Constructing Choice Sets: How Texas Community College Students Choose Transfer Institutions

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Research
Supported by:

GREATER TEXAS
FOUNDATION

Acknowledgements: We thank Uri Treisman and Victor Saenz for their feedback on earlier drafts and presentations. Thanks to Catherine Hartman, Saralyn McKinnon-Crowley, and Carmen Serrata for research assistance. Data collection and analysis was generously supported by the Greater Texas Foundation Faculty Fellows Program.

Executive Summary

Community colleges have received renewed attention from policymakers and advocates seeking to increase college attendance and completion rates. While community colleges have multiple institutional goals, and serve a broad range of non-traditional students, a key, ongoing aim of community colleges is to facilitate transfer to four-year institutions. However, we know little about how community college students choose among four-year institutions. This qualitative study explores how 100 students in two Central Texas community college system construct their "choice sets," and make decisions about where to transfer.

Based on our preliminary analysis, we find:

- On average, students had heard of about half of the universities (52.85%) within 200 miles or all those to which students from their college typically transfer, but these patterns varied by student. In order for students to consider a university for transfer, they must first be aware of the institution.
- Students only reported *considering or applying to* a subset of these schools, four to five on average. Therefore, most students are considering a relatively bounded set—not all universities in state, and not even all universities nearby.
- Students constructed choice sets of prospective universities based on factors such as geography, school selectivity, educational quality, institution cost, availability of loans and scholarships, school climate, support services, availability of graduate programs, and transferability of credits, yet there was significant heterogeneity among our sample of community college students seeking transfer to four-year institutions, particularly by age, but also by race. For example, minority students and students with dependents had more private schools in their choice sets, which we speculate could be driven by a desire to stay local.
- Our qualitative findings also reveal new areas for further exploration in our future work, such as joint decision-making regarding undergraduate and graduate school, and the role of transfer hurdles in the decision-making process.

This study aligns in many ways with current literature, but also offers deeper insights about an important and understudied population—community college students seeking transfer to four-year institutions. By elaborating and extending existing theories about the choices students make, our work can inform the development of targeted interventions to improve college access and completion for low-income, first-generation community college students in Texas and beyond. For example, while we find that students' choice sets are geographically constrained, for many students, these zones are geographically large, suggesting that interventions and targeted outreach from universities could help students identify and select from greater range of options to enhance higher educational opportunity. Furthermore, there is significant variation in the "community college student" category, with different populations (older/younger, with or without dependents) requiring more specific, targeted informational interventions about their potential choices. In general students' choice sets were relatively small, and some students even sought to broaden them, but did not always have sufficient information on alternative options. Therefore, there is a role for policymakers and practitioners to develop information-based solutions to aide students in their decision-making.

Introduction

Community colleges have received renewed attention from policymakers and advocates seeking to increase college attendance and completion rates (Atkinson & Geiser, 2009). However, community colleges have a complex role in fostering student completion and success (Belfield & Bailey, 2011; Bowen, Chingos, & McPherson, 2009). Community colleges play an important "democratizing" role (e.g., Gonzalez & Hilmer, 2006; Leigh & Gill, 2003) by providing open access to postsecondary education for historically disadvantaged students. Community colleges now account for 42% of first-time freshmen enrollment in the U.S. (Ma & Baum, 2016), and they serve a large number of poor and minority students. Fifty-eight percent of all African American undergraduates, and 66% of Hispanic undergraduates, attend community colleges (Goldrick-Rab, 2010). Moreover, almost half of all bachelor's degrees awarded in the U.S. are to students who attended a community college (National Student Clearinghouse Research Center, 2013). Yet critics argue that they also "divert" students from higher education (e.g., Brint, Riddle, & Hanneman, 2006; Long & Kurlaender, 2009), in part due to their significant attrition rates and complex structures, which make it difficult for students to navigate course, degree, and transfer requirements (e.g., Jenkins & Trimble, 2011; Scott-Clayton, 2011). While community colleges have multiple institutional goals, and serve a broad range of non-traditional students, a key, ongoing aim of community colleges is to facilitate transfer to four-year institutions (Grubb, 1991).

A number of studies over the past two decades have examined transfers from two- to four-year institutions, focusing on either the factors that predict student transfer to a four-year college (e.g., Crisp & Nuñez, 2014; Cuseo, 1998; Doyle, 2009; Shaw & London, 2001; Wassmer, Moore, & Shulock, 2004) or the effects of attending community college on four-year

college completion rates and outcomes (e.g., Gonzalez & Hilmer, 2006; Grubb, 1991; Hilmer, 1997; Leigh & Gill, 2003; Lockwood Reynolds, 2012; Long & Kurlaender, 2009; Surette, 2001). However, despite the large number of studies examining high school students' initial choices of postsecondary institutions (e.g., Beattie, 2002; Grodsky & Jones, 2007; Long, 2007; Manski, 1993; Tierney, 1983; Turley, 2009), and students' decisions about whether to attend community colleges in the first place (e.g., Bers & Galowich, 2002; Somers et al., 2006), there has been almost no research examining how community college students choose among four-year institutions (for a recent exception, see Backes & Velez, 2014). To date, no study has explored the *actual* schools that transfer students select from; instead, researchers have typically inferred choice sets by assuming that students consider all available options, sometimes within a given geographic radius (e.g., Backes & Velez, 2014).

This study explores where community college students in Texas—most of whom are first-generation college-goers, low-income, or students of color—decide to pursue postsecondary education. In particular, we examine their "choice sets," or the list of institutions they are selecting from. Understanding students' choice sets, and the factors (e.g., geographical location, financial support, institutional quality) that matter to them, may help to explain the mechanisms through which community college students do—or do not—transfer to four-year institutions, and has implications for programs and policies that help low-income, first-generation students, in particular, to successfully apply and transfer to high-quality four-year institutions.

Specifically, we draw on data from over 100 interviews with Texas community college students at two institutions in Central Texas about their decision-making and preferences regarding transfer. Using choice-set analysis (Bell, 2009; Flint, 1992; Tierney, 1983), we examine the types of four-year institutions community college students choose from.

Based on our preliminary analysis, we find that, on average, students had heard of about half of the universities (52.85%) within 200 miles or all those to which students from their college typically transfer, but these patterns varied by student. In order for students to consider a university for transfer, they must first be aware of the institution. Students only reported *considering or applying to* a subset of these schools, four to five on average. Therefore, most students are considering a relatively bounded set—not all universities in state, and not even all universities nearby. Students constructed choice sets of prospective universities based on factors such as geography, school selectivity, educational quality, institution cost, availability of loans and scholarships, school climate, support services, availability of graduate programs, and transferability of credits, yet there was significant heterogeneity among our sample of community college students seeking transfer to four-year institutions, particularly by age, but also by race. Our qualitative findings also reveal new areas for further exploration in our future work, such as joint decision-making regarding undergraduate and graduate school, and the role of transfer hurdles in the decision-making process.

This study aligns in many ways with current literature, but also offers new insights about an important and understudied population—community college students seeking transfer to four-year institutions. By elaborating and extending existing theories about the choices students make, our work can inform the development of targeted interventions to improve college access and completion for low-income, first-generation community college students in Texas and beyond.

Economic and Sociological Perspectives on Decision-Making About Higher Education

Attending college often involves risk and high stakes, owing to the uncertainty of returns on the investment. These risks and uncertainties might be greatest for the most under-served students, particularly low-income and first-generation college students. For community college students seeking to transfer, the risks are even greater because they choose community colleges knowing that later on in their postsecondary trajectories they are not guaranteed admission to the four-year colleges of their choice (Hilmer, 1997). Economists have typically relied on theories of rational choice, human capital, and expected value to explain the decisions of these "adolescent econometricians," who evaluate the complex probabilities, costs, and benefits of college attendance (Manski, 1993). Sociological critiques of this decision-making model have shown how race and class influence student decision-making and how these group dynamics account for differences in predictions of college costs and labor-market benefits (e.g., Beattie, 2002; Bridge & Wilson, 2015; Grodsky & Jones, 2006). More recently, scholars have begun to explore how interdisciplinary approaches to decision-making, drawing on a combination of social, psychological, and economic theories, can help to explain students' decision-making about higher education (Ball, Davies, David, & Reay, 2002; Goldrick-Rab, Harris, & Trostel, 2011; Jabbar, 2011; Miller & Goldrick-Rab, 2015). In reality, low-income, first-generation college students are likely neither econometricians nor cogs in a predetermined and fixed structure of race and class patterns. In this study, we bridge concepts in economics and sociology to provide a more nuanced understanding of the choice sets for students seeking to transfer from community colleges to four-year institutions.

First we review literature on decision-making processes and, in particular, the *choice set*. Next we review relevant concepts from economics and sociology that help us to understand how choice sets are constructed. Then we discuss the factors that have been found to matter when

students make decisions about higher education institutions, and, finally, we review the very limited literature on how community college students make transfer decisions.

Constructing the Choice Set and Making Constrained Decisions

Researchers have suggested three stages to the higher education choice process (Hossler & Gallagher, 1987). A key part of the decision-making process is the formation of a choice set. This typically occurs after the "predisposition stage," where students would decide, in our case, whether they intend to transfer (Hossler & Gallagher, 1987). Next, students search for schools, obtaining information about institutions of higher education and developing criteria for judging schools before they actually decide on a college or university to attend, which constitutes the termination of a sequential choice process (Bell, 2009; Castleman, Schwartz, & Baum, 2015; Hossler & Gallagher, 1987; Tierney, 1983, p. 272). It is the "search stage" that we are focusing on in this study.

