THE IRON TRIANGLE OF COLLEGE ADMISSIONS: EARLY ADMISSIONS POLICY

IMPLEMENTATION AND ITS CONSEQUENCES IN FOUR-YEAR COLLEGES AND

UNIVERSITIES IN THE U.S.

by

HEE JUNG GONG

(Under the Direction of Robert K. Toutkoushian)

ABSTRACT

Currently and in the past, college access and admissions has been an important topic in higher education, regardless of national and historical background. It is also one of the essential mechanisms that determines the organizational rise and fall of postsecondary institutions as a social system.

Utilizing a comprehensive literature review and theoretical background that includes sociology, economic, and policy and administrative perspectives, this dissertation comprises two studies. Specifically, the first study examines the implementation of early admissions (Early Action/Early Decision) to explore the values and messages behind such policies, utilizing text data and qualitative research method, a content analysis, in four-year colleges and universities in the U.S. Following that, the second study investigates the consequences of early admissions policies on institutional outcomes using a national large panel dataset from 2004-2018 and the causal modeling of a quantitative research method, a difference-in-differences design with two-way fixed effects model, in four-year institutions in the U.S. Both studies are illuminated through the triangular conceptual framework of this dissertation: diversity, quality, and affordability.

The individual studies respectively address the study's purpose, research questions, research design and method, results and limitations, and provide rich discussion on the three aspects of diversity, quality, and affordability in admissions, and future study and practices are suggested. Additionally, further discussions, implications, and suggestions for policy and practice based on the findings from the two studies are discussed in the last chapter. This research aims to expand our understanding of early admissions policies and serve as a steppingstone to further develop college admissions and access policies and practices in higher education.

INDEX WORDS: College admissions; Early admissions; Early Action; Early Decision; College access and choice; Policy implementation and evaluation; Causal inference model; Content analysis

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DEDICATION

This dissertation is dedicated to the researchers, teachers, learners, and people who strive to

create more knowledge and fight for equitable and achievable education around the world.

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November 21, 2021 @ Atlanta, Georgia, USA

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INTRODUCTION

The admissions process is an immensely complex product of choices and decisions that

reflect societal values (Thresher, 1966). Admissions policies and practices must be socially and

educationally responsible in how they sort and select students, and conscientious of the values

and goals they reflect. Scholars and practitioners, historically, have emphasized equity and

fairness in college admissions (Baum, 2017; Solomon, 2019; Kredell, 2017), since one of the

purposes of higher education is educate and provide a possible education to all students—

particularly historically underrepresented student populations such as students of color and low-

income students. Higher education is also a national asset that upholds social mobility by

reducing social, economic, and cultural disparities (Haveman & Smeeding, 2006; Marginson,

2018; Brubacher & Rudy, 2017); these are common beliefs throughout the world and across

time.

In this context, American colleges and universities have been tremendously successful,

and strive to maintain equal opportunities for higher education access for all students, regardless

of their backgrounds or predominant capital (e.g., social, economic, and cultural), thereby

promoting the higher education access that helped create the American middle class (Camara &

Kimmel, 2005). However, colleges and universities inadvertently make students and parents

aware of their socioeconomic class and their advantages or disadvantages throughout the college

admissions process, since the diverse screening tools used by institutions are functionalized to

select advantaged students (Perna 2006b; Chankseliani, 2013; Bastedo & Bowman, 2017). For

instance, elite colleges and universities prefer early action (EA) and early decision (ED) policies, and implement these to attract advantaged students and compete with other similar institutions in the higher education market (Afram, 2006; Antecol & Kiholm-Smith, 2012).

According to a recent public study from the College Board (2018), approximately 450 colleges and universities in the U.S have ED or EA plans, and some have both. In addition, *U.S. News & World Report* (Nov. 21, 2017) announced that acceptance rates or early admissions programs/policies exceeded these of regular admissions for Fall 2016 at most schools. These trends have not changed significantly in recent years. For example, according to data collected from the 2019-20 Common Data Set (CDS) and institutional websites, the EA admissions rate of Harvard university was 13%, compared to 3% for regular decision (RD) applicants. At Dartmouth College in 2019, the rate of ED admissions was 23% while the RD rate of admissions was also only about 3%. On average, for the 10 colleges where early admissions acceptance rates were much higher than those for RD, the average difference was nearly 50%, based on the data of a *U.S. News* analysis of fall 2019 admissions data (Moody, 2020). In a particularly extreme example, Georgia State University reported that 100% of early applicants in fall 2019 were admitted, in sharp contrast to the general RD acceptance rate of 39%.

Additionally, one noticeable trend is that the popularity of early admissions has grown since 2018; ED and EA applicants increased by 24% in 2019, and *Naviance* reported that 1.1 million individual students submitted 7.2 million college applications in 2019 (Nietzel, 2020). In fact, Harvard University reported that the ED acceptance rate decreased to 7.4% for the Class of 2025 since the number of total applicants had skyrocketed, yielding the most unprecedented competitive early admissions cycle in the institution's history (Fu & Kim, 2020). Of course, such

phenomena entail those selective institutions, such as elite private universities, must compete against each other for high-quality students who decide and enroll early.

Numerous controversies among scholars, policymakers, and college administrators have centered on whether equity or efficiency (or excellence) should be prioritized in college admissions (e.g., Bowen, Kurzweil, Tobin, & Pichler, 2005), a conflict that is also entangled with matters of affirmative action, financial aid, college testing, and so forth. According to Baum (2017), the potential trade-off between need-based aid and charging higher tuition or abandoning the quality of educational programs or facilities must be faced. Considering that the foremost two values in education are equity and excellence, early admissions, the focus of this research, should also be understood as a policy/program into which are embedded complicated and multifaceted aspects.

Taking an institutional and organizational perspective, this dissertation will discuss the three core values of college admissions—diversity, quality, and affordability—by drawing on the existing literature and its theoretical foundations. First, diversity in admissions is not simply a matter of discussing or contemplating fairness or equity, but rather can be understood as a value that all students and communities on a college campus should pursue from the standpoint of an institution as a social organization. In college admissions, diversity should be dealt with comprehensively, by appreciating differences in gender, race/ethnicity, region, sexual orientation, political orientation, disability status, or any other related characteristics whether innate or not, with respect to historical and contemporary contexts. Among these diverse attributes, affirmative action has provoked particular controversy due to its focus on race and ethnicity as significant factors in the admissions process, a practice that aims to achieve racial and ethnic diversity among students on campuses (e.g., ACE, 2020; Camera & Kimmel, 2005).

In fact, over the past four decades, the decisions of the U.S. Supreme Court, such as the 2003 University of Michigan cases *Grutter v. Bollinger* and *Gratz v. Bollinger*, as well as *Fisher v. University of Texas at Austin (Fisher II)* in 2018, have upheld holistic views of race and ethnicity in college admissions, and these decisions have confirmed the importance of diversity in education. Early admissions have, inevitably, also become a subject of scrutiny in the critical equity and diversity dialogue, along with other aforementioned factors that should also be examined with regards to how they are embedded in early admissions programs.

Another significant subject of discussion in the college admissions discourse is the issue of quality. Due to problems such as decreases in the number of enrolled students and the increasing cost of higher education, colleges and universities are facing survival problems and are eager to secure students. University quality is closely related student selection decisions (Baum, 2017): for example, the more first-generation students a university admits, the higher the institutional cost, and this corresponds to a decline in institutional quality (Kuh & Pascarella, 2004). Even though this may not be accurate, it is generally thought that when a university selects more students from underrepresented groups, fewer top-notch students enter the university, and the proportion of mediocre students increases. Also, institutions traditionally believe that the academic quality of freshmen or other students might be related to alumni ambassadors and enhancing their institutional reputation (Camara & Kimmel, 2005). Thus, institutions must weigh concerns of access, diversity and inclusion, and academic excellence or quality, and such concerns are also found in the mechanisms of early admissions, as established routes of college entrance.

Lastly, regarding the increasing concerns over college tuition and student debt, college affordability affects not only individual students, who often face financial disadvantages, but is

also a matter of institutional accountability. Postsecondary credentials have never been more important, but they have also never been more expensive to obtain, and tuition at public four-year colleges has more than doubled over the past three decades (U.S. Department of Education, 2020). There is no question that the issue of financial aid has become more complex and sensitive for both students and institutions over the last few years (Darolia, 2013; Fuller, 2014; Ness, 2010). In particular, controversies such as the question of binding or non-binding admissions in early admissions, FAFSA deadlines and early decision college applications, and guarantees of financial support surround early admissions policies and are arousing fervent discussions among college administrators and related stakeholders, and making EA policies even more controversial (Antecol & Kiholm-Smith, 2012).

Based on these three "iron triangles" of college admissions, this dissertation will discuss the institutional motivations and rationales for implementing early admissions policies or programs, and how these policies eventually impact these core values in institutions. Limited past research, in brief, has focused on discussions of the legal and ethical issues surrounding early admissions (Afram, 2006), revealing the factors influencing early admissions applications (Avery & Levin, 2010; Park & Eagan, 2011; Chapman & Dickert-Conlin, 2012). Some reports or studies have also analyzed which students apply to and were admitted via early admissions in colleges (Park & Eagan, 2011). As seen in those examples, studies and technical reports mainly have discussed the background and the rationales of early admissions; however, empirical evidence from a statistical analysis beyond basic statistics has hardly been employed. Also, past studies have focused on student-level data within a limited institution or a certain type of institution. Additionally, no trials have yet been held to conduct a relevant study using a qualitative methodological perspective. As such, when considering the popularity of early

admissions and the need for discussion of this practice, empirical studies have thus far been insufficient, due to the absence of related data, data unavailability, and difficulties in conducting research. This means that further attempts have not been made to comprehensively discuss these policies from an organizational or institutional point of view.

Furthermore, controversies have arisen in the last few years among scholars and practitioners surrounding early admissions, especially for early decision programs (Barnard, 2019; Seltzer, 2019). Even though early admissions has a long history, thus far a dearth of studies has scrutinized the rationales and practices of early admissions policies, for both early action and early decision, with a fresh perspective and approach. In addition, from an institutional or organizational perspective, attention to the consequences of early admissions policies is a matter of institutional accountability for how to sort and select students to distribute a higher education opportunity for all students, including disadvantaged or underrepresented students.

Comprehensively, thus, the grand purpose of this dissertation is to explore early admissions policy implementation and to examine the consequences of early admissions in four-year colleges and universities in the U.S. from the triangular perspectives of diversity, quality, and affordability. The first study, utilizing a qualitative methodological approach, addresses the specific research questions as follows:

1. Along what dimensions of institutional characteristics—control (i.e., public vs. private), selectivity (i.e., low, middle, high, highest), region (i.e., South, Midwest, Northeast, West), location (i.e., city, suburb, town, rural), and highest degree level (i.e., bachelor's, master's, doctoral) does the information presented by EAPs on institutional websites vary? Is there any pattern that can be observed?

2. What rationales, values, and goals do colleges and universities emphasize for early admissions versus regular admissions of promising applicants from the perspective of diversity, quality, and affordability in college admissions? How are those differentiated between EA and ED?

Next, the second study poses the following questions using the quantitative methodological approach:

1. To what extent do early decision only (ED), early action only (EA), both EAD (EA and ED), and EAPs (any types of early admissions policies), respectively, impact freshmen diversity in four-year colleges and universities?

2. To what extent do early decision only (ED), early action only (EA), both EAD (EA and ED), and EAPs (any types of early admissions policies), respectively, impact freshmen quality in four-year colleges and universities?

3. To what extent do early decision only (ED), early action only (EA), both EAD (EA and ED), and EAPs (any types of early admissions policies), respectively, impact freshmen affordability in four-year colleges and universities?

In short, this dissertation comprises two studies focused on early admissions policy implementation and its consequences using both qualitative and quantitative methodological approaches from an institutional perspective. Chapter 2 presents a comprehensive review of the existing literature and other relevant materials, and Chapter 3 explores the theoretical framework and background of this dissertation. In the following chapters, the first (Study 1) and second study (Study 2), individually, address the research outline, design, methods, limitations and results, and Chapters 4 and 5 provide discussion and implications for future research and

practice. In the final section, Chapter 6 provides an inclusive discussion encompassing the results

of the two studies together, along with a summary and conclusion of the dissertation.

CHAPTER 2

LITERATURE REVIEW

This chapter explores the literature related to early admissions history and policy introduction, and supplies key terms of definition, while reviewing past studies and discussions on early admissions that include the context of college access and choice. The review will address a variety of components and ongoing dialogues such as student benefits, legal issues, selectivity and reputation, equity and diversity, and financial aid.

Overview of Early Admissions Policies and Definition of Key Terms

Admissions policies and programs, for the purposes of this dissertation, are specifically defined as early decision, early action, and regular decision (or regular admissions), which are distinguished by the date of application, the date of decision deadline, and whether the requirements of enrollment in the accepting institution exist or not (that is, whether they are binding or non-binding).

Early action (EA) policies typically set their application deadlines in mid-October to November in most institutions, with results normally returned by January. These are non-binding policies, meaning students can decide whether they wish to enroll in that school by May 1, the same deadline as regular decision. Also, generally, EA allows students to apply to early action and regular decision in other schools; however, few schools have restrictive or single-choice early action (restrictive early action), which require that applicants do not apply for early action anywhere else.

Early decision (ED) policies have similar features to EA in terms of application deadlines, which are usually mid-October or November 1, but differ in that students often receive their results by mid-December, earlier than with EA. The most salient difference is that these are binding policies; thus, students who have been accepted to a particular school must enroll in that school and also not apply via any other early admission policies in other schools, unless ED applicants are rejected or deferred from ED in December.

Regular decisions or regular admissions (RD) are made in all colleges and universities under a selective admissions policy, and the application deadline for the policy route is normally between January 1 and February 1, depending on the college. Decisions are typically released from mid-March to April. Students have until May 1 to enroll in and submit deposits to the institutions they then choose.

As a caveat related to terms, sometimes colleges use "early admissions" to indicate an admissions option for academically talented high school juniors who wish to "skip" their entire senior year. However, the case of skipping the entire senior year is beyond the scope of the origin of the policy and is not the focus of this dissertation. Moreover, some colleges operate early decision in two cycles, early decision I (EDI) and early decision II (EDII); however, there are typically no differences between the two (e.g., binding policy), except for the slight differences in application deadlines, notifications, and deadlines to enroll. Still, EDI and EDII deadlines are earlier than the dates of EA and regular admissions/decision cycles. Thus, considering that there was insufficient information from each institution in the data, EDI and EDII, EDI and EDII are not distinguished in this dissertation.

Additionally, schools that operate both EA and ED are called EAD institutions, and the abbreviated term EAPs throughout the dissertation indicates any type of early admissions, including EA only, ED only, or both programs/policies (EAD).

<u>Overview of the History of Early Admissions Policies</u>

Historically, from 1636 through the 1950s, all aspiring U.S. college students applied through a regular admissions process (College Gate, 2018). However, a group of five smaller colleges (e.g., Dartmouth College) in the 1950s began to implement a policy that offered a binding early decision option in order to take top students before they applied to Harvard, Yale, or Princeton. Subsequently, early admissions or early decision admissions options have been actively used since the 1970s (Avery et al., 2009). One study reported that many elite institutions of higher education had filled as much as 40% of their entering class with early applicants in 2002, and 25% of private colleges and universities offered early decision, compared with only 10% of public institutions at that time.

When admissions became more competitive in the 1950s, elite schools began to adopt various forms of early admissions. The initial motivation was to limit uncertainty about class size (Avery et al., 2009). Afterwards, financial aid became another driving force for early admissions policies. According to Paul and Paul (1997), during the rapid economic growth of the mid-to-late 1990s, private schools faced competitive pressure in offering merit-based scholarships against public schools; however, as the economy slowed, private and public institutions constrained their financial aid expenditures to deal with the economy and limited higher education resources. In light of this, colleges and universities that implemented early admissions, especially early decision, were able to handle and control the financial aid outlays relatively easily and better.

This also could be possible since early applicants are generally students from high-income families and less likely to apply for financial aid than regular decision applicants.

Interestingly, Harvard University ended its early decision policy in 2006 due to criticism that early decision is designed to privilege wealthy applicants, and in 2007, many schools (e.g., the University of Florida, the University of Virginia, Princeton University, etc.) followed suit and ended their policies. However, in 2011, just five years after ending early decision, Harvard, Princeton, and several other universities reinstated their early admissions policies under the name of "early action," which is a non-binding policy unlike early decision. As such, recently many colleges and universities have adopted early action policies, and some colleges and practitioners argue that early action is apparently a more student-friendly program. However, these policies still maintain the foundations of early admissions. Uncertainty surrounding enrollment and admissions strategies, along with rapid environmental and social changes surrounding college access and admissions issues, led consequently to the increased adoption of early admissions strategies by colleges and universities.

In sum, whether early admissions policies should be implemented has elicited controversy among scholars and practitioners, and issues surrounding the operation of early admissions, particularly about early decision, have raised several logical questions that should be examined empirically.

<div align="center">College Access and Choice Model</div>

According to Kinzie et al. (2004), the college choice process has significantly changed over the past 50 years for a variety of reasons, including student demographics changes and developments in colleges' admissions recruitment and marketing strategies. College decisions and college choices, in particular the dialogue about the influential factors related to college

access and enrollment in higher education, have a rich history (e.g., Hearn, 1988; Toutkoushian, 2001; Bastedo et al., 2018; Stich, 2012). Based on these past discussions and studies, college choice is broken down into two major areas: 1) student characteristics and their effect on the college choice process, and 2) institutional characteristics and how these factors influence college enrollment decisions. From the student's perspective, for example, Perna's (2006a) conceptual framework outlines three broad components to explain the college choice model: individual and family, school and community, and social contexts Also, Hossler and Stages' (1992) theoretical model of high school students' predisposition to college found that individual, family, and school features are influential in the college choice and decision process. Additionally, Jackson (1982) presented a model of college choice incorporating three stages: 1) preference influenced by family backgrounds, personal experiences, and aspirations, 2) exclusion when comparing colleges by virtue of location, resources, etc., and 3) evaluating schools using a rating tool that assesses decisive factors, such as institutional or environmental characteristics.

On the other hand, models or frameworks emphasize institutional characteristics in terms of enrollment decisions. Hossler (1984) described institutional variables in enrollment decisions, including fixed features: ownership, general tuition policy, location, academic orientation, and fluid characteristics, such as net pricing, academic program alteration, student life programs, and college communication strategies. Meanwhile, adopting a more comprehensive framework incorporating an economic perspective of college choice, Toutkoushian and Paulsen (2016) described the decision to attend college as one characterized by five stages: aspiration, search, application, admissions, and enrollment. They described a model of college choice that included student characteristics, institutional characteristics, the external environment, the students' choice of college and, notably, the "institutions' choice of students".

In the end, early admissions policies are involved with institutional and students' college choices throughout almost all these stages—preparedness for college, the application process, admissions to college, the decision whether enroll in that college, and final enrollment and financial aid packages. In addition, access to higher education has been a cherished goal of American society, but has also been intertwined with many issues, including population shift, changes in racial/ethnic representation, high school standards and test policies, financial aid, and immigration for international students. Thus, admissions policies need to appreciate this mixture of students and institutions' interactions of access and choice, and respect that they respond to and are influenced by the internal and external higher education environment that surrounds institutions or organizations.

<div align="center">Early Admissions and Student Benefits</div>

Scholars and practitioners have discussed how applying early benefits students and the differences between early and regular application timelines (Reingold, 2004; The College Board, 2018). Some studies point out that many high school students suffer anxiety from researching colleges and submitting applications (e.g., Hansell, 1982). One advantage of applying early is that students can avoid the prolonged stress of a regular application process. This is because, in particular, ED policies often require students to promise to attend a certain school, and thus save themselves a spot without any uncertainty regarding whether they might choose to go elsewhere. This could be also less time-consuming and costly than submitting multiple applications. With ED, students usually know whether they have been accepted or not by December, so they gain additional time to prepare for their first year of college.

Additionally, with regards to high school students, in terms of the relationship between standardized test scores and early admissions, some studies have revealed that early applying

students gain some advantages in being accepted into an institution. Harvard University found that ED applicants who had moderately high SAT scores (in the 1400s) were just as likely to be accepted at a given school as applicants who had SAT scores in the 1500s but who applied later in the spring on the regular admissions timetable. Furthermore, it was found that an ED applicant with SAT scores in the 1200s was more likely to be accepted than a spring applicant (RD applicant) with SAT scores in the 1300s (Avery & Levin, 2010). Thus, several studies have found that it is easier to win admissions to these highly selective schools when one applies early (Park & Eagan, 2011). However, the studies did not particularly distinguish between EA and ED policies. Thus, the relationship between SAT/ACT scores and the acceptance rate of different admissions routes is still vague.

<div align="center">Early Admissions and Legal Issues</div>

Recently, a profound controversy among scholars and practitioners has erupted around early admissions, in particular early decision, as an ethical or legal issue. Afram (2006) discussed ED in the context of civil rights and antitrust laws. Afram argues that ED violates the Sherman Act through market division and information sharing. The Sherman Act prohibits monopolies or unreasonable combinations of companies from restricting commerce. For example, in the 1990s, Ivy League universities and MIT formed an 'Overlap Group' that compared proposed financial aid packages for admitted students. In most cases, this Group eliminated any financial aid variances so that family expenses would be the same wherever students chose to enroll. The Justice Department concluded that the Group did illegal horizontal price fixing for financial aid. In this context, Afram (2006) pointed out that early decision policies can amount to different antitrust violations in terms of customer (student) allocation. To be specific, under ED, a student only applies to one school and promises to attend that school if they are admitted. However,

colleges and universities have developed an alternative system of early decision enforcement that involves exchanging information, which creates a customer allocation problem. In the system, if a student is accepted into a particular school through ED, the competitor schools under early admissions or a regular decision policy might gladly abandon better financial aid packages for their students, while promising not to compete with the schools where students have been admitted.

Accordingly, through institutional agreement, a monopoly market on the admissions business is naturally formed, and an illegal customer allocation and unbalanced power relationship between students and schools is formed. This is possible because each school acquires a confirmed list of attending students by sharing information with other schools; simultaneously, students can only negotiate financial aid with the school that admitted them under its early decision policy. In the end, issues of legal concern in the policy aspects of early admissions compel consideration of its potential to disadvantage students in the admissions process, and raise the prospect of continuous discussion of this issue in the college admissions literature.

Early Admissions and Selectivity/Reputation

College ranking issues have been controversial among scholars and practitioners and dealt with widely in American higher education in the 21st century. In recent years, colleges and universities have faced a much more competitive higher education market. Institutions are foremost recognized as brands rather than educational facilities (Camara & Kimmel, 2005), a tendency that has been criticized by many studies and scholars. The *U.S News and World Report* (USNWR) emerged to exploit this phenomenon, targeting parents, high school students, and even colleges and universities themselves and encouraging them to jump into the "game."

College reputation, established by publications by such as *USNWR,* affects not only student admissions outcomes and enrollment decisions. It also has a stronger and more divergent effect on admissions outcomes at institutions regardless of whether they are private or public (Meredith, 2004). Also, a college's reputation and rankings can have a substantial effect on admissions outcomes for public school students, and interestingly, the socioeconomic and racial demographics of highly ranked universities might also be heavily influenced by changes in rank. Lastly, Luca and Smith (2013) investigated the impact of college rankings, and the visibility of those rankings, on students' application decisions. They discerned the causal impact of rankings on application decisions. This means that for college rankings published in *USNWR*, one improvement in rank led to a one percentage point increase in the number of applications to that college.

Turning to a more focused institutional perspective, although EA and ED were originally designed to help students gain admittance to the colleges of their choice, they have since become important strategies for colleges, which seek to increase their selectivity and yield among admitted students and better control the size of their entering classes (Kinzie et al., 2004). According to the history of college admissions presented in Palmer et al., (2004)'s *Fifty Years of College Choice*, in the 1990s postsecondary education options expanded significantly, allowing more students to attend public or private four-year institutions. Thus, competition among colleges and universities and the attention of prospective students were overheated, and many colleges and universities endeavored to enroll the highest quality students as early as possible and so gave them the option to apply and make their decisions early. Additionally, institutions continue to lobby for high placements in resource and reputation rankings (Hossler, 1984), and colleges and universities believe that high-performing, well-prepared students from affluent

backgrounds with access to social, cultural, and economic capital in college produce better outputs for a college's ranking, selectivity, and social reputation.

Interestingly, it seems that published college rankings have a considerable impact on future peer assessments, independent of changes in organizational quality and performance or even prior peer assessments of reputation (Bastedo & Bowman, 2010; Standifird, 2005; Sauder & Espeland, 2009). As related predictors of academic preparedness or quality of applicants, ample evidence suggests that high school rank in class or high school GPA is a good or important predictor of future academic success in college (ACT, 1988; Camara & Echternacht, 2000; Camara & Kimmel, 2005). Thus, judging by these mechanisms and backgrounds, empirical evidence focusing on the relationship between early admissions and freshmen's academic ability or quality, and how the delivery of early admissions to applicants affects college reputation or selectivity are aspects that should be explored.

<u>Early Admissions and Equity/Diversity</u>

College education has become a gateway for students to become pivotal members of society regardless of their social and economic backgrounds. However, a plethora of issues regarding equality and inequality for low-income, first-generation, women, or minority students on campus remain significant in practice and research in higher education.

Thus, fairness or equity in admissions has long been debated among scholars, college administrators, and practitioners. Fairness or equity in admissions can be understood in two different ways: 1) the members of gendered, racial, or ethnic groups are to be provided proportional access to educational opportunities in the general population or in the applicant pool, and/or 2) each promising applicant should be judged by ability, quality, or past achievement without regard to gender, race, or other personal characteristics (Camara &

Kimmel, 2005). There is no consensus on the understanding of "equity" in college admissions between these two dimensions; however, policy makers and institutions have tested diverse approaches, seemingly, to make the admissions process more fair to students. This has been implemented by affirmative action, test-optional policies, and recently, holistic approaches, aimed to promote equity in college admissions (e.g., Balasco, Rosinger, & Hearn, 2015; Bastedo, Howard, & Flaster, 2016; Hossler et al., 2019).

In terms of a relationship between race and college admissions, in the most selective 20% of colleges and universities, the probability of admission also depends in part on an applicant's racial and ethnic status (Kane, 1998). Historically, racial/ethnic background is a critical factor in admissions (Brakke case, 1978; Hearn & Rosinger, 2014). In particular, with regards to early admissions, studies have been conducted as to why Black students tend not apply for ED and why overall very few Black students are accepted into college (*The Journal of Blacks in Higher Education*, 1992; 2002; 2004; 2005). These studies have found that Black students are usually disproportionately low-income, or possess low cultural or social capital, which impedes their knowledge about early admissions programs and thus their likelihood to apply to such programs.

In addition, research on the gender gap and college admissions has steadily accumulated over time (Jacobs, 1996; Carbonaro et al., 2011). According to recent rates of male and female applicants in college admissions as announced by *College Transitions* (Bergman, 2021), in the past, the success rate of women entering college was lower than that of male students, whereas recently women's rate is higher than that of male students. One possible reason for this may be differences in SAT/ACT entrance exam scores (Nankervis, 2011). In addition, interestingly, the degree of gender difference between females and males still varies slightly depending on the type

of institution. For example, in the case of technical universities, women had a higher acceptance rate than men; however, in small liberal schools, males had a slightly higher acceptance rate than did female applicants (Bergman, 2021).

Beyond the traditional factors of race/ethnicity and gender, according to Antecol and Kiholm-Smith (2012) and Afram (2006), while ED policies were rapidly expanding, colleges and universities faced the issue of diversification in their student bodies. According to Afram's (2006) argument, educators originally deemed interaction among dissimilar individuals to be essential to learning, which emphasized why diversity in education should be prioritized. Bowen and Bok (1998) pointed out that the concept of diversity expanded over time to encompass not only differences in student ideas, but also differences in geographic origin, nation of birth, religion, wealth, gender, and race. As such, it should be rigorously examined whether EA and ED policies dampen diversity even as they strive to provide educational benefits for all students.

<div align="center">Early Admissions and Financial Aid</div>

Critics of early admissions policies (EAPs) associate limited opportunities or unsure guarantees with the awarding of financial aid to applicants, making them less likely to be offered financial aid when admitted early. With Early Decision in particular, students and their families decide whether or not to submit an ED application and how to negotiate financial aid and set a strategy (Holland, 2014), since the policy prohibits students from applying to other schools and consequently prevents them from comparing financial aid packages from other schools and from shopping around to find the best price for themselves. According to Kinzie et al (2004), public and private universities since the 1990s have significantly increased tuition and fees, so demand for financial aid has increased. Colleges and universities have responded to students' college preferences by offering financial aid benefits, such as tuition discounts, as well as early

admissions and ED strategies. There are several reasons why Black students are far less likely to apply for early admissions than are white students (Chapman & Dickert-Conlin, 2012; *The Journal of Blacks in Higher Education*, 1992; 2002), many of which are strongly associated with uncertainty about financial aid.

According to past reports and studies, college bound students who apply for early admissions do not know at the time how much financial assistance they can expect either from the federal government or their university. Since early admits usually enroll in an institution by December, they cannot compare the best financial aid options, having given up the opportunity to apply for regular admissions. Negotiating financial aid is often done during the regular admissions process and not during the early admissions process. This puts financially needy students from low-income families and with low access to capital (who are disproportionately Black) at a disadvantage, yielding it hard for them to take advantage of the competitive process that allows some universities to make students financial aid offers if they choose to pursue early admissions. Interestingly, Kim (2010) suggested that a need-blind school can use ED as a screening strategy to indirectly identify students' ability to pay.

Chapman and Dickert-Conlin (2012) demonstrated the relationship between financial aid and applying to early admissions policies. Their results showed that lower ability and high-income students are willing to trade the opportunity to compare financial aid packages or abandon them altogether to increase the probability of admissions. Even though, in practice, financial aid has been a key factor in whether applicants decide to apply through the early admissions cycle, especially for early decision, thus far extremely limited empirical studies have dealt with the relationship between financial aid and EAPs. Thus, financial aid issues and their

impact on the relationship between a student's college choices, enrollment, and institutional advantages and disadvantages should be scrutinized.

Comprehensively, past and recent literature and evidence touch on a variety of points regarding early admissions' implementation and its consequences; however, it remains difficult to locate empirical studies with data-driven evidence that assess how early admissions policies function in the context of the dialogue between college access/choice and institutional or organizational outcomes in higher education. Identifying this need, this dissertation aims to illuminate these spaces and unravel these threads.

CHAPTER 3

THEORETICAL FRAMEWORKS

This chapter provides the theoretical background and framework that guide the two

studies in this dissertation. In order to conduct these two studies, diverse perspectives and

theoretical frameworks must be comprehensively examined. These perspectives can be broadly

separated into the categories of economics, organizational theory, and sociology. Specifically,

from the sociology perspective, a) elite theory, b) institutional isomorphism, and c) social

inequality theory will be addressed. Next, from the perspective of economics, a) signaling

theory, b) game theory, and c) the competitive market model in higher education will be

discussed. Lastly, the policy and administrative theory perspective will include a) policy

implementation and diffusion theory and b) enrollment management theory in higher education.

Along with explanations of core constructs and concepts, how these theories and conceptual

frameworks are relevant to the topic of this dissertation will be discussed. In the end, the

conceptual framework based on Chapters 2 and 3 of the dissertation will be presented.

<u>Sociology Perspective</u>

Elite theory

From a social theory perspective, elite theory accounts for why advantaged applicants in

higher education try to apply for colleges and universities through early admissions, and why

early admissions are historically preferred by "elite" or top-tier private institutions. Advantaged

students are more likely to attend elite or quasi-elite colleges relatively easily due to their

position and resources (e.g., personal admissions counselors, wealthy educated parents,

extracurricular activities for college admissions, etc.) and, simultaneously, disadvantaged students are discouraged from entering those same elite/quasi-elite colleges since diverse institutional screening tools at institutions, intentionally or not, are functionalized to select advantaged students (Avery, Fairbanks, & Zeckhauser, 2009; Lee, 2006). This phenomenon can be appreciated through the lens of elite theory. Khan (2012) specifically defines elites as a class defined by the power and resources they possess. It is important to be aware that elites, with their abundant access to capital, exert immense influence on higher education admissions. For instance, among the screening mechanisms that have been addressed academically and practically, as reviewed in the literature, elite colleges and universities have preferred EA and ED in admissions, since such policies tend to let financially advantaged students enter college relatively easily (Jensen & Wu, 2010).

Selingo (2020) pointed out that colleges are currently desperately attempting to scale up their rankings by opening their doors to students whose families are more affluent, since institutions desire to lock in their full payers early to compensate for the financial-deficit situation brought on by Covid-19 (Jack, 2020). In this way, colleges and universities, especially elite institutions, are social systems that aim to escalate and maintain their social reputations and admissions selectivity, in the same way that top-ranking students secure their own advancement by pursuing early admissions. In this way, students gain a sense of being affiliated with "elite" colleges, which seemingly guarantee power and position after graduation. Such practices allow these colleges to continuously remain "elite," further strengthening the loop.

Institutional isomorphism

Institutions as organizations compete not just for resources but also for political power and institutional legitimacy (Meyer, & Rowan, 1977; DiMaggio & Powell, 1991), in order to

survive and achieve legitimate institutional success. In a context of institutional theory in sociology, isomorphism indicates a similarity in the process or structure of one organization to that of another. In contrast to other organizational theories, such as the bureaucratic model, the isomorphism model emphasizes the role of environment, which shapes organizational behaviors and practices. Specifically, DiMaggio and Powell (1983) outline three varieties of the concept of institutional isomorphism—coercive, mimetic, and normative, which entails conformity to environmental expectations. In this context, early admissions programs can be interpreted as a normative isomorphic institutional response to a lack of funding for financial aid packages (Avery et al., 2009). During the rapid economic expansion of the 1980s and 1990s, private institutions faced increasing competitive pressures from public universities (environmental pressure), since the latter had begun to offer students merit-aid scholarships.

In addition, as economic growth dwindled and external resources for universities were constrained, colleges and universities limited their financial aid expenditures. Even in the case of the recent Covid-19 pandemic, the benefits of operating EA and ED can be explained with respect to the changing environment and difficulty of securing financial revenues. As such, it can be understood that EAPs are implemented as a way of coping with changing conditions and environments, allowing institutions to better control their financial aid expenditures. Also, this phenomenon is not limited to certain colleges, and thus the normative isomorphic patterns and the homogeneous forms associated with the operation of EAPs in colleges and universities can be articulated.

Social inequality theory

In the sociology of higher education, educational inequality beyond secondary education is a major area of interest (Clark, 1973; Mehan, 2015). Social class, race, and gender are

important inequality-related units of analysis, especially in studies dealing with the relationship between educational aspiration and achievement (Clark, 1973). These three factors are linked to college admissions and college access, so we should pay attention to how these factors function in educational inequality (McDonough & Fann, 2007). Higher education institutions reinforce inequality rather than increase social mobility, since educational opportunities depend increasingly on social capital, such as parental educational background, and on economic capital, from family wealth (Marginson, 2016).

Scholars have advocated for the role of higher education as a public good in response to social and economic inequality; however, in reality, higher education leads to enhancing inequality or a limited capacity for individuals to advance their positions through social mobility (Marginson, 2016). College admissions is the first step of entering higher educational opportunities in the stepwise process of applying to, being admitted to, and enrolling in institutions to obtain educational capital. However, the sorting process utilized by institutions has the potential to strengthen class hierarchy and exacerbate social inequality, and students from less privileged backgrounds often face educational disadvantages (Tsui, 2003).

In this context, inequality has become a central concern in the field of higher education, and attention has naturally been directed to diversity issues in college access. The practice of early admissions as a college admissions policy has also been discussed along with student diversity and social inequality, as reviewed in the previous literature. Discussions of diversity in higher education are not limited to concerns about underrepresented races in admissions but also encompass more expansive democratization goals for the entire educational system (Chang, 2002; McDonough & Fann, 2007). This includes a more inclusive way of understanding

diversity, one that takes into account gender and social class alongside other identities, orientations, and characteristics, including race and ethnicity.

<center>Economic Perspective</center>

Signaling theory

Signaling theory refers to the idea introduced by Spence (1973), that one party credibly conveys some information to another party. This same logic can be applied in the case of early admissions. According to Avery and Levin (2010), early application policies create opportunities for applicants to signal their preferences. Colleges and universities believe that early applicants are particularly enthusiastic, engaged, and well-prepared to study in college, so institutions favor these kinds of applicants. Thus, institutions utilize advantages to promote and encourage their potential students to apply early, especially in the Early Decision cycle. Publicizing early admissions saves money, since students do not need to spend money on regular admissions, as well as time, since further preparedness for college is not required. This also relieves stress and spares applicants any extra efforts regarding the college admissions process.

Moreover, this admissions advantage gives students an incentive to apply early to their preferred institutions and at the same time, college applicants signal their positive attributes to institutions by applying early. Usually, colleges and universities prefer students to apply early, since early admissions allows for a finer sorting of students than does regular admissions. Thus, signaling theory explains sorting and strategizing in application behaviors, the lower admissions thresholds for early applicants (Avery et al., 2009), and the use of EA and ED, most prominently at high selective schools.

Game theory

Game theory is the study of mathematical or economic models of strategic interactions between rational decision-makers (von Neumann & Morgenstern, 1944). According to the concept of game theory, there are hypothetical social situations among competing players and games of pure conflict, so-called zero-sum games. One of the assumptions in game theory is that all players are utility-maximizing rational actors, and that they have the necessary information about the game, the rules, and the consequences. This theory helps us to understand why institutions, in particular Ivy League schools, have preferred to maintain and operate early admissions both in the past and present.

As an example of how game theory applies to this "admissions game" from an institutional perspective, in 2001, the president of Yale announced that the university wanted to end early decision-making, since this policy demands that high school students make their college decisions early, rendering them unable to compare financial aid offers. Recognizing the game theory aspect of early decision, the president also argued that "collective action" for ending early decision would be desirable, not only for Yale, and that such collective actions among selective institutions, such as Ivy League schools, are needed (Arenson, 2001). That is, the president worried that if Yale alone abandoned its early decision policy, the benefits from early decision would still be offered by other competitive institutions, putting Yale at a disadvantage. As this example shows, early decision and early action can exert an influence on institutions and compel collective institutional behaviors and actions when faced with competitive pressure.

Competition market model in higher education

In economics, the law of supply and demand (Smith, 1776) shows how early admissions policies can be operated in the market of higher education. Assuming the rational behaviors of

institutions and students under the principles of economics, students behave as demanders and colleges and universities act as suppliers in the economic market. In the admissions process, each party has its own goals and tries to maximize its earning benefits.

With respect to the competition market model in higher education, enforcing EA and ED can be interpreted as a means of competing for students with high abilities or motivation (Chapman & Dickert-Collin, 2011; Avery & Levin, 2010). Colleges and universities compete in certain markets to admit the best students. Thus, each type of college or university (public vs. private, liberal arts colleges vs. research-oriented universities) implements EAPs to pursue the benefits and advantages they offer in the higher education market. For example, selective private colleges and universities prefer ED (a binding policy) over EA (usually a non-binding policy). These kinds of colleges and universities compete with each other to select the most qualified or well-prepared students, who then accept their offers early and decide to enroll. Thus, those kinds of schools could actively implement and favor early decision, a binding policy.

On the other hand, in the case of less selective colleges or public universities, competition in the higher education market is monopolistic. In this formation, institutions compete with each other to attract more students to enroll. Thus, generally, these universities tend to adopt regular admissions and non-binding early action in place of the more restrictive early decision process. Therefore, each economic market might have different reasons and preferred options and rationales for the implementation of EAPs, according to the characteristics of the institution.

<div align="center">Policy and Administrative Theory Perspective</div>

Policy implementation and diffusion theory

According to Sabatier and Weible (2014, p.5), policy-process research can be defined as "The study of the interactions over time between public policy and its surrounding actors, events, and context, as well as the policy outcomes" Thus, these views of the policy process present an intertwined and interactive policy context surrounding contextual conditions, policy implementation, and policy outcomes, which can be a useful lens when scrutinizing the rationales and consequences of the implementation of early admissions policies in particular institutions.

Policy implementation involves putting a policy into action in order to reach goals and objectives (Khan, 2016). Even though policy implementation theory is itself relatively new in the field of social science, implementation as a popular concept date back to the work of Pressman and Wildavsky (1973). The theoretical model of public-policy implementation typically delineates three categories of the model: top-down theories of the implementation process, bottom-up theories of the implementation process, and hybrid theories of implementation, such as the organization-development model, the model of decentralization, and the integrative model of policy implementation (Kenaphoom & Jandaeng, 2019).

Early admissions policies and programs may be interpreted by the last model process, the hybrid model, which appreciates the importance of top-down aspects, but also includes and values lower-level actors (Hottenstein, 2017), since admissions policies would be decided by college administrators and college admissions offices and committees. However, at the same time, it is necessary to listen to the voices and opinions of alumni, faculty, the public, and/or other stakeholders of admissions, in order to achieve the goals of an institution.

Moreover, policy diffusion is defined as a process in which policy choices are interdependent; that is, choices made by one decision maker influence the choices made by other decision makers, and in turn are influenced by them (Braun, Gilardi, Füglister, & Luyet, 2007). Thus, policy diffusion theory helps us understand why early admissions policies are commonly implemented in colleges and universities across the U.S. Early admissions policies have nationally spread to approximately 500 private and public institutions (NACAC, 2016). Interestingly, as Ness (2010) pointed out, policy diffusion theory not only demonstrates the dichotomous outcomes of adoption or non-adoption, but also provides an understanding of the context of the flow of information and insights into it. In the context of this dissertation, this diffusion theory framework shows how specific institutional characteristics determine whether an early decision or early action - or both - are adopted, and how this trend of implementation spreads to peer institutions. For example, private top-tier ranked universities prefer ED rather than EA, and public and large-size institutions are inclined to operate EA, based on the history and current available data of early admissions. This phenomenon of diffusion, consequently, demonstrates that institutions adopt early admissions policies as successful strategies and models, and this is possible because they have learned from policy experiments and imitate other institutions' exemplary models.

Enrollment management theory

Enrollment management theory was developed by the dean of admissions at Boston College, Jack Maguire, in the early 1970s. Maguire (1976) argued that an organizational system supports the integration of activities associated with the overall enrollment process. Also, he described that enrollment management is a comprehensive and integrated approach of related functions to enhance and improve the recruitment, retention and graduation of students.

According to Hossler (1984), in a similar way, effective enrollment management not only requires the marketing of the institution and selection of students but also involves more broadly based and all-encompassing activities.

Those quotes support the notion that, commonly, enrollment management in higher education is not simply an area of administrative affairs or planning, but rather involves the entirety of campus resources, including academic counseling, student services, student orientation, student retention, tuition, and financial aid. The ability to manage enrollment is closely tied to a thorough understanding of both college choice and student choice. Therefore, studying early admissions policies does not simply indicate a focus on enrollment strategies or admissions planning from an administrative perspective, rather, it should be explored with multifaceted and extensive perspectives, beyond admissions and access issues, and encompass the entire campus and systems that relate to various levels of departmental and institutional missions. Moreover, early admissions should be scrutinized for how its consequences produce institutional behavior and outcomes that affect selectivity, diversity, and cohort quality, and how it produces other unexpected consequences.

Conceptual Framework of the Dissertation

Based on the literature review (Chapter 2) and the theoretical background (Chapter 3), this dissertation lays out a conceptual framework that guides the two studies that will follow in Chapters 4 and 5. As shown in Figure 1, the conceptual framework suggested for this dissertation incorporates a comprehensive review of related theories and literature connected to EAPs, which is not limited to early admissions, but rather includes college admissions in general and the factor of college access. Moreover, the core iron triangle perspectives are dug into and discussed, with a focus on diversity, quality, and affordability, which are considered the significant values of

college access and admissions both in general and in early admissions programs/policies. The conceptual framework was designed and modified from the "Iron Triangle of Higher Education" (Immerwahr et al., 2008), which described the concerns of college presidents, and organizational culture and environment theory (Robbins & Coulter, 2008). Specifically, Figure 1 suggests that EAPs need to appreciate how students' and institutions' interactions affect access and choice in admissions, and this admissions process and EAPs are tightly associated with the values of diversity, quality, and affordability from an institutional perspective. In addition, this "iron triangle" is intercorrelated with the internal and external higher education environment surrounding colleges and universities—such as their peer group institutions, high schools, and admissions or EAP stakeholders, as discussed in the literature and theoretical background. Indirectly or directly, this also encompasses the legal, economic, international, technological, and sociocultural dimensions of the external environment, a perspective supported by organizational culture and environment theory.
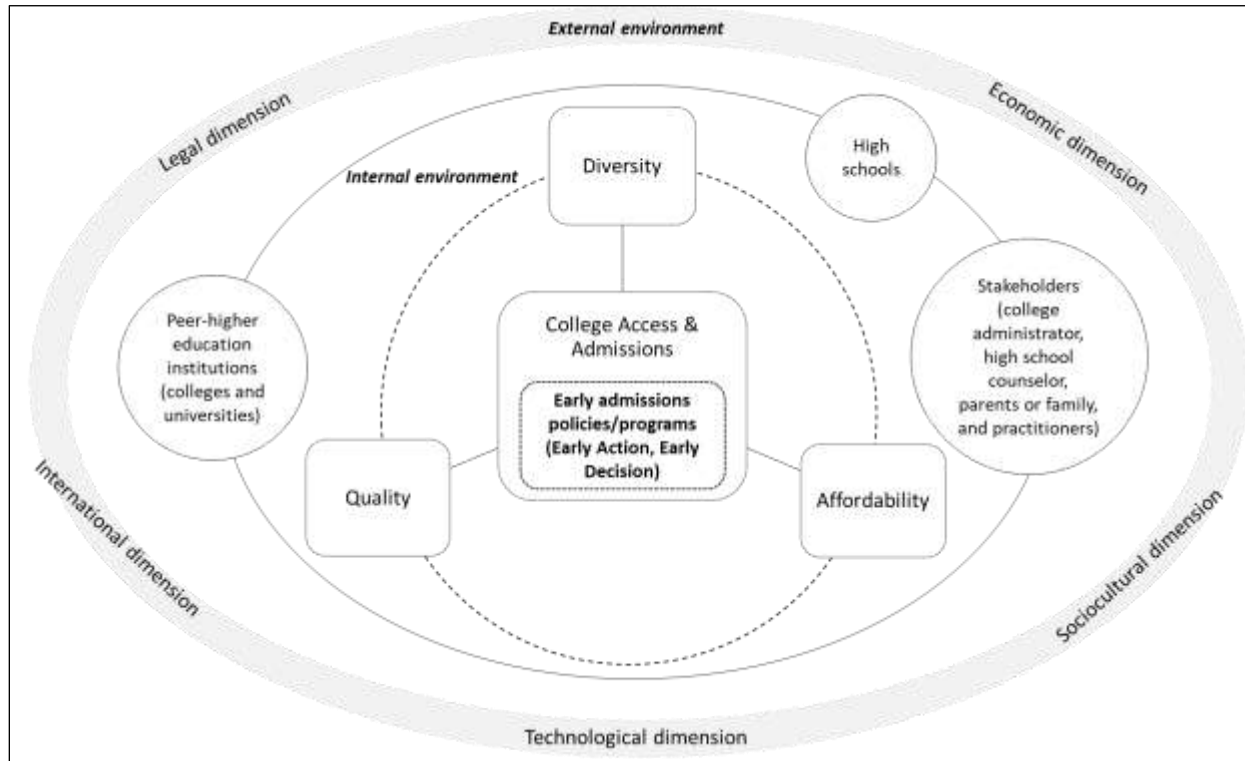
Figure 1. Conceptual framework of the dissertation

Note: This framework was modified from the model of organizational culture and environment (Robbins & Coulter, 2008) and created based on the purpose and context of this dissertation.

