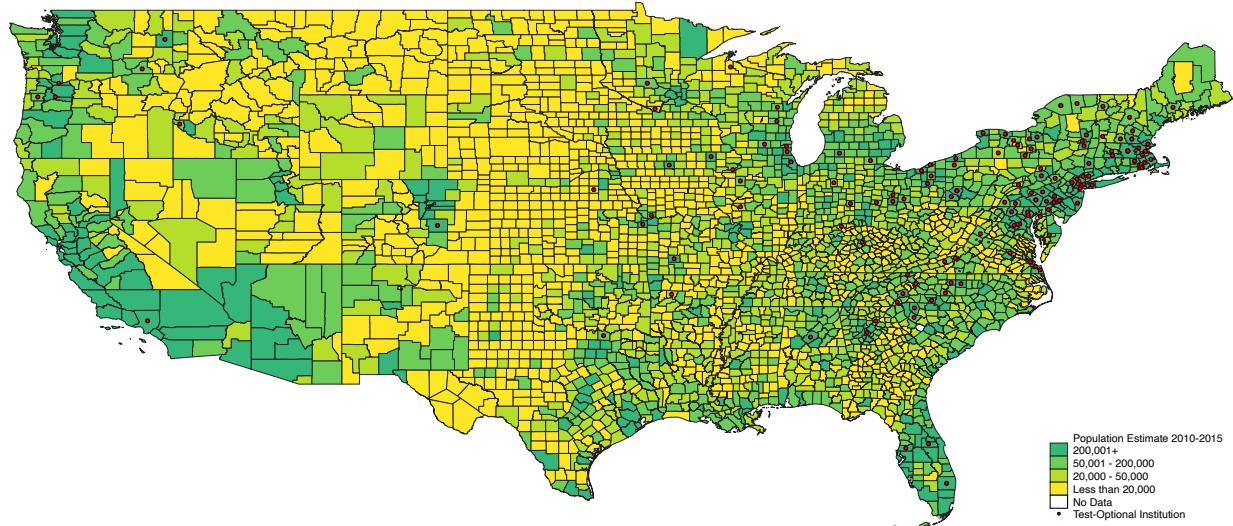


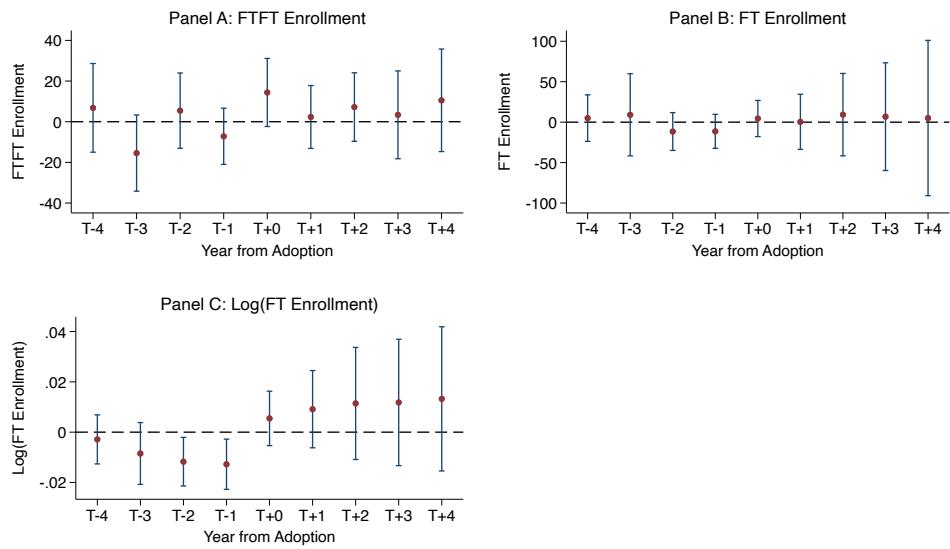
Appendix Figures

Figure A1: Test-Optional Colleges and Universities Across the United States



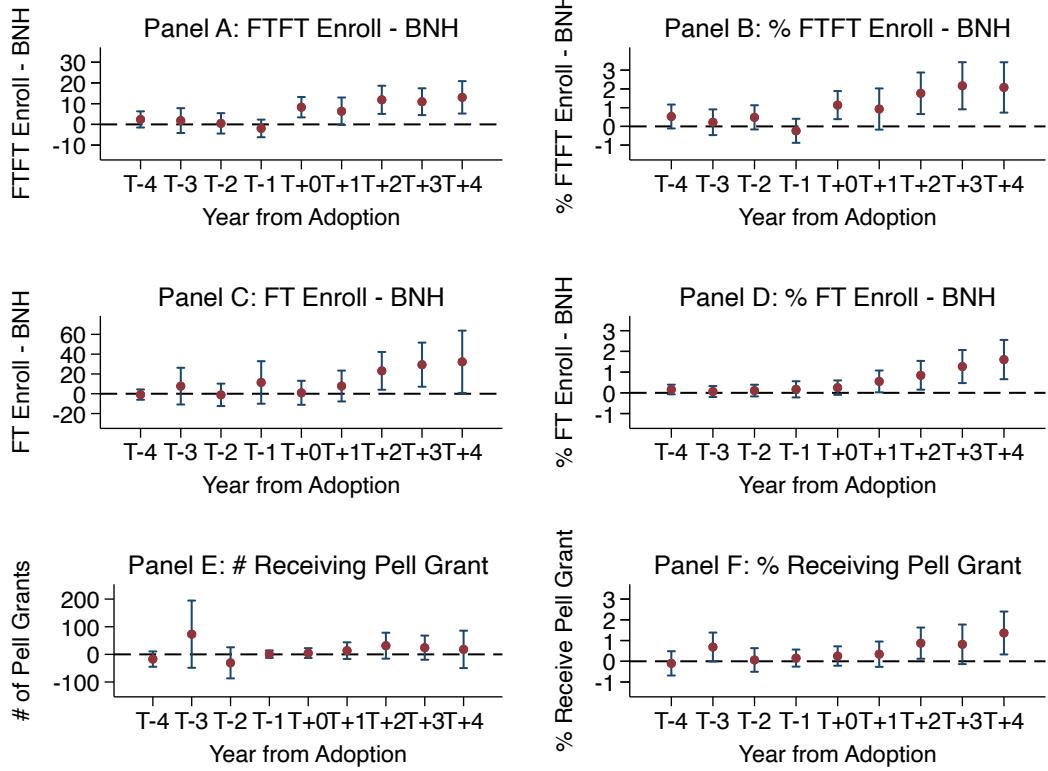
Notes: This figure presents the locations of every test-optional institution that adopted the policy by 2018 against the county population estimates from 2010-2015. Data on the location of test-optional institutions comes from IPEDS and population count data come from the [U.S Census Bureau \(2016\)](#).

Figure A2: Changes in Total Enrollment



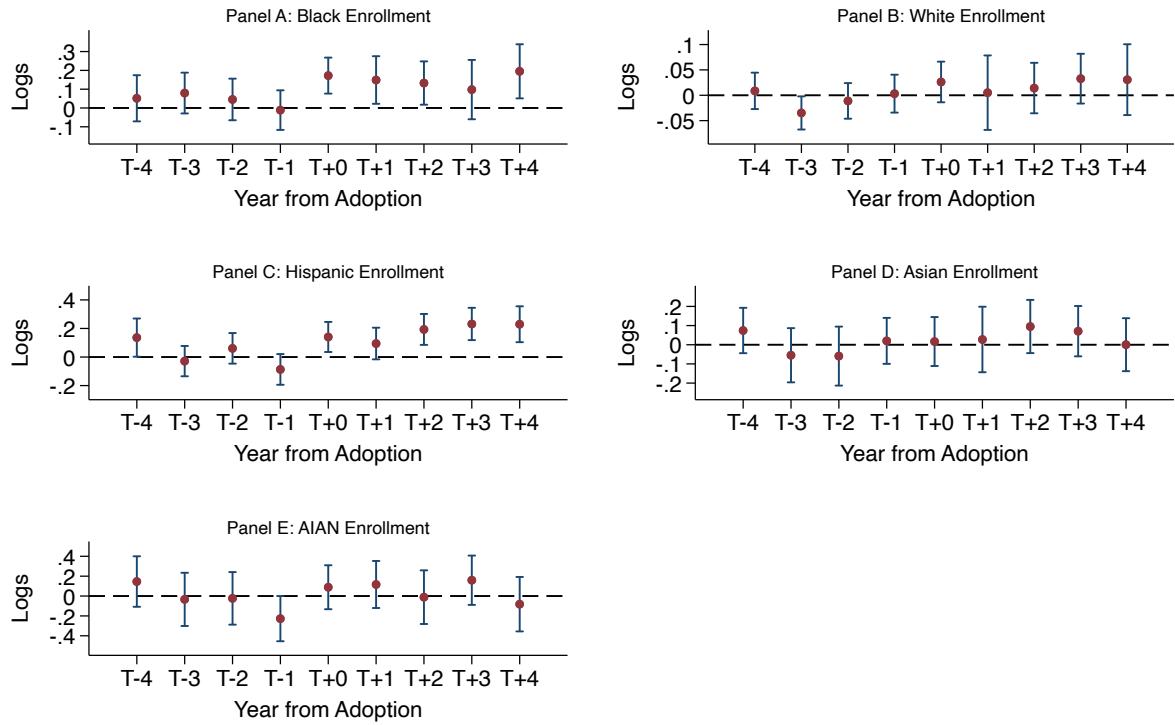
Notes: This figure presents the event-study estimates from the [Callaway and Sant'Anna \(2021\)](#) procedure. Figure A2(a) plots the estimates for the number of first-time, full-time students enrolled, Figure A2(b) plots the estimates for the number of full-time students enrolled, and Figure A2(c) plots the estimates for the log number of full-time students enrolled. Each figure is the result of a separate estimation. 95% confidence intervals are reported. All estimations include school and year fixed effects. Pre-treatment covariates include in-state published tuition, the availability of a “Loan Cap” policy and full-time enrollment in 2001. Data on enrollment comes from IPEDS.

