ADMISSIONS WITHOUT ACQUITTAL: THE EFFECT OF "BAN THE BOX" ON COLLEGE ADMISSIONS

by

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In February of 2018, Oregon State University President Edward J. Ray reaffirmed the university's decision to "ban the box" on its application. Ray's resolution kept any questions about an applicant's criminal history off of the university's application. Officially, President Ray's policy was designed to protect black and Hispanic men, who are more likely to have felony convictions. However, implementing a "ban the box" (BTB) policy might not have a net positive effect on college enrollment for minorities. As economists studied analogous "ban the box" policies in the labor market, they found that BTB policies have a net negative effect on employment for young black and Hispanic men. Without criminal history information, employers may try to guess who has a criminal record, and avoid interviewing low-skilled black and Hispanic men as a result. Using data from the Integrated Postsecondary Education Data System (IPEDS), I explore whether this phenomenon occurs in the college admissions setting. Using the synthetic control method, I find that BTB policies may temporarily increase enrollment among black and Hispanic females. However, this policies may

also cause long-term decreases in enrollment among Hispanic males. This suggests that statistical discrimination may be occurring.

Acknowledgements

First, I owe Professor Benjamin Hansen credit for inspiring my research. This project would not have been possible without his research laying the groundwork. My sincere thanks also go to Professor Michael Kuhn for his helpful comments, guidance, and for getting me hooked on applied micro research in his labor economics course. I am also incredibly grateful to Professor Ocean Howell for his service on my committee and for introducing me to undergraduate research four years ago. Tremendous thanks are also due to Luciana Etcheverry, Kendall Houghton, and Mike Peixoto for their comments, advice, and encouragement, not only over the course of this project, but over the last four years.

Table of Contents

Introduction

The Catalyst: Oregon State University as a Case Study

In February of 2018, Oregon State University President Edward J. Ray reaffirmed the university's decision to "ban the box" on its application.[1] Ray's resolution kept any questions about an applicant's criminal history off of the Oregon State University application. Instead, prospective students would first be admitted, before being required to self-disclose any prior convictions.[2] If necessary, the Oregon State University administration could place restrictions on an ex-offender's university-related activities (i.e. no interaction with vulnerable populations, like those with mental disabilities or animals).[3] However, an applicant's prior convictions would not play a role in their admissions decision.[4]

Officially, President Ray's policy was designed to protect disadvantaged groups. Ray wrote, "Asking for criminal history information during the admissions process would disparately affect minorities."[5] Black and Hispanic men are far more likely to have criminal histories than white men. For example, for men born in 2001, a black man has a 32.2% chance of going to prison during his lifetime.[6] In contrast, a Hispanic man has a 17.2% chance while a white man has a 5.9% chance.[7] Additionally, Ray designed his policy in order to ensure all capable applicants, including ex-offenders, had the opportunity to attend Oregon State University. Ray declared that his policy, "affirms

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[1] Ray, "New OSU policy increases commitment to student success, safety."
[2] Oregon State University, "02-015 Admission and Attendance of Students with Criminal Histories."
[3] *ibid*
[4] *ibid*
[5] Ray, "New OSU policy increases commitment to student success, safety."
[6] Bonczar, "Prevalence of Imprisonment in the U.S. Population, 1974-2001."
[7] *ibid*

OSU's almost 150-year land grant mission to welcome all educational qualified students, including those rehabilitated from past crimes."[8]

A Raging Debate: Second Chances versus Safety

Oregon State University is not the only institution making the contentious decision to "ban the box." President Barack Obama encouraged universities to drop the question, calling the movement "beyond the box."[9] In 2016, the University of Minnesota and the State University of New York, a system of universities with more than sixty campuses, both decided to omit criminal history information from their applications.[10] Since 2017, state legislatures in Louisiana, Maryland, and Washington have all passed laws prohibiting public colleges from requesting criminal history information.[11] In 2018, the Common Application, used by more than 800 universities, decided to discard the question.[12]

Proponents of "beyond the box" argue that it offers a second chance for the estimated 70 million Americans who have been arrested or convicted of a crime.[13] Furthermore, proponents contend that "beyond the box" will combat racial disparities in higher education, given that black and Hispanic applicants are more likely to have criminal histories.[14] However, opponents maintain that "beyond the box" will have a net negative impact on campus safety, particularly for women.[15]

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[8] Ray, "New OSU policy increases commitment to student success, safety."
[9] Camera, "When #MeToo and 'Ban the Box' Collide."
[10] Rhodes, "Amid push to 'ban the box,' Illinois universities still asking students about criminal history."
[11] *ibid*
[12] Camera, "When #MeToo and 'Ban the Box' Collide."
[13] U.S. Department of Education, "Beyond the Box: A U.S. Department of Education Resource Guide…"
[14] *ibid*
[15] Camera, "When #MeToo and 'Ban the Box' Collide."

