Focus	---	---	---	---	1.007 (1.188)
Num. of Counselors	---	---	---	---	1.110 (.607)
College Programs	---	---	---	---	1.424 (1.222)
College Staff	---	---	---	---	.338 (1.261)
Constant	2.679 (1.847)	.001*** (.001)	.000 (.000)	.000 (.000)	.000 (.000)
<i>N</i>	8,056	2,652	2,125	1,918	1,681
<i>Pseudo R</i> ²	.156	.289	.286	.296	.303

Notes: Numbers in parentheses are robust standard errors. SES includes variables for family structure, household size and social class. School variables include geography, urbanicity, type, racial composition and % free/reduced price lunch. All models control for school attended. * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed tests)

Table 9 contains findings for odds of enrolling in a selective postsecondary institution. In the unadjusted model, there is a negative association between perceived barriers and college selectivity. The odds of applying to and enrolling in a selective college for females are 1.17 times larger than those of males and .48 and .52 times smaller for Black and Hispanic students, respectively, compared to whites. After adjusting for skills and SES in Model 2, those coefficients are no longer significant. In each model, prior educational expectations and academic preparation are both significant predictors of attending a selective university. Model 5 shows there is no relationship between perceived barriers and applying to and enrolling in a selective college. Overall, these findings suggest students' perceptions of future barriers compromise some college seeking behaviors; 2 of the 4 outcomes analyzed here are negatively related to perceptions of constrained opportunity while the other 2 are unrelated. Higher levels of perceived barriers are associated with significantly lower odds of enrolling in college and starting a four year degree program net of background factors, school variables, social psychological factors and levels of college support. There appears to be no relationship between barriers and search breadth or college selectivity.

Table 9: Odds Ratios for College Selectivity on Barriers and Selected Controls

	Model 1 (Unadjusted)	Model 2 (+ SES/Skills)	Model 3 (+ School Variables)	Model 4 (+ Social Psych)	Model 5 (+ College Support)
BARRIERS	.810*** (.023)	.903 (.057)	.930 (.064)	.904 (.067)	.927 (.071)
<i>Controls</i>					
Female	1.174** (.066)	.956 (.115)	.863 (.116)	.856 (.122)	.863 (.134)
Black	.480*** (.048)	1.465 (.340)	1.129 (.298)	1.273 (.363)	1.613 (.504)
Hispanic	.520*** (.044)	1.016 (.202)	1.124 (.260)	1.225 (.302)	1.154 (.311)
SES	---	.949 (.161)	.969 (.184)	.887 (.184)	.846 (.188)
Prior Skills	---	4.369*** (.615)	4.275*** (.681)	4.590*** (.771)	4.549*** (.824)
SAT/ACT	---	1.069 (.176)	1.187 (.218)	1.129 (.217)	1.241 (.244)
College Prep Program	---	1.003 (.156)	1.098 (.191)	.974 (.179)	.927 (.184)
Prior Educ. Expectations	---	1.474** (.206)	1.619** (.248)	1.615** (.261)	1.596** (.272)
School Engagement	---	.903 (.064)	.948 (.076)	.920 (.078)	.966 (.085)
Sense of Belonging	---	1.072 (.076)	1.010 (.081)	1.086 (.094)	1.086 (.103)
School Climate	---	---	6.134* (5.285)	3.330 (2.664)	307.164* (800.297)
Parental Expectations	---	---	---	1.213 (.254)	1.300 (.293)
Peer Influence	---	---	---	1.193 (.175)	1.335 (.201)
Teacher Expectations	---	---	---	3.096 (4.821)	21.445* (32.700)
College Going Culture	---	---	---	---	.896 (.088)
College Focus	---	---	---	---	1.460 (1.611)
Num. of Counselors	---	---	---	---	1.851 (1.633)
College Programs	---	---	---	---	.068 (.119)
College Staff	---	---	---	---	.416 (.566)
Constant	2.813 (1.846)	.000*** (.000)	.000 (.000)	.000 (.000)	.000 (.000)
<i>N</i>	7,665	2,739	2,158	1,948	1,720
<i>Psuedo R2</i>	.179	.326	.317	.328	.335

Notes: Numbers in parentheses are robust standard errors. SES includes variables for family structure, household size and social class. School variables include geography, urbanicity, type, racial composition and % free/reduced price lunch. All models control for school attended. * $p < .05$ ** $p < .01$ *** $p < .001$ (two-tailed tests)

3.5 Discussion and Conclusion

This chapter highlights an important but understudied mechanism for explaining patterns of educational inequality—perceived barriers—and has implications for the study of educational attainment, college choice, and social mobility. Understanding how students’ decisions about postsecondary education may be shaped by beliefs about the opportunity structure represents a key dimension of the stratification process because barriers undermine educational commitment. As students anticipate more challenges to upward mobility, they are significantly less likely to attend a baccalaureate institution. This finding underscores the importance of beliefs in the college entry process. If students think that they will not be successful in accomplishing their educational goals, they are not as likely to invest in future educational pursuits such as applying to and enrolling in college.