The particular set of choices considered by an individual when making a decision is essential. The decision to apply, and where to apply, may be more important than college admissions in determining student attendance, particularly since most applicants are accepted to their first choice (Long, 2007; Manski & Wise, 1983). Therefore, how students come to their choices matters, although that process and trajectory is understudied, and may suggest important avenues for policy or program intervention, either to aide decision-making or broaden or refine students' choice sets. Indeed, the actual choice sets of decision-makers are often not available to researchers whom, instead, rely on "revealed" or expressed preferences, if these are identical to actual preferences (Beshears, Choi, Laibson, & Madrian, 2008). Economists thus typically infer students' choice sets based on their ultimate decision.

A key assumption of choice behavior is that students or, in the case of K–12 school choice, parents choose from a range of schools (Bell, 2009), yet research suggests that students' decisions of where to apply are "largely random," and may be "dependent primarily upon the haphazard information that students encounter" (Tierney, 1983, p. 272). Bell (2009) uses the choice set as "an analytic tool that describes and quantifies [choosers'] bounded rationality" (p. 193). This concept is also like the idea of "pragmatic rationality," in which decision-makers are "limited by their experiences, constrained by the opportunities in the local labor market most familiar to them and affected by others…choosing for them" (Finkelstein & Grubb, 2000, p. 615). In other words, choice sets are bounded, and it is important to understand the nature of choice-set construction and the actual sets of schools students are deciding between when choosing institutions of higher education.

Researchers have explored the choice sets of high school students selecting four-year universities. Tierney (1983) examined the actual alternatives considered by students in a county in Pennsylvania to see if it was possible to empirically describe different groups or "types" of students to which policymakers could better target supports. While previous studies had found that many students typically send out only one application (Corwin & Kent, 1978, Russick & Olson, 1976), using the schools to which students sent test scores as a proxy for applications, Tierney found that students send out slightly more than three test scores on average. He also found little variation in students' choice sets; rather than a combination of "wish" and "safety" schools, most schools in a student's choice set had similar costs and selectivity levels. In his study, the dominant cluster consisted of 86% of the students, who selected institutions of moderate to high cost and quality, generally no more than 150 miles from home. Students

selecting community colleges tended to cluster together, as did those applying to smaller and more expensive schools; and prestige was a key factor in differentiating clusters of students.

Research also suggests that there are differences in college application behaviors based on race, ethnicity, and income. Household income is associated with the number of applications sent, which could yield a wider pool of options (Russick & Olson, 1976). Differences exist in terms of behaviors to prepare for college, the numbers of colleges students apply to, and attendance at a first-choice school (Hurtado et al., 1997). After controlling for several student characteristics, including academic ability, college preferences, family income, and education, Hurtado et al. (1997) found that students of color tended to submit *more* college applications than White students. In Texas, examining actual applications to colleges, researchers have found racial and ethnic gaps in application rates, particularly for Hispanic students, who have a lower propensity to apply, even after controlling for college readiness and high school characteristics (Black, Cortes, & Lincove, 2015). However, before students submit their applications, they likely have an even broader set of schools that they were initially considering, and understanding that full set of schools may shed light on why students ultimately apply to particular institutions and not others.

While there is a robust body of research examining the choices of high school students, there is almost no research on the search and decision-making processes of community college transfer students. Indeed, researchers have argued that existing models for choice are "less effective in predicting non-traditional or delayed-entry students' search and choice processes than they are of traditional-aged students" (Hurtado et al, 1997, p. 45). More recently, researchers have critiqued the almost exclusive focus on two- to four-year transfer, a linear process, arguing that students in fact "swirl" through institutions, and noting the rise in post-

baccalaureate transfers (Schudde & Goldrick-Rab, 2015; Taylor, 2016). However, given that transfer to a four-year institution is still a key goal of students who enter a community college (Grubb, 1991), we focus primarily on students currently enrolled at a community college and are seeking to transfer to obtain their first bachelor's degree at a four-year university. Without understanding the actual four-year alternatives considered by students, as well as how students generate these alternatives, our understanding of choice behavior is incomplete (Tierney, 1983). It is necessary to uncover the mechanisms of transfer to identify the barriers to success, and the mechanisms that produce differential transfer rates and ultimately degree attainment (Schudde & Goldrick-Rab, 2015). Choice sets are one such mechanism for understanding disparities in college transfer and completion for students attending a community college.

Traditionally, economists infer what people want from what they choose—*expressed or revealed preferences*—in part because economists do not view self-report data as reliable, only choice data (Bernheim & Rangel, 2007). However, research has documented that people make consistent and systematic mistakes. Therefore, it is important to unpack the actual choices they consider, a bounded set, and the processes by which they construct choice sets and, ultimately, make decisions. The complexity of information or having too many options can influence the construction of students' choice sets, resulting in choice avoidance, for example (Choi, Laibson, & Madrian, 2006; Sethi-Iyengar, Humberman, & Jiang, 2004). When too many choices are present, idiosyncratic factors, such as whether a friend is enrolling in a particular course or program, can significantly influence student decisions (Beggs, Bantham & Taylor, 2008; Miller & Goldrick-Rab, 2015; Scott-Clayton, 2011). Decision-makers also do not consider all choices simultaneously. Instead, they *narrowly bracket* options (Kahneman & Tversky, 1979; Kahneman, 2011; Rabin & Weizsacker, 2007; Read, Loewenstein, & Rabin, 1999; Thaler,

2000), which can lead to less than optimal decisions, and consider bounded choice sets (e.g., Bell, 2009). In this study, rather than examine *revealed preferences,* as other studies have done (e.g., Backes & Velez, 2015), we examine students' stated preferences, and the actual sets of schools they report considering. Next, we review the research on factors important in college choice.

Factors Important in College Choice

General studies of college choice have examined the importance of various factors (e.g., geography, tuition, selectivity) in students' decisions. Attending a university close to home is one of the most important factors (Hillman & Weichman, 2016; Long, 2004; Tierney, 1983), especially for minorities and economically disadvantaged students (Turley, 2009). Therefore, decisions about which university to attend are not independent of location, and existing conceptions of college choice do not always address the fact that many students consider only a limited set, bounded by geography (Turley, 2009). While Turley (2009) studied general college choices, geographic proximity may be even more important to community college students, many of whom are minorities and economically disadvantaged.

College access and enrollment varies by student background, race, and gender (Long, 2007). Vergolini and Zanini (2015) found that a financial aid incentive program implemented in Italy targeting university students from low-income families who exhibited both merit and demonstrated financial need had no significant effect on enrollment rates, but it exerted a positive effect on redirecting students already bound for university to enroll outside their geographic place of residence. Black et al. (2015) find that in Texas Hispanic students are most sensitive to distance, although students of all races and ethnicities are less sensitive to distance as

income level increases. Some studies have found that students are becoming increasingly sensitive to distance (Long, 2004; Skinner, 2016).

Another key factor is tuition costs, including students' perceptions and understandings of financial aid packages (Goldrick-Rab et al., 2011). Low-income students of color, and their parents, tend to overestimate the costs of attending college than middle-class or White parents (Grodsky & Jones, 2007). Small price changes have more of an impact on the decisions of low-income students than others (Mundel, 2008). Price and financial aid plays an important role in how students choose between colleges (Fishman, 2015; Long, 2004). However, some recent studies have found that the importance of cost in college choice is declining over time (Skinner, 2016).

School "quality" or rankings play different roles for different students. Students' social capital shapes the extent to which students are aware of school rankings or actively use those rankings in their choice-making process (Ball et al., 2002). Similarly, school demographics matter, and students of color have different preferences for greater proportions of same-race students, or campuses where students from their high schools have been successful in the past (Black et al., 2015). Further, Alvarado and Lopez-Turley (2012) found that, for White and Latino high school students, having college-oriented friends increased their likelihood of applying to any higher education institution. Other evidence suggests that differences in the application process, likely due to a lack of information or advising resources, can generate or perpetuate inequities in college access (Bridge & Wilson, 2015). This can result in a pattern where the academically and socioeconomically "rich" get richer, and the poor get poorer (Hearn, 1984). Researchers have identified the problem of "undermatching," whereby students apply to schools less selective than the schools they could have received admission to based on their academic

records (Bastedo & Jaquette, 2011; Hoxby & Avery, 2012; Page & Scott-Clayton, 2016; Smith et al., 2013). For example, the choice sets for high-achieving, low-income students resemble "those of peers who are socioeconomically rather than academically similar" (Page & Scott-Clayton, 2016). When students attend schools they are in a sense overqualified for, they often face worse conditions and supports, which may impede their persistence and completion (Castleman et al., 2015; Page & Scott-Clayton, 2016). Such evidence further highlights the importance of where students *actually* apply—the schools they are considering and their features.

Researchers have explored why students choose community colleges in the first place, as well as the implications of these choices for longer-term outcomes. Drawing on both economic models of decision-making as well as literature on status attainment and student aspirations, Somers et al. (2006) developed a model of community college choice relying on eight key factors, including background, aspirations, educational achievement, social environment, financial variables, net cost, institutional climate, and institutional characteristics. Analyzing data from 200 interviews, they find several reasons why students enroll in community college, including a desire to prove wrong people who thought they weren't college material, personal setbacks or "life happens," aspirations to transfer to a four-year university, a better job or career change, peers and family, price and location, or the need to work while being in school. Community college students also preferred certain institutional characteristics, such as the small-school experience and more faculty contact. Indeed, the size of an institution has been found to be an important dimension for high school students' decisions (Tierney, 1983). While this study focused on the features important to students in selecting a two-year program, some of these factors may also be key for community college students as they select a transfer institution.