CHAPTER 4

STUDY 1: BEHIND THE SCENES: EXPLORING IMPLEMENTATION OF EARLY

ADMISSIONS POLICIES IN FOUR-YEAR COLLEGES AND UNIVERSITIES

This chapter describes the first study of this dissertation, which explores the institutional

rationales and hidden messages beneath the operating early admissions policies for promising

undergraduate students: early action (EA) and early decision (ED) in four-year colleges and

universities. A qualitative approach using institutional early admissions web-source data and

content analysis is applied. Focusing on early admissions policies (EAPs), this study will further

illuminate why colleges and universities implement EAPs, and how these institutions utilize

them relative to their regular admissions as a college access mechanism and admissions strategy.

Introduction

Stewart (1992) emphasized that admissions functions are aware of both institutional and

student objectives and attempt to satisfy them all to the fullest possible degree. At this point,

early admissions policies could be interpreted as the point at which both institutions and students

have maximized their interests and possibilities, including diversity, quality, and affordability.

Adopting a more critical perspective on early admissions policies, this study sheds light

on the theoretical propositions outlined in Chapter 3. In sum, EAPs for colleges and universities

can be understood as an aspect of economic behavior through the lens of game theory and its

hypothetical situations among competing peer group institutions. In other words, early

admissions policies influence institutions, compelling collective institutional behaviors and

actions, under pressure, among competitors. Furthermore, elite colleges and universities

endeavor to maintain and raise their reputation and admissions selectivity, utilizing EAPs and admissions system.

The literature shows that institutions select and operate a given type of admissions policy (ED, EA, or RD) due to its specific features. Despite the popularity and significance of EA/ED policies, thus far few studies have examined how institutions utilize such policies to meet institutional goals, missions, or desired outcomes; nor has much research addressed how colleges and universities administer EAPs to enhance their position in the higher education market and encourage EAPs applicants.

Thus, this chapter explores why colleges and universities implement EAPs (EA/ED), how institutions and college policy makers utilize these policies, relative to their regular admissions policies as an admissions strategy, and how these are connected to and deal with the values and perspectives of diversity, quality, and affordability, which framed previous chapters about college admissions in higher education. Specifically, the purpose of the study is to explore how EAPs convey their rationales, information, and values to promising applicants (students) of four-year public and private institutions, through web based institutional resources (each college and universities' Admissions website). Additionally, based on the reviewed literature and materials, and the theoretical framework, the initial qualitative content study of early admissions explores the patterns distinguished by fixed institutional characteristics (e.g., location, control), as the institutional and organizational environment may vary, depending on their types. Through content analysis, the following research questions will be addressed:

1. Along what dimensions of institutional characteristics—control (i.e., public vs. private), selectivity (i.e., low, middle, high, highest), region (i.e., South, Midwest, Northeast, West), location (i.e., city, suburb, town, rural), and highest degree level

(i.e., bachelor's, master's, doctoral) does the information presented by EAPs on

institutional websites vary? Is there any pattern that can be observed?

2. What rationales, values, and goals do colleges and universities emphasize for early

admissions versus regular admissions of promising applicants from the perspective of

diversity, quality, and affordability in college admissions? How are those

differentiated between EA and ED?

<u>Methods</u>

Data source and sample

For the qualitative work, the sample was divided into three sets—EA only, ED only, and

both EA and ED (EAD), among 375 four-year colleges drawn from the College Board

administrative data. This data is in turn derived from the Annual Survey of Colleges, which

identified institutions running and implementing their early admissions program/policies in Fall

2019. In order to select a sample, firstly, institutions were divided into each set as 1) EA only

implementing institutions, 2) ED only implementing institutions and 3) both EA and ED (EAD)

implementing institutions. From each set, samples were selected using a random sampling

technique that took into account institutional characteristics: control, location, region, selectivity

(accepted high-school students' average SAT/ACT), enrollment size, and highest offered degree

(see Table 1), using the Microsoft Excel program. In this software, the "RAND" function was

utilized to create random number between 0 and 1, and the "sort & filter" group function was

utilized to sort samples with consideration to institutional characteristics, so as to not to skew

towards a certain type of each characteristic. Finally, when the automatic generated numbers

were ordered from largest to smallest, random sampling selection was completed. These

processes were performed three times for each group set (EA, ED, & EAD).

Table 1. Characteristics of institutional sample criteria

Institutional characteristics	Sample criteria
Control	-Public -Private
Highest degree offered (Carnegie group)	-Research/Doctoral degree -Master's degree -Bachelor's degree
Selectivity (SAT math 75 percentile)	-Highest selectivity -High selectivity -Middle selectivity -Low selectivity
Institution size (enrollments)	-9,999 and under -10,000-19,000 -20,000 and above
Region	-Northeast (CT, ME, MA, NH, RI, VT, NJ, NY, PA) -Midwest (IN, IL, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD) -South (DE, DC, FL, GA, MD, NC, SC, VA, WV, AL, KY, MS, TN, AR, LA, OK, TX) -West (AZ, CO, ID, NM, MT, UT, NV, WY, AK, CA, HI, OR, WA)
Degree of urbanization (Urban-centric locale)	-City -Suburb -Town -Rural

Note: The variables are driven and modified based on IPEDS' institutional characteristics.

In order to select the sample in each set, I accessed each undergraduate college admissions website one by one according to the order of the generated numbers, with the largest one aforementioned. From the website of each institution, I collected any information relevant to "early admissions" that the institution provided for their applicants and the general public, such as detailed text descriptions, images, students' quotes, fiscal data, or videos. These raw materials were transferred to and stored in an NVivo qualitative research software program. Following that, coding and categorizing work was performed. This serial process was continuously conducted according to when the initial codes (meaning units) were saturated in each set, a typical sampling method in a qualitative study (Fusch & Ness, 2015; Sandelowski, 1995). As a result, a total of 64 institutions were selected for further phases for content analysis. With these 64 institutions, I confirmed that those selected colleges and universities were representative of

the targeted population (EA/ED/EAD schools) in the U.S. higher education system from the

variations in aforementioned institutional characteristics. The details of the selected samples are

presented in Table 2, and the names of institutions are included in Appendix A.

Table 2. Ratio of the characteristics in selected samples

Characteristics		EA institutions		ED institutions		EAD institutions	
		EA group (%)	Sample (%)	ED group (%)	Sample (%)	EAD group (%)	Sample (%)
Control	Public	41.98	33.33	10.00	20.00	12.50	13.33
	Private	58.02	66.67	90.00	80.00	87.50	86.67
Selectivity	Low	9.50	4.17	2.00	4.00	9.38	6.25
	Middle	28.10	16.67	7.00	4.00	9.38	6.25
	High	34.71	29.17	18.00	16.00	18.75	25.00
	Highest	27.69	50.00	73.00	76.00	62.5	62.50
Highest Degree	BA	25.86	16.67	52.08	36.00	62.5	75.00
	Master's	31.47	50.00	27.08	20.00	15.63	12.50
	Doctoral	42.67	33.33	20.83	44.00	21.88	12.50
Region	Northeast	46.50	34.78	63.00	53.85	37.50	50.00
	Midwest	20.99	26.09	13.00	11.54	12.50	18.75
	South	21.40	17.39	15.00	23.08	43.75	25.00
	West	11.11	21.74	9.00	11.54	6.25	6.25
Location	City	50.62	42.86	42.00	26.67	50.00	56.25
	Suburb	31.28	21.43	38.00	53.33	21.88	12.50
	Town	14.40	14.29	19.00	13.33	21.88	25.00
	Rural	3.70	21.43	1.00	6.67	6.25	6.25

Note: A total of 64 institutions were included in this study.

With regards to my initial impressions while collecting information from each institution,

all universities provided early admissions information; however, there were significant

differences in the extent of information each college provided. Some institutions offered very

detailed descriptions: the purpose of the policy, its deadline and even enrolled students' quotes

relating to their experiences in entering through EAPs. Other institutions, however, provided

information only about the deadlines of EAPs. Meanwhile, it is possible that EAPs may not

change drastically over time, and admissions information tends to remain constant to avoid

confusion or misinterpretations by aspiring students, high school counselors, and/or parents.

Thus, principal data collection began in September 2020 and continued until February 2021. During the data collection process, reflective memos on captured observations and insights derived from the process were noted down for content analysis work.

Analytical approach: content analysis

In order to examine the research questions, qualitative content analysis was applied for the study. Krippendorff (2018) explained that content analysis involves "analyzing data within a specific context in view of the meaning someone —a group or a culture— attributes to them" (p. 403). Downe-Wamboldt (1992) also articulated that the aim of content analysis is "to provide knowledge and understanding of the phenomenon under study" (p. 134). Additionally, content analysis is recognized as a "systematic description" (Schreier, 2012, p. 58) and a "holistic overview" (Schreier, 2012, p. 4) of a large amount of data and content. Thus, through content analysis, researchers can establish themes and patterns by conducting a subjective interpretation of the content of textual data through a systematic process of coding and categorizing within a specific context or culture. Content analysis can reveal patterns of words used, their frequency, the relationships between them and their structures, and also provide insights into the contexts and discourses of communication (Grbich, 2013). In recent years, content analysis has become popular in social science due to ongoing revolutions of technology and information.

Content analysis can employ any of three different approaches based on coding type (see Table 3): conventional content analysis, directed content analysis, and summative content analysis (Hsieh & Shannon, 2005). This study employed the summative content analysis approach, since it is the first trial to empirically examine EAPs and their institutional backgrounds using web-based resources from admissions offices. Thus, keywords were developed from the theoretical dilemma within the college admissions context and literature

review before data analysis, and, simultaneously, were also derived from raw material obtained

from the web sources during data analysis.

Table 3. Major coding differences among the three approaches to content analysis

Type of content analysis	Study starts with	Timing of defining codes or keywords	Source of codes or keywords
Conventional content analysis	Observation	Codes are defined during data analysis	Codes are derived from data
Directed content analysis	Theory	Codes are defined before and during data analysis	Codes are derived from theory or relevant research findings
Summative content analysis	keywords	Keywords are identified before and during data analysis	Keywords are derived from interest of researchers or review of literature

Note: The table is retrieved from Hsieh & Shannon (2005, p. 1286).

For the analytical process, this study utilized two major techniques, the enumerative

approach and the ethnographic approach, to tackle research questions in more robust and

comprehensive ways. In general, as suggested by Grbich (2013), the process of enumerative

content analysis is based on 'keywords in context', the 'word frequency index', 'space

measurement' (how the columns or rows are described) and 'time counts' (the amounts of time

needed to seek out given topics). In addition, the ethnographic approach is characterized by

description, the search for contexts, explanatory meanings, and patterns derived from grounded

theory. For the content analysis for this current study, I applied both the enumerative and the

ethnographic approach in order to explore the two research questions posited. NVivo 12 was

used for this content analysis, and has been IRB approved.

Qualitative content analysis, specifically, is similar to thematic analysis in terms of its

capacity to incorporate data, philosophical background, and attention to both description and

interpretation in data analysis (Vaismoradi et al., 2016, p. 101). However, content analysis

employs a more comprehensive data analysis process than do the linear approaches used, for

example, in thematic analysis, since coding, collecting codes under potential subthemes/themes, and comparing the emerging clusters are combined together using the principle of iterative data analysis (Vaismoradi & Snelgrove, 2019). For this study, coding was conducted via a transformation process from concrete to abstract, obtaining a higher level of generality (Polit & Beck, 2010; Vaismoradi et al., 2016).

All analytic processes have completed each phase: initialization, construction, rectification, and finalization, which are necessary for theme development in qualitative content and thematic analysis (Vaismoradi et al., 2016). To be specific, in the 'initialization' phase, I coded data, read the raw materials, highlighted meaning units, and wrote a reflective note. Following that, in the phase of 'construction', all codes and meaning units were classified and labeled with an inclusive approach, with descriptions of all the codes in each category and the meanings of the categories. I then compared each code and category to confirm that they did not overlap one another and at the same time, were not distanced too far from the original concepts and codes. After that, in the 'rectification' phase, in order to find the theme, I immersed myself in the data and codes while also distancing myself from the data to maintain a valid representation. Also, in engaging with the reviewed literatures and theoretical background, themes were found by linking to or reflecting on the core ideas of the reviewed materials. In addition, the connections between themes and subthemes were confirmed, whether the final themes were included with the subthemes, and also subthemes were corresponded to the final each theme to produce successful stabilization. In the last phase, 'finalization,' the story line and narratives were written with a holistic view to respond to the posited research question, and so "meaning making" was developed based on the themes.

Subjectivity statement and trustworthiness

A subjectivity statement is a summary of the researcher's position in relation to what and whom they are studying, which is driven by personal history, worldview, and professional experiences (Given, 2008). As my research involves exploring how early admissions policies affect institutional behavior, it is important that I address my own subjectivity within this study as it relates to the qualitative method approach. As a PhD student at the McBee Institute of Higher Education at UGA, and studying at the master's level for a graduate certificate in Interdisciplinary Qualitative Studies at the Department of Lifelong Education, Administration, and Policy at UGA, I believe it is an obligation and a privilege to evaluate and analyze policies in higher education to the best of my ability.

With regard to college admissions policies and implementation of this study, I have had frequent opportunities to discuss this subject in the U.S., and I have research and practical experience in college access and admissions in my home country of South Korea as well. Specifically, I worked as an intern at the undergraduate admissions office for about 3 years and was also admissions ambassador for my undergraduate university. Moreover, I studied students who entered college via diverse pathways of admissions when I was a research assistant at the Korean Educational Development Institute (KEDI[1]). Thus, even though I have limited personal experience in the specific processes of early admissions, I understand and have experience in the overall picture of the undergraduate education environment, admissions systems, and enrollment strategies. Additionally, I have conducted several qualitative study projects and have published

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[1] The Korean Educational Development Institute (KEDI) has served as a leading institution in educational policy development and its implementation since it was founded in 1972. Now KEDI plays a pivotal role as a think tank in setting the national agenda of Korean education. (Retrieved from: http://eng.kedi.re.kr/khome/eng/webhome/Home.do)

two articles in peer-reviewed journals so far. From these learning processes and experiences, I believe in the beauty and strength of performing a qualitative study.

Lastly, in terms of how my beliefs relate to my studies, my research background, and experiences, I may become biased if early admissions policies are found to yield a mechanism that makes disadvantaged students less likely to enter college and thus impede their social mobility. With respect to balancing equity and excellence in education, I have tried to maintain an objective view and perspective on the admissions process, especially early admissions policies, throughout the data analysis process. Additionally, one of my views in terms of this dissertation is that institutions, as a social system, behave by responding to their environments and yielding outputs from an organizational perspective. As a researcher, I recognize that my responsibility will be to frequently re-position myself through reflexive analyses throughout my research and reflect upon my thoughts, such as while reading admissions resources and collecting data. This leads me to critically examine my own subjectivity and reflect in a deeper way throughout the qualitative study process.

In terms of trustworthiness in qualitative studies, Elo et al (2014) specifically described qualitative content analysis, focusing on its trustworthiness, and concluded that there are three main phases— preparation, organization, and reporting of results —that should be considered clear indications of a study's reliability. Thus, according to the phases, in the preparation phase, data collection methods and decisions regarding sampling strategies and selection of the unit of analysis were accounted for. Next, in the organization phase that follows, categorization and abstraction, interpretation, and representativeness were considered. For the final stage of reporting, how the categories were reported, and the process thereof were checked. In terms of strategies for promoting validity and reliability, this current study has aimed to present a clear

and understandable method resulting from the content, along with rich and well-saturated data, sampling strategies, reporting results, and trustworthiness discussions.

Risks and Benefits Statement

The web-based resources provided by an institution are publicly available and open; thus, utilizing them does not present any kind of risk. Therefore, if a specific institution is presented as an example, the real institution's name was used in any description, if applicable, to provide greater clarity for readers. Meanwhile, there are no direct benefits of being selected for the study as a research subject, other than the ability to provide information about an institution's early admissions policy. It is my hope that this examination of EAPs will contribute to knowledge of access and admissions policies for all colleges and universities.

<div align="center">Limitations</div>

Although this study primarily tries to examine the meaning and messages that arise in the operation of EA and ED in private and public four-year colleges and universities in the U.S. using qualitative web-based public resources and content analysis, it is limited in terms of utilizing data. Specifically, since university homepages are prepared based on information gathered from the current year, one limitation is the lack of sufficient data available before the time of data collection. For example, any data from previous to 2019-2020 or 2020-2021 is difficult to capture. However, due to a given institution's admissions policies and practices, it is often difficult to change admissions criteria or descriptions of early admissions programs from year to year. In fact, I gathered data from the websites of individual institutions corresponding to the admissions cycle years for Fall 2020 or Fall 2021, depending on when I accessed the website. Additionally, when comparing the admissions cycles of several universities between Fall 2020 and Fall 2021, I found that all of the information remained constant except for the corresponding

year the information was posted for. However, in Fall 2021, there were cases in which some

deadlines were extended by about two weeks due to the Covid-19 pandemic, but any changes or

terminations in EAPs were not found in the current dataset. Thus, despite these limitations, the

credibility of the results should still hold.

Next, it could be pointed out that an institution's admissions website does not show all

the information about early admissions that the colleges and universities can offer for promising

students or the public. It could be possible that richer and deeper information, such as acceptance

rates for early admissions or detailed criteria important for admissions to an institution through

EA/ED, is available when applicants directly contact the admissions office or admissions

counselors. Thus, the possibility remains that findings from this research are confined to

information available only on websites. Considering that all institutions have their own

admissions websites and that an admissions website is likely the first place where applicants

learn what they need for and how to prepare for early admissions or freshmen admissions (for

RD), the analysis and results are based on the open sources on admissions websites, in

accordance with the purpose of the study and research questions.

<div align="center">Results</div>

The findings within this study address two research questions: 1) Along what dimensions

of institutional characteristics—control (i.e., public vs. private), selectivity (i.e., low, middle,

high, highest), region (i.e., South, Midwest, Northeast, West), location (i.e., city, suburb, town,

rural), and highest degree level (i.e., bachelor's, master's, doctoral) does the information

presented by EAPs on institutional websites vary? Is there any pattern that can be observed?; and

2) What rationales, values, and goals do colleges and universities emphasize for early admissions

versus regular admissions of promising applicants from the perspective of diversity, quality, and affordability in college admissions? How are those differentiated between EA and ED?

The findings are discussed in two approaches as laid out: first, enumerative and ethnographic approaches; second, the detailed themes, categories, and codes from the data analysis in the study, presented in Table 4. The results from the enumerative analysis relate to the first research question, based on the codes and meaning units found from the qualitative data analysis, and the results of the ethnographic analysis are discussed according to the themes presented.

Table 4. Summary of the products of data analysis in the study

Themes	Category	Codes/Meaning units
Approaching in two ways: deadline-oriented vs. plan-oriented	- Approach - Concept	- binding option; non-binding option - deadline oriented, comparison; plan/program oriented; EAPs not described as a winning game
Appealing advantages for students, institutions, or a win-win scenario in EAPs	- Student's feeling or attitudes - College's choice - Student's choice - College-student relationship - Student's benefits	- advantages; comfortable; commitment; confident; ease the stress; enthusiasm; excitement; interests; appealing to personal attachment; social event (Thanksgiving); quickly; ready; thrilled - advice to apply under RD; automatically considered; be reconsidered for RD pool; deferred; denied; decision; certain location - apply other schools; change your decision plan - comparison with other school; considerable thought; do not know what they want; first choice; final college choice; fine to either one; switch to RD; switch to ED - build a relationship; college-fit; embraced community; fit; high involved on campus; mutual benefits; mutual enthusiasm - best chance; early; first-reviewed; save money on app fees; reserve your spots; winter or spring sports; prior to the year
Advertising either "being equal" or "being differentiated"	- Differently treated benefits - Criteria	- devoting time to each application; exclusive scholarship; extra care and attention; many benefits; priority; residence hall guarantee;

aspects between EAPs and RD	- Being equal/Equity approach	unique opportunities; waive the fees - academic record; essay; evaluate; interview; SAT/ACT scores; school activity; GPA; GRE; recommendation - do not have preference; no difference; same evaluation process; same opportunity; all applicants; strive to hold spots for RD
Assuring opportunities for financial aid	- Financial benefits	- award; FAFSA; financial aid; loan; merit-based; need-based; net price calculator; possible; scholarships
Emphasizing commitment to an institution	- College's advice and help - Rules & Regulations	- college admissions office; counselor; parent/guardian - commitment fee due; deposit; notification; agreement form; must; requirements; restrictions; signed; withdraw other colleges
Assuming that students admitted through EAPs have achieved excellence in college access or post-admissions performance	- Student's characteristics - Excellence approach - Institutional climate	- first-generation; gender; international student; race (white, Asian) - not easier to be admitted; social and academic maturity; superior; type of student to apply ED; well-qualified students - careful; current student; empirical results; encourage; welcoming

Results of the Enumerative Content Analysis

First, the enumerative content analysis was conducted to examine how the EAPs information presented on institutional admissions websites varied by institutional characteristics (control, selectivity, region, and highest degree level), and to discover unique patterns according to those characteristics. The results below present the percentages of each code from the enumerative content analysis by institutional characteristics, since the theoretical assumptions based on the game theory, signal theory, and institutional enrollment management policies reviewed in Chapter 3 imply that colleges and universities implement early admissions according to whether they are private or public, located in cities or rural areas, whether they are a very highly selective institution or a less selective institution, and even whether they are bachelor's level or doctoral level universities. These are traits that are also influenced back and forth by the

organizational response to their survival and adjustment to external and internal environments, as suggested in the conceptual framework (Figure 1) of this dissertation.

Thus, the differences and comparisons in the quantitative information (percentage) on every code counted in the given qualitative (text) data for each characteristic (e.g., public vs. private) reflect how much the institutions adopt significantly different strategies for operating and delivering early admissions to their targeted applicants according to their characteristics, which is related to the first research question of Study 1. Simultaneously, how much they provide information about which values or factors are dealt with and focused upon in the early admissions policies/programs as corresponding to their institutional characteristics is also revealed by these analyses. These findings from enumerative content analysis would help sharpen our understanding of how organizational or institutional characteristics and environments react and respond to the same EAPs while using different approaches and strategies, thereby expanding upon the evidence from the previous literature related to college admissions and institutional attributes (NACAC, 2021; Mattern, Woo, & Wyatt, 2010; DeMonbrun & Warshaw, 2020).

Results of enumerative content analysis in early admissions by institutional control

The percentages of each code or word by individual control type (public vs. private) in 64 institutions are presented in Table 5. First of all, the ratios of presenting words in private and public institutions respectively were similar in "commitment" in the Student's Feeling category, "FAFSA" and "merit-based" in Financial Benefits, and "higher number of students applied for or admitted to" in Institutional Climate. Additionally, "application pay" and "request additional info" in Rules, "plan/program" in Concept, "college search" in Student's Choice, and "the same

opportunity" in Being Equal Approach showed similar ratios between private and public institutions.

On the other hand, compared to public institutions, private intuitions had higher ratios of frequency in "admissions office" (25%) in College's Help and Advice, "financial aid" (56%) and "need-based" (21%) in Financial Benefits, "notification" (31%) and "withdraw from other colleges" (52%) in Rules & Regulations, "deadline" (62%) in Concept, and "first choice" (48%) in Student's Choice. In contrast, the ratios of the frequency of "scholarship" (38%) in Financial Benefits, "competitive admissions (25%)" in Institutional Climate, and "deferred" (38%) in College's Choice were higher in public institutions than in private institutions.

Table 5. Summary of the ratios in words according to institutional control

Words (coding)	Control: Private	Control: Public	Total sample
competitive admissions	0%	25%	6%
application pay	6%	6%	6%
request additional info	8%	6%	7%
college search	8%	6%	7%
higher number of students apply or admitted	12%	13%	12%
the same opportunity	15%	13%	15%
merit-based	17%	19%	18%
need-based	21%	6%	18%
scholarship	13%	38%	19%
admissions office	25%	13%	22%
FAFSA	21%	25%	22%
deferred	17%	38%	22%
notification	31%	0%	24%
plan, program	29%	25%	28%
commitment	29%	31%	29%
agreement	37%	19%	32%
withdraw from other colleges	52%	13%	43%
first choice	48%	25%	43%
financial aid	56%	44%	53%
deadline	63%	44%	59%

Note: 1. Percentage in each cell indicates the ratio of the institutions that contain a word in each column to the entire set of that institutional characteristic. 2. Among the entire coding, the table only includes words that indicate prominent similarities and differences in between group(s) of each institutional characteristic

(e.g., control). 3. All numbers are rounded off, and ordered from the least to most in the total sample of 64 institutions if applicable. 4. The percentages are sorted from lowest to highest in the total sample.

Results of enumerative content analysis in early admissions by highest degree level

The percentages of each code or word by highest degree level among the sample in the data are shown in Table 6. Among each group of institutions with a different highest degree level, bachelor, master's, and doctoral, similar patterns of ratios of frequency in coded words in each group were revealed. These were "exclusive scholarship" in Differently Treated Benefits, "application pay," "deposit," and "requirements" in Rules & Regulations, "no explanation between EDI and EDII," "plan/program," and "popular programs" in Concept, "senior grade" in Criteria, "superior" in Excellence Approach, and "complete your college plan" and "early" in Student's Benefits.

Different patterns of ratios of frequency in coded words in each group, however, also were presented. First, in the category of College's Help and Advice, "admissions office" revealed higher ratios in institutions at the bachelor's degree level (33%) but lower ratios at the master's degree level (5%). In Student's Feeling category, "commitment" is used most frequently in doctoral level institutions (45%), compared to master's level institutions (5%). Additionally, the ratios of "ease the stress" (19%) and "interests" (19%) were higher in the bachelor's degree level institutions, but "quickly" most frequently presented in master's level institutions (21%).

Moreover, in Financial Benefits, "FAFSA" (32%), "merit-based aid" (36%), and "need-based aid" (23%) most frequently presented in doctoral degree level institutions. "Scholarship" (32%), however, was used most frequently in master's degree level institutions. Meanwhile, "higher number of students applied or admitted" in Institutional Climate and "deferred" (41%)

and "denied" (23%) in College's Choice showed the highest ratio in doctoral level degree institutions.

Lastly, "deadline" (74%) in the Concept category, and "essay" (21%), "recommendation" (26%), "SAT/ACT scores" (21%), and "transcripts" (26%) in Criteria were used most frequently in master's degree level institutions. In Student's Choice, "first choice" (63%) is most frequently shown in bachelor's degree level institutions, and "same evaluation process and measures" (18%) and "the same opportunity" (27%) in the Being Equal category presented higher ratios in doctoral degree level institutions.

Table 6. Summary of the ratios in words according to institution's highest degree level

Words (coding)	Highest degree: BA	Highest degree: MA	Highest degree: PhD/ doctoral	Total sample
exclusive scholarship	4%	5%	5%	4%
senior grade	4%	5%	5%	4%
same evaluation process and measures	0%	0%	18%	6%
application pay	7%	5%	5%	6%
requirements	7%	5%	5%	6%
popular programs	7%	5%	5%	6%
no explanation between EDI and EDII	7%	5%	9%	7%
essay	7%	21%	5%	7%
complete your college plan	7%	11%	5%	7%
Percentage - enrolled students through Early	15%	0%	5%	7%
required	11%	5%	9%	9%
interests	19%	5%	0%	9%
financial aid	44%	11%	18%	9%
denied	7%	0%	23%	10%
recommendation	10%	26%	9%	10%
quickly	11%	21%	0%	10%
higher number of students apply or admitted	7%	0%	27%	12%
SAT/ACT scores	7%	21%	9%	12%
superior	11%	16%	9%	12%
ease the stress	19%	5%	9%	12%
the same opportunity	11%	5%	27%	15%
merit-based	7%	11%	36%	18%
transcripts	15%	26%	14%	18%

need-based	22%	5%	23%	18%
scholarship	15%	32%	14%	19%
deferred	15%	11%	41%	22%
FAFSA	26%	5%	32%	22%
admissions office	33%	5%	23%	22%
early	26%	26%	27%	26%
plan, program	22%	26%	36%	28%
commitment	33%	5%	45%	29%
deposit	26%	32%	36%	31%
withdraw from other colleges	59%	16%	45%	43%
first choice	63%	11%	45%	43%
deadline	67%	74%	36%	59%

Note: 1. Percentage in each cell indicates the ratio of the institutions that contain a word in each column to the entire set of that institutional characteristic. 2. Among the entire coding, the table only includes words that indicate prominent similarities and differences in between group(s) of each institutional characteristic (e.g., control). 3. All numbers are rounded off, and ordered from the least to most in the total sample of 64 institutions if applicable. 4. The percentages are sorted from lowest to highest in the total sample.

Results of enumerative content analysis in early admissions by institutional region

The percentages of coded words according to the regional characteristics of the sample in the data are shown in Table 7. First of all, in similarity, across the geographic regions (Northeast, Midwest, South, and West), "commitment" in the category of Student's Feeling, "financial aid" and "merit-based" in the category of Financial Benefits, and "early" in the category of Student's Benefits showed similar percentages in terms of frequency and emphasis.

Transitioning to the results of differences and unique patterns of coded words in early admissions among institutional regions, it was observed that first, for institutions in the Midwest, fewer instances were found of "admissions office" (17%) in the category of College's Help and Advice. Interestingly, in terms of the category of Student's Characteristics, institutions in the West had higher percentages than other regions of words such as "international student," (20%) and "first-generation" (10%). Next, in the category of Financial Benefits, institutions in South much more frequently presented the word "scholarship" (32%) than did institutions in other regions (on average, 19%), while exhibiting a lower frequency of "need-based" (7%).

Additionally, in terms of the category of Institutional Climate, institutions in the South more frequently used "encourage" (21%) or "opportunity" (14%) than did institutions in other regions, while institutions in the Midwest were found to have had lower word-use related to this category. In terms of the category of Rules & Regulations, institutions in the Northeast and the South emphasized words that relate to early admissions rules and regulations more so than institutions in the West and the Midwest, but this result perhaps implies that the percentage of operating ED policies is higher than that of EA policies in the Northeastern and Southern regions. In terms of the category of Concept, the "deadline" approach was more frequently found in institutions in the Midwest (67%) and West (80%) than the "program/plan" approach. In the category of Student's Choice, with regards to the nuance between first choice and top choice, "first choice" was used most frequently all regions other than the Midwest (25%). In terms of the Criteria category, in the Northeast many of the coded words, such as "recommendation," (19%) "SAT/ACT scores," (19%) "transcripts" (25%) or "senior grade," (9%) presented more frequently than they did in other regions.

Table 7. Summary of the ratios in words according to institutional region

Words (coding)	Region: Northeast	Region: West	Region: Midwest	Region: South	Total sample
first-generation	0%	10%	0%	0%	1%
opportunity	0%	0%	0%	14%	3%
priority	0%	0%	0%	21%	4%
senior grade	9%	0%	0%	0%	4%
extra care and attention	3%	30%	0%	7%	7%
top choice	3%	10%	25%	7%	9%
international student	6%	20%	17%	7%	10%
recommendation	19%	0%	8%	0%	10%
encourage	6%	10%	17%	21%	12%
SAT/ACT scores	19%	10%	8%	0%	12%
must	22%	0%	17%	0%	13%
senior year	19%	10%	17%	14%	16%

need-based	22%	20%	17%	7%	18%
transcripts	25%	10%	17%	7%	18%
scholarship	9%	20%	17%	43%	19%
FAFSA	31%	10%	17%	14%	22%
deferred	25%	10%	17%	29%	22%
admissions office	22%	30%	17%	21%	22%
early	22%	40%	25%	29%	26%
plan, program	25%	40%	17%	36%	28%
commitment	31%	30%	25%	29%	29%
agreement	38%	20%	25%	36%	32%
withdraw other colleges	44%	50%	33%	43%	43%
first choice	47%	40%	25%	50%	43%
financial aid	50%	30%	42%	43%	53%
deadline	50%	80%	67%	57%	59%

Note: 1. Percentage in each cell indicates the ratio of the institutions that contain a word in each column to the entire set of that institutional characteristic. 2. Among the entire coding, the table only includes words that indicate prominent similarities and differences in between group(s) of each institutional characteristic (e.g., control). 3. All numbers are rounded off, and ordered from the least to most in the total sample of 64 institutions if applicable. 4. The percentages are sorted from lowest to highest in the total sample.

Results of enumerative content analysis in early admissions by institutional selectivity

The percentages of the coded words in each group by different selectivity level (low, middle, high, highest) in institutions are presented in Table 8. Among the four different groups, "deposit" in Rules and "deadline" in Concept had similar ratios across the groups.

On the other hand, in the category of Student's Feeling, "commitment" (42%) was most frequently presented in the highest-selectivity group, and "quickly" (33%) and "ready" (33%) had the highest percentages in the low-selectivity group. In the Financial Benefits category, "FAFSA" (67%) and "financial aid" (67%) were most frequently present in the low-selectivity group (67%); however, "scholarship" (50%) exhibited the highest percentages in the middle-selectivity group and "merit-based aid" (28%) presented a high percentage in the highest-selectivity group compared to other groups.

Additionally, in Student's Choice, "considerable thought," "final college choice," (33%) "first choice," (67%) and "top choice" (33%) relatively showed the highest percentages in the

low-selectivity group even though the number of the included institutions in that group was very

low (three institutions). In the Being Equal category, "the same opportunity" (23%) was most

frequently present in the highest-selectivity group. Next, in Student's Benefits, "complete your

college plan" (33%) in the low-selectivity group and "early" (50%) in the middle-selectivity

group comprised the highest ratios of coded words, compared to other groups.

Table 8. Summary of the ratios in words according to institutional selectivity

Words (coding)	Selectivity: Low	Selectivity: Middle	Selectivity: High	Selectivity: Highest	Total sample
refundable	33%	0%	0%	2%	3%
scores	33%	17%	0%	0%	3%
final college choice	33%	0%	0%	5%	4%
senior grade	33%	0%	0%	5%	4%
application pay	33%	0%	0%	7%	6%
academic record	33%	0%	6%	5%	6%
ready	33%	0%	0%	9%	7%
complete your college plan	33%	0%	6%	7%	7%
automatically considered	33%	17%	13%	5%	9%
top choice	33%	0%	0%	12%	9%
quickly	33%	17%	6%	9%	10%
considerable thought	33%	0%	0%	14%	10%
recommendation	0%	0%	25%	7%	10%
encourage	0%	33%	0%	14%	12%
SAT/ACT scores	0%	17%	25%	7%	12%
superior	33%	17%	19%	7%	12%
decision	67%	17%	0%	14%	13%
the same opportunity	0%	0%	0%	23%	15%
transcripts	33%	33%	19%	14%	18%
merit-based	0%	17%	19%	19%	18%
scholarship	0%	50%	19%	16%	19%
FAFSA	67%	0%	19%	23%	22%
notification	67%	0%	13%	28%	24%
early	0%	50%	6%	33%	26%
commitment	0%	0%	13%	42%	29%
deposit	33%	33%	38%	28%	31%

first choice	67%	0%	25%	53%	43%
financial aid	67%	33%	6%	58%	53%
deadline	67%	67%	50%	60%	59%

Note: 1. Percentage in each cell indicates the ratio of the institutions that contain a word in each column to the entire set of that institutional characteristic. 2. Among the entire coding, the table only includes words that indicate prominent similarities and differences in between group(s) of each institutional characteristic (e.g., control). 3. All numbers are rounded off, and ordered from the least to most in the total sample of 64 institutions if applicable. 4. The percentages are sorted from lowest to highest in the total sample.

Results of enumerative content analysis in early admissions by institutional location

The percentages of each code in each location are presented in Table 9. First of all, in terms of similarities, across location types (city, suburb, town, and rural), "ease the stress" in the category of Student's Feeling, "financial aid" and "FAFSA" in the category of Financial Benefits, "first choice" in the Student's Choice category, and "early" in the category of Student's Benefits showed similar percentages of word emphasis.

On the other hand, unique patterns of coded words in early admissions were found among different institutional regions, and institutions located in rural areas present more words in "admissions office" (60%) in the category of College's Help and Advice, "deadline" (80%) in the Concept category, "decision" (40%) in the College's Choice category, "superior" (40%) in the Excellence Approach category, and "senior year" (40%) in the category of Student's Benefits, than did those institutions in other locations.

In addition, "commitment" (40%) in Student's Feeling and "deferred" (35%) in the College's Choice category were most frequently found in institutions in the suburbs, compared to other areas. Also, "top choice" (23%) in the Student's Choice category was more frequently presented in institutions in towns than it is in institutions in other locations. Furthermore, in the Criteria category, "interview" (20%) in institutions in suburbs, "essay," (15%) "recommendation," (15%) and "SAT/ACT scores" (23%) in institutions in towns, and "senior grade," (20%) and "transcripts" (40%) in institutions in rural areas occurred more frequently in

each area group, respectively. Additionally, in the Being Equal category, institutions in cities more frequently presented words such as "same evaluation process and measure" (10%) and "same opportunity" (23%) compared to institutions in other areas.

In terms of the Student's Characteristics category, overall, institutions in cities presented higher percentages of the coded words in terms of "first-generation," (3%) "international students" (17%), and "resident of states (out-of-state vs. in-state)" (3%) compared to institutions in other areas. Additionally, institutions located in towns showed higher frequencies of "gender" (16%) and "race" (16%) related information compared to institutions in other locations.

Table 9. Summary of the ratios of words according to institutional location

Words (coding)	Location: City	Location: Suburb	Location: Town	Location: Rural	Total sample
first-generation	3%	0%	0%	0%	1%
out-of-state vs. in-state	3%	0%	0%	0%	1%
notification_social event	0%	5%	0%	20%	3%
senior grade	0%	10%	0%	20%	4%
gender	0%	5%	16%	0%	4%
race	0%	5%	16%	0%	4%
academic record	3%	5%	8%	20%	6%
criteria	3%	0%	15%	20%	6%
interview	0%	20%	0%	0%	6%
same evaluation process and measures	10%	5%	0%	0%	6%
essay	10%	0%	15%	0%	7%
top choice	3%	10%	23%	0%	9%
quickly	10%	15%	0%	20%	10%
international student	17%	0%	15%	0%	10%
recommendation	10%	10%	15%	0%	10%
international students	17%	0%	15%	0%	10%
ease the stress	10%	15%	8%	20%	12%
superior	3%	20%	8%	40%	12%
SAT/ACT scores	3%	15%	23%	20%	12%
the same opportunity	23%	10%	8%	0%	15%
senior year	10%	20%	15%	40%	16%
transcripts	13%	20%	15%	40%	18%
admissions office	23%	15%	15%	60%	22%
FAFSA	23%	15%	31%	20%	22%

early	20%	35%	31%	20%	26%
plan, program	27%	30%	23%	40%	28%
commitment	30%	40%	23%	0%	29%
first choice	33%	50%	54%	40%	43%
financial aid	57%	25%	46%	40%	53%
deadline	57%	55%	62%	80%	59%

Note: 1. Percentage in each cell indicates the ratio of the institutions that contain a word in each column to the entire set of that institutional characteristic. 2. Among the entire coding, the table only includes words that indicate prominent similarities and differences in between group(s) of each institutional characteristic (e.g., control). 3. All numbers are rounded off, and ordered from the least to most in the total sample of 64 institutions if applicable. 4. The percentages are sorted from lowest to highest in the total sample.

Results of the Ethnographic Content Analysis

In order to explore what values and messages institutions deliver for early admissions, and how those are differentiated according to type of EAP, an ethnographic content analysis was conducted. Significant statements and meaning units were distilled for the central topics under discussion: (a) approaching in two ways: deadline-oriented vs. plan-oriented; (b) appealing advantages for students, institutions, or a win-win scenario in EAPs; (c) advertising either "being equal" or "being differentiated" between EAPs and RD; (d) assuring opportunities for financial aid; (e) emphasizing commitment to an institution; and (f) assuming that students admitted through EAPs have achieved excellence in college access or post-admissions performance. These six themes incorporate the conceptual framework of this dissertation, presented in Figure 1, and in the sections below, the results of the ethnographic analysis are interpreted for each theme. The implications of these findings, entangled together with the triangular perspective of diversity, quality, and affordability, are demonstrated in the later discussion section.

Theme 1: Approaching in two ways: deadline-oriented vs. plan-oriented

All institutional admissions websites appear to present early admissions information for their promising applicants. The length and depth of this content varied from institution to institution; however, despite variations, several points were highlighted across admissions

information. First, two different broad approaches were found in the dataset regarding how to conceptualize early admissions policies. One approach is to view early admissions as deadlines, which means EAPs can be differentiated from RD. The other approach engages with more than just deadlines: it involves a plan-oriented type of admissions process. In detail, a quarter of the institutions in the sample present early admissions programs as a deadline, as shown in Figure 2 and Figure 3, and emphasize the deadlines for each step: submitting the EA/ED application, the financial aid application, the admissions notification, and enrollment and tuition payment dates. For example, the Rose-Hulman Institute of Technology implements EA in a deadline-oriented manner.

Figure 2. An example of an early admissions page with a deadline-oriented approach (Rose-Hulman Institute of Technology, EA)

Similarly, Rollins College, which implements ED, lays out a deadline-oriented approach, emphasizing the application deadline, notification dates, and the enrollment deposit due date. There are Round I and Round II early decision cycles; however, the institution does not elaborate on the differences between each round.

Figure 3. An example of an early admissions page with a deadline-oriented approach (Rollins College, ED)

On the other hand, as shown by the example in Figure 4, approximately three quarters of the institutions in the sample emphasized EAPs as an option or plan, rather than simply stressing deadlines. Also, there are differences in how institutions approach and conceptualize the EAPs: the amount of content, the extent of detailed information on these policies, whether and how they use visual materials or present information, as well as the availability of additional resources regarding EAPs, such as a specific tab for promising students who wish to apply to EAPs. For example, Washington University implements ED and shows a plan-oriented approach.

Figure 4. An example of an early admissions page with a plan-focused approach (Washington University, ED)

As another example of plan-oriented approach, MIT provides details on the differences between their two application cycles—early and regular admissions, and also outlines the rules and restrictions of applying early, rather than only emphasizing the deadlines and requirements of early admissions.

Early vs Regular

MIT has two application cycles: Early Action (EA) and Regular Action (RA).

What's the difference?
Only the dates of the deadlines!

It is fine to apply during either cycle. We do not have a preference, and there is no strategic benefit to applying in one vs the other. We have two cycles for two reasons: 1) it helps us spread our work out over a longer period, devoting more time to each application, and 2) it provides applicants with more options so they can choose which works best for them.

Rules and restrictions:

Early Action is an option for all applicants, domestic and international. Our Early Action isn't single-choice, binding, or anything like that. If you choose to apply to MIT during Early Action, we do not place any limits on where else you may apply, nor do we require you to attend if admitted (though we sure hope you do!).
However, if you apply to another school during Early Action that does have a restriction, **MIT requires that you respect those rules**. So for example, if you apply to another school that is "single choice"— meaning that you can only apply there during the early period—you may not simultaneously apply to MIT, and if you're admitted somewhere "binding," then even if we admit you, you *must* go there instead. So choose wisely!

Other dates & deadlines
- All students who are applying for financial aid should submit materials by February 15 (see Financial aid deadlines)
- Early Action applicants will receive an admissions decision in mid-December
- Regular Action students will receive an admissions decision in mid-March
- Admitted students must inform MIT of their enrollment decision by May 1

Figure 5. An example of an early admissions page with a plan-focused approach (MIT, EA)

Theme 2: Appealing to advantages for students, institutions, or a win-win scenario in EAPs

One of the notable empirical findings from the coding and categorizing is that EAPs appeal to both applicants and institutions, and create mutual possible benefits and advantages. Specifically, for example, for promising applicants EAPs negate the stress of preparing applications for other schools; they also lessen the importance of senior-year grades so students can have more leisure time in their final year of high school. As an example, Vassar College in the ED group tells prospective applicants:

. . . an Early Decision application can help you complete your college search

mid-way through your senior year and ease the stress that often accompanies the

college selection process (Vassar College, ED).

Additionally, almost all of the institutions promote EAPs by assuring students they will benefit from applying to a particular institution. Applicants are encouraged to apply early, and told they will receive their results "quickly," with the assurance that their application will be "firstly reviewed." This process, then, is presented as one that offers the "best chance" of admissions. Thus, as my findings made clear, colleges and universities actively advertise EAPs using a variety of appeals to student feelings. One particularly subtle way to appeal to student emotions may be in the holiday-specific terms certain deadlines are referred to: some colleges avoided using specific dates and instead preferred to reference holidays such as "Thanksgiving" or "Christmas," as shown in Figure 6's example of Wheaton College.