A students’ perception of educational opportunity and possibility is greatly influenced by their family background and social context, or what Grodsky and Riegle-Crumb (2010) describe as the “college-going habitus”. The college habitus is developed by messages received from family, friends, and social networks and also shaped by “fields” (Bourdieu 1990) such as education. This stresses the need for teachers and school counselors to build a positive college going culture and provide support for the college application process (Avery et al. 2006; Falsey and Heyns 1984; Hill 2008; Plank and Jordan 2001; Roderick et al. 2011; Strayer 2002). In order to help students who anticipate challenges or obstacles to accomplishing their educational goals, high schools should have enough counseling capacity to offer multiple forms of support including academic, socioemotional, financial and personal development. If families, schools and colleges worked together to reduce barriers—whether affordability, academic ability, perceived fit, proximity to home, or information—, more disadvantaged students would have a greater

likelihood of continuing on to postsecondary education. While quantitative data sets are ideal for examining general trends, I am unable to explain the underlying processes. More qualitative and ethnographic research is needed to explore how students come to understand what is possible for them, make sense of perceived barriers in the transition to higher education and develop plans of action in their pursuit of upward mobility.

4. “Ain’t No Paradox”: Reconsidering the Belief-Behavior Link Among Black Students

4.1 Introduction

In light of national policies and efforts to increase levels of educational attainment, the number of students who aspire to college has risen substantially (Goyette 2008; Reynolds and Pemberton 2001; Rosenbaum 2001). While students who hold high educational aspirations often have higher levels of degree attainment, for some students these dreams are not always realized. In fact, several studies show high aspirations are not the best predictors of achievement (Khattab 2014), especially for Black students (Kao and Tienda 1988). How is it that students can simultaneously have big dreams and the best of intentions but lack a clear path forward to academic success? Existing research offers several insights into how students understand their chances for success and how these beliefs shape behavior. However, few studies have extended this line of thought into the transition to postsecondary education. In this chapter, I build on findings from the previous study to examine whether racial differences exist in the relationship between barriers and college seeking. I find some evidence that Black students’ awareness of future barriers leads them to invest in educational pursuits and academic endeavors even more than whites. My findings are in line with previous studies suggesting perceived barriers do not necessarily compromise minoritized students’ achievement or educational commitment.

4.2 Background

4.2.1 Exploring the Relationship between Attitudes, Achievement & Attainment

Research has found significant group differences in academic investment, effort, and

attitudes towards schooling (Ainsworth-Darnell and Downey 1998; Downey and Ainsworth-Darnell 2002; Kao and Thompson 2003; Matthew 2011; Ogbu 1978). Early work examining attitudes about education focused on the potential duality of ideas (Hunt 2004; Matthew 2011) which suggests people can subscribe to multiple cultural belief systems. Mickelson (1990) analyzed data on high school seniors in California to understand the multidimensionality of student beliefs about education and to make sense of the disconnect between students' stated values and their actual behavior. She termed this the "attitude-achievement paradox" which distinguishes between abstract attitudes (rooted in American ideals about opportunity) and concrete attitudes (rooted in students' lived experiences) toward education. Mickelson argues concrete (and not abstract) attitudes predict academic performance among Black students because they represent a realistic view of what students actually think about the opportunity structure and consequently, how it shapes their behavior (1990).

Hanson (1994) used national data from the High School and Beyond survey to explore changes in high achieving students' educational expectations. In particular, she examined factors that predicted a gap in students' stated aspirations or expectations and eventual outcomes which she framed as "lost talent"—the extent to which students experienced mismatched, reduced, or unrealized educational expectations (Hanson 1994). She found that race, gender and SES were significant predictors of talent loss but at times, in unexpected ways: whites, male students and those from lower socioeconomic backgrounds were much more likely to experience reduced or unrealized expectations than their counterparts (Hanson 1994). Hanson also found some evidence that after accounting for social class resources, Black students in the sample were able to more efficiently and effectively convert their high expectations into eventual degree attainment.

Schneider and Stevenson (1999) used qualitative and quantitative data from the Sloan

Study of Youth and Social Development to highlight the increasing gaps between what students want, what they have prepared for and are capable of academically and what they end up achieving—a phenomenon they describe as the “ambitions paradox”. The authors explain that while most youth aspire to college, many students have incomplete understandings of the necessary steps or *preparatory commitment* required to successfully reach their educational and occupational goals (Schneider and Stevenson 1999). Because students have inaccurate perceptions and lack clear guidance from key information sources, they are more likely to make suboptimal educational decisions (e.g., choosing a two-year versus four-year college or constantly changing majors) in pursuit of future career paths (Schneider and Stevenson 1999).