Both sides in this policy debate often make significant assumptions. For example, Oregon State University President Edward Ray assumed that "ban the box" policies unequivocally increase enrollment among black and Hispanic students.[16] However, Ray failed to cite any evidence that this is true. Unknowingly, Ray may be relying on faulty intuition when better standards of proof are available. Using quasi-experimental methods, economists can estimate the causal effects of "ban the box" policies on different aspects of campus life (minority enrollment, campus safety, etc.). Once these estimates are available, Ray and other policymakers can use these causal estimates instead of intuition to verify that "ban the box" policies have their intended effect (without unintended consequences).

Breaking Down the Box: Testing Assumptions

My research tests Ray's assumption that implementing a "ban the box" policy has net positive effect on college enrollment for minorities. Specifically, my project examines whether removing information about an applicant's criminal history from the college admissions process results in increased application, acceptance, and enrollment rates among black and Hispanic men.

I am also curious whether the policy has unintended consequences for other groups on campus. I investigate whether women enroll at the university at the same rate after a "ban the box" policy is implemented. I also explore enrollment trends among older and nontraditional students during the same period.

[16] Ray, "New OSU policy increases commitment to student success, safety."

Literature Review

Digging into the Labor Market Literature

Edmund Phelps' "The Statistical Theory of Racism and Sexism" introduced the term "statistical discrimination" in 1972.[17] Since then, many economists have examined situations where individual-level information is withheld from employers (or admissions committees) and observed that employers tend to make decisions based on assumptions about different demographic groups when individual information is not available (see, for example, Bordalo et. al. 2016). My research enters into this larger conversation about statistical discrimination.

Because the push to remove criminal history information from the college admissions process is so recent, little academic research has been done on it. However, economists have studied analogous "ban the box" policies in the labor market. "Ban the box" policies prevent employers from asking about an applicant's criminal history or running a background check until late in the application process.[18] Currently, 33 states and more than 150 cities and counties have "ban the box" policies that affect public employers.[19] 11 states, including Oregon, have "ban the box" policies that extend to private employers as well.[20]

Three economics papers examine the effect of "ban the box" (hereafter, BTB) policies on employment.[21] Professors Jennifer Doleac and Benjamin Hansen used

[17] Phelps, "The Statistical Theory of Racism and Sexism."
[18] Avery and Hernandez, "Ban the Box: U.S. Cities, Counties, and States Adopt Fair Hiring Policies."
[19] *ibid*
[20] *ibid*
[21] This acronym is borrowed from Doleac and Hansen (2016)

variation in the timing of different BTB policies to examine their effect on employment for different demographic groups.[22] In particular, Doleac and Hansen focused on young, low-skilled black and Hispanic men, because they are most likely to be affected by the policy. [23] They found that BTB policies had a net negative effect on employment for young black men without a college degree, with the probability of employment dropping by 3.4 percentage points, and young Hispanic men without a college degree, with the probability of employment dropping 2.3 percentage points.[24]

Doleac and Hansen's findings are consistent with statistical discrimination. Statistical discrimination is discrimination rooted in an information problem: when decision-makers do not have enough information about a particular group, they will frequently make their decision based on assumptions about that particular group's productivity. Oftentimes, this means deferring to stereotypes. When a BTB policy goes into effect, employers lose criminal history information—creating an asymmetric information problem.[25] One party—the job applicant—knows whether or not they have a criminal history. However, the other party—the prospective employer—is left to guess. Hiring an ex-offender can be costly, so employers may try to avoid interviewing them. Without criminal history information, employers may try to guess who has a criminal record, and avoid interviewing low-skilled black and Hispanic men as a result.[26] Doleac and Hansen's results show that BTB policies may cause unintended

[22] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 4.
[23] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 4-5.
[24] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 24.
[25] Akerlof, "The Market for 'Lemons': Quality Uncertainty and Market Mechanism," 490.
[26] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 6.

harm to racial minorities, especially to young black and Hispanic men without criminal convictions.[27]

Using an audit study, Professors Amanda Agan and Sonja Starr also examined the effect of BTB policies on employment. Agan and Starr's team submitted fictitious job applications from young men without college degrees for entry-level positions.[28] All of the applicant's characteristics, including race and criminal history, were randomized.[29] Agan and Starr submitted applications during two waves—one before BTB policies were implemented in New Jersey and one after.[30] They submitted applications during the first wave from January 31, 2015 to February 15, 2015 before the BTB policy went into effect on March 1, 2015.[31] Then, they submitted applications during the second wave from May 4, 2015 to June 12, 2015.[32] Agan and Starr repeated the two-wave procedure with New York City. The first wave ran from June 10, 2015 to August 30, 2015, the BTB policy went into effect on October 27, 2015, and then the second wave ran from November 30, 2015 to March 31, 2016. Prior to BTB, Agan and Starr found that white applicants were 7% more likely to be called back for an interview than otherwise equivalent black applicants. [33] After BTB, this gap increased substantially—growing from 7% to 43%.[34] Agan and Starr's results also support the hypothesis that BTB policies can lead to statistical discrimination in the labor market.

