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The Impact of Optional: Investigating the Effects of Test-Optional Admissions Policies

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The Impact of Optional: Investigating the Effects of Test-Optional Admissions Policies

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ABSTRACT

An increasing number of postsecondary institutions in the United States have introduced test-optional admissions policies primarily due to criticism of standardized admissions tests as potentially biased predictors of student success. However, the impact of the test-optional movement is largely unknown and continues to evolve amid the COVID-19 pandemic. Using institutional isomorphism as our theoretical framework, we update and extend existing research by broadening the number and type of test-optional institutions represented in the literature. We use 2x2 repeated measures multivariate analysis of variance (MANOVA) to examine change in applications received, acceptances, enrollment, and the racial and socioeconomic composition of the student body upon the implementation of a test-optional admissions policy. Findings demonstrate that test-optional policy implementation results in a statistically significant increase in applications and enrolled students. However, we find that test-optional policy adoption does not result in a statistically significant increase in the percentage of underrepresented racial minority students or Pell Grant recipients.

Keywords: test-optional, college admissions, longitudinal studies, institutional theory, institutional isomorphism, Repeated Measures Multivariate Analysis of Variance (MANOVA)

Since the 1980s, an increasing number of colleges and universities in the United States have introduced new models for evaluating the potential of undergraduate admissions applicants (Furuta, 2017). These models, broadly referred to as "test-optional" admissions policies, permit some or all undergraduate admissions applicants to forgo the submission of standardized test scores (e.g., SAT). Test-optional is a general term that refers to policies that include a range of test considerations including, but not limited to, test-free policies under which standardized test scores are not required nor considered and test-flexible policies under which applicants can choose which standardized test scores to submit. A common feature of test-optional policies is increased emphasis on applicants' previous academic performance (e.g., high school grade point average [GPA]), personal background characteristics, and extracurricular experiences.

The test-optional movement in the United States primarily emerged in response to criticism that standardized tests have engendered barriers that limit the equitable distribution of postsecondary educational opportunities (Camara & Kimmel, 2005;

Soares, 2012; Zwick, 2007, 2017). Although test-optional admissions policies alone cannot drastically change the structural inequalities that inhibit postsecondary educational access for historically underrepresented student groups (Chetty et al., 2020; Hout, 1988; Torche, 2011), there is substantial interest in examining the extent to which test-optional policies are effective in broadening access to postsecondary education.

Amid the global COVID-19 pandemic, an unprecedented number of institutions in the United States temporarily or permanently adopted test-optional admissions policies primarily due to widespread public health concerns, limited standardized admissions test administrations, and anticipated decline in student enrollment (Turk et al., 2020). While the staying power of test-optional policies among temporary institutional adopters is uncertain, the accelerated rate of change in how institutions evaluate admissions applicants requires a better understanding of the implications of test-optional policies on a national scale and across time.

Literature Review

For nearly a century, colleges and universities in the United States have used standardized tests as an efficient mechanism for qualifying an increasing number of undergraduate admissions applicants (Camara & Kimmel, 2005). With nearly 1.5 million test takers in 2021 (College Board, 2021), SAT scores have served among the predominant criteria for the evaluation and selection of college admissions applicants. However, standardized admissions tests have been subject to widespread criticism as "inadequate and potentially biased measures of postsecondary promise" (Belasco et al., 2015, p. 206) and "measures increasingly deemed to provide a narrow assessment of human potential" (Syverson et al., 2018, p. 5). These observations are congruent with previous studies that have consistently identified differences in the accuracy of SAT scores in predicting the first-year grade point average of admissions applicants across racial, ethnic, socioeconomic, and gender groups (Atkinson & Geiser, 2009; Blau et al., 2004; Fleming, 2002; Freedle, 2003; Hoffman & Lowitzki, 2005; Kobrin et al., 2007; Soares, 2012; Young & Kobrin, 2001; Zwick, 2007, 2017; Zwick & Green, 2007).

Research suggests there are racial and economic inequities manifest in the admissions criteria that often receive greater emphasis under test-optional policies such as extracurricular activities, essays, interviews, and recommendation letters (Rosinger et al., 2019). Further, scholars have identified disparate access to resources associated with college readiness including Advanced Placement courses (Kolluri, 2018; Rodriguez & McGuire, 2019), test preparation (Buchmann et al., 2010), college counseling (Robinson & Roksa, 2016), college-going knowledge (Deil-Amen & Tevis, 2010), parental involvement (Hamilton et al., 2018;

Perna & Titus, 2005), and school-based extracurricular activities (Meier et al., 2018). Therefore, some individuals have argued that providing the option of submitting standardized test scores may, in fact, be the optimal way for talented students from underserved backgrounds to demonstrate their potential for success in college (Buckley et al., 2018).

The test-optional movement has been propelled by non-profit organizations (e.g., National Center for Fair and Open Testing [FairTest]; American Talent Initiative) and the findings of single-institution case studies (e.g., Mulugetta, 2013; Rubin & González Canché, 2019; Schultz & Backstrom, 2021; Shanley, 2007) that explore the effectiveness of test-optional admissions policies in improving institutional desirability and campus diversity as measured by a larger and more racially, ethnically, and socioeconomically diverse applicant pool. However, these efforts have yet to result in comprehensive and representative evidence of the impact of test-optional policies on postsecondary opportunity across the many types of institutions that characterize the modern landscape of higher education in the United States.

The adoption of test-optional policies is generally motivated by two complementary objectives: (1) increased access by providing applicants with an opportunity to demonstrate their academic potential in ways measured other than by standardized test scores and (2) increased diversity of the adopting institution's student body. Past research has sought to test the validity of these stated objectives by examining the extent to which test-optional admissions policies are effective in enhancing institutional standing (e.g., increased admissions selectivity) and student characteristics (Belasco et al., 2015; Hiss & Franks, 2014; Saboe & Terrizzi, 2019; Sweitzer et al., 2018; Syverson et al., 2018). However, limitations of past research require further investigation of the complex relationships between these interrelated objectives, particularly across a more recent and more representative sample of test-optional institutions.