While this research suggests factors likely important for decision-making among community college students as well, none of these studies are focused on the transfer decision itself. Instead, they examine the choices high school students make about their initial decision to attend institutions of higher education, but community college students represent a different population, one arguably more financially and geographically constrained (Backes & Velez, 2014), and one that has already had some experiences in higher educational environments. Studies examining transfer pathways provide some guidance as to what factors matter to community college students in particular. For example, Crisp and Nuñez (2014) examine the likelihood of students transferring to a four-year university. Being female reduces the probability of transfer, as does having a dependent (Crisp & Nuñez, 2014; Surette, 2001). Latino and African American students are more likely to transfer to racially segregated universities and receive lower state funding (Crisp & Nuñez, 2014; Gandara et al., 2012).

One study examines specifically the decisions of community college students seeking to transfer (Backes & Velez, 2014). Using a comprehensive longitudinal data set from Florida, they examined the decisions of community college students using observed transfers. They find that community college students are more sensitive to distance than students who recently graduated high school. They find that course-taking patterns and distance to the nearest four-year college is very predictive of whether a student transfers. Students who earn more are less likely to transfer. Importantly, they find that students, despite being geographically constrained, are still responsive to measures of quality. Students who live near four-year universities with higher instructional expenditures, lower student-faculty ratios, and more financial aid are more likely to transfer (Backes & Velez, 2014).

While these studies help us to understand the particular decisions of transfer students, we extend this study by examining students' actual choice sets through a smaller qualitative sample. While Backes and Velez (2014) have rich statewide data to establish overall patterns in student transfers, they must create assumed choice sets for students. Indeed, researchers have suggested that in settings where there is complexity in the choice process (i.e., many colleges or alternatives), and where there is limited personal experience with the goods or services being considered (e.g., first-generation students), revealed preferences may not in fact represent the actual preferences of decision-makers. Using qualitative methods, we are able to unpack students' choices to understand how and why they selected the schools that make up their choice sets. While some researchers typically disregard self-reported preferences as "cheap talk," students' self-reports may in fact be an indication of their hopes and values (Beshears et al., 2008). Our approach may help to explain the mechanisms by which students end up transferring to particular types of institutions, and whether they ultimately end up at the institutions they hope to attend.

Data and Methodology

This mixed-methods study (Johnson & Onwuegbuzie, 2004) illuminates patterns of inequality in access and persistence in higher education by looking deeply at how community college students make decisions about when to transfer and which four-year universities to attend. Specifically, we ask: For the sample of students planning to transfer: (a) What schools are in their choice sets, and what are the characteristics of those schools (e.g., quality, distance, public/private)? (b) Why do they select these schools? Why are these characteristics important to them? (c) How, if at all, do choice sets differ between students based on race and parental educational attainment?

Sample

We selected two public community college systems located in Central Texas. Our goal was to have institutional variation, but find systems that were relatively close to one another, such that the choices of four-year transfer institutions could, in theory, be roughly similar in terms of geographic distance and opportunity (Tierney, 1983). Given the variations in community college contexts, it seemed necessary to capture at least two different contexts (Shaw & London, 2001). While not perfect points of comparison, our goal was to explore patterns and themes that might hold across the two different contexts, as well as places where they differ.

Community College A served 41,574 students on eleven campuses in the Fall of 2015, the semester underway during primary data collection. There were more females than males (52.7% to 47.3% respectively). The clear majority of students (82.5%) reside within the boundaries of the district, while just under 15% more are Texas residents living outside of the six-county limits; fewer than 2% are out of state or international students. Nearly four-fifths of students (78.28%) attended classes part-time, with an average of six course-hours attempted, and the remaining 21.72% attended full-time with an average of 13 course-hours attempted. White students made up 44% of the student body, Hispanic students 32%, Black students nearly 7%, and Asian students 4.3%. Two-thirds of students (66.29%) are under age 25 while the balance (33.7%) are age 25 and over.

Our sample for Community College B included students from two campuses, part of a larger network of schools within a metropolitan area. Together they served 31,857 students. The campuses in this district have some variation in student demographics, though both enroll more females and more students of color than Community College A. On one campus, female students represent 56% of the student body while on the other they represent 58 percent. Students from

historically underrepresented groups made up 68% of the student body on one campus and 65% on the other campus, while White students made up 26% and 28%. In terms of geography, Community College B had nearly identical statistics as Community College A, with mostly students (96%) that were Texas residents. At Community College B, like Community College A, approximately two-thirds of all students are under age 25 and one-third are over age 25.

In the Fall of 2015, we targeted students who were already "predisposed" to making a choice (i.e., they had already decided they wanted to transfer to a four-year institutions) (Hossler & Gallagher, 1987). We sampled students who had already expressed that they were intending to transfer in the next 12 months so that we could capture the "search stage" of their decision-making process, where students obtain information and judge the different options in their choice set.

At each community college system, we worked with staff to email listservs, sometimes targeted ones consisting only of students "intending to transfer." At Community College A, a staff member emailed over 6,200 students who were intending to transfer, and we also attended six transfer events to recruit participants. At Community College B, a staff member emailed their student advising listserv, and we tabled twice a week for two months, handing out flyers and sign-up sheets. We worked to recruit a large pool of students who were racial minorities, living in poverty, and/or were the first in their families to attend college, but any students intending to transfer within the next 12 months were eligible to participate. See Table 1 for a description of our sample.

Table 1. Description of Sample

Demographic Characteristics of Participants

Item	Category	Frequency	Percentage	Total
Gender	Female	64	65.98%	
	Male	33	34.02%	97
Race	Non-Hispanic/Latino White	25	25.51%	
	Hispanic or Latino/Latina	54	55.10%	
	Black/African American	14	14.29%	
	Asian	4	4.08%	
	American Indian or Alaska Native	0	0.00%	
	Mixed Race/Ethnicity	1	1.02%	98
Age	24 or Younger	70	71.43%	
	25 or Older	28	28.57%	98
Campus	CCA	47	47.96%	
	CCB	51	52.04%	98
FirstGen	Yes	66	67.35%	
	No	32	32.65%	98
Enrollment	Full Time	74	75.51%	
	Part Time	24	24.49%	98
Dependents	Yes	29	29.90%	
	No	68	70.10%	97
Married	Yes	14	14.29%	
	No	75	76.53%	
	Living with significant other	9	9.18%	98

Data Collection

These data come from a larger, ongoing study of community college students' transfer decisions in Texas. All data for this analysis were collected between mid-September and mid-November 2015.

Interviews. We interviewed 104 community college students across two community college systems over two months about the four-year schools in their choice sets to see how their decision-making was constrained, what heuristics were used, and how these sets differed across students from different racial and socioeconomic backgrounds. Of these students, 98 completed the information regarding their choice sets, and were included in this study. Interviews were semi-structured, lasting about 60 minutes each and almost all were recorded (with consent) and transcribed. For consistency across interviews, we created protocols based on Patton's (1990)

framework, using informal, open-ended, and more formulated questions. We asked participants about the schools they were choosing, examining the narratives of reasons that choices are added and rejected (Ball et al., 2002). As part of each interview, students also completed a short survey, ranking their choices of transfer institutions. These responses were combined with their narrative responses to construct their "choice sets."

Surveys. As part of each interview, students completed a short online survey, using Qualtrics, which took 10-20 minutes to complete. This survey was conducted about midway through each interview. On the survey, students were asked about the factors important to them in the transfer process, drawing on items borrowed from the National Center for Educational Statistics (e.g., Educational Longitudinal Study, High School and Beyond, Beginning Postsecondary Study), ACT, the Harris Poll, the National Postsecondary Student Aid Study, and the Community College Student Report.

In addition to existing validated surveys, we asked students to list the schools they had heard of, were considering, or had applied to from an initial start list of schools to which they could add. They were also asked to rank those schools they were considering in order of preference. To aid recall, we constructed lists of schools for each community college system using lists of public and private institutions in Texas. We generated a list of four-year colleges and universities within a 200-mile radius from each community college by creating a buffer in ArcGIS. We then examined transfer data from the Texas Higher Education Coordinating board from 2011–2013, the most recent years available, to see the institutions that students from each institution actually transfer to. We added the most popular schools to the list of options, and schools where the institution had posted articulation agreements on its website, up to 30 schools

maximum, to keep the list manageable. Additional spaces were available for students to list other schools they were considering.

Data on Institutional Characteristics. To provide greater context for each institution selected, we also drew on publicly available data for the most recent year available (2014–2015) from the Integrated Postsecondary Education Data System (IPEDS), which we use to determine the institutional features associated with students' choices.

Data Analysis

The analysis was conducted in several stages. First, we examined students' choice sets, the sets of schools they considered. Next, we examined the qualitative data to help explain the choices they made and the factors most important to them.

Choice sets. Following the method of "choice-set analysis" (Bell, 2009; Flint, 1992; Tierney, 1983), we examined how community college students in two large urban cities in Central Texas constructed "choice sets" through in-depth interviews and short surveys. To operationalize the choice set, we included any four-year institution reported by the student in as one they were considering or had applied to. We constructed choice set files that included a student identifier and an institutional identifier, and we merged in both student and institutional characteristics. We indicated whether the student had heard of, considered, or applied to each school in the lists of 30 schools we provided, and we added any additional schools they were considering to this file. Using these data, we used descriptive statistics to analyze the composition of students' choice sets.

Qualitative coding. We coded the data in the qualitative software program Dedoose using a hybrid coding method (Miles & Huberman, 1994), where we first developed deductive codes from the literature on college choice. Then, through our team meetings and discussions,

we identified other themes inductively throughout data collection. Then, after data collection, five team members coded the first transcript and discussed the process and identified any revisions to the coding scheme. Next, two coders coded one transcript, with 70% agreement, and they discussed discrepancies in code application. Next, they coded another transcript with 82% agreement, where differences were relatively minor (e.g., including or not including a parent code). We therefore decided to proceed with the coding.

