CULTURE, CLASS, AND COLLEGE: A MIXED-METHOD CONTEXTUAL UNDERSTANDING OF UNDERMATCH

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ABSTRACT

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This dissertation is a collection of three studies investigating students' postsecondary decision making process. Using qualitative data from 93 semi-structured interviews with high school seniors from seven low-income rural and urban high schools in a Midwestern state, along with survey data from qualitative sample as well as the Educational Longitudinal Study of 2002 (ELS:2002), this study examines the role that family, peers, school, and personal characteristics play in shaping students' college match.

Chapter 1 explores the role of noncognitive skills in students' decision to match. Using qualitative data from 63 seniors from the graduating class of 2013, I probe the construct of "college material", finding that students have internalized the message about college-for-all, and have consequently determined that traditional college readiness indicators such as academic ability are not what makes someone college material. Instead, students associate noncognitive skills such as grit and self-efficacy with college success, revealing differences between matched and undermatched students. While matched students are able to articulate that they have these noncognitive traits, undermatched students have vaguer notions of these characteristics. In the subsequent quantitative analysis with ELS, I find that noncognitive skills offer little explanatory power in directly determining undermatch. Instead it appears that they serve a mediating role with the number of college applications that students submit. Additionally, the importance of students' help-seeking emerges as a key predictor of application behavior.

Chapter 2 examines the role of parental involvement, using the full qualitative dataset and developing a matrix of parental involvement by parental education. Focusing on the students with highly involved parents, I select six students to profile more deeply, with data from both initial and follow-up interviews with the 2012 and 2013 seniors. I find that students with less educated parents had developed academically-oriented college-going identities which differentiated them from their peers early on. These students utilized school and sibling support to identify good college options and pursue them. Students whose parents had some college education were more influenced by their parents to attend college. Students whose parents had attained at least a BA degree were heavily dependent on their parents for college guidance and support. This analysis provides additional insight into so-called "helicopter parents" and their prevalence and role within low-income households.

Chapter 3 considers the family, school, and peer influences together, recognizing that students are nested in their social contexts, and are subject to the norms and values within. Using the qualitative data from the 2013 senior cohort, I explore the messages that students received from their families, schools, and peers. These data suggest that peers play a significant role in students' postsecondary decision making. Norms established among peer groups can serve to support or undermine students' match, as it takes significant support either from home or school to help a student resist the pressure to conform to peer college choices. Particularly among rural students, the strength of peer norm influence around college-going is comparable to that of home and school. The paper then builds a structural equation model comparing the influence of family, school, peer influence, help-seeking behavior, and academic performance constructs on undermatch. Comparing this model across subgroups, this analysis indicates that these relationships are raced and classed, but apparently not gendered.

To my father, Joseph Anderson, a lover of knowledge who would be just so tickled to know that his daughter managed to pull this off; and
To my inspiring children, Maggie and Ollie, whose curiosity, imagination, and potential knows no bounds – may that always be so.

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Studying education leads one to reflect on one's own educational history. Looking back on my early years as a bright student from a low-income family, I can't help but feel incredibly blessed for the educational opportunities I've had the privilege of enjoying: private boarding school, private liberal arts college, and graduate degrees from the two best public universities in this state. I was carried along from one incredibly rich environment to the next by some combination of faith, hard work, and sheer luck. I had wonderful teachers and mentors who took an interest in me and challenged me. And, I realize now, so much of it would not have been possible without my mother's dedication to my education. A woman whose life had a nasty habit of interfering with her educational plans, she was determined that her daughters would be well-educated. Both myself and my sister have been supported (and expected) to open wide the doors of possibility and follow our bliss wherever it may lead us.

Working as a college counselor in two low-income urban public high schools during my doctoral program, I came into daily contact with smart, capable students who, at the tender age of 17 or 18 are closing doors to their future, convinced that these dreams are out of reach for economic or other reasons. It is devastating that these students have already internalized limitations on their potential primarily due to their financial hardship. This dissertation grew out of my eagerness to understand their perspectives on the college search process so that I could help to shape policy interventions that might help the next generation of these students to adopt a more expansive view of their futures.

This doctoral program has felt like serendipity from day one. As a married mother of two young children exploring the possibility of graduate school again, I was encouraged to find an

advisor to whom I could hitch my wagon. I met the woman who would become my advisor during my preliminary scouting of the program, was welcomed with open arms and implored to begin a year before I had planned. I jumped on the Barbara Schneider train and never looked back. She has been an amazing mentor for me; always somehow knowing how to challenge and support me, when I need a kick in the shins and when I need to take better care of myself. I joined an incredible team of thoughtful, brilliant, and committed like-minded graduate students, including over the years Alan Hastings, Mike Broda, Violeta Donowa, Dorothy Hines Datiri, Rob Shorette, my dear friend Christel Beverly, and my mentor and office-mate Justina Judy. They, along with my insightful and supportive Ed Policy cohort-mates Ryan Goodwin, Tara Kintz, John Lane, and Alisha Brown, have kept me grounded in the purpose and importance of this work, and helped restore faith in both my quantitative and qualitative abilities in the inevitable times of doubt. I'm also very grateful for the support of Drs. Peter Youngs and Michael Sedlak, who provided crucial support during my mid-program crisis, and Wenjuan Ma, who grew to be a good friend as she helped me navigate the strange world of structural equation modeling and MPlus.

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Introduction

With the growing recognition that a college degree is a requisite for economic mobility and success, scholars and policymakers have focused on the issue of expanding college access to traditionally underrepresented students. There are many facets to the policy challenge of increasing the low-income, minority, and first-generation college student population on college campuses around the country, including understanding how students make decisions about which colleges they apply to and ultimately enroll in. While most students plan to attend college, many are not clear on their long-term occupational goals. Indeed, many may aspire to occupations without understanding the postsecondary pathways implicated. This misaligned ambition, first described by Schneider and Stevenson (1999), results when students do not receive adequate information regarding the concrete postsecondary steps required to achieve their occupational goals. Low-income, minority, and first generation college students are more likely to have misaligned ambitions due to the lack of college information in their social networks. A subset of these students may aspire to attain a Bachelor's degree but choose to attend a less-selective school than their academic credentials would suggest. This phenomenon is known as undermatch, and of concern because it has been associated with longer time-to-degree and higher dropout rates (Bowen, Chingos & McPherson, 2009).

Undermatch has received substantial scholarly consideration in recent years. There are four main studies looking into the extent of undermatch and the characteristics of students who do; two with regional datasets and two with national datasets. Among regional studies, the undermatch rates range from 61% (Roderick et al., 2008) to 40% (Bowen et al., 2009). Both studies find that undermatch is more common among first generation and minority students. The authors assert that the main factors driving undermatch among these populations are a lack of

practical support from family and school personnel, and a lack of information regarding available financial resources. Bowen et al. (2009) conclude that the undermatch happens primarily during the application stage of the process rather than the enrollment stage; 64% of eligible students failed to apply to more selective schools. Indeed, Roderick et al. (2008) report that students rule out schools based on cost before even applying for financial aid, and in some cases fail to apply for financial aid at all. These authors conclude that the college-going culture at the school can act as a critical support for students in reducing their frequency of undermatch.

Using a national sample, Smith, Pender, and Howell (2012) find that 40.9% of students undermatch. They also find that low-income students are much more likely to undermatch than middle- or higher-income students, but they observe that black and Asian students are less likely to undermatch than their white counterparts. They assert that parental education and urbanicity matter: students who undermatched were more likely to have parents with lower education attainment, and reside in rural areas. Hoxby and Avery (2012) study college application patterns among students scoring in the top 10% of the distribution of the ACT. They find that low-income high-achievers have strikingly different college application behaviors than their high-income peers. The majority (53%) of low-income high achievers ("income-typical") behave in ways that belie their academic credentials, applying to fewer and less selective schools. Only 8% of low-income high achievers ("achievement-typical") exhibit behaviors common among their high-income peers, applying to a range of selective schools and excluding non-selective schools from their search. The authors suggest that school and community factors play a key role in the development of these behaviors. Achievement-typical students are more likely to be black or Hispanic, and are more likely to live in communities with more highly-educated individuals. However, 39% of students exhibit "idiosyncratic" application behaviors which are left

unexamined. This suggests that more research is needed to understand these students' application patterns.

Noncognitive traits

While most of the undermatch literature focuses on the information and support that students receive in their homes and schools, others (e.g., Nora, 2004) have suggested that there might be other personal characteristics, sometimes referred to as noncognitive skills, which play a role. However, there is a lack of integration between the K-12 and higher education literatures on this topic, leaving the transition from one to the other virtually unexamined. The lack of common terms in this field presents an additional challenge. While the psychological K-12 literature on noncognitive skills identifies traits such as grit, self-control, and social skills and has developed scales to measure these (Farrington, et al., 2012; Duckworth, et al, 2007), the domestic economic literature often uses indicators such as attendance, homework completion, and the presence or absence of disciplinary action (Heckman & Rubinstein, 2001; Jackson, 2012). The higher education literature, in contrast, relies almost exclusively on the work of Sedlacek (e.g. 2004, 1998, 1996) and his noncognitive questionnaire. While we know that these skills are important for academic success in the K-12 setting and for success and persistence in higher education, there is little available literature that explores the role of these skills in the college search and transition.

Parental Influence

There is a significant body of literature suggesting that parental education and expectations have a strong positive influence on students' postsecondary educational expectations and plans. Parental involvement is associated with higher grades and an increased likelihood of attending college. Although parental involvement is widely conceived of as social

capital which supports students' college search and facilitates college access, the research suggests that this involvement has differential effects for different student groups. Specifically, scholars have observed differences across genders (Stage and Hossler, 1989), racial/ethnic groups (Perna and Titus , 2005), first-generation status (McCarron & Inkelas, 2006) and income backgrounds (Hofferth, Boisjoly & Duncan, 1998). Other research considers the extent to which students' and parents' goals and expectations are aligned, and suggests that alignment bolsters the positive impact of parental involvement (Kim & Schneider, 2005). There is currently little published research which explores the role of parental involvement while looking at urbanicity of school setting, or testing interactions between urbanicity, SES, and parental involvement in students' successful transition to college.

Purpose of Study

Most of the literature aiming to understand why students undermatch looks at the information and supports that students have access to in their college search process. This study fills a gap in the scholarship on this subject, attempting to gain a more contextual understanding of undermatch. In chapter 1, I explore the role that the presence or absence of certain noncognitive skills (grit, self-efficacy, academic task value, and help-seeking) plays in students' college application and enrollment behavior, using qualitative data from 63 in-depth interviews with high school seniors as well as quantitative analyses with the Educational Longitudinal Study of 2002 (ELS:2002). The second chapter uses the full qualitative sample of 74 high school seniors from the classes of 2012 and 2013 to examine the role of parental involvement during the college search and transition. I focus on those overly involved parents, sometimes referred to as "helicopter parents," and examine the content and impact of their influence on their students' college search process. The final chapter takes a more holistic approach, considering both

noncognitive skills and parental influence, as well as academic press from schools and peers with both the qualitative sample and the ELS data. The dissertation concludes with a discussion of findings in light of current policy efforts to improve college match and increase postsecondary enrollment among low-income, minority, and first-generation college students.

Study Design and Methodology

In Chapter 1, I set out first to answer What noncognitive skills are related to students' postsecondary decision making? The next question asks, Are there differences between matched and undermatched students, and between rural and urban students, in the way they talk about noncognitive skills? These first two questions were examined with the qualitative sample. I was curious about students' perceptions of "college material," their assessments of their own noncognitive skills, and how those were related to their college match decision. A third question, How do these noncognitive skills influence match? was then explored using the ELS data. Comparing the skills identified by the students with the literature on noncognitive skills, I identified four traits to analyze in the quantitative data. Using items from the ELS base-year student survey, I created composite variables representing grit, self-efficacy, academic task value, and help-seeking. I then test these in a series of logistic regressions with demographic controls with the outcomes of undermatch and application behaviors.

In Chapter 2, I explore the role of parental involvement with the full qualitative sample of 80 in-depth interviews with 74 high school seniors. I begin with the question: *Do we observe a helicopter-type involvement among low-income parents?* Next, considering the interaction between parental involvement and parental education, I ask: *What does high parental involvement look like in low-, medium-, and highly-educated low-income families?* The third question asks: *How does this high parental involvement affect students' autonomy and identity*

development regarding their college search process? The final question, recognizing the unique cultural norms in rural and urban communities, is: *Are there differences between rural and urban students with regard to the influence of parents during this transition?* This analysis suggests that low-income helicopter parents exist, and that parental education shapes the messaging students receive from their parents.

Finally, in Chapter 3 I compare the messages and influences students receive from parents, schools, and peers. The first research question is: *What is the content of the messages students receive about college from their parents, schools, and peers?* Secondly, I ask: *How do these messages affect students' decisions about where to apply and enroll in college?* I answer the first two questions using interview data with 63 graduating seniors from the class of 2013. Lastly, I ask: *Which are the strongest domains of influence, between parents, school, and peers, for students' college match?* To answer this question, I develop a structural equation model using composite variables created from the ELS base-year student, parent, and school administrator surveys to measure parental involvement, school academic press, and peer academic press, as well as academic characteristics (i.e. cumulative GPA, ACT score) and help-seeking. This analysis allows us to compare the influence of these various domains on students' college match behaviors.

Taken together, these three studies make a significant contribution to the literature on undermatch. Using both qualitative and quantitative methods allows us to delve deeper into the issue of undermatch, helping to provide a nuanced perspective on the decision-making of low-income students in rural and urban communities. Additionally, this research addresses a gap in the current undermatch literature by considering students near the mean of ACT scores, in both rural and urban communities, and seeking a developmental understanding of the phenomenon.

As a result, we learn that a one-size-fits-all approach will not work to address this prevalent issue among low-income youth. Simply providing more information about college is an insufficient response to what for students is a complex process informed by internalized identities, culture, and class.

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Chapter 1: The Role of Noncognitive Skills in the Transition to College

Introduction

As the salience of degree attainment increases for employment, scholars focus on understanding the persistent gaps in socioeconomic status among students in terms of college enrollment and Bachelor's degree completion (Kena et al., 2014). While the transition to college is difficult for many students, low-income and minority students, and those first in their family to attend college face additional challenges in navigating this path. Even when these students do enroll in college, many fail to enroll in schools matched to their academic credentials (i.e., high school grade point average, ACT score) (Smith, Pender, & Howell, 2012). This phenomenon is frequently known as undermatch.

Undermatching is particularly prominent among geographically-isolated rural student populations (Dillon & Smith, 2013; Hoxby & Avery, 2012; Smith, Pender & Howell, 2012) and corresponds to a longer time-to-degree and higher dropout rate (Bowen, Chingos & McPherson, 2009). While many students begin at a two-year college to save money on their first two years of college before transferring to a four-year school, only 17% of students who pursue this path complete a Bachelor's degree within six years (Monaghan & Attewell, 2014; Shapiro et al., 2013). Scholars also find that undermatch occurs primarily at the application stage, when students restrict their college choice set to those schools with which they are most familiar, which tend to be less-selective schools (Bowen, et al., 2009; Roderick, et al., 2011). Understanding these students' perceptions of the college application process, and their decision-making during their senior year is critical for improving college match. Most of the literature aiming to understand why students undermatch looks at the information that students have access to in their college search process. However, other scholars (e.g., Nora, 2004) have suggested that

there might be other personal characteristics, sometimes referred to as noncognitive skills, which play a role. The purpose of this study is to examine the influence of four noncognitive traits on students' college choice.

This multi-method study examines the perceptions of rural and urban high school seniors as they decide on which college to attend. The study involves intensive interviews with a purposive sample of rural and urban students and validates their perceptions with a quantitative analysis of a national dataset. With respect to the interviews, sixty-three high school students were randomly sampled from seven low-income schools and interviewed in the spring of their senior year regarding their postsecondary plans and factors influencing their college choice. I first develop a measure of match and then compare matched and undermatched students on indicators of noncognitive skills evident in their interviews. This analysis reveals differences between matched and undermatched students regarding their perceptions of college readiness and their assessment of their own noncognitive skills. Quantitative analyses with the Educational Longitudinal Study of 2002 (ELS:2002) then seek to confirm the role that noncognitive skills, particularly grit, task value, self-efficacy, and help-seeking behaviors, play in shaping students' college application and enrollment behaviors, finding that for low-income students, and especially low-income rural students, the presence of adaptive help-seeking increases the likelihood of applying to more postsecondary institutions, which in turn reduces their likelihood of undermatching.

Noncognitive Skills and College Choice

Recognizing that a college degree is a necessary qualification for employment in growing sectors of the economy, allowing more individuals to move into the middle class and strengthening our nation's economy, the Obama administration has made increased college

enrollment and completion a national priority since the President took office. A recent White House summit was convened to highlight the importance of closing income- and race-based college attainment gaps (The Executive Office of the President, 2014). This has led to an increased policy focus on college- and career-readiness, for which college-readiness is often defined by scores on standardized college entry tests, high school coursework, and exit exams (ACT, 2011). Indeed, programs aimed at improving college access have proliferated in recent years, many working in low-income schools providing information and support to students during this transition (The Executive Office of the President, 2014). However, some have argued that comparing academic credentials across racial and income lines fails to account for the fact that access to high-level coursework varies widely between affluent and low-income high schools (Conley, 2013) and ignores racial bias reflected in standardized tests (Sedlacek, 2004). Indeed, research has suggested that college readiness is about much more than academic skills; noncognitive skills such as persistence or "grit", time management, and self-advocacy skills, are also components of being college ready (Byrd & MacDonald, 2005; Conley, 2008). These noncognitive traits have long been recognized as critical supports for academic success in K-12 settings (Duckworth, Peterson, Matthews, & Kelly, 2007; Farrington et al., 2012; Heckman & Rubenstein, 2001; Jackson, 2012) and are increasingly viewed as compensatory factors for low-income youth (Tough, 2013). Sedlacek and his colleagues (e.g. 2004) have consistently demonstrated the importance of skills such as positive self-concept, realistic self-appraisal, and preference for long-term goals, for student success at 4-year colleges, especially minority and first generation college students. As these traits appear to have a substantial impact on students' academic experience in K-12 and collegiate settings, it stands to reason that they may have some influence on students' college match and enrollment decisions.

Defining Noncognitive Skills

One challenge for those studying the influence of noncognitive skills on academic achievement is in identifying individual traits and defining them. While it might be more expedient to use test scores, assessing individuals' affective qualities garners a more holistic appraisal of student potential for success. To complicate matters further, the literature on social and emotional traits and their contribution to academic success is extensive. However, in reviewing the literature, there appear to be four noncognitive skills frequently cited as being associated with academic success: persistence or "grit", academic task value, self-efficacy, and academic help-seeking (Farrington et al., 2012).

Grit, defined by Duckworth and her colleagues, is "perseverance and passion for long term goals…maintaining effort and interest over years despite failures, adversity, and plateaus in progress." (Duckworth et al., 2007, p.). Other similar constructs to grit include persistence, academic tenacity (Dweck, Walton, & Cohen, 2011), and preference for long term goals (Sedlacek, 2004). Grit was examined among high achievers in four contexts, and scholars found that individuals' grit scores helped to explain their accomplishments, even when controlling for GPA and other ability measures. However, it seems plausible that students' grit may impact their ability to conduct a thorough college search and identify a good college match.

Academic task value, or the interest that the student has in school, and their perceived utility regarding doing well in school despite the costs associated with it, serves to support and sustain their interest and motivation to expend effort, according to Expectancy-value theory (Eccles & Wigfield, 2002). In the Eccles et al. model, subjective task value is predicted by students' goals, prior like experiences, and perception of task demands, and determines their future achievement-related choices. Thus subjective task value affects the decisions students make while in high

school regarding advanced coursework and other college-directed actions, which serve to inform the academic qualifications, such as GPA, curriculum, and ACT/SAT score, upon which college admissions decisions are made (Eccles, 2005). This theory helps to explain students with strong academic potential who fail to manifest it; because they value other pursuits more highly (Eccles, 1985, 1987). Simply, students are more likely to select a college path aligned with their interests and in which they perceive their ability to master the content (Eccles, 2005).

Another related construct that might be connected to college match is self-efficacy. Students' beliefs about their own abilities contribute to their sense of self, and help to shape their identities. Self-efficacy (Bandura, 1997), or the students' perception of their ability to be successful, is a key component of this identity, especially as it relates to school. Students' perceptions of their efficacy are domain-specific: the same student may feel highly efficacious regarding their performance in their math class but have low self-efficacy when it comes to the college search. Scholars have also demonstrated that self-efficacy is predictive of students' persistence on difficult tasks (Zimmerman, 2000). Students' self-efficacy might therefore inform their anticipated success in various college settings, and help shape their decisions about college match.

Lastly, the extent to which students seek help when needed, especially during the college search process, may well impact students' college match. Help-seeking has been recognized as a strategic noncognitive skill enhancing students' academic success in both K-12 and collegiate settings. Rather than an indication of incompetence, help-seeking in this context is considered an adaptive coping skill, requiring that the student first realize that they need help and then seeking it out from the appropriate resource person (Newman, 2000). However, academic help-seeking appears to be more prevalent among students with high academic self-efficacy and secure

attachment to school (Newman, 2002). Therefore students most in need of help with the college search process may be the least willing to seek it out.

There is little research aimed at understanding student perceptions and self-evaluations of college readiness and how these are related to the college search process. Additionally, although the psychology literature has been describing these characteristics for some time, this literature has not been used to understand match. Similarly, the undermatch literature has focused on the presence or absence of information (Hoxby & Avery, 2012), but not given adequate consideration to the psychosocial dimension of undermatch. Although there are qualitative studies examining the extent and etiology of undermatch (Arnold, et al., 2009; Roderick, et al., 2008), these have only been done with urban samples. These studies attribute college mismatch largely to a lack of adequate information, support, and planning in students' social networks and schools.

However, these studies offer little help in understanding the prevalence of undermatch among the rural population (Hoxby & Avery, 2012; Smith, et al., 2012); it is therefore critical to study the unique dynamics at work in rural communities. There is a substantial literature describing the differences between the rural and urban contexts with regard to community and cultural norms about college, with some who suggest that rural communities do not value education as much as other communities (e.g. Chenoweth & Galliher, 2004; Cobb, McIntire, & Pratt, 1989). Other scholars suggest that these community values create more role conflict among rural students which impacts their college and career aspirations (Elder & Conger, 2000; Hektner, 1995; Howley, 2006). For this reason, this study compares rural and urban students to assess whether noncognitive factors have a similar impact across geographic settings.

This study samples rural and urban low-income students, many of whom are the first in their family to attend college. The first research question asks, "What noncognitive skills are related to students' postsecondary decision making?" A second question asks, "Are there differences between matched and undermatched students, and between rural and urban students, in the way they talk about noncognitive skills?" The first two questions are examined with the qualitative sample. A third question, "How do these noncognitive skills influence match?", is explored using both qualitative and quantitative analysis. The quantitative analysis is aimed at evaluating whether the themes emergent in the qualitative data are observable in a national dataset. This study tests the idea that noncognitive skills help to shape students' college search behaviors, including how many schools they apply to, which in turn affects their college match.

Given the available literature on the unique challenges faced by rural students, it seems reasonable to expect that there might be differences between rural and urban students regarding the presence of noncognitive skills and their impact on students' college choice. In light of the literature on the importance of noncognitive skills for minority and first-generation college students (e.g. Sedlacek, 2004), we may also expect to see differences along racial and parental education lines.

Method

This study relies on two datasets; a qualitative sample of 63 in-depth interviews with high school seniors and the Educational Longitudinal Study of 2002 (ELS:2002), a dataset from the National Center for Education Statistics. Qualitative data is analyzed using Nvivo software and quantitative data analysis employs logistic regression.

Data

Qualitative Sample

The qualitative sample is composed of the graduating senior class of 2013 from seven mid-Michigan high schools in low-income communities; four rural and three urban. Students were randomly sampled according to their ACT score[1] and gender. Twelve students were sampled from each school; 6 females and 6 males, 2 of whom scored in the "low" range (17-19) and 4 with scores in the "high" range (20-22). This ACT range was chosen for a number of reasons. First, most undermatch literature samples very high achieving students, with ACT scores in the top decile (Hoxby & Avery, 2012). Instead, this sample represents students closer to the mean of ACT scores. In 2012, when these students took the ACT, the national mean was 21.1, the Michigan mean was 20.1, and the sample school means ranged from 15.3 to 20.1 with an average of 18.2. In addition, these scores are right around the threshold of the ACT score required for admission to most four-year schools; the 25% score for moderately selective four-year schools is 18[2]. Eighty-four students were sampled from the seven schools, and 63 completed interviews in April and May of 2013.

[1] Since 2007, the ACT has been compulsory in Michigan, taken by students in March of their junior year. This first ACT score was the one used when sampling students, regardless of future test retakes.
[2] Per the Carnegie Foundation: classifications.carnegiefoundation.org/methodology/ugrad_profile.php

These schools were selected because they were part of a larger research project already in progress. As a result, the author gained entry through the relationships with school personnel already established through the existing research project, which aided in developing trust with interview participants. In the case of two schools, the author had prior experience as a part-time college counselor in the building, which also helped students feel comfortable sharing their stories[3]. Students were interviewed at the school building, during the school day, typically during an elective or study hall period. The interviews were semi-structured and conducted solely by the author, lasting approximately 40 minutes. Using the NVivo software, interviews were coded for themes related to college readiness as well as parental, peer, and school influences on postsecondary decision-making.

Quantitative Sample

The quantitative analysis makes use of the Educational Longitudinal Study of 2002 (ELS:2002), a nationally representative study of 17,590 students who were 10th-graders in 2002, conducted by the National Center for Education Statistics (NCES). ELS:2002 used a two-stage sampling procedure. In the first stage, a sample of 750 high schools, both public and private, were selected. In the second stage, approximately 26 students were randomly sampled from each school on the condition that they were in the 10th grade in the spring term. The study follows up

[3] None of the study participants had been previously counseled by the author.

with these students in 2004, when most of them are high school seniors, and in 2006, when many are in their second year of postsecondary education. Of the 17,590 eligible students, 16,400 completed the base year, first follow-up and second follow-up surveys. Of these, 3,848 had ACT scores in the 17-22 range. Only 2520 of these have complete data on noncognitive skills and application behavior; this forms the restricted analytic sample. The restricted sample differs significantly from the full sample on several key variables, indicating that the restricted sample is more advantaged on many dimensions, which may suggest that subsequent analyses are underestimates[4].

Qualitative Measures

This study defines undermatch as a student attending a postsecondary institution which is less selective that their academic credentials would predict. This outcome is compared to those who match or overmatch. For the qualitative sample, match is defined as a student with an ACT score in the 17-19 range who attends a 2-year school or a student with an ACT in the 20-22 range who attends a 4-year school. Overmatch is a student with an ACT score in the low range (17-19) who enrolls in a 4-year school, which in this sample is primarily due to sports scholarships. Undermatch is observed when students with high (20-22) ACT enroll in a 2-year

[4] Descriptive tables comparing the full and restricted samples are in Appendix A.

school or when a student with a low- or high-ACT score has no identified postsecondary plan at the time of interview.