Admissions Funnel

In higher education, the "admissions funnel" depicts the stages through which potential students progress, concluding with their matriculation at a particular institution (Hossler & Bontrager, 2014). The top of the admissions funnel begins with "prospects," potential students who possess college-going attributes but have yet to formally express interest in applying for admission. The objective of enrollment management is to strategically manage the volume of prospective students who progress from one stage of the admissions funnel to the next so that the institution achieves its enrollment goals (Hossler & Bontrager, 2014).

Previous studies have examined the impact of the adoption of test-optional policies on several stages of the undergraduate

admissions funnel, particularly in relation to applicant quality (i.e., mean standardized test scores) and application volume. For example, Belasco et al. (2015) investigated whether test-optional policy implementation effects applicants' SAT scores and the number of admissions applications institutions received. To assess changes in pre- and post-policy implementation outcomes, Belasco et al. (2015) analyzed data from 180 selective liberal arts institutions from 1992 through 2010 using a difference-in-differences analytical approach, which mimics experimental research design using observational study data by estimating the differential effect of a treatment on a "treatment group" as compared to a "control group" in an experiment (Donald & Lang, 2007). Belasco et al. (2015) included institutional characteristics and trend-specific variables (e.g., average SAT score trends) as covariates to control for pre-existing differences between test-optional and test-requiring institutions and to account for admissions- and campus-related trends prior to policy implementation. Results indicated that the implementation of test-optional policies was associated with a subsequent increase in mean SAT scores and in the number of first-year undergraduate admissions applications received. This suggests that the implementation of test-optional policies may function to affect institutional standing and selectivity (Belasco et al., 2015). Unlike other studies (e.g., Hiss & Franks, 2014; Sweitzer et al., 2018; Syverson et al., 2018), Belasco et al. (2015) employed a theoretical framework of manifest and latent functions (Merton, 1957) to explain their findings, thus shedding light on possible unstated, underlying motivations that guide institutions toward the adoption of test-optional policies. In the context of the study conducted by Belasco et al. (2015), manifest functions specifically refer to an intended increase in student diversity because of test-optional policy adoption, while latent functions refer to the unrecognized and unintended outcomes of policy adoption such as enhanced institutional standing.

Following this same logic, Saboe and Terrizzi (2019) also employed a difference-in-differences approach to determine whether the adoption of test-optional policies impacted relevant admissions outcomes. Data from 2009 through 2014 were collected from four-year, public and private, not-for-profit baccalaureate-granting institutions; among these institutions, 1,649 were test-requiring and 127 had test-optional policies. Results were consistent with those of Belasco et al. (2015) regarding the effect of test-optional policies on the number of applications received. The number of applicants increased shortly after the implementation of test-optional policies. However, the increase in applicants was not long-lasting, and was followed by a decline in the number of admitted students who chose to enroll. Additionally, in contrast to the findings of previous research (Belasco et al., 2015; Sweitzer et al., 2018), Saboe and Terrizzi (2019) found that test-optional policies are associated with a subsequent decrease in reported SAT math scores, suggesting that test-optional policies may have negative

effects on institutional selectivity and implications for academic undermatching (Smith et al., 2013).

Sweitzer et al. (2018) analyzed data from 1999 through 2014, collected from 35 liberal arts colleges with test-optional policies and 80-test requiring institutions. The researchers computed a propensity score that represented the probability that an institution would introduce a test-optional admissions policy based on observed characteristics. Institutions were matched based on these scores to observe how a test-optional institution would differ across several variables if it had remained test-requiring. This technique differs from other test-optional studies as the use of propensity score matching mimics the process of random assignment in experimental design thereby enabling unbiased estimation of the treatment effect (i.e., test-optional policy adoption). Sweitzer et al. (2018) identified that the implementation of a test-optional policy resulted in increased mean SAT scores by an average of 10.4 points ($p < .001$). However, results showed that implementation did not have a significant effect on acceptance rates ($p = .650$), and while the average number of applications increased after implementation, this increase was not statistically significant ($p = .177$).

Furthermore, Syverson et al. (2018)—in a study that expanded upon the findings of Hiss and Franks (2014)—identified a relationship between test-optional policy adoption and the number of undergraduate admissions applications received. This study included case studies of 28 postsecondary institutions, including public and private colleges and universities of varying enrollment size, admissions selectivity, geographic location, and type of test-optional admissions policy. Through the analysis of data from 2004 through 2016, Syverson et al. (2018) discovered that, on average, the implementation of test-optional policies resulted in an increased number of applications received; more than half of the test-optional institutions studied experienced an increase in admissions applications at greater levels than those of test-requiring institutions during the same time frame. However, findings revealed a marginal decrease in acceptance rate (i.e., increased admissions selectivity) and the rate by which admitted students enroll (Syverson et al., 2018).

Through our analysis of the literature, previous research suggests there is substantial variation in the admissions outcomes associated with test-optional policy implementation. There is sufficient evidence to indicate that test-optional policies lead to an increase in the size of the applicant pool. However, findings related to the impact of test-optional policies on admission yields, and inconsistent findings regarding their effects on reported mean SAT scores, make it unclear whether these policies fulfill often unstated objectives of improving institutional standing and selectivity. Except for the studies conducted by Syverson et al. (2018) and Saboe and Terrizzi (2019), limited research has examined the impact of test-optional policies

on indicators of institutional desirability as measured by admitted student yield rate. To address these limitations, we examine the impact of test-optional policy implementation on institutional desirability and selectivity as reflected through three key stages of the admissions funnel (application, admission, and enrollment).

Racial and Ethnic Diversity

To assess whether the implementation of test-optional policies is effective in increasing postsecondary access for underrepresented racial minority students, several studies have examined the impact of test-optional policy adoption on the racial and ethnic diversity of students. Belasco et al. (2015) demonstrated that the implementation of test-optional policies was not associated with increased enrollment of underrepresented racial minority students. Similarly, Sweitzer et al. (2018) determined that test-optional policy implementation did not have a significant effect on the enrollment of underrepresented racial minority students. The authors attributed greater increases in the tuition and fees of test-optional institutions as compared to test-requiring institutions as a factor that potentially limited the positive effects test-optional policies may have on the diversity of adopting institutions. Saboe and Terrizzi (2019) also found that the implementation of test-optional policies did not have a statistically significant effect on the percentage of enrolled students who identify as a racial minority.