Timetables for Application			
First-year Admission			
Admission Round	**Application Due**	**Decision Notification by**	**Reply-by Date**
Early Action I	October 15	Thanksgiving	May 1
Early Action II	November 15	Christmas	May 1
Regular Decision I	January 15	March 1	May 1
Regular Decision II	February 15	April 1	May 1

Figure 6. An example of appealing to student feelings in EAPs (Wheaton College, EA)

On the institutional side, the benefits of EAPs are often not clearly stated, and college choice and the power of individual decision making are emphasized instead. For example, institutions have found that EAPs are able to produce a variety of different types of decisions depending on whether their policies are binding or non-binding, such as "accept", "fail" and "deferred." Also, ED policies tend to maximize the university's advantages more so than EA policies, as they are often binding policies that ensure stronger university autonomy over student selection rights compared to EA policies. It was also found that through EAPs, schools utilize the "deferred" decision when selecting students more than they do through RD. For example, University of Rochester tells prospective students that:

. . . A few ED applicants' decisions may be postponed (or deferred) if we feel we

need additional information to make a final decision and, therefore, will be

reconsidered for admissions along with the regular decision pool (University of

Rochester, ED).

One important, if infrequent, finding is that EAP institutions may emphasize not only the

obvious benefits for aspiring students and the implied benefits for the universities, but also the

mutual benefits for both college and student in choosing each other. In fact, such universities

demonstrate an emphasis on the student-college relationship, with particular attention given to

"college-fit," or mutual benefits and enthusiasm, positive outcomes that in turn help form a close

community. For example, Emory University describes its ED program as one for those:

> . . . ED is for students who have fallen in love with our campus and our mission
>
> (Emory University, ED).

Theme 3: Advertising either "being equal" or "being differentiated" between EAPs and RD

Notably, EAPs sometimes emphasize the same points as RD, and sometimes highlight

their differences. Specifically, EAPs and RD select students based on the same criteria, and

emphasize that there is no significant difference in the materials used to evaluate students. Also,

some, but not all, colleges strongly state that there are no preferences between EAPs applicants

and RD applicants, and this emphasis appeared more frequently in EA schools than ED schools.

> . . . MIT has two application cycles: Early Action (EA) and Regular Action (RA).
>
> What's the difference? Only the dates of the deadlines! It is fine to apply during
>
> either cycle. We do not have a preference, and there is no strategic benefit to
>
> applying in one vs the other (MIT, EA).

From the data analysis, ED schools exhibit a greater tendency to emphasize the

differentiated benefits that come from early application or gaining early admittance; however,

this message is sometimes seemingly not apparent, and institutions attempt to present a "being

equal" approach between EAPs and RD. For example, Emory University portrays its perspective

on ED and RD as an image (see Figure 7)—interestingly, that of two identical coffee cups,

differing only in what words are written on them.

Figure 7. An example of advertising aspects of "being equal" in EAPs and RD (Emory University, ED)

On the other hand, information about the EAPs process can also appeal to the points that distinguish it from RD. In particular, in the case of EAPs' student selection, if a student fails, their application is automatically converted to RD and a reevaluation is performed. EAPs are encouraged for students coming from specific regions, and EAP applicants may receive special opportunities, such as scholarships available only for EAP applicants. In addition, various ancillary policies, such as exemption from application fees and residence hall guarantees, illustrate how EAP-admitted students are in fact is "differentiated" from RD students. For example, Reed College and George Fox University both inform applicants that:

> . . . If you are admitted to Reed, your ED application guarantees that you will get your first or second choice of residence halls (Reed College, EAD).

> . . . Students who complete their application by this date [Early Action] will be eligible for additional scholarship opportunities. Deadline to submit enrollment deposit to be included in first wave of self-selecting housing placement (George Fox University, EA).

Theme 4: Assuring opportunities for financial aid

As for the relationship between EAPs and financial aid, which many prior studies have established as important, it has been found that almost all universities provide detailed information about these subjects. Although the depth of detail regarding aid, such as whether it is merit-based or need-based, varies, almost all universities are aware of the need for financial aid, and this reflects the recognition that finances are a factor in whether students decide to enroll in college. Therefore, EAP institutions clearly inform students that all scholarship applications will

be reviewed and that they will be informed of whether they have been admitted via EAP as well as whether they have received a scholarship. Therefore, this can be interpreted as institutions relieving anxiety among students who are hesitant to apply to universities under the EAPs system, and can be read as a strategy of seducing applicants by alleviating worries about financial aid. For example, Gustavus Adolphus College draws attention to the tantalizing possibility of students receiving their financial aid packages early:

> . . . If you complete everything on schedule, you'll get your expected financial aid package before January 1. This allows you to make your college decision earlier, submit your deposit, and begin planning for your time at Gustavus! (Gustavus Adolphus College, EA).

> While not in a general practice, some colleges and universities will even release the

binding commitment agreement on ED if a financial aid package does not meet an applicant's expectations. The website of NYU, for example, describes in detail the financial aid packages available for ED applicants, assuring advantages and suggesting that disadvantages will not occur because of these prospective financial aid offerings. However, according to their website, the amount of financial aid available and the process of decision making related to financial aid is vague and hidden, but at the same time, the website plainly conveys NYU's stance that applicants should not feel pressure to apply early if they are concerned about financial aid. The website assures applicants that:

> . . . If you are awarded a financial aid package that does not meet enough of your financial need to allow you to attend…, you may request to be released from the agreement… Applying for financial aid and the way NYU determines aid are also the same for early decision. Please keep in mind that you won't be able to

compare financial aid packages from other schools if you apply early decision. Do

not feel pressure to apply early decision if finances are a concern (NYU, ED).

Theme 5: Emphasizing commitment for an institution

A striking feature of EAP institutions is that they strongly emphasize student

commitment, and clarify policy enforcement and rules. And these points tend to be explained in

detail in ED universities, which reflects ED's status as a binding-policy, unlike EA. Institutional

information clearly states that all ED admitted students must enroll in that college upon

admissions, that they must not apply for any other ED schools at the same time[2], and that when

admitted to the intuition as ED, applications for other universities that have been submitted

should be withdrawn. For example, Vanderbilt's website stresses that students who decide to

apply ED have specific rules that they must follow:

. . . If the student is admitted to Vanderbilt, they must immediately withdraw

applications to all other colleges and universities (Vanderbilt University, ED).

ED applicants are required to sign and submit the required consent form for these

policies, and these forms are required not only from the student themselves, but also from the

high school's college counselor and the student's parents or guardians. Therefore, it was found

that applying for ED requires more preparation than does applying for RD, and that you cannot

be free from regulations and restrictions. Tufts University provides a succinct example of this

policy:

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[2] In general, the statement policy regarding early decision sounds as if students can apply to more than one ED at a time until they are accepted by one, as provided in the data example of Vanderbilt University. However, almost all universities stated that if students applied two or more ED schools, and this was detected by the institutions, those applications are automatically withdrawn.

. . . In order to acknowledge that you wish to be considered under the Early

Decision program, you must submit a signed *Early Decision Form.* The form

must be signed by the student, either a parent or a guardian, and a school

counselor. You will find the Early Decision Form on the Common Application

site or the Coalition Application site when you apply (Tufts University, ED).

Theme 6: Assuming that students admitted through EAPs have achieved excellence in college access or post-admissions performance

One of the most critical findings is that EAPs emphasize student excellence or have positive implications for college adjustment and success after college enrollment. EAP institutions strongly recommend that students who are "superior" "ready" and "academically and socially mature" apply through EAPs. Furthermore, in addition to emphasizing that students admitted through EAPs are "superior" students at the time they enter college, their high school achievements are believed to demonstrate the potential for success in college life after admissions. For example, Molloy College illustrates who their ideal early applicants are:

. . . Selected students with superior academic achievement through three years of

high school may be admitted to Freshman status prior to completing high school

graduation requirements. High school recommendations supporting the applicant's

social and academic maturity are required (Molloy College, EA).

In some universities, the experiences of current college students who were admitted under the EAPs are quoted as "special experiences", or the institution conducts direct interviews with students who have entered EAPs through video, or the students are shown in images that present them as well-integrated with their college peers. In such images and videos, the featured

students tend to be White or Asian, groups who are often academically advantaged in higher education. These images and testimonials aim to show that the value of the student's "excellence" is highly appreciated. And this point is more explicit in ED institutions than in EA ones. Allegheny College, for example, seeks to connect with ED applicants by using images of students—for example, the white female students shown in Figure 8.

Figure 8. An example of presenting promising students as well-integrated in EAPs (Allegheny College, ED)

Discussion, Implications, and Future Research

Past studies of early admissions have attempted to reveal the factors associated with early admissions applicants (Avery & Levin, 2010; Park & Eagan, 2011; Chapman & Dickert-Conlin, 2012), or examined the effects of early admissions on diversity or cohort quality (Antecol & Kiholm-Smith, 2012). However, most previous empirical studies have focused on the determinants of applying to EA/ED for individuals, rather than policy/program delivery, the characteristics of EAPs, or explicit or hidden messages within policies, from an institutional perspective. This study, therefore, tried to explore both why colleges and universities implemented EAPs, and how they implement them relative to their regular admissions as a college access and admissions strategy.

First, from the diversity perspective, I unexpectedly found that according to the results from the enumerative analysis, words that clearly convey a message on issues of diversity or equity, prominent issues related to college admissions and early admissions, were not revealed. When it comes to diversity, universities were only referring to specific groups, such as international students (in city and town located institutions) and financially disadvantaged students, but no particular pattern of either similarity or differences emerged according to institutional characteristics in the enumerative analysis. Also, no schools revealed racial diversity as a prominent word. At a couple of institutions, aspects related to diversity were implicitly appealed to through images such as photographs, but Asian or white students were the most dominant groups presented. Equity and fairness in selection criteria were most frequently used in doctoral degree level universities, and equal opportunity in admissions between EAPs and RD was addressed at similar rates in private and public universities.

However, equal opportunity between the two admission types was mentioned most frequently in doctoral degree level institutions, at the most highly selective institutions, and institutions located in the city. Interestingly, the ethnographic analysis found that institutions implicitly assumed ED applicants were superior to other applicants, mature, and ready to be college students, and that they would succeed in their adjustment to campus life. By advertising high acceptance rates through ED policies, rather than RD policies, institutions tacitly encouraged this kind of preferred student to apply for early admissions options. Thus, ED schools, and, sometimes EA schools, tend to provide some incentives for students to apply ED rather than RD so as to increase their chances of securing promising students. This is irrespective of whether it is actually true that ED applicants are mature and superior, and further benefits institutions by preventing these students from applying elsewhere. This finding is also supported by signaling theory, reviewed in Chapter 2. So, despite the insistence of institutions that ED and RD students are 'equal', we might ask critical questions about whether institutions in fact give more attention to ED admitted students, providing "differentiated care," through the numerous benefits (e.g., guaranteed residence halls) that were found in the analysis, which were usually not provided to RD admitted students. This shows that in early admissions policies, institutions value the student's "excellence" much more than they do their contributions to "equity or diversity" in.

Next, from the perspective of admissions quality, interestingly, competitive early admissions were more frequently presented in public colleges and universities than in private institutions from the enumerative analysis approach. Also, higher numbers of students who applied or were admitted via EAPs were most frequently present at doctoral degree level institutions. However, "superior" as a characteristic of applicants showed similar patterns among bachelor's, master's, and doctoral degree level institutions. Meanwhile, institutions located in

cities or rural areas more frequently used the term superior to did other locations. For the early

admissions criteria, in the Northeast, a variety words such as SAT/ACT scores, transcripts, or

senior grades were more frequently used than in other regions. These patterns show that the

quality aspects of early admissions are emphasized and more strongly delivered in certain places

and locations, and according to institutional degree level. In other words, the results imply that

colleges and universities tend to mimic the operations of EAPs, a development suggested by the

policy diffusion theory reviewed in Chapter 3; however, at the same time, each institution may

adopt different strategies and emphases in order to deliberately respond to their own

organizational environment, as suggested in the conceptual framework (Figure 1).

More specifically, from the findings of the ethnographic content analysis, ED provides

limited information and fewer guarantees of financial aid, though it has regulations and rules that

must be abided by, such as a commitment to a school, withdrawal from other colleges, signing an

agreement form, and early enrollment, with added enrollment fees. These strict rules and

regulations explain why there is a competitive admissions market in higher education, and why

highly selective and competitive institutions tend to prefer implementing ED policy, rather than

EA or RD policy/programs alone. These findings can also be interpreted to show why highly

selective institutions are starting to implement ED policies more frequently: institutional

isomorphism (DiMaggio & Powell, 1983). Colleges have a high demand for "superior" students,

and there is competitive pressure between peer-institutions. Thus, institutions react with

organizational responses to these environmental conditions. They mimic their peer-institutions,

by mimicking isomorphic institutional behaviors.

Finally, from the affordability perspective, the results of the enumerative content analysis

approach found that the pattern of frequent words-use in admissions websites related to EAPs

varied depending on institutional characteristics such as control, region, highest degree level, selectivity, and location. Specifically, financial benefits and merit-based aid were most frequently presented in doctoral degree level institutions, scholarship opportunity was most mentioned in Southern-region institutions, financial aid and FAFSA were frequently presented in the low-selectivity group, scholarship had the highest percentage in the middle-selectivity group, and financial aid was frequently shown in institutions located in cities. Thus, those institutions emphasized the possibilities of obtaining financial benefits and delivered the value of affordable opportunities in early admissions.

As similarly discussed earlier, these results imply that certain types of institutions care considerably more about the affordability aspects of admissions, and this could stem from historical reasons, the demographic or characteristics of the institutional environment, or financial status, which itself derives from the internal institutional environment, as suggested by the conceptual model (Figure 1). On the other hand, this emphasis on affordability could be also interpreted as a differentiated strategy to survive in the competitive higher education market, as reviewed in Chapter 2. For example, Southern-region institutions endeavor to secure students who might decide to enter colleges in Eastern or Western regions, and this concern might explain why Southern institutions call more attention to scholarship opportunities when courting early applicants than do institutions located in other regions.

Furthermore, the findings from the ethnographic content analysis show that early admissions policies are tightly related to whether financial aid could possibly be awarded or not. Interestingly, institutions delivered a positive attraction for promising students when they offered the possibility of financial benefits, even if they could not offer 100% funding for all ED admitted students. Thus, as several studies have pointed out, these findings reaffirmed that

financially disadvantaged or low-income students who might like to apply for ED program schools may not be confident to apply to them, or that the decision could be a huge burden.

For future study, it is suggested that it would first be important to explore students' lived experiences in preparing EAPs, searching and gathering information on EAPs, and what aspects are related to applying to an institution through EAPs rather than through RD. Such research would utilize qualitative data from students' voices and adopt a phenomenological approach. Results from such studies would expand our understanding of students' direct experiences in the early admissions process and illuminate how EA and ED are actually related to students' advantages and disadvantages, feelings, and preparedness for college admissions. Additionally, high school teachers, counselors, and parents could be also interviewed to explore their perspectives on how early admissions, especially early decision, impact how they help their students prepare college applications and their related materials (junior grades, SAT/ACT scores, required agreements on commitment, or FAFSA/financial aid applications) in advance.

In addition, it is possible to navigate the actual internal evaluating criteria on EAPs and how decisions on acceptance are made, and differences between EAPs and RD in terms of choosing students, using qualitative data from interviews with admissions administrators in institutions. One of the interesting and important findings regarding "deferral" decisions in EA that should also be examined further is the background and criteria for how such deferral decisions are made and their context from an administrative and institutional perspective. These ideas would be also examined in alignment with different institutional characteristics in a manner similar to current studies. Furthermore, it is plausible to compare the push and pull factors between applicants and institutions in choosing each other, from the perspective of college

access and choice. With these possibilities, EAPs are able to further develop many aspects of their operations, rationales, and evaluating functions.

In practice, the results of the analysis suggest some improvements could be made for better communication with promising students. First, institutions implementing EAPs that present only limited information, such as deadlines, should revise their information to be more readily available and detailed, to better inform those who would like to apply to early admissions policies. It tends to be relatively small and less selective colleges and universities that display perfunctory and slipshod information and resources on their websites regarding EAPs. It could be possible that such institutions have limited manpower or motivation to strongly show their interest in admissions, including EAPs admissions; however, demonstrating their appeal to promising applicants is necessary to meet the institutional purposes and missions of operating EAPs.

Next, most of the colleges and universities where ED operates in two different cycles do not describe the differences between ED I and ED II—mostly they are differentiated by the deadlines for each process (application submission, filing FAFSA, CSS profile completion, notification admissions, and submitting tuition deposits), and why institutions run these two options and also how these options would help students in choosing between the various admissions cycles is not made clear. A similar situation occurs in institutions running both EA I and EA II. Without enough information for each cycle, promising applicants may hesitate to decide to apply to that certain institution, and institutions may not be able to effectively operate the admissions programs or cycles.

Third, universities need to vividly share the experiences of students who entered the school through EAPs. Very few universities actually showed written or video testimonials from

enrolled students who entered through EAPs on their admissions homepage. Such communication would help establish bonds with students who will enter the university in the future by sharing former applicants and enrolled students' experiences. Also, for these institutions, it might be constructive to establish that EAPs are not just another type of college admissions cycle, but aim to sincerely choose students that meet both their needs and interests. In fact, students are more likely to be driven to apply and choose universities through the experiences of others already attending the university (Clayton, 2013). Therefore, colleges and universities need to actively utilize effective communication strategies as much as they can.

Fourth, if colleges and universities were to disclose demographic information about accepted/enrolled students or the extent of receiving financial aid both between EAPs and RD applicants on their admissions websites, high school students, parents, and high school counselors and teachers would ultimately benefit and be better able to navigate and understand EAPs and deciding between the two options, which would better inform students' decision to finally apply to and choose an institution.

As perhaps the first study to utilize web-based sources of admissions information for four-year public and private institutions, this work hopefully contributes to expand an application of content analysis and to examine the study of institutional policy delivery and its hidden messages regarding college admissions in higher education. Consequently, this study hopes to illuminate the connections and trajectories between aspects of college access and institutional policy in higher education.

CHAPTER 5

STUDY 2: TIMING MATTERS IN ADMISSIONS: EXAMINING CONSEQUENCES OF

EARLY ADMISSIONS POLICIES IN FOUR-YEAR COLLEGES AND UNIVERSITIES

This chapter describes the second study included in this dissertation, which examines the

impact of early admissions policies on institutional perspectives of student outcomes—diversity,

quality, and affordability—in four-year colleges and universities in the U.S. Based on certain

theoretical propositions, early admissions policies could dampen student diversity but improve

quality and affordability; however, these factors could vary according to the different types of

early admissions offered by each institution (EA, ED, EAD, and EAPs). Using a two-way fixed

effects model with difference-in-differences (DID) method and national administrative

institutional datasets from 2004-2018, this study found that early admissions policies produce

different effects vis-a-vis the specific types: for example, ED dampens several aspects of student

diversity and affordability in institutions, and exerts no significant impact on enhancing student

quality from an institutional perspective. On the other hand, EA does not have a noticeable

significant effect on affordability but does have an effect on improving cohort quality of

freshmen.

<u>Introduction</u>

Although the history of college admissions policies and college access reveals their

importance as described in Chapters 2 and 3, the consequences of early admissions programs or

policies on college admissions outcomes has not been thoroughly examined from an

organizational perspective. A focus on the connections and trajectories between aspects of the

college admissions process and institutional outcomes has also been lacking. From the perspective of institutional administrators in particular, admissions policies are important indicators of how to improve institutional reputation and ensure the long-term enrollment of diverse students. In addition, although there may be a difference to some degree between private and public colleges and universities, institutions as a whole have faced various issues related to fairness and equity in college admissions and college access. In this view, early admissions also should be discussed, as this conversation can shed light on issues of equity and accountability in college access and choice.

In social science, from the perspective of educational policy, evaluating complex interventions and policies is challenging (Oliver, Lorenc, & Tinkler, 2019) due particularly to the identification of unintended consequences of interventions or policy implementations. However, in the area of education, the importance of studies in revealing unexpected outcomes has been growing and expanding among scholars (e.g., Lahr, Dougherty, Jones, and Reddy, 2014). Therefore, policy effects, including unintended outcomes of early admissions at the institutional level, are in need of scrutiny; such examinations could contribute to the crucial decision of whether the implementation of these programs should be continued or not for promising applicants, parents and teachers, college administrators, and stakeholders.

Thus, this study tried to demonstrate the theoretical propositions outlined in Chapter 3, which indicate that institutions are more likely to encourage and secure highly motivated and excellent students to apply through early admissions; institutions try to select applicants fairly with respect to students' backgrounds (e.g., race/ethnicity, family background, etc.) in both the early and regular admissions processes. Previous studies, as repeated in Chapter 2, however,

have not shown a consensus among these theoretical assumptions, and there is of yet a dearth of empirical studies that provoke controversy among researchers and practitioners.

In this chapter, this study aims to examine the impact of several types of early admissions policies on institutional outcomes in four-year public and private colleges and universities in the U.S. With a large longitudinal dataset from multiple sources and the difference-in-differences analysis (DID) as a quasi-experimental design, this study examines the consequences of early admissions policies on diverse institutional outcomes with respect to diversity, quality, and affordability.

Research Questions

To address the needs and goals of the study outlined above, Specifically, the study answers the following research questions:

1. To what extent do early decision only (ED), early action only (EA), both EAD (EA and ED), and EAPs (either EA, ED, or both), respectively, impact freshmen diversity in four-year colleges and universities?

   a. To what extent do early admissions policies (EA/ED/EAD/EAPs) impact gender diversity?

   b. To what extent do early admissions policies (EA/ED/EAD/EAPs) impact racial/ethnic diversity?

   c. To what extent do early admissions policies (EA/ED/EAD/EAPs) impact contextual (regional, non-traditional) aspects of diversity?

2. To what extent do early decision only (ED), early action only (EA), both EAD (EA and ED), and EAPs (any types of early admissions policies), respectively, impact freshmen quality in four-year colleges and universities?

a. To what extent do early admissions policies (EA/ED/EAD/EAPs) impact the high school GPAs of freshmen?

b. To what extent do early admissions policies (EA/ED/EAD/EAPs) impact the retention rate of freshmen?

3. To what extent do early decision only (ED), early action only (EA), both EAD (EA and ED), and EAPs (any types of early admissions policies), respectively, impact freshmen affordability in four-year colleges and universities?

a. To what extent do early admissions policies (EA/ED/EAD/EAPs) impact the access of freshmen with need?

b. To what extent do early admissions policies (EA/ED/EAD/EAPs) impact the financial aid of freshmen?

<div align="center">Methods</div>

Data and sample

The sample of the study includes four-year public and private colleges and universities operating under Title IX in the U.S. Also, institutions with selective admissions policies, as opposed to open admissions (that is, "sorting and selection" in undergraduate admissions practices; Astin, 1971) are defined in the sample. The dataset and sources were mainly derived from the IPEDS in the NCES, and the administrative data (Annual Service of College: ASC) from the College Board, which are representative national level datasets. The IPEDS and the ASC data were merged and appended if necessary, and institutions were excluded when untrustworthy and unreliable information was found in the given datasets.

In sum, 540 public (34.88%) and 1,008 private non-for-profit (65.12%) colleges and universities in the U.S were included in the final panel sample, with the data encompassing the

years 2004-2018, which was the maximum available data with complete variables in accordance with the target and purpose of the study. In brief, a total of 23,220 observations (1,548 institutions across the academic years 2004-2018) are in the panel data, and average institutional characteristics are comprised of institutions regionally located in the Northeast (29%), Midwest (28%), South (31%), and West (12%). In terms of urbanized locations, institutions are in cities (27%), suburbs (28%), towns (41%), and rural areas (4%).

Variables and measures

The variables that I used include treatment variables, diversity variables, and covariates, which should all be considered in the analysis. The treatment variables—admissions policies— are distinguished as EA policy only, ED policy only, EAD (institutions that have both policies), and EAPs (Any types of EA or ED, including institutions that have both policies) based on the given dataset and time (academic year) information, which are physically and conceptually distinguished by the date of application, the date of decision deadline, and the requirement of enrollment in an institution. The institutional outcome variables were derived from the relevant literatures and theoretical perspectives in admissions, and they encompass the dimensions of 1) college diversity, 2) quality, and 3) affordability in freshmen admissions from an institutional perspective.

The first outcome, diversity, was broadly divided into several measured categories: 1) gender diversity (the ratio of females and males who apply to, who are admitted to, and who are enrolled in college); 2) racial diversity (the percentage of each racial/ethnic demographics of freshman enrolling class); and 3) contextual diversity (regional diversity: the percentage of enrolled out-of-state freshmen, the percentage of enrolled non-resident status [international]

freshmen), non-traditional aspects: the percentage of freshmen with disabilities, the average age of entering freshmen, and the percentage of part-time freshmen students).

The next outcome, quality, addresses entering freshmen with regards to excellence in education, a subject explored in the literature review and considered from the perspective of institutional admissions. From the given dataset, the high school GPAs and retention rates of first year students were used as a proxy of quality outcome. High school GPAs were divided into several tiers to capture the relationship between early admissions and quality in a more systemic way: 1) the percentage of freshmen with a high school GPA in the top-half of their high school; 2) the percentage of freshmen with a high school GPA in the top-quarter of their high school; 3) the percentage of freshmen with a high school GPA of 3.75 and above (the highest category in the given dataset); 4) the percentage of freshmen with a high school GPA between 3.50 and 3.75; 5) the percentage of freshmen with a high school GPA between 3.25 and 3.49; 6) the percentage of freshmen with a high school GPA between 2.00 and 2.49 (the lowest category in the given dataset); and 7) the retention rate of first-year freshmen.

The last outcome, affordability, was defined as the ability of students to take on the cost of college, and the amount of financial aid needed to defray these costs. Thus, with an inclusive and comprehensive perspective on affordability in admissions, the third outcome is created by incorporating 1) the average percentage of need-met freshmen: 2) the average financial aid package per freshman: 3) the percentage of freshmen who received financial aid among financial aid applicants; 4) the percentage of freshmen who received financial aid among all enrolled freshmen; 5) the percentage of freshmen with need among all enrolled freshmen; and 6) the percentage of freshmen with needs fully met among all enrolled freshmen, from the raw data of the given dataset.

Covariates were included in the analytic models, such as control (public vs. private), institutional size (enrollment), selectivity (SAT/ACT scores in the 75th percentile), location (city, urban, town, rural), region (Northeast, South, Midwest, West), highest degree awarded (bachelors, masters, doctoral), and average freshmen tuition, if applicable. All these described variables for the analysis are presented in Table 10.

Table 10. Variables and measures for the analyses

Category	Variables	Measures
Policy: Early admissions	Early Action only (EA)	EA: Yes/No
	Early Decision only (ED)	ED: Yes/No
	Both EA and ED (EAD)	EAD: Yes/No
	EA only, ED only, or EAD (EAPs)	EAPs: Yes/No
Diversity Outcome	Gender	1) percent of male and female applicants 2) percent admitted to college 3) percent enrolled in college
	Race/ethnicity	1) percent of White freshmen 2) percent of Black freshmen 3) percent of Asian/Pacific Islander freshmen 4) percent of Hispanic freshmen 5) percent of Hawaiian/Alaskan Islander freshmen 6) percent of Multiracial freshmen
	Contextual (Region; Non-traditional aspects)	1) percent of out-of-state freshmen 2) percent of non-resident status [international] freshmen
		1) percent of freshmen with disabilities 2) average age of entering freshmen 3) percent of part-time freshmen
Quality Outcome	High school GPA	1) percent of freshmen with high school GPA top-half 2) percent of freshmen with high school GPA top-quarter 3) percent of freshmen with high school GPA 3.75 and above 4) percent of freshmen with high school GPA between 3.50 and 3.75 5) percent of freshmen with high school GPA between 3.25 and 3.49 6) percent of freshmen with high school GPA between 2.00 and 2.49

	Retention rate	Retention rate of first-year freshmen
Affordability Outcome	Freshmen with need	1) percent of need-met freshman 2) percent of freshmen with need among all enrolled freshmen 3) percent of freshman with need fully met among all enrolled freshmen
	Financial aid coverage	1) average amount of financial aid package per freshman (CPI adjusted for inflation) 2) percent of freshmen who received financial aid among financial aid applicants 3) percent of freshmen who received financial aid among all enrolled freshmen 4) percent of freshmen who received financial aid among all aid applicants
Time-invariant Covariates	Control	Public, Private
	Region	Northeast, South, Midwest, West
Time-variant Covariates	Locale (urban)	City, Suburb (small city), Town, Rural
	Institutional size	Under 1000 1,000-4,999 5,000-9,999 10,000-19,9999 20,000 and above
	Highest degree level	Bachelor, Master Doctorate
	Selectivity	High (SAT/ACT 75th score – 4th quantile) Middle-high (SAT/ACT 75th score – 3rd quantile) Middle-low (SAT/ACT 75th score – 2nd quantile) Low (SAT/ACT 75th score – 1st quantile)
	Freshmen tuition[3]	Average tuition for freshmen (CPI adjusted for inflation)
Academic Year	AY 2004-2018	-
Unit (subject)	Institutions	-

Descriptive Statistics

Descriptive statistics for all institutions are presented in Table 11. On average, during the

academic years 2004-2018, of reporting institutions approximately 19% implemented EA only at

least one time, 13% were ED only at least one time, 4% implemented both EA and ED at the

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[3] The freshmen tuition covariate was only included in the analytic model when the outcome was "affordability," since specific outcomes (e.g., average percent of need-met freshman) in affordability could be associated with institutional tuition.

same time, and 28% had implemented some sort of early admissions program at least once during the relevant time frame. In the dataset, approximately, 65% institutions were private, 27% were located in cities, 30% were in the northeast region, 49% had 1,000-4,999 enrollment size, and 40% and were classified as Masters institutions. Specific statistics by years are included in Appendix B.

Table 11. Descriptive Statistics (average during academic year 2004 – 2018)

Variables	Obs.	Mean	Std. Dev.	Min	Max
EA only	23,220	0.19	0.39	0.00	1.00
ED only	23,220	0.13	0.34	0.00	1.00
EAD	23,220	0.04	0.19	0.00	1.00
EAPs	23,220	0.28	0.45	0.00	1.00
Applied male rate	20,767	0.44	0.15	0.00	1.00
Applied female rate	20,748	0.57	0.15	0.00	1.00
Admitted male rate	20,621	0.43	0.15	0.00	1.00
Admitted female rate	20,592	0.58	0.14	0.00	1.00
Enrolled male rate	20,607	0.46	0.15	0.00	1.00
Enrolled female rate	20,565	0.56	0.14	0.00	1.00
Enrolled part-time rate	19,134	0.03	0.07	0.00	1.00
Enrolled White rate	17,556	0.64	0.23	0.00	3.26
Enrolled Black rate	17,409	0.12	0.18	0.00	1.00
Enrolled Asian/Pacific Islander rate	16,452	0.05	0.07	0.00	0.87
Enrolled Hispanic rate	17,286	0.09	0.11	0.00	1.00
Enrolled American Indian/Alaska Native rate	13,665	0.01	0.04	0.00	1.00
Enrolled Natie Hawaiian rate	4,070	0.01	0.04	0.00	0.91
Enrolled multi-race rate	7,564	0.04	0.03	0.00	0.45
Enrolled non-resident alien rate	15,487	0.04	0.05	0.00	1.00
Percent of enrolled out-of-state freshmen	20,866	32.52	25.63	0.00	100.00
Average age	20,924	18.69	1.65	15.00	39.00

Percent disabled student	6,280	0.07	0.04	0.04	0.49
Percent HS GPA: top-half	16,583	78.32	15.38	5.00	100.00
Percent HS GPA: top-quarter	16,482	49.07	21.75	1.00	100.00
Percent HS GPA: 3.75 or more	15,714	27.18	17.53	0.00	100.00
Percent HS GPA: 3.50 -3.74	15,757	17.04	6.36	1.00	66.00
Percent HS GPA: 3.25 -3.49	15,733	15.39	5.05	1.00	68.00
Percent HS GPA: 2.00 -2.49	13,032	8.61	8.18	0.00	63.00
Percent need-met	15,652	73.33	17.20	0.00	100.00
Financial aid package (ln)	16,248	9.64	0.61	3.56	14.44
Rate: freshmen with need/enrolled freshmen	14,220	0.68	0.20	0.00	5.29
Rate: freshmen with need-fully met/enrolled freshmen	13,660	0.19	0.16	0.00	1.31
Rate: financial aid applied/all applicants	14,838	0.19	0.13	0.00	5.00
Rate: financial aid received/enrolled freshmen	14,157	0.67	0.19	0.00	5.29
Rate: financial aid received/ financial aid applied	15,237	0.80	0.12	0.11	3.22
Retention rate	18,004	0.75	0.13	0.00	1.00
Control	23,220	0.65	0.48	0.00	1.00
Location (city)	23,220	0.27	0.44	0.00	1.00
Location (suburb)	23,220	0.28	0.45	0.00	1.00
Location (town)	23,220	0.41	0.49	0.00	1.00
Location (rural)	23,220	0.04	0.20	0.00	1.00
Region (Northeast)	23,220	0.30	0.46	0.00	1.00
region (Midwest)	23,220	0.28	0.45	0.00	1.00
region (South)	23,220	0.31	0.46	0.00	1.00
region (West)	23,220	0.12	0.33	0.00	1.00
Size (Under 1,000)	23,220	0.17	0.38	0.00	1.00

Size (1,000-4,999)	23,220	0.49	0.50	0.00	1.00
Size (5,000-9,999)	23,220	0.15	0.35	0.00	1.00
Size (10,000-19,999)	23,220	0.11	0.32	0.00	1.00
Size (20,000 and more)	23,220	0.09	0.28	0.00	1.00
Highest degree level (bachelor)	23,220	0.19	0.39	0.00	1.00
Highest degree level (master)	23,220	0.40	0.49	0.00	1.00
Highest degree level (doctoral)	23,220	0.41	0.49	0.00	1.00
Selectivity: low	20,378	0.28	0.45	0.00	1.00
Selectivity: middle-low	20,378	0.24	0.43	0.00	1.00
Selectivity: middle-high	20,378	0.24	0.42	0.00	1.00
Selectivity: high	20,378	0.24	0.43	0.00	1.00
Freshmen tuition (ln)	22,951	9.58	0.81	5.70	10.98

Note: 1. All statistics concern freshmen except for the rate of disabled enrolled students due to data unavailability for each institution; 2. Freshmen tuition and financial aid package are adjusted to 2018 CPI dollars, and these are also transformed into national logarithmic function (ln).

Analytic techniques

This study combined the linear two-way fixed effects regression and Difference-in-Differences (DID) analysis technique for estimating causal effects from panel data. DID assumes that the average outcomes for the treated and control groups would have followed parallel trends over time when the treatment is absent (Abadie, 2005). This assumption indicates that the average of the time-invariant unobserved variables differs between treated and control groups, provided their effects do not change over time. In this study, a parallel trends assumption is plausible because unobserved confounders such as the level of institutional indicators may not have time-varying effects on the targeted outcomes of the study—freshman diversity, quality, and affordability. Additionally, in order to estimate the causal effects of early admissions programs/policies, it was confirmed that each intervention was unrelated to those types of

outcomes at baseline allocation. In other words, the intervention (implementation of the early

admissions programs) was not determined by the outcomes.

The two-way fixed effects model allows for heterogeneity within the treated and control

groups. In generalizing this technique to include multiple treatment and control groups over

multiple time periods, it incorporates two-way fixed effects to control for unobserved time-

invariant differences between institutions and common time trends. To address the research

questions, the following statistical model is specified:

$$(1) \ \ Y_{it} = \alpha + \sum_{i=1}^{N} \alpha_i D_i + \sum_{t=1}^{T} T_t + \delta_{DiD}\left(\widetilde{D}_i * Post_t\right) + X_{it}\beta + \varepsilon_{it}$$

where Y_{it} is each outcome of interest, respective set of 1) diversity, 2) quality, and 3)

affordability, D_i is individual institutions' fixed effects, unit-specific confounders, T_t is a year

fixed effect, $\widetilde{D}_i$ refers to the subset of institutions' fixed effects that are treated, $Post_t$ equals to 1

for treated years, otherwise it is 0, δ_{DiD} is the coefficient of interest that represents the average

treatment on the treated factors of the individual EA, ED, EAD, or EAPs, X_{it} is a matrix of

observed time-varying covariates, and ε_{it} is the error term (exogenous unobserved idiosyncratic

shocks). Assuming the treatment only affects the treated units in the periods following treatment,

the observed outcome can be written as:

$$(2) \ \ Y_{it} = D_{it}Y^1{}_{it} + (1 - D_{it})Y^0{}_{it}$$

A relevant estimate is the average treatment effect on the treated (ATT) for each post-treatment

time period:

$$(3) \ \ \delta_{DiD} = E\left[Y^1{}_{it} - Y^0{}_{it} | D_{it} = 1\right]$$

Additionally, robust standard errors are clustered by institutions to account for

autocorrelation and heteroskedasticity common in panel data analysis for all models (Bertrand et

al., 2004). Moreover, several different comparison groups were created to run a more robust

analysis to provide firm evidence of the robust findings and figure out the differential effects of institutional characteristics, and this proved to be a useful strategy in quasi-experimental design (Meyer, 1995). Other robustness check techniques such as panel event study lagging the treatment were also conducted.

Parallel Trends Assumption

The parallel assumption, in this case, is that the level of each outcome in both the treatment group that implemented early admissions at least once and the control groups that never implemented early admissions should have a parallel trend in outcomes in time periods leading up to treatment year, which is the important premise of this method (Cunningham, 2021). There are several ways to check parallel trends; only showing the comparison with the never treated, especially with differential timing, is actually a misleading presentation of the underlying mechanization of identification using a two-way fixed effects model, since DID includes the combination of a comparison between the early treated and late treated as well as between the treated and the never treated. In the given data of this study, the duration of policy implementation varied wildly, depending on whether institutions stopped and re-started their EAPs and when they first implemented EAPs between the years 2004-2018, for institutions in the treatment group. Recently, these kinds of differences in the variation of treatment timing have been found to be significant and have created controversial issues among statisticians, economists, and scholars (Goodman-Bacon, 2021). Thus, as an alternative or supplemental way of evaluating the parallel assumption and robustness check, researchers suggest that event study plots with leads and lags could be powerfully persuasive. A detailed description and the results of an event study for this study will be presented in the robust check section.

Event study with leads and lags

In contemporary DID design, as in many other presented studies (e.g., Miller et al., 2021), leads and lags in the DID model show both the degree to which the post-treatment effects are dynamic and whether the two groups are comparable in outcome dynamics pre-treatment (Clarke & Tapia Schythe, 2020), even though empirical applications in conducting the panel event study and its evaluation and utilities by scholars and researchers (Cunningham, 2021) have varied. In general, the event study is illustrated as:

(4) $Y_{it} = \alpha + \sum_{i=1}^{N} \alpha_i D_i + \sum_{t=1}^{T} \gamma_t T_t + \sum_{t=1}^{T} \delta_t \left(\widetilde{D}_{it} * T_t \right) + \varepsilon_{it}$

where $\widetilde{D}_{it}$ is an indicator for whether the treatment had switched on in year *t*. In the model, the estimates are the indicated lags and leads of the treatment. Also, in the formula, time is re-centered when the treatment is implemented in each institution, so that time zero is the treatment year for all subjects. In the model, institutions treated later also serve as controls for institutions that are treated early. The event study shows the two groups (treatment vs. control) of units are comparable on dynamics in the pre-treatment period. For the robustness check of this study, event study analyses were conducted when the ATT were statistically significant from the previous main analysis.

Limitations

Although the study contributes to our knowledge of the impact of early admissions policies on freshmen diversity, quality, and affordability with respect to institutional or organizational perspectives, it is also limited due to data availability. First, this study only dealt with the quantitative or fiscal levels of aspects of diversity outcomes. In other words, it does not look at actual interactions between diverse students among freshmen or on campus more generally, nor examine how students create relationships and engage in meaning-making with

peers with diverse identities and backgrounds, avenues that would provide more meaningful findings on diversity. However, promoting a physically heterogeneous environment could be the first step toward progress in creating diverse climates on campus, which in turn promote inclusive practices on campus. In fact, previous studies have found that student body diversity is positively associated with interactions among diverse groups of students, and also encourages greater openness to and understanding of diverse people and students. Also, student body diversity enhances intellectual and social development, and positive perceptions of the campus environment (Chang, 1999; Hu & Kuh, 2003; Pascarella, Palmer, Moye, & Pierson, 2001).

Next, in terms of quality as an aspect of educational excellence, retention rates of freshmen and high school GPA were utilized to measure the quality of freshmen's academic excellence; however, it is possible that retention rates could be affected by other covariates, such as adjustment, sense of belonging, student engagement, or college experiences in freshmen year, which have been shown to be predictors of first-year retention rates but for which data are not available in the IPEDS or ASC datasets. Thus, this study is focused on the impact of early admissions at the institutional level; in contrast, student-level data would be a great alternative means to reveal the relationship between other significant covariates and retention rates in a future study to complement the results of this one.

Concerning the affordability outcome, direct information indicating freshman family income, such as low-income status or Pell grant eligibility, is not available in the datasets; thus, this study utilized indirect information (e.g., the rate of freshmen with demonstrable need, the amount of financial packages received, etc.) which also contains students' financial status and challenges. Some of these variables could differ according to the financial status and resources of

each institution; however, longitudinal and multifaceted examinations of average "affordability" at the institutional level could diminish such measurement issues.

<div align="center">Results</div>

Impact of early admissions policies on diversity

In terms of gender diversity in freshmen, when other institutional observable covariates and the time-specific (year) and unit-specific (institution) effects were considered in the analytic models (full model, see Tables 12a – 12d), implementation of EAPs (any type of EA, ED or EAD) was revealed to produce a 0.3% decrease in male college applicants and a 0.3% decrease in male college admittance but, again, a 0.3% increase in female admittance. Implementation of EAD (both EA and ED) had a statistically significant impact, yielding a 0.7% increase in female applicants, a 0.9% increase in female admittance, and a 1.1% increase in female enrollment; meanwhile, EAD was associated with a 0.9% decrease in males admitted to colleges. However, EA and ED, respectively, appear to have no significant impact on gender diversity.

Table 12a. Impact of EA on Diversity (gender), 2004-2018

Variables	Applied male rate	Applied female rate	Admitted male rate	Admitted female rate	Enrolled male rate	Enrolled female rate
EA Treatment	-0.003	0.001	-0.003	0.002	-0.002	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Location (suburb)	0.000	0.001	-0.001	0.002	0.007	-0.006
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Location (town)	0.002	-0.002	-0.001	0.001	0.007	-0.007
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Location (rural)	0.000	-0.004	0.003	-0.007	0.009	-0.017+
	(0.008)	(0.008)	(0.008)	(0.008)	(0.010)	(0.009)
Size (1,000-4,999)	0.002	-0.002	-0.001	0.001	-0.001	0.001
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Size (5,000-9,999)	-0.009*	0.008*	-0.012**	0.011**	-0.010*	0.011*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Size (10,000-19,999)	-0.015**	0.014**	-0.017**	0.016**	-0.014*	0.016**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Size (20,000 and more)	-0.020**	0.021**	-0.029***	0.028***	-0.024**	0.027***
	(0.006)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
Highest degree level (master)	0.008***	-0.009***	0.009***	-0.009***	0.014***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Highest degree level (doctoral)	0.008**	-0.009**	0.008*	-0.009**	0.012***	-0.011**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Selectivity: middle-low	-0.004**	0.004**	-0.004***	0.004**	-0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Selectivity: middle-high	-0.006***	0.005***	-0.005**	0.005**	-0.004*	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Selectivity: high	-0.006**	0.006**	-0.006*	0.005*	-0.006*	0.005*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
2005	-0.003+	0.002	-0.002	0.001	0.001	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2006	-0.002	0.000	0.001	-0.002	0.006**	-0.009***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2007	0.002	-0.004*	0.003	-0.004*	0.007**	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2008	0.003+	-0.004*	0.004+	-0.005*	0.009***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2009	0.004*	-0.005**	0.005*	-0.005**	0.008***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)

2010	0.003	-0.005*	0.004+	-0.005*	0.010***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2011	0.001	-0.004*	0.002	-0.004*	0.012***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2012	0.001	-0.002	0.001	-0.002	0.011***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2013	0.001	-0.003	0.001	-0.002	0.011***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2014	-0.000	-0.001	-0.002	0.001	0.010***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2015	-0.000	-0.001	-0.002	0.001	0.012***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2016	-0.005**	0.003	-0.007***	0.005**	0.009***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2017	-0.002	-0.001	-0.003+	0.002	0.013***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2018	-0.005**	0.004*	-0.006**	0.005**	0.012***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.427***	0.576***	0.428***	0.578***	0.431***	0.573***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Observations	15618	15630	15537	15604	15545	15633

Note: Standard errors are clustered by individual institutions.