Table 1: Demographics of Qualitative Sample, by Match Designation

Table 1: Demographics of Qualitative Sample, by Match Designation				
	Matched	Undermatched	Overmatched	Total
Gender				
Male	10	16	5	31
Female	14	13	5	32
Race				
White	15	22	4	41
Black	5	4	5	14
Hispanic	4	2	1	7
Asian	0	1	0	1
Parental Education				
First-generation student	11	7	0	18
Parent with some education	10	13	4	27
Parent with BA/+	3	9	6	18
Urbanicity				
Rural	12	18	4	34
Urban	12	11	6	29

Note: Match is a student with an ACT score in the 20-22 range enrolled in a 4-year school or a student with an ACT in the 17-19 range enrolled in a 2-year school. Undermatch is a student with an ACT score in the 20-22 range enrolled in a 2-year school or a student with an ACT score in the 17-22 range not enrolled in any level postsecondary institution. Overmatch is a student with an ACT score in the 17-19 range enrolled in a 4-year school. First-generation student describes students whose parents have never attended any college.

Table 1 provides the demographic breakdown of the qualitative sample by match type. Gender differences are apparent in terms of match; females are more likely to be matched than male students in this sample. Because I oversample rural students in this sample, and because rural communities in this region tend to be racially homogenous and largely white, the racial composition of the sample is skewed. There does not appear to be a racial trend in terms of match or undermatch. Similarly, there is no undermatch or match trend within the differences of

parental education. Surprisingly, more first-generation college students are matched than undermatched. While one might expect to see lower incidence of undermatch among those whose parents have some college education or a BA degree, undermatch is similarly prevalent among those groups. Lastly, there is a larger ratio of rural students undermatching than urban students.

Quantitative Measures

The quantitative analysis makes use of the rubric developed by Roderick and her colleagues (2006), using students' GPA and ACT score to determine their college eligibility[5]. This rubric assigns five eligibility designations: eligible for 2-yr school, nonselective 4-year school, somewhat selective 4-year school, selective 4-year school, and very selective 4-year school. Because of the limited ACT range of my sample, there are no students eligible for very-selective 4-year schools. Based on this eligibility, I ascribe students match types. Matched students apply or are enrolled in schools at their eligibility level. Undermatched students apply or are enrolled in schools which fall one level below their eligibility, e.g. enrolling in a somewhat selective school rather than a selective institution. Severely undermatched students apply or are enrolled in schools which fall two levels below their eligibility. Overmatched students apply or are enrolled in schools which are at least one level above their eligibility.

[5] Please see Appendix B.

Table 2 presents basic demographic characteristics by selected match types among the quantitative sample. Unlike the qualitative sample, there are no gender differences in the frequency of match and undermatch in the national sample. There is a similar sample size issue when comparing the white and minority subsamples, but I do observe differences in match and undermatch along racial lines. Unlike in the qualitative sample, there are significant differences between first-generation students and those whose parents have any college education, with fewer first-generation students enrolled in a match school and more enrolled in undermatch schools. Lastly, mirroring the qualitative sample, there are significant differences between the rural and urban samples in the national data. Again, fewer rural students are matched and more are undermatched in this data. Full descriptive statistics for the quantitative sample are available in Appendix C.

Table 2: Demographics of Quantitative Sample, by Match Designation

Table 2: Demographics of Quantitative Sample, by Match Designation				
	Enrollment Behavior			
	Matched	Undermatched	Overmatched	Total
Gender				
Male	0.24	0.49	0.05	1056
Female	0.23	0.53	0.04	1464
Difference	*ns*	*ns*	*	
Race				
White	0.23	0.54	0.03	1655
Minority	0.26	0.46	0.06	865
Difference	*	***	**	
Parental Education				
First-generation student	0.17	0.01	0.05	505
Parent with some education	0.20	0.53	0.04	895
Parent with BA/+	0.29	0.47	0.06	1120
Difference	***	**	**	
Urbanicity				
Rural	0.16	0.59	0.02	461
Urban	0.28	0.46	0.07	782
Difference	***	***	***	
Total	595	1814	111	2520

*** p<0.01, ** p<0.05, * p<0.1

Data source: Educational Longitiduinal Study 2002, NCES

Note: Numbers presented are means. Matched students are enrolled at institutions which match their eligibility according to the Roderick et al (2006) rubric. Undermatched students are enrolled in institutions which are one level below their eligibility. Overmatch students are enrolled in institutions which are at least one level above their determined eligibility. Differences between groups are accomplished through two-tailed t-test of equivalence of means. Difference within parental education refers to first-generation students compared to students whose parents have any college education.

To evaluate the contribution of noncognitive skills to the college match decision in this sample, four composite variables are created. On the base year student survey, students are asked

to respond to several items regarding their academic attitudes and habits. Using confirmatory factor analysis, variables were clustered into noncognitive constructs for grit (e.g. “When studying, I keep working even if the material is hard”, α=0.843), task value (e.g. “I go to school because I get a feeling of satisfaction from doing what I’m supposed to do in class”, α=0.200), self-efficacy (e.g. If I decide not to get any bad grades, I can really do it”, α=0.759), and help-seeking with the college transition (e.g. Student reports that they have gone to a teacher for information about college, α=0.643). Because the construct for academic task value failed to meet the minimum threshold for acceptable internal consistency, it was not included in subsequent analyses.

Qualitative Analysis Plan

To ascertain students’ perceptions about the importance of noncognitive skills and their role in college success, one of the questions on the interview protocol asked students, “What makes someone college material?” This was chosen because it was an open-ended question which did not presume that cognitive or noncognitive factors were primal. Student responses were collected and coded for themes related to grit, task value, self-efficacy, and help-seeking. Initially responses were coded for any reference to noncognitive skills, and those codes were refined to include motivation, grit/persistence and hard work, which were further refined to mirror the quantitative analysis.

Qualitative Results

Three themes emerged in students’ responses. First, students describe the college-for-all message they have received from teachers and counselors, which suggests to them that college is no longer the domain for just those with high academic ability (“smarts don’t matter”). Indeed, students articulate that it doesn’t matter where you go to college as long as you go. Bound up in

this is their lack of distinction between the academic and social experience of 2- and 4-year schools ("college is college"). Students seem to think that these two college routes are identical. Thus it follows that if collegiate success is not a result of academic merits then students attribute responsibility to noncognitive skills such as grit, task value, self-efficacy, and help-seeking.

Smarts don't matter

When describing what made someone "college material", students were adamant that hard work was just as, if not more important, than one's academic skills. Rose[6], an overmatched urban student says, "I think anybody can go to college if they put their mind to it. You don't have to be smart as long as you try. There's a lot of things; you can get tutoring, there's a lot of help out there, as long as you're willing to try, then you can succeed." Paisley, a rural undermatched student planning to attend cosmetology school agrees: "I think everybody is [college material] so they can study and get a career they'd want. I mean, I don't think you have to be really smart to go to college, cause everybody learns differently." It is clear through these quotes that students have internalized the societal norm about going to college. They've heard from their parents, counselors, and teachers that it doesn't matter where they go; they just need to go to college. If everyone is expected to go to college, then students infer that college is no longer just a place for smart kids, so smarts don't matter.

[6] All names of people and places are pseudonyms.

College is college

In my interview with Josh, a rural student still undecided about his postsecondary plan, he was trying to decide between Berk, a private liberal arts college, and the local community college, Metro Community College (MCC).

Kri: What do you think the differences would be?
Josh: Well, going to MCC, I'd be living at home, and if I go to Berk, I'll be in a dorm with a roommate.
K: So, that's a big difference. Any other differences?
J: Well, I'd have to drive to MCC. I'd just be able to like walk around at Berk.
K: Uh huh. Do you think like the classes will be different and the people? Or do you think that would be the same.
J: I think it would be the same.

Josh's ambivalence between the two options reveals his lack of understanding of the differences between the two. The caliber of the resources, faculty, and peers available at a small private liberal arts college will likely differ from those available at a local community college, but Josh and others like him were unaware of this fact. His comment gets to the issue of what college is, and suggests that in our efforts to make college accessible to more students, students have become fuzzy on the distinctions between the available choices and don't see them as different. Given this misunderstanding that they are equivalent opportunities, students' decisions to select a 2-year college due to cost concerns can be viewed as utility maximizing. Indeed, students are actively encouraged by their parents and guidance counselors to "do their basics" at local community colleges and then transfer to a 4-year school, in order to save money. But there is little consideration of the other trade-offs students are making with this decision.

Noncognitive skills

The last theme that emerged from this analysis was that students nearly universally mentioned noncognitive skills when describing their perceptions of "college material". Students

talked about grit, academic task value, self-efficacy, and their willingness to seek help. However, differences emerged between undermatched and matched students with regard to the way students talked about their possession of these skills. Those planning to undermatch describe these noncognitive skills in more abstract, rhetorical language. Students planning to match describe these skills in much more concrete terms, demonstrating their personal experience with these skills.

Grit

Troy, a rural undermatched student describes college material in this way: "A lot of it is organization, dedication. You can't just slack off and go and expect to get anything out of it. You've gotta work hard and that's practically your priority, that's your life from there on because that's going to help you get a job in the future and, yeah, college is, it's just huge. It's pretty much everything in your life." Troy's sense of being overwhelmed is palpable. It is clear that he is anxious about this transition, and plausibly concerned about his ability to succeed in college. He spouts anecdotal rhetoric about the importance of persistence, but this is again an abstract entity for him. Similarly, Dexter, another rural undermatched student, when asked if he is someone who sets his mind on something, one of the definitions of grit, responds "Oh, no. I fly by the seat of my pants." Logan, an urban matched student says, "I think everyone has potential to go and has potential to succeed in college. The thing is like you have to apply yourself. You can't go into college saying you're here and you made it. You have to realize that once you're there, there's still more work to be done. You have to keep going." Logan's pride in his accomplishment, enrolling in a 4-year college, is evident, as is his awareness of the need to resist complacency. He knows that he must keep working to be successful; this is a concrete understanding of the need for persistence. Naomi, a first-generation matched urban student,

describes her persistence as something that's always made her different from her family: "I've always been determined and I don't know... I've never really been deterred off my path." She anticipates that this skill will help her be successful in college.

Academic Task Value

Students articulated their perception that you need to be focused on school and dedicated to the work of college in order to be successful. Several students deride those who go to college simply to have fun or party, which they consider an indication of privilege. Richard, a rural first-generation undermatched student, described his sense of needing to wait to enroll in college because he does not yet feel prepared to make the most of the experience. He asserts: "I think a lot of people go to college, cuz they just think they need to. And just partying, having fun, school and everything else but I don't know. I wanta be someone who sticks on the grades. I don't wanta go to college and waste my time going. I wanta go there and do the best I can." Lauren, an urban matched student echoes this sentiment, as someone who feels prepared to enter college: "You shouldn't go to college if you just want to party. But I have that, like, want for education and just to move forward I guess." As a matched student, Lauren articulates her sense that she possesses the "want for education" and is prepared to take advantage of the opportunity, in contrast to Richard's description of himself as not feeling quite ready.

Self-efficacy

Students' perceptions of their own abilities impact their postsecondary aspirations. Brooke, a rural, first-generation, matched student, asserts that she has the skills she'll need in college: "I think you have to be motivated. You have to have like the drive in you. Like me, I think I'll do well in college even though I'm nervous but I definitely really wanta go for a reason. If people are going just to go or just because, you know, everyone else is going or

because my friend's going to this college so I'm gonna go, then I don't think, I don't think they'll even do good. Cuz they don't care, they're just going just to have fun." Ariana, a rural matched student shares her sense of her ability to succeed in college: "it'll be hard. I won't say that it won't be hard, but I think I can do it. I can do it. I'm hard working and if I have my mind set on something, I can't be swayed. I'm like my dad. My dad, if he has a thought, you can't take it out of him."

In comparison, Dexter, a rural undermatched student describes his perception of his academic skills: "since I started high school, I was always worried about being the kid that might not graduate. I've always had poor work ethic, I guess, as far as school work goes. Give me anything else to do and I'll get it done." Nicole, another rural undermatched student, describes her perception of college-level work: "I expect it to not be easy but I'm not like going in there all scared that it's gonna be super hard cuz if you do that, you're gonna just psych yourself out and then do the worst. So I'm going in there really optimistic, expecting it to be, you know, work, but put my best effort in so I get super good grades." Her optimism, while important, will likely be insufficient for college success. So we see that while both undermatched and matched students describe the importance of self-efficacy, their assessments of themselves and their skills vary considerably.

Help-seeking

Comparing undermatched and matched students, there are similarities in their help-seeking strategies. While undermatched students describe their determination to be successful, they often appear unwilling to seek help, especially from those outside of their networks. Joe, a rural undermatched student relied exclusively on information from his accounting teacher, who suggested the one school to which Joe applied and was accepted. When asked how he would

cope if college got hard, he replied “I’ll just basically buckle my seatbelt and strap down.” Many matched and undermatched students shared that they conducted the entire college search independently, “just figuring it out on their own”. Cindy, an urban matched student, shares her sense that applying to college is something commonplace. When asked if she had anybody to talk to about college, she replied: “I had like people I could talk to but I feel like I could, I could’ve done it myself. Like, it’s not that hard. People do it all the time.”

This bootstraps mentality, rooted in a working-class culture, often fails to serve these students in the college search process, and may do them a disservice once they get to college. Indeed, it appears that both matched and undermatched students could benefit from more actively seeking help; perhaps the biggest difference between matched and undermatched students is not their approach to help-seeking, but the availability and quality of help in their networks. Robert, a rural undermatched student articulates his frustration that his parents didn’t have more college information: “Yeah, they don’t really know as much as I’d like them to know.” Instead, he resorts to “just kinda figuring it out.” Additionally, this aversion to help-seeking seems more prevalent among rural students; of the eleven students who exhibited this trait, only two of them were from urban schools.

Qualitative Summary

It is clear from the qualitative data that students have internalized the societal norm of college-for-all. They have received the message that they are expected to go to college from their parents, teachers, and guidance counselors. However, some students appear to be wrestling with the implications of this norm, especially those undermatched students, who question whether or not they have the noncognitive skills that they associate with collegiate success. Students’ perceptions of the importance of these skills, as well as their assessment of their own

noncognitive skills, seem to play a role in their postsecondary aspiration development. It is evident from the data that college knowledge is lacking in these students' social networks; students have dire misperceptions about the differences between postsecondary options, which have real consequences when combined with their misunderstandings about college costs. Lastly, we see that there are differences between rural and urban students with regard to help-seeking behavior.

This leads to the question of whether these themes are observable in a national dataset. Do students' noncognitive skills influence their college search behaviors? Does the presence or absence of these skills predict undermatch? Does the impact of these skills differ between rural and urban students in a national dataset?

Quantitative Analysis Plan

Table 2 presented the prevalence of match, undermatch and overmatch for the quantitative sample, facilitating comparison with the qualitative sample. However, it is important to note the application and enrollment behavior in more detail. Table 3 presents this closer look. Female students appear to apply to undermatch schools more commonly than their male peers, and males are more apt to be overmatched. This may be, as is the case in the qualitative data, because many overmatched students are recruited as student athletes. Racial differences are apparent in the frequency of severe undermatch applications as well as undermatch enrollment. Comparing first-generation students with those whose parents have any college education, there are significant differences in most categories of application and enrollment behavior. Lastly, more rural students apply and enroll in undermatch and severe undermatch institutions than their urban peers.

Table 3: Demographics of Quantitative Sample, by Match Designation

Table 3: Demographics of Quantitative Sample, by Match Designation							
	Application Behavior		Enrollment Behavior				
	Undermatch	Severe Undermatch	Matched	Undermatched	Severe Undermatch	Overmatched	Total
Gender							
Male	0.21	0.20	0.24	0.49	0.42	0.05	1056
Female	0.26	0.22	0.23	0.53	0.43	0.04	1464
Difference	***	*ns*	*ns*	*ns*	*ns*	*	
Race							
White	0.25	0.25	0.23	0.54	0.44	0.03	1655
Minority	0.22	0.15	0.26	0.46	0.41	0.06	865
Difference	*ns*	***	*	***	*ns*	**	
Parental Education							
First-generation student	0.25	0.29	0.17	0.01	0.53	0.05	505
Parent with some education	0.24	0.25	0.20	0.53	0.47	0.04	895
Parent with BA/+	0.23	0.15	0.29	0.47	0.34	0.06	1120
Difference	*ns*	***	***	**	***	**	
Urbanicity							
Rural	0.29	0.30	0.16	0.59	0.54	0.02	461
Urban	0.20	0.16	0.28	0.46	0.34	0.07	782
Difference	***	***	***	***	***	***	
Total	605	544	595	1814	1076	111	2520

*** p<0.01, ** p<0.05, * p<0.1

Data source: Educational Longitiduinal Study 2002, NCES

Note: Numbers presented are means. Undermatch application indicated that the most selective institution that the student applied to was one level below his/her eligibility as determined by the rubric developed by Roderick et al. (2006). Severe undermatch application indicates that the most selective institution that the student applied to was two levels below his/her eligibility determined by the Roderick et al (2006) rubric. Matched students are enrolled at institutions which match their eligibility. Undermatched students are enrolled in institutions which are one level below their eligibility. Severely undermatched students are enrolled in institutions which are two levels below their eligibility. Overmatch students are enrolled in institutions which are at least one level above their determined eligibility. Differences between groups are accomplished through two-tailed t-test of equivalence of means. Difference within parental education refers to first-generation students compared to students whose parents have any college education.

Using the eligibility designations from the Roderick et al. (2006) rubric and the noncognitive constructs developed from available variables on the base year student survey, I employ a series of logistic regressions to identify the main determinants of undermatch and severe undermatch in this sample. Standard errors are clustered at the school level to account for the nested nature of the data.

The model is specified as:

$$\text{Ln}\left(\frac{p(undermatch)}{1-p(undermatch)}\right) = \beta_0 + \beta_1\text{female} + \beta_2\text{minority} + \beta_3\ \text{low-income} + \beta_4\text{rural} + \beta_5\text{urban} + \beta_6\text{firstgen} + \beta_7\text{somecollegeparent} + \beta_8\text{GenEdTrack} + \beta_9\text{CollegePrepTrack} + \beta_{10}\ \text{BA expectation in } 10^{\text{th}}\text{ grade} + \beta_{11}\ \text{BA expectation in } 12^{\text{th}}\text{ grade} + \beta_{12}\text{IB/AP} + \beta_{13}\text{Numberapplications} + \beta_{14}\text{Grit} +$$

β_{15}Self-efficacy + β_{16}Helpseeking + e, for rural, urban, female, minority, low-income, and first-generation subsamples.

Quantitative Results

Predicting Undermatch

The full results of both the undermatch and severe undermatch models are in Appendix D and E. Appendix D presents results from the series of logistic regressions predicting undermatch with the full and subgroup samples. The full results suggest that minority students are less likely than their white peers to undermatch (OR= 0.76, $p<0.05$). Urban students are also significantly less likely than their rural and suburban peers to undermatch, in the full sample (OR=0.81, $p<0.10$) and in the first-generation sample (OR=0.47, $p<0.05$). Students reporting that they are enrolled in the general education track in their high schools are significantly more likely to undermatch, in the full sample (OR=1.70, $p<0.10$), and in the urban (OR=3.71, $p<0.01$) and female (OR=2.27, $p<0.05$) subsamples. The most consistent finding in this model is that the number of applications that students submit have a strong negative influence on their odds of undermatching in the full sample (OR=0.86, $p<0.01$) and nearly all subsamples. Lastly, the only noncognitive factor which has a significant impact is help-seeking, which reduces the likelihood of undermatch in the first-generation subsample (OR=0.44, $p<0.10$).

Appendix E presents the full results from the same logistic regression model predicting severe undermatch. These results suggest that urban students are also less likely to be severely undermatched than their rural or suburban peers in the full sample (OR=0.38, $p<0.01$), and in the female subsample (OR=0.64, $p<0.01$). In the full sample, first-generation students are less likely to be severely undermatched (OR=0.49, $p<0.01$), but in the rural and female samples they are more likely to be so (OR=1.91, $p<0.10$; OR=1.42, $p<0.10$). Similarly, although students whose

parents have some college are less likely to be severely undermatched in the full sample (OR=0.31, p<0.01), these students are more likely to be severely undermatched in urban subsample (OR=1.47, p<0.05). The same direction is true in both the female and rural subsamples, but these do not reach statistical significance. The most consistent finding in this model is the significantly negative influence that 12th grade BA expectation has on severe undermatch in the full sample (OR= 0.38, p<0.01) and all subsamples. Number of applications is again a strong negative predictor for severe undermatch in the full sample (OR=0.84, p<0.01), and nearly all subsamples. The only noncognitive skills seem to have an impact within the minority subsample in this model. Grit appears to have a positive significant impact on severe undermatch (OR=1.67, p<0.10), and self-efficacy seems to reduce the likelihood of severe undermatch (OR=0.46, p<0.05).

Table 4 presents marginal effects for selected results of the undermatch models. Marginal effects show the change in probability when the predictor or independent variable increases by one unit. Hence, we can see that being a female rather than male minority student yields an 8 percent increase in the probability of undermatch (p<0.05). Urban students are less likely than suburban and rural students to be severely undermatched in the female (7%, p<0.10), low income (10%, p<0.05), and first-generation (16%, p<0.05) subsamples. We also observe that increasing the number of applications appears to consistently reduce the likelihood of undermatch, for nearly all subgroups. Lastly, we see that increasing help-seeking behavior among rural students seems to reduce their likelihood of undermatch by 18% (p<0.10).

Table 4: Selected Contributing Factors to Undermatch, Average Marginal Effects

Table 4: Selected Contributing Factors to Undermatch, Average Marginal Effects							
	Full	Rural	Urban	Female	Minority	Low Income	First-gen
Demographics							
Female	0.03	0.04	0.00		0.08**	0.01	-0.01
	(0.03)	(0.07)	(0.04)		(0.04)	(0.04)	(0.07)
Minority	-0.07**	-0.05	-0.07	-0.02		-0.06	-0.02
	(0.03)	(0.08)	(0.05)	(0.04)		(0.05)	(0.07)
Urban	-0.05			-0.07*	-0.08	-0.10**	-0.16**
	(0.03)			(0.04)	(0.05)	(0.05)	(0.07)
College Preparation							
General Ed Track	0.13*	0.04	0.31**	0.19**	0.11	0.16	0.24*
	(0.07)	(0.19)	(0.11)	(0.10)	(0.12)	(0.11)	(0.14)
Number of Applications	-0.04***	-0.03	-0.03***	-0.04***	-0.04***	-0.04***	-0.03**
	(0.01)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Noncognitive Skills							
Grit	0.00	0.14	0.12	-0.03	-0.06	-0.06	0.02
	(0.05)	(0.15)	(0.09)	(0.07)	(0.08)	(0.09)	(0.13)
Self-Efficacy	0.07	-0.02	-0.02	0.06	0.13	0.04	0.06
	(0.06)	(0.15)	(0.11)	(0.08)	(0.09)	(0.10)	(0.15)
Help-seeking	-0.03	0.01	0.02	-0.09	0.07	-0.12	-0.18*
	(0.04)	(0.11)	(0.07)	(0.05)	(0.07)	(0.07)	(0.09)
N	1444	212	515	828	512	487	238

Data Source: Educational Longitudinal Study of 2002, NCES

*** p<0.01, ** p<0.05, * p<0.1

Note: Robust standard errors, in parentheses, are clustered at the school level. General Education Track is self-reported on the base year student survey. Grit is a composite scaled indicator composed of BYS89J, BYS89O, BYS89S, BYS89T, and BYS89V on the base-year student survey. Self-efficacy is a composite scaled indicator composed of BYS89D, BYS89E, BYS89G, BYS89N, and BYS89Q on the base-year student survey. Help-seeking is a composite scaled indicator composed of BYS59A, BYS59B, BYS59D, BYS59E, and BYS59G on the base year student survey. Severe undermatch is set to missing in this model, which reduces the Ns.

Table 5 presents marginal effects for selected results of the severe undermatch models, using the same covariates to predict severe undermatch in the full sample as well as subgroups. In this analysis, rural students in the minority subgroup are 11% less likely to severely undermatch than their urban or suburban peers ($p<0.10$). Urban students are 8% less likely to be severely undermatched in the full sample ($p<0.01$), and are 10% less likely in the female subgroup ($p<0.01$). As one might expect, first generation students are 11% more likely to be severely undermatched ($p<0.01$) and those whose parents only have some college are 7% more likely to be severely undermatched ($p<0.01$). This time we see that 12th grade BA expectation is a strong negative predictor for severe undermatch, decreasing the likelihood 21% for the full

sample ($p<0.01$) and all subgroups. Indeed, while many students' aspirations are attenuated by their senior year, it appears that maintaining the expectation of attaining a baccalaureate degree can be a significant deterrent for severe undermatch. We see again that the number of college applications students submit is a strong negative predictor of this degree of undermatch, decreasing the likelihood by 4% for the full sample ($p<0.01$) and for nearly all subgroups. This is consistent with the undermatch analysis and other literature (Pallais, 2013). This finding for both undermatch and severe undermatch suggests that we might have some leverage on this issue by better understanding the factors influencing students' application behavior.

Predicting the Number of Applications

This prompts another series of regressions predicting the number of college applications submitted, including noncognitive variables and the standard controls. Average marginal effects are presented in Table 6. This analysis indicates that minority students are consistently and significantly more likely than White students to apply to more colleges; 47% in the full sample ($p<0.01$) and 76% more likely within the first-generation student sample ($p<0.01$).