Extant scholarship on student beliefs and attitudes has conceptualized the mismatch between goals, dreams and preparation in several different ways. I now turn to research about how students’ beliefs influence achievement. One previously popular argument, John Ogbu’s oppositional culture theory (OCT), posits that minoritized students perceive educational and academic opportunity differently than whites (1978). Specifically, he argues that Blacks’ awareness of and belief in structural barriers that will limit their success no matter how hard they try, leads them to disinvest from schooling and adopt counterproductive behaviors that negatively affect achievement (Ogbu 1978). This claim, however, has been deconstructed by countless studies demonstrating that Black students actually express more positive attitudes about school (Ainsworth-Darnell and Downey 1998; Cook and Ludwig 1997; Downey and Ainsworth-Darnell 2002; Harris 2006) and greater belief in the value of education for social mobility than whites (Feagin and Sikes 1994; Hochschild 1995; Harris 2008). At the same time, Blacks are more likely than whites to express beliefs in barriers to future educational and economic opportunity (Harris 2008).

4.2.2 What is the “Net Black Advantage”?

Prior research on the misalignment of aspirations, expectations and achievements has shown that Black students are able to sustain a positive and academically productive approach to schooling despite their concern about barriers to upward mobility (Harris 2011; MacLeod 2009; O’Connor 1997, 1999; Tyson, Darity, and Castellino 2005). Though Blacks strongly believe in the value of education (Harris 2011), there are racial differences in their beliefs about the utility of education in securing their futures (Matthew 2011). However, this does not imply that Black students will refuse to participate in dominant institutions or adopt behaviors that sabotage their academic pursuits. The important point here is that Black students can believe in the importance of education for upward mobility *and* acknowledge the realities of racism, discrimination and other structural constraints in society that might inhibit their success (Harris 2011; Matthew 2011; Tyson et al. 2005).

Merolla (2014) suggests reframing the seemingly paradoxical findings of Black students’ attitudes towards school as foundational to a longstanding “black habitus” that explains how black Americans have always prioritized education as a means to overcome in spite of the reality of significant racial disadvantage. Thus, in response to anticipated discrimination and perceived barriers to mobility, Blacks might “overcompensate” and invest more energy, effort, and commitment to seeking educational and occupational opportunities than whites (Harris 2011; Pager and Pedulla 2015; Sue and Okazaki 1990). For example, several studies have shown that Black students are actually more likely to attend college than whites after controlling for achievement and socioeconomic background (Alexander et al. 1987; Bennett and Xie 2003; Charles, Roscigno, and Torres 2007; Hauser 1993; Merolla 2013). Researchers have described this empirical pattern as the “net black advantage” (Bennett and Xie 2003). This chapter is guided

by the following research question; does the relationship between perceived barriers and college-seeking behaviors differ by race?

4.3 Methods

4.3.1 Data and Analytic Plan

Data for this study comes from the HSLs:09. I used all of the same variables, measures and outcomes from the previous chapter. To test whether the relationship between perceived barriers and college seeking behaviors differs by race, I calculate the predicted probabilities of each college seeking behavior both within and across racial groups. This allows me to compare differences in probabilities across groups. Adjusted predictions are easier to interpret and can be compared across models (Williams 2012). First, I report the differences on these predicted probabilities between students who perceive barriers and those who do not by race. This difference (which represents the average marginal effect of barriers) shows how changes in the independent variable are related to changes in the outcome, holding all else equal (Long and Freese 2006). Second, I discuss the predicted probabilities and report the marginal effects of race and perceived barriers by comparing the group differences in the adjusted predictions between Latinx students and Blacks and whites and Blacks (Williams 2012). After computing a predicted probability for each case with fixed and observed values of covariates from prior models, I present the results of these average marginal differences after controlling for social class and prior skills (Williams 2012)¹.

¹ Results were not substantially different when I computed predictions averaged across the observed values of each control variable.

4.4 Results

Table 10 contains predictive margins for the results from regressions of college-seeking behaviors on barriers. I present adjusted predictions for each outcome by whether the student perceives barriers or not. These estimates allow a comparison across groups of how a change in the predictor is associated with a change in the dependent variable net of relevant control variables (i.e., social class background and prior skills). In other words, the adjusted predictions allow me to assess whether the marginal effects of barriers on college seeking behaviors differ by race. The top panel contains adjusted predictions for whites, the middle panel for Blacks and the bottom panel for Hispanics.

The top panel of Table 10 shows there are no significant differences in college seeking behaviors among white students that do not perceive barriers to upward mobility compared to those who do. Similarly, the bottom panel of Table 10 reflects an identical empirical pattern among Latinx students in the sample. The middle panel of Table 10 shows that perceived barriers does not compromise the breadth of black students' college search or their likelihood of attending a selective college. However, there are significant differences in the odds of college enrollment and matriculating to a four year degree program among Blacks that do perceive barriers and those who do not.