While coding, we defined boundaries between subcategories through a constant-comparative method (Glaser & Strauss, 1967). Through dialogue between the data and literature, we modified and omitted deductive codes as necessary, replacing or expanding upon them. We began with broader codes (e.g., Transfer-Choice-Why, to indicate any reasons students stated for selecting a school), then creating subcategories inductively, based on participants' actual responses (e.g., Major/Field Availability, Distance Learning, etc.). We synthesized findings across our individual students and data sources to build or extend theory on how students make decisions (Eisenhardt, 1989). Using the coded data, we created matrices to address the study's central questions about students' decision-making about higher education. We wrote analytic memos about patterns and themes while coding and when examining the matrices, using these memos to draw out major findings.

Preliminary Findings

Overall, we found significant variation in the choice sets of community college students. Since where students choose to apply significantly influences their future academic outcomes and success in college, we look deeply at the ways in which students construct their choice sets and the types of schools they are considering.

Community College Students' Choice-Set Construction

In order for students to consider a university for transfer, they must first be aware of the institution. Therefore, we first investigated whether students had heard of universities that were listed on the survey, based on previous transfer patterns and geographic distance. On average, students had heard of about half of the universities (52.85%) within 200 miles or all those to which students from their college typically transfer, but these patterns varied by student. About 20% of students had heard of 10 or fewer of the schools on the list (which ranged from 30–33, depending on the campus), and about 35% had heard of more than 20 of the schools. Students only reported *considering or applying to* a subset of these schools, 4 to 5 on average. (We combined those they were considering or had applied to, given that the application process was still under way at the time of the study.) Therefore, most students are considering a relatively bounded set—not all universities in state, and not even all universities nearby.

In our further analysis of the schools that students had heard of, considered attending, or applied to we found notable variation by student characteristics. Table 2 shows a breakdown of the number of schools in student choice sets for the overall sample and Table 3 shows how these choice sets vary by student characteristics. We found that the mean number of universities that students had heard of was greater for students at Community College B than students at Community College A. We also found that the mean number of universities that students had considered or applied to was greater for students who were not married than for those who were married. Finally, Table 3 shows that younger students in our sample (24 or younger) considered or applied to more universities compared with older students (25 or older).

Table 2.

Number of Universities Heard Of, Considered, and Applied To

	Mean	SD	Min.	Max.
Nu. Univ. *Heard Of*	17.76	7.06	1	35
Nu Univ. *Considered*	3.8	2.94	0	14
Nu Univ. *Not Considered*	11.16	7.71	0	32
Nu Univ. *Applied To*	0.75	1.53	0	10
Nu Univ. *Considering or Applied To*	4.56	3.43	1	19

Note: all data are from 97 students who completed this portion of the survey

Table 3.

Mean Number of Universities Heard Of and Considered or Applied To by Student Characteristics

Item	Category	Mean Nu. Univ. Heard Of	Mean Nu. Considering Or Applied To	Total
Gender	Female	18.17	4.13	64
	Male	16.82	5.21	33
Race	Non-Hispanic/Latino White	16.84	4.16	25
	Hispanic or Latino/Latina	18.31	4.39	54
	Black/African American	17.29	6.21	14
	Asian	17.75	3.50	4
	American Indian or Alaska Native	*	*	0
	Mixed Race/Ethnicity	19.00	0.00	1
Age	24 or Younger	17.80	4.87	70
	25 or Older	17.71	3.61	28
Campus	CCA	12.13	4.64	47
	CCB	18.37	4.39	51
FirstGen	Yes	17.91	4.36	66
	No	17.50	4.81	32
Enrollment	Full Time	17.15	4.49	74
	Part Time	19.71	4.58	24
Dependents	Yes	17.86	4.10	29
	No	17.71	4.72	68
Married	Yes	19.00	2.21	14
	No	17.60	4.91	75
	Living with significant other	17.33	4.78	9

Note *= no data recorded for this category.

To provide some context into why some students had few or many students in their choice sets (schools they were considering or applied to), which ranged from 1 to 19, we share vignettes from two students, one who had a very bounded choice set (was considering only two schools, both in state and public), and one considering a much broader range of schools (11

universities), including public, private, and out-of state universities. We share the details of their choice sets to illuminate the process of choice-set construction, and the factors that mattered in their decision-making processes.

Bobby: A bounded search. Bobby was a first-generation, 32-year-old, White male enrolled as a full-time student at Community College B working to complete the fourth semester of his third stint in higher education. He enrolled in his hometown's state four-year institution directly out of high school, but dropped out after a semester. Shortly after that he moved to a neighboring state and started classes, but floundered again, blaming his immaturity and lack of direction. When we met with Bobby, he was a self-described successful, senior manager at a tech company and, flush with cash, perspective, and drive, was committed to completing first an associate's degree and then a bachelor's or beyond in the field of computer science. His employer had another office quite close to the state's flagship university, and Bobby had the option of relocating for transfer; in addition, he had negotiated a more flexible work schedule with his bosses, as he suspected there would be fewer online options for classes once he transferred and started higher level courses. Despite these relative advantages, Bobby also carried many responsibilities, which constrained his transfer institution choice set. He had a wife and two daughters—one in kindergarten and another (a step-daughter) enrolled with him at the same community college. His younger daughter attended at a private school and his wife had just started a part-time job there; moving had the potential to be disruptive to his family.

Bobby had not consulted with any advisers on his current campus and investigated possible transfer options by visiting school websites directly. He indicated that he was familiar with 13 schools on the survey, out of about 30—public and private, religious and non-religious—but had decided that the lower tuition at in-state, public universities was the best option for him.

He narrowed his choice set to two schools—the branch of the state university where he resided and the flagship campus in the capital city—and he was very knowledgeable about the details of the computer science programs at both schools. He noted that the flagship campus offered a program with more specific areas of concentration and required seven additional units to complete, meaning more time. Weighing the quicker path to completion at the local campus he commented, "If the goal is to get a degree as soon as possible, that's definitely the way to go. But is that necessarily my goal?... It's really all about individual growth, personal growth, opening my mind up to all these different things and understanding the processes and the practices of formally approaching things, thinking about things, explaining things." Bobby thus focused on these two public institutions, both relatively close by and compatible with his work.

Javier: Casting a wide net. Javier, a 23-year old Latino male, moved from California to Texas when he was seven years old. While he did not miss the crowded one-bedroom apartment he shared with his family of six in San Jose, he stopped enjoying school when he came to Texas, and ultimately dropped out during high school. Shortly after, he "got his act together" and enrolled at a local charter campus that provided an alternative curriculum; because there was a PE credit he required that was not offered at his high school he registered simultaneously at Community College A, where he now has been a student for three years. Neither of his parents went to college, but he had siblings who were attending or had recently graduated from college. Javier had applied to and been accepted to college straight out of high school, but decided to attend the community college.

Javier had heard of the vast majority of schools listed on the survey, and had already applied to transfer to three universities, all private. One is located in the city where he lives, whereas the other two are within 1-2 hours driving distance. He was also considering applying to

five other universities in Texas, including two public flagship universities, and three universities out of state, including Rutgers, University of Colorado, and University of California-Santa Barbara. Overall, he had 11 universities in his choice set, which was more than the average student. He had a helpful adviser, and also did a lot of research on his own, but sometimes struggled to find relevant information. He considered and applied to private schools, but was "turned off" by their high prices, even with fellowships. He also ruled out several schools (including two large public schools he had been accepted to right out of high school) because of the types of people he imagined went there. As Javier decided between schools, his main focus was academics – finding a high-quality program that would help him get into a good medical school.

Bobby and Javier both attended community colleges in the same geographic region, but they had very different approaches to transfer institutions. Bobby limited his choice set quickly to universities nearby that offered the programs he was interested in, and then began to explore those programs in depth. In contrast, Javier was exploring universities across Texas and even out of state, and was most focused on academic quality, with geography playing a less central role.

Institutional Features that Matter to Transfer Students (And Why)

Next, we examined the nature of students' choice sets, and the factors that mattered to them in making their decisions. We focus on differences in students' choice sets, and draw on the qualitative data to unpack these differences.

Getting From Here to There: Geographic Distance

One key geographical and financial constraint is attending an in-state university, particularly for minority students. When looking at the mean characteristics of students' choice sets (Table 4), we noted that, on average, students' choice sets contained primarily in-state

universities (91%). There were also statistically significant differences in the percentage of in-state universities in students' choice sets. For example, while 94% of the schools in minority students' choice sets were in state, on average, significantly fewer (85%) were in-state schools in the choice sets of non-minority students. Non-minority students thus appear to be considering a broader set of institutions geographically. This is also somewhat supported by the differences in average distance to the institutions in students' choice sets for minority and non-minority students, which are marginally significant. Overall, we found that students are certainly willing to travel beyond their metro areas in all cases, but non-minority students appear to travel both further and to a larger number of higher education options. (See Figures 1 and 2.)

Figure 1. Community College A - Choice sets broken down by race. The line segments represent the driving distances from a student's home to the universities they ranked.