Table 5: Selected Contributing Factors to Severe Undermatch, Average Marginal Effects

Table 5: Selected Contributing Factors to Severe Undermatch, Average Marginal Effects							
	Full	Rural	Urban	Female	Minority	Low Income	First-gen
Demographics							
Minority	0.02	-0.11*	0.10**	0.02		-0.05	-0.02
	(0.02)	(0.06)	(0.04)	(0.03)		(0.03)	(0.05)
Rural	0.05			0.07*	-0.01	0.03	0.06
	(0.03)			(0.04)	(0.06)	(0.04)	(0.05)
Urban	-0.08***			-0.10***	-0.03	-0.07*	-0.10*
	(0.03)			(0.03)	(0.04)	(0.04)	(0.05)
First Generation Student	0.11***	0.14*	0.07	0.08*	0.06	0.04	
	(0.03)	(0.07)	(0.06)	(0.04)	(0.06)	(0.06)	
Parent w/some college	0.07***	0.03	0.08*	0.05	-0.01	-0.01	
	(0.02)	(0.05)	(0.04)	(0.03)	(0.05)	(0.06)	
College Preparation							
12th grade BA expectation	-0.21***	-0.35**	-0.22***	-0.24***	-0.17***	-0.23***	-0.30***
	(0.03)	(0.05)	(0.04)	(0.03)	(0.04)	(0.04)	(0.06)
Number of applications	-0.04***	-0.03	-0.02**	-0.04***	-0.03***	-0.04***	-0.04***
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Noncognitive Skills							
Grit	0.05	0.13	0.02	0.04	0.12*	0.03	-0.02
	(0.04)	(0.08)	(0.07)	(0.05)	(0.06)	(0.06)	(0.08)
Self-Efficacy	-0.07	0.02	-0.05	-0.04	-0.18**	-0.03	0.02
	(0.04)	(0.10)	(0.07)	(0.05)	(0.07)	(0.07)	(0.09)
Help-seeking	0.01	0.07	-0.02	-0.01	0.00	-0.06	-0.07
	(0.03)	(0.07)	(0.05)	(0.04)	(0.05)	(0.05)	(0.07)
N	2520	461	782	1464	865	970	505

Data Source: Educational Longitudinal Study of 2002, NCES

*** p<0.01, ** p<0.05, * p<0.1

Note: Robust standard errors, in parentheses, are clustered at the school level. 12th grade BA expectation is self-reported on the first follow-up student survey. Grit is a composite scaled indicator composed of BYS89J, BYS89O, BYS89S, BYS89T, and BYS89V on the base-year student survey. Self-efficacy is a composite scaled indicator composed of BYS89D, BYS89E, BYS89G, BYS89N, and BYS89Q on the base-year student survey. Help-seeking is a composite scaled indicator composed of BYS59A, BYS59B, BYS59D, BYS59E, and BYS59G on the base year student survey.

Unsurprisingly, first-generation college students, and those whose parents have some college, are significantly more likely to apply to fewer colleges than their peers whose parents have a BA; first-generation students apply to 33% fewer schools ($p<0.001$) in the full sample and 41% fewer in the female sample ($p<0.05$). Students who maintain their BA expectation into their senior year of high school and students who have taken IB or AP courses are more likely to apply to more colleges. Students reporting the expectation to attain a BA in their 12th grade year apply to 67% more schools than students without that articulated expectation in the full sample

($p<0.001$). Students who took at least one IB or AP course applied to 24% more schools than their peers in the full sample ($p<0.01$). Among noncognitive skills, grit has a significant effect in the full sample, with "gritty" students applying to 27% more schools ($p<0.05$). Lastly, the noncognitive trait of help-seeking emerges as a significant predictor of more college applications, increasing by 45% the number of applications for the full sample ($p<0.01$) and 66% for the rural sample ($p<0.01$).

Table 6: Selected Contributing Factors to Number of Applications, Average Marginal Effects

Table 6: Selected Contributing Factors to Number of Applications, Average Marginal Effects							
	Full	Rural	Urban	Female	Minority	Low Income	First-Gen
Demographics							
Female	0.17	0.09	-0.30*		-0.03	-0.09	-0.29
	(0.07)	(0.15)	(0.16)		(0.15)	(0.13)	(0.19)
Minority	0.47***	0.40*	0.49***	0.52***		0.71***	0.76***
	(0.07)	(0.21)	(0.17)	(0.11)		(0.14)	(0.23)
Urban	0.19**			-0.01	0.26	0.32*	0.39
	(0.07)			(0.13)	(0.16)	(0.16)	(0.25)
First Generation Student	-0.33***	-0.29	-0.25	-0.41**	-0.11	-0.17	
	(0.11)	(0.28)	(0.27)	(0.17)	(0.26)	(0.23)	
Parent w/some college	-0.32***	-0.32*	-0.43**	-0.24*	-0.10	-0.14	
	(0.08)	(0.17)	(0.20)	(0.12)	(0.18)	(0.23)	
College Preparation							
12th grade BA expectation	0.67***	0.50**	0.70***	0.74***	0.62**	0.55***	0.63**
	(0.10)	(0.21)	(0.24)	(0.15)	(0.23)	(0.16)	(0.24)
IB/AP coursework	0.24***	0.00	0.34*	0.27**	-0.05***	0.40***	0.23
	(0.07)	(0.16)	(0.18)	(0.11)	(0.15)	(0.13)	(0.20)
Noncognitive Skills							
Grit	0.27**	0.47	0.42	0.03	0.37	0.40	0.17
	(0.13)	(0.32)	(0.30)	(0.18)	(0.29)	(0.25)	(0.35)
Self-Efficacy	-0.09	-0.41	0.00	0.12	-0.37	-0.35	-0.18
	(0.14)	(0.42)	(0.34)	(0.21)	(0.33)	(0.29)	(0.42)
Help-seeking	0.45***	0.66***	0.58**	0.41**	0.34	0.33*	0.37
	(0.11)	(0.20)	(0.23)	0.04	(0.23)	(0.17)	(0.28)
N	2520	461	782	1464	865	970	505

Data Source: Educational Longitudinal Study of 2002, NCES

*** p<0.01, ** p<0.05, * p<0.1

Note: Robust standard errors, in parentheses, are clustered at the school level. 12th grade BA expectation is self-reported on the first follow-up student survey. International Baccalaureate (IB) and Advanced Placement (AP) courses are reported on the transcript in the first follow-up survey. Grit is a composite scaled indicator composed of BYS89J, BYS89O, BYS89S, BYS89T, and BYS89V on the base-year student survey. Self-efficacy is a composite scaled indicator composed of BYS89D, BYS89E, BYS89G, BYS89N, and BYS89Q on the base-year student survey. Help-seeking is a composite scaled indicator composed of BYS59A, BYS59B, BYS59D, BYS59E, and BYS59G on the base year student survey.

Discussion

Much of the recent work on noncognitive skills has suggested that these skills, which in many cases have been found to be malleable (Farrington, et al., 2012), can serve as compensatory factors for low-income and minority students who may not have the social or cultural capital of their higher-income and white peers. However, weak associations between grit and self-efficacy and college search and enrollment behaviors were only observed for minority students, prompting some questions about this claim. Indeed, the only noncognitive skill that consistently had significant impact on students' application and enrollment behavior for nearly all subgroups was help-seeking. Students who sought advice about college from those in their social networks (e.g. teachers, coaches, counselors, parents, relatives) were significantly more likely to apply to more schools. This application behavior was consistently and significantly associated with lower incidence of severe undermatch, for all subgroups. Thus, while students associated noncognitive skills with college success in qualitative interviews, these skills did not emerge as strong predictors of a successful transition.

There are a number of possible explanations for this disconnect. One explanation is that students in the quantitative sample were asked about these skills in 10th grade, indicating their perception of their noncognitive skills relative to their high school courses, which may not reflect their self-perceptions about their ability to be successful in college. Indeed, in qualitative interviews, students consistently report that high school has not been academically challenging for them, so 10th graders' assessments of self-efficacy and grit may reflect this. Recognizing that students' perceptions of their competence is domain-specific, it makes sense that students might not generalize their experience of success in high school to college success. Hence, this is

perhaps not the best measure of noncognitive skills relative to college, but the only readily available measure in these data.

Additionally, these measures rely on students' self-report, which may be less reliable and reflect students' aspirations rather than their actual behavior. As we would expect, students rate themselves highly on the dichotomous variables of grit (mean of 0.640) and efficacy (mean of 0.633). We would also expect the two variables to be highly correlated, which they are ($r=0.75$, $p<0.00$). This provides some support for the notion that students are rating themselves highly on what they perceive to be socially desirable qualities, in which case they may not be the most reliable indicators. Lastly, these may not be the noncognitive skills most relevant during the transition to college. While students in qualitative interviews reported that motivation, persistence, and hard work were what made someone "college material," and their internalization of these attributes differed according to their postsecondary destination, these characteristics may not be directly tied to their decision making process.

Instead, it seems that for many students, help-seeking behavior is driving the number of applications they submit, which in turn impacts the prevalence of undermatch in this population. Recognizing that help-seeking behavior is more prevalent among students with high self-esteem and academic self-efficacy, perhaps our efforts should be directed at developing these

characteristics in our low-income and minority students. Indeed, in a regression predicting help-seeking behavior[7], with the full set of controls, high academic-efficacy students are more likely to report seeking help in their social networks than students with low efficacy ($p<0.001$). This, combined with students' expressed unwillingness to seek help indicated in qualitative data, is of great concern. Students were reluctant to seek help because they believed that they should be able to do it on their own, or because they thought they needed to work harder. This is consistent with other literature on academic help-seeking (Knapp & Karabenick, 1988), which suggests that students are more likely to seek help from informal sources than formal ones, and that students tend to think that they should simply work harder rather than seeking help. This avoidance of help-seeking may be partly responsible for the prevalence of undermatch we observe among these students. Indeed, we see differences between rural and urban students with regard to help-seeking behavior which may be of some help in explaining the prevalence of undermatch in this population. In both the qualitative and quantitative samples ($\beta= -0.05$, $p<0.001$), rural students were less likely to report seeking help in their networks.

Limitations

As with any study, there are limitations to the current work. First, comparing my qualitative sample of high school seniors in 2013 to high school seniors from 2004 might be

[7] Available in Appendix F.

questioned. Much has changed in the intervening nine years, including a national economic collapse which had a profound effect on one of the major industries of the state in which I conducted this study. This meant profound job loss for many of these communities, and affected the way many students view their postsecondary options. This suggests yet another reason for the misalignment between the qualitative and quantitative data. Additionally, I am comparing a regional qualitative dataset with a national quantitative dataset. This may also impact the comparability of my findings.

Secondly, due to the nature of the qualitative study design, I had limited triangulation opportunities. I did not interview school personnel or parents, which might have lent significant strength to my qualitative findings. Similarly, I was the sole coder for the data, and therefore the interpretation is exclusively my own. Another coder might have interpreted student quotes differently and coded differently, which may have altered the conclusions of the study.

Lastly, because I am relying on an existing dataset to answer my quantitative research questions, I must find the best proxies for the variables I am trying to test. While I was able to find reasonable internal validity with three of the four noncognitive constructs I used in the analysis, it is unclear whether these are the best measures for the noncognitive traits I am studying. In addition, these are self-reported measures, obtained in the tenth grade year, used to explain students' perceptions in the twelfth grade year, which is perhaps dubious.

Implications for Practice and Policy

This study offers some additional explanation for students' decisions to undermatch. The qualitative analysis provides insight regarding students' perceptions of their readiness for college and the importance of noncognitive skills in postsecondary success. Students also reveal the extent to which they have internalized the college-for-all rhetoric, and the way this message has

affected their understanding the definition and purpose of college. It appears that this rhetoric has served to confuse students regarding the diversity of postsecondary options, and exacerbate the importance of college knowledge in their social networks. I observe that the low-income students in my sample rely heavily on their parents, teachers, and peers for information regarding their college options, and that these networks are failing to provide accurate or adequate advice.

The quantitative analysis serves to complement the qualitative study, providing some empirical support with a national sample for the role of noncognitive skills in the college search process. Through this analysis, we find evidence that highlights the importance of academic self-efficacy in influencing students' help-seeking, which in turn impacts their college application behavior, which affects undermatch. If we are aiming to reduce the frequency of undermatch among this population, it appears that targeting students' attitudes about asking for help regarding the college search process may be fruitful. In particular, we observe that rural students are averse to help-seeking, even within their networks. This aversion could be rooted in a working class notion that they should be able to do this on their own, and that looking for help is an admission of incompetence. It could also be related to their assessment that those in their social networks do not have the information or expertise that they need. Recognizing that students still rely primarily on their social networks for this help, we also need to improve the quality of information in these networks.

While many college access programs aim to provide additional help and support to students during this process, they may only be reaching the students most likely to ask for help. Students with lower academic self-efficacy may be the ones most in need of the assistance offered by these programs, but are least likely to take advantage of them. Instead, perhaps these programs need to work with teachers to target students' academic self-efficacy, which may

impact their willingness to seek help. Only then can these programs reach the students most in need of the information and support they provide, and move the needle on undermatch.

APPENDICES

Appendix A: Comparing the Full and Restricted Quantitative Samples

Table 7: Comparing the Full and Restricted Quantitative Samples

	Full Sample			Restricted Sample			Diff
	N	Mean	SD	N	Mean	SD	
Demographics							
Female	3707	0.55	(0.50)	2520	0.58	(0.49)	***
Minority	3699	0.36	(0.48)	2520	0.34	(0.47)	**
Low Income	3699	0.40	(0.49)	2520	0.38	(0.49)	*
Rural	3848	0.18	(0.39)	2520	0.18	(0.39)	*ns*
Urban	3848	0.32	(0.47)	2520	0.31	(0.46)	*ns*
First Generation Student	3703	0.20	(0.40)	2520	0.20	(0.40)	*ns*
Parent w/ some college	3703	0.36	(0.48)	2520	0.36	(0.48)	**
Parent w/BA+	3703	0.44	(0.50)	2520	0.44	(0.50)	***
College Preparation							
General Ed Track	3821	0.31	(0.46)	2520	0.30	(0.46)	**
College Prep Track	3821	0.63	(0.48)	2520	0.65	(0.48)	***
10th grade BA expectation	3848	0.83	(0.37)	2520	0.89	(0.31)	***
12th grade BA expectation	3848	0.81	(0.39)	2520	0.83	(0.37)	***
IB/AP classes	3848	0.25	(0.43)	2520	0.27	(0.44)	***
Eligible for Highly Selective	3848	0.48	(0.50)	2520	0.50	(0.50)	***
Eligible for Somewhat Selective	3848	0.42	(0.49)	2520	0.41	(0.49)	*ns*
Eligible for Nonselective	3848	0.08	(0.27)	2520	0.07	(0.25)	***
Eligible for 2-yr School	3848	0.02	(0.14)	2520	0.01	(0.12)	***
Number of applications	3504	2.54	(1.88)	2520	2.59	(1.93)	**
Undermatch Behaviors							
Undermatch application	3848	0.22	(0.41)	2520	0.24	(0.43)	***
Severe Undermatch application	3848	0.29	(0.45)	2520	0.22	(0.41)	***
Enrolled in Match school	3848	0.21	(0.41)	2520	0.24	(0.42)	***
Enrolled in Undermatch school	3848	0.27	(0.44)	1444	0.29	(0.46)	***
Enrolled in Severe Undermatch school	3848	0.48	(0.50)	2520	0.43	(0.49)	***
Enrolled in Overmatch school	3848	0.04	(0.20)	2520	0.04	(0.21)	*ns*
Noncognitive Skills							
Grit	2874	0.63	(0.38)	2520	0.64	(0.38)	***
Self-Efficacy	2920	0.63	(0.34)	2520	0.63	(0.34)	*
Help-seeking	3382	0.42	(0.31)	2520	0.43	(0.31)	*ns*

Data Source: Educational Longitudinal Study 2002, NCES

Note: Standard deviations in parentheses. Curricular track (general education, college preparatory) is reported by students on the base year student survey. 10th and 12th grade BA expectations are reported on the base year and first follow-up student survey, respectively. Eligibility for college selectivity is determined by the rubric developed by Roderick et al. (2006). Difference is comparison between full and restricted sample means through two-tailed t-tests of equivalence of means.

*** p<0.01, ** p<0.05, * p<0.1

Appendix B: Rubric for Determining Match, based on students' GPA and ACT score

Table 8: Rubric for Determining Match, based on students' GPA and ACT score

	2.0 or less	2.1-2.5	2.6-3.0	3.1-3.5	3.6-4.0
Missing ACT	**2-yr** colleges	**Nonselective** 4-yrs	**Somewhat selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs
<18	**2-yr** colleges	**Nonselective** 4-yrs	**Somewhat selective** 4-yrs	**Somewhat selective** 4-yrs	**Selective** 4-yrs
18-20	**Nonselective** 4-yrs	**Somewhat selective** 4-yrs	**Somewhat selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs
21-23	**Somewhat selective** 4-yrs	**Somewhat selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs
24+	**Somewhat selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs	**Very selective** 4-yrs	**Very selective** 4-yrs

Source: Roderick, Nagoaka, & Allensworth (2006). From High School to the Future: A first look at Chicago Public School graduates' college enrollment, college preparation, and graduation from four-year colleges. Chicago Postsecondary Transition Project.

Appendix C: Descriptive Statistics for the Quantitative Sample

Table 9: Descriptive Statistics for the Quantitative Sample

	Full Sample		Rural		Urban		R/U Diff[a]
Demographics							
Female	0.58	(0.49)	0.61	(0.49)	0.58	(0.49)	*ns*
Minority	0.34	(0.47)	0.17	(0.38)	0.49	(0.50)	***
Low Income	0.38	(0.49)	0.49	(0.50)	0.36	(0.48)	***
Rural	0.18	(0.39)					
Urban	0.31	(0.46)					
First Generation Student	0.20	(0.40)	0.30	(0.46)	0.16	(0.37)	***
Parent w/ some college	0.36	(0.48)	0.37	(0.48)	0.34	(0.47)	*ns*
Parent w/BA+	0.44	(0.50)	0.33	(0.47)	0.49	(0.50)	***
College Preparation							
General Ed Track	0.30	(0.46)	0.33	(0.47)	0.26	(0.44)	**
College Prep Track	0.65	(0.48)	0.63	(0.48)	0.67	(0.47)	*ns*
10th gr. BA expectation	0.89	(0.31)	0.87	(0.33)	0.90	(0.31)	*ns*
12th gr. BA expectation	0.83	(0.37)	0.76	(0.43)	0.85	(0.36)	***
IB/AP classes	0.27	(0.44)	0.19	(0.39)	0.31	(0.46)	***
Eligible for Highly Selective	0.50	(0.50)	0.54	(0.50)	0.47	(0.50)	**
Eligible for Somewhat Selective	0.41	(0.49)	0.40	(0.49)	0.42	(0.49)	*ns*
Eligible for Nonselective	0.07	(0.25)	0.05	(0.22)	0.08	(0.28)	**
Eligible for 2-yr School	0.01	(0.12)	0.01	(0.08)	0.02	(0.13)	*
Number of applications	2.59	(1.93)	2.20	(1.58)	2.88	(2.09)	***
N	2520		461		782		

Data Source: Educational Longitudinal Study 2002, NCES

Note: Curricular track (general education, college preparatory, vocational) is reported by students on the base year student survey. 10th and 12th grade BA expectations are reported on the base year and first follow-up student survey, respectively. Eligibility for college selectivity is determined by the rubric developed by Roderick et al. (2006).

[a]R/U diff is comparison between rural and urban means through two-tailed t-tests of equivalence of means.

Standard deviations in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Appendix D: Contributing Factors to Undermatch, full results from a series of subgroup Logistic Regressions (Odds Ratios)

Table 10: Contributing Factors to Undermatch, full results from a series of subgroup Logistic Regressions (Odds Ratios)

	Full Sample	Rural	Urban	Female	Minority	Low Income	First-gen
Demographics							
Female	1.15	1.19	0.98		1.43*	1.02	0.96
	(0.13)	(0.34)	(0.19)		(0.27)	(0.19)	(0.29)
Minority	0.76**	0.80	0.73	0.91		0.76	0.92
	(0.09)	(0.27)	(0.15)	(0.15)		(0.15)	(0.29)
Low Income[a]	1.23	1.49	1.00	1.07	1.44		*0.55*
	(0.19)	(0.66)	(0.25)	(0.22)	(0.37)		(0.30)
Rural	1.15			1.11	1.18	0.94	0.65
	(0.19)			(0.24)	(0.41)	(0.25)	(0.24)
Urban	0.81*			0.74*	0.71	0.65*	0.47**
	(0.10)			(0.12)	(0.15)	(0.15)	(0.17)
First-generation[b]	1.35	0.75	1.37	1.42	1.07	1.39	
	(0.27)	(0.40)	(0.39)	(0.37)	(0.34)	(0.50)	
Parent w/ some college	1.17	1.08	1.29	1.35	0.83	1.37	
	(0.16)	(0.40)	(0.26)	(0.25)	(0.20)	(0.48)	
College Preparation							
General Ed Track	1.70*	1.18	3.71***	2.27**	1.62	2.02	2.99
	(0.47)	(0.95)	(1.80)	(0.94)	(0.84)	(1.00)	(2.02)
College Prep Track	1.43	0.911	3.22**	1.87	1.38	1.84	2.47
	(0.38)	(0.73)	(1.46)	(0.73)	(0.66)	(0.81)	(1.48)
10th grade BA expectation	0.86	1.38	0.84	1.02	0.68	0.95	1.04
	(0.18)	(0.66)	(0.29)	(0.31)	(0.22)	(0.35)	(0.51)
12th grade BA expectation	1.10	0.84	0.76	1.12	0.86	0.65	0.19**
	(0.21)	(0.43)	(0.27)	(0.32)	(0.27)	(0.22)	(0.14)
IB/AP courses	1.10	1.41	1.20	1.00	0.75	1.15	1.07
	(0.13)	(0.51)	(0.23)	(0.15)	(0.15)	(0.25)	(0.33)
Number of applications	0.86***	0.89	0.86***	0.85***	0.85***	0.85***	0.86**
	(0.03)	(0.10)	(0.04)	(0.03)	(0.04)	(0.04)	(0.06)
Noncognitive Skills							
Grit[c]	1.00	1.85	1.67	0.88	0.76	0.79	1.09
	(0.22)	(1.16)	(0.67)	(0.26)	(0.27)	(0.32)	(0.66)
Self-efficacy[d]	1.33	0.90	0.93	1.31	1.72	1.19	1.32
	(0.33)	(0.59)	(0.43)	(0.44)	(0.70)	(0.54)	(0.92)
Help-seeking[e]	0.88	1.04	1.07	0.70	1.34	0.60	0.44*
	(0.15)	(0.48)	(0.34)	(0.16)	(0.39)	(0.19)	(0.19)
Constant	0.92	0.97	0.45	0.83	1.15	2.17	11.47**
	(0.34)	(0.99)	(0.27)	(0.42)	(0.71)	(1.42)	(12.72)
Obs	1444[f]	212	515	828	512	487	238

Robust standard errors, in parentheses, are clustered at the school level.

*** p<0.01, ** p<0.05, * p<0.1

Note: Undermatch is enrolling in a postsecondary institution which is one level below one's eligibility, as determined by the CCSR rubric.

[a]Low income students are those in the lowest SES quartile.

[b]First-generation students are those whose parents have never enrolled in college.

[c]Grit is a composite scaled indicator composed of BYS89J, BYS89O, BYS89S, BYS89T, and BYS89V on the base-year student survey.

[d]Self-efficacy is a composite scaled indicator composed of BYS89D, BYS89E, BYS89G, BYS89N, and BYS89Q on the base-year student survey

[e]Help-seeking is a composite scaled indicator composed of BYS59A, BYS59B, BYS59D, BYS59E, and BYS59G on the base year student survey

[f] Severely undermatched students are set to missing for this model, which explains the change in observations.

Appendix E: Contributing Factors to Severe Undermatch, full results from a series of subgroup Logistic Regressions (Odds Ratios)

Table 11: Contributing Factors to Severe Undermatch, full results from a series of subgroup Logistic Regressions (Odds Ratios)

	Full Sample	Rural	Urban	Female	Minority	Low Income	First-gen
Demographics							
Female	0.08	1.31	0.90		1.01	1.12	1.03
	(0.09)	(0.30)	(0.15)		(0.14)	(0.17)	(0.22)
Minority	0.10	0.61*	1.62**	1.12		0.79	0.93
	(0.11)	(0.17)	(0.32)	(0.15)		(0.12)	(0.20)
Low Income	0.09	1.10	0.99	1.19	0.91		1.17
	(0.12)	(0.30)	(0.22)	(0.18)	(0.18)		(0.43)
Rural	0.22			1.361*	0.95	1.16	1.32
	(0.14)			(0.23)	(0.23)	(0.22)	(0.33)
Urban	0.38***			0.64***	0.90	0.72*	0.62*
	(0.13)			(0.10)	(0.16)	(0.14)	(0.16)
First-generation	0.49***	1.91*	1.40	1.42*	1.29	1.21	
	(0.15)	(0.65)	(0.39)	(0.27)	(0.33)	(0.33)	
Parent w/some college	0.31***	1.18	1.47**	1.23	0.97	0.97	
	(0.11)	(0.31)	(0.29)	(0.18)	(0.19)	(0.27)	
College Preparation							
General Ed Track	0.85	1.57	1.34	0.95	0.86	0.93	0.98
	(0.17)	(0.84)	(0.40)	(0.30)	(0.27)	(0.29)	(0.40)
College Ed Track	0.78	1.20	1.31	0.90	0.73	0.64	0.494*
	(0.15)	(0.64)	(0.38)	(0.29)	(0.21)	(0.20)	(0.20)
10th grade BA expectation	0.73**	0.80	0.82	0.72	0.83	0.88	0.78
	(0.11)	(0.31)	(0.22)	(0.15)	(0.20)	(0.19)	(0.25)
12th grade BA expectation	0.38***	0.19***	0.35***	0.33***	0.47***	0.36***	0.24***
	(0.05)	(0.06)	(0.07)	(0.05)	(0.09)	(0.07)	(0.07)
IB/AP courses	0.79**	0.58*	1.06	0.82	0.81	0.81	0.93
	(0.09)	(0.17)	(0.20)	(0.12)	(0.14)	(0.13)	(0.21)
Number of applications	0.84***	0.87	0.91**	0.83***	0.89***	0.85***	0.82***
	(0.03)	(0.08)	(0.04)	(0.03)	(0.04)	(0.04)	(0.06)
Noncognitive Skills							
Grit	1.24	1.84	1.12	1.20	1.67*	1.15	0.92
	(0.21)	(0.76)	(0.35)	(0.27)	(0.46)	(0.33)	(0.37)
Self-efficacy	0.74	1.11	0.80	0.82	0.46**	0.86	1.11
	(0.14)	(0.53)	(0.29)	(0.20)	(0.14)	(0.28)	(0.50)
Help-seeking	1.03	1.37	0.93	0.96	1.01	0.76	0.71
	(0.14)	(0.44)	(0.24)	(0.17)	(0.23)	(0.17)	(0.24)
Constant	3.69***	2.39	1.15	4.07***	3.70***	6.30***	12.33***
	(0.95)	(1.42)	(0.46)	(1.69)	(1.52)	(2.76)	(7.68)
Obs	2,520	461	782	1,464	865	970	505

Data source: Educational Longitudinal Study 2002, NCES

Robust standard errors clustered at the school level

*** p<0.01, ** p<0.05, * p<0.1

Note: Undermatch is enrolling in a postsecondary institution which is one level below one's eligibility, as determined by the CCSR rubric. Low income students are those in the lowest SES quartile. First-generation students are those whose parents have never enrolled in college. Grit is a composite scaled indicator composed of BYS89J, BYS89O, BYS89S, BYS89T, and BYS89V on the base-year student survey. Self-efficacy is a composite scaled indicator composed of BYS89D, BYS89E, BYS89G, BYS89N, and BYS89Q on the base-year student survey. Help-seeking is a composite scaled indicator composed of BYS59A, BYS59B, BYS59D, BYS59E, and BYS59G on the base year student survey.