1) $p<.10$+, $p<.05$ *, $p<.01$**, $p<.001$***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 12b. Impact of ED on Diversity (gender), 2004-2018

Variables	Applied male rate	Applied female rate	Admitted male rate	Admitted female rate	Enrolled male rate	Enrolled female rate
ED Treatment	-0.001	0.002	-0.002	0.002	0.001	-0.004
	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)
Location (suburb)	0.001	-0.000	0.001	0.001	0.007	-0.006
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Location (town)	0.004	-0.004	0.004	-0.004	0.011+	-0.011+
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Location (rural)	0.003	-0.008	0.005	-0.010	0.014	-0.017+
	(0.009)	(0.008)	(0.009)	(0.009)	(0.011)	(0.010)
Size (1,000-4,999)	0.003	-0.003	-0.000	0.001	-0.001	0.002
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Size (5,000-9,999)	-0.006+	0.007+	-0.010**	0.010*	-0.012**	0.014**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Size (10,000-19,999)	-0.009+	0.010+	-0.012*	0.011*	-0.016*	0.022***
	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.006)
Size (20,000 and more)	-0.015*	0.016*	-0.024**	0.023**	-0.029***	0.036***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.009)
Highest degree level (master)	0.009***	-0.010***	0.010***	-0.011***	0.016***	-0.015***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Highest degree level (doctoral)	0.008*	-0.009**	0.009**	-0.010**	0.015***	-0.014***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Selectivity: middle-low	-0.004***	0.004***	-0.005***	0.004**	-0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Selectivity: middle-high	-0.006***	0.006***	-0.005**	0.005**	-0.004*	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Selectivity: high	-0.006**	0.006**	-0.006*	0.005+	-0.006*	0.005+
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
2005	-0.003+	0.002	-0.002	0.001	0.001	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2006	-0.002	0.000	0.001	-0.001	0.006*	-0.007***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2007	0.002	-0.004*	0.002	-0.004*	0.007**	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)

2008	0.003+	-0.004*	0.003+	-0.005*	0.009***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2009	0.004*	-0.006**	0.005**	-0.006**	0.008***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2010	0.003+	-0.005*	0.003	-0.004*	0.009***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2011	0.002	-0.004*	0.001	-0.004*	0.011***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2012	0.001	-0.003	0.001	-0.002	0.012***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2013	0.001	-0.002	0.000	-0.001	0.010***	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2014	-0.000	-0.001	-0.002	0.001	0.010***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2015	-0.000	-0.001	-0.002	0.001	0.012***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2016	-0.005*	0.003	-0.007***	0.005**	0.009***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2017	-0.000	-0.002	-0.002	0.001	0.014***	-0.016***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2018	-0.005*	0.003+	-0.006**	0.005*	0.012***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.426***	0.576***	0.425***	0.580***	0.431***	0.571***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Observations	14402	14418	14335	14398	14339	14425

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 12c. Impact of EAD on Diversity (gender), 2004-2018

Variables	Applied male rate	Applied female rate	Admitted male rate	Admitted female rate	Enrolled male rate	Enrolled female rate
EAD treatment	-0.006	0.007+	-0.009*	0.009*	-0.009	0.011*
	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
Location (suburb)	0.002	-0.001	0.001	0.000	0.008	-0.007
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Location (town)	0.001	-0.002	-0.000	-0.000	0.008	-0.008
	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.006)
Location (rural)	0.000	-0.005	0.001	-0.006	0.011	-0.014
	(0.009)	(0.008)	(0.009)	(0.009)	(0.011)	(0.010)
Size (1,000-4,999)	0.002	-0.001	-0.002	0.002	-0.003	0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Size (5,000-9,999)	-0.009*	0.009*	-0.013**	0.012**	-0.015**	0.017***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Size (10,000-19,999)	-0.012*	0.012*	-0.014*	0.013*	-0.017*	0.021**
	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)
Size (20,000 and more)	-0.018*	0.019**	-0.024**	0.024**	-0.029***	0.034***
	(0.007)	(0.007)	(0.008)	(0.008)	(0.009)	(0.009)
Highest degree level (master)	0.009***	-0.010***	0.010***	-0.011***	0.017***	-0.015***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Highest degree level (doctoral)	0.008**	-0.009**	0.009**	-0.010**	0.015***	-0.014***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Selectivity: middle-low	-0.004**	0.004**	-0.004**	0.004**	-0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Selectivity: middle-high	-0.005***	0.005***	-0.005**	0.005**	-0.004+	0.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Selectivity: high	-0.006**	0.006**	-0.005*	0.004+	-0.004	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
2005	-0.003+	0.002	-0.003	0.001	0.001	-0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2006	-0.001	-0.000	0.001	-0.002	0.007**	-0.009***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2007	0.003	-0.004*	0.003	-0.005*	0.008***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2008	0.003+	-0.004*	0.004+	-0.005**	0.010***	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2009	0.005**	-0.007***	0.006**	-0.007***	0.009***	-0.011***

	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2010	0.003+	-0.005**	0.004+	-0.005*	0.010***	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2011	0.002	-0.005**	0.002	-0.005*	0.012***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2012	0.001	-0.003+	0.002	-0.003	0.013***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2013	0.001	-0.003	0.001	-0.002	0.011***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2014	0.000	-0.001	-0.001	0.001	0.011***	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2015	-0.000	-0.002	-0.001	0.001	0.013***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2016	-0.004+	0.002	-0.006**	0.004*	0.011***	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2017	0.001	-0.004+	-0.001	-0.000	0.016***	-0.018***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2018	-0.004*	0.002	-0.005*	0.004+	0.014***	-0.016***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.427***	0.575***	0.427***	0.578***	0.432***	0.571***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Observations	14308	14324	14227	14297	14230	14325

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 12d. Impact of EAPs on Diversity (gender), 2004-2018

Variables	Applied male rate	Applied female rate	Admitted male rate	Admitted female rate	Enrolled male rate	Enrolled female rate
EAPs Treatment	-0.003*	0.002	-0.003*	0.003+	-0.002	0.001
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Location (suburb)	-0.001	0.002	-0.001	0.002	0.006	-0.005
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)
Location (town)	0.001	-0.001	0.001	-0.002	0.008	-0.009
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Location (rural)	-0.000	-0.004	0.005	-0.009	0.011	-0.019*
	(0.007)	(0.007)	(0.008)	(0.008)	(0.009)	(0.009)
Size (1,000-4,999)	0.003	-0.004	-0.000	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Size (5,000-9,999)	-0.007*	0.007+	-0.011**	0.010**	-0.009*	0.010*
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Size (10,000-19,999)	-0.012**	0.012*	-0.015**	0.014**	-0.013*	0.016**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)
Size (20,000 and more)	-0.018**	0.018**	-0.028***	0.028***	-0.026***	0.029***
	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.008)
Highest degree level (master)	0.008***	-0.009***	0.009***	-0.010***	0.015***	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Highest degree level (doctoral)	0.008**	-0.009**	0.007*	-0.009**	0.013***	-0.013***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
Selectivity: middle-low	-0.004**	0.004**	-0.004**	0.004**	-0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Selectivity: middle-high	-0.006***	0.006***	-0.005**	0.005**	-0.005*	0.004*
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Selectivity: high	-0.006**	0.006**	-0.006*	0.005*	-0.005+	0.004
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
2005	-0.003+	0.001	-0.002	0.001	0.001	-0.004+
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2006	-0.002	0.000	0.000	-0.002	0.006**	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2007	0.002	-0.004*	0.002	-0.004*	0.007***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2008	0.003	-0.004*	0.003+	-0.005**	0.009***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2009	0.004*	-0.005**	0.005*	-0.006**	0.009***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)

2010	0.003+	-0.005**	0.004*	-0.005**	0.011***	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2011	0.001	-0.004*	0.002	-0.005*	0.011***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2012	0.001	-0.003	0.001	-0.002	0.011***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2013	0.001	-0.002	0.001	-0.002	0.011***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2014	-0.000	-0.001	-0.002	0.001	0.011***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2015	-0.000	-0.001	-0.002	0.001	0.013***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2016	-0.005**	0.003	-0.007***	0.005**	0.009***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2017	-0.001	-0.001	-0.003+	0.002	0.013***	-0.014***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
2018	-0.005**	0.004*	-0.006**	0.005**	0.012***	-0.013***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.429***	0.574***	0.429***	0.578***	0.432***	0.573***
	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
Observations	16169	16190	16086	16157	16090	16188

Note: Standard errors are clustered by individual institutions.

1) $p<.10+$, $p<.05$ *, $p<.01$**, $p<.001$***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Next, in terms of racial/ethnic diversity, in the full model (see Tables 13a – 13d), when other institutional observable covariates and the time and unit fixed effects were considered, EAPs had a significant impact—a 0.6% increase in enrolled White freshmen and a 0.3% decrease in Black freshmen enrollment. The implementation of EAD was found to produce a 1.5% increase in White freshmen enrollment, a 0.4% increase in Asian freshmen enrollment, and a 0.6% decrease in Hispanic freshmen enrollment. In addition, EA implementation appeared to have no significant impact on racial/ethnic diversity. However, ED implementation had the significant impact of a 2.6% increase in White freshmen enrollment but a 1.2% decrease in Black freshmen enrollment, along with a 0.4% increase in Asian freshmen enrollment and a 0.5% decrease in Hispanic freshmen enrollment.

Table 13a. Impact of EA on Diversity (race/ethnicity), 2004-2018

Variables	Enrolled White rate	Enrolled Black rate	Enrolled Asian/Pacific Islander rate	Enrolled Hispanic rate	Enrolled American Indian/Alaska Native rate	Enrolled Natie Hawaiian rate	Enrolled multi-race rate
EA treatment	0.002	-0.002	0.000	0.002	0.001	-0.000	-0.002
	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.002)
Location (suburb)	0.001	0.005	0.001	-0.017***	-0.004**	0.002	0.003
	(0.007)	(0.004)	(0.002)	(0.003)	(0.001)	(0.010)	(0.004)
Location (town)	-0.001	0.013*	-0.001	-0.019***	-0.004*	0.009	0.000
	(0.009)	(0.005)	(0.003)	(0.004)	(0.002)	(0.014)	(0.005)
Location (rural)	-0.000	0.036***	-0.002	-0.011	-0.004	0.008	0.010
	(0.016)	(0.009)	(0.006)	(0.007)	(0.003)	(0.052)	(0.011)
Size (1,000-4,999)	-0.017**	0.005	-0.000	-0.005*	-0.000	0.005	-0.005+
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.011)	(0.003)
Size (5,000-9,999)	-0.033***	0.012**	0.001	-0.005	0.000	0.008	-0.005
	(0.007)	(0.004)	(0.002)	(0.003)	(0.002)	(0.013)	(0.004)
Size (10,000-19,999)	-0.030**	0.006	0.002	0.002	0.000	0.009	-0.019***
	(0.009)	(0.005)	(0.003)	(0.004)	(0.002)	(0.016)	(0.005)
Size (20,000 and more)	-0.028*	0.005	0.012**	0.009	0.001	0.010	-0.023**
	(0.012)	(0.007)	(0.004)	(0.005)	(0.002)	(0.019)	(0.007)
Highest degree level (master)	-0.026***	0.016***	-0.001	-0.001	0.002	-0.030**	-0.001
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.011)	(0.003)
Highest degree level (doctoral)	-0.027***	0.021***	-0.001	0.003	0.001	-0.055***	0.002
	(0.006)	(0.003)	(0.002)	(0.003)	(0.001)	(0.013)	(0.004)
Selectivity: middle-low	0.016***	-0.014***	0.001	-0.003**	-0.000	0.003	0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.003)	(0.001)
Selectivity: middle-high	0.021***	-0.022***	0.003**	-0.006***	-0.001	-0.003	0.002
	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.001)
Selectivity: high	0.025***	-0.030***	0.005***	-0.010***	-0.001	-0.004	0.003
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.006)	(0.002)
2005	-0.007+	0.000	0.000	0.005**	-0.001		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2006	-0.016***	0.002	0.003*	0.005***	0.000		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2007	-0.027***	0.004*	0.002*	0.009***	-0.000		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2008	-0.037***	0.006**	0.002	0.012***	0.000		

	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2009	-0.053***	0.010***	0.003*	0.016***	0.000		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2010	-0.065***	0.008***	-0.003**	0.025***	-0.001*		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2011	-0.076***	0.011***	-0.002+	0.031***	-0.002**		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2012	-0.091***	0.012***	-0.000	0.037***	-0.002***		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2013	-0.097***	0.010***	0.001	0.043***	-0.003***	0.002	0.001
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2014	-0.101***	0.012***	0.002+	0.047***	-0.003***	-0.000	0.002*
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2015	-0.113***	0.011***	0.001	0.054***	-0.003***	0.000	0.003***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2016	-0.117***	0.011***	0.001	0.058***	-0.001*	0.001	0.005***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2017	-0.128***	0.015***	0.001	0.065***	-0.002***	0.004	0.008***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2018	-0.134***	0.015***	0.003**	0.068***	-0.003***	0.001	0.010***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
Constant	0.736***	0.107***	0.042***	0.080***	0.015***	0.040*	0.043***
	(0.009)	(0.005)	(0.003)	(0.004)	(0.002)	(0.019)	(0.006)
Observations	12709	12625	11829	12509	10001	3128	5534

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 13b. Impact of ED on Diversity (race/ethnicity), 2004-2018

Variables	Enrolled White rate	Enrolled Black rate	Enrolled Asian/Pacific Islander rate	Enrolled Hispanic rate	Enrolled American Indian/Alaska Native rate	Enrolled Natie Hawaiian rate	Enrolled multi-race rate
ED treatment	0.026***	-0.012**	-0.004*	-0.005+	0.000	0.002	0.001
	(0.006)	(0.004)	(0.002)	(0.003)	(0.001)	(0.012)	(0.003)
Location (suburb)	-0.011	0.001	0.001	-0.008*	-0.005**	0.002	0.003
	(0.008)	(0.004)	(0.002)	(0.003)	(0.002)	(0.012)	(0.004)
Location (town)	-0.004	0.009+	-0.000	-0.013**	-0.005**	0.010	0.000
	(0.010)	(0.006)	(0.003)	(0.004)	(0.002)	(0.016)	(0.005)
Location (rural)	-0.004	0.043***	-0.001	-0.001	-0.005	0.000	0.025+
	(0.018)	(0.010)	(0.006)	(0.008)	(0.004)	(.)	(0.013)
Size (1,000-4,999)	-0.010+	0.005	-0.000	-0.004	-0.001	0.006	-0.005+
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.013)	(0.003)
Size (5,000-9,999)	-0.023**	0.014***	-0.000	-0.006+	-0.001	0.009	-0.004
	(0.008)	(0.004)	(0.002)	(0.003)	(0.002)	(0.016)	(0.004)
Size (10,000-19,999)	-0.012	0.005	0.001	0.000	-0.000	0.010	-0.018**
	(0.010)	(0.006)	(0.003)	(0.004)	(0.002)	(0.018)	(0.006)
Size (20,000 and more)	-0.013	0.002	0.012**	0.002	0.001	0.011	-0.019*
	(0.013)	(0.007)	(0.004)	(0.006)	(0.003)	(0.021)	(0.008)
Highest degree level (master)	-0.028***	0.018***	0.000	-0.002	0.001	-0.034**	-0.002
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.013)	(0.003)
Highest degree level (doctoral)	-0.030***	0.023***	0.002	-0.000	0.000	-0.063***	-0.004
	(0.006)	(0.003)	(0.002)	(0.003)	(0.001)	(0.015)	(0.004)
Selectivity: middle-low	0.016***	-0.015***	0.001	-0.003**	-0.000	0.003	0.001
	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)	(0.001)
Selectivity: middle-high	0.021***	-0.023***	0.004***	-0.006***	-0.001	-0.004	0.001
	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.005)	(0.001)
Selectivity: high	0.026***	-0.030***	0.006***	-0.009***	-0.001	-0.004	0.003
	(0.004)	(0.003)	(0.001)	(0.002)	(0.001)	(0.007)	(0.002)

2005	-0.007+	0.001	0.000	0.005**	-0.001		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2006	-0.018***	0.003	0.003*	0.007***	-0.000		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2007	-0.027***	0.005*	0.002+	0.010***	-0.000		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2008	-0.037***	0.008***	0.002	0.012***	0.000		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2009	-0.054***	0.011***	0.002*	0.016***	0.000		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2010	-0.066***	0.009***	-0.003**	0.026***	-0.001+		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2011	-0.076***	0.013***	-0.002+	0.032***	-0.002*		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2012	-0.090***	0.012***	-0.001	0.037***	-0.002***		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2013	-0.097***	0.011***	0.000	0.043***	-0.003***	0.002	0.001
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2014	-0.101***	0.012***	0.002	0.047***	-0.003***	-0.000	0.003*
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2015	-0.112***	0.011***	0.001	0.053***	-0.003***	0.000	0.003**
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2016	-0.117***	0.012***	0.001	0.058***	-0.001+	0.001	0.006***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2017	-0.128***	0.016***	-0.000	0.064***	-0.002**	0.005	0.008***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2018	-0.132***	0.016***	0.003*	0.067***	-0.003***	0.001	0.009***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
Constant	0.733***	0.110***	0.040***	0.077***	0.017***	0.046*	0.045***
	(0.010)	(0.005)	(0.003)	(0.004)	(0.002)	(0.021)	(0.006)
Observations	11629	11539	10777	11439	9102	2692	4837

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 13c. Impact of EAD on Diversity (race/ethnicity), 2004-2018

Variables	Enrolled White rate	Enrolled Black rate	Enrolled Asian/Pacific Islander rate	Enrolled Hispanic rate	Enrolled American Indian/Alaska Native rate	Enrolled Natie Hawaiian rate	Enrolled multi-race rate
EAD treatment	0.015+	-0.002	0.004+	-0.006+	-0.000	-0.002	0.001
	(0.008)	(0.005)	(0.002)	(0.004)	(0.002)	(0.019)	(0.004)
Location (suburb)	-0.006	-0.001	0.002	-0.010**	-0.005**	0.002	0.003
	(0.008)	(0.005)	(0.002)	(0.003)	(0.002)	(0.012)	(0.004)
Location (town)	-0.007	0.008	0.000	-0.016***	-0.005*	0.010	0.001
	(0.010)	(0.006)	(0.003)	(0.004)	(0.002)	(0.016)	(0.005)
Location (rural)	-0.015	0.040***	0.000	-0.003	-0.005	0.000	0.030**
	(0.017)	(0.010)	(0.006)	(0.007)	(0.004)	(.)	(0.011)
Size (1,000-4,999)	-0.015**	0.004	-0.001	-0.005+	-0.000	0.006	-0.005
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.013)	(0.003)
Size (5,000-9,999)	-0.026***	0.014**	-0.000	-0.007*	-0.000	0.009	-0.003
	(0.008)	(0.004)	(0.002)	(0.003)	(0.002)	(0.015)	(0.004)
Size (10,000-19,999)	-0.019+	0.003	0.001	-0.000	0.000	0.010	-0.018**
	(0.010)	(0.006)	(0.003)	(0.005)	(0.002)	(0.018)	(0.006)
Size (20,000 and more)	-0.020	-0.000	0.012**	0.003	0.002	0.011	-0.020**
	(0.013)	(0.008)	(0.004)	(0.006)	(0.003)	(0.022)	(0.008)
Highest degree level (master)	-0.025***	0.017***	0.000	-0.001	0.001	-0.036**	-0.003
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.013)	(0.003)
Highest degree level (doctoral)	-0.024***	0.022***	0.002	0.000	-0.000	-0.066***	-0.003
	(0.006)	(0.004)	(0.002)	(0.003)	(0.001)	(0.015)	(0.004)
Selectivity: middle-low	0.016***	-0.015***	0.001	-0.003**	-0.001	0.003	0.001
	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.001)
Selectivity: middle-high	0.022***	-0.022***	0.003**	-0.006***	-0.001	-0.004	0.001
	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.005)	(0.001)
Selectivity: high	0.026***	-0.031***	0.005***	-0.008***	-0.001	-0.004	0.002
	(0.004)	(0.003)	(0.001)	(0.002)	(0.001)	(0.007)	(0.002)
2005	-0.006	0.001	0.001	0.005**	-0.001		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2006	-0.016***	0.003	0.002*	0.006***	-0.000		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2007	-0.027***	0.003	0.002+	0.010***	-0.000		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2008	-0.037***	0.006**	0.001	0.013***	0.000		

	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2009	-0.054***	0.011***	0.002*	0.016***	0.000		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2010	-0.066***	0.008***	-0.003**	0.026***	-0.001		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2011	-0.076***	0.012***	-0.002+	0.032***	-0.002*		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2012	-0.090***	0.012***	-0.001	0.037***	-0.002**		
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)		
2013	-0.097***	0.010***	0.000	0.043***	-0.003***	0.002	0.001
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2014	-0.102***	0.012***	0.001	0.047***	-0.003***	-0.000	0.003*
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2015	-0.112***	0.011***	0.001	0.053***	-0.003***	0.000	0.003**
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2016	-0.116***	0.011***	0.000	0.057***	-0.001+	0.001	0.006***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2017	-0.128***	0.016***	-0.000	0.064***	-0.002**	0.005	0.007***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2018	-0.132***	0.016***	0.003*	0.067***	-0.003***	0.001	0.009***
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
Constant	0.736***	0.114***	0.039***	0.078***	0.016***	0.048*	0.044***
	(0.010)	(0.006)	(0.003)	(0.004)	(0.002)	(0.021)	(0.006)
Observations	11570	11498	10729	11390	9036	2786	4991

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 13d. Impact of EAPs on Diversity (race/ethnicity), 2004-2018

Variables	Enrolled White rate	Enrolled Black rate	Enrolled Asian/Pacific Islander rate	Enrolled Hispanic rate	Enrolled American Indian/Alaska Native rate	Enrolled Natie Hawaiian rate	Enrolled multi-race rate
EAPs treatment	0.006*	-0.003*	-0.000	0.000	0.001	0.000	-0.001
	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.001)
Location (suburb)	0.003	0.002	0.000	-0.016***	-0.004**	0.002	0.003
	(0.007)	(0.004)	(0.002)	(0.003)	(0.001)	(0.010)	(0.004)
Location (town)	0.006	0.011*	-0.001	-0.017***	-0.004*	0.009	0.000
	(0.009)	(0.005)	(0.003)	(0.004)	(0.002)	(0.014)	(0.005)
Location (rural)	0.000	0.035***	-0.001	-0.008	-0.005	0.008	0.019*
	(0.015)	(0.009)	(0.005)	(0.007)	(0.003)	(0.051)	(0.009)
Size (1,000-4,999)	-0.013**	0.004	-0.001	-0.004+	-0.000	0.005	-0.006+
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.011)	(0.003)
Size (5,000-9,999)	-0.025***	0.010*	0.001	-0.006+	-0.000	0.008	-0.006+
	(0.007)	(0.004)	(0.002)	(0.003)	(0.001)	(0.013)	(0.004)
Size (10,000-19,999)	-0.021*	0.001	0.002	0.000	-0.000	0.009	-0.019***
	(0.009)	(0.005)	(0.003)	(0.004)	(0.002)	(0.016)	(0.005)
Size (20,000 and more)	-0.020+	-0.001	0.011**	0.007	0.001	0.009	-0.023***
	(0.012)	(0.007)	(0.004)	(0.005)	(0.002)	(0.018)	(0.007)
Highest degree level (master)	-0.025***	0.016***	-0.000	-0.000	0.002	-0.029**	-0.001
	(0.005)	(0.003)	(0.002)	(0.002)	(0.001)	(0.011)	(0.003)
Highest degree level (doctoral)	-0.026***	0.020***	-0.001	0.005+	0.001	-0.054***	0.001
	(0.006)	(0.003)	(0.002)	(0.003)	(0.001)	(0.013)	(0.004)
Selectivity: middle-low	0.016***	-0.014***	0.001	-0.004***	-0.000	0.003	0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.000)	(0.003)	(0.001)
Selectivity: middle-high	0.022***	-0.022***	0.003**	-0.006***	-0.001	-0.003	0.002
	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.001)
Selectivity: high	0.026***	-0.032***	0.006***	-0.010***	-0.001	-0.004	0.003
	(0.004)	(0.002)	(0.001)	(0.002)	(0.001)	(0.006)	(0.002)
2005	-0.007*	0.000	0.000	0.004**	-0.000		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2006	-0.017***	0.002	0.003**	0.005***	-0.000		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2007	-0.027***	0.003	0.002*	0.008***	-0.000		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2008	-0.037***	0.005**	0.002*	0.011***	0.000		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2009	-0.053***	0.010***	0.003**	0.015***	0.000		

	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2010	-0.066***	0.008***	-0.003**	0.025***	-0.001*		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2011	-0.077***	0.011***	-0.002	0.031***	-0.002**		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2012	-0.091***	0.012***	-0.000	0.036***	-0.002***		
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)		
2013	-0.098***	0.011***	0.001	0.042***	-0.002***	0.002	0.002+
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
2014	-0.102***	0.012***	0.003*	0.046***	-0.003***	-0.000	0.003**
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2015	-0.113***	0.012***	0.002*	0.052***	-0.003***	0.000	0.004***
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2016	-0.117***	0.012***	0.001	0.058***	-0.001*	0.001	0.005***
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2017	-0.128***	0.016***	0.001	0.064***	-0.002**	0.004	0.008***
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
2018	-0.133***	0.016***	0.004***	0.067***	-0.003***	0.001	0.010***
	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)
Constant	0.725***	0.112***	0.042***	0.078***	0.015***	0.039*	0.044***
	(0.009)	(0.005)	(0.003)	(0.004)	(0.002)	(0.018)	(0.006)
Observations	13156	13064	12246	12951	10352	3187	5680

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

In terms of contextual diversity, including regional and non-traditional aspects—out-of-state freshmen, nonresident alien (international) freshmen, aged freshmen, and enrolled students with disabilities, in the full model (see Table 14a – 14d), EAPs yielded a statistically significant impact of a 0.003 increase in the rate (0.3%) of nonresident alien freshmen, a 0.747% increase in the out-of-state freshmen, and a 0.003% decrease in disabled students. Similarly, EAD was associated with a 0.008 increase in the rate (0.8%) of nonresident alien freshmen, a 1.336% increase in the number of freshmen from out-of-state, and a 0.008% decrease in disabled students. Meanwhile, EA-only policies had the statistically significant effect of a 0.003 increase in the rate (0.3%) of nonresident alien (international students) freshmen and a 0.004% decrease in disabled students enrolled in these colleges. ED-only policies had a statistically significant impact of a 1.839% increase on the number of out-of-state freshmen. Those were also the results when other institutional observable covariates and the time and unit fixed effects were considered in the analytic models.

Table 14a. Impact of EA on Diversity (contextual), 2004-2018

Variables	Enrolled part-time rate	Enrolled non-resident alien rate	Percent enrolled out-of-state	Average age	Percent disabled student
EA treatment	0.000	0.003**	0.378	-0.019	-0.004*
	(0.002)	(0.001)	(0.265)	(0.031)	(0.002)
Location (suburb)	0.001	-0.002	2.628***	0.071	0.001
	(0.005)	(0.003)	(0.631)	(0.074)	(0.005)
Location (town)	0.009	-0.007*	3.907***	0.363***	0.014*
	(0.006)	(0.003)	(0.794)	(0.095)	(0.006)
Location (rural)	0.004	-0.007	2.153+	0.168	0.014
	(0.009)	(0.006)	(1.227)	(0.155)	(0.009)
Size (1,000-4,999)	0.010**	-0.006**	0.547	0.070	-0.006*
	(0.003)	(0.002)	(0.400)	(0.047)	(0.003)
Size (5,000-9,999)	0.019***	0.000	1.449*	0.187**	-0.006
	(0.004)	(0.003)	(0.590)	(0.069)	(0.004)
Size (10,000-19,999)	0.020***	0.004	1.125	0.217*	0.003
	(0.006)	(0.004)	(0.818)	(0.096)	(0.007)
Size (20,000 and more)	0.040***	0.000	3.220**	0.239+	0.007
	(0.008)	(0.004)	(1.081)	(0.124)	(0.009)
Highest degree level (master)	0.002	0.003	0.341	-0.066	-0.007*
	(0.003)	(0.002)	(0.382)	(0.045)	(0.003)
Highest degree level (doctoral)	0.001	-0.003	-0.681	-0.095+	-0.011**
	(0.004)	(0.002)	(0.480)	(0.056)	(0.004)
Selectivity: middle-low	-0.004**	0.001	0.053	-0.055*	-0.001
	(0.001)	(0.001)	(0.201)	(0.023)	(0.001)
Selectivity: middle-high	-0.007***	0.005***	0.590*	-0.073*	-0.003+
	(0.002)	(0.001)	(0.255)	(0.030)	(0.002)
Selectivity: high	-0.007**	0.014***	0.565	-0.088*	-0.000
	(0.003)	(0.002)	(0.351)	(0.041)	(0.002)
2005	-0.005*	0.002	0.162	-0.047	
	(0.002)	(0.001)	(0.298)	(0.035)	
2006	-0.001	0.003**	0.464	-0.062+	
	(0.002)	(0.001)	(0.298)	(0.035)	
2007	-0.006**	0.004***	0.515+	-0.132***	
	(0.002)	(0.001)	(0.297)	(0.035)	
2008	-0.008***	0.006***	0.661*	-0.095**	
	(0.002)	(0.001)	(0.298)	(0.035)	
2009	-0.011***	0.005***	0.542+	-0.156***	
	(0.002)	(0.001)	(0.298)	(0.035)	

2010	-0.009***	0.007***	0.986***	-0.143***	0.002
	(0.002)	(0.001)	(0.298)	(0.035)	(0.002)
2011	-0.012***	0.010***	1.563***	-0.176***	0.003+
	(0.002)	(0.001)	(0.298)	(0.035)	(0.002)
2012	-0.011***	0.015***	1.633***	-0.231***	0.006***
	(0.002)	(0.001)	(0.299)	(0.035)	(0.002)
2013	-0.013***	0.017***	1.798***	-0.256***	0.008***
	(0.002)	(0.001)	(0.299)	(0.035)	(0.002)
2014	-0.016***	0.019***	1.847***	-0.236***	0.009***
	(0.002)	(0.001)	(0.301)	(0.035)	(0.002)
2015	-0.015***	0.020***	1.974***	-0.254***	0.013***
	(0.002)	(0.001)	(0.302)	(0.035)	(0.002)
2016	-0.015***	0.020***	2.677***	-0.303***	0.015***
	(0.002)	(0.001)	(0.304)	(0.035)	(0.002)
2017	-0.013***	0.017***	2.427***	-0.300***	0.020***
	(0.002)	(0.001)	(0.304)	(0.035)	(0.002)
2018	-0.013***	0.017***	2.725***	-0.319***	0.025***
	(0.002)	(0.001)	(0.304)	(0.035)	(0.002)
Constant	0.022***	0.022***	21.993***	18.590***	0.060***
	(0.006)	(0.004)	(0.757)	(0.089)	(0.006)
Observations	14890	11109	15224	15177	4105

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 14b. Impact of ED on Diversity (contextual), 2004-2018

Variables	Enrolled part-time rate	Enrolled non-resident alien rate	Percent enrolled out-of-state	Average age	Percent disabled student
ED treatment	0.004	0.000	1.839***	0.088	0.002
	(0.004)	(0.002)	(0.531)	(0.062)	(0.003)
Location (suburb)	0.003	-0.003	2.629***	0.106	-0.001
	(0.005)	(0.003)	(0.668)	(0.078)	(0.006)
Location (town)	0.011+	-0.004	3.542***	0.397***	0.013*
	(0.006)	(0.003)	(0.813)	(0.097)	(0.006)
Location (rural)	-0.003	-0.006	2.794*	0.224	0.014
	(0.010)	(0.007)	(1.335)	(0.171)	(0.011)
Size (1,000-4,999)	0.009**	-0.007***	0.871*	0.063	-0.005+
	(0.003)	(0.002)	(0.413)	(0.049)	(0.003)
Size (5,000-9,999)	0.019***	-0.002	1.595**	0.171*	-0.005
	(0.005)	(0.003)	(0.618)	(0.072)	(0.005)
Size (10,000-19,999)	0.012+	0.003	1.539+	0.173+	0.007
	(0.006)	(0.004)	(0.858)	(0.101)	(0.008)
Size (20,000 and more)	0.021**	-0.001	4.129***	0.172	0.009
	(0.008)	(0.005)	(1.157)	(0.132)	(0.010)
Highest degree level (master)	0.003	0.002	0.389	-0.063	-0.009**
	(0.003)	(0.002)	(0.399)	(0.047)	(0.004)
Highest degree level (doctoral)	0.003	-0.003	-0.576	-0.061	-0.018***
	(0.004)	(0.002)	(0.502)	(0.059)	(0.004)
Selectivity: middle-low	-0.004*	0.002	0.078	-0.040+	-0.000
	(0.002)	(0.001)	(0.208)	(0.024)	(0.001)
Selectivity: middle-high	-0.006**	0.005***	0.641*	-0.069*	-0.002
	(0.002)	(0.001)	(0.263)	(0.031)	(0.002)
Selectivity: high	-0.006*	0.013***	0.586	-0.100*	-0.000
	(0.003)	(0.002)	(0.369)	(0.043)	(0.003)
2005	-0.005*	0.002	0.184	-0.042	
	(0.002)	(0.001)	(0.300)	(0.035)	
2006	-0.001	0.003**	0.324	-0.087*	
	(0.002)	(0.001)	(0.302)	(0.035)	
2007	-0.007**	0.005***	0.412	-0.138***	
	(0.002)	(0.001)	(0.302)	(0.035)	
2008	-0.008***	0.006***	0.532+	-0.086*	
	(0.002)	(0.001)	(0.303)	(0.035)	
2009	-0.010***	0.005***	0.569+	-0.151***	
	(0.002)	(0.001)	(0.305)	(0.035)	

2010	-0.010***	0.007***	1.034***	-0.123***	0.002
	(0.002)	(0.001)	(0.306)	(0.036)	(0.002)
2011	-0.013***	0.009***	1.524***	-0.152***	0.003+
	(0.002)	(0.001)	(0.307)	(0.036)	(0.002)
2012	-0.011***	0.014***	1.606***	-0.214***	0.005**
	(0.002)	(0.001)	(0.308)	(0.036)	(0.002)
2013	-0.013***	0.016***	1.813***	-0.244***	0.007***
	(0.002)	(0.001)	(0.309)	(0.036)	(0.002)
2014	-0.016***	0.018***	1.836***	-0.237***	0.009***
	(0.002)	(0.001)	(0.312)	(0.036)	(0.002)
2015	-0.017***	0.020***	2.046***	-0.234***	0.012***
	(0.002)	(0.001)	(0.313)	(0.037)	(0.002)
2016	-0.016***	0.019***	2.699***	-0.297***	0.015***
	(0.002)	(0.001)	(0.316)	(0.037)	(0.002)
2017	-0.013***	0.016***	2.449***	-0.310***	0.020***
	(0.002)	(0.001)	(0.316)	(0.037)	(0.002)
2018	-0.013***	0.016***	2.670***	-0.329***	0.025***
	(0.002)	(0.001)	(0.315)	(0.037)	(0.002)
Constant	0.023***	0.023***	21.888***	18.565***	0.062***
	(0.006)	(0.004)	(0.778)	(0.092)	(0.006)
Observations	13745	10101	14021	13965	3515

Note: Standard errors are clustered by individual institutions.

1) $p < .10+$, $p < .05$ *, $p < .01$**, $p < .001$***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 14c. Impact of EAD on Diversity (contextual), 2004-2018

Variables	Enrolled part-time rate	Enrolled non-resident alien rate	Percent enrolled out-of-state	Average age	Percent disabled student
EAD treatment	-0.001	0.008*	1.336+	-0.104	-0.008+
	(0.006)	(0.003)	(0.712)	(0.082)	(0.004)
Location (suburb)	0.003	-0.002	2.695***	0.122	-0.000
	(0.005)	(0.003)	(0.689)	(0.079)	(0.005)
Location (town)	0.011+	-0.004	3.446***	0.422***	0.010
	(0.006)	(0.004)	(0.853)	(0.100)	(0.006)
Location (rural)	-0.002	-0.005	3.110*	0.269	0.001
	(0.010)	(0.007)	(1.335)	(0.167)	(0.010)
Size (1,000-4,999)	0.009**	-0.007**	0.913*	0.064	-0.006+
	(0.003)	(0.002)	(0.423)	(0.049)	(0.003)
Size (5,000-9,999)	0.019***	-0.002	1.684**	0.178*	-0.004
	(0.005)	(0.003)	(0.630)	(0.073)	(0.005)
Size (10,000-19,999)	0.010+	0.003	1.696+	0.147	0.004
	(0.006)	(0.004)	(0.884)	(0.102)	(0.008)
Size (20,000 and more)	0.021*	-0.003	3.952***	0.141	0.006
	(0.008)	(0.005)	(1.187)	(0.133)	(0.011)
Highest degree level (master)	0.002	0.003	0.547	-0.066	-0.008*
	(0.003)	(0.002)	(0.398)	(0.046)	(0.004)
Highest degree level (doctoral)	0.002	-0.003	-0.424	-0.067	-0.016***
	(0.004)	(0.002)	(0.504)	(0.058)	(0.004)
Selectivity: middle-low	-0.004*	0.001	0.167	-0.054*	-0.000
	(0.002)	(0.001)	(0.211)	(0.024)	(0.001)
Selectivity: middle-high	-0.006***	0.006***	0.705**	-0.078*	-0.001
	(0.002)	(0.001)	(0.267)	(0.031)	(0.002)
Selectivity: high	-0.007*	0.013***	0.655+	-0.109*	-0.002
	(0.003)	(0.002)	(0.370)	(0.043)	(0.003)
2005	-0.006*	0.002	0.202	-0.044	
	(0.002)	(0.001)	(0.311)	(0.036)	
2006	-0.002	0.003*	0.338	-0.082*	
	(0.002)	(0.001)	(0.312)	(0.036)	
2007	-0.007**	0.005***	0.644*	-0.135***	
	(0.002)	(0.001)	(0.311)	(0.036)	
2008	-0.008***	0.006***	0.746*	-0.090*	
	(0.002)	(0.001)	(0.313)	(0.036)	
2009	-0.010***	0.005***	0.721*	-0.146***	
	(0.002)	(0.001)	(0.314)	(0.036)	

2010	-0.009***	0.007***	1.185***	-0.117**	0.003+
	(0.002)	(0.001)	(0.315)	(0.036)	(0.002)
2011	-0.012***	0.010***	1.626***	-0.151***	0.004*
	(0.002)	(0.001)	(0.315)	(0.036)	(0.002)
2012	-0.011***	0.014***	1.765***	-0.210***	0.007***
	(0.002)	(0.001)	(0.316)	(0.036)	(0.002)
2013	-0.013***	0.016***	1.938***	-0.240***	0.009***
	(0.002)	(0.001)	(0.317)	(0.036)	(0.002)
2014	-0.016***	0.018***	1.974***	-0.239***	0.011***
	(0.002)	(0.001)	(0.319)	(0.036)	(0.002)
2015	-0.017***	0.020***	2.216***	-0.241***	0.014***
	(0.002)	(0.001)	(0.320)	(0.037)	(0.002)
2016	-0.015***	0.019***	2.843***	-0.292***	0.019***
	(0.002)	(0.001)	(0.321)	(0.037)	(0.002)
2017	-0.014***	0.016***	2.441***	-0.302***	0.024***
	(0.002)	(0.001)	(0.320)	(0.037)	(0.002)
2018	-0.013***	0.016***	2.635***	-0.316***	0.028***
	(0.002)	(0.001)	(0.319)	(0.037)	(0.002)
Constant	0.025***	0.022***	21.872***	18.572***	0.063***
	(0.006)	(0.004)	(0.803)	(0.093)	(0.006)
Observations	13616	10063	13918	13873	3653

Note: Standard errors are clustered by individual institutions.

1) $p<.10+$, $p<.05$ *, $p<.01$**, $p<.001$***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 14d. Impact of EAPs on Diversity (contextual), 2004-2018

Variables	Enrolled part-time rate	Enrolled non-resident alien rate	Percent enrolled out-of-state	Average age	Percent disabled student
EAPs treatment	0.001	0.003**	0.747**	-0.005	-0.003*
	(0.002)	(0.001)	(0.235)	(0.027)	(0.001)
Location (suburb)	0.001	-0.003	2.574***	0.029	0.001
	(0.004)	(0.003)	(0.609)	(0.069)	(0.005)
Location (town)	0.009	-0.007*	3.947***	0.310***	0.013*
	(0.006)	(0.003)	(0.760)	(0.088)	(0.006)
Location (rural)	0.004	-0.007	2.504*	0.127	0.006
	(0.009)	(0.006)	(1.192)	(0.146)	(0.009)
Size (1,000-4,999)	0.009**	-0.006**	0.601	0.060	-0.005+
	(0.003)	(0.002)	(0.394)	(0.045)	(0.003)
Size (5,000-9,999)	0.018***	-0.001	1.540**	0.165*	-0.003
	(0.004)	(0.003)	(0.582)	(0.067)	(0.004)
Size (10,000-19,999)	0.020***	0.003	1.134	0.213*	0.010
	(0.006)	(0.003)	(0.809)	(0.092)	(0.007)
Size (20,000 and more)	0.039***	-0.002	3.211**	0.244*	0.013
	(0.007)	(0.004)	(1.066)	(0.119)	(0.010)
Highest degree level (master)	0.002	0.001	0.509	-0.067	-0.008*
	(0.003)	(0.002)	(0.382)	(0.044)	(0.003)
Highest degree level (doctoral)	0.001	-0.005*	-0.254	-0.067	-0.016***
	(0.003)	(0.002)	(0.478)	(0.054)	(0.004)
Selectivity: middle-low	-0.004**	0.001	0.040	-0.048*	-0.001
	(0.001)	(0.001)	(0.201)	(0.023)	(0.001)
Selectivity: middle-high	-0.006***	0.005***	0.795**	-0.078**	-0.002
	(0.002)	(0.001)	(0.254)	(0.029)	(0.002)
Selectivity: high	-0.007**	0.013***	0.735*	-0.095*	-0.001
	(0.003)	(0.002)	(0.350)	(0.040)	(0.002)
2005	-0.004*	0.002	0.209	-0.044	
	(0.002)	(0.001)	(0.293)	(0.033)	
2006	-0.001	0.003**	0.449	-0.078*	
	(0.002)	(0.001)	(0.293)	(0.033)	
2007	-0.006**	0.005***	0.416	-0.139***	
	(0.002)	(0.001)	(0.292)	(0.033)	
2008	-0.007***	0.006***	0.487+	-0.101**	
	(0.002)	(0.001)	(0.293)	(0.033)	
2009	-0.010***	0.006***	0.434	-0.161***	
	(0.002)	(0.001)	(0.294)	(0.033)	

2010	-0.009***	0.007***	0.851**	-0.144***	0.002
	(0.002)	(0.001)	(0.294)	(0.033)	(0.002)
2011	-0.012***	0.010***	1.422***	-0.173***	0.003
	(0.002)	(0.001)	(0.294)	(0.033)	(0.002)
2012	-0.011***	0.015***	1.472***	-0.227***	0.004**
	(0.002)	(0.001)	(0.295)	(0.034)	(0.002)
2013	-0.013***	0.017***	1.648***	-0.260***	0.007***
	(0.002)	(0.001)	(0.295)	(0.034)	(0.002)
2014	-0.016***	0.019***	1.688***	-0.236***	0.009***
	(0.002)	(0.001)	(0.297)	(0.034)	(0.002)
2015	-0.015***	0.021***	1.784***	-0.252***	0.013***
	(0.002)	(0.001)	(0.298)	(0.034)	(0.002)
2016	-0.015***	0.020***	2.540***	-0.304***	0.016***
	(0.002)	(0.001)	(0.299)	(0.034)	(0.002)
2017	-0.013***	0.017***	2.169***	-0.308***	0.022***
	(0.002)	(0.001)	(0.299)	(0.034)	(0.002)
2018	-0.013***	0.017***	2.397***	-0.323***	0.027***
	(0.002)	(0.001)	(0.298)	(0.034)	(0.002)
Constant	0.021***	0.024***	22.341***	18.617***	0.062***
	(0.005)	(0.003)	(0.734)	(0.084)	(0.006)
Observations	15366	11510	15778	15719	4253

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Impact of early admissions policies on quality

When it comes to institutional quality outcomes in the analysis, the results of the impact of early admissions policies on enrolled students' high school GPA and retention rates as an outcome when other institutional observable covariates and the time and unit fixed effects were considered in the analytic models are presented in Tables 15a – 15d. In the full model, compared to the control group, EAPs had no statistically significant impact on the GPAs of enrolled freshmen. However, EAD produced a 0.85% decrease in enrollment for those with a GPA between 2.0 and 2.49 compared to control group. EA-only policies led to an increase of 0.49% for those with a GPA of 3.75 and higher compared to the control group. Finally, ED-only policies had the impact of a 0.89% decrease for enrolled freshmen with a GPA of 3.75 and higher.

In terms of retention rate outcome, in the full model including year fixed effects, institution fixed effects and institutional covariates, EA-only policies and EAPs had a positive impact on freshmen retention, 0.5% and 0.6% respectively. However, ED-only policies and EAD were not statistically significant for first-year students' retention rates.