Figure A3: Effects of Test-Optional Policies on Enrollment - Levels and Percents



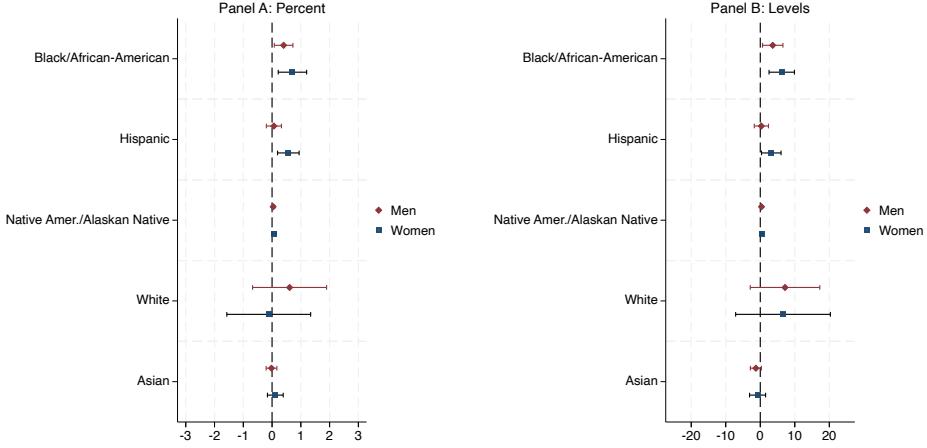
Notes: This figure presents the event-study estimates from the [Callaway and Sant'Anna \(2021\)](#) procedure. Figure A3(a) plots the estimates for the number of first-time, full-time Black, Native American/Alaskan Native and Hispanic (FTFT BNH) students enrolled, Figure A3(b) plots the estimates for the percent of full-time (FT) BNH students enrolled, Figure A3(c) plots the estimates for the number of FT BNH students enrolled, Figure A3(d) plots the estimates for the percent of FTFT BNH students enrolled, Figure A3(e) plots the estimates for the number of students receiving a Pell Grant and Figure A3(f) plots the estimates for the percent of students receiving a Pell Grant. Each figure is the result of a separate estimation. 95% confidence intervals are reported. All estimations include school and year fixed effects. Pre-treatment covariates include in-state published tuition, the availability of a “Loan Cap” policy and full-time enrollment in 2001. Data on enrollment comes from IPEDS. Data on Pell Grant Recipients comes from the Department of Education.