Appendix F: Contributing Factors to Help-seeking

Table 12: Contributing Factors to Help-seeking

	β	SE
Demographics		
Female	0.05***	(0.01)
Minority	0.03*	(0.01)
Low Income	0.00	(0.02)
Rural	-0.05***	(0.02)
Urban	0.01	(0.02)
First Generation Student	-0.02	(0.02)
Parents w/some college	0.01	(0.02)
College Preparation		
General Ed Track	-0.02	(0.03)
College Prep Track	0.03	(0.03)
10th grade BA expectation	0.07***	(0.02)
12th grade BA expectation	0.02	(0.02)
IB/AP coursework	0.01	(0.01)
Noncognitive Skills		
Grit	0.02	(0.02)
Self-Efficacy	0.09***	(0.03)
Constant	0.21***	(0.04)
N	2,520	

Data source: Educational Longitudinal Study 2002: NCES

Robust standard errors, in parentheses, are clustered at the school level.

*** p<0.01, ** p<0.05, * p<0.1

Note: Help-seeking is a composite scaled indicator composed of BYS59A, BYS59B, BYS59D, BYS59E, and BYS59G on the base year student survey. Low income students are those in the lowest SES quartile. First-generation students are those whose parents have never enrolled in college. Grit is a composite scaled indicator composed of BYS89J, BYS89O, BYS89S, BYS89T, and BYS89V on the base-year student survey. Self-efficacy is a composite scaled indicator composed of BYS89D, BYS89E, BYS89G, BYS89N, and BYS89Q on the base-year student survey.

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Chapter 2: Identity, Independence, and Information: Low-income Helicopter Parents and College Match

Introduction

It has long been known that parental involvement matters a great deal for student success. Parental involvement is typically understood as a product of parental education and resources. More educated parents tend to be more involved in their children's education, and have additional funds to pay for tutoring and other supplemental services to assist their children in school. The high school-to-college transition is no exception. Students whose parents attended postsecondary school have access to more college knowledge and information, and are more likely to take steps to align their ambitions, such as taking the ACT or AP courses. However, some parents are thought to be overly involved in their students' academic experience. These parents, sometimes called "helicopter" parents, "hover" around their children and intervene on their behalf, well into their children's college years. Scholars and others have expressed concern about these helicopter parents, arguing that their over-involvement is unhelpful to their children and serves to undermine their successful individuation and transition to independent adulthood. This is part of the landscape of "emerging adulthood," described by Arnett (2000) as an extended period of adolescence for youth in developed countries who frequently remain at home (or at college), do not have dependent children, and are not yet financially independent. While some literature suggests that this heavy parental involvement is an asset for students, others assert that this involvement will prevent youth from developing the independent living skills they need to be responsible adults.

This high level of parental involvement is explored in this paper as one factor which may contribute to our understanding of students' differing postsecondary pathways. As we aim to

improve the college-going rates among low-income, minority, and first generation college students, scholars seek to understand the source of the disparities we see between these students and their more privileged peers with regard to the transition to college. College enrollment and persistence rates are low among these groups, but even when these students do enroll in college, many fail to enroll in schools matched to their academic credentials. This phenomenon is known as undermatch. Although the prevalence of undermatch has gained national attention in recent years, there is still much we don't know about students' college choice. Undermatching is particularly prominent among geographically-isolated rural populations (Dillon & Smith, 2013; Smith, Pender & Howell, 2012; Hoxby & Avery, 2012), and corresponds to a longer time-to-degree, and higher dropout rates (Bowen, Chingos & McPherson, 2009). While many students begin at a two-year college with the intention of saving money on their first two years of school before transferring to a four-year school, only 15% of students who pursue this path complete a Bachelor's degree within six years (Shapiro et al., 2012). Scholars also find that undermatch happens primarily at the application stage, when students restrict their choice set (Bowen, et al., 2009; Roderick, et al., 2011).

While many scholars have studied the role that parents play in their students' college search and choice process, few have explored the influence of low-income parents. This qualitative study examines the role that low-income parents play in their students' postsecondary decision-making process. Pulling from interviews from 74 high school seniors from seven rural and urban low-income schools, this paper presents in-depth profiles of six students and their families which exemplify three different types of low-income parental involvement in college choice. Comparing rural and urban students from highly-involved families with various levels of parental education, this paper helps to illuminate the independent contributions of parental

education and resources. Specifically, this paper seeks to understand the values which underlie low-income parental involvement in rural and urban communities, the strategies they employ in supporting their students to make postsecondary decisions, and how these strategies affect students' college match. Understanding the role of parental involvement in these students' choice process can help us target interventions aimed at improving match.

Literature Review

With increased focus on improving educational attainment, especially among subgroups, scholars have attempted to understand college choice patterns among high school seniors. Low-income, minority, and rural students struggle to make these high stakes decisions. Additionally, many of these students' parents did not participate in the college application process, and thus are limited in their ability to provide guidance and support in this regard (Karcher, 2008; Sanchez et al., 1996). While many students rely on family and counselors for assistance in making academic, educational, and career decisions, students with limited family resources, including those in households where parents did not attend college and those in rural communities, often attend high schools with inadequate guidance resources (McClafferty et al., 2002). These students often lack access to role models and experiences that can help promote the transition to postsecondary education (Rosenbaum, 2001). Consequently, college access and persistence in higher education once enrolled, pose a significant challenge to these students.

Urban Schools

The bulk of the available undermatch literature is concerned with the urban population. There have been both qualitative and qualitative considerations of this issue. Freeman (1997) conducted focus groups with urban students to identify "why someone wouldn't go to college" and found that students described two categories of barriers: economic and psychological.

Economic barriers include the lack of funds and the perceived lack of job opportunities equal to higher education. Psychological barriers include the idea that college was never presented as a viable option by parents, teachers, and others, a general loss of hope, and the intimidation factor (not feeling like they could handle the responsibilities and workload, or feeling like they wouldn't belong). Additionally, the urban high school and counseling infrastructure is typically not one that effectively supports the college search process. Elite students in an inner city school are "less likely than their counterparts in a suburban school to have had access to college recruiters, are less likely to have visited a college campus, and less likely to have access to even the basic information necessary for college choice" (Freeman, 1997).

Quantitative analyses of this urban phenomenon have focused on the impact of the general lack of social and economic capital that these students possess. A study using the National Educational Longitudinal Study (NELS: 88), found that social capital was as important for African Americans and Latinos as academic ability in predicting college enrollment (Perna, 2000). These students may also lower their educational aspirations or self-select out of particular situations (e.g. not enroll in higher education) because these cultural norms are not passed down from their parents (Perna, 2000; Roderick, 2011).

Rural Schools

Rural low-income students face similar challenges in transitioning to college, and if they do matriculate to college rural students are less likely to complete college (United States Department of Agriculture, 2004). Research on rural education has identified several factors unique to rural communities that may contribute to the overall educational experiences of high school students, as well as factors that specifically relate to the college-going process for rural students. Rural students are more likely to have educational and occupational ambitions which

are lower that their non-rural peers (Cobb, McIntire & Pratt, 1989; Chenoweth & Galliher, 2004). When rural students have lower career ambitions, this lowers their expectations of educational attainment (Cobb, McIntire, & Pratt, 1989). Students in rural schools also face several other factors that may also contribute to the development and attainment of lower educational goals including poverty; lack of family and professional role models; lack of self-confidence; valuation of work over education; and lack of support/encouragement from influential individuals (Cobb, McIntire, & Pratt, 1989; Chenoweth & Galliher, 2004).

The geographical location of rural communities has been found to be influential in whether or not a student attends a postsecondary institution (Forbes, 2008; Gillie, Isenhour, & Rasmussen, 2006; Goetz & Rupasingha, 2006; Smith, Pender & Howell, 2012; Dillon & Smith, 2013). Very simply, these communities lack easy access to colleges compared with urban students, which may hinder rural students' interaction with institutions and may decrease the likelihood of students attending college. Rural students and their families are often conflicted between staying in their community and not pursuing higher education or leaving their community to pursue higher education (Chenoweth & Galliher, 2004).

Parental Involvement

There are two types of parental involvement traditionally considered in empirical work: parental involvement in school that takes place primarily at home, and parental contact and intervention at school. Lareau's (2000) work on parental involvement demonstrated that social and cultural capital in families shaped their relationships with school. Parents with less education and/or lower income were more likely to place responsibility for student achievement in the hands of the school and utilized more passive, home-based approaches to parental involvement; by contrast, higher-income and –educated parents were more likely to consider education a

partnership between home and school and therefore were more active in the school context. Given that this paper focuses on lower-income families, many of whom have little college education, I focus mainly on the parental involvement strategies employed in the home context.

Muller and Kerbow (1993) suggest that parental involvement at home is shaped by the available financial and community resources, the parent-child relationship, and the interest parents have in the education of their child. While parental behaviors such as checking homework and limiting TV time seem to affect student time on homework and TV time, these behaviors do not necessarily improve student academic achievement (Jeynes, 2007; Muller & Kerbow, 1993). More relevant are the norms that parents convey to their children about the importance of school and the broader community context within which these norms are reinforced. Parents' educational expectations are one manifestation of these values which shape parental involvement and have been shown to be key predictors for students' academic success (Horn & Nunez, 2000; Jeynes, 2007; Smith, et al., 1995). Parents with more education are more likely to articulate high educational expectations for their children (Gill & Reynolds, 2000). The context of the community also plays a key role in shaping the content of the educational messages students receive from their families. In communities where families know each other well, norms about educational attainment tend to be shared. This intergenerational closure can act to enforce community norms and values about school (Coleman, 1988; Muller & Kerbow, 1993). Recent work using the National Educational Longitudinal Survey and Child Development Supplement from the Panel Study for Income Dynamics confirms these findings (Robinson & Harris, 2013). The authors find that parental attitudes about education tend to be more important than behavioral forms of involvement. While talking about post-high school plans and maintaining rules about homework are effective for reading and math achievement for students

from families with less education, the authors found that parents' educational expectations were associated with increases in reading, math, and grades for most youth, regardless of social class. Talking with children about schooling in younger years seemed to be most important for children from lower-education families. However, the impact of many frequently touted parental involvement strategies (e.g. discussing school activities, helping with homework) tended to be insignificant or negative in these analyses.

Parental encouragement and support are recognized as critical contributors to the college predisposition, search, and choice process articulated by Hossler and his colleagues (2002). Parents' own education shapes their expectations for their children, which in turn impacts children's own aspirations (Hossler & Stage, 1992), as well as the nature of support that they are able to offer during this time. While these parents may hold high educational expectations for their youth, a key component of parental involvement, they are less likely to provide instrumental support to their children in the form of discussing college plans, going on college visits, or saving for college (Cabrera & La Nasa, 2000). Indeed, in the search phase students often rely heavily on parental experience. Students whose families have more college experience tend to develop more sophisticated understandings of college options and their costs, and make decisions with this deeper knowledge (Cabrera & La Nasa, 2000; Grodsky & Jones, 2007; McDonough, 1997). Low income parents, and those with less education, are also more likely to prefer for their children to stay closer to home, encouraging them to prioritize proximity of the school over the quality of the institution (Turley, 2006). For all of these reasons, students whose parents have less education are more likely to restrict their application set to only those schools with which they are familiar, overestimate the costs of college, and choose colleges poorly

matched to their academic qualifications, or undermatch (Bowen, Chingos, & McPherson, 2009; Grodsky & Jones, 2007; Roderick, et al., 2011).

Recently scholars have noted the rising prevalence of so-called "helicopter parents", those parents, often with advanced degrees and higher incomes, who are overly involved in their children's education. Given that the developmental task of late adolescence is in separating from parents and developing autonomy (Erikson, 1968), helicopter parenting has received a fair amount of criticism. Some scholars have asserted that while some parental involvement during the college years can be a great asset to students, parental over-involvement is related to lower self-efficacy (Bradley-Geist & Olson-Buchanan, 2014) and lower levels of overall well-being (LeMoyne & Buchman, 2011). However, other scholars maintain that students with overly involved parents report higher levels of satisfaction and engagement in their collegiate experience (Shoup, Gonyea, & Kuh, 2009). Perhaps the key moderator for this kind of parental involvement is the quality of the parent-child relationship. Coleman (1989) viewed social capital within the family as the product of the relationships between children and parents. Hence, scholars have considered how attachment relationships developed over time between parents and children can have implications throughout the life course, and particularly during big transitions such as going to college (Kenny & Donaldson, 1991). However, studies of helicopter parents have typically relied on samples of middle- and upper-income parents, with little consideration to how this high parental involvement may present in a low-income family.

This qualitative study considers the involvement of low-income parents in their children's college search and transition. The first research question is "Do we observe a helicopter-type involvement among low-income parents?" Next, considering the interaction between parental involvement and parental education, the study considers, "What does high

parental involvement look like in low-, medium-, and highly-educated low-income families?" The third question asks, "How does this high parental involvement affect students' autonomy and identity development regarding their college search process?" The final question, recognizing the unique cultural norms in rural and urban communities, is "Are there differences between rural and urban students with regard to the influence of parents during this transition?" These questions are explored through a qualitative case study analysis using interview data with high school seniors from low-income rural and urban communities.

Method

Participants

The sample is composed of the graduating senior classes of 2012 and 2013 from seven mid-Michigan high schools in low-income communities; four rural and three urban. Students were randomly sampled according to their ACT score[8] and gender. Twelve students were sampled from each school; 6 females and 6 males, 2 of whom scored in the "low" range (17-19) and 4 with scores in the "high" range (20-22). This restricted ACT range was chosen for a number of reasons. First, most undermatch literature samples very high achieving students, with ACT scores in the top decile. Instead, this sample represents students closer to the mean of ACT scores. In 2011 and 2012, when these students took the ACT, the national mean was 21.1 and 21

[8] Since 2007, the ACT has been compulsory in Michigan, taken by students in March of their junior year. This first ACT score was the one used when sampling students, regardless of future test retakes.

respectively, and the Michigan mean was 20 in both years. Sample school means ranged from 15.3 to 20.1 with an average of 18.2. In addition, these scores are right around the threshold of the ACT score required for admission to most four-year schools; the 25% score for moderately selective four-year schools is 18[9]. 108 students were sampled altogether: 24 sampled in Spring 2012 from a subsample of four schools, of which 11 were interviewed ; and 84 students were sampled from all seven schools in Spring 2013, of which 63 completed interviews. Follow-up interviews were conducted with a subsample of each cohort; 6 students in the 2012 class, and 13 students from the 2013 cohort (although 24 were sampled). The final sample includes 74 students, 19 of which were interviewed at two time-points.

These schools were selected because they were part of a larger research project already in progress. As a result, the author gained entry through the relationships with school personnel already established through the existing research project, which aided in developing trust with interview participants. In the case of two schools, the author had prior experience as a part-time college counselor in the building, which also helped students feel comfortable sharing their stories[10]. Students were interviewed at the school building, during the school day, typically during an elective or study hall period.

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[9] Per the Carnegie Foundation: classifications.carnegiefoundation.org/methodology/ugrad_profile.php
[10] None of the participants had been previously counseled by the author.

Measures

For the purposes of this study, students with high ACT scores who matriculate to 4-year schools and students with low ACT scores who enroll at 2-year schools are considered "matched". Students with low ACT scores who enroll at 4-year schools are considered "overmatched". Students with high ACT scores who enroll at 2-year schools, and any student with uncertain postsecondary plans in spring of their senior year are considered "undermatched". Table 13 displays demographic characteristics of the full qualitative sample.

Table 13: Demographics of Qualitative Sample, by Match Type

Table 13: Demographics of Qualitative Sample, by Match Type				
	Matched	Undermatched	Overmatched	Total
Gender				
Male	14	17	5	36
Female	18	15	5	38
Race				
White	18	24	4	46
Black	8	5	5	18
Hispanic	5	2	1	8
Asian	1	1	0	2
Parental Education				
First-generation student	16	8	0	24
Parent with some education	10	15	4	29
Parent with BA/+	6	9	6	21
Urbanicity				
Rural	14	20	4	38
Urban	18	12	6	36

Note: Match is a student with an ACT score in the 20-22 range enrolled in a 4-year school or a student with an ACT in the 17-19 range enrolled in a 2-year school. Undermatch is a student with an ACT score in the 20-22 range enrolled in a 2-year school or a student with an ACT score in the 17-22 range not enrolled in any level postsecondary institution. Overmatch is a student with an ACT score in the 17-19 range enrolled in a 4-year school. First-generation student describes students whose parents have never attended any college.

The interview protocol was developed for the pilot cohort in spring 2012, with open-ended questions aimed at uncovering students' postsecondary plans and their perceptions about the influence of family, school, and peers on their college search and decision making process. Additional questions elicited their expectations about their first year at college, and their assessment of college readiness. The questions also sought to draw out students' identities as being "college-bound", when those identities were formed, and who helped to shape them.

Analysis Plan

The interviews were semi-structured and conducted only with students, solely by the author, lasting approximately 40 minutes. Using the NVivo software, interviews were coded for references to this parental involvement. Coding was also done exclusively by the author. This was done to maintain consistency across the data. Initially, interviews were coded for any mention of parental involvement in the college transition process. Within these coded quotes, codes were refined to describe high, moderate, and low involvement. Parental involvement was defined as instrumental support regarding the students' postsecondary pathway. This may take the form of parental monitoring of academic behaviors, reminding students of key deadlines, or providing direct advice or counsel regarding college search or decision-making. It became apparent that there was variation in the degree of parental involvement students reported. Some students' interviews contain frequent references to instrumental support provided by parents, with students reporting that their parents played a significant role in helping them make their decisions, and/or supporting their academic development. It was clear from their interviews that these parents were heavily invested in their children's lives, and their college search process; these students were coded as having high parental involvement. A second group of students mention their parents only a few times, suggesting that their parents offered only minimal help

with the college search process. In some cases, this was because they had no college experience and felt they could not help. In other cases, it seemed that parents had expressed preferences but were not involved in the day-to-day business of supporting their children with the college search tasks. These students were coded as having moderate parental involvement. Lastly, some students failed to mention their parents at all throughout the interview, despite several questions directly addressing their influence. While some of these students did not live with their parents, others did but apparently had very infrequent conversations about school or college with their parents. These children made their postsecondary decisions largely independent of their parents' support; they were coded as having low parental involvement.

Coding the interviews in this way, it became clear that there was a group of parents that we might call low-income helicopter parents. One explanation might be that these parents are all highly educated and therefore behave more like their well-educated middle- and upper-class peers. To examine this question, I created a matrix of parental involvement and parental education (Table 14). Parental education was reported by the students, and parents were classified as having no postsecondary experience, some college, or having completed at least a Bachelor's degree. This matrix illustrates that this high level of parental involvement is not limited to those with more education, but is observed across all parental education levels. Indeed, it appears that there are students in each of the nine cells of the matrix. For the purposes of this discussion, I categorize first-generation students as having "low parental education", some college is "medium parental education", and students with parents who have attained at least a Bachelor's degree are classified as "high parental education".

Of the three students in the high parental involvement/low parental education cell, two are urban, and one is from a rural community. All three students are matched, which is

noteworthy because they are at greater risk than other students in this column for undermatching due to the lack of parental experience with postsecondary education. It appears that the high level of parental involvement serves as a protective factor for their college match. Britney[11], an urban student, was living with her son in her grandmother's house at the time of our interview. When she talks about her motivation for attending college, it's clear: "I'm going to college because I have to. I know I have to. That is in my plan… Because I have to provide for my son. He is number one in my life. Of course I have to do whatever it takes to take care of him." She credits her grandmother for helping her stay focused on school. "She told me school is very important. She always kept me on track. When I fell off track, you know, grandma, she'd lead you back on track." Sarafina and Abby also both credit their families' consistent messaging about the importance of college for their postsecondary success.

There are eleven students in the high parental involvement/medium parental education cell, eight of whom are from rural communities. Six students are matched, two are undermatched, and three are overmatched. Several of these students describe being encouraged by their families to stay closer to home for college, despite better options elsewhere. Indeed, one undermatched student, Kayla, had intended to enroll at a 4-year school but was told by her family that she couldn't afford it. When I ask if she is disappointed, she responds: "I was at first

[11] All names of people and places are pseudonyms.

but now I'm glad I'm gonna be home with my family, cause it's like not as big of a transition." When I ask if her parents were disappointed, she says, "No, they wanted me to stay." Other students articulate their reluctance to leave home, particularly those from rural communities. Ariana, a rural matched student shares her concerns about leaving her family to attend a 4-year school:

> A: "That'll drive me nuts, to be away from my family. I don't know how that's gonna work. Cuz I usually have my mom and my dad to talk to and my bro-ski. I call him my bro-ski. But I'm gonna miss them so much, it's gonna be awful. Probably gonna cry for the first two years. It's gonna be really bad.
> K: why are you doing it, if you're so worried?
> A: cuz I got, I have it paid for so I'd like to, you know, get it… if I didn't go live in the dorms, they wouldn't give it to me.

Here Ariana is clearly anxious about the decision to leave home, but feels like she cannot pass up the scholarship she has been given. The overmatched students in this cell, however, report being pushed by their parents and others to leave home to attend a 4-year college. Aubrey, an urban overmatched student, shares: "People told me I need to leave, get out of town, so I can experience something new." When I asked her who told her this, she replies: "Basically everyone. Like Ms. Jones, our counselor. Ms. Davis [another college counselor], my mom." She also acknowledges the importance of the family support she had at home. "[other students at Bronson High] don't have the effort to do it or they don't have someone to push them. Like I have my mom and my brother and sister to push me to go. But some people just don't have that." Because the students in this cell have parents with some college experience, the quality of that experience shapes the advice that parents provide. Miranda's mother felt good about her experience at the local community college, so she encouraged her daughter to follow that same path. On the contrary, Lauren credits her mother's dissatisfaction with her own experience at community college for fueling her determination to send Lauren to a 4-year school. Cass

describes relying on her father for advice since he "was the parent that had the most schooling, the most college experience and so he's definitely telling me from what he's learned and guiding me through it and telling me to live on campus and to get involved in clubs and that kinda thing. So he's definitely been the one to guide me through all my college decisions." The parents in this cell seem to recognize the limits of their college knowledge, but remain committed to supporting their students to pursue some postsecondary path.

The nine students in the high parental involvement/high parental education cell are arguably the most privileged students in my sample. They have parents who have attained at least a Bachelor's degree, and are actively involved in supporting their children through the college search process. One would expect that these students would all be matched, if not overmatched, due to the social capital to which they have access. However, a third of these students are undermatched, four are matched, and two are overmatched. It's also worth nothing that only one of these students is from a rural community. While two of the undermatched students report that it was primarily their parents' concerns about money that motivated the decision to begin at a two-year school, Henry states that his mother wanted him to go to a 4-year school but he took a different path, pursuing his dream to become a mechanic. Alex, one of the overmatched students, shares the message he got from his mother, who started college but took time off and never went back: "she said, 'Don't make the same mistake I did. Go to school, finish it just like your dad.'" For most of the students in this cell, however, it was never a question of *whether* they would go to college, but of *where* they would go. Ashlie, Jasper, Ray, and Brandon all talk about the pressure they felt to attend the same schools as their parents, although Ashlie and Brandon decided to diverge from this path, believing that better opportunities were available to them elsewhere.

There are seven students in the medium parental involvement/low parental education cell, two of whom are from rural communities. Six of these students are matched, and one is undermatched. Cynthia, the undermatched student, made her choice to attend a local community college rather than a 4-year school primarily because she felt it would be too big of an adjustment and she didn't want to leave home. Most of the students in this cell reported that their parents were minimally involved in their college search because they felt they could not help. But theses parents provided some support in terms of promoting the importance of school. Zach shares that it was his parents' dream for him to graduate as valedictorian, "so it was something I really wanted to do for them as well as myself." When I ask Cynthia what her parents told her about college, she replies: "They just say I should [go] because it gives me a better life and stuff, cause they didn't have the chance to go to college, so I can be a first generation student." When I ask Isabella what her parents think about her plan to go to cosmetology school, she answers: "Well, my mom was like, well, I guess if I can't have a lawyer or a doctor, what's better than to have a cosmetologist because she's a girl and she would love that. And my dad just wants me to go to school and take care of myself. He doesn't wanta see me like end up in a bad position and …being in debt. Like not having a job." Amy says that her parents are just happy that she has a plan. Without college-educated parents to get advice from, many of these students rely on siblings who have attended college before them. Lloyd, Aneri, and Dave have older siblings with college experience who were role models for them.

The nine students in the medium parental involvement/medium parental education cell are mostly rural, only three are from urban areas. Five students are undermatched, three are matched, and one is overmatched. Two of the undermatched students, Dexter and Robert, were still uncertain of their college path when I interviewed them in late spring of their senior year.

Dexter had decided that the only college he could afford was the local community college, but hadn't applied. Even if he felt that he could afford a 4-year school he indicated that he would prefer to live at home with his dad. Indeed, several of the students in this cell expressed their preference to remain close to home due to their attachments to family or strong messages from their family to stay home; Derek, Nicole, Johnny, Paisley, and Logan also indicated that proximity to family was a factor. This may play a role in the preponderance of undermatch in this cell. Kassandra made her decision about which 4-year school to attend based on the fact that she has some family in the area. Her mother actively discouraged her from applying to her dream school in Florida because she didn't want Kassandra to "get her hopes up", when they would likely not be able to afford it. The parents in this cell have some college experience but are not as involved as the highly involved parents. Several students in this cell expressed their determination to do better than their parents. Kassandra explains some of the lessons she has learned from her mother's experience:

> K: "Well, I watched my mom, my mom's gone to like three or four different colleges so I've watched her just go in and out of colleges. And for all different reasons, like she did online and she did community college and she did universities and didn't find what she wanted and we have a whole bunch of reasons so kind of just she has all these, she's got a whole bunch of money that's in debt because she's gone to all these places cuz she hasn't actually figured out what she wants to do.
> Kri: I see. So are you afraid that that would happen to you or…
> K: Kind of
> Kri: Yeah. So how do you guard against that? How do you prevent that from happening?
> K: I think I'm gonna make sure that I know that I really, what I really wanta do and stop before it's too late. And if it is, then guess I'm stuck
> Kri: Wait, what do you mean, stop before it's too late?
> K: Like if I get too far and I realize that I don't really like what I'm majoring in, I'm gonna change it.

Cindy explains that her parents both started school and never finished, which they regret. They are very proud that she is the first in the family to attend a private school.

There are nine students in the medium parental involvement/high parental education cell; four rural and five urban. Four of them are undermatched, two are matched, and three are overmatched. Two of the overmatched students have been recruited to play sports at 4-year schools. But a closer look at the four undermatched students reveals that the decisions these students made to undermatch are unlike some of the other undermatched students in the sample. Bob, Gilbert, Grace, and Troy plan to begin at a two-year school before transferring to a 4-year school. Because their parents are college-educated, these students' decisions reflect careful consideration of the options, rather than defaulting into a less-selective option because of a lack of information. This is an important distinction, as most literature is unable to tease apart those students who make the decision to attend a less-selective school in an informed manner from those who make the decision based on a lack of information and support. Because they have this information and support from home, they are more likely to successfully transfer to 4-year schools to complete their BA degrees. Like their peers in the high parental involvement/high parental education cell, these students feel that they were expected to go to college. Rose explains: "My mom, she's very serious about academics and us doing very well in school, so she's always wanted us to go to college. But it's not more about her wanting me to go to college, it's about me wanting to go to college for myself. But she played a big part in it."