Conditional on SES and prior skills, the predicted probability of enrolling in college right after high school among Black students who do not perceive barriers is .656 compared to .862 for Blacks who do perceive barriers. The average marginal effect of perceived barriers on odds of college enrollment is 20.6 percentage points for Black students in the sample. This means that after controlling for SES and prior achievement, on average, we would expect a 20 percentage point increase in the proportion of Black students who enroll in college among those who

perceive no barriers compared to those who do perceive barriers. Put another way, Black students who believe they might encounter obstacles to realizing their future educational plans are 1.3 times more likely to go to college than their counterparts who do not anticipate such challenges. This pattern is similar for odds of enrolling in a traditional bachelor's degree program. There is a 23 percentage point increase in the predicted probability of starting a four year degree program between Black students who do not perceive barriers and those who do (0.544 vs. 0.775). Black students who anticipate future barriers are 1.4 times more likely to enroll in a four year degree program than Blacks who do not. The relationship between perceived barriers and college seeking behaviors does vary by race with Black students displaying greater levels of college going despite, or perhaps, as a result of anticipated barriers to upward mobility.

Table 10: Predictive Margins for College Seeking Behaviors by Race and Barriers

<i>Group</i>		WHITES							
<i>Outcome</i>	<u># of Schools Applied^a</u>		<u>Odds of Enrollment^b</u>		<u>4Yr Degree Program^b</u>		<u>College Selectivity^b</u>		
	<u>Barriers</u>		<u>Barriers</u>		<u>Barriers</u>		<u>Barriers</u>		
	YES	NO	YES	NO	YES	NO	YES	NO	
	3.25 (.078)	3.07 (.065)	.836 (.020)	.839 (.017)	.701 (.019)	.727 (.018)	.615 (.019)	.655 (.018)	
<i>Difference</i>	.178 (.104)		-.003 (.025)		-.026 (.024)		-.040 (.026)		
<i>Group</i>		BLACKS							
<i>Outcome</i>	<u># of Schools Applied^a</u>		<u>Odds of Enrollment^b</u>		<u>4Yr Degree Program^b</u>		<u>College Selectivity^b</u>		
	<u>Barriers</u>		<u>Barriers</u>		<u>Barriers</u>		<u>Barriers</u>		
	YES	NO	YES	NO	YES	NO	YES	NO	
	4.08 (.419)	4.09 (.333)	.862 (.043)	.656 (.084)	.775 (.056)	.544 (.079)	.645 (.075)	.474 (.078)	
<i>Difference</i>	-.011 (.651)		.206† (.100)		.231† (.107)		.174 (.124)		
<i>Group</i>		HISPANICS							
<i>Outcome</i>	<u># of Schools Applied^a</u>		<u>Odds of Enrollment^b</u>		<u>4Yr Degree Program^b</u>		<u>College Selectivity^b</u>		
	<u>Barriers</u>		<u>Barriers</u>		<u>Barriers</u>		<u>Barriers</u>		
	YES	NO	YES	NO	YES	NO	YES	NO	
	3.49 (.215)	3.25 (.226)	.682 (.049)	.603 (.089)	.594 (.060)	.613 (.066)	.560 (.064)	.473 (.068)	
<i>Difference</i>	.235 (.387)		.079 (.111)		-.019 (.107)		.087 (.112)		

Notes: Predictions are estimated using the full models. Numbers in parentheses are robust standard errors.
^a Negative binomial regression. ^b Logistic regression. † Difference in effect of perceived barriers is statistically significant at the .05 level.

Table 10 suggests there are meaningful racial differences in the implications of perceived barriers for educational investments. To better illustrate racial differences in the consequences of perceived barriers, I graph predicted probabilities of college enrollment (Figure 2) and adjusted predictions of college enrollment (Figure 3) and pursuing a bachelor's degree (Figure 4). Figure 2 displays the average marginal effect of barriers on college enrollment for each racial group. The left panel shows the nearly 21 percentage point difference in enrollment for Blacks who perceive barriers, the middle panel shows a 7.9 percentage point gap in enrollment for Latinos and the right panel shows a -0.3 difference in the predicted probabilities of enrollment for whites.