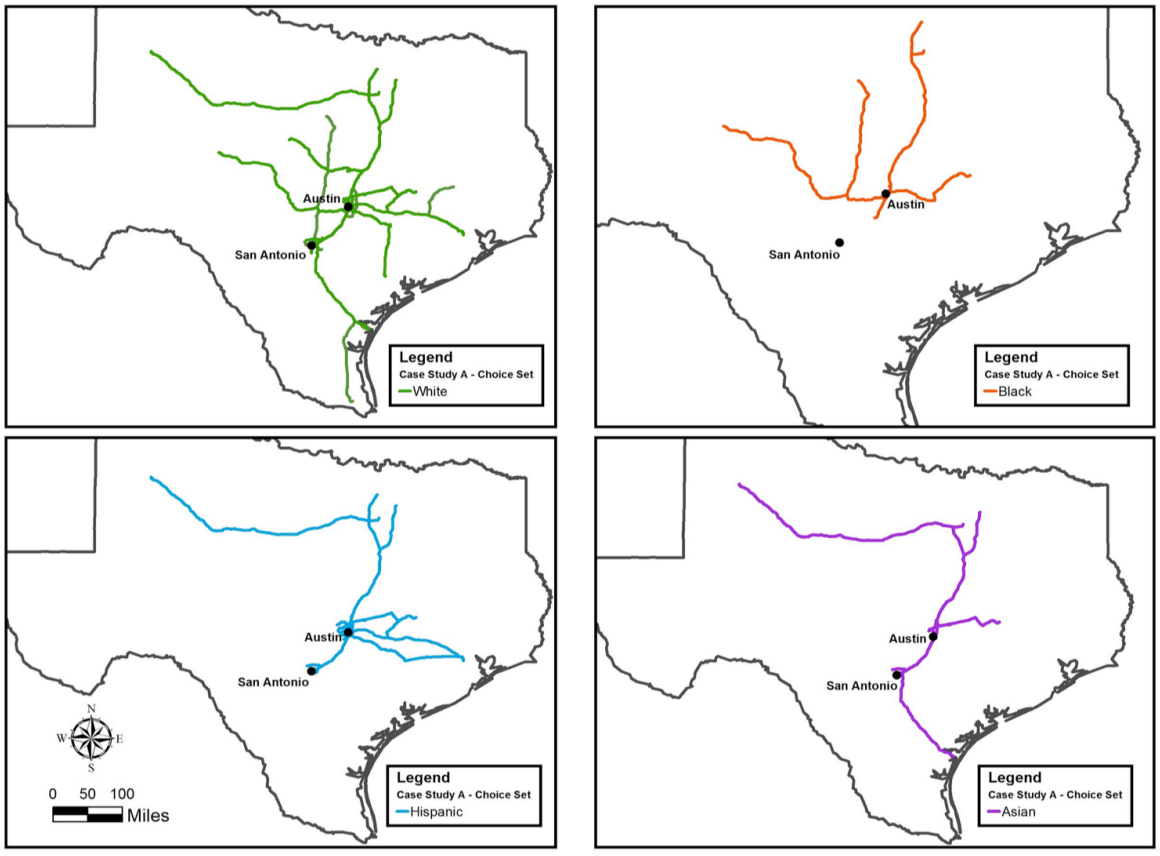
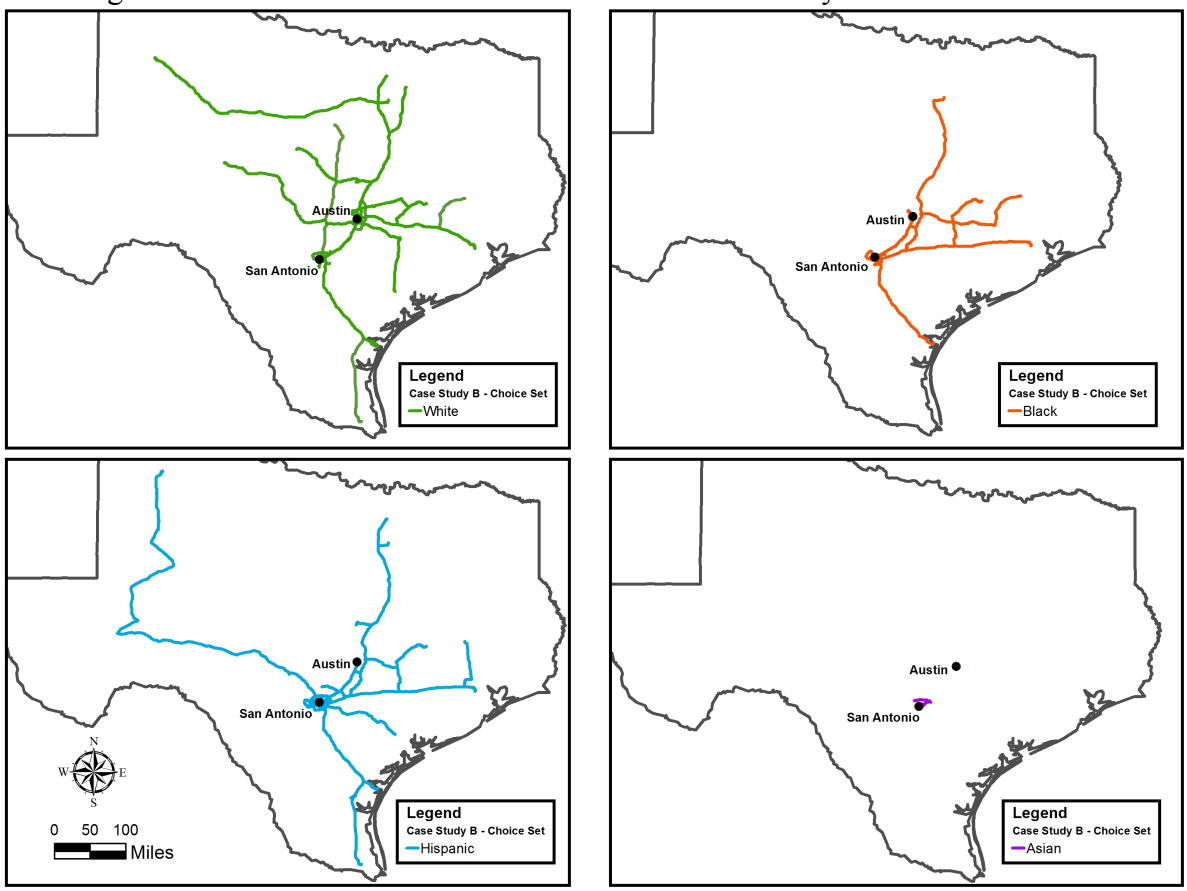
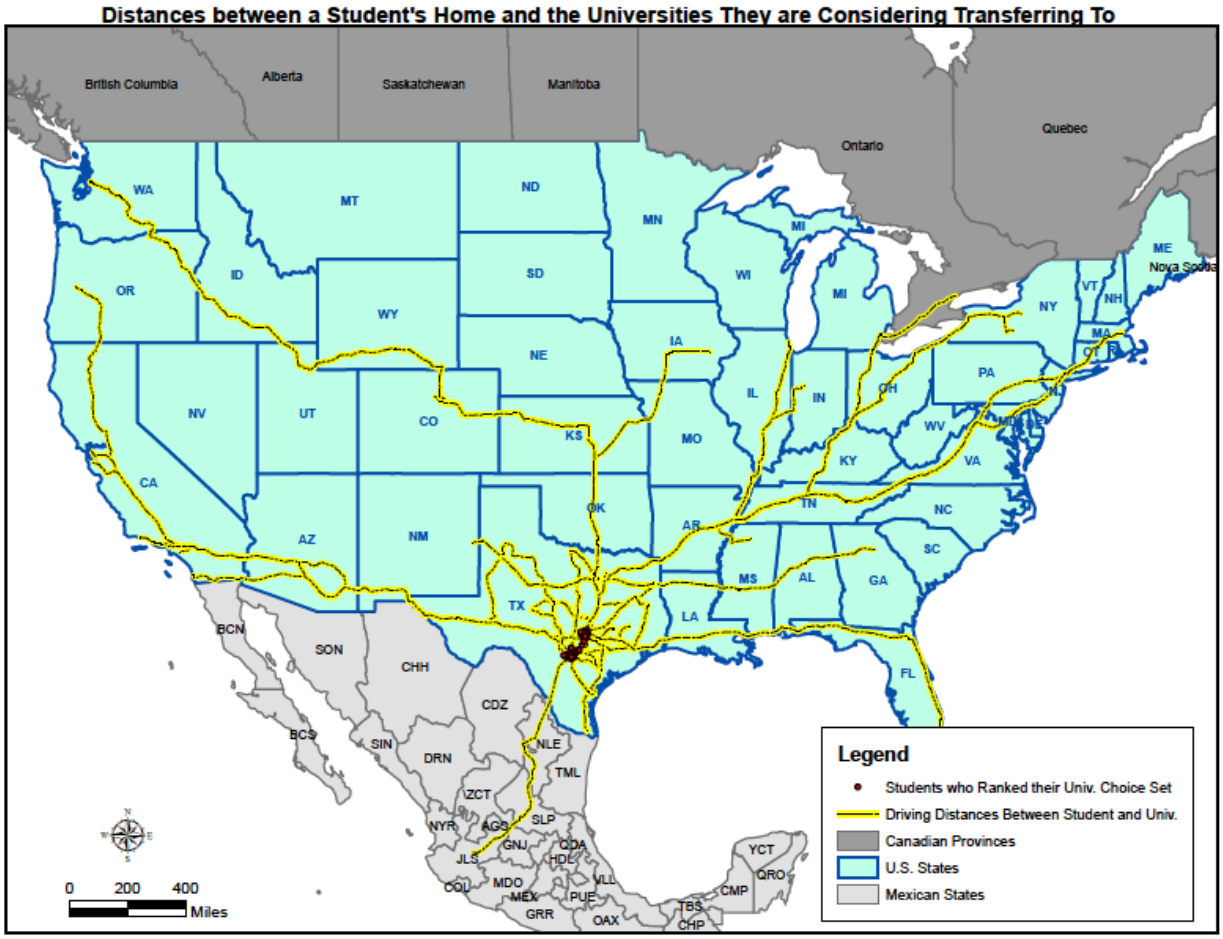


Figure 2. Community College B - Choice sets broken down by race. The line segments represent the driving distances from a student's home to the universities they ranked.