In contrast to others (Belasco et al., 2015, Saboe & Terrizzi, 2019; Sweitzer et al., 2018), Syverson et al. (2018) and Bennett (2021) found that the adoption of test-optional policies increased the racial diversity among enrolled students, demonstrating that test-optional policies can provide under-represented racial minority students access to certain institutions that they otherwise may not have. For example, in a study of test-optional policies implemented by 100 private institutions between 2005–2006 and 2015–2016, Bennett (2021) found that test-optional policies resulted in a 10 to 12 percent increase in first-time students from underrepresented racial and ethnic backgrounds. These inconclusive findings highlight the tensions between stated and unintended consequences of test-optional policies and warrant further investigation to discern the efficacy of test-optional policies in expanding access to underrepresented racial and ethnic minority students.

Socioeconomic Diversity

Although a limited number of studies have examined whether the adoption of test-optional policies affects postsecondary access for low-income students, conflicting findings have emerged in the literature. Using Pell Grant receipt as an approximation of low-income status, Belasco et al. (2015) and Saboe and Terrizzi (2019) found that the implementation of test-optional policies was not associated with increased enrollment of low-income students. While Saboe and Terrizzi (2019) found that test-optional policies had no significant effect on

postsecondary access for low-income students, Belasco et al. (2015) found that test-optional institutions enrolled a lesser proportion of low-income students than their test-requiring counterparts. In contrast, Syverson et al. (2018) found that the implementation of a test-optional policy resulted in a small but statistically significant increase in the enrollment of low-income students as compared to test-requiring peer institutions. Bennett (2021) found that test-optional policies were associated with a 3 to 4 percent increase in Pell Grant recipients. The lack of consistent findings suggests there is need for further research to clarify the effect of test-optional policies on the socioeconomic diversity of enrolled students.

Theoretical Framework

There have been accounts of institutional motivation for implementing test-optional policies to increase admissions selectivity and average SAT scores in the pursuit of prestige and improved institutional rankings (Belasco et al., 2015; Furuta, 2017; Lucido, 2017). Institutional decisions to adopt test-optional admissions policies can be explained through organizational theories such as institutional theory (Scott, 2013) and institutional isomorphism (DiMaggio & Powell, 1983; Selznick, 1996). Institutional theory explains the adoption and proliferation of formal organizational structures, policies, standard practices, and new forms of organization (Peters, 1999; Scott, 2005). Institutional theory is useful for understanding the internal conditions (e.g., shared expectations, norms, priorities) and external factors (e.g., marketplace competition) that serve as catalysts for the introduction or modification of organizational policies. Institutional isomorphism posits that a set of environmental conditions prompt organizations to resemble other organizations to compete effectively (DiMaggio & Powell, 1983; Selznick, 1996). DiMaggio and Powell (1983) explain that organizations within a particular organizational field tend to become increasingly isomorphic over time, adopting similar structures, processes, and rhetoric as they seek legitimacy. Similarly, competitive isomorphism suggests that organizations operating in the same competitive marketplace tend to become more homogeneous over time, as competition eliminates less productive models in favor of those that are more efficient (Scott, 2013). Increasingly, mimetic isomorphism emerges from organizational uncertainty thereby leading to institutional convergence. Institutions continuously encounter challenges, and the absence of clear and readily available solutions prompts institutions to replicate seemingly sufficient modes of decision making and problem solving (Seyfried et al., 2019). Institutional isomorphism is reflected in institutional ranking, rating, and classification systems as well as the policy approaches institutions implement to improve their standing within such systems (Bastedo & Bowman, 2011). As institutions grapple with competitive and normative pressures, test-optional policies have become seemingly attractive mechanisms to attain institutional objectives

such as enrollment growth and to maintain prominence in an increasingly competitive marketplace (Furuta, 2017). Past research has provided insight into the unstated outcomes of test-optional policy adoption such as enhanced institutional standing (Belasco et al., 2015). This outcome is reflective of institutional isomorphism as institutions rely on replicative approaches as they strive for legitimacy and prestige (DiMaggio & Powell, 1983). Institutional isomorphism and institutional theory are useful for explaining decisions to adopt or modify policies to effectively compete with institutions of similar typology (e.g., institutional control) and characteristics (e.g., admissions selectivity), and considering how institutional similarities or differences potentially impact the outcomes of test-optional admissions.

Current Study

Using the theory of institutional isomorphism as a guide, we extend previous literature by analyzing more recent data from a broader sample of institutions to assess the impact of test-optional policies on several stages of the admissions funnel, racial diversity of the student body, and the enrollment of Pell Grant recipients. Previous research has principally focused on small liberal arts colleges given their propensity to introduce test-optional policies as compared to their more comprehensive public university counterparts. Although previous studies analyzed the impact of test-optional admissions policies across time, research has not addressed test-optional outcomes since 2016 despite the accelerating rate of policy adoption (Belasco et al., 2015; Bennett, 2021; Saboe & Terrizzi, 2019; Sweitzer et al., 2018; Syverson et al., 2018). The use of more recent data allows for renewed understanding of how the impact of test-optional policies may have changed in the past several years. Past research has offered insight into prospective students' preferences as approximated by application submissions but provides minimal evidence of the effect of test-optional policies on post-admission behavior as evidenced by matriculation decisions (Belasco et al., 2015; Sweitzer et al., 2018; Syverson et al., 2018). Therefore, we extend the findings of prior studies and expand the number and type of test-optional institutions represented in the literature.

By addressing the following research questions, we build on the findings of previous research regarding the relationship between test-optional admissions policies and key indicators of institutional desirability (applications received, admitted student enrollment decisions), admissions selectivity (acceptances), and the racial and socioeconomic diversity of enrolled students:

1. Does the implementation of a test-optional admissions policy result in a statistically significant change in the volume of first-year undergraduate admissions applications received, acceptances, and enrollees between Carnegie Classification groups?

a. Based on the findings of previous studies, we hypothesize that the implementation of a test-optional admissions policy results in a statistically significant increase in the volume of first-year undergraduate admissions applications received, acceptances, and enrollees (Belasco et al., 2015; Saboe & Terrizzi, 2019; Sweitzer et al., 2018; Syverson et al., 2018).