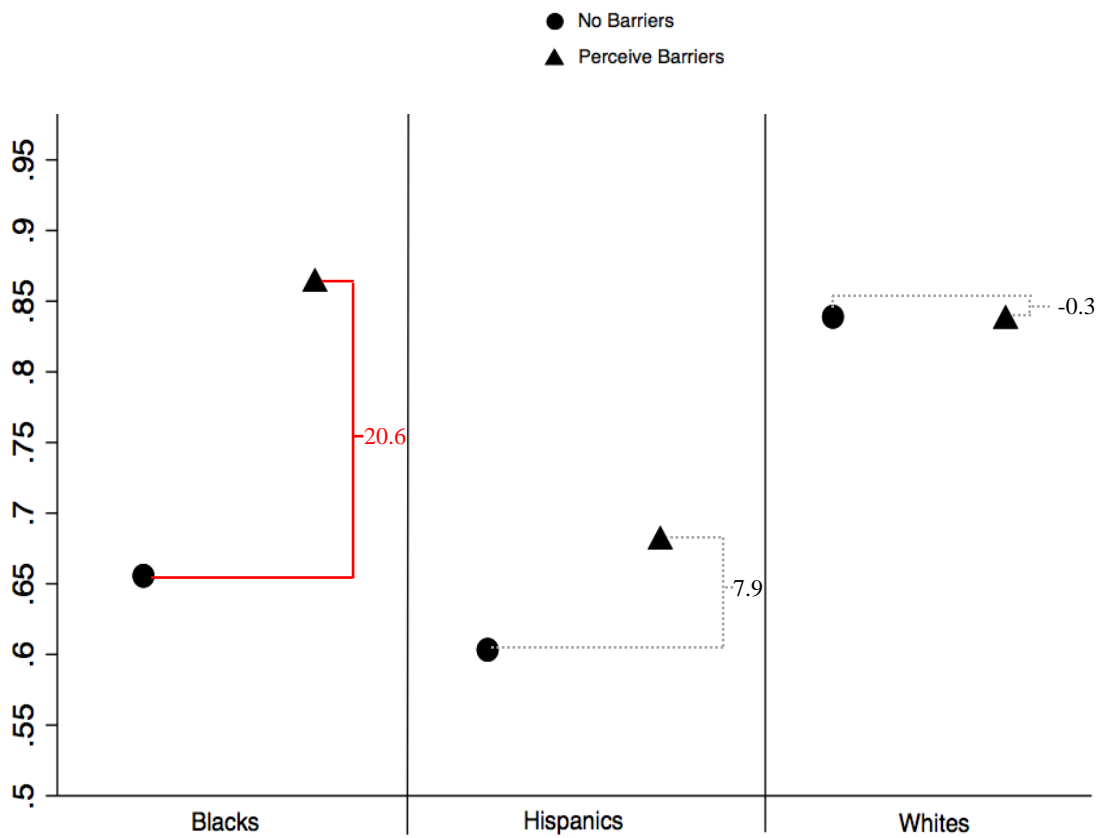


Figure 2: Predicted Probability of Enrollment by Race and Perceived Barriers

Notes: Predictions are estimated using Model 5 in Table 7. Social class and prior achievement are held at means and all other covariates are as observed in the sample. Numbers in figure denote percentage point increase in predicted probability associated with increase of perceived barriers. Significant differences at the .05 level are indicated by solid red lines. Nonsignificant differences are indicated by dashed gray lines.

Figure 3 displays the predictive margins for each racial group as well as the marginal effects of race. The left panel of Figure 3 shows the adjusted predictions with 95% confidence intervals by race. As Table 10 shows, there is only a significant difference in predicted probabilities ($p = .04$) among Black students who perceive barriers versus those who do not. There is no difference in adjusted predictions for whites or Hispanics. The right panel of Figure 3 shows the contrasts in adjusted predictions between Hispanics and Blacks and whites and Blacks in the sample. Conditional on social class and academic background, there is no difference between the adjusted predictions of Hispanics and Blacks (diff = -0.13; $p = 0.39$). However, there is a significant difference between the predictive margins for whites and Blacks (diff = -0.21; $p < .05$).

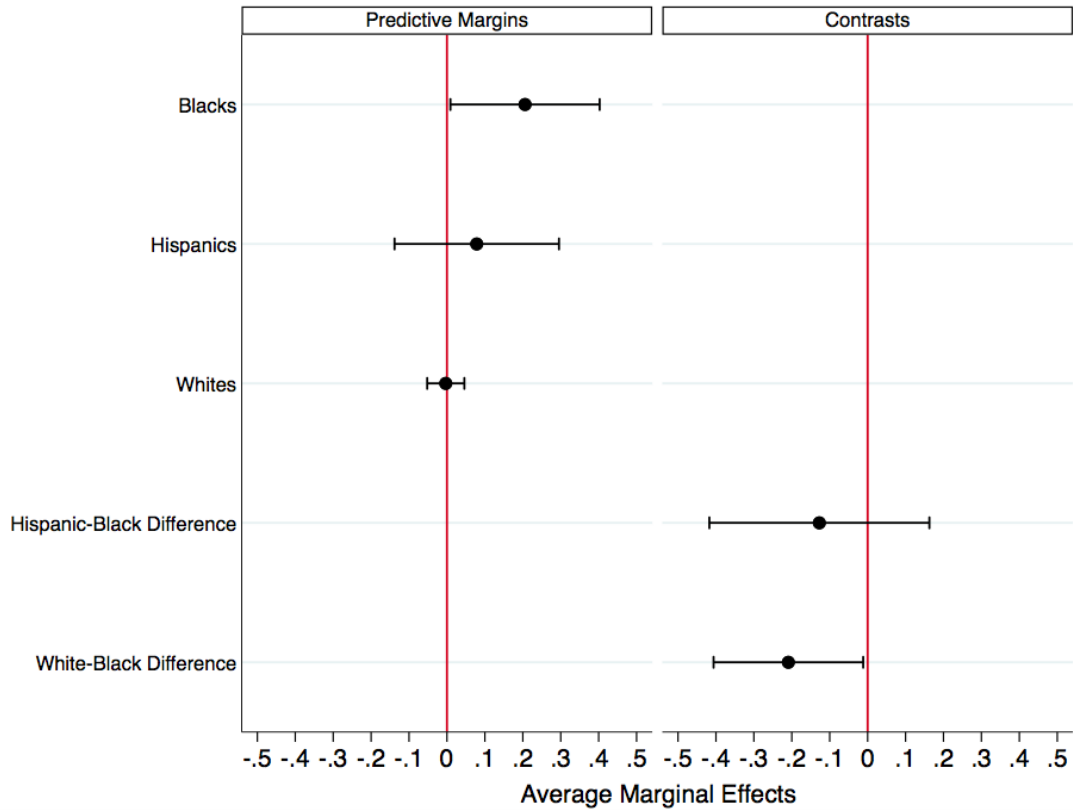


Figure 3: Average Marginal Effects of Perceived Barriers and Race on Odds of College Enrollment with 95% Confidence Intervals