Table 15a. Impact of EA on Quality, 2004-2018

Variables	Percent HS GPA: top-half	Percent HS GPA: top-quarter	Percent HS GPA: 3.75 or more	Percent HS GPA: 3.50 - 3.74	Percent HS GPA: 3.25 - 3.49	Percent HS GPA: 2.00 - 2.49	Retention rate
EA treatment	0.202	0.047	0.497*	0.052	0.024	-0.161	0.005*
	(0.276)	(0.288)	(0.243)	(0.152)	(0.149)	(0.184)	(0.002)
Location (suburb)	0.367	-0.208	0.617	0.715+	-0.496	-0.779+	0.003
	(0.733)	(0.762)	(0.604)	(0.381)	(0.371)	(0.458)	(0.006)
Location (town)	0.966	0.622	0.272	0.103	-0.145	-0.371	0.000
	(0.913)	(0.948)	(0.816)	(0.515)	(0.502)	(0.590)	(0.007)
Location (rural)	-4.701**	-4.166**	-0.283	-2.199**	-0.958	0.741	-0.020+
	(1.438)	(1.498)	(1.211)	(0.755)	(0.742)	(0.839)	(0.012)
Size (1,000-4,999)	-1.150**	-0.693	-0.009	-0.384	-0.561*	0.641*	0.001
	(0.437)	(0.453)	(0.371)	(0.234)	(0.229)	(0.253)	(0.003)
Size (5,000-9,999)	-0.686	-0.332	0.502	-0.853*	-0.259	1.176**	0.003
	(0.628)	(0.652)	(0.540)	(0.341)	(0.333)	(0.379)	(0.005)
Size (10,000-19,999)	-1.364	-2.888***	0.745	-0.997*	-0.588	1.243*	0.012+
	(0.845)	(0.877)	(0.747)	(0.471)	(0.460)	(0.516)	(0.007)
Size (20,000 and more)	-0.653	-1.324	2.775**	-0.660	-0.846	1.011	0.010
	(1.087)	(1.127)	(0.963)	(0.608)	(0.593)	(0.691)	(0.010)
Highest degree level (master)	-0.455	-1.226**	-1.355***	0.271	-0.251	0.524*	-0.007*
	(0.398)	(0.415)	(0.355)	(0.223)	(0.218)	(0.241)	(0.004)
Highest degree level (doctoral)	-0.821	-1.188*	-1.809***	0.843**	-0.110	0.645*	-0.005
	(0.499)	(0.520)	(0.445)	(0.280)	(0.273)	(0.307)	(0.004)
Selectivity: middle-low	1.312***	1.381***	1.288***	0.554***	0.296**	-0.863***	0.002
	(0.211)	(0.219)	(0.181)	(0.114)	(0.111)	(0.122)	(0.002)
Selectivity: middle-high	2.528***	3.136***	2.549***	0.753***	0.392**	-1.262***	0.009***
	(0.263)	(0.274)	(0.229)	(0.145)	(0.141)	(0.156)	(0.002)
Selectivity: high	3.366***	4.728***	3.966***	1.228***	0.462*	-1.492***	0.016***
	(0.362)	(0.376)	(0.321)	(0.202)	(0.197)	(0.229)	(0.003)
2005	-0.174	0.040					
	(0.309)	(0.321)					
2006	-0.138	0.025	0.398	0.095	0.035	-0.328	
	(0.308)	(0.321)	(0.285)	(0.179)	(0.175)	(0.200)	
2007	-0.152	-0.158	0.252	0.132	0.154	-0.502*	
	(0.307)	(0.320)	(0.282)	(0.178)	(0.173)	(0.197)	
2008	0.059	0.324	0.789**	0.269	0.046	-0.666***	0.001
	(0.308)	(0.320)	(0.280)	(0.176)	(0.172)	(0.196)	(0.002)
2009	0.466	0.364	1.082***	0.212	-0.067	-0.700***	0.006*
	(0.308)	(0.321)	(0.279)	(0.175)	(0.171)	(0.195)	(0.002)

2010	0.501	0.634*	1.798***	0.362*	-0.060	-0.910***	0.010***
	(0.308)	(0.320)	(0.277)	(0.174)	(0.170)	(0.195)	(0.002)
2011	0.723*	0.635*	2.502***	0.552**	0.037	-1.505***	0.009***
	(0.309)	(0.321)	(0.276)	(0.174)	(0.170)	(0.195)	(0.002)
2012	0.547+	0.584+	3.270***	0.802***	-0.033	-1.874***	0.007**
	(0.309)	(0.322)	(0.277)	(0.174)	(0.170)	(0.196)	(0.002)
2013	0.285	0.275	4.272***	1.130***	-0.151	-2.279***	0.013***
	(0.310)	(0.322)	(0.278)	(0.175)	(0.171)	(0.196)	(0.002)
2014	0.119	-0.039	5.081***	1.031***	0.035	-2.613***	0.022***
	(0.312)	(0.325)	(0.278)	(0.175)	(0.171)	(0.196)	(0.002)
2015	0.009	-0.050	5.990***	1.312***	-0.156	-2.891***	0.021***
	(0.316)	(0.328)	(0.279)	(0.175)	(0.171)	(0.198)	(0.002)
2016	0.082	0.157	6.751***	1.332***	-0.109	-3.192***	0.021***
	(0.319)	(0.331)	(0.280)	(0.176)	(0.172)	(0.199)	(0.002)
2017	-0.133	-0.169	7.546***	1.387***	-0.141	-3.313***	0.017***
	(0.320)	(0.332)	(0.281)	(0.177)	(0.173)	(0.199)	(0.002)
2018	-0.195	-0.371	8.790***	1.458***	-0.334+	-3.632***	0.017***
	(0.321)	(0.334)	(0.283)	(0.178)	(0.174)	(0.202)	(0.002)
Constant	74.537***	43.287***	20.675***	15.161***	16.143***	10.500***	0.712***
	(0.868)	(0.902)	(0.749)	(0.472)	(0.460)	(0.533)	(0.007)
Observations	12221	12153	12151	12185	12172	10638	12993

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 15b. Impact of ED on Quality, 2004-2018

Variables	Percent HS GPA: top-half	Percent HS GPA: top-quarter	Percent HS GPA: 3.75 or more	Percent HS GPA: 3.50 - 3.74	Percent HS GPA: 3.25 - 3.49	Percent HS GPA: 2.00 - 2.49	Retention rate
ED treatment	-0.375	-0.770	-0.898+	0.122	-0.385	0.242	0.007
	(0.535)	(0.550)	(0.488)	(0.320)	(0.310)	(0.367)	(0.005)
Location (suburb)	0.006	-0.175	0.690	1.024*	-0.485	-1.167*	0.004
	(0.745)	(0.765)	(0.636)	(0.418)	(0.402)	(0.503)	(0.006)
Location (town)	-0.430	0.547	0.288	0.708	-0.223	-1.307*	0.005
	(0.910)	(0.933)	(0.804)	(0.529)	(0.510)	(0.604)	(0.008)
Location (rural)	-6.242***	-4.994**	-0.646	-2.069*	-1.184	-0.338	-0.019
	(1.540)	(1.580)	(1.275)	(0.828)	(0.804)	(0.921)	(0.013)
Size (1,000-4,999)	-1.080*	-0.394	0.248	-0.510*	-0.722**	0.478+	0.000
	(0.454)	(0.465)	(0.375)	(0.247)	(0.238)	(0.269)	(0.004)
Size (5,000-9,999)	-0.412	-0.232	1.098*	-0.985**	-0.233	0.924*	0.004
	(0.651)	(0.667)	(0.558)	(0.368)	(0.354)	(0.408)	(0.005)
Size (10,000-19,999)	-1.220	-2.949**	2.043**	-1.113*	-0.695	0.671	0.018*
	(0.885)	(0.907)	(0.768)	(0.505)	(0.487)	(0.550)	(0.008)
Size (20,000 and more)	-0.056	-1.140	4.926***	-0.920	-1.599*	0.436	0.028**
	(1.155)	(1.182)	(1.015)	(0.668)	(0.644)	(0.775)	(0.010)
Highest degree level (master)	-0.776+	-1.567***	-1.250***	0.041	-0.446+	0.518*	-0.007+
	(0.417)	(0.430)	(0.366)	(0.241)	(0.232)	(0.261)	(0.004)
Highest degree level (doctoral)	-1.099*	-1.712**	-1.679***	0.478	-0.425	0.622+	-0.004
	(0.521)	(0.536)	(0.458)	(0.302)	(0.290)	(0.332)	(0.005)
Selectivity: middle-low	1.172***	1.280***	1.205***	0.605***	0.267*	-0.826***	0.002
	(0.219)	(0.225)	(0.183)	(0.120)	(0.116)	(0.129)	(0.002)
Selectivity: middle-high	2.583***	3.252***	2.605***	0.868***	0.366*	-1.246***	0.009***
	(0.272)	(0.279)	(0.232)	(0.153)	(0.147)	(0.165)	(0.002)
Selectivity: high	3.167***	4.173***	3.365***	1.192***	0.658**	-1.475***	0.014***
	(0.382)	(0.392)	(0.332)	(0.218)	(0.211)	(0.246)	(0.003)
2005	-0.295	-0.159					
	(0.311)	(0.319)					
2006	-0.104	0.128	0.113	0.229	0.148	-0.262	
	(0.312)	(0.321)	(0.284)	(0.187)	(0.180)	(0.209)	
2007	-0.221	-0.098	-0.088	0.325+	0.313+	-0.477*	
	(0.312)	(0.321)	(0.282)	(0.186)	(0.179)	(0.207)	
2008	0.059	0.343	0.471+	0.342+	0.203	-0.641**	-0.001
	(0.315)	(0.323)	(0.281)	(0.185)	(0.178)	(0.206)	(0.002)
2009	0.339	0.377	0.797**	0.373*	0.074	-0.783***	0.005*
	(0.315)	(0.324)	(0.280)	(0.184)	(0.178)	(0.205)	(0.002)

2010	0.495	0.696*	1.289***	0.607***	0.166	-0.971***	0.010***
	(0.316)	(0.325)	(0.280)	(0.184)	(0.177)	(0.205)	(0.002)
2011	0.642*	0.646*	1.994***	0.742***	0.239	-1.537***	0.008***
	(0.318)	(0.327)	(0.280)	(0.184)	(0.178)	(0.206)	(0.002)
2012	0.490	0.595+	2.758***	1.049***	0.195	-1.952***	0.006**
	(0.319)	(0.328)	(0.282)	(0.185)	(0.178)	(0.207)	(0.002)
2013	0.071	0.273	3.716***	1.391***	0.093	-2.322***	0.012***
	(0.321)	(0.330)	(0.282)	(0.186)	(0.179)	(0.208)	(0.002)
2014	0.064	0.071	4.466***	1.389***	0.292	-2.681***	0.021***
	(0.325)	(0.334)	(0.284)	(0.186)	(0.180)	(0.209)	(0.002)
2015	0.044	0.069	5.588***	1.600***	0.140	-2.998***	0.021***
	(0.328)	(0.337)	(0.284)	(0.187)	(0.180)	(0.210)	(0.002)
2016	0.127	0.049	6.271***	1.650***	0.210	-3.272***	0.019***
	(0.332)	(0.341)	(0.286)	(0.188)	(0.181)	(0.211)	(0.002)
2017	-0.228	-0.145	7.113***	1.731***	0.137	-3.395***	0.016***
	(0.332)	(0.341)	(0.287)	(0.188)	(0.182)	(0.212)	(0.002)
2018	-0.053	-0.273	8.207***	1.838***	-0.024	-3.681***	0.016***
	(0.334)	(0.343)	(0.289)	(0.190)	(0.183)	(0.214)	(0.002)
Constant	75.345***	43.560***	20.109***	14.837***	16.332***	11.456***	0.704***
	(0.878)	(0.902)	(0.750)	(0.493)	(0.475)	(0.557)	(0.007)
Observations	11280	11212	11005	11033	11023	9789	11797

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 15c. Impact of EAD on Quality, 2004-2018

Variables	Percent HS GPA: top-half	Percent HS GPA: top-quarter	Percent HS GPA: 3.75 or more	Percent HS GPA: 3.50 -3.74	Percent HS GPA: 3.25 -3.49	Percent HS GPA: 2.00 -2.49	Retention rate
EAD treatment	-0.279	-0.451	0.532	-0.180	-0.338	-0.850+	0.009
	(0.694)	(0.719)	(0.619)	(0.400)	(0.383)	(0.456)	(0.006)
Location (suburb)	0.179	-0.366	0.913	1.100**	-0.752+	-1.202*	0.000
	(0.786)	(0.815)	(0.649)	(0.419)	(0.401)	(0.494)	(0.006)
Location (town)	0.527	0.320	0.850	0.037	-0.740	-0.664	0.004
	(0.970)	(1.005)	(0.852)	(0.550)	(0.527)	(0.623)	(0.008)
Location (rural)	-4.959**	-5.133**	-0.555	-2.569**	-1.409+	0.092	-0.020
	(1.521)	(1.577)	(1.268)	(0.810)	(0.781)	(0.893)	(0.013)
Size (1,000-4,999)	-0.985*	-0.542	0.181	-0.471+	-0.695**	0.634*	0.003
	(0.454)	(0.472)	(0.380)	(0.246)	(0.236)	(0.264)	(0.004)
Size (5,000-9,999)	-0.354	-0.043	1.167*	-0.997**	-0.182	1.093**	0.006
	(0.656)	(0.680)	(0.565)	(0.365)	(0.350)	(0.403)	(0.005)
Size (10,000-19,999)	-1.237	-2.726**	1.821*	-1.401**	-0.772	1.091*	0.019*
	(0.904)	(0.937)	(0.789)	(0.509)	(0.488)	(0.550)	(0.008)
Size (20,000 and more)	-0.121	-1.385	4.175***	-0.760	-1.333*	0.857	0.028**
	(1.176)	(1.218)	(1.044)	(0.674)	(0.647)	(0.764)	(0.011)
Highest degree level (master)	-0.715+	-1.387**	-1.188**	0.201	-0.399+	0.452+	-0.007+
	(0.414)	(0.431)	(0.362)	(0.233)	(0.223)	(0.251)	(0.004)
Highest degree level (doctoral)	-0.869+	-1.338*	-1.708***	0.781**	-0.292	0.466	-0.005
	(0.522)	(0.543)	(0.458)	(0.296)	(0.283)	(0.321)	(0.005)
Selectivity: middle-low	1.094***	1.265***	1.229***	0.573***	0.265*	-0.814***	0.002
	(0.220)	(0.229)	(0.184)	(0.119)	(0.114)	(0.126)	(0.002)
Selectivity: middle-high	2.500***	3.216***	2.537***	0.823***	0.340*	-1.177***	0.008***
	(0.274)	(0.284)	(0.234)	(0.151)	(0.145)	(0.162)	(0.002)
Selectivity: high	3.093***	4.368***	3.366***	1.194***	0.546**	-1.417***	0.014***
	(0.380)	(0.394)	(0.329)	(0.212)	(0.204)	(0.236)	(0.003)
2005	-0.347	-0.172					
	(0.321)	(0.334)					
2006	-0.194	0.040	0.291	0.111	0.090	-0.329	
	(0.322)	(0.334)	(0.293)	(0.189)	(0.181)	(0.208)	
2007	-0.223	-0.074	0.145	0.277	0.161	-0.476*	
	(0.321)	(0.333)	(0.290)	(0.187)	(0.179)	(0.206)	
2008	0.046	0.369	0.673*	0.317+	0.040	-0.644**	-0.000
	(0.323)	(0.336)	(0.289)	(0.186)	(0.178)	(0.205)	(0.002)

2009	0.419	0.425	0.965***	0.336+	-0.038	-0.743***	0.005*
	(0.324)	(0.337)	(0.288)	(0.186)	(0.178)	(0.204)	(0.002)
2010	0.436	0.630+	1.518***	0.524**	0.030	-0.963***	0.010***
	(0.323)	(0.336)	(0.286)	(0.184)	(0.177)	(0.203)	(0.002)
2011	0.712*	0.600+	2.159***	0.662***	0.144	-1.537***	0.008***
	(0.324)	(0.337)	(0.286)	(0.184)	(0.177)	(0.203)	(0.002)
2012	0.373	0.350	2.840***	0.950***	0.157	-1.919***	0.006**
	(0.326)	(0.338)	(0.287)	(0.185)	(0.178)	(0.204)	(0.002)
2013	0.151	0.209	3.906***	1.219***	-0.021	-2.233***	0.012***
	(0.326)	(0.339)	(0.288)	(0.186)	(0.178)	(0.205)	(0.002)
2014	0.039	-0.117	4.724***	1.154***	0.221	-2.598***	0.021***
	(0.329)	(0.342)	(0.289)	(0.186)	(0.178)	(0.206)	(0.002)
2015	0.009	-0.147	5.683***	1.436***	-0.004	-2.904***	0.021***
	(0.332)	(0.345)	(0.289)	(0.186)	(0.179)	(0.207)	(0.002)
2016	-0.044	-0.176	6.360***	1.488***	0.092	-3.201***	0.019***
	(0.336)	(0.348)	(0.290)	(0.187)	(0.179)	(0.208)	(0.002)
2017	-0.257	-0.322	7.140***	1.576***	0.080	-3.322***	0.017***
	(0.335)	(0.347)	(0.290)	(0.187)	(0.179)	(0.208)	(0.002)
2018	-0.222	-0.654+	8.385***	1.671***	-0.129	-3.602***	0.016***
	(0.336)	(0.348)	(0.292)	(0.188)	(0.181)	(0.210)	(0.002)
Constant	74.765***	43.574***	19.892***	15.165***	16.667***	10.918***	0.705***
	(0.914)	(0.949)	(0.776)	(0.500)	(0.480)	(0.561)	(0.007)
Observations	11226	11159	11002	11030	11023	9785	11835

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 15d. Impact of EAPs on Quality, 2004-2018

Variables	Percent HS GPA: top-half	Percent HS GPA: top-quarter	Percent HS GPA: 3.75 or more	Percent HS GPA: 3.50 - 3.74	Percent HS GPA: 3.25 - 3.49	Percent HS GPA: 2.00 - 2.49	Retention rate
EAPs treatment	0.028	-0.113	0.202	0.009	-0.065	-0.153	0.006**
	(0.238)	(0.250)	(0.216)	(0.137)	(0.131)	(0.161)	(0.002)
Location (suburb)	0.467	-0.354	0.491	0.704+	-0.388	-0.715	0.004
	(0.682)	(0.715)	(0.592)	(0.376)	(0.359)	(0.449)	(0.005)
Location (town)	0.040	0.216	-0.211	0.525	0.002	-0.894	0.001
	(0.842)	(0.882)	(0.774)	(0.491)	(0.470)	(0.558)	(0.007)
Location (rural)	-5.329***	-4.551**	-1.098	-1.734*	-0.605	0.059	-0.020+
	(1.349)	(1.417)	(1.166)	(0.732)	(0.705)	(0.806)	(0.011)
Size (1,000-4,999)	-0.928*	-0.533	0.146	-0.342	-0.678**	0.400	0.002
	(0.426)	(0.446)	(0.368)	(0.234)	(0.224)	(0.251)	(0.003)
Size (5,000-9,999)	-0.381	-0.081	1.036+	-0.875*	-0.154	0.808*	0.007
	(0.608)	(0.637)	(0.537)	(0.341)	(0.326)	(0.377)	(0.005)
Size (10,000-19,999)	-1.373+	-3.083***	1.285+	-1.180*	-0.610	0.660	0.016*
	(0.821)	(0.859)	(0.742)	(0.471)	(0.451)	(0.514)	(0.007)
Size (20,000 and more)	-0.623	-1.583	3.880***	-1.196*	-1.131+	0.450	0.015
	(1.052)	(1.100)	(0.956)	(0.607)	(0.581)	(0.693)	(0.009)
Highest degree level (master)	-0.572	-1.386***	-1.381***	0.099	-0.273	0.462+	-0.007+
	(0.393)	(0.413)	(0.358)	(0.227)	(0.217)	(0.245)	(0.004)
Highest degree level (doctoral)	-0.666	-1.047*	-1.762***	0.646*	-0.127	0.555+	-0.003
	(0.488)	(0.513)	(0.445)	(0.283)	(0.270)	(0.309)	(0.004)
Selectivity: middle-low	1.314***	1.386***	1.258***	0.571***	0.285**	-0.865***	0.002
	(0.208)	(0.218)	(0.181)	(0.115)	(0.110)	(0.122)	(0.002)
Selectivity: middle-high	2.705***	3.402***	2.612***	0.854***	0.486***	-1.344***	0.009***
	(0.258)	(0.271)	(0.229)	(0.145)	(0.139)	(0.156)	(0.002)
Selectivity: high	3.445***	4.964***	3.970***	1.264***	0.551**	-1.575***	0.016***
	(0.355)	(0.372)	(0.322)	(0.204)	(0.195)	(0.230)	(0.003)
2005	-0.190	-0.000					
	(0.298)	(0.312)					
2006	-0.137	0.159	0.317	0.089	0.003	-0.275	
	(0.297)	(0.312)	(0.281)	(0.178)	(0.170)	(0.197)	
2007	-0.176	-0.076	0.141	0.178	0.193	-0.475*	
	(0.296)	(0.311)	(0.279)	(0.177)	(0.169)	(0.195)	
2008	0.046	0.351	0.764**	0.251	0.061	-0.635**	0.000
	(0.298)	(0.312)	(0.277)	(0.175)	(0.168)	(0.194)	(0.002)
2009	0.360	0.277	1.095***	0.182	-0.076	-0.729***	0.005*
	(0.298)	(0.313)	(0.276)	(0.175)	(0.167)	(0.194)	(0.002)

2010	0.562+	0.701*	1.721***	0.431*	0.001	-0.931***	0.009***
	(0.298)	(0.313)	(0.274)	(0.174)	(0.166)	(0.193)	(0.002)
2011	0.635*	0.649*	2.436***	0.611***	0.042	-1.484***	0.008***
	(0.299)	(0.313)	(0.274)	(0.174)	(0.166)	(0.193)	(0.002)
2012	0.469	0.528+	3.193***	0.881***	-0.040	-1.865***	0.006**
	(0.300)	(0.314)	(0.275)	(0.174)	(0.167)	(0.194)	(0.002)
2013	0.172	0.259	4.105***	1.227***	-0.136	-2.249***	0.012***
	(0.300)	(0.315)	(0.275)	(0.174)	(0.167)	(0.195)	(0.002)
2014	-0.010	-0.102	4.885***	1.108***	0.077	-2.572***	0.021***
	(0.303)	(0.318)	(0.275)	(0.174)	(0.167)	(0.195)	(0.002)
2015	-0.119	-0.133	5.857***	1.360***	-0.106	-2.853***	0.021***
	(0.305)	(0.320)	(0.276)	(0.175)	(0.167)	(0.196)	(0.002)
2016	-0.056	-0.013	6.575***	1.422***	-0.057	-3.160***	0.019***
	(0.308)	(0.323)	(0.277)	(0.175)	(0.168)	(0.197)	(0.002)
2017	-0.307	-0.350	7.460***	1.445***	-0.100	-3.307***	0.016***
	(0.308)	(0.323)	(0.278)	(0.176)	(0.168)	(0.197)	(0.002)
2018	-0.369	-0.519	8.721***	1.502***	-0.317+	-3.615***	0.016***
	(0.309)	(0.324)	(0.279)	(0.177)	(0.169)	(0.200)	(0.002)
Constant	75.161***	44.026***	20.780***	15.135***	16.056***	11.111***	0.711***
	(0.818)	(0.858)	(0.726)	(0.460)	(0.441)	(0.515)	(0.006)
Observations	12724	12655	12509	12543	12527	10923	13404

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Impact of early admissions policies on affordability

In terms of the aspect of affordability of admissions, for example, the results of the impact of early admissions policies on enrolled students' financial aid are presented in Table 16a – 16d. In the full model, including the time and unit fixed effects and institutional covariates, the results showed that colleges that implemented EAPs had a 0.008 rate (0.8%) of increase in freshmen with needs fully met among enrolled freshmen, and a 0.007 decrease in the rate (0.7%) of freshmen who received financial aid to freshmen who applied for financial aid. EAD had an impact of 0.016 decrease in the ratio (1.6%) of freshmen who received financial aid to freshmen who applied for financial aid. Also, ED had the impact of a 1.668% increase in the average percentage of freshmen whose financial aid needs were met, a 0.024 rate (2.4%) of increase in freshmen with needs fully met among enrolled freshmen, and 0.019 decrease in the ratio of freshmen who received financial aid to freshmen who applied for financial aid. Meanwhile, EA and EAPs, respectively, appear to have had no significant impact on the affordability outcomes in the full model.

Table 16a. Impact of EA on Affordability, 2004-2018

Variables	Percent need-met	Financial aid package (ln)	Rate: freshmen with need/enrolled freshmen	Rate: freshmen with need-fully met/enrolled freshmen	Rate: financial aid applied/all applicants	Rate: financial aid received/enrolled freshmen	Rate: financial aid received/ financial aid applied
EA treatment	0.179	0.013	0.003	0.005	0.002	0.003	-0.003
	(0.468)	(0.011)	(0.006)	(0.005)	(0.003)	(0.006)	(0.003)
Location (suburb)	-0.679	0.073**	0.005	0.004	-0.002	0.007	0.010
	(1.113)	(0.027)	(0.015)	(0.011)	(0.008)	(0.014)	(0.007)
Location (town)	-2.203	0.084*	0.011	0.001	-0.005	0.009	0.002
	(1.437)	(0.035)	(0.019)	(0.015)	(0.010)	(0.018)	(0.009)
Location (rural)	-1.748	0.058	0.002	0.068*	-0.037*	-0.002	-0.012
	(2.494)	(0.061)	(0.037)	(0.029)	(0.018)	(0.037)	(0.016)
Size (1,000-4,999)	-0.906	-0.015	-0.012	0.004	0.007	-0.009	-0.005
	(0.780)	(0.019)	(0.011)	(0.009)	(0.006)	(0.011)	(0.005)
Size (5,000-9,999)	-1.302	-0.032	-0.021	-0.003	0.017*	-0.021	-0.024***
	(1.122)	(0.027)	(0.016)	(0.012)	(0.008)	(0.015)	(0.007)
Size (10,000-19,999)	-2.813+	-0.050	-0.020	-0.007	0.038***	-0.034+	-0.031***
	(1.533)	(0.037)	(0.021)	(0.015)	(0.011)	(0.020)	(0.009)
Size (20,000 and more)	-0.019	-0.043	-0.007	0.042*	0.047***	-0.022	-0.025*
	(1.930)	(0.046)	(0.026)	(0.019)	(0.014)	(0.024)	(0.012)
Highest degree level (master)	0.664	0.032+	0.002	-0.005	-0.003	-0.012	-0.006
	(0.740)	(0.018)	(0.010)	(0.008)	(0.005)	(0.010)	(0.005)
Highest degree level (doctoral)	-0.102	0.060**	0.019	-0.015+	0.004	0.007	0.008
	(0.907)	(0.022)	(0.012)	(0.009)	(0.007)	(0.012)	(0.006)
Selectivity: middle-low	-0.002	-0.003	-0.000	0.003	0.001	0.000	-0.003
	(0.386)	(0.009)	(0.005)	(0.004)	(0.003)	(0.005)	(0.002)
Selectivity: middle-high	0.933+	-0.011	-0.001	0.008	0.003	0.000	0.000
	(0.486)	(0.012)	(0.007)	(0.005)	(0.004)	(0.006)	(0.003)
Selectivity: high	1.751**	-0.020	0.003	0.018**	0.003	0.002	-0.006
	(0.655)	(0.016)	(0.009)	(0.007)	(0.005)	(0.008)	(0.004)
Freshmen tuition (ln)	0.958	0.222***	0.067***	-0.002	0.001	0.073***	0.044***
	(0.986)	(0.024)	(0.013)	(0.010)	(0.007)	(0.012)	(0.006)
2005	-1.201*	0.004	-0.013+	0.000	-0.002	-0.015*	-0.010**
	(0.527)	(0.013)	(0.007)	(0.006)	(0.004)	(0.007)	(0.003)
2006	-1.780***	0.061***	-0.025***	-0.010+	-0.017***	-0.027***	-0.014***
	(0.534)	(0.013)	(0.007)	(0.006)	(0.004)	(0.007)	(0.003)
2007	-1.208*	0.080***	-0.026**	-0.021***	-0.021***	-0.028***	-0.012***

	(0.565)	(0.014)	(0.008)	(0.006)	(0.004)	(0.007)	(0.004)
2008	-0.783	0.147***	-0.014+	-0.016**	-0.030***	-0.016*	-0.010**
	(0.588)	(0.014)	(0.008)	(0.006)	(0.004)	(0.008)	(0.004)
2009	-0.974	0.226***	0.007	-0.020**	-0.031***	0.007	0.000
	(0.600)	(0.015)	(0.008)	(0.006)	(0.004)	(0.008)	(0.004)
2010	-2.477***	0.271***	0.035***	-0.026***	-0.038***	0.032***	0.021***
	(0.630)	(0.015)	(0.009)	(0.006)	(0.005)	(0.008)	(0.004)
2011	-2.966***	0.295***	0.056***	-0.033***	-0.043***	0.054***	0.032***
	(0.655)	(0.016)	(0.009)	(0.007)	(0.005)	(0.008)	(0.004)
2012	-4.008***	0.313***	0.051***	-0.043***	-0.054***	0.048***	0.031***
	(0.681)	(0.016)	(0.009)	(0.007)	(0.005)	(0.009)	(0.004)
2013	-4.367***	0.337***	0.047***	-0.040***	-0.058***	0.045***	0.026***
	(0.696)	(0.017)	(0.009)	(0.007)	(0.005)	(0.009)	(0.004)
2014	-3.956***	0.365***	0.041***	-0.041***	-0.061***	0.038***	0.022***
	(0.722)	(0.017)	(0.010)	(0.007)	(0.005)	(0.009)	(0.004)
2015	-3.803***	0.374***	0.038***	-0.042***	-0.064***	0.038***	0.017***
	(0.741)	(0.018)	(0.010)	(0.008)	(0.005)	(0.009)	(0.005)
2016	-3.503***	0.397***	0.025*	-0.044***	-0.074***	0.023*	0.012*
	(0.772)	(0.019)	(0.010)	(0.008)	(0.006)	(0.010)	(0.005)
2017	-3.908***	0.407***	0.041***	-0.037***	-0.075***	0.038***	0.015**
	(0.782)	(0.019)	(0.011)	(0.008)	(0.006)	(0.010)	(0.005)
2018	-3.683***	0.448***	0.043***	-0.039***	-0.076***	0.036***	0.011*
	(0.799)	(0.019)	(0.011)	(0.008)	(0.006)	(0.010)	(0.005)
Constant	65.700***	7.090***	0.042	0.207*	0.224***	-0.013	0.383***
	(9.115)	(0.219)	(0.121)	(0.090)	(0.065)	(0.114)	(0.055)
Observations	11183	11672	10097	9670	10616	10046	10880

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 16b. Impact of ED on Affordability, 2004-2018

Variables	Percent need-met	Financial aid package (ln)	Rate: freshmen with need/enrolled freshmen	Rate: freshmen with need-fully met/enrolled freshmen	Rate: financial aid applied/all applicants	Rate: financial aid received/enrolled freshmen	Rate: financial aid received/ financial aid applied
ED treatment	1.668+	0.023	-0.018	0.024*	0.001	-0.017	-0.019**
	(0.982)	(0.024)	(0.012)	(0.010)	(0.007)	(0.012)	(0.006)
Location (suburb)	-1.109	0.063*	0.004	-0.005	-0.005	0.006	0.014+
	(1.210)	(0.030)	(0.016)	(0.013)	(0.009)	(0.015)	(0.008)
Location (town)	-3.479*	0.059	-0.001	-0.017	-0.008	-0.002	0.004
	(1.493)	(0.037)	(0.019)	(0.015)	(0.011)	(0.018)	(0.009)
Location (rural)	-5.405+	0.002	0.015	0.071*	-0.047*	0.016	-0.007
	(2.834)	(0.071)	(0.039)	(0.032)	(0.020)	(0.039)	(0.019)
Size (1,000-4,999)	-1.579*	-0.025	-0.014	0.005	0.009	-0.011	-0.007
	(0.797)	(0.020)	(0.011)	(0.009)	(0.006)	(0.011)	(0.005)
Size (5,000-9,999)	-1.393	-0.048+	-0.027+	-0.005	0.018*	-0.028+	-0.031***
	(1.181)	(0.029)	(0.016)	(0.012)	(0.009)	(0.015)	(0.008)
Size (10,000-19,999)	-2.665	-0.093*	-0.035+	-0.009	0.039***	-0.046*	-0.041***
	(1.624)	(0.040)	(0.021)	(0.016)	(0.012)	(0.020)	(0.010)
Size (20,000 and more)	-0.252	-0.079	-0.028	0.036+	0.044**	-0.038	-0.038**
	(2.072)	(0.051)	(0.027)	(0.021)	(0.015)	(0.025)	(0.013)
Highest degree level (master)	0.699	0.040*	-0.000	0.007	-0.002	-0.016	-0.010+
	(0.777)	(0.019)	(0.010)	(0.008)	(0.006)	(0.010)	(0.005)
Highest degree level (doctoral)	-0.374	0.060**	0.017	-0.007	0.005	0.003	0.001
	(0.951)	(0.023)	(0.013)	(0.010)	(0.007)	(0.012)	(0.006)
Selectivity: middle-low	-0.010	-0.007	0.001	0.007	0.002	0.002	-0.001
	(0.402)	(0.010)	(0.005)	(0.004)	(0.003)	(0.005)	(0.003)
Selectivity: middle-high	0.931+	-0.014	-0.000	0.011*	0.004	0.000	0.000
	(0.505)	(0.012)	(0.007)	(0.005)	(0.004)	(0.006)	(0.003)
Selectivity: high	1.364+	-0.025	0.005	0.019**	0.001	0.004	-0.004
	(0.696)	(0.017)	(0.009)	(0.007)	(0.005)	(0.008)	(0.004)
Freshmen tuition (ln)	1.460	0.234***	0.063***	0.001	-0.002	0.071***	0.043***
	(1.102)	(0.027)	(0.014)	(0.011)	(0.008)	(0.013)	(0.007)
2005	-1.271*	0.005	-0.010	0.002	-0.004	-0.012+	-0.008*
	(0.534)	(0.013)	(0.007)	(0.006)	(0.004)	(0.007)	(0.003)
2006	-1.546**	0.060***	-0.025***	-0.009	-0.019***	-0.027***	-0.014***
	(0.547)	(0.014)	(0.007)	(0.006)	(0.004)	(0.007)	(0.004)
2007	-1.082+	0.079***	-0.023**	-0.021***	-0.022***	-0.026***	-0.011**

	(0.581)	(0.014)	(0.008)	(0.006)	(0.004)	(0.007)	(0.004)
2008	-0.621	0.140***	-0.010	-0.016*	-0.027***	-0.012+	-0.011**
	(0.613)	(0.015)	(0.008)	(0.006)	(0.004)	(0.008)	(0.004)
2009	-0.682	0.213***	0.008	-0.020**	-0.031***	0.007	0.001
	(0.630)	(0.016)	(0.008)	(0.006)	(0.005)	(0.008)	(0.004)
2010	-2.207***	0.270***	0.034***	-0.029***	-0.038***	0.031***	0.022***
	(0.667)	(0.017)	(0.009)	(0.007)	(0.005)	(0.008)	(0.004)
2011	-2.796***	0.291***	0.060***	-0.031***	-0.041***	0.057***	0.033***
	(0.698)	(0.017)	(0.009)	(0.007)	(0.005)	(0.009)	(0.004)
2012	-4.167***	0.306***	0.055***	-0.041***	-0.053***	0.051***	0.034***
	(0.726)	(0.018)	(0.009)	(0.007)	(0.005)	(0.009)	(0.005)
2013	-4.290***	0.328***	0.051***	-0.040***	-0.057***	0.049***	0.029***
	(0.745)	(0.018)	(0.010)	(0.008)	(0.005)	(0.009)	(0.005)
2014	-3.936***	0.358***	0.043***	-0.040***	-0.058***	0.040***	0.023***
	(0.777)	(0.019)	(0.010)	(0.008)	(0.006)	(0.009)	(0.005)
2015	-3.897***	0.365***	0.035***	-0.046***	-0.064***	0.035***	0.020***
	(0.796)	(0.020)	(0.010)	(0.008)	(0.006)	(0.010)	(0.005)
2016	-3.626***	0.389***	0.029**	-0.045***	-0.072***	0.026**	0.014**
	(0.832)	(0.020)	(0.011)	(0.008)	(0.006)	(0.010)	(0.005)
2017	-4.341***	0.401***	0.045***	-0.040***	-0.073***	0.043***	0.016**
	(0.846)	(0.021)	(0.011)	(0.009)	(0.006)	(0.010)	(0.005)
2018	-3.751***	0.439***	0.051***	-0.042***	-0.074***	0.044***	0.011*
	(0.866)	(0.021)	(0.011)	(0.009)	(0.006)	(0.010)	(0.005)
Constant	62.164***	7.011***	0.096	0.181+	0.258***	0.026	0.409***
	(10.151)	(0.247)	(0.129)	(0.102)	(0.072)	(0.120)	(0.063)
Observations	10212	10661	9167	8765	9651	9125	9920

Note: Standard errors are clustered by individual institutions.
1) $p<.10$+, $p<.05$ *, $p<.01$**, $p<.001$***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 16c. Impact of EAD on Affordability, 2004-2018

Variables	Percent need-met	Financial aid package (ln)	Rate: freshmen with need/enrolled freshmen	Rate: freshmen with need-fully met/enrolled freshmen	Rate: financial aid applied/all applicants	Rate: financial aid received/enrolled freshmen	Rate: financial aid received/ financial aid applied
EAD treatment	0.064	0.017	-0.018	0.016	-0.006	-0.015	-0.016*
	(1.146)	(0.029)	(0.015)	(0.011)	(0.008)	(0.014)	(0.007)
Location (suburb)	-1.302	0.058+	-0.004	0.000	-0.006	-0.003	0.011
	(1.205)	(0.031)	(0.016)	(0.012)	(0.009)	(0.015)	(0.008)
Location (town)	-2.808+	0.067+	-0.000	-0.009	-0.010	-0.002	0.002
	(1.533)	(0.039)	(0.020)	(0.015)	(0.011)	(0.018)	(0.009)
Location (rural)	-3.971	0.011	-0.001	0.052+	-0.042*	-0.003	-0.015
	(2.706)	(0.068)	(0.036)	(0.029)	(0.019)	(0.036)	(0.017)
Size (1,000-4,999)	-0.951	-0.016	-0.015	0.008	0.009	-0.012	-0.008
	(0.810)	(0.020)	(0.011)	(0.009)	(0.006)	(0.011)	(0.005)
Size (5,000-9,999)	-0.838	-0.042	-0.026+	0.001	0.020*	-0.026+	-0.031***
	(1.189)	(0.030)	(0.016)	(0.012)	(0.009)	(0.015)	(0.007)
Size (10,000-19,999)	-2.460	-0.076+	-0.032	-0.004	0.043***	-0.043*	-0.040***
	(1.656)	(0.041)	(0.021)	(0.017)	(0.012)	(0.020)	(0.010)
Size (20,000 and more)	0.212	-0.058	-0.025	0.039+	0.046**	-0.035	-0.035**
	(2.109)	(0.052)	(0.027)	(0.021)	(0.015)	(0.025)	(0.013)
Highest degree level (master)	0.859	0.040*	0.000	0.006	-0.002	-0.015	-0.010*
	(0.766)	(0.019)	(0.010)	(0.008)	(0.006)	(0.009)	(0.005)
Highest degree level (doctoral)	-0.568	0.052*	0.013	-0.008	0.005	0.000	0.001
	(0.950)	(0.024)	(0.012)	(0.010)	(0.007)	(0.012)	(0.006)
Selectivity: middle-low	0.203	-0.007	0.003	0.007	0.003	0.003	-0.001
	(0.403)	(0.010)	(0.005)	(0.004)	(0.003)	(0.005)	(0.003)
Selectivity: middle-high	1.031*	-0.015	0.002	0.011*	0.004	0.003	0.001
	(0.508)	(0.013)	(0.007)	(0.005)	(0.004)	(0.006)	(0.003)
Selectivity: high	1.549*	-0.023	0.007	0.017*	0.002	0.006	-0.002
	(0.691)	(0.017)	(0.009)	(0.007)	(0.005)	(0.008)	(0.004)
Freshmen tuition (ln)	1.196	0.240***	0.063***	-0.005	-0.004	0.072***	0.049***
	(1.103)	(0.028)	(0.014)	(0.011)	(0.008)	(0.013)	(0.007)
2005	-1.343*	0.002	-0.012	0.003	-0.002	-0.014*	-0.010**
	(0.550)	(0.014)	(0.007)	(0.006)	(0.004)	(0.007)	(0.004)
2006	-1.524**	0.062***	-0.025**	-0.006	-0.019***	-0.027***	-0.013***
	(0.560)	(0.014)	(0.007)	(0.006)	(0.004)	(0.007)	(0.004)
2007	-0.839	0.077***	-0.024**	-0.017**	-0.022***	-0.028***	-0.012**

	(0.594)	(0.015)	(0.008)	(0.006)	(0.004)	(0.007)	(0.004)
2008	-0.600	0.140***	-0.010	-0.012+	-0.027***	-0.013+	-0.011**
	(0.625)	(0.016)	(0.008)	(0.006)	(0.005)	(0.008)	(0.004)
2009	-0.682	0.221***	0.008	-0.016*	-0.032***	0.007	-0.001
	(0.641)	(0.016)	(0.008)	(0.007)	(0.005)	(0.008)	(0.004)
2010	-2.257***	0.268***	0.034***	-0.024***	-0.038***	0.030***	0.020***
	(0.677)	(0.017)	(0.009)	(0.007)	(0.005)	(0.008)	(0.004)
2011	-2.628***	0.293***	0.062***	-0.026***	-0.041***	0.058***	0.031***
	(0.706)	(0.018)	(0.009)	(0.007)	(0.005)	(0.009)	(0.004)
2012	-4.013***	0.308***	0.057***	-0.038***	-0.053***	0.053***	0.031***
	(0.735)	(0.018)	(0.010)	(0.007)	(0.005)	(0.009)	(0.005)
2013	-4.197***	0.330***	0.052***	-0.035***	-0.058***	0.049***	0.026***
	(0.752)	(0.019)	(0.010)	(0.008)	(0.005)	(0.009)	(0.005)
2014	-3.839***	0.359***	0.045***	-0.034***	-0.058***	0.041***	0.021***
	(0.782)	(0.020)	(0.010)	(0.008)	(0.006)	(0.009)	(0.005)
2015	-3.820***	0.370***	0.035***	-0.042***	-0.064***	0.035***	0.016**
	(0.801)	(0.020)	(0.010)	(0.008)	(0.006)	(0.010)	(0.005)
2016	-3.520***	0.393***	0.031**	-0.038***	-0.072***	0.027**	0.011*
	(0.834)	(0.021)	(0.011)	(0.008)	(0.006)	(0.010)	(0.005)
2017	-4.115***	0.396***	0.046***	-0.032***	-0.073***	0.042***	0.013*
	(0.846)	(0.021)	(0.011)	(0.009)	(0.006)	(0.010)	(0.005)
2018	-3.578***	0.445***	0.051***	-0.034***	-0.073***	0.042***	0.009
	(0.864)	(0.022)	(0.011)	(0.009)	(0.006)	(0.010)	(0.005)
Constant	63.901***	6.953***	0.098	0.229*	0.277***	0.020	0.351***
	(10.194)	(0.255)	(0.130)	(0.102)	(0.073)	(0.121)	(0.063)
Observations	10191	10635	9163	8777	9640	9119	9899

Note: Standard errors are clustered by individual institutions.
1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Table 16d. Impact of EAPs on Affordability, 2004-2018

Variables	Percent need-met	Financial aid package (ln)	Rate: freshmen with need/enrolled freshmen	Rate: freshmen with need-fully met/enrolled freshmen	Rate: financial aid applied/all applicants	Rate: financial aid received/enrolled freshmen	Rate: financial aid received/ financial aid applied
EAPs treatment	0.436	0.014	-0.006	0.008+	0.001	-0.006	-0.007*
	(0.412)	(0.010)	(0.006)	(0.004)	(0.003)	(0.005)	(0.003)
Location (suburb)	-0.569	0.061*	-0.006	0.004	-0.004	-0.004	0.005
	(1.078)	(0.027)	(0.015)	(0.011)	(0.008)	(0.014)	(0.007)
Location (town)	-3.147*	0.058+	-0.004	-0.008	-0.007	-0.006	-0.003
	(1.368)	(0.034)	(0.019)	(0.014)	(0.010)	(0.018)	(0.009)
Location (rural)	-2.523	0.030	-0.020	0.041	-0.034*	-0.025	-0.020
	(2.359)	(0.058)	(0.034)	(0.027)	(0.017)	(0.034)	(0.015)
Size (1,000-4,999)	-1.345+	-0.024	-0.020+	0.005	0.005	-0.017	-0.007
	(0.758)	(0.019)	(0.011)	(0.008)	(0.006)	(0.011)	(0.005)
Size (5,000-9,999)	-2.273*	-0.061*	-0.035*	-0.004	0.013	-0.036*	-0.030***
	(1.096)	(0.026)	(0.015)	(0.012)	(0.008)	(0.014)	(0.007)
Size (10,000-19,999)	-2.685+	-0.080*	-0.036+	-0.014	0.034**	-0.049*	-0.039***
	(1.503)	(0.036)	(0.021)	(0.015)	(0.011)	(0.020)	(0.009)
Size (20,000 and more)	-0.362	-0.076+	-0.019	0.030	0.042**	-0.034	-0.030*
	(1.884)	(0.045)	(0.025)	(0.019)	(0.013)	(0.024)	(0.012)
Highest degree level (master)	0.851	0.033+	0.002	-0.006	-0.005	-0.011	-0.006
	(0.729)	(0.018)	(0.010)	(0.008)	(0.005)	(0.010)	(0.005)
Highest degree level (doctoral)	0.019	0.057**	0.018	-0.014	-0.000	0.005	0.006
	(0.889)	(0.021)	(0.012)	(0.009)	(0.006)	(0.012)	(0.006)
Selectivity: middle-low	0.180	-0.001	0.002	0.007	0.002	0.002	-0.001
	(0.381)	(0.009)	(0.005)	(0.004)	(0.003)	(0.005)	(0.002)
Selectivity: middle-high	0.968*	-0.013	-0.003	0.012*	0.001	-0.003	-0.001
	(0.477)	(0.011)	(0.007)	(0.005)	(0.003)	(0.006)	(0.003)
Selectivity: high	1.796**	-0.017	0.003	0.021**	0.001	0.002	-0.007+
	(0.643)	(0.016)	(0.009)	(0.007)	(0.005)	(0.008)	(0.004)
Freshmen tuition (ln)	1.556	0.226***	0.058***	0.003	-0.000	0.064***	0.040***
	(0.954)	(0.023)	(0.013)	(0.010)	(0.007)	(0.012)	(0.006)
2005	-1.331**	0.004	-0.015*	-0.001	-0.003	-0.017*	-0.009**
	(0.511)	(0.012)	(0.007)	(0.005)	(0.004)	(0.007)	(0.003)
2006	-1.895***	0.060***	-0.026***	-0.010+	-0.018***	-0.027***	-0.014***
	(0.517)	(0.013)	(0.007)	(0.005)	(0.004)	(0.007)	(0.003)
2007	-1.237*	0.082***	-0.025**	-0.020***	-0.022***	-0.027***	-0.011**

	(0.547)	(0.013)	(0.008)	(0.006)	(0.004)	(0.007)	(0.003)
2008	-0.795	0.149***	-0.011	-0.015*	-0.028***	-0.013+	-0.009*
	(0.571)	(0.014)	(0.008)	(0.006)	(0.004)	(0.007)	(0.004)
2009	-1.105+	0.223***	0.009	-0.020**	-0.030***	0.009	0.002
	(0.583)	(0.014)	(0.008)	(0.006)	(0.004)	(0.008)	(0.004)
2010	-2.620***	0.273***	0.036***	-0.029***	-0.036***	0.034***	0.022***
	(0.611)	(0.015)	(0.008)	(0.006)	(0.004)	(0.008)	(0.004)
2011	-3.080***	0.299***	0.060***	-0.033***	-0.042***	0.058***	0.034***
	(0.636)	(0.015)	(0.009)	(0.007)	(0.005)	(0.008)	(0.004)
2012	-4.305***	0.315***	0.054***	-0.045***	-0.052***	0.051***	0.033***
	(0.660)	(0.016)	(0.009)	(0.007)	(0.005)	(0.009)	(0.004)
2013	-4.619***	0.338***	0.052***	-0.042***	-0.056***	0.050***	0.029***
	(0.675)	(0.016)	(0.009)	(0.007)	(0.005)	(0.009)	(0.004)
2014	-4.320***	0.364***	0.044***	-0.043***	-0.059***	0.042***	0.024***
	(0.701)	(0.017)	(0.010)	(0.007)	(0.005)	(0.009)	(0.004)
2015	-4.075***	0.374***	0.044***	-0.043***	-0.062***	0.044***	0.020***
	(0.718)	(0.017)	(0.010)	(0.007)	(0.005)	(0.009)	(0.005)
2016	-3.770***	0.397***	0.033**	-0.044***	-0.072***	0.031**	0.015**
	(0.747)	(0.018)	(0.010)	(0.008)	(0.005)	(0.010)	(0.005)
2017	-4.351***	0.412***	0.048***	-0.039***	-0.071***	0.046***	0.017***
	(0.756)	(0.018)	(0.010)	(0.008)	(0.005)	(0.010)	(0.005)
2018	-4.119***	0.450***	0.051***	-0.042***	-0.072***	0.045***	0.013**
	(0.772)	(0.019)	(0.010)	(0.008)	(0.006)	(0.010)	(0.005)
Constant	60.935***	7.094***	0.145	0.161+	0.246***	0.094	0.429***
	(8.844)	(0.214)	(0.118)	(0.089)	(0.063)	(0.112)	(0.055)
Observations	11626	12111	10463	10038	11013	10412	11292

Note: Standard errors are clustered by individual institutions.