2. Does the implementation of a test-optional admissions policy result in a statistically significant change in the percentage of enrolled undergraduate students who identify as an underrepresented racial minority between Carnegie Classification groups?

a. Based on the findings of previous research, we hypothesize that the implementation of a test-optional admissions policy results in a statistically significant increase in the percentage of enrolled undergraduate underrepresented racial minority students (Bennett, 2021; Syverson et al., 2018).

3. Does the implementation of a test-optional admissions policy result in a statistically significant change in the percentage of full-time first-time undergraduate students who receive Pell Grants between Carnegie Classification groups?

a. Based on the findings of previous research, we hypothesize that the implementation of a test-optional admissions policy results in a statistically significant increase in the percentage of full-time first-time undergraduate students who receive Pell Grants (Bennett, 2021; Syverson et al., 2018).

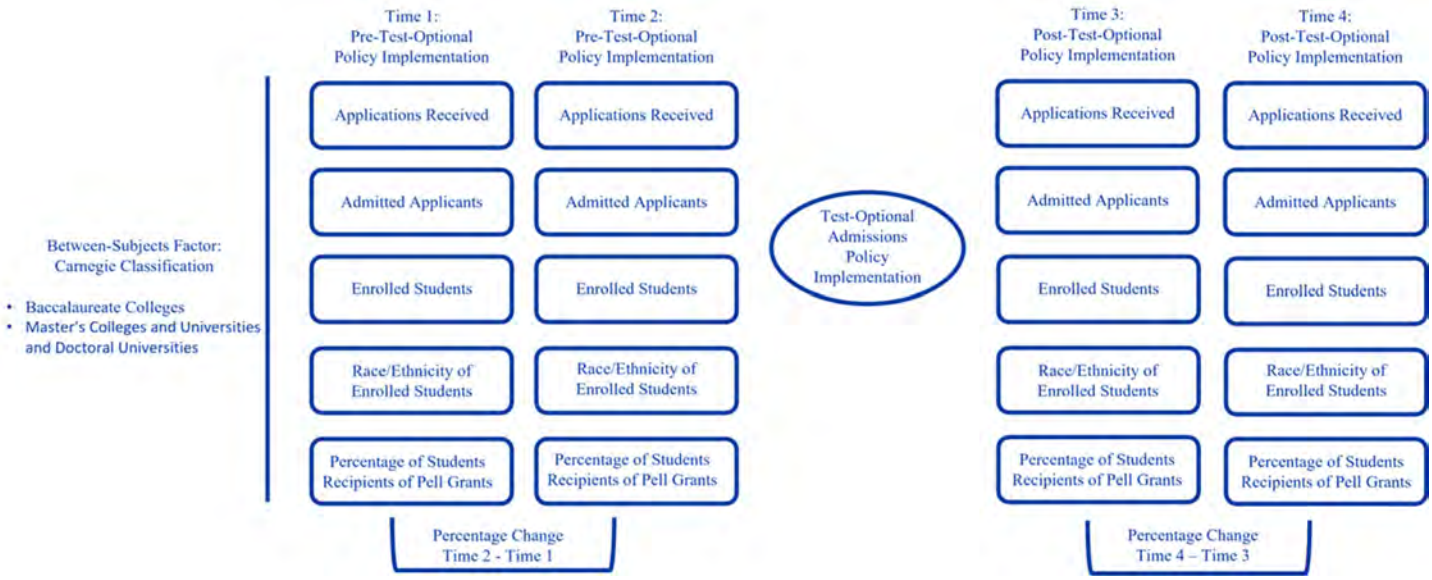
Methodology

Using a 2x2 repeated measures multivariate analysis of variance, we examined the change in indicators of admissions desirability (applications received, enrollments), admissions selectivity (acceptances), and the racial (percentage of underrepresented minority students enrolled) and socioeconomic (percentage of Pell Grant recipients enrolled) composition of the student body upon the implementation of a test-optional admissions policy across time and between institutional Carnegie Classifications. We designed the study as depicted in Figure 1 (see next page).

Sample and Data Collection

We examined data collected from 162 four-year, degree-granting, Integrated Postsecondary Education Data System (IPEDS)-submitting, public and private not-for-profit institutions in the United States. According to FairTest, as of December 2021, more than 1,830 colleges and universities in the United States have introduced policies that deemphasize or forgo the consideration of standardized tests as part of the undergraduate admissions process (FairTest, 2021). The test-optional institutions included in our study were drawn from FairTest's 2020 list of the "380+ 'Top Tier' Schools that Deemphasize the ACT/SAT in Admissions Decisions per *U.S. News & World Report Best*

Figure 1.
2x2 Repeated Measures Study Design



Colleges Guide (2020 Edition)." At the time of data collection, this list included 369 public, private non-profit, and private for-profit institutions that implemented test-optional policies and were ranked by *U.S. News & World Report* among the "Best Colleges and Universities" for 2020. Of the 369 institutions, our study included those that reported a change in IPEDS admissions test scores consideration from required to one of the following:

- considered but not required (n = 41; 25.3%)
- recommended (n = 73; 45.1%), or
- neither required nor recommended (n = 48; 29.6%)

between 2003 and 2016 (U.S. Department of Education, 2020). Despite inclusion on FairTest's list, we excluded 197 test-optional institutions that did not report a change in admissions test score consideration to IPEDS. Not reporting a change in test score consideration suggests that these institutions may have implemented a test-optional admissions policy for some, but not all academic programs. Therefore, we excluded these institutions from the study. Given the study years (2001-2018), some of the earliest known institutional adopters of test-optional admissions policies such as Bowdoin College (Test Optional Policy, n.d.) were not included in our sample. Additionally, our sample does not include institutions that adopted test-optional policies immediately prior to or amid the COVID-19 pandemic given the substantial and variable impact of the pandemic on higher education institutions (Melidona et al., 2021).

We collected panel data from IPEDS for reporting years 2001 through 2018. We used IPEDS imputation values for missing data. All

other missing cases were treated using listwise deletion as is consistent with ANOVA techniques (Johnson, 1989; Little & Rubin, 2002) and as recommended for IPEDS-related data issues (Jaquette & Parra, 2014). Table 1 (see next page) presents descriptive statistics on the institutions in our sample.