We do, however, find significant differences in the average distance to institutions in the choice sets of younger (under 25) and older students. For example, younger students' choice sets were, on average, more than 200 miles further from their home, compared to the set of institutions in older students' choice sets. Similarly, our analysis shows statistically significant differences in the average distance to institutions in the choice sets of students with dependents' choice compared with students without dependents. These findings are in line with existing research on the geography of educational opportunity, and the role of distance in students' decisions about higher education (Backes & Velez, 2015; Flint, 1992; Hillman & Weichman, 2016; Tate, 2008; Tierney, 1983; Turley, 2009), particularly for older students, who may be more established in their places of residence (Fishman, 2015; Jepsen & Montgomery, 2009).

Figure 3.



Our qualitative research provides some insights into *why* students prioritize distance. Having dependents or strong family ties certainly played a role. As one student said, a sentiment that was echoed by several others: "I have a different mindset of other people my age, because they don't have children. All that I really think about is just finding a college that I could get to closest. That is pretty much it." Several students simply preferred their current location. They did not view themselves as geographically constrained, but rather "loved" their city (a term that several students used), or believed it provided the necessary amenities, and was "well equipped." Several other students had actually already moved to the area from elsewhere to attend community college, having already indicated their geographic preference. For that reason, they

did not want to move again and hoped to gain acceptance to a nearby university. For other students, college could be an opportunity to branch out, either a push factor, a desire to leave where they were from, or a pull factor, to explore other places. For example, one student said, "I want to get out of this city." Another said, "I don't want to be here I love my family, but I love them a little bit more when I have some time to get away from them." Some of these students felt constrained by family. Even though they wanted to go out of state or to another part of Texas, their families were not supportive. Still others were somewhat indifferent to geography. They were "flexible," and happy where they were but willing to move for the right opportunity. One student, who preferred to stay in Texas, was still willing to move for academic quality: "If it is going to involve my education, it doesn't really matter [where the university is]." See Figure 3 for a map of universities that were ranked by students (a subset of the full list they were considering or had applied to.)

Big U or Big Bucks: Public vs. Private Universities

Across all students, the majority of schools students were considering were public. However, there were also important differences by groups. For example, we find a significant difference in the percentage of public universities in the choice sets of minority students compared with non-minority students. Minority students have a smaller percentage of public universities in their choice sets than non-minority students, as do students with dependents. This may be because they have a stronger preference to stay local, as discussed in the previous section, which causes them to seek out local private universities as well as public ones.

Generally, students we interviewed perceived public schools to be larger, with larger classes, and more affordable. They believed private schools would have smaller classes, but were more expensive. As one student said, "Any private school [I] would love to [attend] because the

small classes. At [public university] I'm gonna face classes with hundreds of students, which I'm kind of bummed about…But they're pretty expensive, despite scholarships…I still have to pay thousands." These were widely held perceptions. Many students said they had considered private schools, but could not afford it. As one student noted, the tuition at a Catholic university "was twice the amount" of the tuition at the local public university.

While most students described wanting smaller classes, many also desired the benefits of a large public university, because, as one student said, "in a big school I feel like you have more opportunities for the future and meet more people from everywhere." Other students shied away from private religious institutions because of curricular requirements or because of the environment. One student said of a religious school, "I was raised Catholic…I still believe, but I don't follow any of the rules." He felt that the university was therefore "not his style." Another student expressed a similar perspective, and said that she "just had different views," particularly noting the requirement to take religious courses. On the other hand, some students viewed the religious aspects of these universities as a draw: "That sort of draws me to that, too. [The university] is right behind my church." Another student believed that faith-based institutions would be more likely to have his interests at heart: "somebody with a faith-based perception…, they are going to give you more helpful advice."

Financial Aid and Cost: Will I Be Able to Afford It?

Students considered tuition, loans, and scholarships when weighing their options. Many considered in-state universities because of the lower cost, relative to out-of-state tuition. Even students that would have liked to consider out of state universities constrained their choice sets in this way. As one student said, "I know that just to apply to two schools is foolish. I need to definitely broaden that ground, but at the same time, I don't want to get stuck in out-of-state

tuition. That adds a whole other element to it." Another student similarly sought to broaden her choice set, but was focused on other in-state universities: "I am looking to apply to more in state. Mostly because in-state tuition is better than paying out-of-state tuition." One student wanted to go to college in Florida, but to do so "would need to get good scholarships from there or good financial aid to be able to balance the out-of-state tuition." Students thus considered out-of-state institutions, but often ruled out these schools because of their higher costs.

Many students discussed considering tuition in their decision-making process, but also looked at scholarship and financial aid. Several students examined tuition plans for each school in their choice set, including considering the cost per credit hour. As one student said: "The number one consideration is money." While a few students ruled out private schools altogether ("My parents can't afford a private school"), in part due to sticker shock ("I wanted to apply to Baylor, but I know it is $60,000 and that's way too much"), others hoped to receive financial aid and scholarships, "so that doesn't play such a big factor." Most students thus considered both tuition and financial aid opportunities in their decisions, but few had a good sense of how much they would receive, if any.

While several students were hesitant to take out loans, others viewed the decision as "spending money to make money." Students who were hesitant said things like: "I don't want to get a loan. I know it is going to hurt later on after I finish my education. So I am trying not to get a loan. I am trying to find every scholarship that I can apply to." Another student said that he didn't want to take out any loans because of how his friends had struggled with repayment:

> I didn't want to take out any loans. I have a lot, a lot of friends… I know the majority of college students take out loans, but on a personal level, I have a lot of friends who, by the

> time they are done, they are going to be… I don't want that for me. My brother actually took out a lot of loans, as well and now he is working. I want to avoid all of that.

Yet other students believed that loans were necessary or a good investment. One student said, "I'm already $20,000 in debt for student loans, so what's another $100,000?" Another student believed that cost was correlated with quality, and loans were thus necessary:

> This is how I see it, if I am expecting to have amazing teachers and those teachers usually require a healthy income … to teach. The school is expensive for that reason. That is how I feel. [State flagship university] is a good school. It is a good school because of the teachers. The teachers are going to continue to stay there and they are going to make more money because the school is good. I just want to go there because I am expecting to have good teachers.

Another student viewed the investment in terms of later returns. As one student said, "I plan on making a ton of money. You've got to spend money to make money, and [cost is] not really a key factor."

When comparing the differences in mean characteristics of students' choice sets, we found that first-generation college-goers', students with dependents, and older students' choice sets included universities with a greater percentage of Pell grant recipients, compared to non-first-generation college-goers, students without dependents, or younger students. We also found statistically significant differences in the average net price of schools in students' choice sets by age and marginally significant differences in net price by dependents, with younger students and those without dependents considering a set of schools with a higher average net price.

Admissions and Quality: Will I Be Accepted?

Though students in our sample almost universally prioritized transferring to "good" schools, there were statistically significant differences between the selectivity of schools in the choice sets of younger students (under age 25) and the choice sets of older students. The mean percentage of students admitted to the universities in the choice sets of younger students was 9.3% lower than their older counterparts; more simply, on average, the schools in the choice sets of younger students were more selective than the schools in the choice sets of older students.

Younger students discussed the importance of the transfer institution having academics that challenged them. For example, one student at Community College A commented that she wanted the classes in college to be "intensive." For another student, a male also at Community College A, the academic rigor would lead to positive impact later on. He said: "That is my criteria. I want to get the best education possible that will help me contribute something to this world."

For some younger students in the sample, the academic rigor was appealing but also daunting, leading them to add other schools to their choice sets. One young female from Community College A was originally intent on transferring to the state's flagship school—and was going to apply exclusively to that institution—but she had recently added a less selective school to her choice set. She commented: "I knew it was going to be a challenge to get into [the flagship campus], but I didn't know how competitive it was and I didn't know how stressful it might actually be. While I know I can do it, I just don't want to put myself in that position that is overwhelming or so overwhelming that I am not actually benefiting from it. That it is just causing stress in my life." She broadened her choice set to include a backup school, but kept the more selective school in her choice set.

Admissions selectivity at the transfer institutions was also a factor for some of the younger students in the sample. A 20-year-old Latina at Community College B had added two schools to her choice set because of the selectivity. "They both seem like really good schools," she said. "Especially if it's hard to get into them, then I guess it's better to go." A young, male student, also from Community College B, mentioned excluding some schools from his choice set because he perceived them as not high quality. He commented, "[T]hose two I didn't like because I didn't think they were academically challenging. I felt like most people could get into them." Another student had decided to broaden his options after hearing from peers enrolled at the flagship campus, but his concern was on navigating admission rather than on finding a different school. He noted:

> At first I really wanted to major in engineering but [flagship campus's] engineer program is ridiculous. My roommate is a Kappa Sig and he's a mechanical engineer, my two other roommates I'm pretty sure they're engineers too. I can see their work and it's ridiculous. So right now I'm thinking of economics because you can always do something with that and it's a lot easier to transfer into economics. Like business, I would love to do business but you have to have like a 3.8 to transfer in. With economics you can have a 3.3 to 3.5 and still be fine transferring in.

This student was willing to change his major to get into the university of his choice, although in a less selective program.