The students in the low parental involvement/low parental education cell are perhaps the most vulnerable in my sample to make poor college choices, due to the lack of support and information. However, of the eleven students in the cell, six are undermatched and five are matched. Among the undermatched students are those who plan to begin at a two-year school and then transfer, like Crystal and Katherine; two students who had no postsecondary plan when I interviewed them; and one student who was planning to spend his next year at a special

residential school aimed at preparing students for the NCAA. While the plan to spend two years at a community college to "do your basics" before transferring can be a good one, it requires a high level of planning and support which these students will not have in their families. Among the matched students, two were planning to enroll in 4-year schools, one was entering the military, and two were planning to attend 2-year schools. The two students planning to enter 4-year schools, Naomi and Mozart, are examples of the classic beating-all-the-odds stories. Naomi is an emancipated foster youth who lives on her own, and Mozart has been raised by his grandmother, who had no college experience. Both Naomi and Mozart have incarcerated fathers and mothers who struggle with psychiatric issues. As a result they relied heavily on their own academic preparation and resources available in the school to make their college decisions. Students in this cell failed to mention their parents' influence on their college search unless I asked specifically about it, and even then, they had little to say about any parental involvement.

The low parental involvement/medium parental education cell is the most populated in the matrix, with twelve students. Eight of these students are rural and six are urban. Nine are undermatched, and three are matched. Natalie, an undermatched student planning to enroll in cosmetology school, describes her parents' reaction to her choice: "My mom was actually pretty impressed that I had it all set out. And my dad was just kinda like good for you. You're going to college. My dad didn't go to college cuz he's worked on the farm his whole life…[my mom] kinda just pictured me as like just slacking off." Josh, an undermatched student without a postsecondary plan, explains that his parents were more involved earlier in his high school years, but "once they moved to Texas, it kinda went away." Fred, another undermatched student explains, "my parents, they weren't really pushy. They just ... We didn't really talk about it that much until last year and this year. But they, yeah they weren't really pushing that much they

were just making sure I chose to go to college." The matched students in this cell are noteworthy. Although Desiree's immigrant parents were unable to provide much support or help to her during her search, she heard about a special scholarship for minority students and was able to earn a full-ride to a local private 4-year school. Helen was determined to enroll in a 4-year school, which she considered her only ticket out of her small, poor rural community, fighting against relatives who tried to convince her that she could not afford it. Clearly, though, the students in this cell are at great risk of undermatching, despite the college experience their parents have had.

Finally, the low parental involvement/high parental education cell has only three students, one rural and two urban. In one sense, it is surprising that there are any students in this cell, considering how unlikely highly educated parents are to divest from the college process of their children. However, these students were clear that their parents were not heavily involved in the process for them. Interestingly, one is undermatched, one is matched, and one is overmatched. The overmatched student, Payton, explained that her family was disappointed that she opted out of a scholarship which would have provided her with two free years at the local community college. "Yeah, my grandpa's kinda disappointed that I didn't take it because it's free, but I really wanted the experience and I really wanted to know that I could be by myself and still make it and I really just wanted that self-awareness of myself and self confidence in myself." She explains that this affected the amount of support she got from her mother on the college process. "My mom was a little upset kind of at first, like I basically had to do my whole college thing, my whole applications and all that by myself and she just said get them done if you wanna do it." Although she reports that her family has come to terms with her decision, it was clearly a struggle for her to follow the path which she felt would serve her best. She had to strike out on her own because she felt that she was not getting the support she needed from her

family. Anthony reports that although he knew he was expected to go to college, his parents weren't very involved in the search process and didn't talk to him about paying for college. Andrea reports that although she felt that she could talk to her parents about college, "they don't talk about it much. I don't really talk to my parents about what I wanta do. They just tell me to do well in school, focus and… yeah." Clearly, although the parents in this cell expect that their children will follow in their footsteps and attend college, they are not taking the steps to help them align their ambitions and find a good college match.

Using this matrix, I focus on the first column, high parental involvement, and select two students from each level of parental education, one rural and one urban, to do more in-depth case studies. Recognizing that there were likely different cultural factors at work, I believed it was critical to select one rural and one urban student from each cell. Selection was additionally based on gender balance, the availability of data, and the degree to which the student represented the cell. Four of the six students (Sarafina, Miranda, Ray, and Jasper) were the only ones in their cell who were interviewed at two time-points. These students' interviews were selected because of this additional data, which grants us a deeper understanding of each individual case.

Additionally, the only other urban student in Sarafina's cell was Britney, who was parenting a small child during this transition. For this reason, Britney's interview was determined to be less representative of her cell, and Sarafina's was selected. The other two cases (Abby and Lauren) were selected primarily based on the length and richness of their interviews, as well as their representation of their cell. The following profiles offer greater insight into the experiences of these students and the parental values and strategies which supported their college search process.

Table 14: Matrix of Parental Education, Involvement, and Urbanicity

Table 14: Matrix of Parental Education, Involvement, and Urbanicity						
	High Parental Involvement		**Med Parental Involvement**		**Low Parental Involvement**	
Parental Education	Rural	Urban	Rural	Urban	Rural	Urban
Low parental education	***Abby***	Britney	Amy	Aneri	Brooke	Carlton
		Sarafina	Isabella	Cynthia	Crystal	Mindy
				Dave	Katherine	Mozart
				Lloyd	Richard	Naomi
				Zach	Tiberius	Rob
					Tyler	
Medium parental education	Ariana	Aubrey	Derek	Cindy	Brad	Desiree
	Cass	***Lauren***	Dexter	Kassandra	Gabrielle	Fred
	George	Morgan	John T.	Logan	Helen	Rosemary
	Ginger		Nicole		Joe	Roy
	Gregory		Paisley		John	
	Kayla		Robert		Josh	
	Miranda				Natalie	
	Tim				Nikki	
High parental education	***Ray***	Alana	Grace	Bob	Anthony	Andrea
		Alex	Jimmy	Eddie		Payton
		Ashlie	Mike	Gilbert		
		Brandon	Troy	Jason		
		Caitlin		Rose		
		Destiny				
		Henry				
		Jasper				

Note: All names are pseudonyms. Parental involvement is determined based on the content of participant interviews. Parental education is reported by students.

Results

Low College Education/High Parental Involvement

Abby

When I met with Abby, a white rural first-generation, in the spring of her senior year, she was planning to enroll at Northern University, a public 4-year school a little more than an hour away from her home. Because she had an ACT score in the “high” range (20-22), and is enrolling in a 4-year school, this is considered a match. She planned to study biochemistry,

because of an interest in forensic chemistry. She had applied and been accepted to one other public 4-year school, but selected Northern because of the generous financial aid package she received, based on her financial need. She was tempted to apply to the state's second-best public 4-year school, Midwestern State University, but was discouraged from doing so by her father. She says: "I asked my dad, I was like, well, what would you do if I got into MSU or something and he's like, tell you you couldn't go because you can't afford it." Apparently he is "still mad" that she's attending a university instead of going to a community college first. She claims that this is because he wants her to stay home longer. When asked if she had any help figuring out where to apply, she replied that she had done it mainly on her own, with the help of one of her English teachers. While neither of her parents attended college, her father apparently earned a full ride to a 4-year public school but got sick in his senior year and missed so much class that he lost the opportunity. She believes that he still regrets this, and that it partially explains why he is so hard on her.

She remembers her older half-brother's enrollment in college as the moment when she decided that she was college-bound, and stated that while her parents both hinted that college was a good idea, it was ultimately her decision. A lot of her friends aren't going to college. Indeed, she has always felt different from her friends for her determination to do well in school. She is always the one taking advanced classes and getting good grades. At home she compares herself with her younger brother, who "doesn't apply himself". She feels that her father picks on her for the one B on her report card surrounded by As, and lets her brother get away with Cs and Ds. Similarly, when she was working on her FAFSA form and her taxes, she asked her father for help, but he insisted that "it's not hard, read the directions". Indeed, it sounds like she has internalized this message about working hard and not asking for help. She felt that the college

process was frustrating. “I don’t really have anyone in my family and I’m not gonna sit here with someone and be like, teach me how to do this, what does this mean? It’s almost degrading. I like to figure stuff out on my own.” She stated that she would rather stumble through it and be frustrated than get help from someone who knows. While her mom is supportive of her postsecondary plans, she reports that her dad thinks she’s crazy, that she’s going to get in over her head. “I don’t know if he just doesn’t think that I’m capable of doing it, or thinks that I don’t have the determination, really, and the commitment.” She is prepared to take out loans, and her mom is supportive, but her dad worries she will dig herself a huge hole. As a first generation student with few college-educated resources in her network, she was eager to hear from me about my college experience.

Abby’s father sees that she has the potential to be successful in college, and has adopted a strategy of holding her to high expectations and encouraging her to develop a strong work ethic. She seems to have responded to this ever-present pressure by becoming even more determined to demonstrate her success. She credits him for helping her develop her academic identity. However, his conception of college seems to be that it doesn’t matter where she goes as long as she goes. Fortunately, she has acquired additional college knowledge from her school and peers, and recognizes that she needs to attend a 4-year school, despite his protest, in order to fulfill his expectations for her. She recognizes the limitations of his college knowledge, and fills in with her own. Indeed, the independent spirit which he has fostered is what enables her to select a match school.

Sarafina

I met with Sarafina, a black urban first-generation student with an ACT score in the “high” range, in the summer following her senior year. At the time she was planning to enroll in

the local community college, Metro Community College, and then transfer to Midwestern State University. She did not apply to any other postsecondary institutions. She participated in an articulated 2+2+2 program in engineering to which she was accepted at the end of her sophomore year, which provides full financial support for her two years at MCC and two years at Midwestern State, as long as she completes the required coursework and earns a 3.0 minimum GPA. While a high-ACT student planning to enroll at a 2-year school would ordinarily be considered undermatch, because of the unique circumstances of this accelerated program and the partnership with Midwestern State, I consider this match. However, if this program were not available, she would likely have chosen to enroll in a 2-year school anyway (undermatch). When I met with her, she had left home and was living with her boyfriend, taking care of his mother. Although she described a supportive relationship with her father, she explained that she had recently been fighting with him about curfew and independence issues, which precipitated her departure. Sarafina has three older sisters, who all experienced a similar change in relationship with their father when they turned 18. They advocated for her to move out. She was financially independent, working part-time at McDonald's and taking care of her own medical bills for issues related to anemia. She anticipated finding an apartment near school and continuing to work while she took classes, which she felt she could handle after working through high school as a full-diploma International Baccalaureate student. While she initially considered attending college out of state, she decided that it would be too big of a transition and that her "family wouldn't like it".

Although neither of her parents went to college, her three older sisters did. Two ended up getting pregnant and having to leave school, but another was planning to transfer from MCC to University of the Midwest, the most selective public university in the state. Sarafina was a

valedictorian in her class, and earned several scholarships based on academic merit and financial need. She credits the support she received at home from her parents for her academic success. "When you have that support at home, you'll definitely (go to college). (They) definitely encouraged all of us to go to college and stay in school and do really great things academically. Because it's a lot easier and they just really didn't want us to end up in the same situation as they did. With, you know, a lot of debt and lot of struggling financially." However, because her parents didn't attend college, they were not able to answer some of her questions about college planning. Instead she relied on her sisters and people at school for advice, and planned to seek the help of the advisor at MCC to assist her in planning her coursework and successful transfer. Like Abby, Sarafina tends to be very independent and doesn't like asking for help, but anticipates that she will need to ask for help once she gets to college, and stop being "macho girl". She feels that she was singled out in school for her academic potential, taking honors classes starting in middle school. She described herself as "academically progressive." She expressed her gratitude for the good opportunities she has had, saying "I'm like, why have all this education and have access to these really great things and then just waste it. That didn't make any sense to me. So I did it. With the support of my parents." She is excited about pursuing a career in engineering, because it's what her father did; he is proud that she is following in her footsteps. Because she graduated with higher honors than any of her sisters, she feels that her parents have higher expectations: "it's like, oh yeah you're going to do really big things!"

Her parents' strategy seems to be one of using their negative lived experiences (Ceja, 2004) as a motivating force for their children, encouraging them to "do better than we did." They also actively nurtured Sarafina's emerging academic strengths, starting in middle school. As a result, she knows that she is expected to go to college, and has her sisters' positive and negative

experiences to learn from. Indeed, even though Sarafina is not currently living with her parents, their presence can still be felt in her decisions, indicating the strength of their involvement. However, because the only family experience has been with community colleges, it's unclear whether or not she would have matched had it not been for the 2+2+2 program available at her high school.

Low College Education/High Parental Involvement Student Summary

Both Abby and Sarafina described their parental relationships as being key to their academic success. Indeed, both girls describe their father as a main influence in their college search. Because both girls have parents without college education, they had to look elsewhere for information and resources, and they took the initiative to obtain that information. But they maintain that the support at home was critical. In Abby's case, it was clear that her decision was not initially supported by her family, that they wanted her to start at a community college. This prompts the question as to whether Sarafina's family might have tried to undermine her efforts if she had planned to start a 4-year school. Perhaps the idea of starting at a community college seems more accessible to a family with limited education, which may help explain why so many first generation students begin at a 2-year school. Another interesting parallel was the girls' resistance to asking for help. Both Abby and Sarafina described themselves as independent and expressed a strong disdain for asking for help. However, in both cases, they had to overcome this reticence and seek the appropriate help and support from knowledgeable resource people. A last consistent theme was that both girls identified as strong students early on in their school careers. This firm academically-oriented identity made them different from their peers, and was nurtured by their families. They were therefore more resilient to pressure from their peers to lower academic standards, and instead maintained high aspirations. This strong identification as a

capable student and college-bound individual allows students to resist pressure from their peers or families to undermatch, and helps them take advantage of resources available in their school and peer networks; it seems to be a critical element to first-generation students' successful match, regardless of parental involvement.

With additional parental education, one would imagine that students in the next cell would have greater support to align their college aspirations. Unfortunately, some parental involvement keeps students from taking full advantage of school and other resources to improve college match. Miranda is one such student.

Moderate Parental Education/High Parental Involvement

Miranda

I met with Miranda, a white, rural student whose parents have some education, in the summer after her high school graduation. She had an ACT score in the high range and was planning to attend the local two-year school, Metro Community College, for an associate's degree in Histologic technology. This was the only institution to which she applied. Because her ACT score makes her eligible for admission to a 4-year school, this is considered undermatch. She talked excitedly about her plans, and was obviously very proud of her accomplishments. She started a vocational program in junior year, and had accrued 24 college credits before graduating high school. When I met with her she has just finished a 6-week internship during which she had to wake up at 3:45 every morning and taken a final exam. She was also working part-time at the local library at this time. Her father did not attend any college, but her mother took some classes. As a kid she always expected to go to Midwestern State, but became overwhelmed as she learned more about how much it cost and the logistics of living on campus. She also became clear that she was not ready to leave home. "The whole idea of moving out and being by myself scares

me." She reports that her parents are glad she's staying home; they are what Turley (2006) would call college-at-home parents. An only child, she is very close with her parents, and can't imagine a time when she would prefer going out with friends to hanging out with her parents. Indeed, it seems that Miranda still relies heavily on her parents' support; her mom does her laundry, packs her lunch for her every morning, and organized a carpool for her to get to college in the fall. She is proud of herself for making her own money and paying for her car and shopping, but her parents still pay for her phone and car insurance. She can't imagine feeling ready to leave home, but fears that she might eventually become a burden on her parents.

Her parents always encouraged college when she was growing up, believing that it was critical for her to find a good career and make enough money to be "comfortable". In particular, her father pressured her to consider a medical field, believing it to be a stable field with good money. Miranda felt that there wasn't a medical career that she could enjoy, until she discovered histo technology. Although she claims that she did not like chemistry in school, her passion and excitement about this chosen path come through when she talks about it. In addition to having chosen a medical career and satisfying her father's ambitions for her, she also feels relieved to have a plan. "A lot of people that I graduated with, know what college they are going to but don't know what they are going to do and if I was them I would be so scared right now. If you don't know what you're doing… that is what my parents have always instilled in me – you need to know what you're doing." Indeed, most of her friends are staying in the area, and lack a concrete plan for their future. "I hate saying this, but I'm so much farther ahead than you, I know what I'm doing, I know what I'm going for, I've got something under my belt right now. You have no idea what you're doing." She reports that her parents are very proud of her because she has finally decided what she wants to do. She still thinks about transferring to Midwestern State

and is enrolled in the honors program at Metro Community College intended for those planning to transfer, but she was more focused on getting the associate's degree and being employable. Her primary goal in attending college is to get a better job and make more money. However, it is clear that she still harbors a dream about attending a big university like Midwestern State, but is nervous about her chances of getting in, and easily dissuaded by the logistics of transferring. She initially thought about taking ay year off, but her parents were concerned that she wouldn't go back. Another part of her reluctance to transfer is the lack of clarity about what program she would transfer to. She thinks she would need an MD to be a pathologist, and is pretty sure she doesn't want to do all that school, but doesn't know of a viable option in between a technician and pathologist.

This lack of college knowledge and experience also affected her decisions regarding paying for college. She obtained several local scholarships, but reports that her mother found the FAFSA quite cumbersome. "She said if you don't get anything from this then I'm not doing it again. I know they want you to do it every single year but if you don't benefit from it then why am I going to waste my time." At the time, Miranda believed that the FAFSA had indicated her eligibility for financial aid that she had not received, so she believed that she wouldn't complete the FAFSA again. When I met with her at the end of her first semester, however, she explained that she had gotten funds through the FAFSA. She expressed a reluctance to taking out loans, not wanting them to "loom over her for years". Her parents would rather have her work than take out loans. Even after her first semester, her parents were still very involved in her academic life. They planned to sign her up for tutoring for the next semester, and advised her to seek counsel from her Histo teacher because they "didn't like" the MCC advisors. It is less clear that the involvement of Miranda's parents was helping her in all respects during this transition.

In many ways, Miranda seems like a first-generation student; it is not clear that her mother's college experience has equipped her with the tools to effectively support her daughter's college search. Instead, Miranda is relying on her father's perception of the "medical field" as a stable, desirable career choice, and feels relieved to have found something that she enjoys in that area. Her mother reluctantly completes the FAFSA with her daughter but expresses disdain and irritation with the process which she believes is a waste of time. But perhaps the biggest challenge to Miranda's successful match is overcoming her enmeshment with her parents. While she is proud of the few ways in which she is independent from her parents, the reality is that her emotional attachment to them limits her ability to successfully individuate. Her parents are not facilitating this independence either, continuing to exert their influence in planning her carpools, packing her lunch, and interfering with her relationship with her college advisor. Clearly they meet the criteria for the stereotypical helicopter parents, but their limited college knowledge means that their involvement serves to hamper, rather than promote, her success.

Lauren

I met with Lauren, a Hispanic urban student whose parents have some education, in the spring of her senior year. She had earned an ACT score in the high range and was planning to attend Southern State, a 4-year public school a little more than an hour from her home; a match. She had applied to one other 4-year state school, and was accepted, but chose Southern State after falling in love with it during a campus visit with her family. Other factors were the strength of their program in her major, and what she felt was the appropriate distance from home. Since elementary school her parents told her "you've gotta get a good education and keep going". She credits them for being the driving force. She explained that since she was little, she always imagined herself at Midwestern State, but then as she got older she realized it wasn't the best fit,

mostly because it was too close to home. When I met with her she was living at home with her parents and her younger brother, and reported that they are very close as a family. She anticipated missing her family when she gets to college, but plans to Skype with them and visit every other weekend. She is mindful that she doesn't want to visit too often, because she doesn't want to miss out on the college experience. Somewhat shy, she is nervous about fitting in socially, and is afraid she'll have trouble finding people to eat lunch with. She reports that she never got one on one college advice from counselors, just generic all-school messages. She was still deciding between her two areas of interest, dietetics and interior design, although she believes that dietetics is more stable, and worries about being a broke artist in New York City.

She reports that her parents are really proud of her. She says that her father is always bragging to people about the fact that she is going to a four-year college; she is the first in her family to do so. "They just always wanted us to succeed in what we do and have that passion for something like education and work for it. And they want us to get good jobs." Her parents went to community college but didn't go full time or earn a degree, so it's important for them that their children go on. Her parents were adamant that she attend a four-year college. She states that her mom didn't want her to start at a community college because that's what she did and she didn't like it so she stopped doing college. "So she didn't want me to start at a community college and not finish." She reports that her dad was always "on her" about applying for scholarships, and she indeed earned a four-year multicultural scholarship. She shared that her parents haven't articulated a strong position about loans; they recognize that a lot of people have to take them out, and are supportive as long as she gets a good job and can pay them off. Lastly, she states that her family has been major influence because "it all started with them telling me

that I need to be educated and have a good career and things. They taught me the value of education."

Clearly, the narrative about college in Lauren's house was strikingly different from that in Miranda's house. Lauren's mother's experience with community college fueled her dedication to help Lauren get to a 4-year college and avoid making the same mistakes. Her parents were able to effectively translate their negative lived experience into social capital for Lauren's benefit. They provided consistent messaging about the importance of education and college attendance for social mobility. Their heavy involvement with her college search was characterized by their helping her to make the transition, facilitating her successful individuation, indicating a much healthier attachment relationship.

Moderate College Education/High Parental Involvement Student Summary

Comparing Miranda and Lauren, two students with similar levels of parental influence from comparably educated families, we see striking differences in the content of the influence from their parents and their resultant outcomes. While both students report that they were very close to their families, the ways in which their parents supported their postsecondary pathways were quite different. Miranda's family responded to her fear about the transition by providing so much support that it may in fact be harder for her now to leave. This seems to indicate a problematic attachment relationship, with parents who are too enmeshed with their students and are unable to support their successful individuation. Students need help learning how to be independent and taking on additional responsibilities. The natural reluctance to leave what is known is a part of this process, not necessarily an indication that students need to stay closer to home. Lauren's parents recognize that this fear is a normal part of the transition, and encourage her to connect via technology while remaining on campus to experience the "full college

experience". This is indicative of a much healthier attachment relationship. We know from the literature on student engagement that campus integration is vital for student success (e.g. Tinto). These differences may be a direct result of their parents' own experiences with college. Lauren claims that her mother's dissatisfaction with community college was the reason she failed to complete. As a result, she strongly discouraged Lauren from considering community college as an option. We also see that Miranda and Lauren differ strongly on their ability to visualize the long-term future. Miranda was so relieved to have a plan that she wasn't concerned with the lack of clarity regarding what she might do after completing her associate's; she exhibits very short-term thinking. By contrast, Lauren thoughtfully considers her major choice based on what she anticipates the challenges might be five years hence, a much more sophisticated approach, and one which indicates the presence of parental social capital. Lastly, there may be differences related to the communities they are coming from. As a rural student, Miranda has grown up in a much more isolated community, compared with the urban environment in which Lauren lives. Her reluctance to leave home may also much to do with her comfort in a small rural setting, and concern about adjusting to a more urban environment. As has been amply demonstrated earlier in this paper, rural students face additional challenges regarding leaving home to pursue educational opportunities, which Lauren would not have to face. So we see that there are differences at the individual level, parental level, and community level between these two similarly situated girls, which help to explain their different pathways.

Lastly, the students in the final cell are arguably the most advantaged in terms of college knowledge and parental involvement. These parents have their own extensive college experience to draw on while supporting their students, and may in many ways resemble middle- or upper-class parents in their efforts to secure a successful match for their children.

High Parental Education/High Parental Involvement

Ray

I met Ray, a white rural student, in the summer following his high school graduation. He had earned an ACT score in the high range and planned to attend a Bucks State, a public 4-year school one and a half hours from his home. This was the only institution to which he applied. Because his ACT score made him eligible for admission to a 4-year institution and he planned to enroll in one, this is considered a match. He was planning to work through the summer at a large life insurance firm, a job he got through family connections. “My whole family works there. My mom, my uncle, my aunt, my two cousins, my brother…” Similarly, he says about the college he chose, “my brother goes there, my mom went there, my cousins went there…” He stated that it was the only school he applied to, both because of family connections and because he likes it there and they have the program he likes, marketing. He is looking forward to college as an opportunity to become more independent and mature. He was planning to live on campus, at the advice of his mother, who thought he should get the feel of the dorm life. His mother and brother also advised him to take a lighter course-load his first semester, to ease the adjustment. He’s also talked with a teacher who offered him a job nearby, but he doesn’t plan to work until his second semester. However, he will not be relying on the income from that job while in school. “If it is too much, if it interferes with school then I’ll just quit.”

Based on what he’s heard from others, he expects college to be a lot of fun and a lot of work at the same time. He thinks that most people go to college because they are expected to, and in order to make more money. He first remembers wanting to go to college when he was 10 and planned to become a professional football player. “Professional football players need to go to college.” He reports that he found high school to be very easy and expects to have to study

more in college than he did in high school. He did well in school, motivated by needing to maintain a certain GPA to be eligible to play sports. He expects to meet people through social events and is eager to meet kids who are more mature than the students in his high school. He has his own car and plans to come home every couple of weeks. Unlike others in the sample, he did not complete the FAFSA, knowing that his parents would be paying for college. They always told him "if you can get in, we'll pay for it". He credits his parents for influencing his college goals. They were "always talking about going to college, how important it is." Although his mom went to college, his dad did not. When asked about his parents' expectations for him in college, he replies, "they are paying for it, so I better be passing my classes". He plans to work at the life insurance company after he graduates, and hopes to eventually find a career that will earn good money. He is attracted to marketing because he knows one family friend who is in that field who makes a lot of money and owns two BMWs. His long term plan involves going back to Mexico, where he has does mission work throughout high school, to continue his missionary service.

It is evident that Ray's parents were heavily involved in his college search process. There was never a question about *whether* he would attend college, and indeed, there may never have been a question of *where* he would attend college; his selection seemed predestined. In this way, Ray's parents were dedicated to helping him match. However, the limited choice set (1) is more akin to what Hoxby and Avery call "income-typical" application strategies. It appears that their economic status still impacts his college search despite the presence of college educated parents who are highly involved. It may be that their location in a rural area exacerbates this as well.

Jasper

I met with Jasper, a black urban student, at his high school several days before he graduated as his high school's valedictorian. He earned an ACT score in the high range and was planning to attend the University of the Midwest, the state's most selective public 4-year school. Again, with an ACT score that made him eligible for a 4-year school, his decision to enroll in a 4-year school is considered a match. He applied to four universities – three public 4-years and one private liberal arts school, Berk. He considered applied to out of state schools, but he likes the idea of living in state. "I wanna live far enough away so my parents can't spy on me but close enough that I can come home for like money or food." He stated that his parents wanted him to try for a $15,000 scholarship at Berk which involved a face-to-face interview. "Not really taking it seriously, I still won." Even though he'd always wanted to attend the University of the Midwest, it was a hard decision. His friends were pressuring him to go to Bucks State, and he felt that his scholarship wasn't something to "just throw away like it was nothing". He ended up getting a larger scholarship from the University of the Midwest, as well as several other small scholarships. He had been struggling with the idea of asking his family to pay the remainder. But his father finally told him "'just go where you want to go. We'll get it covered. We'll handle it. Everything's going to be fine.' Once he told me that, I knew exactly where I wanted to go."