Notes: Predictions are estimated using Model 5 in Table 8. Social class and prior achievement are held at means and all other covariates are as observed in the sample. Left panel shows difference in predicted probabilities among those who perceive barriers and those who do not by racial group. Right panel shows contrasts in adjusted predictions between racial groups.

Figure 4 displays the same information for odds of enrolling in a four year degree program. Again, there is only a significant difference in predicted probabilities ($p = .03$) among Black students who perceive barriers versus those who do not. There is no difference in adjusted predictions for white or Latinx students. The right panel of Figure 4 shows the contrasts in adjusted predictions between Hispanics and Blacks and whites and Blacks in the sample. There is no difference between the adjusted predictions of Hispanics and Blacks ($\text{diff} = -0.25$; $p = 0.10$), net of SES and prior achievement. However, there is a significant difference between the predictive margins for whites and Blacks ($\text{diff} = -0.26$; $p < .05$).

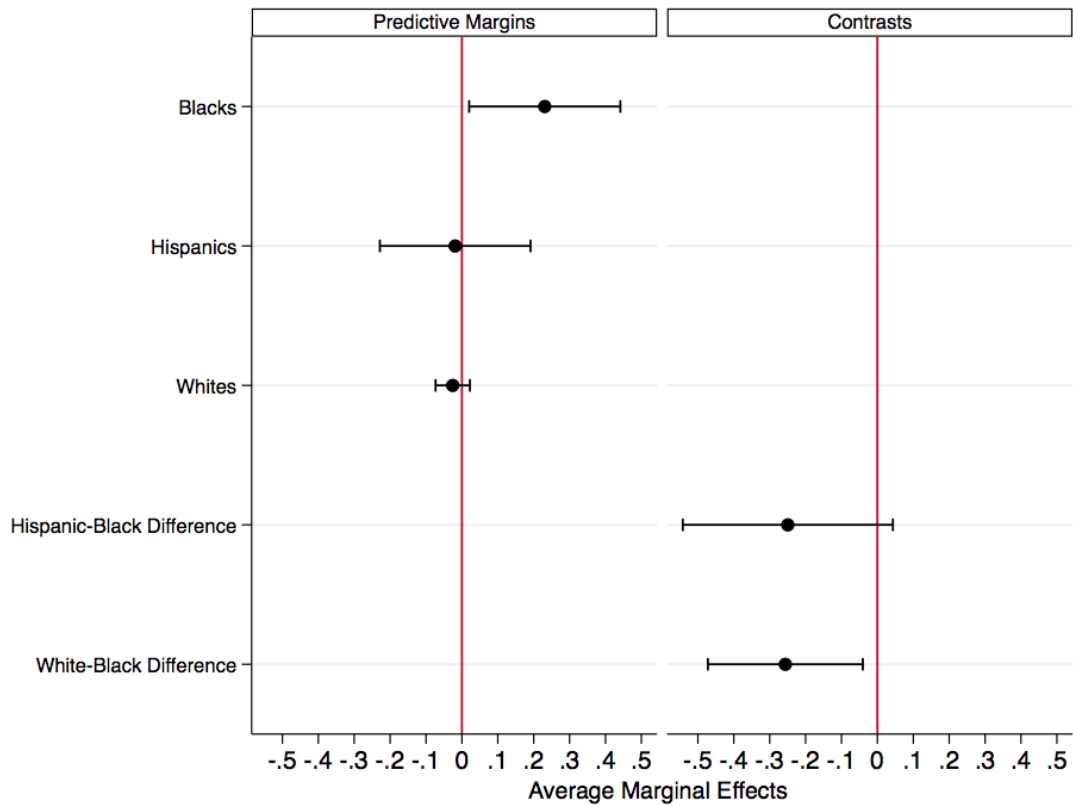


Figure 4: Average Marginal Effects of Perceived Barriers and Race on Odds of 4-Year Degree Program with 95% Confidence Intervals

Notes: Predictions are estimated using Model 5 in Table 5. Social class and prior achievement are held at means and all other covariates are as observed in the sample. Left panel shows difference in predicted probabilities among those who perceive barriers and those who do not by racial group. Right panel shows contrasts in adjusted predictions between racial groups.