Data Analysis

The repeated factor included two time intervals: (1) the two years prior to policy implementation, (2) the two years after policy implementation. For the between-subjects factor, we combined the 2018 Basic Carnegie Classification for each institution into two categories: (1) Baccalaureate Colleges (n = 72; 44.4%), and (2) Master's Colleges and Universities and Doctoral Universities (n = 90; 55.6%). We used this combined Carnegie Classification variable as a between-subjects factor to examine differences in the outcome variables by institutional classification.

The outcome variables included applications received, acceptances, enrollments, the percentage of undergraduate under-represented racial minority students enrolled, and the percentage of full-time first-time Pell Grant recipients enrolled. To create these variables, we calculated the percent change between Time 1 and Time 2 (the two years prior to policy implementation) and between Time 3 and Time 4 (the two years after policy implementation). We used percent change as the outcome variables prior to and after policy implementation to control for institutional differences in the study variables, such as application volume, because using mean or raw scores would result in between-subject differences.

We defined underrepresented racial minority student status using the following IPEDS categorizations: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and Two or More Races (U.S. Department of Education, 2020). We combined these categories into one variable as a total percentage of undergraduate underrepresented racial minority students enrolled. We used the percentage of full-time first-time undergraduate students receiving a Pell Grant in any dollar amount. Table 2 provides descriptive statistics on the study variables. We analyzed the data using 2x2 repeated measures MANOVA for Research Question 1 and 2x2 repeated measures ANOVA for Research Questions 2 and 3 to examine the change in the outcome variables across the two time intervals.

Results

Applications, Acceptances, and Enrollees

Our first research question asked whether the implementation of a test-optional admissions policy results in a statistically significant change in the number of first-year undergraduate admissions applications received, acceptances, and enrollees. Our analysis revealed a statistically significant main effect for time (Wilks $\Lambda = F[3, 152] = 6.25$, $p < .001$, $\eta p2 = .11$). There was no interaction between time and Carnegie

Table 1.
Descriptive Statistics on Sample of Test-Optional Institutions.

	n	Percentage
Institutional Control		
Private	137	84.6
Public	25	15.4
Institution Size Category		
Under 1,000	14	8.6
1,000 – 4,999	108	66.7
5,000 – 9,999	20	12.3
10,000 – 19,999	11	6.8
20,000 and above	9	5.6
Minority-Serving Status		
Alaska Native and Native Hawaiian-Serving Institution	1	.62
Asian American and Native American Pacific Islander-Serving Institution	5	3.1
Hispanic Serving Institution	11	6.8
Non-Minority-Serving Institution	145	89.5

Notes. n = 162. Data for the 2018 IPEDS reporting year. Institution size category refers to the total number of undergraduate students enrolled. Two institutions in the sample hold two minority-serving institution statuses. Numbers do not total to 100% due to rounding. Minority-serving status data derived from Skinner (2021).

Table 2.
Means and Standard Deviations of the Study Variables.

Variables	Time 1	Time 2	Percent Change Time 1-2	Time 3	Time 4	Percent Change Time 3-4
Applications received	4,783 (4,924.5)	4,818 (5,007.6)	2.31 (11.9)	5,071 (5,286)	5,404 (5,572)	8.9 (20.1)
Acceptances	2,938 (3,165)	2,948 (3,163)	2.91 (14.9)	3,131 (3,236)	3,284 (3,373)	6.3 (18.3)
Enrollees	742 (851)	743 (880)	.88 (14.1)	759 (884)	784 (907)	4.4 (15.6)
Percentage minority students enrolled	21.4 (14.3)	21.7 (13.7)	4.8 (18.3)	22.1 (13.4)	22.6 (13.8)	3.6 (18.0)
Percentage Pell Grant recipients enrolled	26.4 (13.6)	26.8 (14.3)	3.9 (24.2)	27.7 (14.5)	28.6 (15.6)	4.2 (21.2)

Notes. n = 162. Standard deviations are included in parentheses.

Classification. We identified two significant univariate main effects of time for applications received ($F(1, 154) = 16.04$, MSE = .44 , $p < .001$, $\eta p2 = .01$, a small effect size) and enrollees ($F(1, 154) = 4.68$, MSE = .10, $p < .003$, $\eta p2 = .03$, a small effect size). The main effect of time for acceptances was approaching significance ($F(1, 154) = 3.43$, MSE = .09 , $p < .066$, $\eta p2 = .02$). Additionally, there was a between-subjects main effect for institution type for enrollees ($F(1, 154) = 11.30$, MSE = .25 , $p = .001$, $\eta p2 = .07$, a small effect size).

These results demonstrate a statistically significant difference in new undergraduate first-year applications received across Carnegie Classification groups. Additionally, we observed between-subjects differences for enrollees between groups with increased first-year enrollments over time. Table 3 and Figures 2-4 present these findings.