1) p<.10+, p<.05 *, p<.01**, p<.001***; 2) reference groups: location (city), region (northeast), size (Under 1,000), highest degree level (bachelor), and selectivity (low).

Robustness Check

Panel event study with leads and Lags

The event study could be placed as the parallel assumption test, even though it is not a direct test, since the event study shows the two groups of units were comparable on dynamics in the pre-treatment period (Cunningham, 2021). In the graphs presented in Figures 9 to 11, lags and leads capture the differences between treated and control groups, compared to the differences in the omitted baseline period. Unbiased estimation of post-event treatment effects relies on the parallel trends assumption. Thus, in the graphs before the treatment periods, leads close to zero indicate that the common-trends assumption may hold, and that differences similar to those in the baseline period are maintained. For this analysis, the cases showing only the statistically significant effects of ATT for each type of early admissions on institutional outcomes from the previous analysis (two-way fixed effects with DID) were examined for this panel event study to conduct the robustness check. The results of the analysis and figures indicate that the parallel trend assumption is valid overall, even though several outcomes (e.g., retention rate and enrolled non-resident alien rate in EA, percent need-met and enrolled Asian/Pacific Islander rate in ED) warrant care in drawing conclusions and causal inferences since the parallel assumption was not stable during the years before implementing the treatment.

Figure 9. Panel event study with leads and lags graphs of each type of treatment (EA/ED/EAD/EAPs) on diversity outcomes

Note: In the graphs, point estimates (diamond-shaped) are displayed along with their 95% confidence intervals (solid lines). The omitted baseline period is one year prior to the adoption of each type of early admissions, indicated by the solid red vertical line in the plot. the cases showing only significant effects of each type of early admissions on institutional outcomes from the previous analysis, two-way fixed effects with DID.
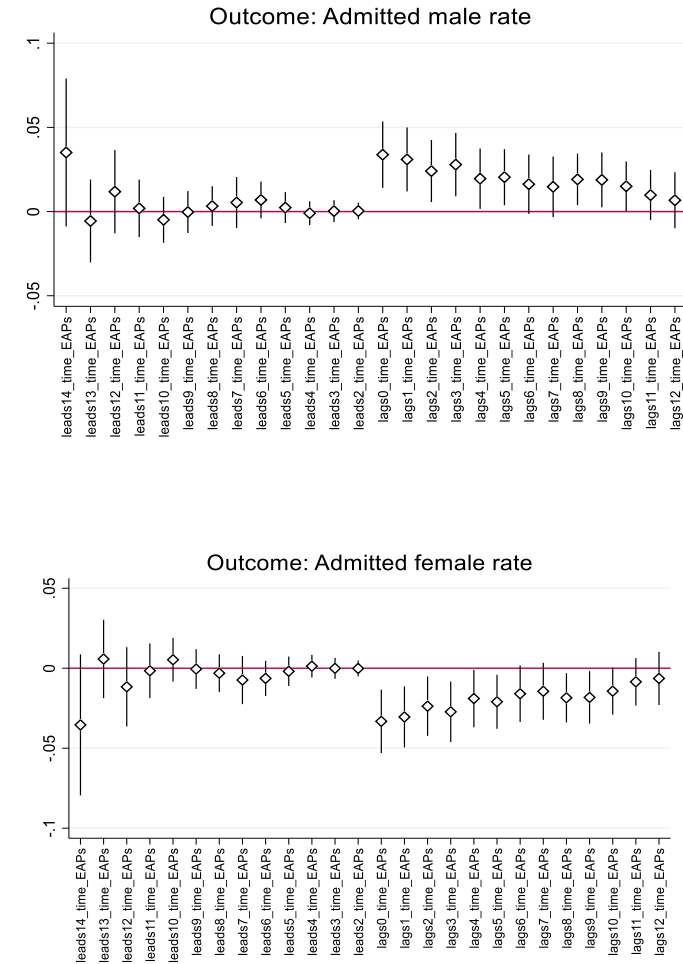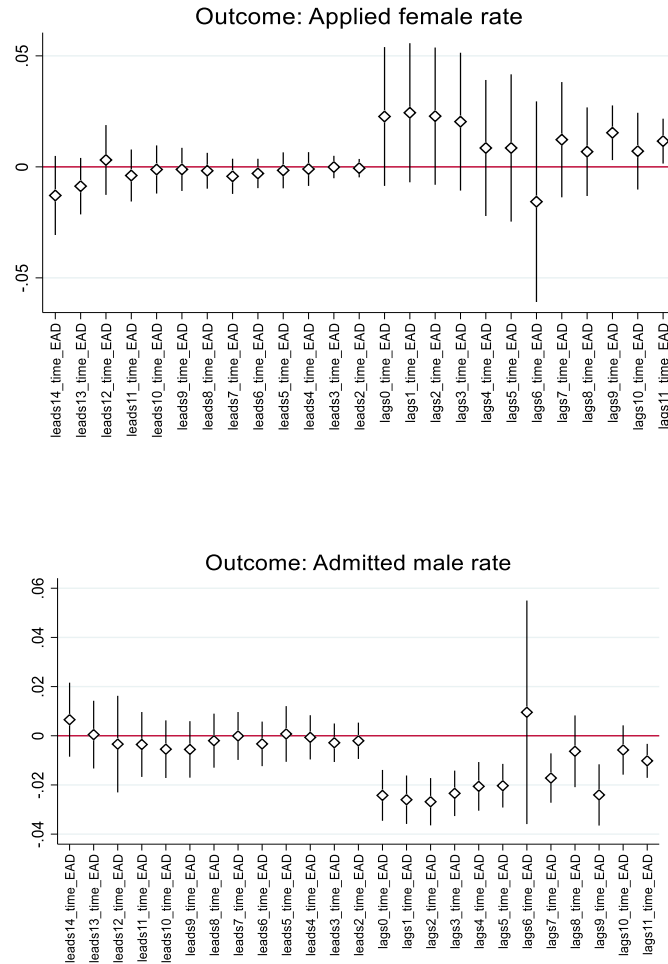
Outcome: Admitted female rate
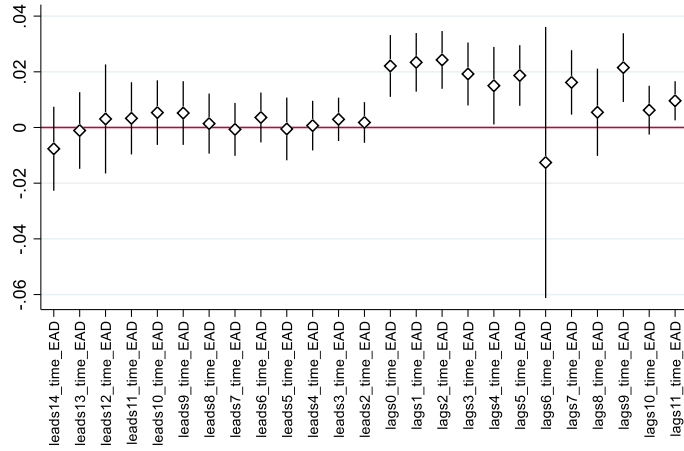
Outcome: Enrolled female rate
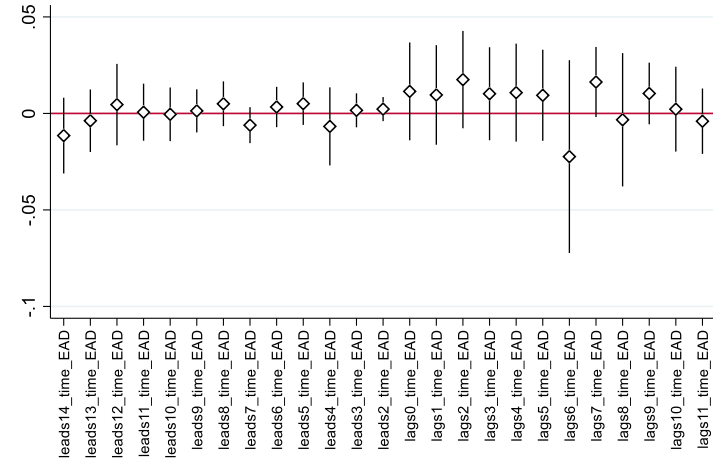
Outcome: Applied male rate
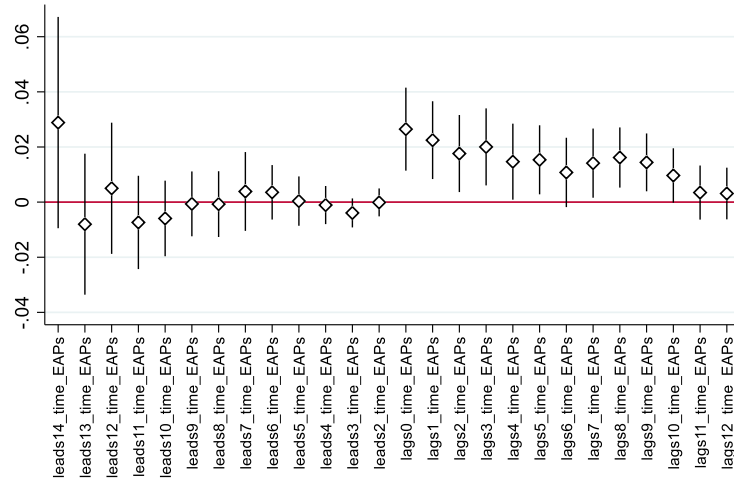
Outcome: Enrolled non-resident alien rate
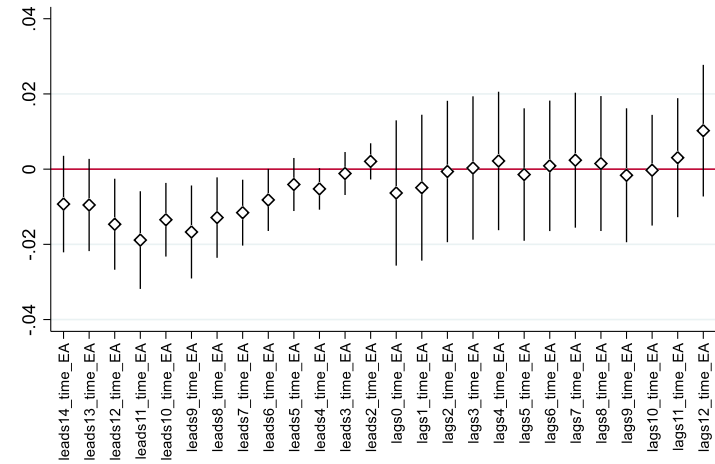
Outcome: Percent disabled student
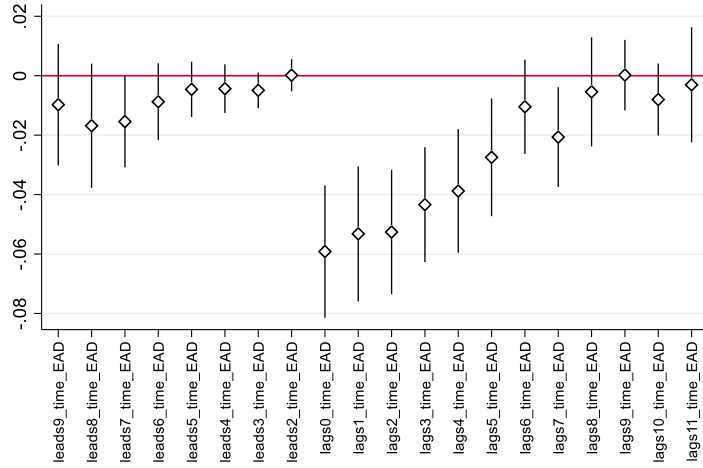
Outcome: Percent disabled student
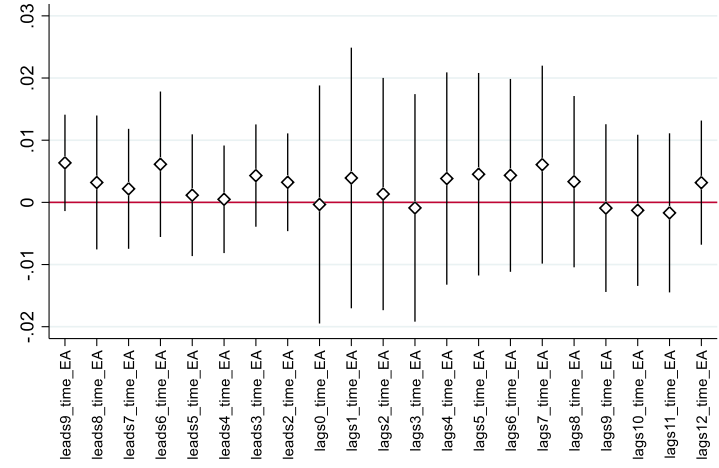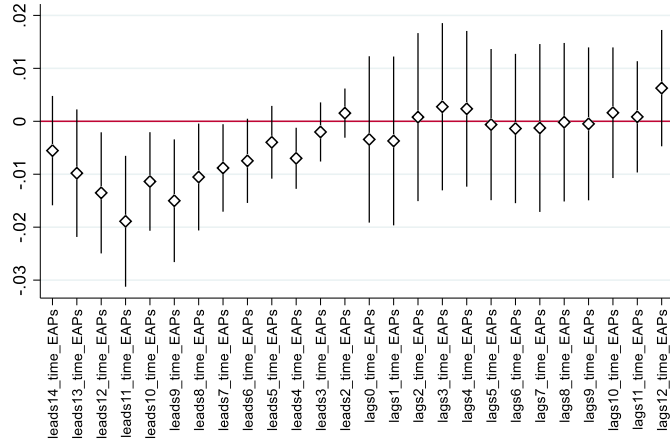
Outcome: Enrolled non-resident alien rate

Outcome: Enrolled out-of-state rate
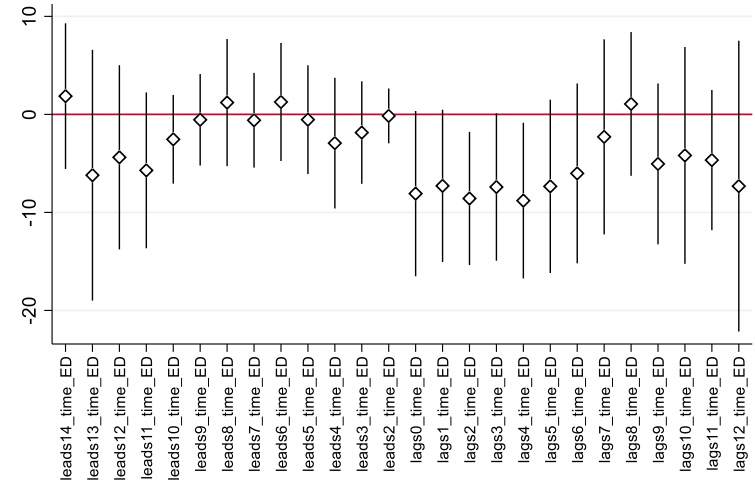
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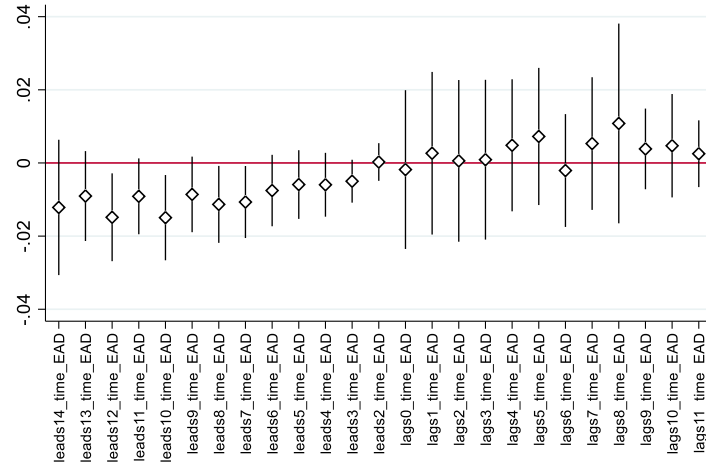
Outcome: Enrolled out-of-state percent
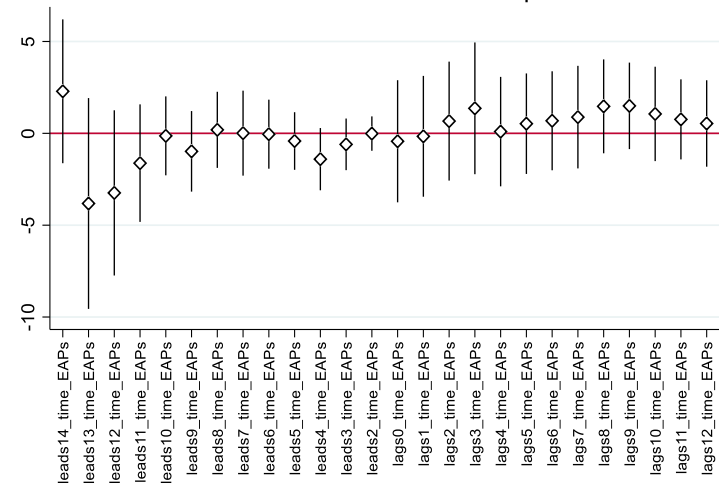
Outcome: Percent disabled student
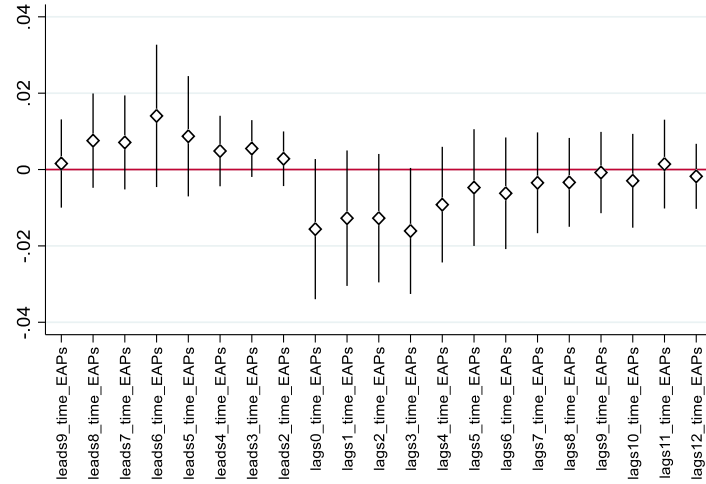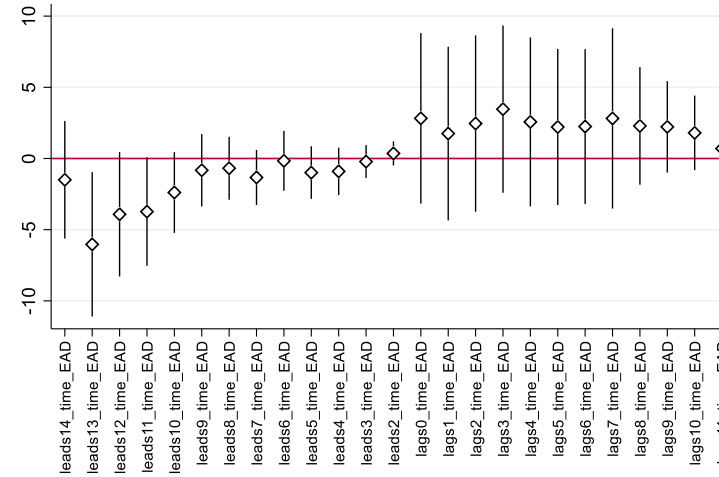
Outcome: Enrolled out-of-state rate

Outcome: Enrolled Asian/Pacific Islander rate

Outcome: Enrolled Asian/Pacific Islander rate
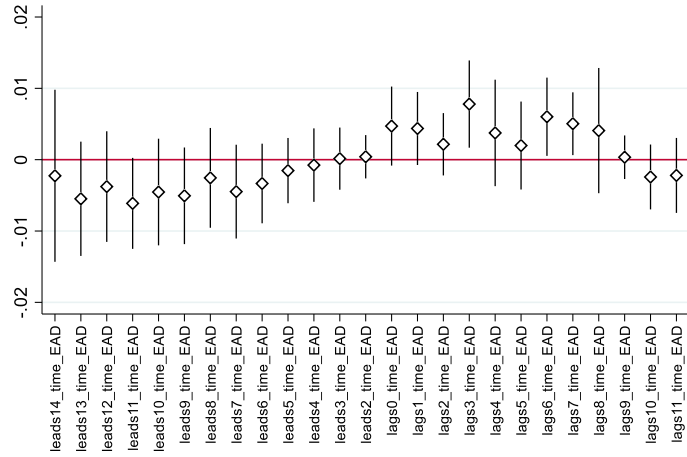
Outcome: Enrolled White rate
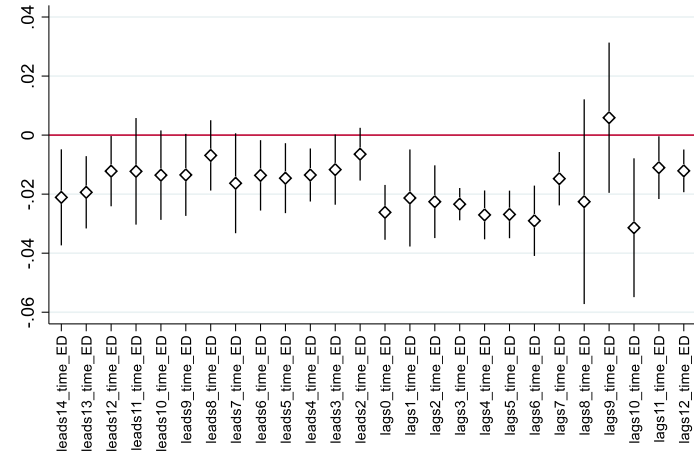
Outcome: Enrolled Black rate
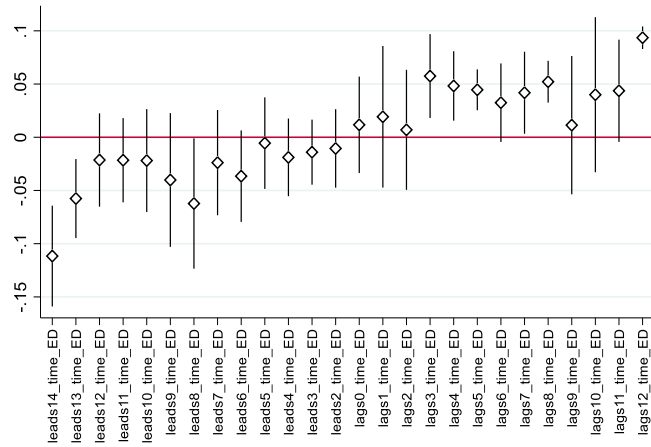
Outcome: Enrolled Black Rate
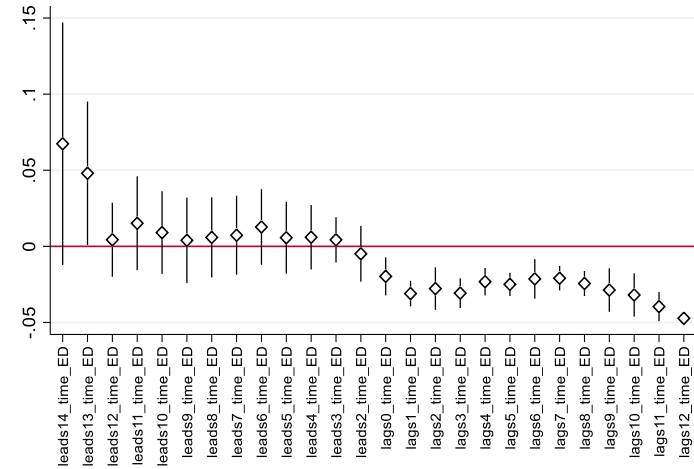
Outcome: Enrolled White rate
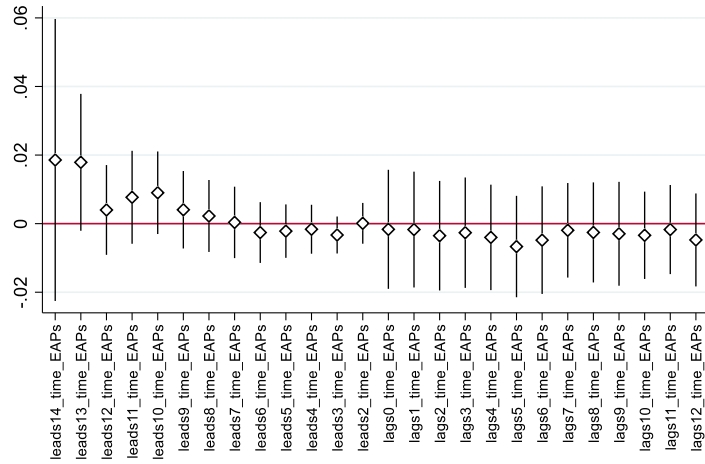
Outcome: Enrolled White Rate
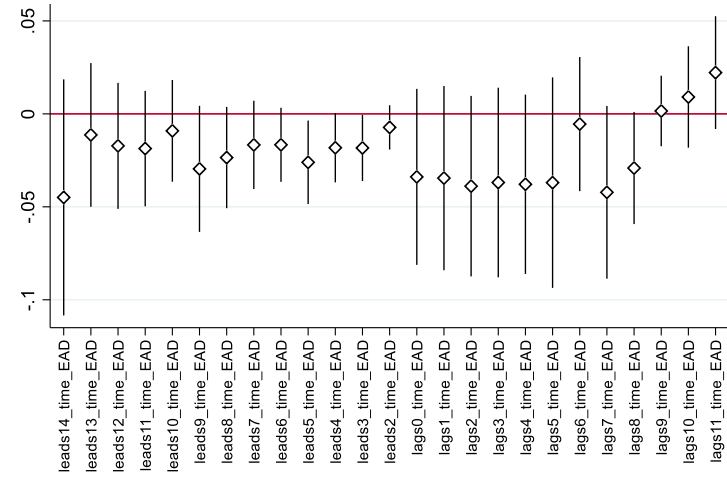
Outcome: Enrolled Hispanic Rate
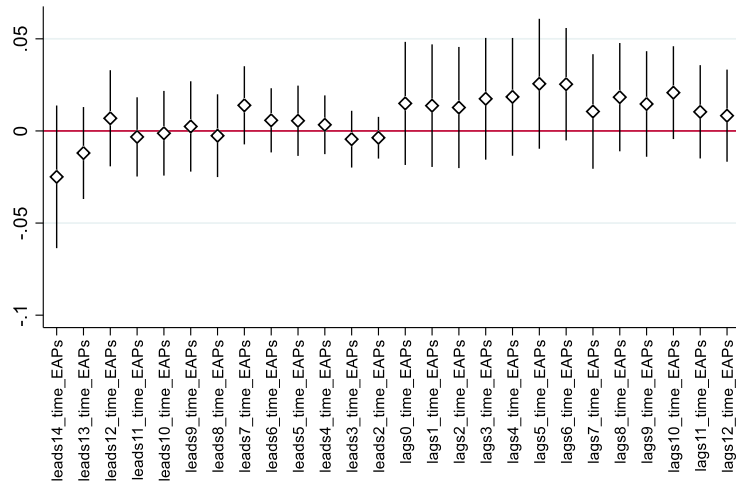
Outcome: Enrolled Hispanic rate
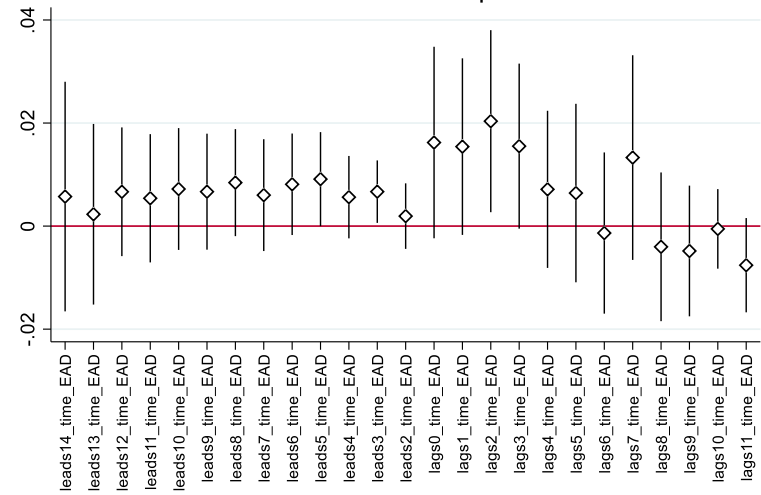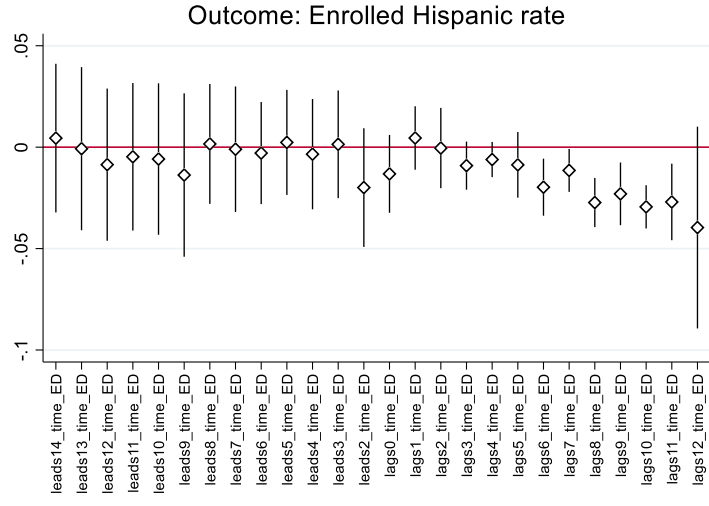
Figure 10. Panel event study with leads and lags graphs of each type of treatment (EA/ED/EAD/EAPs) on quality outcomes

Note: In the graphs, point estimates (diamond-shaped) are displayed along with their 95% confidence intervals (solid lines). The omitted baseline period is one year prior to the adoption of each type of early admissions, indicated by the solid red vertical line in the plot. the cases showing only significant effects of each type of early admissions on institutional outcomes from the previous analysis, two-way fixed effects with DID.
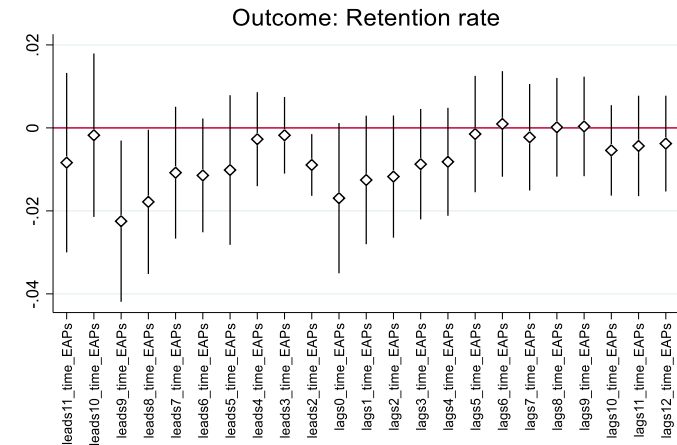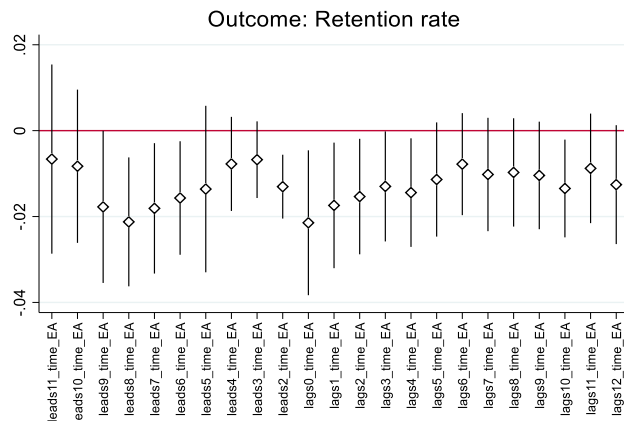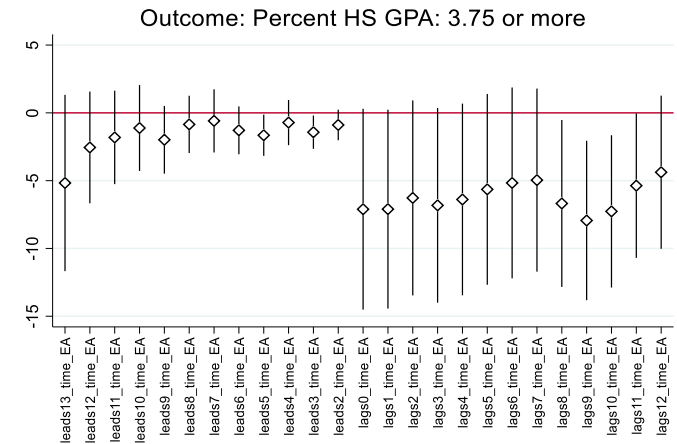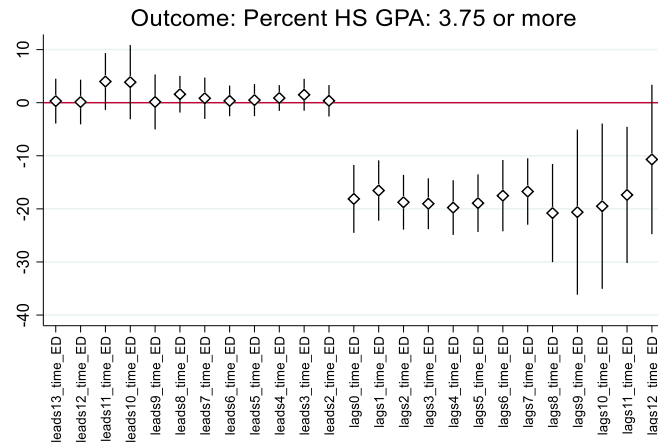
Outcome: Percent HS GPA: 2.00 -2.49
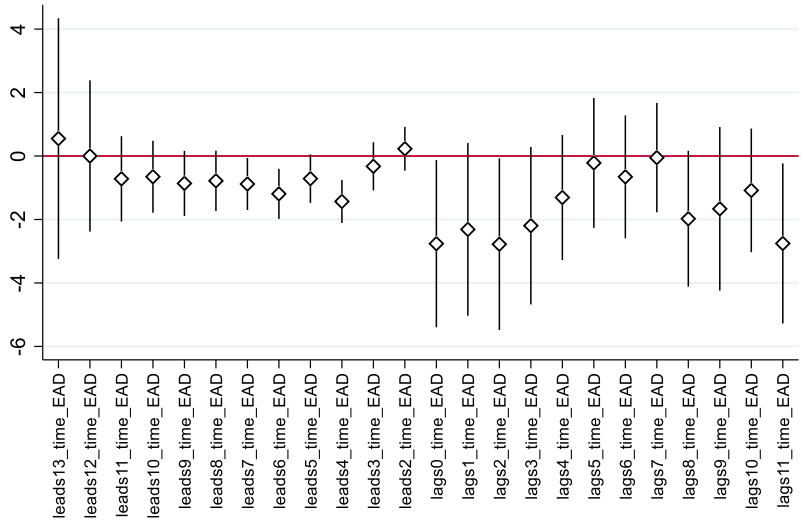
Figure 11. Panel event study with leads and lags graphs of each type of treatment (EA/ED/EAD/EAPs) on affordability outcomes

Note: In the graphs, point estimates (diamond-shaped) are displayed along with their 95% confidence intervals (solid lines). The omitted baseline period is one year prior to the adoption of each type of early admissions, indicated by the solid red vertical line in the plot. the cases showing only significant effects of each type of early admissions on institutional outcomes from the previous analysis, two-way fixed effects with DID.

Outcome: Financial aid received rate

Outcome: Percent need-met

Outcome: Financial aid received rate

Outcome: Freshmen with need-fully met rate
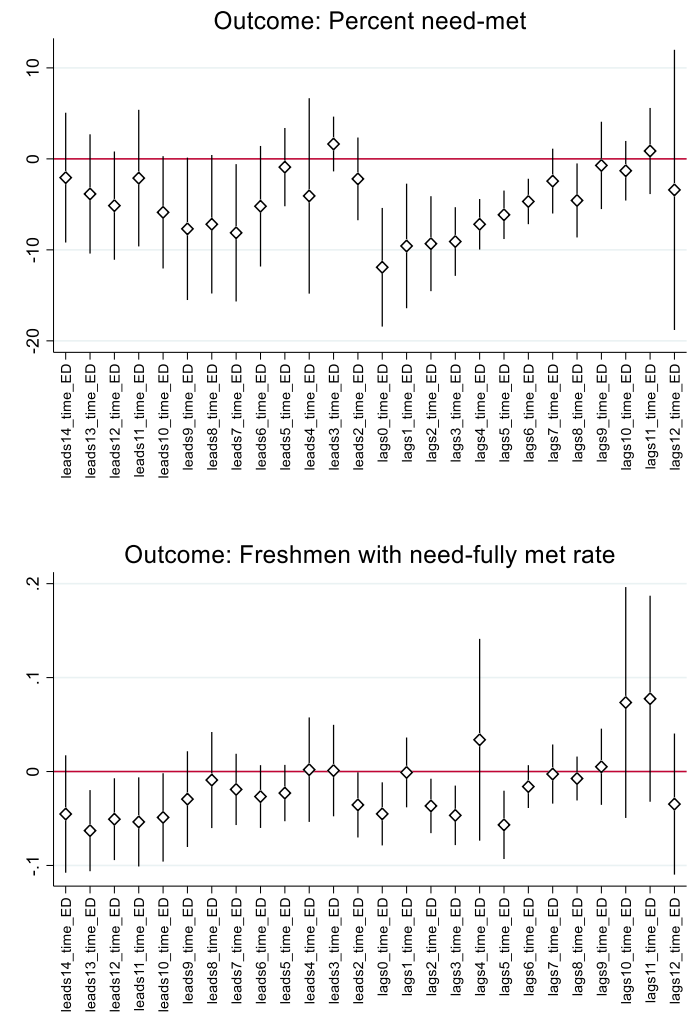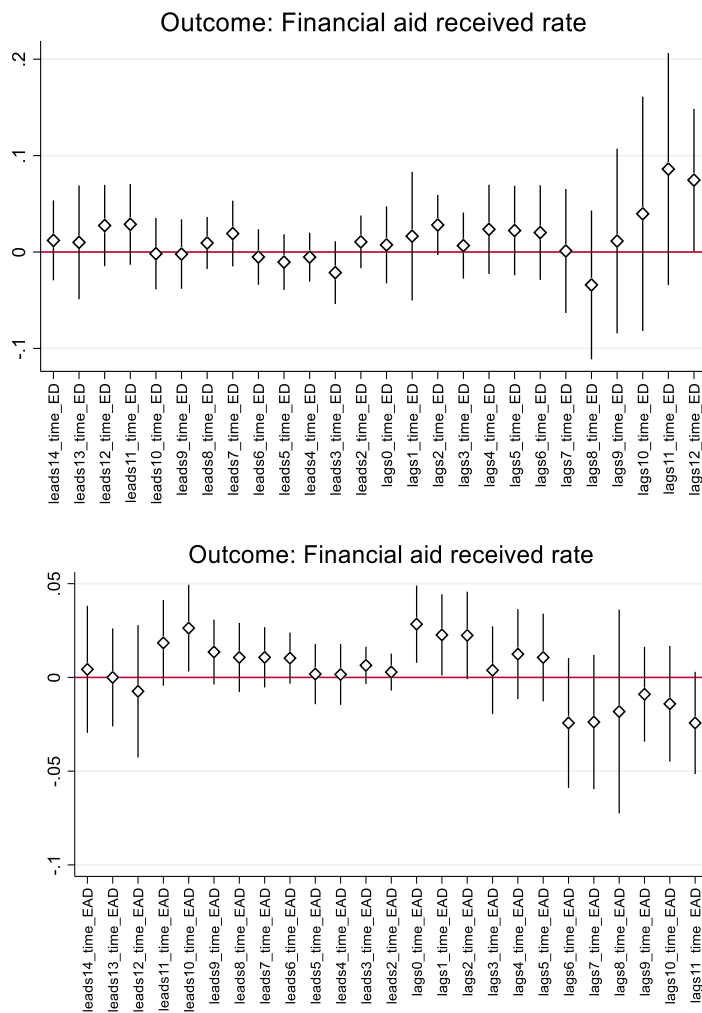
Outcome: Freshmen with need-fully met rate
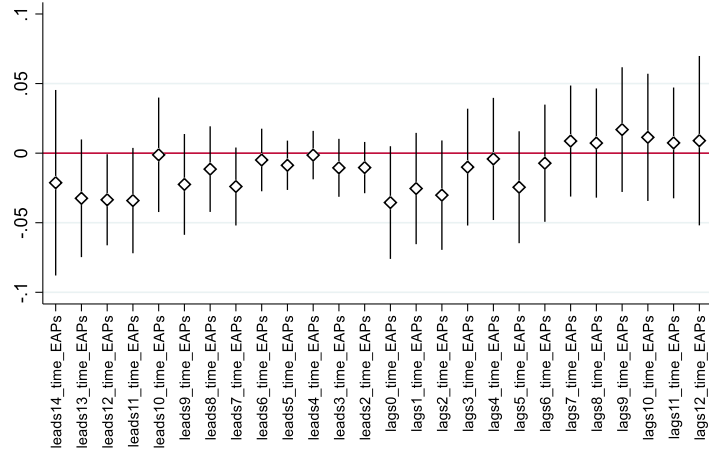
Outcome: Financial aid received rate
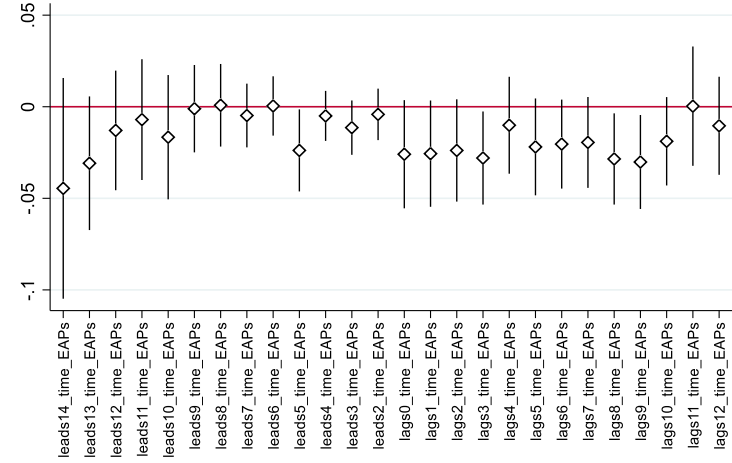
<u>Different control groups</u>

        In order to conduct a robustness check for the main analysis, a different control group analysis was performed, along with limited outcomes, when a significant impact was found in previous two-way fixed effects with DID analysis. The full model, a restricted model, includes year-fixed effects, institution-fixed effects, and other covariates. The F-test results were all significant, and the results presented the effects of the treatment, each type of early admissions, and outcomes by institutional type–control, location, region, size, highest degree level, and selectivity. According to the results from the different control group robustness checks presented in Tables 17- 20, the ATT from the main analysis of two-way fixed effects with DID and the ATT in each different control group corresponded to the direction of the impact, positive or negative, regardless of whether the values were statistically significant or not, and the degree of the coefficient varied little depending on institutional characteristics. Thus, the results supporting the impacts of treatment were generally robust in any situations or any groups considering the covariates, or different control groups.