Figure A4: Results on Enrollment by Race



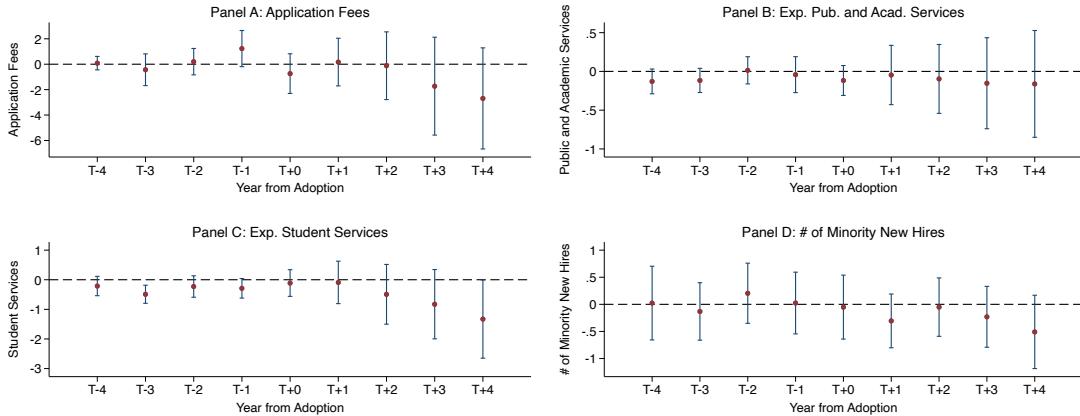
Notes: This figure presents the event-study estimates from the [Callaway and Sant'Anna \(2021\)](#) procedure. Figure A4(a) plots the estimates for the log number of Black students enrolled, Figure A4(b) plots the estimates for the log number of White students enrolled, Figure A4(c) plots the estimates for the log number of Hispanic students enrolled, Figure A4(d) plots the estimates for the log number of Asian students enrolled, and Figure A4(e) plots the estimates for the log number of Native American/Alaskan Native students enrolled. Each figure is the result of a separate estimation. 95% confidence intervals are reported. All estimations include school and year fixed effects. Pre-treatment covariates include in-state published tuition, the availability of a “Loan Cap” policy and full-time enrollment in 2001. Data on enrollment comes from IPEDS.

Figure A5: Results on Enrollment by Race and Gender (Levels and Percent)



Notes: This figure presents single, aggregated average treatment on the treated effects for first-time, full-time enrollment of Black/African-American, Hispanic, Native American/Alaskan Native, White and Asian students, separately for men and women. Each point is the result of a separate estimation. Panel A reports the results as measured in percents and Panel reports the results as measured in levels. Red diamonds always represent the results for men and Blue squares always represent the results for women. 95% confidence intervals are reported. All estimations include school and year fixed effects. Pre-treatment covariates include in-state published tuition, the availability of a “Loan Cap” policy and full-time enrollment in 2001. Data on enrollment comes from IPEDS. See Appendix Table A6 for information on control means and observations.

Figure A6: Results on Other Policy Innovations



Notes: This figure presents the event-study estimates from the Callaway and Sant’Anna (2021) procedure. Figure A6(a) plots the estimates for application fees, Figure A6(b) plots the estimates for expenditures on public and academic services as measured in 2010 dollar, Figure A6(c) plots the estimates for expenditures on student services as measured in 2010 dollars, and Figure A6(d) plots the estimates for the number of Black, Native American/Alaskan Native and Hispanic faulty new hires. Each figure is the result of a separate estimation. 95% confidence intervals are reported. All estimations include school and year fixed effects. Pre-treatment covariates include in-state published tuition, the availability of a “Loan Cap” policy and full-time enrollment in 2001. Data on application fees, expenditures and new hires comes from IPEDS.