Underrepresented Racial Minority and Pell Grant Recipient Enrollment

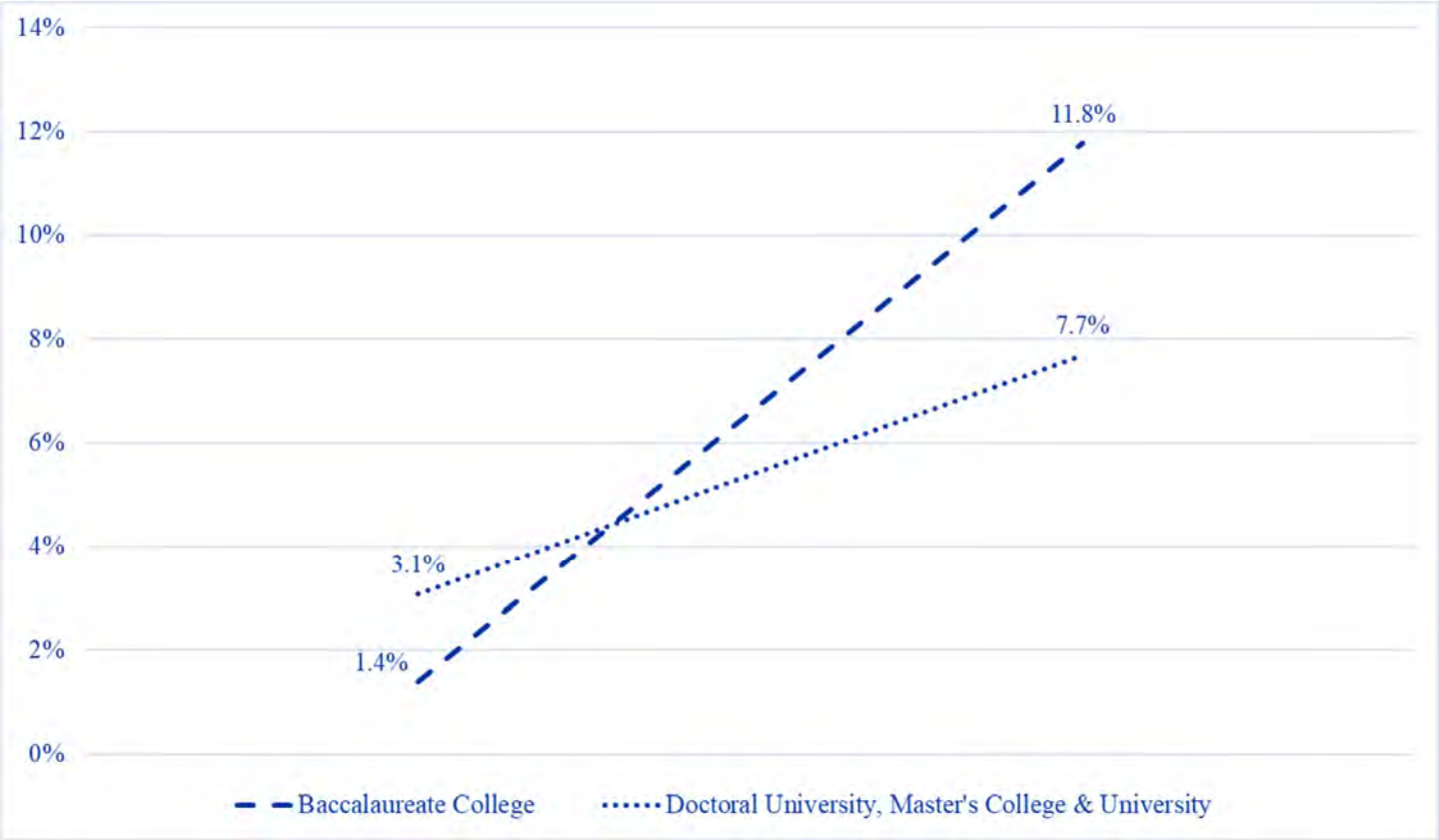
Our second and third research questions asked whether the implementation of a test-optional admissions policy results in a statistically significant change in the percentage of enrolled undergraduate students who identify as an underrepresented racial minority and who receive a Pell Grant, respectively. To answer these questions, we conducted two repeated measures ANOVAs. These analyses revealed a non-significant overall model for both research questions. However, we identified a small but non-significant increase in the proportion of Pell

Table 3.
Means and Standard Deviations of the Study Variables.

Research question	*F*	*df*	*MSE*	*p*	np^2
Overall Model Results (Wilks' λ)	6.25	3, 152	-	.000 *	.11
Effect of time					
Applications Received	16.04	1, 154	.44	.001 *	.009
Acceptances	3.43	1, 154	.09	.066 **	.02
Enrolled	4.68	1, 154	.10	.003 *	.03
Between-subjects main effect for Carnegie Classification for enrollees	11.30	1, 154	.25	.001	.07

Notes. * $p < .01$, ** Approaching statistical significance.

Figure 2.
Percent Change in Applications Received by Carnegie Classification.