Table 17. EA policy – Different control groups

EA treatment	Full model (including year fixed effect, institution fixed effect, and covariates)			
	Diversity		Quality	
	(1)	(2)	(3)	(4)
Control: Private	0.006***	-0.003	0.261	0.006
	(0.002)	(0.002)	(0.300)	(0.004)
Obs.	5798	2542	7150	7636
Control: Public	0.000	-0.005*	0.853*	0.003
	(0.001)	(0.002)	(0.410)	(0.003)
Obs.	5311	1563	5001	5357
Location: City	0.007**	-0.004	-0.082	-0.002
	(0.003)	(0.003)	(0.497)	(0.005)
Obs.	2797	922	2865	3129
Location: Suburb	0.004*	-0.005+	0.609	0.006+
	(0.002)	(0.003)	(0.442)	(0.004)
Obs.	3457	1225	3544	3781
Location: Town	-0.004*	-0.004	0.606	0.006
	(0.002)	(0.003)	(0.373)	(0.004)
Obs.	4517	1802	5291	5541
Location: Rural	0.001	-0.002	-0.874	-0.007
	(0.006)	(0.008)	(1.286)	(0.019)
Obs.	338	156	451	542
Region: Northeast	0.001	-0.004	0.241	0.007+
	(0.002)	(0.003)	(0.395)	(0.003)
Obs.	2649	1334	2787	3001
Region: Midwest	0.011***	-0.001	0.955*	0.011*
	(0.002)	(0.004)	(0.438)	(0.006)
Obs.	3424	1149	3808	4075
Region: South	0.001	-0.003	0.790	-0.003
	(0.002)	(0.003)	(0.511)	(0.005)
Obs.	3665	1121	3982	4422
Region: West	-0.001	-0.004	-0.236	0.009+
	(0.003)	(0.004)	(0.638)	(0.005)
Obs.	1371	501	1574	1495
Size: Under 1,000	0.016*	-0.007	-0.314	0.004
	(0.006)	(0.007)	(0.779)	(0.012)
Obs.	883	475	1503	1847
Size: 1,000-4,999	0.004*	-0.002	0.120	0.007*
	(0.002)	(0.003)	(0.337)	(0.003)

Obs.	4946	2100	5927	6157
Size: 5,000-9,999	0.001	-0.009**	1.378**	0.001
	(0.002)	(0.003)	(0.514)	(0.005)
Obs.	2002	675	1956	2045
Size: 10,000-19,999	0.005*	0.000	1.096	0.010+
	(0.002)	(0.004)	(0.727)	(0.005)
Obs.	1648	470	1408	1489
Size: 20,000 +	-0.003	0.002	-1.454+	0.002
	(0.002)	(0.003)	(0.815)	(0.003)
Obs.	1630	385	1357	1455
Highest degree: BA level	0.003	0.009	0.472	0.008
	(0.004)	(0.006)	(0.713)	(0.010)
Obs.	1298	563	1704	1958
Highest degree: MA level	0.007**	-0.005*	0.166	0.002
	(0.002)	(0.003)	(0.402)	(0.004)
Obs.	4277	1601	5039	5242
Highest degree: PhD level	0.002+	-0.004*	0.652+	0.006*
	(0.001)	(0.002)	(0.351)	(0.003)
Obs.	5534	1941	5408	5793
Selectivity: Low	0.004+	-0.002	0.407	0.022***
	(0.003)	(0.004)	(0.441)	(0.006)
Obs.	3035	1136	3835	4469
Selectivity: Middle-low	-0.000	-0.005	0.313	-0.009
	(0.002)	(0.004)	(0.536)	(0.006)
Obs.	3135	1265	3569	3547
Selectivity: Middle-high	-0.001	-0.002	-0.449	-0.004
	(0.002)	(0.003)	(0.490)	(0.004)
Obs.	2892	1083	2919	3013
Selectivity: High	0.006**	0.001	-0.141	0.002
	(0.002)	(0.003)	(0.578)	(0.003)
Obs.	2047	621	1828	1964

Note: Standard errors are clustered by individual institutions. Outcomes indicates (1) enrolled non-resident alien rate; (2) percent of disabled students; (3) percent HS GPA: 3.75 or more; (4) retention rate of freshmen; F-statistics of all models are statistically significant.

$p<.10+$, $p<.05$ *, $p<.01$**, $p<.001$***

Table 18. ED policy – Different control groups

ED treatment	Full model (including year fixed effect, institution fixed effect, and covariates)								
	Diversity					Quality	Affordability		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Control: Private	0.029***	-0.014**	-0.004*	-0.006+	2.120**	-0.455	2.651*	0.028*	-0.020**
	(0.008)	(0.005)	(0.002)	(0.004)	(0.704)	(0.620)	(1.108)	(0.012)	(0.007)
Obs.	6380	6295	5652	6213	8093	6400	5706	4720	5462
Control: Public	0.020+	-0.006	-0.004	-0.003	1.007	-1.695*	-0.707	0.018	-0.017
	(0.010)	(0.006)	(0.004)	(0.004)	(0.800)	(0.789)	(1.913)	(0.017)	(0.011)
Obs.	5249	5244	5125	5226	5928	4605	4526	4055	4472
Location: City	0.043**	-0.014	-0.006	-0.006	3.115***	-0.015	2.296	0.031	-0.087***
	(0.014)	(0.008)	(0.005)	(0.007)	(0.925)	(0.488)	(2.159)	(0.025)	(0.017)
Obs.	2827	2804	2672	2781	3358	2567	2455	2112	2367
Location: Suburb	0.003	0.001	-0.005+	-0.001	2.476**	-0.788	0.664	0.026	0.023*
	(0.011)	(0.006)	(0.003)	(0.005)	(0.928)	(0.988)	(1.711)	(0.016)	(0.010)
Obs.	3411	3400	3257	3387	3981	3141	2999	2642	2952
Location: Town	0.027**	-0.009+	-0.004	-0.010*	0.703	-1.060	2.028	-0.001	-0.020*
	(0.010)	(0.005)	(0.003)	(0.004)	(0.878)	(0.663)	(1.523)	(0.015)	(0.008)
Obs.	4987	4950	4539	4885	6124	4884	4439	3750	4278
Location: Rural	0.026	-0.039+	-0.009+	-0.010	2.545	0.063	-3.234	0.227***	0.006
	(0.030)	(0.020)	(0.005)	(0.011)	(3.564)	(2.671)	(5.045)	(0.060)	(0.028)
Obs.	404	385	309	386	558	413	339	271	337
Region: Northeast	0.042***	-0.015**	-0.005*	-0.004	1.750**	-0.605	1.900	0.018	-0.015*
	(0.008)	(0.005)	(0.002)	(0.004)	(0.644)	(0.675)	(1.157)	(0.014)	(0.007)
Obs.	2839	2803	2730	2798	3247	2438	2548	2221	2456
Region: Midwest	-0.006	-0.018*	0.006	-0.011	1.899	-0.429	5.084	0.077*	-0.005
	(0.020)	(0.009)	(0.005)	(0.007)	(1.542)	(1.151)	(3.448)	(0.031)	(0.016)
Obs.	3656	3593	3352	3578	4494	3538	3267	2776	3192
Region: South	0.015	-0.007	-0.002	-0.001	0.060	-1.217	0.416	0.021	0.000
	(0.010)	(0.008)	(0.002)	(0.005)	(1.016)	(0.902)	(1.894)	(0.018)	(0.012)
Obs.	3797	3839	3376	3735	4713	3653	3182	2707	3095
Region: West	0.038+	-0.003	-0.017	-0.008	6.079*	-3.337	-4.381	-0.003	-0.160***
	(0.022)	(0.008)	(0.014)	(0.015)	(2.434)	(2.646)	(3.719)	(0.034)	(0.035)
Obs.	1337	1304	1319	1328	1567	1376	1235	1071	1191
Size: Under 1,000	0.006	-0.015	-0.006	-0.013	6.114***	-1.589	-5.022+	0.044	-0.082**

	(0.021)	(0.015)	(0.006)	(0.010)	(1.826)	(1.354)	(2.853)	(0.028)	(0.028)
Obs.	1293	1201	878	1156	1986	1415	1130	849	1080
Size: 1,000-4,999	0.032***	-0.011*	-0.003	-0.005	0.829	-0.333	3.004*	0.043**	-0.013+
	(0.008)	(0.005)	(0.003)	(0.003)	(0.781)	(0.641)	(1.270)	(0.014)	(0.007)
Obs.	5484	5492	5092	5442	6741	5434	4865	4103	4632
Size: 5,000-9,999	0.049**	-0.014	0.000	-0.017*	2.170*	-1.668+	0.878	0.017	-0.005
	(0.016)	(0.009)	(0.004)	(0.007)	(0.879)	(0.978)	(2.884)	(0.027)	(0.016)
Obs.	1874	1866	1834	1864	2150	1697	1566	1365	1575
Size: 10,000-19,999	-0.016	0.003	-0.016**	0.028*	0.723	-3.625+	-2.500	-0.013	-0.047
	(0.019)	(0.012)	(0.006)	(0.011)	(1.484)	(2.039)	(5.432)	(0.041)	(0.032)
Obs.	1587	1589	1582	1586	1695	1329	1378	1254	1357
Size: 20,000 +	-0.022	0.020**	-0.010	0.010	-0.330	-1.723	-5.002+	-0.042+	0.026
	(0.025)	(0.006)	(0.007)	(0.008)	(1.200)	(2.346)	(2.677)	(0.025)	(0.018)
Obs.	1391	1391	1391	1391	1449	1130	1293	1204	1290
Highest degree: BA level	-0.004	-0.006	0.001	-0.008	-0.239	-1.059	-1.479	-0.011	0.009
	(0.024)	(0.013)	(0.008)	(0.008)	(1.866)	(1.497)	(2.688)	(0.030)	(0.016)
Obs.	1574	1583	1306	1518	2181	1577	1471	1197	1412
Highest degree: MA level	0.020*	-0.017**	-0.004	-0.005	3.187***	-0.574	1.281	0.051***	-0.038***
	(0.008)	(0.005)	(0.003)	(0.004)	(0.796)	(0.650)	(1.475)	(0.015)	(0.009)
Obs.	4840	4761	4388	4742	6025	4681	4206	3505	4049
Highest degree: PhD level	0.031**	-0.001	-0.007*	-0.005	0.592	-2.019*	1.359	-0.009	0.005
	(0.010)	(0.005)	(0.003)	(0.005)	(0.741)	(0.841)	(1.544)	(0.016)	(0.010)
Obs.	5215	5195	5083	5179	5815	4747	4555	4073	4473
Selectivity: Low	0.054***	-0.023+	-0.003	-0.015*	-0.242	-1.678*	3.565	0.030	-0.021
	(0.014)	(0.012)	(0.005)	(0.008)	(1.308)	(0.808)	(2.831)	(0.030)	(0.016)
Obs.	3519	3550	3048	3451	4712	3580	2878	2311	2765
Selectivity: Middle-low	0.047**	-0.025**	-0.006	-0.009	4.267**	0.453	-3.459	0.020	-0.002
	(0.018)	(0.008)	(0.005)	(0.008)	(1.318)	(1.469)	(2.760)	(0.028)	(0.020)
Obs.	3379	3338	3165	3314	4000	3262	3017	2560	2897
Selectivity: Middle-high	0.027**	-0.010**	0.002	-0.005	0.311	0.121	1.827	0.036*	-0.029**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	(0.010)	(0.004)	(0.003)	(0.004)	(0.920)	(0.823)	(1.654)	(0.018)	(0.010)
Obs.	2781	2755	2679	2749	3150	2544	2518	2234	2485
Selectivity: High	0.015	0.005+	-0.011**	0.001	1.247	-2.347+	-1.934	-0.025	-0.009
	(0.014)	(0.003)	(0.004)	(0.004)	(0.760)	(1.323)	(1.589)	(0.016)	(0.012)
Obs.	1950	1896	1885	1925	2159	1619	1819	1670	1787

Note: Standard errors are clustered by individual institutions. Outcomes: (1) enrolled White rate; (2) enrolled Black rate; (3) enrolled Asian/Pacific Islander rate; (4) enrolled Hispanic rate; (5) percent of out-of-state freshmen; (6) percent HS GPA: 3.75 or more; (7) percent of need-met freshmen; (8) rate: freshmen with need/enrolled freshmen; (9) rate: freshmen with need-fully met/enrolled freshmen; F-statistics of all models are statistically significant.
p<.10+, p<.05 *, p<.01**, p<.001***

Table 19. EAD policy – Different control groups

EAD treatment	Full model (including year fixed effect, institution fixed effect, and covariates)										Quality	Affordability
	Diversity											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Control: Private	0.011*	-0.012*	0.012*	0.014*	0.009*	1.830*	-0.006	0.012	0.005*	-0.004	-0.940*	-0.016*
	(0.005)	(0.006)	(0.006)	(0.006)	(0.003)	(0.827)	(0.005)	(0.009)	(0.002)	(0.004)	(0.441)	(0.007)
Obs.	8443	8347	8417	8430	5319	8158	2321	6473	5756	6316	5906	5572
Control: Public	-0.020*	0.003	-0.003	0.005	-0.004	-4.852*	-0.014+	0.049+	-0.006	-0.007	-1.609	0.011
	(0.010)	(0.011)	(0.011)	(0.014)	(0.010)	(2.176)	(0.008)	(0.029)	(0.010)	(0.012)	(3.004)	(0.027)
Obs.	5881	5880	5880	5895	4744	5760	1332	5097	4973	5074	3879	4341
Location: City	-0.008	0.005	-0.004	0.007	0.022***	-2.421*	0.023	0.001	0.010	-0.015+	-0.305	-0.038*
	(0.009)	(0.009)	(0.009)	(0.011)	(0.007)	(1.207)	(0.021)	(0.017)	(0.006)	(0.008)	(1.001)	(0.017)
Obs.	3423	3379	3413	3414	2516	3322	797	2797	2650	2763	2111	2364
Location: Suburb	0.014*	-0.021***	0.019**	0.015*	0.003	1.955*	-0.001	0.052***	0.003	-0.007	-1.312+	-0.018+
	(0.006)	(0.006)	(0.006)	(0.008)	(0.004)	(0.975)	(0.005)	(0.012)	(0.003)	(0.005)	(0.735)	(0.011)
Obs.	4113	4081	4109	4118	3070	3983	1072	3424	3273	3399	2721	2980
Location: Town	0.007	-0.003	0.003	-0.000	-0.005	1.696	0.001	-0.004	0.002	-0.002	0.432	0.011
	(0.009)	(0.010)	(0.010)	(0.011)	(0.006)	(1.670)	(0.007)	(0.017)	(0.005)	(0.007)	(0.832)	(0.014)
Obs.	6203	6183	6196	6213	4158	6043	1631	4922	4475	4822	4547	4215
Location: Rural	0.049+	-0.040	0.040	0.047	0.017	12.217**	-0.073**	-0.153***	-0.007	-0.007	-3.769*	0.014
	(0.026)	(0.027)	(0.026)	(0.029)	(0.011)	(4.143)	(0.026)	(0.037)	(0.006)	(0.013)	(1.667)	(0.028)
Obs.	585	584	579	580	319	570	153	427	331	406	406	354
Region: Northeast	0.009	-0.011	0.010	0.008	0.002	4.651***	-0.024**	0.038**	0.010**	0.002	-0.645	-0.027**
	(0.008)	(0.008)	(0.008)	(0.010)	(0.005)	(1.146)	(0.008)	(0.013)	(0.004)	(0.006)	(1.009)	(0.010)
Obs.	3113	3094	3110	3116	2258	3047	1116	2699	2598	2660	2178	2315
Region: Midwest	0.017	-0.022+	0.022+	0.039**	0.036***	-3.691*	0.002	-0.044+	-0.002	0.005	0.092	0.013
	(0.012)	(0.013)	(0.012)	(0.014)	(0.008)	(1.765)	(0.011)	(0.024)	(0.005)	(0.008)	(0.911)	(0.015)
Obs.	4691	4670	4677	4680	3207	4558	1074	3711	3405	3633	3237	3255
Region: South	0.007	-0.008	0.009	0.012	0.005	1.343	0.004	0.010	-0.001	-0.006	-0.872	-0.017
	(0.006)	(0.007)	(0.007)	(0.008)	(0.004)	(1.125)	(0.005)	(0.012)	(0.002)	(0.005)	(0.747)	(0.012)
Obs.	4914	4857	4904	4922	3391	4739	1016	3814	3398	3759	3338	3143
Region: West	-0.004	0.006	-0.005	-0.022	-0.002	0.701	0.000	0.023	0.004	-0.059***	-0.540	-0.025
	(0.012)	(0.012)	(0.012)	(0.015)	(0.016)	(2.735)	(.)	(0.025)	(0.017)	(0.017)	(1.149)	(0.030)
Obs.	1606	1606	1606	1607	1207	1574	447	1346	1328	1338	1032	1200
Size: Under 1,000	0.021	-0.030	0.026	0.027	0.076***	2.632	-0.066**	0.018	0.003	-0.008	-0.759	-0.014
	(0.018)	(0.021)	(0.019)	(0.021)	(0.022)	(2.617)	(0.023)	(0.033)	(0.008)	(0.015)	(1.394)	(0.031)
Obs.	2088	2042	2070	2072	815	1977	453	1289	888	1156	1328	1089
Size:	0.008	-0.009	0.009	0.005	0.000	1.606	0.007	-0.008	0.000	-0.001	-0.878	-0.011

1,000-4,999	(0.006)	(0.006)	(0.006)	(0.007)	(0.004)	(1.003)	(0.005)	(0.010)	(0.003)	(0.004)	(0.538)	(0.008)
Obs.	6878	6828	6869	6881	4593	6697	1909	5466	5070	5430	5078	4620
Size: 5,000-9,999	-0.006	0.011	-0.011	-0.002	0.022***	-1.060	-0.031**	0.036+	-0.009+	-0.005	0.292	-0.018
	(0.008)	(0.009)	(0.009)	(0.012)	(0.005)	(1.281)	(0.010)	(0.021)	(0.005)	(0.009)	(1.613)	(0.018)
Obs.	2196	2195	2196	2205	1761	2153	551	1889	1850	1879	1520	1595
Size: 10,000-19,999	-0.029	0.003	-0.003	-0.010	0.074***	4.166	0.000	0.096+	0.039*	-0.054+	0.000	-0.140+
	(0.024)	(0.025)	(0.025)	(0.032)	(0.018)	(4.505)	(.)	(0.053)	(0.017)	(0.031)	(.)	(0.071)
Obs.	1688	1688	1688	1693	1534	1660	436	1554	1549	1553	1167	1339
Size: 20,000 +	-0.039***	0.027***	-0.027**	0.015	0.016+	-2.565+	0.000	0.022	0.041***	-0.036***	-0.638	-0.040
	(0.006)	(0.008)	(0.009)	(0.011)	(0.008)	(1.498)	(.)	(0.034)	(0.010)	(0.011)	(1.403)	(0.029)
Obs.	1474	1474	1474	1474	1360	1431	304	1372	1372	1372	692	1270
Highest degree: BA level	0.007	-0.004	0.005	0.014	0.008	2.114	0.012	-0.014	0.004	0.012+	-1.051	0.015
	(0.013)	(0.013)	(0.014)	(0.016)	(0.006)	(1.792)	(0.009)	(0.019)	(0.006)	(0.006)	(1.109)	(0.013)
Obs.	2348	2324	2333	2334	1272	2259	592	1643	1373	1592	1576	1489
Highest degree: MA level	0.019**	-0.026***	0.023**	0.021*	0.004	2.397*	-0.013*	-0.011	-0.000	-0.010+	-0.369	-0.004
	(0.007)	(0.007)	(0.007)	(0.008)	(0.005)	(1.196)	(0.006)	(0.012)	(0.004)	(0.006)	(0.639)	(0.012)
Obs.	6059	6012	6051	6067	3937	5894	1391	4725	4272	4626	4313	3958
Highest degree: PhD level	-0.007	0.003	-0.003	0.010	0.011*	-2.064*	-0.021*	0.028*	0.011**	-0.013*	-0.682	-0.032***
	(0.006)	(0.006)	(0.006)	(0.008)	(0.004)	(1.024)	(0.009)	(0.014)	(0.004)	(0.006)	(0.892)	(0.013)
Obs.	5917	5891	5913	5924	4854	5765	1670	5202	5084	5172	3896	4466
Selectivity: Low	0.030*	-0.032*	0.031*	0.031*	0.003	-4.291*	-0.015	0.014	0.000	-0.017+	-0.680	-0.042*
	(0.012)	(0.013)	(0.013)	(0.014)	(0.007)	(2.036)	(0.014)	(0.019)	(0.006)	(0.010)	(1.242)	(0.019)
Obs.	4838	4797	4836	4854	2788	4636	997	3461	2989	3395	3489	2734
Selectivity: Middle-low	0.004	-0.005	0.006	0.005	-0.001	1.001	0.002	-0.012	0.002	-0.004	-0.224	-0.010
	(0.009)	(0.009)	(0.009)	(0.011)	(0.005)	(1.259)	(0.006)	(0.016)	(0.005)	(0.007)	(0.677)	(0.016)
Obs.	4080	4046	4069	4075	2851	3960	1104	3348	3137	3287	3081	2886
Selectivity: Middle-high	0.001	-0.000	0.000	0.011	-0.001	-0.774	-0.001	0.032*	-0.004	-0.009	-2.904**	0.008
	(0.009)	(0.009)	(0.009)	(0.011)	(0.006)	(1.406)	(0.009)	(0.014)	(0.005)	(0.007)	(1.043)	(0.014)
Obs.	3239	3219	3235	3238	2566	3158	936	2809	2708	2779	2204	2501
Selectivity: High	-0.002	-0.004	0.004	0.007	0.025***	6.420***	-0.034**	-0.023	0.014*	0.001	-0.298	0.001
	(0.006)	(0.006)	(0.006)	(0.008)	(0.006)	(1.283)	(0.012)	(0.021)	(0.005)	(0.005)	(0.598)	(0.015)
Obs.	2167	2165	2157	2158	1858	2164	616	1952	1895	1929	1011	1792

Note: Standard errors are clustered by individual institutions. Outcomes: (1) applied male rate; (2) admitted male rate; (3) admitted female rate; (4) enrolled female rate; (5) enrolled non-resident alien rate; (6) percent of out-of-state freshmen; (7) percent of disabled students; (8) enrolled White rate; (9) enrolled Asian/Pacific Islander rate; (10) enrolled Hispanic rate; (11) percent HS GPA: 2.00 – 2.49; (12) rate: financial aid received/ financial aid applied; F-statistics of all models are statistically significant; p<.10+, p<.05 *, p<.01**, p<.001***

Table 20. EAPs policy – Different control groups

EAPs treatment	Full model (including year fixed effect, institution fixed effect, and covariates)								Quality	Affordability	
	Diversity										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Control: Private	-0.005*	-0.004	0.003	0.004**	0.755*	-0.001	0.008*	-0.005*	0.007*	0.011*	-0.002
	(0.002)	(0.002)	(0.002)	(0.001)	(0.322)	(0.002)	(0.004)	(0.002)	0.003	(0.005)	(0.003)
Obs.	9529	9447	9518	6093	9274	2674	7366	7280	7958	5520	6346
Control: Public	0.000	-0.003*	0.003*	0.000	0.840*	-0.008***	0.004	-0.001	0.004	0.002	-0.012**
	(0.001)	(0.002)	(0.002)	(0.001)	(0.327)	(0.002)	(0.004)	(0.002)	0.002	(0.007)	(0.004)
Obs.	6640	6639	6639	5417	6504	1579	5790	5784	5446	4530	4964
Location: City	-0.002	-0.003	0.001	0.007**	0.947*	-0.005	0.002	-0.000	0.001	0.004	-0.012+
	(0.003)	(0.003)	(0.003)	(0.002)	(0.413)	(0.003)	(0.006)	(0.004)	0.004	(0.008)	(0.006)
Obs.	3880	3850	3871	2879	3782	934	3190	3175	3218	2423	2698
Location: Suburb	-0.002	-0.004+	0.004+	0.003+	0.820*	0.000	0.005	-0.003	0.006+	0.012+	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.380)	(0.002)	(0.004)	(0.002)	0.003	(0.007)	(0.004)
Obs.	4717	4697	4726	3575	4591	1273	3973	3959	3009	3120	3468
Location: Town	-0.003	-0.002	0.002	-0.004*	0.952*	-0.003	0.013**	-0.000	0.006	-0.013+	-0.011**
	(0.003)	(0.003)	(0.003)	(0.001)	(0.416)	(0.002)	(0.005)	(0.003)	0.003+	(0.007)	(0.004)
Obs.	6896	6870	6899	4694	6745	1862	5520	5482	5694	4180	4740
Location: Rural	-0.013	-0.011	0.013	0.005	0.283	-0.013	-0.021	0.002	0.008	0.152***	0.004
	(0.010)	(0.011)	(0.010)	(0.005)	(1.629)	(0.011)	(0.015)	(0.009)	0.016	(0.029)	(0.012)
Obs.	676	669	661	362	660	184	473	448	583	327	404
Region: Northeast	-0.003	-0.003	0.003	0.001	1.268***	-0.005+	0.014**	-0.006*	0.008**	0.014+	-0.005
	(0.002)	(0.002)	(0.003)	(0.002)	(0.366)	(0.002)	(0.004)	(0.003)	0.003	(0.008)	(0.004)
Obs.	3860	3839	3863	2810	3800	1402	3311	3273	3168	2591	2842
Region: Midwest	-0.009**	-0.010**	0.009**	0.011***	-0.039	0.002	-0.004	-0.001	0.015**	0.003	-0.011**
	(0.003)	(0.004)	(0.004)	(0.002)	(0.475)	(0.003)	(0.006)	(0.003)	0.005	(0.009)	(0.004)
Obs.	4987	4962	4968	3447	4857	1157	3980	3917	4109	3055	3491
Region: South	0.000	-0.001	0.001	0.002	-0.083	0.000	0.007	-0.002	-0.001	0.014+	-0.003
	(0.003)	(0.003)	(0.003)	(0.002)	(0.448)	(0.002)	(0.005)	(0.003)	-0.004	(0.007)	(0.005)

Obs.	5466	5429	5470	3846	5314	1180	4308	4353	4596	3145	3581
Region: West	-0.006+	-0.003	0.002	-0.001	1.909*	-0.006	0.004	-0.004*	0.006	-0.009	-0.010
	(0.003)	(0.003)	(0.003)	(0.003)	(0.754)	(0.004)	(0.006)	(0.002)	0.005	(0.014)	(0.010)
Obs.	1856	1856	1856	1407	1807	514	1557	1521	1531	1259	1396
Size: Under 1,000	-0.021**	-0.018*	0.016*	0.017**	0.358	-0.005	0.018	0.004	0.126	0.009	-0.030*
	(0.007)	(0.008)	(0.007)	(0.006)	(0.920)	(0.007)	(0.011)	(0.007)	0.010	(0.015)	(0.013)
Obs.	2281	2246	2273	931	2198	509	1435	1337	1941	960	1208
Size: 1,000-4,999	-0.003	-0.003	0.003	0.003+	0.498	-0.002	0.002	-0.004+	0.006**	0.023***	-0.000
	(0.002)	(0.002)	(0.002)	(0.001)	(0.358)	(0.002)	(0.004)	(0.002)	0.003	(0.007)	(0.003)
Obs.	7674	7626	7669	5139	7490	2169	6113	6121	6339	4616	5201
Size: 5,000-9,999	-0.000	-0.003	0.001	0.002	1.337**	-0.006*	0.020**	-0.004	-0.002	-0.001	-0.002
	(0.002)	(0.003)	(0.003)	(0.002)	(0.456)	(0.003)	(0.007)	(0.003)	0.004	(0.010)	(0.006)
Obs.	2537	2537	2538	2064	2492	696	2200	2193	2104	1633	1856
Size: 10,000-19,999	-0.001	-0.001	0.001	0.005*	0.591	0.002	0.004	-0.003	0.007	-0.012	-0.016*
	(0.003)	(0.003)	(0.003)	(0.002)	(0.535)	(0.004)	(0.007)	(0.006)	0.004	(0.013)	(0.010)
Obs.	1895	1895	1895	1719	1863	490	1739	1744	1552	1379	1488
Size: 20,000 +	0.007***	0.004+	-0.004+	-0.002	1.058**	0.002	0.004	0.004+	0.005*	-0.010	-0.011*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.372)	(0.003)	(0.008)	(0.002)	(0.003)	(0.008)	(0.006)
Obs.	1782	1782	1782	1657	1735	389	1669	1669	1468	1462	1557
Highest degree: BA level	0.001	0.009	-0.010+	0.002	-0.087	0.010+	0.011	-0.002	0.011	-0.002	0.005
	(0.005)	(0.006)	(0.006)	(0.003)	(0.754)	(0.005)	(0.009)	(0.005)	(0.008)	(0.012)	(0.006)
Obs.	2480	2463	2465	1357	2411	603	1753	1762	2029	1338	1565
Highest degree: MA level	-0.008***	-0.008**	0.008**	0.005**	0.492	-0.007**	0.004	-0.007**	0.006	0.016*	-0.012**
	(0.002)	(0.003)	(0.003)	(0.002)	(0.416)	(0.002)	(0.004)	(0.003)	(0.004)	(0.008)	(0.005)
Obs.	6832	6791	6837	4501	6673	1661	5369	5284	5457	3950	4547
Highest degree: PhD level	0.002	-0.000	-0.000	0.002+	0.684*	-0.002	0.006	0.000	0.004	-0.001	-0.005

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	(0.002)	(0.002)	(0.002)	(0.001)	(0.288)	(0.002)	(0.004)	(0.002)	(0.002)	(0.005)	(0.003)
Obs.	6857	6832	6855	5652	6694	1989	6034	6018	5918	4762	5198
Selectivity: Low	-0.001	-0.001	-0.000	0.003	-0.682	0.002	0.012*	-0.015**	0.017***	0.021+	-0.004
	(0.004)	(0.004)	(0.004)	(0.002)	(0.569)	(0.004)	(0.006)	(0.005)	(0.005)	(0.012)	(0.007)
Obs.	5313	5276	5324	3092	5129	1140	3834	3863	4539	2538	3026
Selectivity: Middle-low	-0.006+	-0.003	0.003	-0.000	1.013*	-0.004	-0.010	-0.000	-0.005	0.007	-0.001
	(0.003)	(0.004)	(0.003)	(0.002)	(0.515)	(0.003)	(0.006)	(0.003)	(0.005)	(0.010)	(0.007)
Obs.	4519	4486	4510	3187	4410	1276	3722	3683	3607	2843	3203
Selectivity: Middle-high	-0.006*	-0.006*	0.005*	-0.000	0.140	-0.002	0.013**	0.001	-0.001	0.001	-0.004
	(0.003)	(0.003)	(0.003)	(0.002)	(0.423)	(0.002)	(0.004)	(0.002)	(0.003)	(0.008)	(0.005)
Obs.	3749	3737	3746	3001	3659	1129	3259	3235	3125	2648	2920
Selectivity: High	0.004**	0.001	-0.001	0.006**	1.195**	-0.002	-0.004	0.000	0.004	-0.000	-0.005
	(0.002)	(0.002)	(0.002)	(0.002)	(0.380)	(0.004)	(0.006)	(0.002)	(0.003)	(0.007)	(0.005)
Obs.	2588	2587	2577	2230	2580	708	2341	2283	2133	2021	2161

Note: Standard errors are clustered by individual institutions. Outcomes: (1) applied male rate; (2) admitted male rate; (3) admitted female rate; (4) enrolled non-resident alien rate; (5) percent of out-of-state freshmen; (6) percent of disabled students; (7) enrolled White rate; (8) enrolled Black rate; (9) retention rate; (10) rate: freshmen with need-fully met/enrolled freshmen; (11) rate: financial aid received/ financial aid applied; F-statistics of all models are statistically significant.
$p<.10$+, $p<.05$ *, $p<.01$**, $p<.001$***

Discussion, Implications, and Future Research

For decades, research on college access and choice has dominated study in the field of higher education (Perna, 2006a; Harper, et al, 2009; Toutkoushian, & Paulsen, 2016; Baker, 2019). Although the history of college admissions policies and college access makes clear their importance, early admissions policies have not been actively empirically examined. Considering early admissions policies are tightly linked to factors closely associated with students' backgrounds (e.g., Afram, 2006; Avery et al., 2001, Antecol & Kiholm-Smith, 2012), it is necessary to study the landscape of EAPs, and college enrollment and access strategies related to early admissions policies from an institutional perspective, in their multifaceted aspects.

The results of an empirical study using causal modeling point to a remarkable finding: Early admissions programs/policies have a significant effect on freshman diversity, quality, and college affordability at the institutional level, even though the effects were slightly differentiated by the types of early admissions, according to national longitudinal data-driven evidence.

In particular, in terms of racial and ethnic diversity, colleges that operate ED and EAD yielded an increase in White freshmen enrollment, whereas Black and Hispanic freshmen enrollment decreased. This supports the notion, grounded in the available literatures, that ED policy has a negative impact on underrepresented students and reduces racial and ethnic diversity. This is also valid for any type of EAPs—the study results remained consistent compared to those without any such policies. The results imply Black and Hispanic freshmen find it relatively hard to apply to colleges early or may not be confident in applying to colleges due to lack of information, the time required to submit ACT/SAT scores, or financial constraints and a lack of assurance of receiving a scholarship or financial aid. On the other hand, however, it is also possible that those students know the early admissions information and apply to the

colleges through EAPs, however, they may be more likely to fail to be admitted compared to White applicants for a number of reasons. Accordingly, future studies with more specific data and information on applications, admissions, and enrollment by race/ethnicity at the student level should be conducted to further illuminate the relationship between racial/ethnic backgrounds and early admissions.

In terms of regional diversity, EA and ED, respectively, have attracted increasing numbers of international and out-of-state students to these colleges. This is a desirable development for all freshmen and the wider campus community as it expands the potential for diverse backgrounds and perspectives among students; however, it is also important to note that this result could be related to an institutional preference for students who are willing to pay for out-of-state tuition and fees in their freshmen year. Another possible interpretation is that these institutions, whether intentionally or unintentionally, prefer to select advantaged students in admissions, utilizing early admissions policies. Thus, further study is needed to reveal the relationship between applicant evaluation criteria and the results of early admissions.

It is evident that a diverse student body contributes to interactions among students from different backgrounds, which ultimately produces desirable learning outcomes for college students (Pike, Kuh, & Gonyea, 2017; Chang & Antonio, 2005; Hurtado, 1992). Thus, college admissions and other institutional administrators could reconsider what the role of early admissions policies is for their institutions, how these policies may affect student diversity in its long-term aspects, how they close the gaps between desirable diversity and current early admissions policies, and, finally, discern what hidden factors influencing admissions decisions they may be missing. The summary of the results of diversity outcomes is presented in Table 21.

Table 21. Summary of the results of diversity outcomes from two-way fixed effects with DID analysis

Diversity Outcomes		EA	ED	EAD	EAPs
Gender	Applied male rate	-	-	-	-0.003* (0.001)
	Applied female rate	-	-	0.007+ (0.004)	-
	Admitted male rate	-	-	-0.009* (0.005)	-0.003* (0.002)
	Admitted female rate	-	-	0.009* (0.005)	0.003+ (0.002)
	Enrolled male rate	-	-	-	-
	Enrolled female rate	-	-	0.011* (0.005)	-
Race/Ethnicity	Enrolled White rate	-	0.026*** (0.006)	0.015+ (0.008)	0.006* (0.003)
	Enrolled Black rate	-	-0.012** (0.004)	-	0.003* (0.002)
	Enrolled Asian/Pacific Islander rate	-	-0.004* (0.002)	0.004+ (0.002)	-
	Enrolled Hispanic rate	-	-0.005+ (0.003)	-0.006+ (0.004)	-
	Enrolled American Indian/Alaska Native rate	-	-	-	-
	Enrolled Natie Hawaiian rate	-	-	-	-
	Enrolled multi-race rate	-	-	-	-
Contextual	Enrolled part-time rate	-	-	-	-
	Enrolled non-resident alien rate	0.003** (0.001)	-	0.008* (0.003)	0.003** (0.001)
	Percent of out-of-state freshmen	-	1.839*** (0.531)	1.336+ (0.712)	0.747** (0.235)
	Average age	-	-	-	-
	Percent of disabled students	-0.004* (0.002)	-	-0.008+ (0.004)	-0.003* (0.001)

Note: The table includes outcomes only when ATT were statistically significant; F-statistics of all models are statistically significant.
$p<.10+$, $p<.05$ *, $p<.01$**, $p<.001$***

Interestingly, in contrast to the results anticipated from the literature and other relevant materials, EA and ED policies have respectively showed contradictory results in terms of relationship quality improvement among freshmen cohorts. In colleges and universities operating an EA only policy, freshmen showed a significant positive retention rate and high-performance GPA in high school, which indicates that they will adjust well academically in college, and are expected to have active academic engagement and performance in college. Conversely, institutions implementing ED only policy revealed a significant decrease in freshmen cohorts with a top-high performance in high school GPA, which contradicts the notions and results of the past literature (e.g., Avery et al., 2001; Kiholm-Smith, 2012). ED has been known as a way of securing "superior" applicants, those "ready to" be college students, however, the results of the study suggest that ED policies cannot be seen as improving student quality or excellence in admissions.

More comprehensively, with regards to the results of the relationship between EAPs and quality outcomes, there was no significant causal evidence by which to judge the overall impact of early admissions on entering freshmen's high school GPAs and their retention rates; thus, EA and ED policies actually differ between the admissions process and after admissions, so these two programs should be distinguished in future research and scholarly discussions as well. In addition, further research, at an individual student level, is needed on whether students who actually entered through EAPs show better student engagement and performance than those who entered through regular admissions. The summary of the results of quality outcomes is presented in Table 22.

Table 22. Summary of the results of quality outcomes from two-way fixed effects with DID analysis

Quality Outcomes		EA	ED	EAD	EAPs
High school GPA	Percent HS GPA: top-half	-	-	-	-
	Percent HS GPA: top-quarter	-	-	-	-
	Percent HS GPA: 3.75 or more	0.497* (0.243)	-0.898+ (0.488)	-	-
	Percent HS GPA: 3.50 -3.74	-	-	-	-
	Percent HS GPA: 3.25 -3.49	-	-	-	-
	Percent HS GPA: 2.00 -2.49	-	-	-0.850+ (0.456)	-
Retention	Retention rate	0.005* (0.002)	-	-	0.006** (0.002)

Note: The table includes outcomes only when ATT were statistically significant; F-statistics of all models are statistically significant.

$p<.10+$, $p<.05$ *, $p<.01$**, $p<.001$***

As a result of a study on the impact of EAPs on college affordability, it was found that colleges and universities implementing overall EAPs, including ED and EAD programs, had a lower rate of actual financial aid than those who applied for financial aid. In other words, it can be seen that early admissions are less likely to actively assist freshmen in their financial needs than regular admissions. However, according to the need-met percentage results detailing how much requested financial aid was met, ED and EAPs policies were found to lead to an upturn in need-met rates. Considering the results above of a decrease in recipients rate of financial aid among applicants, these results can be interpreted in several ways. First, it may be that the number of actual recipients has decreased, while the financial benefits to actual recipients have increased. Second, in colleges and universities that operate EAPs, there are too many students applying for financial aid itself compared to universities that do not implement EAPs but only have regular admissions, so it is likely that the proportion of students who are actually provided financial aid was relatively small. Lastly, it is also possible that the actual need-met ratio has

been improved, but according to the contents of the financial aid package, it may appear that the increased ratio stems from subsidized programs such as loans or work-study. In other words, as in the related literature and materials, it is necessary to carefully examine the degree of the need-met ratio, and also consider the possibility that this is "financial aid" with a cost rather than pure financial aid. Therefore, subsequent studies will require a more detailed analysis through the accumulation of additional data on the financial aid packages that freshmen received through early admissions. The summary of the results of affordability outcomes is presented in Table 23.

Table 23. Summary of the results of affordability outcomes from two-way fixed effects with DID analysis

Affordability Outcomes		EA	ED	EAD	EAPs
Freshmen with need	Percent need-met freshmen	-	1.668+ (0.982)	-	-
	Rate: freshmen with need/enrolled freshmen	-	-	-	-
	Rate: freshmen with need-fully met/enrolled freshmen	-	0.024* (0.010)	-	0.008+ (0.004)
Financial aid coverage	Financial aid package (ln)	-	-	-	-
	Rate: financial aid applied/all applicants	-	-	-	-
	Rate: financial aid received/enrolled freshmen	-	-	-	-
	Rate: financial aid received/ financial aid applied	-	-0.019** (0.006)	-0.016* (0.007)	-0.007* (0.003)

Note: The table includes outcomes only when ATT were statistically significant; F-statistics of all models are statistically significant.
p<.10+, p<.05 *, p<.01**, p<.001***

In the practical aspect, based on these results and discussions, colleges and universities should be able to obtain ideas on what implications early admissions can have regarding student diversity, quality or excellence, and affordability issues within the university organization. It is

necessary to come up with new alternatives that better harmonize the quality and diversity of freshmen, which can be seen as a core human resource in institutions.

Moreover, it is necessary for college admissions administrators to clearly understand the advantages and disadvantages of EA and ED, and discuss future directions for how to operate EAPs according to an institution's vision and values, especially in relation to diversity, quality, and affordability. For example, ED policy dampens freshmen diversity, especially for underrepresented students of color, and the quality of freshmen cohort in college admissions. Therefore, admissions policy makers and stakeholders should seriously discuss the criteria and rubric of evaluation in EAPs, including both EA and ED, and how to differentiate regular admissions and EAPs.

In addition, since the results of the degree of average treatment effects of EAPs were slightly different depending on the characteristics of individual institutions, such as control, region, location, size, degree level, and selectivity, it is necessary to review and find effective ways to implement and operate EAPs considering individual institutional characteristics. Also, it could be possible to discern the push or full factors from an institutional perspective compared to their peer institutions that produce a competitive but productive admissions climate in the market of higher education; such information could clarify college access and enhance accountability.

As perhaps the first study to utilize national datasets at the institutional level for early admissions information for four-year public and private institutions in the U.S., this study is expected to contribute not only to the research into and practice of undergraduate admissions policies, but also to the study of institutional policy consequences and its accountability in college access and choice in higher education.

CHAPTER 6

SUMMARY, DISCUSSION, AND CONCLUSION

This chapter provides a summary of the two studies and discusses their comprehensive results together in the context of the theoretical background and provides implications for policy and practice.

Summary

Considering the long history of early admissions, their increasing popularity, and the recent ethical and legal controversies of such policies/programs, ED in particular, it is concerning that very few studies have been academically and empirically conducted to explore these practices. Therefore, this dissertation aimed to examine the implementation and consequences of early admissions policies in four-year public and private colleges and universities in the U.S from a triangle perspective encompassing diversity, quality, and affordability, the core foundations of college admissions. The theoretical framework that delimited this dissertation laid out several pivotal perspectives— sociology (elite theory, institutional isomorphism, and social inequality theory), economic (signaling theory, game theory, and the competitive market model in higher education competition market model), and policy and administrative view (policy implementation/diffusion theory and enrollment management theory). These theoretical backgrounds provide a framework for understanding early admissions and demonstrate the premises and mechanisms of early admissions in higher education.

With this established theoretical framework, Study 1 as outlined in Chapter 4 explored why colleges and universities implement early admissions policies (early action/early decision), and how institutions and college policymakers utilize these policies relative to their regular admissions policies as an admission strategy and process in higher education. How institutions deliver the values and fulfill the purposes of early admissions from the perspective of diversity, quality, and affordability was also examined. With the content analysis of web-based resources from 64 colleges and universities nationwide in relation to early admissions policies and information, empirical evidence of institutional behaviors in relation to policy implementation and rationales was discussed, and future research directions were suggested.

The next chapter outlined Study 2, which examined the impact of early admissions policies (early action/early decision) on institutional outcomes in 1,548 four-year public and private colleges and universities. With a national level large data set—the IPEDS from the NCES and administrative institutional level datasets from the Annual Survey of Colleges (ASC) in the College Board—and utilizing the fixed effects with difference-in-differences analysis (DID) as a quasi-experimental design, the study investigated the consequences of early admissions policies on multifaceted institutional outcomes in terms of diversity, quality, and affordability. Following the results, concrete discussion and future studies were suggested.

<center>Discussion, Implications, and Suggestions for Policy and Practice</center>

Taken together, based on the results and discussions of the two individual studies, further comprehensive discussions would be needed for policy makers, researchers, and practitioners. First, in terms of college access and choice in higher education, college decisions and the college choice model in higher education has a rich history of discussion in scholarship (e.g., Perna, 2006a; 2006b; Toutkoushian & Paulsen, 2016; Belasco & Bergman, 2016). From the literature

and theoretical framework discussed in this dissertation, early admission policies can affect institutions and students' college choices through nearly every stage of admissions, from college preparations to final enrollment. In higher education decision making, it is assumed that students behave rationally based on the information available (Davis et al., 2019). However, the two empirical studies (Study 1 and Study 2) using qualitative and quantitative techniques showed that college choice explicated the components of the students' choices, but also the "institutions' choice of students" as well in terms of enrollment decisions (Hossler, 1984; Toutkoushian & Paulsen, 2016). Additionally, in this context, the institutional decisions were revealed to be tightly connected to the triangle of values—diversity, quality and affordability in college admissions—which were examined through this dissertation regarding the implementation and consequences of early admissions.

Currently, in higher education a variety of college access and admissions policies that should be scrutinized, such as holistic college admissions, legacy admissions, affirmative action, and mandated college testing policies remain unexplored, despite several recent studies that have tried to assess the impact of this type of program or policy on student and institutional outcomes (e.g., Bastedo, Bowman, Glasener, & Kelly, 2018). Thus, this dissertation hopes to contribute by expanding our knowledge, using the triangle perspective of admissions, in order to establish equitable college access and choice for both students and institutions and guide other possible future studies with a similar perspective to this dissertation.