4.5 Discussion and Conclusion

I find evidence of an “overcompensation effect” among Black students. Despite their uncertainty of success, Blacks who perceived barriers to mobility are more likely to continue on to a baccalaureate program right after high school. This is consistent with prior work suggesting that in response to anticipated discrimination or barriers, certain groups “overperform” and invest more effort into securing educational and occupational opportunities in the future (Pager and Pedulla 2015; Sue and Okazaki 1990). Numerous studies have shown that Black students are more likely than similar whites to engage in positive college going behaviors such as SAT/ACT test preparation, taking college entrance exams, seeking information about colleges, and applying to more schools (Blake 2018; Buchmann, Condron, and Roscigno 2010; Merolla 2013).

A recent study using data from the Educational Longitudinal Study of 2002 found that college going behaviors (e.g., taking the SAT/ACT and engaging with college resources in high school) explained variation in rates of college enrollment between Blacks and whites (Blake 2018). However, the “net black advantage” (Bennett and Xie 2003) that I find does not disappear after controlling for academic skills, family background and pro-college going behaviors. These results are consistent with studies that reject cultural explanations for racial differences in academic outcomes and find very little support for Ogbu’s minority achievement thesis (Ainsworth-Darnell and Downey 1998; Cook and Ludwig 1997; Downey and Ainsworth-Darnell 2002; Diamond and Hughley 2014; Harris 2006, 2011; Kao and Thompson 2003; Tyson et al. 2005). Contrary to Ogbu’s oppositional culture theory, I find that Black students’ belief in barriers to future success actually creates a deeper level of commitment to and investment in their education. This raises an important question: given their disadvantaged SES position, what accounts for Blacks’ higher rates of college enrollment relative to whites? Though this specific

inquiry is beyond the scope of these findings, existing literature offers several plausible explanations.

Studies consistently show that Blacks have higher educational aspirations (Kao and Tienda 1998), more positive attitudes towards school (Cook and Ludwig 1997; Downey and Ainsworth-Darnell 2002; Harris 2006), and stronger beliefs in the value of education than whites (Harris 2008, 2011). In addition, Black parents strongly espouse the importance of education (Anderson 1988; Harris 2011). Some research suggests Blacks' awareness of barriers and racialized stereotypes leads them to invest more effort (Bergin and Cooks 2002; Matthew 2011; Pager and Pedulla 2015; Steele and Aronson 1995; Shih et al. 1999). Finally, studies have shown that despite their cognizance of structural constraints and limited opportunity for social mobility (Matthew 2011; O'Connor 1997), Black students are very resilient in the face of discrimination and inequality (Akom 2003; MacLeod 2009; O'Connor 1996, 1997, 1999).

Though some work frames Blacks' high aspirations as 'paradoxical' or misguided ambition (Farkas, Lleras, and Maczuga 2002; Mickelson 1990), this resiliency is a key tenet of what critical race scholar, Tara Yosso, describes as "community cultural wealth". Yosso highlights 'aspirational capital' as "the ability to maintain hopes and dreams for the future, even in the face of real and perceived barriers...[and] often without the objective means to attain those goals" (2005:78).

Evidence from this study lends support to the large body of research that refutes cultural differences as a key explanation for racial disparities in education. Even though Black students may be more resilient and hopeful than whites (Harris 2008; O'Connor 1997, 1999), they often face challenges to realizing their aspirations and translating their high expectations into actual success. While previous research has questioned the validity and plausibility of Blacks' generally

optimistic views about education due to the disjuncture between aspirations and attainment (see Downey, Ainsworth, and Qian 2009 for a review; Farkas et al. 2002; Ogbu 1991), a basic understanding of America's racial history (Bonilla-Silva 2013) places this "paradox" in perspective. Schooling has always been essential for Blacks because they face significant structural disadvantage and have often viewed education as a path toward upward mobility (Merolla 2014). For instance, Blacks consistently encounter discrimination across multiple domains including the labor market (Goldsmith, Hamilton, and Darity 2006; Pager 2007; Tomaskovic-Devey, Thomas, Johnson 2005) and schooling (Downey and Pribesh 2004; Gaddis 2015; Lewis and Diamond 2015).

Instead of interrogating the "net Black advantage", the more pertinent question is why are perceived barriers less consequential for whites than Blacks? Few studies examine why white students and those from higher status backgrounds complete high school and college at lower rates. Several scholars argue that whites' relatively advantaged position in the social structure minimizes the impact of future challenges to upward mobility (Grodsky and Riegle-Crumb 2010; Mangino 2010, 2012). Previous research suggests that whites' "cumulative advantage" (DiPrete and Eirich 2006) provides them greater access to social, cultural and economic capital than Blacks (Bourdieu 1984; Bourdieu and Passeron 1977; Calarco 2011, 2014; Carter 2003, 2005; Lamont and Lareau 1988, Lareau 2000; Tomaskovic-Devey et al. 2005). Furthermore, White students likely have more resources and supports, such as generational wealth (Oliver and Shapiro 2006) and high status social networks, to draw from when making crucial decisions about their education. Finally, whites often receive greater returns to their educational and occupational investments than Blacks, even when they have the same qualifications, backgrounds, or effort (Alon and Haberfeld 2007, Gaddis 2015, Tomaskovic-Devey et al. 2005). These kinds of

privileges conferred to those from advantaged backgrounds lead to assumptions (a longstanding “college-going habitus”) that cause them to take college for granted (Grodksy and Riegle-Crumb 2010). Future research should examine mechanisms that might explain racial differences in college-going behaviors *and* consider how beliefs about mobility predict those differences across social groups.