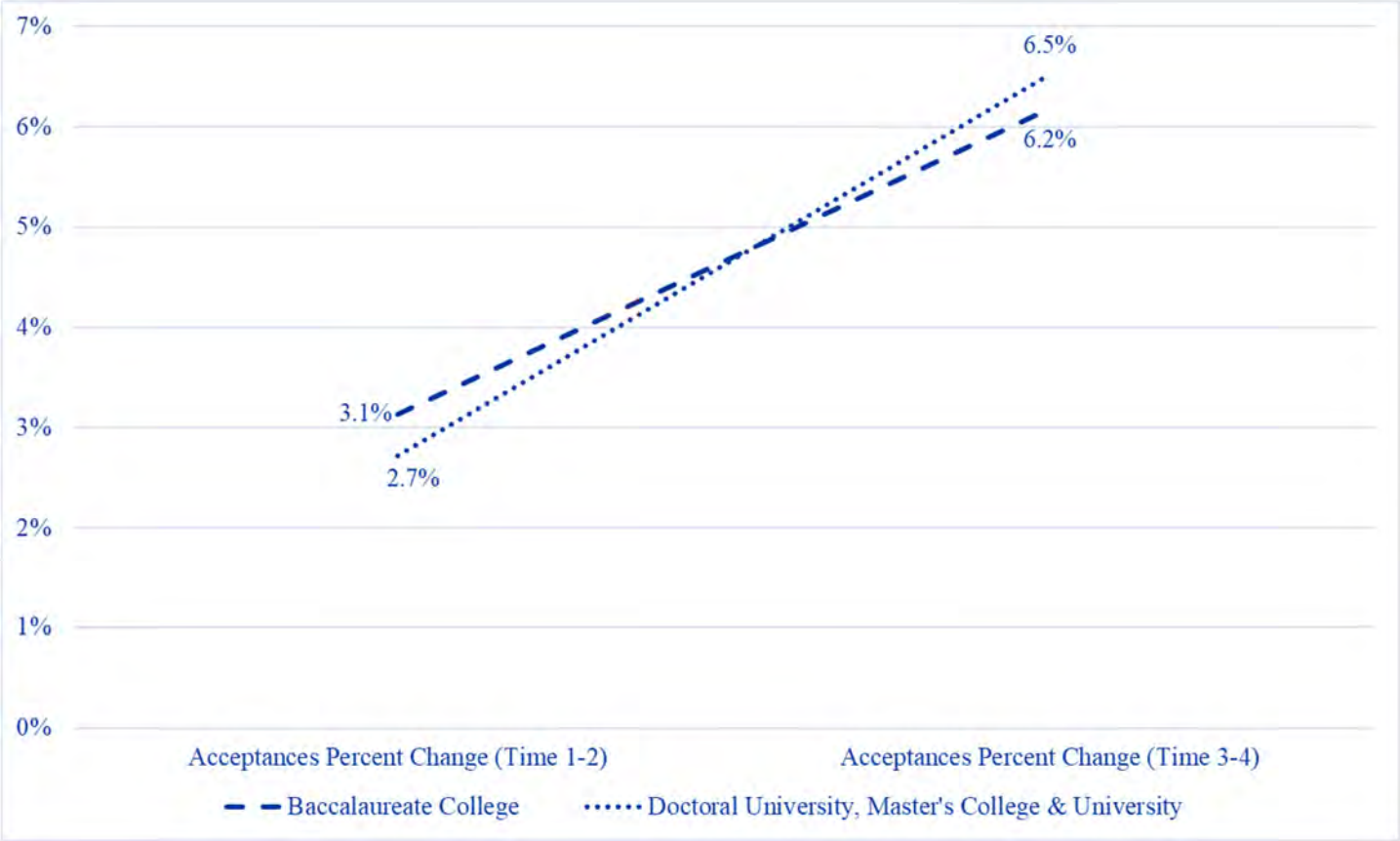


Grant recipients two years after policy implementation at baccalaureate institutions. Overall, these findings do not support our hypothesis that the implementation of a test-optional admissions policy results in a statistically significant increase in the percentage of enrolled undergraduate students who identify as an underrepresented racial minority or who are Pell Grant recipients.

Secondary Analyses

We conducted two secondary analyses to test whether there was a statistically significant change in indicators of admissions desirability (applications received, enrollments), admissions selectivity (acceptances), and the racial (percentage of underrepresented minority students enrolled) and socioeconomic (percentage of Pell Grant recipients enrolled) composition of the student body upon the implementation of a test-optional admissions policy across time and between (1) test-optional policy types (considered but not required, recommended, neither required nor recommended) and (2) Minority Serving Institution designations (Alaska Native and Native Hawaiian-Serving Institution, Asian American and Native American Pacific Islander-Serving Institution, Hispanic Serving Institution). Our secondary

Figure 3.
Percent Change in Acceptances by Carnegie Classification.



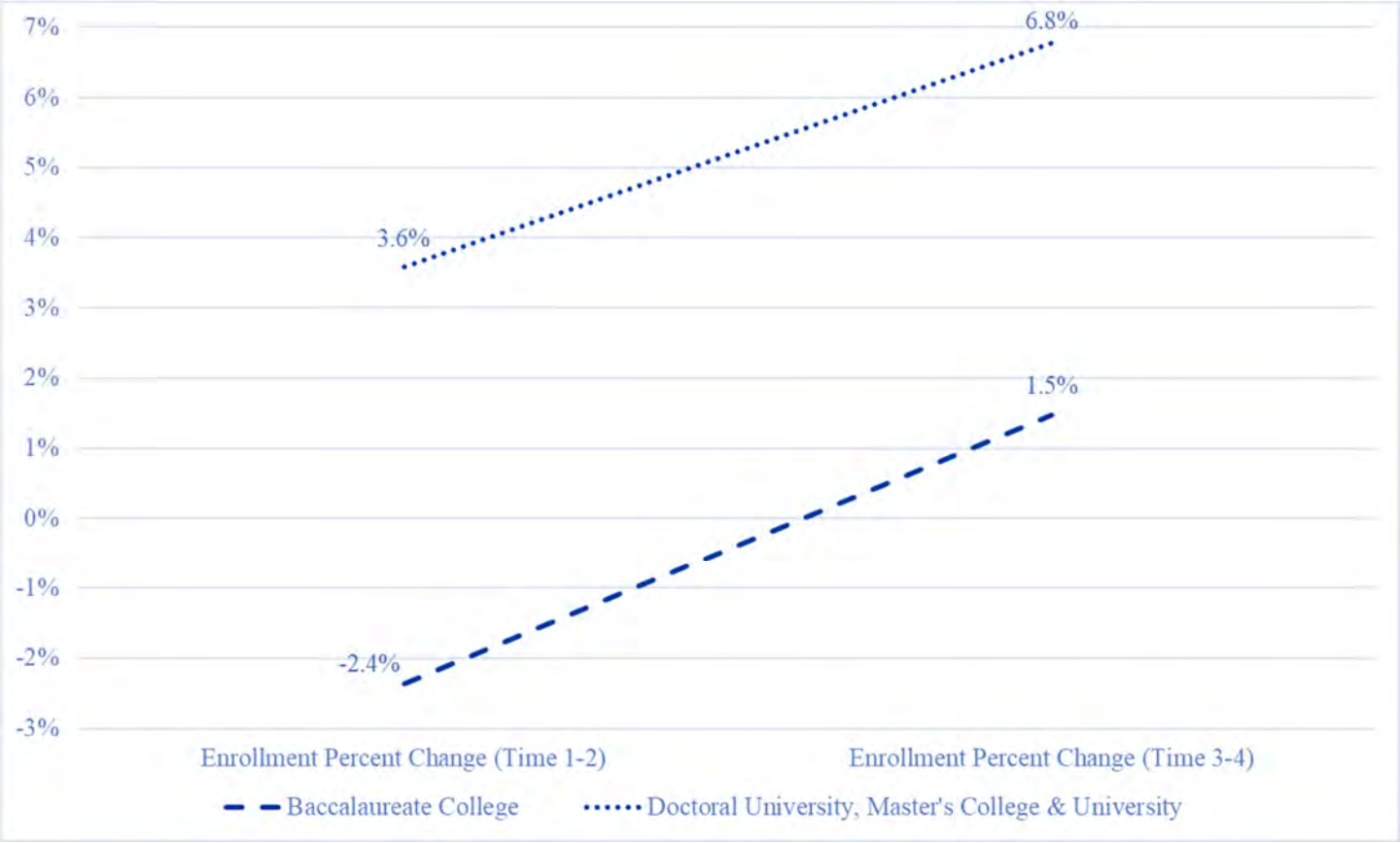
analyses did not demonstrate statistically significant results.