Appendix Tables

Table A1: Test-Optional Schools 2006-2014

Adoption Year	Institution Name	Institution Type	Adoption Year	Institution Name	Institution Type
2006	Chatham University	Private not-for-profit (no religious affiliation)	2010	American University	Private not-for-profit (religious affiliation)
2006	College of the Holy Cross	Private not-for-profit (no religious affiliation)	2010	Assumption College	Private not-for-profit (religious affiliation)
2006	Knox College	Private not-for-profit (religious affiliation)	2010	Connecticut College	Private not-for-profit (no religious affiliation)
2006	Lawrence University	Private not-for-profit (no religious affiliation)	2010	Fairfield University	Private not-for-profit (religious affiliation)
2006	Salisbury University	Private not-for-profit (no religious affiliation)	2010	Illinois College	Private not-for-profit (religious affiliation)
2006	St Lawrence University	Public	2010	Loyola University Maryland	Private not-for-profit (religious affiliation)
2007	Bennington College	Private not-for-profit (no religious affiliation)	2010	Marlboro College	Private not-for-profit (no religious affiliation)
2007	George Mason University	Private not-for-profit (no religious affiliation)	2010	Sacred Heart University	Private not-for-profit (religious affiliation)
2007	Gustavus Adolphus College	Public	2010	SUNY College at Potsdam	Public
2007	Hobart William Smith Colleges	Private not-for-profit (religious affiliation)	2010	Washington & Jefferson College	Private not-for-profit (no religious affiliation)
2007	King's College	Private not-for-profit (no religious affiliation)	2011	Manhattanville College	Private not-for-profit (no religious affiliation)
2007	Lake Forest College	Private not-for-profit (religious affiliation)	2011	Marist College	Private not-for-profit (no religious affiliation)
2007	Lebanon Valley College	Private not-for-profit (religious affiliation)	2011	Saint Anselm College	Private not-for-profit (religious affiliation)
2007	Mitchell College	Private not-for-profit (religious affiliation)	2011	Saint Michael's College	Private not-for-profit (religious affiliation)
2007	Nazareth College	Private not-for-profit (no religious affiliation)	2011	Salve Regina University	Private not-for-profit (religious affiliation)
2007	Providence College	Private not-for-profit (no religious affiliation)	2011	University of Rochester	Private not-for-profit (no religious affiliation)
2008	Augustana College	Private not-for-profit (religious affiliation)	2011	Virginia Wesleyan University	Private not-for-profit (religious affiliation)
2008	Denison University	Private not-for-profit (religious affiliation)	2011	Wagner College	Private not-for-profit (religious affiliation)
2008	Drew University	Private not-for-profit (no religious affiliation)	2012	Anna Maria College	Private not-for-profit (religious affiliation)
2008	Georgian Court University	Private not-for-profit (religious affiliation)	2012	Bryant University	Private not-for-profit (no religious affiliation)
2008	Gettysburg College	Private not-for-profit (religious affiliation)	2012	DePaul University	Private not-for-profit (religious affiliation)
2008	Goucher College	Private not-for-profit (religious affiliation)	2012	Earlham College	Private not-for-profit (religious affiliation)
2008	Green Mountain College	Private not-for-profit (no religious affiliation)	2012	Nichols College	Private not-for-profit (no religious affiliation)
2008	Keuka College	Private not-for-profit (religious affiliation)	2012	Saint Leo University	Private not-for-profit (religious affiliation)
2008	Merrimack College	Private not-for-profit (religious affiliation)	2013	Catawba College	Private not-for-profit (religious affiliation)
2008	Rollins College	Private not-for-profit (religious affiliation)	2013	Clark University	Private not-for-profit (no religious affiliation)
2008	Stonehill College	Private not-for-profit (no religious affiliation)	2013	Ithaca College	Private not-for-profit (no religious affiliation)
2008	Washington College	Private not-for-profit (religious affiliation)	2013	Lees-McRae College	Private not-for-profit (religious affiliation)
2008	Whitworth University	Private not-for-profit (no religious affiliation)	2013	Roger Williams University	Private not-for-profit (no religious affiliation)
2008	Wilson College	Private not-for-profit (religious affiliation)	2013	William Jewell College	Private not-for-profit (religious affiliation)
2008	Wittenberg University	Private not-for-profit (religious affiliation)	2014	Brandeis University	Private not-for-profit (no religious affiliation)
2008	Worcester Polytechnic Institute	Private not-for-profit (religious affiliation)	2014	Hood College	Private not-for-profit (no religious affiliation)
2009	Albright College	Private not-for-profit (no religious affiliation)	2014	Lynn University	Private not-for-profit (no religious affiliation)
2009	Baldwin Wallace University	Private not-for-profit (religious affiliation)	2014	Ohio Wesleyan University	Private not-for-profit (religious affiliation)
2009	Smith College	Private not-for-profit (religious affiliation)	2014	Presbyterian College	Private not-for-profit (religious affiliation)
2009	Wake Forest University	Private not-for-profit (no religious affiliation)	2014	Regis College	Private not-for-profit (religious affiliation)
2010	Agnes Scott College	Private not-for-profit (no religious affiliation)	2014	Saint Joseph's University	Private not-for-profit (religious affiliation)

This table presents the list of test-optional schools I identify in my sample. The list of schools and their adoption year is compiled from FairTest (2020) and Bennett (2021).