With a father who did his undergraduate work at an east coast Ivy League school and got his Masters degree at the University of the Midwest, there was never any question about *whether* Jasper was going to go to college. Indeed, his parents worked to ensure that he was well prepared to be a competitive applicant, including dual enrollment at MCC beginning in his junior year. Learning that he was valedictorian was not a surprise: "I had really high grades. I think there was only one B I got in high school and my parents made sure that my grades were top notch or I was

gonna get it". His mother also earned her BA, and his two older brothers are both in college, at two public 4-year in the state. He relied on his brothers and father primarily for college guidance, including advice about making a good impression on his professors and whether or not to work during his first semester. One of his older brothers was resistant to applying for scholarships and instead had to take out loans. His mother was adamant that Jasper not make the same mistake and "dig [himself] into that same hole".

He is looking forward to the college experience, but since none of his friends are following a similar path, he will be leaving those social connections behind. He expressed interest in coming home regularly to see his friends, many of whom will be starting out at MCC. He might have considered starting at MCC if he hadn't known what he wanted to study at school. "To my family, MCC was always the unsure choice and a university was what you wanted." In talking about his friends from school, he acknowledges that many of his peers don't have the same support. "You need peers, family. You need all those people to support you and tell you what's right but I don't think a lot of these kids are getting that." He is worried that he might not be able to wake up for class without his parents, but adds, "I'm sure my parents will make sure the transition's fine." He credits his mother's academic pressure for his success: "I was always a procrastinator. I never wanted to get stuff done. If my mom wasn't there to slap me around and tell me to get my stuff done, I don't think I would've been valedictorian. I don't think I would've been where I am." He expects her to continue her pressure even after he leaves for school, including surprise visits to check on him.

He acknowledges that the transition will be difficult, coming from a school where his academic skills made him a big fish in a small pond. "It's such a new experience that you don't really know what you're going to do. All of these people are doing the same classes as me. I'm

valedictorian. I'm in class with 20 other valedictorians. I'm not that special of a person. There's 10,000 people smarter than me." His long term plan is to become either a psychologist or psychiatrist, which he knows from his father may take ten years or more. He has been working since he was younger, and has saved $5,000 for his college spending money. He states that his parents helped him save his money: "it comes from my hands straight to their hands. And it goes straight to the bank. Without them,… I would've surely just spent all of my money on pointless things." He is somewhat worried about managing his time and money when he gets to college, relying as he does so heavily on his parents' support, but expects to work it out over time. "I think getting acclimated will be kind of strange but over time, I think things will start settling down."

In many ways, Jasper's process mimics that of a middle- or upper-class student with comparably-educated parents. His parents are highly involved, exemplifying the helicopter label, and infuse their involvement with social capital and college knowledge acquired at some of the most prestigious universities in the country. Their experience seems to offset their economic status, and they behave like any helicopter parent, providing support and encouragement throughout his high school years. At the beginning of his senior year, he was well-positioned to be a competitive applicant to any university in the country. It so happens that the University of the Midwest, his father's alma mater, is one of the most selective public schools in the nation, and just an hour from home. While Jasper acknowledges pressure from his peers to consider other schools, the decision was likely a foregone conclusion.

<u>High Parental Education/High Parental Involvement Summary</u>

Both Ray and Jasper come from families where college is expected, and their parents were heavily involved in supporting their educational trajectories. Each one has benefitted from

the social capital that their parents possess, for everything from job connections to knowledge of the college communities they are planning to join. Indeed, while it is clear that these students received a lot of support, it is unclear how much choice they had regarding their fates. Ray is pursuing the same educational path as his mother, brother, and cousins, without regard for individual differences. Indeed, it seems that his decision was constrained to the set of schools with which his family was familiar, which in this case was just one. Here Ray exhibits behavior typical of low-income students, however because his parents have a BA, this school happens to be a 4-year school. By contrast, Jasper applied to four schools, including a local private liberal arts college. This is still a small pool of applications for someone whose father attended an east coast Ivy League school. Indeed, his application set included the school where his mother went, the school where his father got his Masters, and the school where many of his friends were applying. He was still relying heavily on the college knowledge within his social network rather than forging new ground. So while these students are making decisions with more information and support than their peers whose parents have less education, their reliance on that knowledge seems to inhibit their individuality and independence. In Jasper's case, his dependence on his family was partly responsible for his unwillingness to pursue out-of-state colleges, even though he would likely have been accepted at more selective institutions elsewhere.

Results Summary

This analysis demonstrates the diversity of experiences of those students whose parents are heavily involved in the college search. Indeed, it appears that helicopter parenting is not a universally positive trait, but that parental involvement is mediated by parental education. Several themes emerge in comparing these six students and the role their families played in their college search: identity, independence, and information. For all six students in this subsample,

issues of identity play prominently in their college search processes. All six recalled knowing they were college-bound from an early age, despite the varied college experience among their parents. While all six students in this group articulated their sense that they were college-bound, the students whose parents had graduated from college had clearly internalized the expectation that only a 4-year college was the appropriate next step. Largely because of her mother's negative experience at community college, Lauren had also adopted this mentality. This identity was nurtured by their parents, forging an academically-driven mindset which set them apart from their peers, and allowed them to resist any peer pressure to lower their expectations. The academically-oriented, college-bound identity allowed Abby to maintain her 4-year aspiration despite the pressure from her family to begin at a 2-year school. By contrast, Miranda's strong identification with her family and rural community served to limit her postsecondary choices; she was scared to leave and instead chose to pursue an associate's degree at the local community college. Her parents did little to nurture her independence, which resulted in her undermatch.

Emerging adulthood is a critical time for separation from family and self-exploration. This separation is a natural part of development, which is supported by having established a healthy attachment relationship early in life. Secure attachments are the ideal, in which parents provide a strong foundation of support while recognizing when to step back and encourage independence. The attachment relationship formed in early childhood is critical for the negotiation of every life transition that follows. Hence, healthy attachment relationships support students' successful college search and transition. Unhealthy attachment relationships, like the enmeshed relationship Miranda has with her parents, serve to arrest development and interfere with students' college match. Instead of supporting her to seek out the best academic fit, they encouraged her to pursue a path which is short-sighted but keeps her close to home. In their

efforts to protect her, they have limited her postsecondary options. Their behavior is also informed by an insular cultural identity which is skeptical and anxious about people and places beyond the boundaries of the rural community. Hence, although Miranda's parents have some college experience, they fail to counteract the cultural norm of staying close and following safe, well-trodden postsecondary paths.

Issues of college information are highly salient for these students. As first generation students in the subsample, it was essential for Sarafina and Abby to look beyond their parents for college information. Sarafina was able to rely on her sisters as well as the guidance counselor at her school, while Abby relied on teachers at school. Miranda and Lauren, with more college information in their familial networks, took different approaches. Miranda relied exclusively on her family for guidance and information, whereas Lauren sought support from school as well as home. In this way, Lauren was encouraged from both school and home to pursue a 4-year degree. Instead, Miranda faced little challenge from her family about the selectivity of her choice, and indeed was encouraged to undermatch. Miranda's pride in her plan and accomplishments betray her lack of adequate guidance regarding the diversity of options available to her. Lastly, Jasper and Ray's college-educated parents helped both students anticipate and plan for their transition to college. Both young men expressed some nervousness about the academic challenge they are headed for, along with eagerness for the social experience. Their families were able to provide academic encouragement and advice throughout high school that helped them align their college ambitions. They relied exclusively on the advice of their families rather than seeking help from school. As a result, they had restricted their application set to schools with which their families were familiar. Research suggests that applying to more schools decreases the likelihood of undermatch (Burkander, working paper; Pallias, 2013).

Perhaps seeking support from school might have helped Miranda and Ray to cast a wider net when applying to schools, which may have encouraged them to apply to more selective schools.

Discussion

This analysis examines the role of parental influence across educational levels, especially highly involved parents, allowing us to see how this variation impacts students' postsecondary pathways. While high levels of parental involvement among middle- and high-income parents generally support those students to match or overmatch, this pattern is not consistently observed among low-income parents. Some might expect that low-income students' undermatch outcomes are the result of uninvolved parents, but it may be that there are some behaviors that highly involved low-income parents which also facilitate their children's undermatch. There are four key findings which bear discussion. The first is the issue of vulnerability for mismatch. Low-income students are at greater risk for undermatch simply due to their economic status, and low parental education exacerbates this vulnerability. This risk can be mitigated by a high degree of parental involvement, but only if the parental messages are aimed at improving match. However, just being a low-income helicopter parent is insufficient for insuring your child against undermatch; it matters a great deal what values parents communicate about the purpose of college. Parents with no or little college experience can support their students' match by promoting the importance of education and helping students connect with information and resources at school. Particularly for rural parents, it seems that encouraging children to pursue college opportunities farther away from home may be a strategy for promoting match which conflicts with local cultural norms. Acknowledging and finding ways to mitigate this cultural conflict are crucial for improving college match among rural students.

The second finding is that college experience among low-income parents does not preclude their students from employing what Hoxby and Avery (2012) call income-typical application strategies. Despite the presence of substantial social and cultural capital on the part of some parents, we saw that students restricted their application choice set and ultimately chose schools which a parent had attended. Indeed, parental education and income may exert independent influences on these outcomes. Research suggests that when students apply to more schools, they apply to more selective schools (Pallais, 2013). Encouraging all students to adopt what Hoxby and Avery (2012) call achievement-typical application patterns may help improve college match among low-income rural and urban students.

A third finding is that the quality of students' parental relationships is a critical factor during this transition. Students, particularly those whose parents went to college, rely heavily on their parents for advice about college. The attachment relationship developed early in life has implications throughout the lifespan, particularly during times of great transition. Students who have unhealthy attachment relationships are at greater risk for mismatch. Parents need to help students successfully navigate the individuation process during this time and nurture their burgeoning independence. The nature of the parental relationship will also impact how often students seek advice, and the nature of those conversations. This relationship quality interacts with the parental college experience to produce the content of the advice parents provide. Parents who know their children well, support their independent development, and have some experience with college will be better positioned to help their students identify postsecondary options which will fit their ability and interests. This is of critical importance because our nation's challenge is not simply to increase student enrollment in postsecondary institutions, but to help them identify schools which they are likely to "fit" on several dimensions, which promotes retention and

subsequent graduation. Attachment studies of college students have considered the ways in which different parenting relationships impact students' transition to college (Kenny & Rice, 1995; Mattanah, et al., 2004). This study lends support to the idea that students with enmeshed relationships are likely to face challenges during this time; Miranda demonstrates this well. Another finding was that rural students in this sample were more likely to have what Turley (2006) would call "college-at-home" parents. These parents place a high importance on the geographic location of the postsecondary institution, over the quality of the match. This helps to explain the disappointment Abby faced from her father when she decided to attend a 4-year college an hour from home instead of the local community college. It is also apparent in Miranda's story of undermatch. This is consistent with prior literature suggesting the role conflict which many rural students face when considering their postsecondary options.

It appears that low-income students with highly-educated helicopter parents behave very similarly to middle- or upper-class helicopter parents. They mobilize their social capital resources to provide their children with the best high school preparation and ensure that they are competitive college applicants; Jasper perhaps exemplifies this best. These students stand in stark contrast to their peers whose parents have less college experience. It appears that the combination of parental education and involvement in this case enables these parents to overcome their economic circumstances in providing support for their children's college transitions.

This study lends support to others indicating that parenting style and relationships have important implications for students' postsecondary transitions (Wintre & Yaffe, 2000; Kenny & Donaldson, 1991). Recognizing the importance of on-campus engagement for student success

and retention (Tinto, 1975, 1993), it is critical that scholars seek to better understand how to support parents as well as students to successfully promote this individuation.

Limitations

Perhaps the biggest limitation to the study is the fact that I did not interview parents or school personnel regarding parental involvement. Therefore, findings are based exclusively on student reports of parental involvement, reported at the end of their senior year, and for those with follow-up interviews, later in the winter of their first semester. I may have gained validity by interviewing parents and students at several time-points prior to their senior year, particularly during the junior year, since that time is so critical for college preparation. I expect that I might have had higher levels of parental involvement reported by parents, and that student reports may have varied depending on when I interviewed them. The fact that I have two time-points of data for some students lends some validity to these interpretations, but having additional coders would have helped reduce any potential bias in the coding and interpretation.

Implications for Practice/Policy

If we are to reduce the numbers of students who undermatch, it is critical for counselors and teachers to recognize what characteristics place a student at greater risk for this behavior. This study highlights several factors which enhance the vulnerability which low-income students already face. One is the lack of parental college experience, well known to the literature. Another, less discussed factor is the parental and cultural norms communicated by highly involved parents. Parents are critical components of the college search process, regardless of their education status. Students pay attention to what parents say and do about the importance and the purpose of education, and these messages help to shape their identities and college plans.

Additionally, the recognition that parental education does not preclude students from

narrowing their application choice set is key for practitioners, as restricted application behavior is associated with undermatch for low income students (Burkander, working paper; Roderick, et al., 2008). Counselors and teachers, because of their high caseloads and additional responsibilities, tend to utilize triage approaches to ensuring that students get the basic college information (McDonough, 1997). They are consequently likely to assume that students with college-educated parents will have adequate support for their college transition. These students may still benefit from additional guidance from school personnel to increase the number of postsecondary options they are considering. Indeed, recalling the large matrix of 74 students, there were students in each cell of involvement among the highly-educated parents; we cannot assume that well-educated parents are highly involved in their children's educational journeys.

Thirdly, the role of the parental relationship has not received much scholarly attention with regard to parental involvement in the college search. It is evident that the parental relationship quality has implications for the frequency and tone of the advice students are getting from their parents, and the extent to which the advice is matched to the students' ability and interests. We need additional qualitative consideration of the role that families are playing, and a closer look at the interpersonal dynamics, during the college search and decision process to fully understand this relationship.

Finally, it is worth noting the trend for rural families to prefer that their children do not go far for college, or live at home while attending. This preference is a strong influence on these students and helps to shape their postsecondary search. If attending a 4-year college necessitates leaving home, these families may place great pressure on students to consider a less-selective, closer option. If this is a contributing factor for the prevalence of rural undermatch, then

intervention strategies must address these parental values before any significant change can occur.

It is also worth noting that the concept of helicopter parenting is rooted in a white, Western culture, which emphasizes individuation of children from parents. There are many cultures which view parental involvement in later adolescence as normal, even optimal. This conceptualization also implies a certain level of economic security which allows the students to leave home to pursue college. For many families this is an economic impossibility, as well as being inconsistent with values about the importance of family and home. It is therefore important to be cautious in defining success by separation from family, and instead seek more culturally-relevant assessments to evaluate students' transitions to college.

Altogether, this study suggests that simply providing additional information or resources to students will not dramatically reduce the numbers of students who enroll in colleges which are not matched to their academic credentials. The college search and decision process is a product of students' identities, shaped by their cultural and regional contexts, as well as their relationships with their parents, and parental education. Access to more and better quality information may help students make more educated decisions, but only if that information is effectively translated into guidance which makes sense in their cultural contexts. Regardless of parental education, parents need help supporting their students during the college transition. Just getting involved is not good enough; messages must promote match. Understanding the influences of parents and others on students' postsecondary decision making can help us target interventions which may shift the application and enrollment trends for low-income students.

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Chapter 3: Exploring the Family, School, and Peer Influences on Undermatch

Introduction

With increasing attention to the need to increase college enrollment and degree attainment, particularly among low-income, minority, and first-generation college students, scholars have attempted to understand the college search and choice process that these students undertake. Students exist in social contexts, and they receive college information and advice from their familial, peer, and school networks. Additionally, students' postsecondary decisions are reflective of their cultural and social identities. While the college search process is difficult for many students, low-income, minority students, and first generation college students face additional challenges in navigating this path. Many of these students are high achieving but fail to enroll in colleges matched to their academic credentials, choosing instead to enroll in two-year or less-selective four-year schools. This so-called "undermatching" is particularly prominent among rural populations (Smith, Pender & Howell, 2012; Hoxby & Avery, 2012) and is related to longer time-to-degree and higher dropout rates (Bowen, Chingos & McPherson, 2009). While many students begin at a two-year college with the intention of saving money on the first two years and then transferring to a four-year school, only 17% of students who pursue this path complete a Bachelor's degree within six years (Shapiro, et al., 2013).

Specifically, this paper seeks to understand how the messages low-income rural and urban students receive from their families, schools, and peers affect their postsecondary application and enrollment patterns. Sixty-three high school students were interviewed in the spring of their senior year regarding their postsecondary plans and factors that influenced their college search and choice. Using qualitative interview data as well as a large nationally representative longitudinal dataset, I explore the role of family, school, and peer college press,

and the role of cultural identity in students' postsecondary decisions. By understanding the influence of these various domains on students' decision-making processes, intervention efforts to reduce undermatch among this population can be better targeted.

Theoretical Framework

A more complete understanding of students' college choice requires that we bring together the work of Coleman (1989) and Bourdieu (1990) to describe the role of habitus and social capital in moderating the choice process for these students. Students' internalized habituses unwittingly shape their perception of the choices available to them, and the expectations placed on them by their family, peers, and communities. In this way, habitus serves to constrain agency on the part of the students, and in this way perpetuates social stratification. The relational patterns that support students' postsecondary choice are affected by culture, class, and gender, as well as the norms of educational attainment within communities. Social mobility, then, is only possible if students' college-bound identities are strong enough to allow them to break out from these social norms. These social norms and obligations, however, are a crucial component of the social structure that supports the transmission of social capital. Particularly in rural communities, the closure of social networks effectively limits the opportunities students have to make postsecondary paths that threaten the integrity of the community, however good they may be for the individual's best interest.

Related Literature

Parents are recognized as critical contributors to the college search process (Hossler, et al. 2000; 2002; Walpole, 2003; Smith, 2008). In the college search phase, students often rely heavily on parental experience. Parents' own education shapes their expectations for their children, which in turn impacts their children's aspirations (Hossler, Schmidt, & Vesper, 1998),

and the messages they convey about the importance of college. While parents without college experience may hold high educational expectations for their youth, they may be less willing or able to discuss college plans because of their limited knowledge (Cabrera & La Nasa, 2000). Low income parents, and those with less education, are also more likely to prefer for their children to stay closer to home, encouraging them to prioritize proximity of the school over the quality of the institution (Turley, 2006). For these reasons, students whose parents have less education are more likely to restrict their application set to only those schools with which they are familiar, overestimate the costs of college, and choose colleges poorly matched to their academic qualifications, or undermatch (Bowen, Chingos, & McPherson, 2009; Grodsky & Jones, 2007; Roderick, et al., 2011).

The college-going norms, information, and support available to students within the school contribute to what McDonough (1997) called the college-going *habitus* of the school. Schools with large populations of low-income, minority, and would-be first-generation college students often have high counselor-to-student ratios, which leads counselors to target their college message to a broad audience and makes it difficult for students to receive personalized guidance in their college search process (McDonough, 1997). Hence the limited college knowledge and support available to these students serves to restrict their college search and application behavior, which in turn leads to undermatch.

Peers play a critical role in supporting the academic engagement of students (Juvonen et al., 2012) and can serve as sources of social capital with regard to college knowledge (Hallinan & Williams, 1990; Tierney & Venegas, 2006) as well as promoting college attendance (Hallinan & Williams, 1990). The amount of conversation about college between friends and within the school contributes to the college-going culture of the school, believed to be a vital factor in

promoting increased college access among low-income, minority, and first-generation students (Corwin & Tierney, 2007; Roderick et al., 2008; Schneider, 2007). Because these students lack this social and economic capital, they are more likely to be influenced by factors outside the home and rely more heavily on school personnel and culture to realize their college ambitions (Freeman, 1997).

While there has been much recent work on understanding the breadth of the undermatch phenomenon quantitatively, there has been little consideration of the issue with qualitative methods. The two qualitative studies are regional in scope and serve to inform regional quantitative analyses in urban centers (Arnold, et al., 2009; Roderick, et al., 2008). Given the preponderance of undermatch in rural communities (Hoxby & Avery, 2012; Smith, et al., 2012) qualitative work aimed at understanding the unique rural context and the cultural influences these students face in their postsecondary transition is needed. Additionally, the current undermatch literature focuses on the different resources that students have available in their networks to make these choices. Instead, this study explores the deeper issues related to identity, grounded in the social contexts in which these students are situated, and the interplay between their habitus and the social capital they have access to through their social networks.

This study aims to provide insight into the role that family, school, and peer college press play for rural and urban low-income students, many of whom are the first in their family to attend college. The first research question is “What is the content of the messages students receive about college from their parents, schools, and peers?” Secondly, I ask, “How do these messages affect students’ decisions about where to apply and enroll in college?” I answer the first two questions using interview data with 63 graduating seniors from the class of 2013. Lastly, I ask, “Which are the strongest domains of influence, between parents, school, and peers,

for students' college match?" I approach this last question with a series of structural equation models predicting number of applications and college match using data from the Educational Longitudinal Study. I build a model for the full sample of students with ACT scores between 17 and 22[12] and then investigate differences by subgroups (e.g. low-income, minority, first-generation student). This paper demonstrates that family, school, and peer college press are critical factors in postsecondary decision making and raises concerns about how available college information in these social networks limits students' college searches.

Method

This study relies on two datasets; a qualitative sample of 63 in-depth interviews with high school seniors and the Educational Longitudinal Study of 2002 (ELS:2002), a dataset from the National Center for Education Statistics. Qualitative data are analyzed using Nvivo software and quantitative data analysis employs logistic regression.

Data

Qualitative Sample

The qualitative sample is composed of 63 graduating seniors in 2013 from seven mid-Michigan high schools in low-income communities: four rural and three urban. These schools were selected because they were part of a larger research project already in progress. As a result,

[12] These scores are right around the state and national mean of ACT scores in 2012.

the author gained entry through the relationships with school personnel already established through the existing research project, which aided in developing trust with interview participants. In the case of two schools, the author had prior experience as a part-time college counselor in the building, which also helped students feel comfortable sharing their stories[13].

Students were randomly sampled according to their ACT score[14] and gender. Twelve students were sampled from each school; 6 females and 6 males, 2 of whom scored in the "low" range (17-19) and 4 with scores in the "high" range (20-22). This restricted ACT range was chosen for a number of reasons. First, most undermatch literature samples very high achieving students, with ACT scores in the top decile (e.g. Hoxby & Avery, 2012). Instead, this sample represents students closer to the mean of ACT scores. In 2012, when these students took the ACT, the national mean was 21, the Michigan mean was 20, and the sample school means ranged from 15.3 to 20.1 with an average of 18.2. In addition, these scores are right around the threshold of the ACT score required for admission to most four-year schools; the 25% score for moderately selective four-year schools is 18[15]. 84 students were sampled from the seven schools, and 63 completed interviews in April and May of 2013. The remaining 21 were either

[13] None of the participants had been previously counseled by the author.
[14] Since 2007, the ACT has been compulsory in Michigan, taken by students in March of their junior year. This first ACT score was the one used when sampling students, regardless of future test retakes.
[15] Per the Carnegie Foundation: classifications.carnegiefoundation.org/methodology/ugrad_profile.php

unavailable at the time of interview or refused to be interviewed. Students were interviewed at the school building, during the school day, typically during an elective or study hall period.

Table 15: Demographics of Qualitative Sample, by Match Type

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	Matched	Undermatched	Overmatched	Total
Gender				
Male	14	17	5	36
Female	18	15	5	38
Race				
White	18	24	4	46
Black	8	5	5	18
Hispanic	5	2	1	8
Asian	1	1	0	2
Parental Education				
First-generation student	16	8	0	24
Parent with some education	10	15	4	29
Parent with BA/+	6	9	6	21
Urbanicity				
Rural	14	20	4	38
Urban	18	12	6	36

Note: Match is a student with an ACT score in the 20-22 range enrolled in a 4-year school or a student with an ACT in the 17-19 range enrolled in a 2-year school. Undermatch is a student with an ACT score in the 20-22 range enrolled in a 2-year school or a student with an ACT score in the 17-22 range not enrolled in any level postsecondary institution. Overmatch is a student with an ACT score in the 17-19 range enrolled in a 4-year school. First-generation student describes students whose parents have never attended any college.

The analytic sample is composed of 63 students from low-income communities, 32 females and 31 males. 14 students (23%) are African-American, 41 (65%) are White, 1 is Asian (0.02%), and 7 (11%) are Hispanic. 18 students (29%) have parents with no college education, 27 students (42%) have parents with some college education, and 18 students (29%) have parents with a BA degree or more. 34 students (54%) are from rural schools and 29 (46%) are in urban schools. Of the 34 rural students, 33 (97%) are White and 1 is Hispanic. Of the 29 urban

students, 8 (28%) are White, 14 (48%) are African-American, 1 is Asian, and 6 (21%) are Hispanic.

Quantitative Sample

The quantitative analysis utilizes data from the Educational Longitudinal Study of 2002 (ELS:2002) a nationally representative study of 17,590 students who were 10th-graders in 2002, conducted by the National Center for Education Statistics (NCES). The study follows up with these students in 2004 and in 2006. Of the 17,590 eligible students, 16,400 completed the base year, first follow-up and second follow-up surveys. There are 3848 students in the ELS sample with ACT scores between 17 and 22; 2,028 students have complete information on all variables. Analyses comparing the restricted sample with the full sample indicate significant differences on several key variables, indicating that those in the full sample are more disadvantaged than the restricted sample.

Basic descriptive statistics indicate that more than half are female, 14% are low-income (in the lowest socioeconomic status quartile), 18% are first-generation college students (neither parent has received any college education) and most expect to attain a BA degree. Using the

rubric developed by Roderick and her colleagues (2006) it appears that more than half are eligible, according to their ACT and GPA, for highly selective four-year schools[16].

However, a closer look at subgroups within the sample reveals statistically significant differences between the rural and urban students. While rural students are more likely to be low-income and first-generation, urban students are more likely to be minority and to have college-educated parents. Rural students have higher average GPAs but are less likely to have access to International Baccalaureate (IB) or Advanced Placement (AP) courses, are more likely to be in the general education track in their schools, and have lower BA expectation rates than urban students. These patterns suggest that high-achieving rural students are systematically denied opportunities which would position them well to be competitive college applicants, which affects their college ambitions. Rural students tend to apply to fewer schools, and are more likely to be severely undermatched. Lastly, rural school administrators report significantly less school academic press, consistent with a lacking college-going culture.