Discussion

Summary of Findings

We identified three key findings. First, our analysis demonstrated a significant main effect between time and applications received and enrollees. This finding suggests that the implementation of a test-optional admissions policy results in a statistically significant change in the number of applications received across Carnegie groups. Second, our analysis demonstrated a significant main effect between Carnegie groups for enrolled students. This suggests that applicants admitted under test-optional policies yield at a higher rate than those who were admitted prior to policy implementation. We did not identify evidence of a significant model for the percentage of enrolled undergraduate students who identify as an underrepresented racial minority or for the percentage of full-time first-time undergraduate students who receive Pell Grants. These findings are consistent with those of Saboe and Terrizzi (2019).

Figure 4.
Percent Change in Enrollment by Carnegie Classification.



Importance of the Findings

Our findings illuminate the complex relationships between institutional theory, isomorphic tendencies in higher education, and college admissions practices—relationships that have become even more complicated due to the COVID-19 pandemic. While the implementation of test-optional policies has allowed institutions to pursue internal priorities such as increased student selectivity, the rapid adoption of test-optional policies across the higher education system in the United States suggests that the test-optional movement may be an example of an isomorphic practice that perpetuates gaps in student access and institutional recruitment practices. Although data on test-optional enrollment outcomes are not yet widely available, especially among recent institutional adopters, some reports have indicated that increases in applications are disproportionately larger at highly selective institutions and that applications to less-selective institutions that serve lower-income students have decreased (Jaschik, 2021). Furthermore, many admissions and college access professionals are uncertain how increased applications will translate into the enrollment of accepted students, which may be a particular challenge for institutions

seeking opportunities to diversify their student body and accept more students from low-income backgrounds. Our findings suggest that while test-optional policies present a possible pathway to increased access to and diversity in higher education, it is not a panacea for mitigating inequities nor replicating institutional success as explained by institutional isomorphism.

Standardized test scores gained prominence as efficient criteria for comparing a growing number of undergraduate admissions applicants. Yet there is clear evidence of the differential prediction of standardized test scores across socioeconomic and racial groups of test takers. The adoption of test-optional admissions policies does not appear to be effective in addressing disparities in educational opportunity by expanding access for underrepresented racial minority or low-income students. Rather, test-optional admissions policies may serve to shift the emphasis from standardized test scores to other admissions criteria, some of which may reflect similar issues of reliability and differential prediction (Bastedo et al., 2018) and perpetuate racial and economic inequities (Chetty et al., 2020, Rosinger et al., 2019). For example, additional emphasis on academic rigor (e.g., Advanced Placement or International Baccalaureate coursework) and extracurricular involvement (e.g., volunteerism, community engagement) may serve to reproduce or exacerbate existing stratification in terms of postsecondary access. In other words, students of underrepresented backgrounds and those who attend under-resourced schools may have fewer opportunities to enroll in college preparatory coursework or engage in extracurricular activities as compared to their more affluent peers.

"...our analysis demonstrated a significant main effect between time and applications received and enrollees. This finding suggests that the implementation of a test-optional admissions policy results in a statistically significant change in the number of applications received across Carnegie groups."

Counter to the findings of Syverson et al. (2018) and Bennet (2021), test-optional admissions policies may not effectively bolster opportunities for low-income students as demonstrated by the small but non-significant increase in the proportion of Pell Grant recipients two years after policy implementation at baccalaureate institutions. However, the relationship between test-optional policies and access to postsecondary education for low-income students remains of particular importance as the nation recovers from the economic impact of the COVID-19

pandemic, which has assuredly altered the postsecondary educational plans of many students and families (Bennett, 2021).

Limitations

When considering the results of our study, it is important to recognize that although we included a more representative sample of test-optional institutions than previous studies, our study employed a more focused examination than previous work (e.g., Syverson et al., 2018). We placed intentionally greater emphasis on whether test-optional policies are effective in attaining the more commonly stated institutional objectives of promoting access to postsecondary education among historically marginalized racial minority and low-income student populations.

As is consistent with previous studies, test-optional effects may be attributable to other differences in policy change, enrollment strategy, or events that are not accounted for by our model. For example, the Great Recession in the United States and the subsequent increase in federal Pell Grant expenditure may explain, at least in part, the small increase in the percentage of Pell Grant recipients enrolled at baccalaureate institutions during the years examined in the current study (Barr & Turner, 2013; Bettinger & Williams, 2013). Additionally, the use of IPEDS data limited the scope of the research and our ability to address questions that can only be answered with student-level data or data provided directly by institutions. For example, we did not investigate the differences between test-optional applicants and test-submitters on important demographic, psychographic, and academic variables such as the likelihood of test-optional applicants to have intellectual disabilities or pursue majors in certain academic disciplines and professional fields. Also, we did not investigate what motivates prospective undergraduate students to apply to institutions with test-optional policies as opposed to those that require the submission of standardized test scores as part of the undergraduate admissions process. Additionally, our analyses did not consider how test-optional policies effect the stages of the admissions funnel prior to application when students may express initial interest in a particular institution (Hossler & Bontrager, 2014).

Future Research

Given the limitations of the current study, we recommend several directions for future research. As an increasing number of postsecondary institutions introduce test-optional policies, future research should consider the extent to which policy adoption is effective in attaining manifest goals as the marketplace becomes saturated with adopting institutions. Although our research did not identify statistically significant differences between test-optional policy types, the field of higher education requires a more nuanced understanding of how test-optional policy variations may impact institutional

desirability, admissions selectivity, and the racial and socioeconomic diversity of the student body. Considering the substantial variability in the institutional characteristics that classify the more than 1,830 test-optional institutions in the United States (FairTest List, 2021), future research should explore how the effects of test-optional admissions policies differ across institutional characteristics such as institutional geography, religious affiliation, and mission.

Lastly, future research should explore how prospective and current students perceive test-optional admissions policies in terms of the extent to which these policies provide expanded access to postsecondary education. A qualitative exploration using a theoretical framework such as consumer behavior theory (Howard, 1977) could lend important insight into students' motivations as they pursue admission to test-optional institutions.

Declaration of Interest Statement
The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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