Table A2: Summary Statistics in Various Years

	Test Optional		Test Requiring		Control - Treated
	Mean	Std. Dev.	Mean	Std. Dev.	Diff.
<i>Panel A: Summary Statistics 2005</i>					
% FTFT Enroll - BNH	9.5	6.3	19	21	9.7***
# of Applications	3,815	2,934	4,553	5,899	739
Full-Time Enrollment	2,580	2,225	4,842	5,859	2,262***
Published In-State Tuition	21,887	5,338	12,378	7,638	-9,508***
% Students with a Pell Grant	16	6.5	26	13	10***
Admission Rate	64	14	69	19	4.9**
% Freshmen w/ HS Class Rank in Top Half	87	12	80	14	-6.9***
Retention Rate	82	8.4	75	11	-6.6***
6-Year Graduation Rate	69	13	55	17	-14***
<i>Panel B: Summary Statistics 2007</i>					
% FTFT Enroll - BNH	11	6.9	20	21	9.5***
# of Applications	4,484	3,393	5,173	6,782	688
Full-Time Enrollment	2,647	2,292	4,976	6,024	2,328***
Published In-State Tuition	2,6472	6,317	14,967	9,236	-11,505***
% Students with a Pell Grant	17	6.6	27	13	9.6***
Admission Rate	61	15	66	18	4.5*
% Freshmen w/ HS Class Rank in Top Half	87	13	79	15	-7.6***
Retention Rate	83	7.7	75	11	-7.3***
6-Year Graduation Rate	69	13	56	17	-14***
<i>Panel C: Summary Statistics 2009</i>					
% FTFT Enroll - BNH	13	8.1	21	21	8.6***
# of Applications	4,772	3,420	5,936	7,843	1,164*
Full-Time Enrollment	2,759	2,533	5,211	6,330	2,451***
Published In-State Tuition	30,090	7,090	17,097	10,371	-12,993***
% Students with a Pell Grant	21	7.9	29	12	7.9***
Admission Rate	62	13	65	19	2.5
% Freshmen w/ HS Class Rank in Top Half	88	9.2	80	15	-8.3***
Retention Rate	82	10	76	11	-5.9***
6-Year Graduation Rate	70	13	56	17	-13***
<i>N</i>	69		1,026		1,095

This table presents summary statistics for schools that will adopt a test-optional policy to those that maintain a test requirement in the years 2005, 2007 and 2009. Data on enrollment, applications, tuition, admissions and college performance come from IPEDS. Data on students' performance in high school come from the College Board's *Annual Survey of Colleges*. Source: Annual Survey of Colleges 2020. Copyright © 2020 The College Board. This material may not be copied, published, rewritten or redistributed without permission. Data on Pell Grant Receipt comes from the U.S. Department of Education

Table A3: Results on Full-Time Enrollment

	Total Full-Time Enrollment	Full-Time BNH Enrollment
	(1)	(2)
<i>Panel A: Levels</i>		
ATT	39.39	41.66*
	(56.43)	(22.74)
Number of Obs.	19,708	19,708
Control Mean	4,760	834
<i>Panel B: Logs</i>		
ATT	0.02	0.19***
	(0.015)	(0.033)
Number of Obs.	19,708	19,580
Control Mean	7.88	5.76
<i>Panel C: Percent</i>		
ATT	-	1.41***
	-	(0.39)
Number of Obs.	-	19,708
Control Mean	-	18.21

*** p<0.01, ** p<0.05, * p<0.1. Standard errors are calculated using a bootstrap technique and are clustered at the school level. Pre-treatment controls include in-state tuition (in 2010 dollars), full-time enrollment in 2001, and whether a school has a "Loan Cap" Policy. Each coefficient is the result of a separate estimation. Data on enrollment come from IPEDS. Some institutions are missing data in particular years as described in the data section.

Table A4: Results Using Late-Adopters as the Control Group

<i>Panel A: Results on Test Submission and Enrollment</i>			
	% of Freshmen Submitting Test	Log(# of FTFT BNH Enrolled)	Log(# of Pell Grant Students)
	(1)	(2)	(3)
ATT	-13.98*** (1.97)	0.13*** (0.04)	0.07*** (0.02)
Number of Obs.	2,380	2,808	2,778
Baseline Mean	90.23	72.91	684

<i>Panel B: Results on Enrollment and College Performance</i>			
	% of Freshmen w/ HS Class Rank in Top Half	Retention Rate	6-yr Graduation Rate
	(1)	(2)	(3)
ATT	0.35 (0.76)	0.59 (0.47)	0.19 (0.56)
Number of Obs.	2,180	2,604	2,028
Baseline Mean	84.12	79.82	65.04