[16] Selectivity is based on the Carnegie classification system, which uses the 25th percentile ACT scores reported by institutions to identify nonselective institutions, moderately selective, and highly selective institutions. The three groups correspond to 25th percentile ACT-equivalent scores of less than 18, 18-21, and greater than 21, respectively.

Table 16: Descriptive Statistics for the Quantitative Sample

Table 16: Descriptive Statistics for the Quantitative Sample

	Full Sample		Rural		Urban		R/U
	Mean	SD	Mean	SD	Mean	SD	Diff
Demographics							
Female	0.58	(0.49)	0.60	(0.49)	0.58	(0.49)	*ns*
Minority	0.31	(0.46)	0.15	(0.36)	0.45	(0.50)	***
Low Income	0.14	(0.35)	0.17	(0.38)	0.12	(0.33)	**
Rural	0.19	(0.39)					
Urban	0.30	(0.46)					
First Generation	0.18	(0.39)	0.27	(0.45)	0.13	(0.34)	***
Parent w/ some college	0.36	(0.48)	0.38	(0.49)	0.35	(0.48)	*ns*
Parent w/BA+	0.46	(0.50)	0.35	(0.48)	0.51	(0.50)	***
College Preparation							
High School GPA	2.98	(0.52)	3.04	(0.47)	2.94	(0.55)	***
General Ed Track	0.30	(0.46)	0.32	(0.47)	0.24	(0.43)	***
College Prep Track	0.65	(0.48)	0.63	(0.48)	0.68	(0.47)	*
10th gr. BA expectation	0.90	(0.30)	0.87	(0.33)	0.91	(0.29)	*
12th gr. BA expectation	0.84	(0.36)	0.76	(0.43)	0.88	(0.33)	***
IB/AP classes	0.27	(0.44)	0.18	(0.39)	0.30	(0.46)	***
Eligible for Highly Selective	0.52	(0.50)	0.54	(0.50)	0.50	(0.50)	*ns*
Eligible for Somewhat Selective	0.40	(0.49)	0.41	(0.49)	0.40	(0.49)	*ns*
Eligible for Nonselective	0.07	(0.25)	0.05	(0.21)	0.09	(0.28)	**
Eligible for 2-yr School	0.01	(0.11)	0.01	(0.07)	0.02	(0.13)	*
Undermatch behaviors							
Number of applications	2.61	(1.89)	2.27	(1.53)	2.87	(2.02)	***
Undermatch application	0.24	(0.43)	0.31	(0.46)	0.20	(0.40)	***
Severe Undermatch application	0.21	(0.41)	0.27	(0.44)	0.15	(0.36)	***
Enrolled in match	0.25	(0.43)	0.17	(0.38)	0.30	(0.46)	***
Enrolled in overmatch	0.04	(0.21)	0.03	(0.16)	0.08	(0.27)	***
Enrolled in undermatch	0.30	(0.46)	0.28	(0.45)	0.30	(0.46)	*ns*
Enrolled in severe undermatch	0.41	(0.49)	0.52	(0.50)	0.32	(0.47)	***
Social context influences							
Family supervision	2.35	(0.48)	2.36	(0.46)	2.36	(0.50)	ns
Family advising	2.24	(0.58)	2.24	(0.59)	2.22	(0.60)	ns
School Academic Press	4.24	(0.79)	4.02	(0.64)	4.47	(0.85)	***
Peer Academic Press	2.50	(0.45)	2.51	(0.42)	2.52	(0.45)	ns
Helpseeking	0.42	(0.31)	0.37	(0.31)	0.46	(0.31)	***
N	2028		376		609		

Data Source: Educational Longitudinal Study 2002, NCES

Note: Curricular track (general education, college preparatory) is reported by students on the base year student survey. 10th and 12th grade BA expectations are reported on the base year and first follow-up student survey, respectively. Eligibility for college selectivity is determined by the rubric developed by Roderick et al. (2006). Undermatch application indicated that the most selective institution that the student applied to was one level below his/her eligibility as determined by the rubric developed by Roderick et al. (2006). Severe undermatch application indicates that the most selective institution that the student applied to was two levels below his/her eligibility determined by the Roderick et al (2006) rubric. Matched students are enrolled at institutions which match their eligibility. Overmatch students are enrolled in institutions which are at least one level above their determined eligibility. Undermatched students are enrolled in institutions which are one level below their eligibility. Severely undermatched students are enrolled in institutions which are two levels below their eligibility. R/U diff is comparison between rural and urban means through two-tailed t-test of equivalence of means. Family supervision is a composite variable composed of BYS86A, BYS86B, BYS86C, BYS86D, and BYS86G (scale=0-3). Family advising is a composite scaled variable composed of BYP56A, BYP56B and BYP56C (scale=0-3). School academic press is a composite scaled variable composed of BYA51B, BYA51D, BYA51E, and F1A19A (scale=0-5.25). Peer academic press is a composite scaled variable composed of BYS90A, BYS90B, BYS90D, and BYS90H (scale=0-3). Help-seeking is a composite scaled variable composed of BYS59A, BYS59B, BYS59D, BYS59E, and BYS59G (scale=0-1).

*** p<0.01, ** p<0.05, * p<0.1

Qualitative Measures

This study defines undermatch as a student attending a postsecondary institution which is less selective that their academic credentials would predict. This outcome is compared to those who match or overmatch. For the qualitative sample, match is defined as a student with an ACT score in the 17-19 range who attends a 2-year school or a student with an ACT in the 20-22 range who attends a 4-year school. Overmatch is a student with an ACT score in the low range (17-19) who enrolls in a 4-year school, which in this sample is primarily due to sports scholarships. Undermatch is observed when students with high (20-22) ACT enroll in a 2-year school or when a student with a low- or high-ACT score has no identified postsecondary plan at the time of interview.

Quantitative Measures

Using the Roderick et al. (2006) rubric in the Appendix, I assign match types to students. Match is defined as applying or enrolling in a school which is at the same level as one's eligibility. Undermatch is defined as applying or enrolling in a school which is one level below one's eligibility (e.g. enrolling in a somewhat selective school rather than a selective institution), and severe undermatch is two levels below one's eligibility.

I develop composite indicators comprised of variables indicating family advice, school academic press, peer academic press, academic performance, and help-seeking using confirmatory factor analysis. The family advice construct has two components: one which is student reported, composed of five variables indicating the extent to which students consult their parents on (a) selecting courses (BYS86A), (b) school activities (BYS86B), (c) things studied in class (BYS86C), (d) grades (BYS86D), (e) going to college (BYS86G) (α=0.813); and one which is parent-reported advising regarding (a) selecting courses (BYP56A), (b) plans for

college entrance exams (BYP56B), and (c) applying for college (BYP56C) (α =0.725). The school academic press construct is composed of three indicators of school climate contributed by the school administrator; that teachers press students to achieve (BYA51B), that learning is a high priority (BYA51D), and that homework is expected (BYA51E), as well as the percentage of 2003 graduates who enrolled in 4-year colleges (α =0.778). The peer academic press construct is composed of four variables indicating the extent to which the students' friends think it is important to (a) attend classes regularly (BYS90A); (b) study (BYS90B); (c) get good grades (BYS90D); and (d) continue their education past high school (BYS90H).and peer academic press, reported by the student in the base year (α=0.801). The academic performance construct is composed of the 10th grade norm-referenced standardized scores for reading and math components of the ELS survey (BYTXCSTD), cumulative GPA for all four years of high school on a 4.0 scale (F1RGP), and cumulative ACT score (TXEEACTC). Finally, I include an indicator of help-seeking behavior, composed of five variables indicating that students reported seeking help from their teachers (BYS59A), counselors (BYS59B), parents (BYS59D), friends (BYS59E), and other relatives (BYS59G) regarding college (α=0.643). While rural and urban students do not differ with regard to their reporting of the prevalence of family and peer influences (as seen in Table 10), there are significant differences regarding school academic press and help-seeking.

Qualitative Results

Qualitative Analytic Plan

The interviews were semi-structured and conducted solely by the author, lasting approximately 40 minutes. The interview protocol was piloted with a small random sample of high school seniors from the class of 2012 in a subset of the schools. These schools were selected

because they were part of a larger research project already in progress. As a result, the author gained entry through the relationships with school personnel already established through the existing research project, which aided in developing trust with interview participants. In the case of two schools, the author had prior experience as a part-time college counselor in the building, which also helped students feel comfortable sharing their stories. Students were interviewed at the school building, during the school day, typically during an elective or study hall period. Having several students in each school provides triangulation which assists in obtaining a deeper understanding of the school context.

The protocol was comprised of open-ended questions aligned with various domains including the college search process, relationships with family, school and peer college press, and visualization and expectations for college. Using the NVivo software, interviews were coded for themes related to family, peer, and school influences on postsecondary decision-making to better understand the role that these domains played in the decision-making process for these students. First interviews were coded for any reference to family, peer or school messages about college and school. The next level of codes refined these broad categories, looking for themes and patterns within these domains. Comparing students from rural and urban settings, and across different levels of parental education and match, differences emerged.

Qualitative Findings

Students' perceptions of the college press they received from their families differs across the range of parental education. Those whose parents did not attend college describe minimal family college press, in contrast with those whose parents had any college education. Similarly, undermatched students describe only vague notions of college press, or have internalized the expectation of college although they do not identify their parents as a source. Matched students

talk much more consistently about how college was expected from their families; many can't remember a time when they did not know that they were going to college, and many had college-bound siblings as examples. Additionally, while the intensity of family college press does not seem to vary between rural and urban students, the content does; rural students are far more likely to report that their families want them to attend colleges closer to home.

While many students in this study reported the influence of an instrumental teacher or counselor at their schools, rural students reported little of this one-on-one guidance. Additionally, although support and information is available, the onus is on the students to seek out that help if they need it. Too many students are unwilling to solicit help, or believe that they should be able to navigate this path without help, and fail to take advantage of the resources in their schools. Peers also play a special role in supporting or undermining students' postsecondary ambitions. Many students form close friendships during high school with likeminded peers who share and encourage their academic ambitions, but there may be expectations in these friendships that students will continue along a similar postsecondary trajectory, especially in rural communities. In some cases following the crowd means attending a college that is not a good academic match. Undermatched and overmatched students spoke about the experience of diverging from the postsecondary path their peers were following. Without adequate support

from school and home, diverging from the crowd is too socially costly for many students to bear, resulting in students pursuing postsecondary paths which are poorly suited to their academic credentials.

Family college press

Both rural and urban matched students describe the expectation of college from their families. Jasper[17], an urban matched student whose parents both have BA degrees, echoes: "I don't think it was ever my choice. I was going to college. I mean, I even joked one time about, to my dad, 'I don't wanta go to college.' And then he's like, 'What? You've gotta go to college. You're going to college.' I was like, 'Okay, okay, okay.' It was never my choice to go to college. I had to go to college. And, I mean, my parents raised me that I knew I wanted to go to college anyway so it wasn't that big of a deal."

Ginger, a rural matched student whose parents had some education, expresses her perception that college was not truly a choice in her family either:

G: School's not my favorite thing.
Kri: But you wanna do it?
G: Yeah.
K: Or you feel like you don't really have a choice?
G: Yeah. (laughs)
K: So is that true? Do you feel like you don't really have a choice? Do you think they would freak out if you didn't go?
G: They would freak out.

[17] All names of people and places are pseudonyms.

K: Yeah?
G: They would freak out a lot.
K: 'Cause they would feel like you were giving up or ...
G: Yeah. (pause) Yup.

However, undermatched students articulated more ambiguous messages from home regarding the importance of college. Fred, a first-generation urban undermatched student explains the influence of his family: “My mom and dad basically want me to do good in my life so kinda just kept on pushing me. My brother's the one who kinda got me into schooling. [Telling me] to go to school and what to do while I'm in school.” This stands in sharp contrast to those few overmatched students, who reported that their families had been sources of inspiration and support in their college efforts. While Alex, an urban overmatched student, has a father who completed his BA, his mother took time off from school and ended up not finishing. He recalls that “she said ‘Don't try to take time off. Go to school, finish it just like your dad…Don't make the same mistake I did. Finish high school, finish with college. Do everything you possibly can to get through with it because your life will be ten times better.’"

While there were no clear differences between rural and urban regarding the message about the importance of college, there were noticeable differences in the content of the message. Specifically, rural students were consistently encouraged to stay closer to home, consistent with Turley’s (2006) work on college-at-home parents. Abby, a first-generation matched rural student describes her father’s reaction to her choice of a four-year school: “He’s still mad that I’m going to a university instead of going to a community college first. [Because he] wants me home longer.” It would have likely caused less stress within the family for Abby to undermatch to a local community college, as her father wished, but she was determined to begin at a four-year school. Kayla, an undermatched rural student whose parents have some college education, found

herself in a similar situation, but she made the other choice. She explains that her parents were pleased with her choice to attend a two-year school instead of a four-year school:

> K: They wanted me to stay. I'm like the oldest so it's like they don't really want us to grow up yet.
> Kri: Uh huh, okay. But were you like, "But I need to go"…?
> K: Yeah, at first I was. Like I really was set on going away to college. For like the experience. That's the most [sic] reason I wanted to go away, for the experience, but I understand now and I'm glad that I'm going to MCC[18].

School college press

Comparing matched and undermatched students, both groups report that their schools are providing general messages about the importance of college which are targeted for a mass audience (McDonough, 1997). Teachers and counselors in these schools convey the notion that *college is a good thing to do,* and encourage all students to attend. Related to this theme is the idea that it doesn't matter where you go to school as long as you go.

Tyler, a rural undermatched student, shares:

> Yeah, most teachers, teachers always encourage you to go to college. And the counselor, we've had two but I feel both of them had the same message, you know. To be able to get the better paying job and having the better paying life, you're gonna have to go to college. And that's what the, I think the message is for this generation. I mean, whether it's college or a trade school or through apprenticeship, something where you're going to become more trained to do

[18] Metro Community College, a pseudonym.

something. Doesn't matter whether you're gonna be a lawyer or a plumber or anything.

Indeed, with lower-than-average counselor to student ratios in all but one of the sample schools, students in these schools have ample access to college support. However, while support is available, *students must take the initiative* in seeking out personalized college guidance. When asked if she thought that everyone got the same kind of help from counselors at her school, Katherine, a rural student replies that some students get a little more: "It's probably the people that ask for the extra help that would get the extra help. If you don't ask I don't think you're gonna get that extra help. You're just gonna end up basically behind a little bit." Lauren, an urban student, credits her counselor for helping her by "telling me about scholarships and, like, if I had questions about applying or anything I'd go to her and she'd just help me with it." However, several undermatched students report that the counselors didn't pay attention to them, or that they *failed to offer timely help*. Carlton, an urban student who failed to enroll in any postsecondary institution, illustrates this:

K: Was anyone on your case about applying places this year?
C: No
K: How come?
C: I don't know
K: Nobody, not even, not here at school? Nobody at home or anybody? No, it was just up to you?
C: Yeah
K: And you just didn't do it.
C: Yeah
K: How come?
C: Laziness

Hence, the onus appears to be on students to obtain help with college. Indeed the handful of overmatched students in the sample talked about how they felt that many students failed to take advantage of the available resources. But many students expressed an *unwillingness to seek*

help from those whom they don't know well. Even within a school, students feel closer to some staff members than others, which affects the social capital and college knowledge they have access to. Joe, a rural undermatched student describes his process:

K: Where did you get most of your information about college stuff?
J: Mainly through Mr. Walters, my accounting teacher. He's been huge for me
K: Okay. So what kind of information did he give you?
J: Basically, what the college is like, where it's at, how much it would cost. He gave me a roundabout number but I had to look it up. And then he told me what the sports team was like, they're not really that good but… Just basically, all in all, it's a really good college, very prestigious school.
K: Uh huh. So was anyone else helping you with like trying to figure out where you wanted to apply and what to do and when and all that?
J: No, not necessarily, no.
K: No? Was it, was there help that you could've gotten if you'd asked for it or did you not feel like there was anyone really that you could talk to about it?
J: Well, there's always stuff you can ask for but I kinda like to stay to myself and the people I know so when I had a question, I always went to Mr. Walters about it.

In this way, Joe's search was limited to the schools with which Mr. Walters was familiar, which meant that Joe only applied to the one school Mr. Walters recommended. So while teacher involvement is consistent with a strong college-going culture, this teacher's limited experience and training in college guidance results in Joe narrowly limiting his college application pool, and subsequently undermatching.

Other students report an overall *lack of information* available at their schools, and a reliance on information from their friends, parents, or other sources. However, others describe an *instrumental teacher or counselor* who greatly aided them in their college search process. Anthony, a rural student, credits his counselor Ms. Gomez with guiding him through the process of applying to the local community college. Aneri, an urban student describes her math teacher, who "became a role [model] in that whenever he did his lectures, he would always say this is

what would happen in college. Your 101 professor, this is how they want a math problem. So I'm kinda like, okay, that's different. I've never heard somebody use their lecture to play with 'this is how it's gonna be in college". Having college-level expectations forecast in class, a critical component of a school-wide college-going culture so that students could begin to familiarize themselves and prepare for them, was a new experience for this student.

However, a closer look at this last theme about instrumental support from teachers and counselors indicates an interesting disparity between rural and urban students. Only one rural student describes an instrumental teacher or counselor being helpful to him in his process, and this counselor was in fact on maternity leave for much of the student's senior year. The other students who report a critical relationship are all urban students. Recognizing the prevalence of undermatch in rural communities, and importance of these social capital resources, particularly for first-generation college students, in providing key information and support to students during their college search, the presence or absence of these individuals in rural schools might be an area of particular concern..

Therefore, while schools are conveying the general message that college is expected and desirable for all students, individualized help is only available if one seeks it out. Because of students' aversion to seeking help, particularly from people outside of their network of trust, students are in some cases advised by teachers with limited college knowledge. Schools also maintain relationships with local colleges that alter the general messaging at those schools. The urban schools in my sample all have a partnership with Metro Community College (MCC) whereby many low-income students are eligible for a two-year scholarship to MCC if they complete a set of required activities. Similarly, one rural school in the same region maintains a close relationship with a local career college, offering dual enrollment for students, which

smoothes the process of enrolling there upon graduation. These relationships consequently impact the *habitus* of the schools, the norms of college-going behavior for students in these schools, and the messages students receive from school personnel. Consequently, academically overqualified students will often select these schools based on their familiarity with these options, rather than engaging in a thorough search. School counselors are complicit in this process, which results in undermatch.

Lastly, it's worth noting that there are students who talk about always knowing they would go to college among the matched and undermatched students (Grodsky & Riegle-Crumb, 2010). This internal college-going *habitus* therefore does not necessarily preclude students from undermatching. These students still require the support from those around them to align their ambitions.

Peer college press

When talking about the role that their peers played in their postsecondary decision making, two main themes emerge among overmatched, matched, and undermatched students: *presence/absence of college talk* and *diverging from the crowd*. Matched and overmatched students talk about the presence of college talk among their friends, and undermatched students describe a lack of college talk in their networks. Josh, an undermatched urban student exhibits this lack of college talk:

Kri: What are most of your friends doing? Are they going to MCC? Or are they going other places?
Josh: Some of them, one of my friend's going to MCC. Another one's going to Northern.
K: Okay. What are they doing at Northern? Are they playing something, sports or something?
J: I think one's going for like law enforcement or something. I have no idea.
K: Okay. You guys don't talk about it much?
J: We don't really talk about schooling much.
K: How come?

J: I don't know. Cuz it's not really what we talk about, I guess.

Natalie, a rural undermatched student, echoes this sentiment when I ask her if her friends have influenced her educational goals: "Not really. Like we've all tossed out what we're planning on doing and stuff but I like had my goal set like way before they knew what they were doing. I don't even know if half of them know what they're doing yet". She later adds that some of her friends might not be graduating this semester. This lack of college talk stands in sharp contrast to the bustle of college conversation described by matched and overmatched students. Logan, a matched urban student suggests, "[college is] like the main topic of conversation right now for any group of friends really. Like school, what's happening next year? Graduation's right around the corner so what are you doing?" Kassandra, a rural matched student, describes the way she and her friends supported each other: "They're all smart, too, and they all have goals for themselves and they all wanta make something out of themselves so it's kind of like we all encourage each other. We kinda all shared information with each other and helped make decisions and what school would fit us all best." Similarly, Grace, a rural student, relates: "I think all my friends like are going to college, like all the people that I know. So I think that that probably influenced me to go to college even more."

Both matched and undermatched students talk about the importance of their peers during the college application process, but students also describe the distance between themselves and their peers as their academic paths diverged. Matched and overmatched students describe leaving their friends behind to attend more selective schools, and undermatched students share their experiences of being left behind. Alana, an urban undermatched student describes her divergent path:

Kri: Are most of your friends going straight to four year schools?
Alana: Yeah, most of them. There might be a few that's going to MCC.

K: Yeah. Does it feel weird that you're starting at MCC and everyone else is going to four year schools?
A: At first it did because I felt, I just wanted to leave. I just wanted to go. But then it made more sense to go somewhere it was paid for[19]. I'd get the same education in a better setting than anywhere else.
K: In a better setting, what do you mean?
A: As in class sizes and like teacher relationships.

Alana here exhibits the commonly-held belief that community college offers the "same" education as a 4-year school in a setting with smaller class sizes and better student-teacher relationships. Andrea, another urban student, shares that she thinks that her friends expected her to attend a 4-year school, but she didn't feel ready for that big of a transition. On the opposite end of the spectrum, matched and overmatched students experience the distance as they aspire to more selective institutions than their peers. Cass, a rural student, describes her conflicted feelings about going away to school and leaving her friends behind.

Kri: In your group of friends, are you one of the only people that's going to a four year school?
Cass: Yeah
K: So how is that?
C: For a while, I felt out of the loop. Like I was losing my little niche of friends. But I'm gonna get so much more out of it than just what my friends are. So I think it will pay off in the end.
K: Do they wish that you were coming to MCC with them?
C: They do. Of course, they want me to stay here but they're very excited for me to go away.
K: Why do you think it didn't work out for them?

[19] Alana qualified for the urban district's MCC scholarship, described earlier.

C: Some grades and their home life and they didn't have like the ambition to go to a university and be on their own. Like they kind of are scared out of it. They wanta stay here and do something that they've always known. So I guess that they just had a lot of fear in it and they also wanted to save money. Definitely money, home and fear is just everything that's persuaded them to stay here.

Cass credits her father and brother for helping her choose a 4-year school, and helping her believe in her ability to do it, even though she was initially scared and planned to attend a 2-year institution instead. These students also share that, as their paths diverge, their friends no longer have the relevant college information or serve as positive influences. Payton, an urban student, talks about how her friendships at school proved to be a distraction as she decided to focus more on school. When asked if her friends influenced her goals for college, she replies: "Not really, because most of my friends, like we never really sat and talked about it but most of my friends really are kind of like just friends *for now*. Like I have a few friends I'm gonna stay in touch with but most of them really don't have a big influence on me. They used to, back like in my freshman year and sophomore year, they used to have like the biggest influence on me but now, like really, I'm more like self-influenced." Eddie, an urban student attending a school with the International Baccalaureate (IB) program, discusses the differences between the influence of his friends from IB and regular classes. When asked if he learned anything from his friends, he answers: "My IB classes, probably, yeah. And then when I go to my regular classes, like no. It's like a complete switch. It's just how they care, I guess. They really don't care, in my other classes." He also notes that "it's mostly black people and like Mexicans" in his regular classes "and then I go to my IB classes, it's mostly white people". As an African-American student, Eddie is highly aware of several ways in which his path diverges from his peers.

Several undermatched students talk about the importance of having a peer group with similar goals and values during the college search process. Bob, an urban student, shares his experience:

> Bob: Since 6th grade, I've pretty much hovered around with the same group of students cause we've all been in honors classes. So being with the same group of likeminded people has really helped. Cause we all have the same goal. We all wanna go to college. We all have very high thoughts for what we wanna do with the rest of our lives. So they've just kind of reinforced my own opinion in my mind that, yeah, I'm gonna go to college and do this, this and this. But it's nice instead of hanging around with people who, you know, could care less.
>
> Kri: Okay. Did you learn anything about the college process from your friends?
>
> B: I think we've all kinda learned together. You know, since 6th grade, it seems like all of our counselors have always kind of pushing us. Well, you know, you can go do this workshop or you can learn about this. Hey, everybody, let's go to the computer lab. We're all gonna do this same survey about careers together. So I think we've all, it's been a learning process for all of us at the same time

However, this peer group facilitates Bob's undermatch, as he follows the postsecondary path that the rest of his friends are taking. In this way, some peer groups may limit students' aspirations, due to the difficulty of diverging from the group norm. Hence it appears that peers can be sources of needed support, but that students are keenly aware of the ways in which their postsecondary paths diverge from the crowd, and the implications of that divergence. It takes strength and determination to break away from social norms. Without support from family or school personnel, some high-potential students may feel like they have to conform to the norm of undermatch rather than aspiring for a more selective option. For other students, the more selective path that their peers are taking feels out of reach, for financial and/or emotional reasons.

Observing the power of family, school, and peer influences in the qualitative data, I turn to the nationally representative Educational Longitudinal Study of 2002 to evaluate the strength of these influences in a structural equation model.