Older students also prioritized attending "good" schools, but included more considerations about job placement and access to support systems when valuing transfer institutions. One Black female from Community College A, who included the flagship campus in her choice set but also included several other less selective schools, said she was looking for a

school that employed professors that "are not all about numbers, that see you as an individual. Professors willing to teach and understand that although they know the subject, you are there to learn it." This sentiment was echoed by another female—White and from the other community college—who said, "I don't expect it to be easy, but when I am struggling, I do expect to have support from the instructor." She, too, had the most selective university in the state in her choice set, but had included several less selective schools as well.

Other older students mentioned the time constraints of more selective schools. For some it meant a longer time in community college to raise their GPAs to the required level to be admitted, while for others it meant more coursework at the transfer institution to obtain their bachelor's degrees. One Black female at Community College B mentioned the difficulty of gaining admission to selective schools outside of GPA requirements: "Man, it is so competitive," she said. "Then, they want [you to get involved in] community, so I barely have time to eat and breathe." For older students, constraints like family and career, as well as time, may have contributed to the inclusion of less selective schools in their choice sets.

Younger students in our sample were less likely to have dependents as well, another statistically significant predictor of having less selective schools in the choice set. The final predictor of having less selective schools in the choice set was geographic location; students at Community College B had, on average, less selective schools in their choice set. This could perhaps be explained by geographic preference or by academic focus; students in this community college district were more likely to be interested in medical or nursing programs, which were either not offered or had very small enrollments at the more selective universities in the state.

Will I Graduate and Have a Job?

Students also considered graduation rates and universities' records of placing graduates in jobs in their field. For example, one student said that a key factor was "having a good history of kids graduating and getting good jobs." Two other students cited graduation rates as important in the interviews. When examining students' choice sets, we saw differences between the mean graduation rates in the choice sets of students based on age and whether they had dependents. Younger students' choice sets had a higher mean graduation rate, compared to older students. Younger students, and those without dependents, thus seem to populate their choice sets with four-year universities characterized by significantly higher graduation rates. There were also statistically significant differences in the mean graduation rates of universities included in student choice sets when comparing groups of students from the two community colleges, which may be related to the different options in the two metro areas.

Beyond graduation rates, many more students discussed the importance of career opportunities and placement in their field. Several students described the importance of getting "real-world experience" during their college experience. As one student said, "I prefer Baptist only because they say they integrate into the job system and they help them with their job. That is perfect. It is more than education, you have got to have real life experience. You can memorize the book, but…" Similarly, other students described wanting opportunities for part-time internships in their fields of interests, or schools that had strong career support. These factors were related to the prestige or ranking of the university in students' minds. They believed that "more reputable" universities would help them find jobs. For example, one student referred to rankings: "Well, for [state flagship university] in specific – they're one of the top business schools…I went to a website to look at the top business schools and they are number two or three on the list. So, I think you know if I'm in one of the top business schools, maybe it will make me

more attractive to the people I'm trying to have hire me." Others made similar statements about the importance of "having a diploma" from a specific university that was "well-respected" or "recognized" in the state when they went to seek a job.

However, one student did not believe that it was important where the degree came from. As he said, "It's not a big deal in the private sector of where you got your education from. It is more like, you have that box checked. You have your education and you have the connections that you can get in. That's what it is all about really." This student noted the importance of network connections established in college more so than the reputation of the school. This role of networks was echoed in other students' decision-making processes as well. Another student said of a business program: "If I am trying to get into an amazing job or an amazing career, then they have the connections.…Maybe I will meet somebody who will come up with a good idea and we will start our business together." People who were currently working also talked to their current bosses or colleagues and were referred to programs that were viewed as "good" in their fields.

Table 4.

Characteristics of Choice Sets

	Mean (SD)	Obs	Min–Max
Ave. Distance	215.31 (283.62)	93	0–1611.47
% Public Universities	69.45 (28.30)	92	0–100
% Religious Universities	24.39 (25.89)	92	0–100
% Instate	91.19 (18.18)	97	0–100
% Admitted to University	61.94 (12.49)	89	29.5–93
Ave. Graduation Rate	59.04 (15.23)	90	15–86
Mean SAT Math 75th Percentile	589.10 (40.84)	92	470-700
Mean SAT Verbal 75th Percentile	573.85 (41.06)	92	450-670
Ave. Cost	31,293 (7,964)	89	18,532–58381
Ave. Net Price	13,008 (1,612)	83	10,131–16,832
% Pell Grant Recipients at Univ.	36.55 (10.56)	91	17.5–73
% Expenditures on Instruction	39.73 (4.01)	92	32.2–61
% Expenditures on Acad. Support	13.75 (2.91)	92	5–25
% Urban Locations	86.03 (23.98)	97	0–100
% HBCU	1.97 (1.17)	92	0–100

Other Factors

We noted several other patterns worth describing briefly. First, students made decisions not only about undergraduate institutions, but also considered their longer educational trajectories. For example, students considered the quality or availability of graduate programs in their field of interest when making a decision about where to transfer. Students either considered the competitiveness of the undergraduate program as being important for admissions to graduate school elsewhere, or students actually planned to attend graduate school at the same institution, and preferred to make one decision or one institutional move. For example, one student noted that they planned to attend a less selective university, where they felt they could get a better GPA, "and with a better GPA, you can get into dental school much easier." Another student noted that they planned to apply to business school at the state flagship university, and felt it would be easier to get into the business school if they completed their undergraduate education at the same place. One student ruled out a private university because "their Master's program is not good," even though the student's first step was to complete the bachelor's degree. Students, in some cases, thus considered their graduate school choices alongside their undergraduate choices, rather than as two separate decisions. This was particularly true for older students who wanted to expedite the process to get to their educational and career goals.

Students also described the school climate or culture as being important, which was difficult to define, but generally meant a warm and welcoming environment, diversity, and a place with activities and school spirit. Students who talked about the campus culture described wanting universities that had "a relaxed vibe," or a "calm, open" atmosphere. Students also sought diversity – "a melting pot." As one student said, "I want different people from different places interacting with each other. For younger students in particular, having a sense of school

community was important. While some of them were involved in their community college campuses, they sought more opportunities to join clubs or activities or have "school spirit." These students sought to be involved in culture and traditions of their four-year universities, and to attend athletic events. As one student said, "Because I'm military, I like to have that camaraderie where, 'You're a longhorn, too?' 'Yes, sweet!' That type of thing." Another student said, "The campus life is important. I'm not somebody who likes to party but social activities and being able to be involved. I really like public service, community service, something where I feel like I can be involved and make a difference." As one student noted, this was especially important coming from a community college that, in her view, did not have that. As she said, "[My community college] doesn't have that. They don't. I mean, you send out an email to your class, asking if anybody wants to form a study group, and nobody responds. Nobody likes to study together there…that's definitely one thing that I would like is just to be part of different clubs, different sports." Student thus wanted a sense of community and opportunities to be more involved on campus, particularly in comparison to their perceptions of campus life at their community colleges.

Finally, students also faced unique challenges or roadblocks as transfer students in transferring coursework, or anticipated challenges after transferring, which shaped their decisions about where to apply. For example, one student noted that the program she wanted to apply to took only "one external transfer," and required a portfolio and background in the field, so she could not apply there for that program. Other students noted the "ease in transferring credits" as a factor in their decisions about where to apply. One student ruled out a selective school because they were missing one course requirement and were "not going to waste a whole

semester on one class." Students also ruled out programs at universities that did not accept mid-year (January) transfers.

Conclusion

This study explores a previously underexamined area: the decisions of community college transfer students. Our preliminary findings suggest significant heterogeneity among our sample of community college students seeking transfer to four-year institutions. These students, enrolled at two nearby but distinct community college districts in Central Texas, constructed choice sets of prospective universities based on factors such as geography, school selectivity, educational quality, institution cost, availability of loans and scholarships, school climate, support services, availability of graduate programs, and transferability of credits. These variables are not one-directional; some students were looking for diverse opportunities more frequently found at large schools while others sought smaller class sizes at private institutions.

There were some statistically significant predictors of transfer choices sets, frequently divided by age. Young students, on average, had choice sets of schools that were further from their residences—up to 200 miles further—suggesting less encumbered lives than their older counterparts. Younger students' choice sets also included more selective schools and schools with fewer Pell grant recipients. Additionally, we saw statistically significant differences between students of color and White students, as well as between students with dependents and those without. For example, minority students and students with dependents have more private schools in their choice sets; we hypothesize that this could be driven by a desire to stay local. Our qualitative findings also reveal new areas for further exploration in our future work, such as joint decision-making regarding undergraduate and graduate school, and the role of transfer hurdles in the decision-making process.

This study contributes to the empirical literature on higher education decision-making, community colleges, and college completion for low-income, first-generation students by unpacking transfer students' choice sets, examining the types of schools they consider, and the factors most important to them. It also elaborates and extends theories of decision-making by building on concepts from economic sociology and behavioral economics. This study helps to elaborate and extend existing theories about the choices students make (e.g., Tierney, 1983; Turley, 2009), and inform the development of targeted interventions to improve college access and completion for low-income, first-generation community college students in Texas and beyond.

This study aligns in many ways with current literature, but also offers deeper insights about an important and understudied population—community college students seeking transfer to four-year institutions. For example, previous research shows that community college students care a lot about geography when considering higher education opportunities (Backes & Velez, 2014). We also find that students in our sample are concerned about the location of prospective transfer institutions; qualitative inquiry, however, reveals that many are willing to travel further but constrained their choice sets due to concern about cost. Earlier studies (Grodsky & Jones, 2007, Mundel, 2008) find that college cost is an important factor in college choice, particularly for students of color (Grodsky & Jones, 2007, Mundel, 2008); in our study students weighed financial considerations while creating their choice sets, but we found differences in students' selections based on different variables. In our sample, first-generation students, students with dependents, and older students' choice sets included universities with higher numbers of Pell grant recipients. Minority students actually included more private schools and more expensive schools, on average, in their choice sets than non-minority students.