<i>Panel C: Results on Financial Aid Receipt</i>			
	Log(# of FTFT Receiving Inst. Aid)	Avg. Amt. of Inst. Aid	Log(# of FTFT Taking a Loan)
	(1)	(2)	(3)
ATT	0.06** (0.03)	222.25 (364.69)	0.05* (0.03)
Number of Obs.	2,808	2,808	2,808
Baseline Mean	5.80	8,359.40	5.71

*** p<0.01, ** p<0.05, * p<0.1. Standard errors are calculated using a bootstrap technique and are clustered at the school level. Pre-treatment controls include in-state tuition (in 2010 dollars), full-time enrollment in 2001, and whether a school has a "Loan Cap" Policy. Each coefficient is the result of a separate estimation. The comparison groups in these specifications are the set of late adopters. Panel A reflects the effect of test-optional policies on the test-submitting and enrollment behavior of students. Panel B presents the estimates for the set of results on student quality and college performance. Panel C present the estimates for the set of results on financial aid receipt. Data on the percent of freshmen submitting a standardized test and high school performance comes from the College Board's *Annual Survey of Colleges*. Source: Annual Survey of Colleges 2020. Copyright © 2020 The College Board. This material may not be copied, published, rewritten or redistributed without permission. Data on enrollment by race and financial aid receipt come from IPEDS and Pell Grant data comes from the U.S. Department of Education. Observations are inconsistent across the outcome variables because of differing availability of data. The panel from the *Annual Survey* only covers up to the year 2017, while data from IPEDS and the DOE cover up to the 2018-2019 academic year. Some institutions are missing data in particular years as described in the data section.

Table A5: Results on Applications and Admissions

	Log(# of Applications)	Admissions Rate	Matriculation Rate	% Freshmen Submit Test
	(1)	(2)	(3)	(4)
ATT	-0.001 (0.031)	1.47 (1.09)	0.10 (0.73)	-17.36*** (1.94)
Number of Obs.	19,643	19,643	19,643	16,014
Control Mean	7.72	68.45	42.29	86.86

*** p<0.01, ** p<0.05, * p<0.1. Standard errors are calculated using a bootstrap technique and are clustered at the school level. Pre-treatment controls include in-state tuition (in 2010 dollars), full-time enrollment in 2001, and whether a school has a "Loan Cap" Policy. Each coefficient is the result of a separate estimation. Data on applications, admissions and enrollment come from IPEDS. Data on SAT/ACT submissions comes from the College Board's *Annual Survey of Colleges*. Source: Annual Survey of Colleges 2020. Copyright © 2020 The College Board. This material may not be copied, published, rewritten or redistributed without permission. Observations are inconsistent across the outcome variables because of differing availability of data. The panel from the *Annual Survey* only covers up to the year 2017, while data from IPEDS and the DOE cover up to the 2018-2019 academic year. Some institutions are missing data in particular years as described in the data section.

Table A6: Results on Enrollment by Race and Gender

	Levels			Logs			Percent		
	Total	Women	Men	Total	Women	Men	Total	Women	Men
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Panel A: FTFT Black Enrollment</i>									
ATT	9.827*** (3.115)	6.214*** (1.948)	3.612** (1.554)	0.192*** (0.057)	0.250*** (0.076)	0.151** (0.064)	1.111*** (0.338)	0.709*** (0.237)	0.402** (0.157)
Number of Obs.	19,708	19,708	19,708	19,413	18,843	18,549	19,708	19,708	19,708
Control Mean	103.70	61.87	41.83	3.59	2.99	2.86	11.97	7.01	4.95
<i>Panel B: FTFT Hispanic Enrollment</i>									
ATT	3.507* (2.053)	3.186** (1.361)	0.321 (1.042)	0.232*** (0.053)	0.273*** (0.057)	0.106* (0.064)	0.629** (0.274)	0.565*** (0.181)	0.064 (0.135)
Number of Obs.	19,708	19,708	19,708	19,183	18,600	18,063	19,708	19,708	19,708
Control Mean	68.98	40.02	28.96	3.00	2.56	2.38	6.02	3.57	2.45
<i>Panel C: FTFT AIAN Enrollment</i>									
ATT	0.777*** (0.226)	0.411** (0.192)	0.366** (0.147)	0.119 (0.103)	0.194* (0.110)	0.200* (0.109)	0.107** (0.048)	0.069* (0.037)	0.038 (0.030)
Number of Obs.	19,708	19,708	19,708	15,204	12,758	11,544	19,708	19,708	19,708
Control Mean	7.71	4.37	3.34	1.42	1.14	1.14	1.05	0.78	0.44
<i>Panel D: FTFT White Enrollment</i>									
ATT	13.763 (10.729)	6.590 (6.910)	7.174 (5.339)	0.049** (0.024)	0.043 (0.030)	0.042 (0.026)	0.494 (0.932)	-0.116 (0.849)	0.610 (0.652)
Number of Obs.	19,708	19,708	19,708	19,537	19,291	18,967	19,708	19,708	19,708
Control Mean	692.20	375.15	317.05	5.85	5.28	5.06	69.71	38.75	30.95
<i>Panel E: FTFT Asian Enrollment</i>									
ATT	-2.051 (1.603)	-0.778 (1.202)	-1.273 (0.816)	0.090 (0.059)	0.152** (0.066)	0.038 (0.094)	0.094 (0.167)	0.113 (0.144)	-0.020 (0.105)
Number of Obs.	19,708	19,708	19,708	18,342	17,231	16,497	19,708	19,708	19,708
Control Mean	68.11	36.44	31.67	2.81	2.34	2.27	4.68	2.61	2.07