Quantitative Results

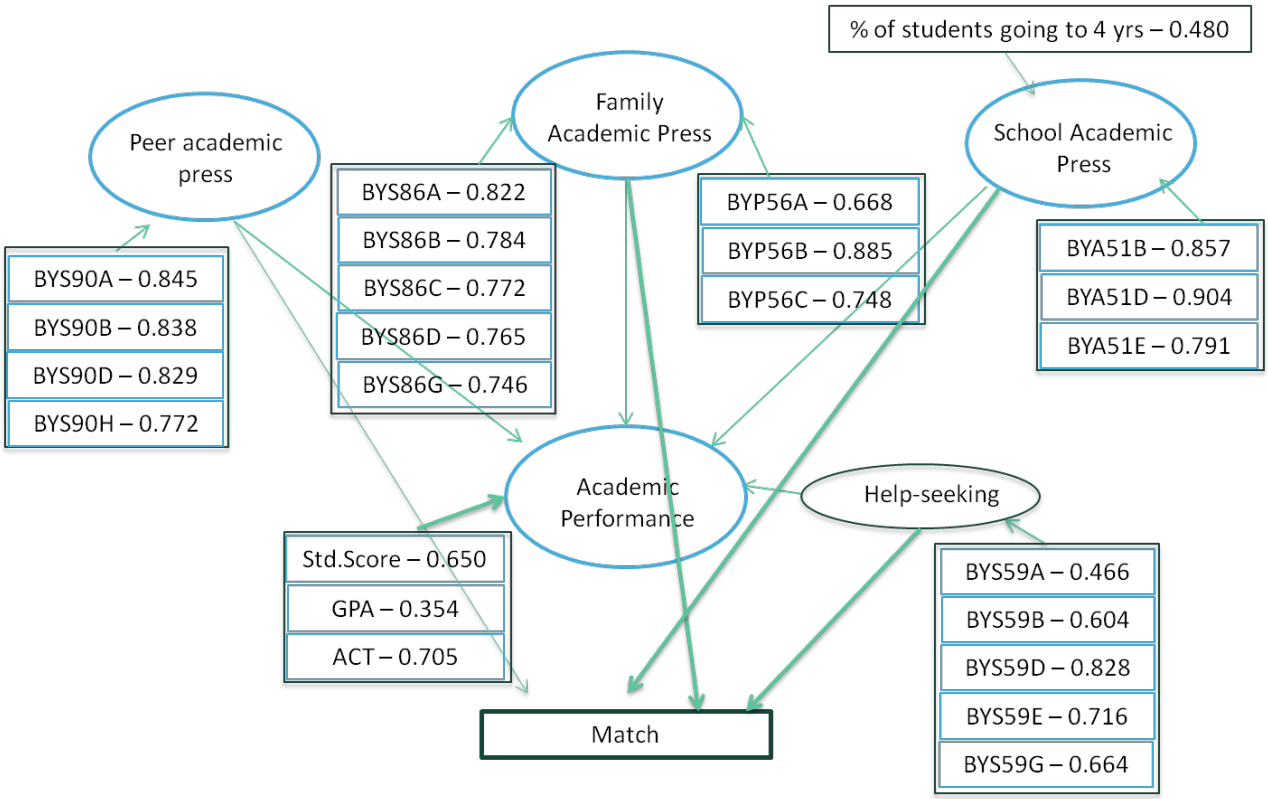
Quantitative Analytic Plan

I begin with the full sample of students with ACT scores between 17 and 22 and test a structural equation model with family involvement, school and peer academic press, and help-seeking behavior predicting academic performance and college match (coded as a categorical variable: 2=overmatched, 1=matched, 0=undermatched). The default in MPlus is to run a probit model which essentially transforms the categorical outcome variable, match, into a continuous latent variable with a range of -1 to +1. One could think of this outcome variable as an indicator of match quality, with a higher value indicating an improved match. After securing good model fit, I test differences between subgroups (male/female, rural/urban, low-income/other, white/minority, first-generation/legacy) to learn how the strength of individual pathways vary between groups.

Quantitative Findings

First, I tested to see if the individual constructs described earlier representing family involvement, school academic press, peer academic press, and help-seeking composed the latent variable measured in the model. These models all indicated good model fit, so I proceeded to enter them into a large measurement model to evaluate their relationships together.

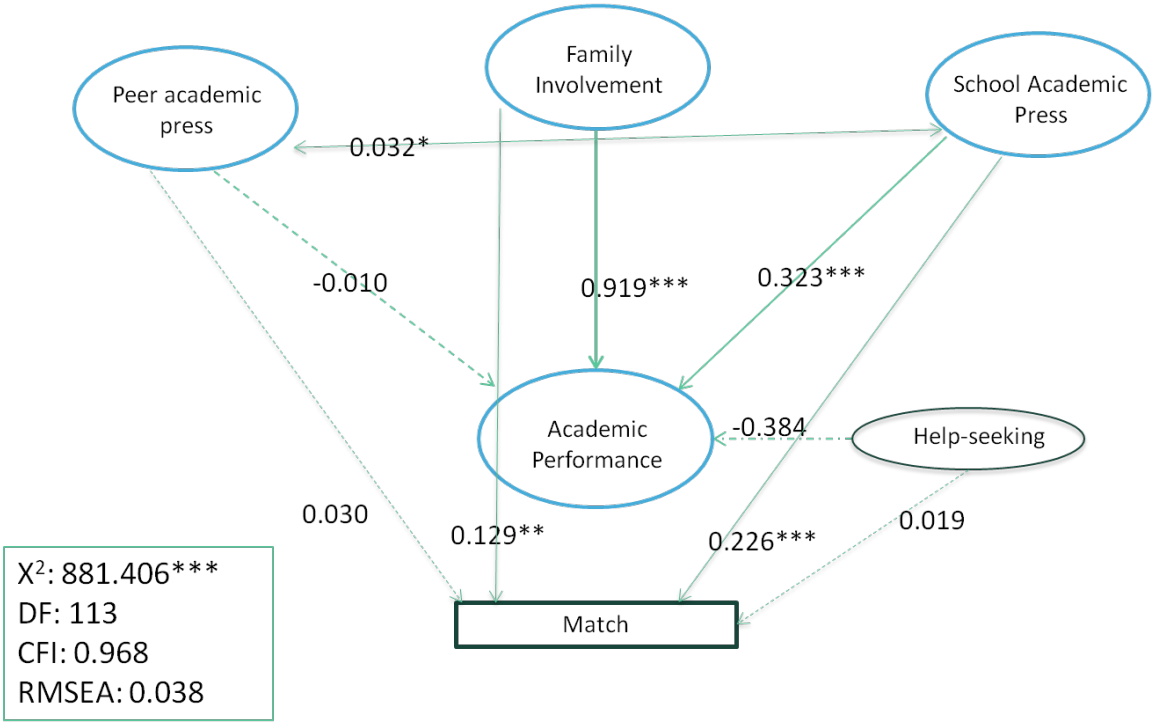
Figure 1: Measurement Model for the Sample of Students with ACT scores between 17 and 22



The measurement model shown in Figure 1 presents the loadings that each of the observed variables have for the latent constructs. This measurement model indicated good model fit (χ^2=23480, df=113, p<0.000, CFI=0.968, RMSEA=0.038), so I proceed with the structural model. The full structural model, shown in Figure 2, indicates the strength of the influence from family, peers, school, academic performance, and help-seeking. It appears that, in contrast with the qualitative findings, peer academic press does not have a strong influence on either academic performance or match quality in the general sample. Similarly, help-seeking does not play a significant role in explaining students' academic performance or match quality. It appears that family involvement is the strongest influence on academic performance in the large sample, and that school academic press is the strongest influence on college match behavior. Interpreting the coefficients for match quality is similar to interpreting coefficients for a standard OLS

regression: a one unit increase in family involvement yields a 0.129 increase in match quality, for example.

Figure 2: Structural Model for the Sample of Students with ACT scores between 17 and 22



However, this does not help us understand differences between subgroups. To understand how these relationships vary across subpopulations of interest, I develop group models for each of the subgroups and test the relationships between the key constructs in the model. Defining groups and employing the DIFFTEST command in MPlus compares the model in two defined subgroups to evaluate the difference in strength between salient pathways using a chi-square test. The DIFFTEST process involves creating two models; one with all parameters, including thresholds, fixed between two groups, and one with the parameter in question freed (Asparouhov & Muthén, 2006). DIFFTEST compares the two models and performs a chi-square test of differences. For each of the five subgroups of interest, I compare them with their relevant comparison group, and evaluate the key pathways in the model by freeing each parameter in

turn. Table 11 presents the standardized path model coefficients for each group model and the chi-square value and its associated significance level for the difference test. A significant chi-square value indicates that freeing the parameter changes the model fit significantly, which implies that the relationship differs significantly across groups.

The first subgroup is female students. Comparing the female and male models, it is apparent that none of the DIFFTEST results are significant. While many of the pathways between variables are significant within the female subgroup, there are no significant differences in the relationships between models. This lack of differences suggests that although family involvement is a significantly strong influence on female students' academic performance (γ =0.182, p<0.01) and college match quality (γ =0.118, p<0.01), these relationships are comparable in the male sample, so gendered differences are not observed. School academic press has a similar, gender-neutral effect. Peer academic press is only significant in predicting match quality for female students (γ =0.122, p<0.01), but this difference does not reach statistical significance.

In striking contrast, the comparisons between White and non-White models have several significant DIFFTEST results. The first significant difference is in the relationship between family involvement and academic performance; for Whites this is a very strong relationship (γ =0.250, p<0.01), but not so for non-White students. Similarly, there were significant differences regarding the impact of school academic press. School academic press was a strong influence on academic performance for non-White students (γ =0.133, p<0.01), but not so for White students. However, the messages regarding the importance of academics from school seemed to influence both Whites' and non-White students' college match quality, although this relationship among White students is significantly stronger (χ^2=15.016, p<0.001). Lastly, the relationship between

help-seeking behavior and academic performance is significantly different between Whites and non-Whites. The negative coefficient for non-White students (γ =-0.166, $p<0.01$) indicates that these students who seek help are more likely to have lower levels of academic performance.

The third subgroup is low-income students; those students in the lowest SES quartile, compared with those students in the other three quartiles. Low-income and higher-income students differ significantly with regard to several pathways. The first significant difference is in the relationship between family involvement and academic performance. This relationship is much stronger for higher-income students (γ =0.201, $p<0.01$), than for low-income students. These students also differ with respect to the role that help-seeking behavior plays in their academic performance and college match quality. Similar to non-White students, low-income students are more likely to exhibit help-seeking behaviors if they have lower levels of academic performance (γ =-0.203, $p<0.01$). But low-income students are also likely to benefit more from help-seeking behavior when it comes to college match quality (γ =0.136, $p<0.05$) than their higher-income peers.

Comparing rural and non-rural students, there are no significant DIFFTEST results. There are only two significant pathways for rural students in this model: family involvement's influence on academic performance (γ =0.154, $p<0.05$) and school academic press on college match quality (γ =0.113, $p<0.05$). But the non-significant DIFFTEST results indicate that these relationships do not differ qualitatively between rural and non-rural populations in the sample.

Lastly, comparing the first-generation college students with their peers whose parents have some college education, there are some significant differences. Primarily, these groups differ with respect to the influence of school academic press. Students whose parents have some college education ("legacy" students) indicate strong relationships between school academic

press and academic performance (γ =0.101, $p<0.01$) and college match quality (γ =0.197, $p<0.01$), while these relationships are not significant for first-generation students.

Discussion and Implications for Practice

With an ever-expanding cadre of programs aimed at improving college access for low-income, minority, and first-generation college students, policymakers must be certain that these initiatives are aimed at the correct levers for change. Qualitative and quantitative analyses indicate that there is not a one-size-fits-all approach for impacting students' postsecondary decision making. While there don't appear to be significant gender differences in these relationships, these data suggest that the impact of these influences is racialized. Non-White students showed a stronger relationship between school academic press and academic performance. Both White and non-White students' college match were strongly influenced by school academic press, but the relationship was stronger among Whites, which may be indicative of the fact that non-White students are more likely to be concentrated in schools with poor college-going cultures.

It also appears that family involvement is more influential for higher-income students than for low-income students. This could indicate a lack of advising and guidance on the part of low-income families, but a two-tailed t-test of means for the help-seeking construct suggests that this is not the case ($t=-0.08$, $p=0.94$). Instead, it appears that low-income students don't rely as heavily on the support and advice of their families. Perhaps it is due to different levels of social capital present in these family networks. Family involvement among higher-income families is informed by social networks with more educational experience, and better-educated families may be more aware not only of the importance of family support for education, but of key strategies in encouraging students to perform well (Lareau, 2000). However it is encouraging to see that

low-income students were more likely to seek help when needed, and benefitted from help-seeking strategies when it came to college match.

It is surprising that the quantitative analysis offered no support for the differences observed among rural and non-rural peers in the qualitative analysis. Help-seeking does not seem to play the same role in the quantitative data as it for rural students in the qualitative same. However, comparing the self-reported help-seeking between rural and non-rural students reveals that rural students are significantly less likely to seek help ($t=3.82$, $p<0.001$). Perhaps this behavior does not appear to be significant because it is happening too infrequently. While rural students are less likely to seek help during the college search process, help-seeking seems to play a significant role in their college application behavior. If their social networks do not contain individuals with college knowledge, these students are at greater risk of undermatching. Schools can address this issue by dispersing college information throughout the staff, and providing professional development to teachers concerning appropriate college guidance. In a college-for-all context, where school-wide college-going cultures are the goal, counselors are no longer the only ones providing college guidance to students, so information and advice regarding supporting students through the college search process are needed.

There are significant differences between first-generation and legacy students with regard to the influence of school academic press. As in the minority student analysis, school academic press was not significant for first-generation college students. This may indicate that these students are concentrated in schools with less academic press. Indeed, it appears that there are significant differences between the schools that first-generation students are in and those which their legacy peers attend with regard to academic press; these students have access to lower levels of school academic press ($t=2.08$, $p=0.04$). This is consistent with the qualitative results.

Lastly, the quantitative analyses partially support the qualitative data in suggesting that peers can be a significant influence on students' postsecondary decision making, perhaps as a result of the strong friendships that form during high school and set norms for postsecondary behavior. Students for whom a postsecondary match constitutes diverging from their peer crowd require extra support from family or school in order to overcome the power of peer influence. Indeed, it seems that if we are going to meaningfully address the problem of rural undermatch, we need to address the peer college culture in these schools. It is evident from particularly the qualitative data that peers exert a strong influence during the college search process, and can motivate talented students to pursue less selective academic pathways than those for which they are qualified. This peer culture is of course shaped in part by the habitus of the school and the messages students get from their families and schools about college options. But shifting our target to the peer culture might be a critical opportunity for change.

Limitations

There are a few limitations to the current study. First, the qualitative study design failed to include interviews with parents, school personnel, or peers, which would have greatly enhanced the quality of the data as well as providing validity checks. Instead, I rely exclusively on student interviews to evaluate the school climate as well as parental involvement and messages from peers. The fact that this study was done in the context of a larger longitudinal research project meant that relationships had already been established with school personnel which in most cases made it easier for the author to gain entry to the students, particularly in the rural schools. But this broader knowledge of the culture of the school and existing relationships cannot replace interviews with parents, counselors, and other students in acquiring a deeper level of understanding of the context.

Secondly, the structural equation model as currently modeled does not account for the nested structure of the data, with students in ELS sampled within schools. In order to truly account for this data structure, I would need to build a multilevel structural equation model. In future analysis I plan to explore this technique. Another approach would be to employ hierarchical linear modeling to examine patterns at the school and student level, in order to better understand each level separately.

Conclusion

This study yields a more nuanced perspective on the undermatching phenomenon. By considering the impact of family, school, and peer influences, through both qualitative and quantitative analyses, as well as exploring the intersections of gender, class, race, rurality, and generational status, this paper helps us understand the complex ways in which students' multiple identities shape their postsecondary choices. Students are situated in their social contexts, internalizing the accompanying habituses which form their worldview. The expectations and messages they receive about college serve to define and often restrict their choice set. We see that female students are particularly vulnerable to the influence of family and that peers are a stronger influence for minority and rural students. We see in both the qualitative and quantitative analyses the importance of help-seeking for rural students, as well as their reluctance to employ this behavior. Moving forward, it is critical that we consider students' cultural identities in developing interventions aimed at reducing undermatch. Simply providing more information and resources are not enough; we need to understand the ways in which this information fits into the existing habitus of the student and their social context.

Table 17: Academic Performance and Match, Group Model results for Subgroups, including Chi-square tests of difference

Table 17: Academic Performance and Match, Group Model results for Subgroups, including Chi-square tests of difference

Standardized Path Coefficients	Female	Male	difftest	Minority	White	difftest	Low-Income	Hi-Income	difftest	Rural	non-rural	difftest	First-gen	Legacy	difftest
Family Involvement															
on Academic Performance	0.182***	0.165***	0.08	0.02	0.250***	9.226***	0.07	0.201***	4.085**	0.154**	0.191***	0.46	0.137**	0.175***	0.729
on Match	0.118***	0.06	1.13	0.08	0.090**	0.06	0.111*	0.084**	0.08	0.07	0.094**	0.18	0.120**	0.06	0.692
School Academic Press															
on Academic Performance	0.070**	0.077**	0.013	0.133***	0.014	4.813**	-0.02	0.081***	1.64	0.08	0.084***	0.01	-0.05	0.101***	5.227**
on Match	0.187***	0.198***	1.37	0.101***	0.264***	15.016***	0.102*	0.203***	3.34	0.113**	0.196***	0.85	0.07	0.197***	4.487**
Peer Academic Press															
on Academic Performance	0.03	-0.04	1.41	-0.096*	0.03	3.683*	-0.08	0.02	1.22	-0.07	0.01	1.41	0.03	0.01	0.09
on Match	0.122***	0.06	1.49	0.02	0.03	0.01	-0.04	0.03	1.14	0.04	0.03	0.01	0.07	0.02	0.51
Help-seeking															
on Academic Performance	-0.074*	-0.035	0.586	-0.166***	-0.04	4.531**	-0.203***	-0.02	4.936**	-0.09	-0.03	0.70	-0.09	-0.03	0.61
on Match	0.04	-0.02	2.34	0.02	0.03	0.02	0.136**	-0.01	5.456*	-0.01	0.01	0.12	0.10*	0.00	2.57

Data source: Educational Longitudinal Study 2002, NCES

*** p<0.01, ** p<0.05, * p<0.1

Note: Structural models were developed for each subgroup using MPlus. Measurement and structural models indicated good fit for each group. Standardized coefficients are presented for selected paths with significance indicators. Academic behaviors is a latent construct composed of GPA, ACT, and standardized test score. Match is categorical variables indicating whether or not students enrolled in an institution matched to their eligibility, as determined by the rubric developed by Roderick et al. (2006). DIFFTEST compares a model with all parameters fixed with a model with one freed parameter. A significant DIFFTEST indicates that the relationship is significantly different between the models, suggesting that the relationship varies across groups.

APPENDIX

Table 18: Rubric for Determining Match, based on students' GPA and ACT score

	2.0 or less	2.1-2.5	2.6-3.0	3.1-3.5	3.6-4.0
Missing ACT	**2-yr** colleges	**Nonselective** 4-yrs	**Somewhat selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs
<18	**2-yr** colleges	**Nonselective** 4-yrs	**Somewhat selective** 4-yrs	**Somewhat selective** 4-yrs	**Selective** 4-yrs
18-20	**Nonselective** 4-yrs	**Somewhat selective** 4-yrs	**Somewhat selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs
21-23	**Somewhat selective** 4-yrs	**Somewhat selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs
24+	**Somewhat selective** 4-yrs	**Selective** 4-yrs	**Selective** 4-yrs	**Very selective** 4-yrs	**Very selective** 4-yrs

Source: Roderick, Nagoaka, & Allensworth (2006). From High School to the Future: A first look at Chicago Public School graduates' college enrollment, college preparation, and graduation from four-year colleges. Chicago Postsecondary Transition Project.

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Conclusion

While there have been several scholarly inquiries into the issue of undermatch, the existing literature fails to present a holistic understanding of students' postsecondary decision making. College match is a product of individuals' cultural, classed, and regionally informed identities developed in the context of the home and school. These three chapters extend the current research by exploring these cultural contexts and identities using qualitative and quantitative methodologies. Specifically, I examined the role that four noncognitive skills (grit, self-efficacy, academic task value, and help-seeking), parental involvement, and academic press from home, school, and peers play in influencing students' college match.

Below I summarize the findings across the three chapters of the dissertation, and then address limitations of the study as well as policy implications from the work.

Summary of Findings

In Chapter 1, I set out first to answer *What noncognitive skills are related to students' postsecondary decision making?* In in-depth, semi-structured qualitative interviews, I asked students what they thought made someone "college material", and students overwhelmingly responded by describing various noncognitive skills. They also asserted that intelligence was not a critical piece of college readiness, and evidenced their confusion regarding distinctions between various college options. This indicated to me that students had internalized the college-for-all message, believing that if everyone could and should go to college then college is no longer just for "smart kids". I then explored, *Are there differences between matched and undermatched students, and between rural and urban students, in the way they talk about noncognitive skills?* I observed that matched and undermatched students spoke differently about noncognitive skills, especially about their assessments of their own skills. Matched students

articulated confidence about their noncognitive skills, whereas undermatched students expressed vague or abstract descriptions of skills. These questions led me to focus on four noncognitive skills: grit, self-efficacy, academic task value, and help-seeking. I wanted to examine the presence and impact of these skills on students' college match. Using items from the ELS base-year student survey, I created composite variables representing these four noncognitive skills, and tested them in a series of logistic regressions with demographic controls with the outcomes of undermatch and application behaviors, for various subgroups of the population. This analysis indicated that of the four noncognitive skills considered, only help-seeking consistently impacted match and application behavior. Another finding is that applying to more colleges consistently and significantly decreased the likelihood of undermatch, across subgroups.

Recognizing the critical role that parents play in their children's college search and transition, in Chapter 2, I explored the issue of parental involvement with the full qualitative sample. I began with the question: *Do we observe a helicopter-type involvement among low-income parents?* Coding the interviews for participants describing their parents' involvement, preferences, and strategic actions to support their academic and college search behaviors, I was able to classify students as having low, medium and high parental involvement. Indeed, I did observe helicopter parents within my low-income sample. Considering the interaction between parental involvement and parental education, I asked: *What does high parental involvement look like in low-, medium-, and highly-educated low-income families?* I found that parental education moderated the content of the messaging students received from parents. As parental education increased, low-income helicopter parents provided messaging comparable to higher-income helicopter parents. The third question asked: *How does this high parental involvement affect students' autonomy and identity development regarding their college search process?* Among

the six students selected as case studies, it appeared that as parental education increased, student autonomy decreased, and parents exerted more control and influence over the college search process. The final question, recognizing the unique cultural norms in rural and urban communities, was: *Are there differences between rural and urban students with regard to the influence of parents during this transition?* In this analysis, it was clear that rural parents were more likely to exhibit what Turley (2006) calls the "college-at-home" mindset. It seemed particularly challenging for these parents and their children to imagine making the transition out of the local community, as attending a four-year college would likely require.

Finally, in Chapter 3 I compare the messages and influences students receive from parents, schools, and peers. The first research question is: *What is the content of the messages students receive about college from their parents, schools, and peers?* In interviews with students, I found differences between matched and undermatched students regarding the content of academic press from parents. There were also differences between rural and urban family college press, with rural families more frequently advocating for students to remain at home during college. Secondly, I ask: *How do these messages affect students' decisions about where to apply and enroll in college?* Students reported having both positive and negative experiences with peer academic press; while some students were supported by their peers to attend more selective schools, several others suggested that remaining with their friends meant taking a less selective path. Overcoming the power of peer academic press to maintain more selective ambition represented a struggle for several students. Lastly, I ask: *Which are the strongest domains of influence, between parents, school, and peers, for students' college match?* To answer this question, I developed a structural equation model using composite variables created from the ELS base-year student, parent, and school administrator surveys to measure parental

involvement, school academic press, and peer academic press, as well as academic characteristics (i.e. cumulative GPA, ACT score) and help-seeking. In the full quantitative sample, peer academic press and help-seeking do not significantly impact college match, in contrast to the qualitative sample. Employing the DIFFTEST command in MPlus, I was able to compare selected pathways between subgroups to attain a more nuanced understanding of these relationships. I found that these relationships do not vary significantly with gender, but minority and low-income status does affect these paths. School academic press seems to be more important for minority students in motivating academic performance. This is not true of first-generation college students. Low-income students seem to benefit more from help-seeking strategies, and don't reap the same benefits from parental involvement as their higher-income peers. Surprisingly, and in contrast to the qualitative results, I found no significant differences in the relationships between rural and non-rural students.

Limitations

While this study offers some important insights into the phenomenon of undermatch, particularly among low-income, minority and first-generation college students, there are several limitations to this study worth noting. First, although the qualitative sample was obtained through a process utilizing randomization, students were interviewed at their schools, and each school permitted a different level of access to the students. In the urban schools, I was given permission to take students out of class to be interviewed with great freedom. In rural schools, the front office personnel often acted as gatekeepers, deciding whether or not I could pull a student from class depending on the subject matter. In both cases, my decisions about which students to pull at different times of the day were based on the students' schedules, preferring to take them out of elective courses rather than core content, but rural school personnel often

interfered with my process, sometimes making it more difficult for me to interview students. As such, not much is known about the 21 students who weren't interviewed, and they may be significantly different than the 63 who participated.

Regarding the quantitative analysis, it is unclear whether we can truly compare students who graduated in 2004 with those who graduated in 2013. While in some ways the experience of high school is timeless, the experience of applying for college has become increasingly competitive. Similarly, the fact that I'm comparing a qualitative sample from the surrounding areas of a small Midwestern city with the national sample from ELS provides limited generalizability from the qualitative sample. During the economic decline beginning in 2008, this particular state was hit especially hard with joblessness. This has no doubt impacted many students' families and, in turn, students' perceptions of their ability to pay for college and the purpose of college. Many students in my sample reported their sense that college is essential for sustainable employment, and frequently cited the difficulties that their parents or other relatives have had in obtaining or retaining employment without a college degree. Low-income students are particularly vulnerable to concerns about college affordability (Grodsky & Jones, 2007), and may feel pressure to sacrifice or compromise their college dreams rather than creating additional economic burdens for their families. The students in my sample were largely pragmatic about the purpose of college. While a handful discussed going to college in order to learn more about themselves and mature, the majority felt that the purpose of college was to become more employable.

As noted in Chapter 1, there are some difficulties using student self-report for noncognitive skills. Students are likely to rate themselves highly on these desirable traits, which may reduce the usefulness of these measures. Similarly, it may be dubious to use students' report

of their noncognitive skills in 10th grade, reflecting on their current school work, to infer their assessment of these traits during their transition to college. Students' senses of grit, efficacy, task value, and help-seeking are likely to be domain-specific.

Lastly, it is important to recognize that assessments of parental involvement in Chapter 2 are based entirely on what students said in their interviews. This is only one measure of parental involvement, and likely reflects student bias, influenced by the current relationship status between parents and students. Had I known during data collection that I would end up focusing so much on the role of parents, I would have incorporated parent interviews into the study. Parent interviews would allow for greater triangulation and a more careful assessment of their involvement during the college search process with their students. They would also have allowed for comparison between parent and student report of parental involvement, which would also have been informative.

Implications for Policy and Practice

On the surface, this research lends some support to existing research about the prevalence of rural undermatch and the importance of increasing college applications to decrease undermatch. But this study also helps us understand the undermatch phenomenon on a deeper level, observing differences related to students' cultural, class, and regional identities. Practitioners should take note of rural and urban differences in the messages students receive from parents, schools, and peers, and the scarcity of one-on-one advice reported by rural students. Rural students are likely to seek guidance only from those whom they trust, including parents and school personnel who may be relatively uninformed about the college search process. This poses a challenge for those interested in helping these students better align their aspirations.

Additionally, it appears that rural low-income parents are providing a confusing message as they support their children to go to college. While they endorse their postsecondary goals, especially less-educated parents are encouraging their children to choose college options which are less selective based primarily on location, believing that these institutions provide a comparable college experience. These parents need help understanding the diverse college options available and the importance of applying to and enrolling in the most selective option available for their students' long-term college persistence and success. Given the protective nature of these rural communities, and the resistance to information from outsiders, this is a particularly challenging goal.

Lastly, this research suggests the importance of cultivating a positive association with academic help-seeking. This adaptive behavior appears to be a strong asset to low-income students during the college transition, particularly those from families with no college education and/or rural communities. Helping students understand that help-seeking is not an indication of weakness, but a strategy for success, is key to increasing the numbers of students who will actively seek out help with the college process from those with information in their schools and communities. This broadening of the social networks from which students can gain information and advice can only benefit them as they make the college transition.