Next, this dissertation dealt with both the purposes of the policies or programs and how they were operated, and the consequences thereof. In particular, in terms of policy consequences, it focused on the aspects of unintended but essential consequences, which are important to address in the field of policy or public administration studies (Merton, 1936). Future studies may

attempt to more deeply investigate early admissions using policy evaluation criteria (Bardach & Patashnik, 2019) by incorporating efficiency (cost-effectiveness or cost-benefit), equality, and justice, alongside rationality, accessibility, and transparency in the early admissions process from an administrative point of view. Most notably, materials and evidence regarding feedback for implementing early admissions policies and their consequences at the institutional level are rarely found, based on the results from the first study. Also, interestingly, it was revealed that EA and ED cycles require relatively quick judgement of applicants in a short period time—about a month—compared to the RD cycle; however, no evidence was found on what resources are utilized to evaluate and select students fairly.

Moreover, based on the results from Study 1, most colleges and universities often suggest that there is no special difference between EA and ED, sometimes between EAPs and RD as well, but the empirical results of Study 2 revealed that EA and ED, and also EAPs and RD, had significantly different effects on diversity, quality, and affordability at the institutional level. In addition, according to enrollment management theory (Maguire, 1976; Kemerer et al., 1982; Hossler, 1984), college admissions do not function independently, but are directly or indirectly related to the various programs and activities of other departments and organizations, and the goal or vision of the whole campus community. Therefore, more detailed examinations using self-evaluation and the feedback loop of the implementation of early admissions should be conducted for college administrators and shared for applicants and high school counselors; this is necessary for transparency and sustainability in admissions policies and programs.

Furthermore, as advocated by isomorphism theory (DiMaggio & Powell, 1983) and game theory (von Neumann & Morgenstern, 1944), the results of Study 1 confirmed that most universities implementing EAPs were competing with peer-institutions or following top-tier or

elite colleges to survive the competition for sorting and selecting their students. However, the results from Study 1 and Study 2 indicate that according to the various characteristics of institutions—control, size, region, location, highest degree level, and selectivity—the value pursued by EAPs and the degree of their actual impact on the triangle aspects of diversity, quality, and affordability were different. These results suggest that colleges and universities need an admission policy tailored to their unique institutional characteristics. In other words, rather than unconditionally following the admission policies and admissions process of leading universities or competing peer institutions, even when the early admissions process is essentially the same, policies should be modified to adjust to individual institutional characteristics and thus operate in a more effective way. As a result, this approach can allow institutions to become more independent agents, ones that devise and decide their own admissions policies and processes, thus releasing them from the overheated higher education college admissions market so they can pursue and develop their own differential strategies.

Lastly, Study 1 found that by linking the institutional perspective to student level implications, some universities offer entering students through early applications advantages such as scholarships or priority dormitory assignments, which can be understood to benefit the institutional pursuit of competitive students in various ways, as supported by signaling theory (Spence, 1973). However, on the other hand, these benefits could be interpreted as discriminatory against students entering through regular admissions, regardless of whether such discrimination is intentional or not. Thus, colleges and universities should not only focus on support and interests related to college admissions and college access, but should also pay more attention to the provision of high-quality college education, college student development, and student outcomes in college for all freshmen and college students. According to a traditional

performance model, Input-Process-Output (I-P-O), college students are redeemed as a chief human resource in the input stage for institutions, under the long-standing assumption that better inputs lead to better outputs. Therefore, EA and ED programs or policies can act as a screening tool for colleges that allow them to judge which students are the best options for colleges and universities to maximize their future outputs.

It is also important to recall the results of Study 2, which suggest that early admissions, especially ED applications and enrollments, tend to be related to students' backgrounds, especially race and gender, socioeconomic status, and the need for financial aid (Afram, 2006; Avery et al., 2001). However, unlike the I-P-O model, college impact theory, student development theory (Astin, 1894; Pascarella & Terenzini, 1991; 2005), and the Input-Environment-Outcome (I-E-O) model explain that it is both possible and significant that students who enter through regular admissions may perform better than those admitted through early admissions, even though the early admitted freshmen may be superior or advantaged compared to regular admitted freshmen in the 'input' stage (e.g., socioeconomic status, race, etc.). This is possible because of the idea that college impact should encompass the total amount of changes arising from college experiences (E: Environment), including students' involvement and engagement from both academic and social perspectives, their interactions with peers and faculty, and other activities helpful for student development, rather than the absolute values or outcomes present when they are enrolled in or have graduated from a certain college or university (Pascarella & Terenzini, 2005).

Accordingly, it is suggested that future research should perform long-term follow-up and longitudinal studies on college life and student outcomes of freshmen enrolled via different

routes, and colleges should constantly invest in improving student involvement on campus, and in the development and practice of constructive and systematic education programs.

Conclusion

Concerns about how to distribute higher education opportunities have been a key to college admissions worldwide, regardless of time and place. How to select students and elevate them as excellent talents while maintaining fairness, equity, and justice is a task that higher education institutions must consider and enact, and this provokes debates about the fairness of choosing students in admissions decisions (Camara & Kimmel, 2005; Golden, 2006;). The two studies in this dissertation illuminate early admissions' hidden messages and their unintended consequences, which are delimited with the triangle of values encompassing diversity, quality, and affordability. These values should not be overlooked but rather considered as significant not only to college admissions but also, perhaps, to the entire postsecondary education system. With increasing social demands for college access and postsecondary education attainment, higher education organizations worldwide have been growing rapidly over the past several decades, and will hopefully develop more equitable and efficient ways of responding to rapidly changing societal and educational environments. In this regard, I hope that this dissertation, even though it addresses only one of the plethora of issues that affect educational policy or admissions practices, contributes to a rethinking of equity and excellence that is not limited to college access and choice. The issues raised in this investigation extend to the education system in general, and should help us to redesign areas that we have neglected and underdeveloped, in order to eventually produce improvements in accountability and sustainability in education.

REFERENCES

Abadie, A. (2005). Semiparametric difference-in-differences estimators. *The Review of Economic Studies, 72*(1), 1-19.

ACE. (2020). *Engaging campus stakeholders on enrollment issues associated with student diversity: A communications prime*. ACE, the College Board and Education Counsel.

Afram, R. Z. (2006). Civil rights, antitrust, and early decision programs. *Yale Law Journal, 115*(4), 880-920.

Antecol, H., & Kiholm Smith, J. (2012). The early decision option in college admission and its impact on student diversity. *The Journal of Law and Economics, 55*(1), 217-249.

Arenson, K. W. (2001, January 13). Yale president wants to end early decisions for admissions. *The New York Times.* https://www.nytimes.com/2001/12/13/nyregion/yale-president-wants-to-end-early-decisions-for-admissions.html

Astin, A. W. (1971). Open admissions and programs for the disadvantaged. *The Journal of Higher Education, 42*(8), 629-647.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of college student personnel, 25*(4), 297-308.

Avery, C., & Levin, J. (2010). Early admissions at selective colleges. *American Economic Review, 100*(5), 2125-2156.

Avery, C., Fairbanks, A., & Zeckhauser, R. J. (2009). *The early admissions game.* Cambridge, Mass.: Harvard University Press.

Avery, C., Fairbanks, A., & Zeckhauser, R.J. (2001). What worms for the early bird: Early

    admissions at elite colleges. *John F. Kennedy School of Government Faculty Research*

    Working Papers Series RWP01-049.

Baker, D. J. (2019). Pathways to racial equity in higher education: Modeling the antecedents of

    state affirmative action bans. *American Educational Research Journal, 56*(5), 1861-1895.

Bardach, E., & Patashnik, E. M. (2019). *A practical guide for policy analysis: The eightfold path*

    to more effective problem solving. CQ press.

Barnard, B. (2019, Jun 13). The debate over early decision in college admission: Who is it good

    For?. *Forbes*, https://www.forbes.com/sites/brennanbarnard/2019/06/13/the-debate-over-

    early-decision-in-college-admission-who-is-it-good-for/?sh=6ba4523412c6

Bastedo, M. N., & Bowman, N. A. (2010). *U.S. News & World Report* college rankings:

    Modeling institutional effects on organizational reputation. *American Journal of*

    Education, 116(2), 163-183.

Bastedo, M. N., & Bowman, N. A. (2017). Improving admission of low-SES students at selective

    colleges: Results from an experimental simulation. *Educational Researcher, 46*(2), 67-77.

Bastedo, M. N., Bowman, N. A., Glasener, K. M., & Kelly, J. L. (2018). What are we talking

    about when we talk about holistic review? Selective college admissions and its effects on

    low-SES students. *The Journal of Higher Education, 89*(5), 782-805.

Bastedo, M. N., Howard, J. E., & Flaster, A. (2016). Holistic admissions after affirmative action:

    Does "maximizing" the high school curriculum matter?. *Educational Evaluation and*

    Policy Analysis, 38(2), 389-409.

Baum, S. (2017). *Taking fairness seriously in college admissions and financial aid.* Forum for the Future of Higher Education. http://forum.mit.edu/articles/taking-fairness-seriously-in-college-admissions-and-financial-aid/

Belasco, A., & Bergman, D. (2016). *The enlightened college applicant: A new approach to the search and admissions process*. Rowman & Littlefield.

Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How much should we trust differences-indifferences estimates? *Quarterly Journal of Economics, 119*(1), 249–275. doi:10.1162/003355304772839588

Bowen, W. G., Kurzweil, M. A., Tobin, E. M., & Pichler, S. C. (2005). *Equity and excellence in American higher education*. University of Virginia Press.

Bowen, W. J., & Bok, D. (1998). Why race-conscious admissions make sense. *College Board Review. 186*, 8-11.

Braun, D., Gilardi, F., Füglister, K., & Luyet, S. (2007). Ex pluribus unum: Integrating the different strands of policy diffusion theory. *In Transfer, Diffusion und Konvergenz von Politiken*, 39-55.

Brubacher, J. S., & Rudy, W. (2017). *Higher education in transition: A history of American colleges and universities*. Routledge.

Camara, W., & Kimmel, E. W. (Eds.). (2005). *Choosing students: Higher education admissions tools for the 21st century*. Routledge.

Carbonaro, W., Ellison, B. J., & Covay, E. (2011). Gender inequalities in the college pipeline. *Social Science Research, 40*(1), 120-135.

Chang, M. J. (1999). Does racial diversity matter?: The educational impact of a racially diverse undergraduate population. *Journal of College Student Development, 40*(4), 377–395.

Chankseliani, M. (2013). Rural disadvantage in Georgian higher education admissions: A mixed-methods study. *Comparative Education Review, 57*(3), 424-456.

Chapman, G., & Dickert-Conlin, S. (2012). Applying early decision: Student and college incentives and outcomes. *Economics of Education Review, 31*(5), 749-763.

Clarke, D., & Schythe, K. (2020). Implementing the panel event study. *IZA Discussion Papers, No. 13524*, Institute of Labor Economics (IZA), Bonn.

Clayton, D. D. (2013). Factors and influences contributing to the college selection decision of high achieving high school seniors. Dissertations. Paper 49. http://digitalcommons.wku.edu/diss/49

College Transitions. (2021, May 21). Gender in college admissions – Do men or women have an edge?. https://www.collegetransitions.com/blog/can-your-gender-give-you-an-admissions-edge/

Cunningham, S. (2021). Difference-in-Differences. In causal inference: The Mixtape (pp. 406–510). Yale University Press. https://doi.org/10.2307/j.ctv1c29t27.12

Darolia, R. (2013). Integrity versus access? The effect of federal financial aid availability on postsecondary enrollment. *Journal of Public Economics, 106,* 101-114.

Davis, L. A., Wolniak, G. C., George, C. E., & Nelson, G. R. (2019). Demystifying tuition? A content analysis of the information quality of public college and university websites. *AERA Open, 5*(3), 1-27.

DeMonbrun, M., & Warshaw, J. B. (2020). Enrollment management and admissions policies at regional public universities. *New Directions for Higher Education, 2020*(190), 71-88.

DiMaggio, P., & Powell, W. W. (1983). The iron cage revisited: Collective rationality and institutional isomorphism in organizational fields. *American Sociological Review, 48*(2), 147-160.

Dougherty, K. J., Jones, S. M., Lahr, H., Natow, R. S., Pheatt, L., & Reddy, V. (2014). Performance funding for higher education: Forms, origins, impacts, and futures. *The ANNALS of the American Academy of Political and Social Science, 655*(1), 163-184.

Downe-Wamboldt, B. (1992). Content analysis: method, applications, and issues. *Health Care for Women International, 13*(3), 313-321.

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE open, 4*(1), 2158244014522633.

Fu, B. L. & Kim, D. (2020, December 18). Harvard admits record low 7.4% of early action applicants to the class of 2025. *The Harvard Crimson*. https://www.thecrimson.com/article/2020/12/18/harvard-early-admits-2025/

Fuller, M. B. (2014). A history of financial aid to students. *Journal of Student Financial Aid, 44*(1), 42-68.

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report, 20*(9), 1408-1416.

Given, L. M. (Ed.). (2008). *The Sage encyclopedia of qualitative research methods*. Sage publications.

Golden, D. (2006). *The price of admission: How America's ruling class buys its way into elite colleges--and who gets left outside the gates*. Crown Publishing Group/Random House.

Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of Econometrics*. Online first. https://doi.org/10.1016/j.jeconom.2021.03.014

Grbich, C. (2013). *Qualitative data analysis: An introduction*. SAGE publications.

Hansell, S. (1982). Student, parent, and school effects on the stress of college application. *Journal of Health and Social Behavior*, 38-51.

Harper, S. R., Patton, L. D., & Wooden, O. S. (2009). Access and equity for African American students in higher education: A critical race historical analysis of policy efforts. The *Journal of Higher Education, 80*(4), 389-414.

Haveman, R., & Smeeding, T. (2006). The role of higher education in social mobility. *The Future of Children,* 125-150.

Hearn, J. C. (1988). Attendance at higher-cost colleges: Ascribed, socioeconomic, and academic influences on student enrollment patterns. *Economics of Education Review, 7*(1), 65-76.

Hearn, J. C., & Rosinger, K. O. (2014). Socioeconomic diversity in selective private colleges: An organizational analysis. *The Review of Higher Education, 38*(1), 71-104.

Holland, M. M. (2014). Navigating the road to college: Race and class variation in the college application process. *Sociology Compass, 8*(10), 1191-1205.

Hossler, D. (1984). *Enrollment management: An integrated approach*. New York: College Entrance Examination Board.

Hossler, D., & Stage, F. K. (1992). Family and high school experience influences on the postsecondary educational plans of ninth-grade students. *American Educational Research Journal*, *29*(2), 425-451. doi:10.2307/1163375.

Hossler, D., Chung, E., Kwon, J., Lucido, J., Bowman, N., & Bastedo, M. (2019). A study of the use of nonacademic factors in holistic undergraduate admissions reviews. *The Journal of Higher Education, 90*(6), 833-859.

Hottenstein, K. N. (2017). Protecting the teaching and learning environment: A hybrid model for human subject research public policy implementation. *Journal of Research Administration, 48*(2), 26-36.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277-1288.

Hu, S., & Kuh, G. D. (2003). Diversity experiences and college student learning and personal development. *Journal of College Student Development, 44*(3), 320-334.

Hurtado, S. (1992). The campus racial climate: Contexts of conflict. *The Journal of Higher Education, 63*(5), 539-569.

Immerwahr, J., Johnson, J., & Gasbarra, P. (2008). The iron triangle: College presidents talk about costs, access, and quality. The National Center for Public Policy and Higher Education and Public Agenda.

Jack, A. A., (2020). A separate and unequal system of college admission. *The New York Times.* shttps://www.nytimes.com/2020/09/15/books/review/selingo-korn-levitz-college-admissions.html

Jackson, G. A. (1982). Public efficiency and private choice in higher education. *Educational Evaluation and Policy Analysis, 4*(2), 237-247.

Jacobs, J. A. (1996). Gender inequality and higher education. *Annual Review of Sociology, 22*(1), 153-185.

Jensen, E. & Wu, S. (2010). Early Decision and College Performance. *Economics of Education Review, 29*(4), 1-22.

Kenaphoom, S., & Jandaeng, B. (2019). Theory Model of Public Policy Implementation. *Journal of Local Governance and Innovation, 3*(1), 95-116.

Khan, A. R. (2016). Policy implementation: Some aspects and issues. *Journal of Community Positive Practices, 16*(3), 3-12.

Khan, S. R. (2012). Elite identities. *Identities, 19*(4), 477-484.

Kim, I., & Kuljis, J. (2010). Applying content analysis to web-based content. *Journal of Computing and Information Technology, 18*(4), 369-375.

Kim, M. (2010). Early decision and financial aid competition among need-blind colleges and universities. *Journal of Public Economics, 94(5-6)*, 410-420.

Kredell, M. (2017). *College admissions: The gateway to equity*. USC Rossier. https://rossier.usc.edu/magazine/fall-winter-2017/gateway-to-equity/

Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*. Sage publications.

Kuh, G. D., & Pascarella, E. T. (2004). What does institutional selectivity tell us about educational quality?. *Change: The Magazine of Higher Learning, 36*(5), 52-59.

Lee, W. Y. (2006). The Early Admissions Game: Joining the Elite. *The Review of Higher Education, 29*(3), 411-412.

Luca, M., & Smith, J. (2013). Salience in quality disclosure: evidence from the *U.S. News* college rankings. *Journal of Economics & Management Strategy, 22*(1), 58-77.

Maguire, J. (1976). *To the organized, go the students*. Boston College Bridge Magazine. https://cdn2.hubspot.net/hubfs/1940013/To%20the%20Organized%20Go%20the%20Stu dents%20-%20Boston%20College.pdf

Marginson, S. (2016, January). *Higher education and growing inequality*. Academic Matters. https://academicmatters.ca/higher-education-and-growing-inequality/

Marginson, S. (2018). Higher education, economic inequality and social mobility: Implications for emerging East Asia. *International Journal of Educational Development, 63*, 4-11.

Mattern, K. D., Woo, S. E., Hossler, D., & Wyatt, J. (2010). Student-institution fit in college admissions. *College and University, 85*(4), 18-26.

Mehan, H. (2015). *In the front door: Creating a college-going culture of learning*. Routledge.

Meredith, M. (2004). Why do universities compete in the ratings game? An empirical analysis of the effects of the *US News and World Report* college rankings. *Research in Higher Education, 45*(5), 443-461.

Meyer, B. D. (1995). Natural and quasi-experiments in economics. *Journal of Business & Economic statistics, 13*(2), 151-161.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83*(2), 340-363.

Milem, J. F., Chang, M. J., & Antonio, A. L. (2005). *Making diversity work on campus: A research-based perspectiv*e. Washington, DC: Association American Colleges and Universities.

Miller, S., Johnson, N., & Wherry, L. R. (2021). Medicaid and mortality: new evidence from linked survey and administrative data. *The Quarterly Journal of Economics, 136*(3), 1783-1829.

Moody, J. (2020, October 13). 10 colleges where early applicants have an edge. *U.S. News & World Report*. https://www.usnews.com/education/best-colleges/the-short-list-college/articles/colleges-where-early-applicants-have-an-edge

Nankervis, B. (2011). Gender inequities in university admission due to the differential validity of the SAT. *Journal of College Admission, 213*, 24-30.

Ness, E. C. (2010). The politics of determining merit aid eligibility criteria: An analysis of the

    policy process. *The Journal of Higher Education, 81*(1), 33-60.

Ness, E. C. (2010). The role of information in the policy process: Implications for the

    examination of research utilization in higher education policy. In *Higher education:*

    Handbook of theory and research (pp. 1-49). Springer, Dordrecht.

Nietzel, M. T. (2020, February 14). Early-decision college admissions for 2019 and 2020.

    Forbes. https://www.forbes.com/sites/michaeltnietzel/2020/02/14/early-decision-and-

    early-action-admissions-for-2019-and-2020/?sh=79f7b5c01338

Oliver, K., Lorenc, T., Tinkler, J., & Bonell, C. (2019). Understanding the unintended

    consequences of public health policies: the views of policymakers and evaluators. *BMC*

    Public Health, 19(1), 1-9.

Palmer, M., Hayek, J., Hossler, D., Jacob, S. A., Cummings, H., & Kinzie, J. (2004). *Fifty years*

    of college choice: Social, political and institutional influences on the decision-making

    process. New Agenda Series, 5(3), 1-76, Lumina Foundation for Education.

Park, J. J., & Eagan, M. K. (2011). Who Goes Early?: A multi-level analysis of enrolling via

    early action and early decision admissions. *Teachers College Record, 113*(11), 2345-2373.

Park, J. J., Yano, C. R., & Foley, N. F. (2019, March 27). What makes a fair college admissions

    process?. *JSTOR Daily*. https://daily.jstor.org/what-makes-a-fair-college-admissions-

    process/

Pascarella, E. T., & Terenzini, P. T. (1991). *How college affects students: Findings and insights*

    from twenty years of research. Jossey-Bass Inc., San Francisco, CA.

Pascarella, E. T., & Terenzini, P. T. (2005). *How College Affects Students: A Third Decade of*

    Research. Volume 2. Jossey-Bass, Indianapolis, IN.

Pascarella, E. T., Palmer, B., Moye, M., & Pierson, C. T. (2001). Do diversity experiences influence the development of critical thinking?. *Journal of College Student Development, 42*(3), 257–271.

Paul, B., & Paul, W. H. (1997). *Getting in: Inside the college admissions process*. Basic Books.

Perna, L. W. (2006a). *Studying college access and choice: A proposed conceptual model.* In J. C. Smart (Ed.), Higher Education: Handbook of Theory and Research (pp. 99–157). Springer Netherlands. Retrieved from http://link.springer.com/chapter/10.1007/1-4020-4512-3_3.

Perna, L. W. (2006b). Understanding the relationship between information about college prices and financial aid and students' college-related behaviors. *American Behavioral Scientist, 49*(12), 1620-1635.

Pike, G. R., Kuh, G. D., & Gonyea, R. M. (2007). Evaluating the rationale for affirmative action in college admissions: Direct and indirect relationships between campus diversity and gains in understanding diverse groups. *Journal of College Student Development, 48*(2), 166-182.

Polit, D. F., & Beck, C. T. (2010). Generalization in quantitative and qualitative research: Myths and strategies. *International Journal of Nursing Studies, 47*(11), 1451-1458.

Powell, W. W., & DiMaggio, P. J. (Eds.). (1991). *The new institutionalism in organizational analysis*. University of Chicago press.

Pressman, J., & Wildavsky, A. (1973). *Implementation: How Great Expectations in Washington Are Dashed in Oakland; Or, Why It's Amazing that Federal Programs Work at All, This Being a Saga of the Economic Development Administration as Told by Two Sympathetic*

Observers Who Seek to Build Morals on a Foundation of Ruined Hopes. Berkeley: University of California Press.

Robbins, S. P. & Coulter, M. (2008). *Management 10th Edition*. Prentice Hall.

Sabatier, P. A., & Weible, C. M. (Eds.). (2014). *Theories of the policy process*. Westview Press.

Sandelowski, M. (1995). Sample size in qualitative research. *Research in Nursing and Health. 18*, 179-183.

Sauder, M., & Espeland, W. N. (2009). The discipline of rankings: Tight coupling and organizational change. *American Sociological Review*, *74*(1), 63-82.

Selingo, J. (2020). *Who gets in and why: A year inside college admissions.* Scribner.

Seltzer, R. (2019, October 14). Early Decision: For the Privileged? Who benefits from the admissions practice and what should be done about its implications for equity?. *Inside Higher Ed*. https://www.insidehighered.com/admissions/article/2019/10/14/panel-examines-who-benefits-early-decision

Smith, A. (1776). *An inquiry into the wealth of nations*. 418-422.

Solomon, M. (2019, March 26). College admissions should show fairness, not favoritism. *The Occidental.* https://www.theoccidentalnews.com/opinions/2019/03/26/college-admissions-should-show-fairness-not-favoritism/2897179

Spence, A. M. (1973). *Market signaling: Informational transfer in hiring and related screening processes* (Vol. 143). Harvard Univ Press.

Standifird, S. S. (2005). Reputation among peer academic institutions: An investigation of the U.S. news and world report's rankings. *Corporate Reputation Review*, *8*(3), 233-244.

Stewart, D. M. (1992). *College admission policies in the 1990s: A look toward the future*. College Entrance Examination Board.

Stich, A. E. (2012). *Access to inequality: Reconsidering class, knowledge, and capital in higher education*. Lexington Books.

Thresher, B. A. (1966). *College admissions and the public interest*. New York: College Entrance Examination Board.

Toutkoushian, R. K. (2001). Do parental income and educational attainment affect the initial choices of New Hampshire's college-bound students?. *Economics of Education Review, 20*(3), 245-262.

Toutkoushian, R. K., & Paulsen, M.B. (2016). Student investment in higher education, In *Economics of Higher Education: Background, Concepts, and Applications*, (pp. 61-74). New York, NY: Springer.

Tsui, L. (2003). Reproducing social inequalities through higher education: Critical thinking as valued capital. *Journal of Negro Education, 72*(3), 318-332.

Vaismoradi, M., Jones, J., Turunen, H., & Snelgrove, S. (2016). Theme development in qualitative content analysis and thematic analysis. *Journal of Nursing Education and Practice, 6*(5), 100-110.

von Neumann, J., & Morgenstern, O. (1944). *Theory of games and economic behavior*, Princeton, New Jersey: Princeton University Press.

Appendix A: List of the sample (institutions) included in Study 1 (qualitative study)

#	Institution name	Type	Size	Region	Selectivity	location	Degree level	Control
1	Emory & Henry College	ED	1,000–4,999	South	1	rural	Bachelor	private
2	Fairleigh Dickinson University	ED	5,000–9,999	Northeast	2	suburb	Master	private
3	Alfred University	ED	1,000–4,999	Northeast	3	town	Master	private
4	Vassar College	ED	1,000–4,999	Northeast	4	suburb	Bachelor	private
5	Muhlenberg College	ED	1,000–4,999	Northeast	4	city	Bachelor	private
6	Bowdoin College	ED	1,000–4,999	Northeast	4	town	Bachelor	private
7	Denison University	ED	1,000–4,999	Midwest	4	suburb	Bachelor	private
8	Rollins College	ED	1,000–4,999	South	4	suburb	Master	private
9	Whitman College	ED	1,000–4,999	west	4	city	Bachelor	private
10	Pitzer College	ED	1,000–4,999	west	4	suburb	Bachelor	private
11	University of Rochester	ED	10,000–19,999	Northeast	4	city	Doctoral	private
12	Tufts University	ED	10,000–19,999	Northeast	4	suburb	Doctoral	private
13	Washington University in St. Louis	ED	10,000–19,999	Midwest	4	suburb	Doctoral	private
14	Vanderbilt University	ED	10,000–19,999	South	4	city	Doctoral	private
15	Emory University	ED	10,000–19,999	South	4	suburb	Doctoral	private
16	New York University	ED	20,000 and above	Northeast	4	city	Doctoral	private
17	Northwestern University	ED	20,000 and above	Midwest	4	city	Doctoral	private
18	Dartmouth College	ED	5,000–9,999	Northeast	4	town	Doctoral	private
19	Stevens Institute of Technology	ED	5,000–9,999	Northeast	4	suburb	Doctoral	private
20	Harvey Mudd College	ED	Under 1,000	west	4	suburb	Bachelor	private
21	SUNY College of Environmental Science and Forestry	ED	1,000–4,999	Northeast	3	city	Doctoral	public
22	Virginia Military Institute	ED	1,000–4,999	South	3	town	Bachelor	public
23	SUNY College at Geneseo	ED	5,000–9,999	Northeast	3	town	Master	public
24	The College of New Jersey	ED	5,000–9,999	Northeast	4	suburb	Master	public
25	College of William and Mary	ED	5,000–9,999	South	4	suburb	Doctoral	public
26	Guilford College	EAD	1,000–4,999	South	1	city	Bachelor	private
27	Susquehanna University	EAD	1,000–4,999	Northeast	3	town	Bachelor	private
28	The University of the South	EAD	1,000–4,999	South	4	rural	Bachelor	private
29	Knox College	EAD	1,000–4,999	Midwest	4	town	Bachelor	private

30	Lawrence University	EAD	1,000–4,999	Midwest	4	city	Bachelor	private
31	Reed College	EAD	1,000–4,999	west	4	city	Bachelor	private
32	Allegheny College	EAD	1,000–4,999	Northeast	4	town	Bachelor	private
33	Beloit College	EAD	1,000–4,999	Midwest	4	city	Bachelor	private
35	Rhodes College	EAD	1,000–4,999	South	4	city	Bachelor	private
36	Bennington College	EAD	Under 1,000	Northeast	4	town	Bachelor	private
37	Sarah Lawrence College	EAD	1,000–4,999	Northeast	4	suburb	Bachelor	private
37	St. John's University	EAD	20,000 and above	Northeast	3	city	Doctoral	private
38	Clark University	EAD	1,000–4,999	Northeast	4	city	Doctoral	private
39	Salisbury University	EAD	5,000–9,999	Northeast	3	suburb	Master	public
40	Christopher Newport University	EAD	5,000–9,999	South	3	city	Master	public
41	Canisius College	EA	1,000–4,999	Northeast	3	city	Master	private
42	Rose-Hulman Institute of Technology	EA	1,000–4,999	Midwest	4	city	Master	private
43	University of South Florida: Saint Petersburg	EA	1,000–4,999	South	2	city	Master	public
44	Hawaii Pacific University	EA	1,000–4,999	west	2	city	Master	private
46	Anna Maria College	EA	1,000–4,999	Northeast	1	rural	Master	private
46	Covenant College	EA	1,000–4,999	South	4	rural	Bachelor	private
47	Pacific Union College	EA	1,000–4,999	west	2	rural	Bachelor	private
48	Saint Mary's College of California	EA	1,000–4,999	west	3	suburb	Master	private
49	Mount St. Mary's University	EA	1,000–4,999	Northeast	3	town	Master	private
50	Massachusetts Institute of Technology	EA	10,000–19,999	Northeast	4	city	Doctoral	private
51	Molloy College	EA	1,000–4,999	Northeast	3	suburb	Master	private
52	Wheaton College	EA	1,000–4,999	Midwest	4	suburb	Bachelor	private
53	Gustavus Adolphus College	EA	1,000–4,999	Midwest	4	town	Bachelor	private
54	George Fox University	EA	1,000–4,999	west	2	town	Master	private
55	University of Dayton	EA	10,000–19,999	Midwest	3	city	Doctoral	private
56	University of North Carolina at Wilmington	EA	10,000–19,999	South	4	city	Master	public
57	Western Washington University	EA	10,000–19,999	west	3	city	Master	public
58	University of Rhode Island	EA	10,000–19,999	Northeast	3	suburb	Doctoral	public
59	University of Notre Dame	EA	10,000–19,999	Midwest	4	suburb	Doctoral	private
60	Penn State University Park	EA	20,000 and above	Northeast	4	city	Doctoral	public
61	Purdue University	EA	20,000 and above	Midwest	4	city	Doctoral	public

62	Georgia Institute of Technology	EA	20,000 and above	South	4	city	Doctoral	public
63	University of Massachusetts Amherst	EA	20,000 and above	Northeast	4	suburb	Doctoral	public
64	Loyola University Maryland	EA	5,000–9,999	Northeast	4	city	Master	private

Appendix B: Descriptive statistics by year (2004-2018)

Year	2018		2017		2016		2015		2014		2013		2012	
Variables	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
Applied male rate	1414	0.43	1414	0.43	1412	0.434	1405	0.433	1391	0.433	1411	0.43	1411	0.43
Applied female rate	1414	0.57	1414	0.57	1412	0.566	1405	0.567	1391	0.566	1411	0.57	1411	0.57
Admitted male rate	1390	0.43	1385	0.43	1382	0.436	1405	0.427	1391	0.428	1381	0.43	1381	0.44
Admitted female rate	1385	0.59	1383	0.59	1384	0.584	1405	0.572	1389	0.572	1382	0.59	1382	0.59
Enrolled male rate	1388	0.46	1383	0.46	1380	0.462	1405	0.451	1390	0.452	1378	0.46	1378	0.46
Enrolled female rate	1384	0.56	1383	0.56	1384	0.558	1405	0.548	1391	0.548	1382	0.56	1382	0.56
Enrolled part-time rate	1150	0.03	1142	0.02	1105	0.025	1405	0.022	1391	0.023	1127	0.02	1127	0.03
Enrolled White rate	1141	0.58	1186	0.59	1182	0.605	1189	0.607	1214	0.617	1146	0.59	1146	0.59
Enrolled Black rate	1136	0.12	1178	0.12	1174	0.124	1184	0.123	1208	0.127	1144	0.12	1144	0.13
Enrolled Asian/Pacific Islander rate	1077	0.06	1118	0.05	1117	0.054	1116	0.050	1130	0.049	1074	0.05	1074	0.05
Enrolled Hispanic rate	1132	0.13	1170	0.12	1170	0.107	1183	0.103	1196	0.097	1132	0.12	1132	0.11
Enrolled American Indian/Alaska Native rate	886	0.01	898	0.01	888	0.011	893	0.010	934	0.009	867	0.01	867	0.01
Enrolled Natie Hawaiian rate	567	0.01	571	0.01	590	0.006	582	0.009	569	0.007	590	0.01	590	0.01
Enrolled multi-race rate	1080	0.05	1095	0.04	1081	0.040	1067	0.039	1067	0.038	1073	0.04	1073	0.04
Enrolled non-resident alien rate	1057	0.05	1079	0.05	1084	0.047	1065	0.044	1074	0.041	1052	0.05	1052	0.05
Percent enrolled out-of-state	1411	33.25	1390	33.54	1392	32.859	1400	32.961	1402	32.814	1403	33.54	1403	32.87
Average age	1416	18.55	1396	18.57	1404	18.642	1409	18.607	1404	18.643	1409	18.57	1409	18.61
Percent disabled student	869	0.08	754	0.07	620	0.070	583	0.069	532	0.068	675	0.07	675	0.07
Complete good status	390	84.92	429	85.75	434	85.172	489	84.620	496	84.855	418	85.75	418	85.15
Percent HS GPA: top-half	1067	77.50	1070	77.59	1115	77.996	1141	78.259	1141	78.436	1098	77.59	1098	77.77
Percent HS GPA: top-quarter	1066	47.89	1065	48.19	1110	48.353	1134	48.831	1133	49.128	1096	48.19	1096	48.30

Percent HS GPA: 3.75 or more	1183	32.07	1197	29.63	1187	28.199	1180	27.387	1178	26.648	1203	29.63	1203	29.01
Percent HS GPA: 3.50 -3.74	1184	17.61	1199	17.44	1189	17.259	1182	17.357	1179	17.055	1204	17.44	1204	17.44
Percent HS GPA: 3.25 -3.49	1182	14.95	1195	15.30	1187	15.397	1182	15.211	1178	15.414	1203	15.30	1203	15.20
Percent HS GPA: 2.00 -2.49	935	7.38	965	7.85	985	7.978	976	8.300	977	8.611	961	7.85	961	8.09
Percent need-met	1021	72.14	975	72.61	1032	71.990	1085	71.631	1055	71.940	1054	72.61	1054	72.26
Financial aid package (ln)	1054	9.91	1084	9.87	1012	9.85	1089	9.80	1056	9.78	1122	9.71	1158	9.68
Rate: freshmen with need/enrolled freshmen	980	0.72	940	0.70	987	0.705	997	0.713	981	0.712	950	0.70	950	0.70
Rate: freshmen with need-fully met/enrolled freshmen	933	0.18	907	0.17	955	0.178	956	0.176	948	0.175	921	0.17	921	0.18
Rate: financial aid applied/all applicants	1033	0.16	973	0.16	1032	0.174	1032	0.176	1016	0.180	1001	0.16	1001	0.17
Rate: financial aid received/enrolled freshmen	978	0.71	933	0.69	986	0.696	991	0.704	977	0.703	946	0.69	946	0.70
Rate: financial aid received/ financial aid applied	1033	0.81	985	0.81	1046	0.819	1054	0.822	1030	0.822	1034	0.81	1034	0.81
Retention rate	1413	0.76	1508	0.75	1506	0.754	1506	0.744	1507	0.739	1508	0.75	1508	0.75
Control	1548	0.65	1548	0.65	1548	0.651	1548	0.651	1548	0.651	1548	0.65	1548	0.65
Location (suburb)	1548	0.28	1548	0.28	1548	0.280	1548	0.278	1548	0.275	1548	0.28	1548	0.28
Location (town)	1548	0.41	1548	0.41	1548	0.411	1548	0.411	1548	0.412	1548	0.41	1548	0.41
Location (rural)	1548	0.04	1548	0.04	1548	0.041	1548	0.041	1548	0.043	1548	0.04	1548	0.04
region (Midwest)	1548	0.28	1548	0.28	1548	0.275	1548	0.275	1548	0.275	1548	0.28	1548	0.28
region (South)	1548	0.31	1548	0.31	1548	0.306	1548	0.306	1548	0.306	1548	0.31	1548	0.31
region (West)	1548	0.12	1548	0.12	1548	0.124	1548	0.124	1548	0.124	1548	0.12	1548	0.12
Size (1,000-4,999)	1548	0.48	1548	0.48	1548	0.494	1548	0.488	1548	0.488	1548	0.48	1548	0.49
Size (5,000-9,999)	1548	0.14	1548	0.15	1548	0.143	1548	0.142	1548	0.143	1548	0.15	1548	0.15
Size (10,000-19,999)	1548	0.11	1548	0.11	1548	0.109	1548	0.112	1548	0.116	1548	0.11	1548	0.11
Size (20,000 and	1548	0.10	1548	0.10	1548	0.094	1548	0.094	1548	0.092	1548	0.10	1548	0.10

more)

Highest degree level (master)	1548	0.35	1548	0.36	1548	0.368	1548	0.386	1548	0.389	1548	0.36	1548	0.36
Highest degree level (doctoral)	1548	0.49	1548	0.48	1548	0.457	1548	0.437	1548	0.429	1548	0.48	1548	0.47
Selectivity: middle-low	1385	0.23	1385	0.25	1374	0.240	1373	0.259	1370	0.247	1378	0.25	1378	0.26
Selectivity: middle-high	1385	0.25	1385	0.20	1374	0.238	1373	0.242	1370	0.242	1378	0.20	1378	0.19
Selectivity: high	1385	0.23	1385	0.24	1374	0.230	1373	0.222	1370	0.250	1378	0.24	1378	0.25
Freshmen tuition (ln)	1529	9.82	1539	9.80	1542	9.78	1544	9.74	1543	9.71	1537	9.68	1526	9.66

(continued)

Year	2011		2010		2009		2008		2007		2006		2005		2004	
Variables	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean
Applied male rate	1388	0.433	1386	0.435	1378	0.439	1369	0.437	1341	0.442	1348	0.438	1336	0.440	1356	0.442
Applied female rate	1388	0.565	1386	0.564	1378	0.561	1369	0.562	1348	0.565	1337	0.575	1327	0.574	1350	0.574
Admitted male rate	1388	0.429	1386	0.430	1377	0.434	1367	0.433	1340	0.438	1347	0.435	1336	0.436	1356	0.436
Admitted female rate	1388	0.570	1386	0.569	1377	0.566	1367	0.567	1348	0.571	1336	0.578	1327	0.579	1350	0.580
Enrolled male rate	1380	0.454	1374	0.454	1374	0.456	1360	0.455	1348	0.455	1355	0.453	1349	0.451	1353	0.450
Enrolled female rate	1373	0.554	1369	0.556	1368	0.555	1354	0.555	1357	0.551	1343	0.559	1337	0.561	1350	0.567
Enrolled part-time rate	1388	0.022	1386	0.024	1391	0.024	1382	0.027	1305	0.028	1289	0.032	1261	0.030	1268	0.034
Enrolled White rate	1206	0.627	1176	0.639	1165	0.647	1165	0.669	1170	0.682	1169	0.687	1157	0.705	1107	0.709
Enrolled Black rate	1198	0.126	1173	0.121	1149	0.123	1156	0.117	1156	0.117	1153	0.120	1141	0.115	1083	0.111
Enrolled Asian/Pacific Islander rate	1122	0.048	1084	0.048	1094	0.054	1085	0.052	1103	0.052	1090	0.052	1087	0.048	1042	0.050
Enrolled Hispanic rate	1186	0.092	1164	0.087	1143	0.079	1146	0.072	1151	0.069	1138	0.067	1126	0.062	1078	0.059
Enrolled American Indian/Alaska Native rate	918	0.009	894	0.009	950	0.011	963	0.010	944	0.011	932	0.012	935	0.011	865	0.011
Enrolled Natie Hawaiian rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enrolled multi-race rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Enrolled non-resident alien rate	1065	0.038	1029	0.034	1010	0.033	1001	0.032	1007	0.032	992	0.029	973	0.026	946	0.025
Percent enrolled out-of-state	1397	32.706	1386	32.235	1382	32.009	1385	31.873	1387	32.040	1384	31.852	1384	31.676	1369	31.689
Average age	1403	18.677	1397	18.732	1394	18.722	1387	18.769	1381	18.754	1383	18.807	1377	18.841	1361	18.899
Percent disabled student	509	0.066	473	0.065	453	0.063	-	-	-	-	-	-	-	-	-	-
Complete good status	504	84.590	557	84.496	532	84.367	542	84.236	540	84.548	519	84.515	483	84.892	429	85.156
Percent HS GPA: top-half	1137	78.711	1135	78.643	1127	78.726	1110	78.710	1117	78.569	1115	78.537	1093	78.522	1048	79.081
Percent HS GPA: top-quarter	1132	49.471	1128	49.682	1119	49.564	1102	49.859	1104	49.563	1103	49.468	1085	49.465	1038	50.132
Percent HS GPA: 3.75 or more	1168	25.892	1150	25.354	1120	25.019	1090	24.839	1047	24.521	996	24.801	813	24.731	-	-
Percent HS GPA: 3.50 - 3.74	1167	16.843	1155	16.648	1121	16.594	1095	16.665	1054	16.712	1004	16.622	818	16.682	-	-
Percent HS GPA: 3.25 - 3.49	1166	15.386	1153	15.456	1122	15.378	1095	15.618	1052	15.758	1000	15.665	817	15.769	-	-
Percent HS GPA: 2.00 - 2.49	975	8.935	962	9.449	951	9.377	924	9.330	900	9.218	839	9.484	708	9.078	-	-
Percent need-met	1080	72.738	1066	73.511	1042	74.830	956	75.524	990	74.756	1112	73.554	1068	74.524	1077	75.666
Financial aid package (ln)	1158	9.68	1095	9.66	1076	9.59	986	9.54	1018	9.46	1151	9.40	1108	9.34	1116	9.32
Rate: freshmen with need/enrolled freshmen	986	0.711	970	0.694	936	0.668	860	0.635	870	0.625	945	0.624	906	0.632	920	0.639

Rate: freshmen with need-fully met/enrolled freshmen	958	0.189	936	0.196	902	0.200	823	0.209	834	0.202	908	0.209	860	0.223	866	0.224
Rate: financial aid applied/all applicants	1026	0.189	1011	0.199	1001	0.199	923	0.202	914	0.206	1009	0.211	943	0.224	911	0.227
Rate: financial aid received/enrolled freshmen	986	0.702	966	0.684	932	0.659	855	0.627	863	0.615	944	0.611	902	0.621	913	0.629
Rate: financial aid received/ financial aid applied	1057	0.825	1045	0.815	1019	0.791	920	0.777	922	0.778	1038	0.772	997	0.774	1015	0.780
Retention rate	1508	0.741	1508	0.742	1511	0.742	1509	0.736	1509	0.735	-	-	-	-	-	-
Control	1548	0.651	1548	0.651	1548	0.651	1548	0.651	1548	0.651	1548	0.651	1548	0.651	1548	0.651
Location (suburb)	1548	0.274	1548	0.276	1548	0.277	1548	0.275	1548	0.276	1548	0.280	1548	0.276	1548	0.271
Location (town)	1548	0.413	1548	0.412	1548	0.412	1548	0.411	1548	0.412	1548	0.412	1548	0.415	1548	0.421
Location (rural)	1548	0.043	1548	0.043	1548	0.042	1548	0.043	1548	0.042	1548	0.040	1548	0.041	1548	0.042
region (Midwest)	1548	0.275	1548	0.275	1548	0.275	1548	0.275	1548	0.275	1548	0.275	1548	0.275	1548	0.275
region (South)	1548	0.306	1548	0.306	1548	0.306	1548	0.306	1548	0.306	1548	0.306	1548	0.306	1548	0.306
region (West)	1548	0.124	1548	0.124	1548	0.124	1548	0.124	1548	0.124	1548	0.124	1548	0.124	1548	0.124
Size (1,000-4,999)	1548	0.489	1548	0.486	1548	0.486	1548	0.480	1548	0.480	1548	0.484	1548	0.488	1548	0.488
Size (5,000-9,999)	1548	0.144	1548	0.148	1548	0.147	1548	0.147	1548	0.146	1548	0.143	1548	0.142	1548	0.142

Size (10,000-19,999)	1548	0.117	1548	0.116	1548	0.113	1548	0.113	1548	0.112	1548	0.110	1548	0.111	1548	0.111
Size (20,000 and more)	1548	0.090	1548	0.089	1548	0.087	1548	0.083	1548	0.079	1548	0.079	1548	0.078	1548	0.078
Highest degree level (master)	1548	0.401	1548	0.410	1548	0.413	1548	0.425	1548	0.442	1548	0.448	1548	0.463	1548	0.454
Highest degree level (doctoral)	1548	0.412	1548	0.399	1548	0.380	1548	0.360	1548	0.340	1548	0.329	1548	0.316	1548	0.305
Selectivity: middle-low	1364	0.262	1359	0.258	1356	0.210	1345	0.210	1339	0.207	1332	0.290	1322	0.297	1311	0.231
Selectivity: middle-high	1364	0.221	1359	0.255	1356	0.245	1345	0.267	1339	0.256	1332	0.193	1322	0.202	1311	0.278
Selectivity: high	1364	0.249	1359	0.226	1356	0.246	1345	0.232	1339	0.237	1332	0.239	1322	0.238	1311	0.221
Freshmen tuition (ln)	1531	9.62	1524	9.57	1514	9.52	1521	9.46	1525	9.41	1524	9.35	1528	9.29	1524	9.24