*** p<0.01, ** p<0.05, * p<0.1. Standard errors are calculated using a bootstrap technique and are clustered at the school level. Pre-treatment controls include in-state tuition (in 2010 dollars), full-time enrollment in 2001, and whether a school has a "Loan Cap" Policy. Each coefficient is the result of a separate estimation. Enrollment by race data comes from IPEDS. Some institutions are missing data in particular years as described in the data.

Table A7: Results Varying the Method of Including Controls

	DRIMPW (1)	DRIMP (2)	STIDPW (3)	IPW (4)
<i>Panel A: Log # of FFTT BNH Enrolled</i>				
ATT	0.21*** (0.04)	0.20*** (0.04)	0.21*** (0.04)	0.204*** (0.05)
<i>Panel B: Log # of Pell Grants</i>				
ATT	0.09*** (0.02)	0.09*** (0.03)	0.09*** (0.03)	0.09*** (0.03)
<i>Panel C: % Freshmen with HS Class Rank in Top Half</i>				
ATT	-0.60 (0.78)	-0.56 (0.74)	-0.56 (0.79)	-0.56 (0.76)
<i>Panel D: Retention Rate</i>				
ATT	-0.27 (0.43)	-0.26 (0.44)	-0.26 (0.44)	-0.26 (0.45)
<i>Panel E: 6-Year Graduation Rate</i>				
ATT	-0.33 (0.55)	-0.33 (0.55)	-0.33 (0.51)	-0.334 (0.54)
<i>Panel F: Log(# FFTT Receiving Inst. Aid)</i>				
ATT	0.06* (0.03)	0.05* (0.03)	0.05* (0.03)	0.05* (0.03)
<i>Panel G: Average Inst. Aid Received</i>				
ATT	-725.50** (339.96)	-707.46** (347.34)	-731.98** (371.79)	-772.58** (351.19)
<i>Panel H: Log(# Students Taking A Loan)</i>				
ATT	0.11*** (0.03)	0.10*** (0.03)	0.11*** (0.03)	0.11*** (0.03)

*** p<0.01, ** p<0.05, * p<0.1 Standard errors are calculated using a bootstrap technique and are clustered at the school level. Pre-treatment controls include in-state tuition (in 2010 dollars), full-time enrollment in 2001, and whether a school has a "Loan Cap" Policy. Each coefficient is the result of a separate estimation. Retention and graduation data comes from IPEDS. Some institutions are missing data in particular years as described in the data section.

References

- C. T. Bennett. Untested Admissions: Examining Changes in Application Behaviors and Student Demographics Under Test-Optional Policies. *American Educational Research Journal*, 2021.
- B. Callaway and P. H. Sant'Anna. Difference-in-Differences with Multiple Time Periods. *Journal of Econometrics*, 225(2):200–230, 2021.
- FairTest. Test-Optional Growth Chronology 2005-2020, 2020. URL <https://www.fairtest.org/university/optional>.
- U.S Census Bureau. 2010-2015 American Community Survey 5-year Public Use Microdata Samples, 2016. URL <https://www.census.gov/data/developers/data-sets/acs-5year.2010.html#list-tab-1036221584>. [Data Set].