5. Conclusion

Despite the positive benefits of higher learning and significant policy efforts to improve access to postsecondary education, college opportunities are still not equitably distributed (Perna 2006). Further, the reasons why certain groups are underrepresented in particular sectors of the college market remain unclear. Though predominant models of college choice tend to focus on either economic or sociological factors that shape the transition from high school to college, recent frameworks have integrated these approaches to examine the role of beliefs and information (Grotsky and Jones 2007; Morgan 2005; Perna 2000, 2006).

Some scholars have argued that existing models of college choice are unresponsive to the needs and challenges of increasingly diverse student populations (Hughes, Kimball and Koricich 2019; Iloh 2019). Most theories of the high school to college transition focus on adolescent students that start postsecondary education immediately or shortly after the senior year of high school (Perna 2006). This excludes the millions of students who do not fit this description and end up being left out of discussions about college planning and postsecondary pathways. Many frameworks also oversimplify the complexities of a major decision and pivotal transition process in the lives of prospective students (Iloh 2018). It is important to remember that the decision to attend college does not just start at the point of enrollment. Although college access is a crucial step in the process of eventual attainment, more research is needed to understand differences in college trajectories and educational pathways.

In the studies here, I chose a student-centered college going model to understand the sources, quantity and quality of information that individuals have access to. In addition, I sought to uncover how student beliefs shape action. I did not assume that the process is linear (Iloh

2019). This dissertation assessed the importance of social, economic, ecological and institutional influences on students' perceptions of barriers and the subsequent decisions they make about whether, where and when to apply to college. To do this, I used nationally representative data from the US Department of Education's High School Longitudinal Study of 2009 (HSL:09).

The second chapter explored students' beliefs about whether they would get admitted to college, if they could afford to pay for college and their likelihood of completing college. Black and Latinx students were primarily concerned about their chances of getting accepted into a college, even net of social class, prior achievement, and school factors. To the extent that these barriers are driven by limited or incomplete information, college counseling supports are a critical resource for students, parents and families. Students need to know what it takes to get to college and be successful so they can plan high school courses appropriately, develop a personalized search plan and effectively navigate the application process. To the extent that these barriers are informed by students' awareness of biased admissions policies or racist practices, colleges and universities must do the work of becoming inclusive and welcoming to all students. Recent student protests on college campuses across the country have sparked national debate and brought attention to issues of diversity and equity. The surge of student activism in the last decade has shed light on the many ways in which students feel unsafe, unwelcome and as if they do not belong at institutions of higher learning.

The third chapter investigated the relationship between perceptions of limited opportunity and college seeking behaviors. Previous research on beliefs about opportunity and students' educational investment has yielded mixed results, in part because scholars have conflated different concepts (Harris 2011) or left out relevant aspects of the link between attitudes and actions (Fishman 2019). Overall, I found a negative relationship between perceived barriers and

college seeking. There was no association between perceptions of barriers and how many schools students applied to or their odds of attending a selective institution. As students anticipate more challenges to upward mobility, they are significantly less likely to enroll in college directly after high school and less likely to attend a baccalaureate institution (versus a two-year degree program or no college at all). If students think that they will not be successful in accomplishing their educational goals, they are not as likely to invest in future educational pursuits such as applying to and enrolling in college. I argued that beliefs play a key role in the process of educational attainment by informing students' understandings of what they can and cannot do and subsequently, shaping their decisions about whether and how to prepare for the future.

The fourth chapter assessed whether there are racial differences in how perceptions of barriers matter for students' college seeking outcomes. I found that beliefs about the opportunity structure mattered differently across race. Despite their uncertainty of success, Black students who perceived barriers to mobility are more likely to continue on to a baccalaureate program right after high school. This is consistent with prior research suggesting in response to anticipated barriers, Blacks invest even greater effort into securing educational and occupational opportunities than whites (Pager and Pedulla 2015; Sue and Okazaki 1990). I argued this finding is not a "paradox" because schooling has always been viewed as a viable path to upward mobility (Merolla 2014) and education has always been an important value in the Black community (Anderson 1988).

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Biography

Steven Jefferson graduated with a Bachelor of Arts degree in Sociology and African & African Diaspora Studies (with Honors) from Boston College in 2014. He began doctoral studies at Duke University in 2014, where he specialized in racial stratification and urban education, and earned a Master of Arts degree in Sociology in 2017. At Duke, Steven was a recipient of the Dean's Graduate Fellowship, a member of the Society of Duke Fellows and also selected as an Education and Human Development Scholar. In addition, Steven earned a fellowship from the National Science Foundation's Graduate Research Fellowship Program. He has published on topics such as race, religion, higher education and health disparities. Steven will receive his Ph.D. in Sociology in May 2020.