Existing literature notes problems of "undermatching" where students attend less selective schools than they might be accepted to based on their academic record (Bastedo & Jaquette, 2011; Hoxby & Avery, 2012; Page & Scott-Clayton, 2016; Smith et al., 2013). In some cases, choice sets for low-income, academically successful students contains schools similar to their socioeconomic, rather than academic, peers (Page & Scott-Clayton, 2016); this is significant as these institutions may not challenge them academically and may jeopardize their chances of completion (Castleman et al., 2015; Page & Scott-Clayton, 2016). Students in our study are driven by a desire to attend a "good" university, but that the definition of varied by student. Furthermore, the bounded nature of students' choice sets may have closed them off to better "matched" schools.

Researchers have explored why students choose community colleges including background, aspirations, educational achievement, social environment, financial variables, net cost, institutional climate, and institutional characteristics (Somers et al., 2006). Other models of community college choice found students also preferred certain institutional characteristics, such as the small-school experience and more faculty contact (Tierney, 1983). We find similar variables play a role in the choice sets of community college students looking to transfer to four-year schools, but also find statistically significant differences among different groups of community college students, including younger vs. older learners, those with and without dependents, and minority and non-minority students. Our qualitative contribution also offers new insights into the meaning of these factors and may provide directions for policy.

While we find that students' choice sets are geographically constrained, for many students, these zones are geographically large, suggesting that interventions and targeted outreach from universities could help students identify and select from greater range of options

to enhance higher educational opportunity. Furthermore, there is significant variation in the "community college student" category, with different populations (older/younger, with or without dependents) requiring more specific, targeted informational interventions about their potential choices. In general students' choice sets were relatively small, and some students even sought to broaden them, but did not always have sufficient information on alternative options. Therefore, there is a role for policymakers and practitioners to develop information-based solutions to aide students in their decision-making.

However, while information and students' choices are a key factor in determining where they ultimately transfer, other aspects of the transfer process are equally important to examine. For example, students noted facing transfer hurdles or challenges in transferring their coursework, which ultimately limited their options. The way in which students receive information currently is important to examine in relation to potential interventions. Students relied on word-of-mouth through friends, family, and sometimes counselors or advisers, often finding this information to be more reliable. Future interventions might focus on fostering networks, or connecting students to current students attending the transfer institutions they are considering.

While these are very preliminary results, our next steps are to dig deeper into the construction of choice sets, and to explore the nature of students' decision-making over a two-year period, focusing on the ways in which students' choice sets change and adapt to new information, as well as why they ultimately do or do not successfully transfer. For example, how stable are these choice sets over time? Through this qualitative work, we hope to provide greater insights into what interventions might help, as well as build theory about the decision-making process in selecting institutions of higher education. After this, we will begin our analysis of

statewide longitudinal data, examining the expressed preferences of community college students not just in our limited qualitative sample, but across the entire state of Texas. We anticipate that this will yield even more policy implications and, complemented by the qualitative work, might help to inform policies and interventions to improve the transfer process.

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Table 5.

Differences in Choice Sets by Student Characteristics

Characteristic	Minority	*n*	Non-Minority	*n*	Male	*n*	Female	*n*	First-Gen	*n*	Not First-Gen	*n*
Ave. Distance	185.11 (239.93)	67	293.14^ (367.82)	26	229.01 (250.34)	29	210.37 (301.37)	63	200.23 (289.39)	65	250.32 (271.59)	28
% Public Universities	.63 (.29)	64	.83** (.21)	28	.76 (.24)	32	.66^ (.30)	59	0.69 (.30)	62	0.7 (.22)	30
% Religious Universities	.29 (.27)	64	.14** (.19)	28	.20 (.23)	32	.27 (.27)	59	.25 (.28)	62	.23 (.21)	30
% Instate	.94 (.13)	68	.85* (.25)	29	.90 (.18)	33	.92 (.18)	63	.93 (.18)	65	.88 (.18)	32
% Admitted to University	62.47 (12.83)	63	60.64 (11.76)	26	61.74 (9.61)	32	61.95 (14.03)	56	62.83 (12.58)	59	60.19 (12.33)	30
Ave. Graduation Rate	57.21 (14.09)	63	63.31^ (17.13)	27	61.78 (10.88)	32	57.71 (17.17)	57	56.16 (15.87)	60	64.80* (12.17)	30
Mean SAT Math 75th Percentile	589.99 (40.84)	64	587.06 (51.76)	28	587.24 (43.35)	33	589.58 (39.82)	58	592.67 (36.19)	61	582.08 (48.61)	31
Mean SAT Verbal 75th Percentile	574.56 (35.69)	64	572.22 (52.02)	28	572.32 (45.70)	33	574.13 (38.70)	58	578.31 (37.47)	61	565.06 (46.74)	31
Ave. Cost ($)	31,976 (8,145)	63	29,639 (7,396)	26	30,101 (7,601)	32	32,066 (8,185)	56	30,387 (7,552)	59	33,074 (8,569)	30
Ave. Net Price ($)	12,918 (1,625)	56	13,194 (1,598)	27	12,862 (1,078)	31	13,132 (1,862)	51	13,028 (1,679)	54	12,969 (1,507)	29
% Pell Grant Recipients at Univ.	37.91 (10.07)	64	33.33^ (11.19)	27	33.83 (7.15)	32	37.95^ (11.90)	58	38.64 (10.96)	61	32.3** (8.35)	30
% Expenditures on Instruction	40.02 (3.53)	64	39.07 (4.96)	28	39.08 (2.73)	32	40.07 (4.57)	59	39.95 (4.35)	62	39.28 (3.22)	30
% Expenditures on Acad. Support	14.15 (2.96)	64	12.84* (2.62)	28	13.60 (2.49)	32	13.83 (3.15)	59	13.8 (3.06)	62	13.65 (2.61)	30
% Urban Locations	.85 (.25)	68	.89 (.22)	29	.88 (.20)	33	.85 (.26)	63	.88 (.23)	65	.82 (.26)	32
% HBCU	.01 (.07)	64	.04 (.19)	28	0.00 (0.00)	32	.03 (.15)	59	.03 (.14)	62	0.00 (0.00)	30

** ($p < 0.05$) ** ($p < 0.01$) ^ ($p < 0.10$)*

Table 6.

Differences in Choice Sets by Student Characteristics

Characteristic	Less than 25 yr. old	*n*	More than 25 yr. old	*n*	CC A	*n*	CC B	*n*	Have Dep.	*n*	No Dep.	*n*
Ave. Distance	271.95 (311.02)	68	61.24** (66.92)	25	271.91 (280.13)	42	168.7^ (280.63)	51	77.77 (113.62)	27	273.87** (314.30)	65
% Public Universities	0.73 (.26)	67	.6^ (.33)	25	.73 (.27)	45	.67 (.30)	47	.59 (.30)	28	.74* (.27)	63
% Religious Universities	.23 (.24)	67	.29 (.30)	25	.21 (.23)	45	.28 (.28)	47	.31 (.28)	28	.22 (.25)	63
% Instate	.88 (.20)	70	.99** (.05)	27	.87 (.19)	46	.95* (.16)	51	.98 (.06)	29	.88* (.21)	67
% Admitted to University	59.41 (11.38)	65	68.78** (13.02)	24	58.38 (11.59)	44	65.42** (12.47)	45	66.90 (12.98)	27	59.84* (11.81)	61
Ave. Graduation Rate	62.59 (13.64)	66	49.3** (15.38)	24	66.55 (12.88)	44	51.86** (13.88)	46	50.79 (14.80)	28	62.49** (13.94)	61
Mean SAT Math 75th Percentile	586.19 (38.59)	68	597.34 (46.52)	24	588.25 (36.94)	45	589.91 (44.64)	47	587.75 (44.91)	26	588.39 (38.47)	65
Mean SAT Verbal 75th Percentile	571.61 (38.83)	68	580.19 (47.12)	24	571.98 (35.28)	45	575.63 (46.24)	47	572.51 (43.77)	26	573.05 (39.13)	65
Ave. Cost ($)	31,950 (8,073)	65	29,513 (7,535)	24	32,426 (8,766)	44	30,185 (7,014)	45	30,340 (5,793)	27	31,823 (8,777)	61
Ave. Net Price ($)	13,273 (1,500)	62	12,223** (1,709)	21	13,508 (1,619)	43	12,470** (1,438)	40	12,519 (1,760)	24	13,188^ (1,525)	58
% Pell Grant Recipients at Univ.	34.68 (10.50)	66	41.48** (9.22)	25	32 (8.33)	45	41** (10.69)	46	41 (9.07)	28	34.73** (10.65)	62
% Expenditures on Instruction	39.67 (4.08)	67	39.92 (3.89)	25	39.11 (2.95)	45	40.33 (4.77)	47	39.46 (3.72)	28	39.94 (4.14)	63
% Expenditures on Acad. Support	13.53 (3.03)	67	14.34 (2.52)	25	13.31 (2.19)	45	14.17 (3.43)	47	14.55 (3.19)	28	13.45^ (2.73)	63
% Urban Locations	.89 (.22)	70	.79^ (.27)	27	.93 (.17)	46	.79** (.27)	51	.82 (.22)	29	.88 (.25)	67
% HBCU	.03 (.14)	67	.00 (.01)	25	.01 (.07)	45	.03 (.15)	47	.02 (.09)	28	.02 (.13)	63

** ($p < 0.05$) ** ($p < 0.01$) ^ ($p < 0.10$)*