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[27] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 9.
[28] Agan and Starr, "Ban the Box, Criminal Records, and Racial Discrimination…," 199.
[29] *ibid*
[30] Agan and Starr, "Ban the Box, Criminal Records, and Racial Discrimination…," 197.
[31] *ibid*
[32] *ibid*
[33] Agan and Starr, "Ban the Box, Criminal Records, and Racial Discrimination…," 195.
[34] *ibid*

Finally, Professors Daniel Shoag and Stan Veuger studied the effects of BTB policies on employment as well. Using variation in the timing of different BTB policies, Shoag and Veuger found that employers resorted to "upskilling," or increasing the experience and education requirements, after BTB policies were implemented.[35] Employers increased qualifications as a proxy for criminal history information. Furthermore, Shoag and Veuger used living in a high-crime neighborhood as a proxy for having a criminal record and, conversely, living in a low-crime neighborhood as a proxy for not having one. Shoag and Veuger found that BTB increased employment among residents of high-crime neighborhoods, relative to residents of low-crime neighborhoods. [36] However, as Doleac and Hansen point out, low-crime neighborhoods cannot provide a true control because they are also treated by the policy.[37] Within a BTB-treated area, we would expect the employment gap between those with records and those without to narrow.[38] Thus, Shoag and Veuger's results do not contradict the hypothesis that BTB policies may lead to statistical discrimination in the labor market.

Outside the realm of BTB, other research has supported the idea that restricting employers' access to information results in statistical discrimination. For example, Mallika Thomas found that when employers were prohibited from questioning female employees about their future plans by the Family Leave and Medical Act, employers responded by promoting female employees less frequently.[39] Abigail Wozniak also found that black employment increased when employers began drug testing their

[35] Shoag and Veuger, "The Labor Market Consequences of Bans on Criminal Record…," 3.
[36] Shoag and Veuger, "The Labor Market Consequences of Bans on Criminal Record…," 28.
[37] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 7.
[38] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 7-8.
[39] Thomas, The Impact of Mandated Maternity Benefited on the Gender Differential…"

employees.[40] Finally, Alexander Bartik and Scott Nelson found that banning employers from checking prospective employees' credit resulted in statistical discrimination against black applicants.[41]

[40] Wozniak, "Discrimination and the effects of drug testing on black employment," 564.
[41] Bartik and Nelson, "Credit reports as resumes: The incidence of pre-employment credit screening," 29.

Theoretical Framework

Potential Mechanisms: Reactions to "Ban the Box" in College Admissions

Especially in the wake of the #MeToo movement, safety on college campuses is a major concern.[42] Although there is no evidence that this strategy increases campus safety, administrators may rely instead on their personal beliefs about safety and try to prevent some ex-offenders from attending their university.[43] When a BTB policy is in effect, admissions committees cannot determine which applicants have criminal histories and which do not. If they want to avoid admitting ex-offenders, admissions committees might try to guess who the ex-offenders are. Because black and Hispanic men are the most likely groups to have a criminal records, admissions committees might be extra wary to admit applicants from those demographic groups.[44] In this case, I would expect to see acceptance rates for black and Hispanic men decrease following the implementation of a BTB policy.

If BTB policies lead to statistical discrimination, then older, nontraditional college applicants may be affected as well. The average age that an individual is released from state prison is 35 years old.[45] Because ex-offenders tend to be older than the typical 18-year-old applicant, we may see admissions committees begin to discriminate against older applicants. If this is true, I would expect to see acceptance rates decrease with age following the implementation of a BTB policy. I would expect to see this trend particularly among male applicants.

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[42] Camera, "When #MeToo and 'Ban the Box' Collide."
[43] Custer, "College Admissions Policies for Ex-Offender Students: A Literature Review," 35-43.
[44] Bonczar, "Prevalence of Imprisonment in the U.S. Population, 1974-2001."
[45] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 13.

However, the BTB story from the labor market may differ markedly in the college admissions setting. Universities place a premium on diversity—and often use it as a recruitment tool in brightly-colored brochures. Perhaps some universities receive so few applications from black and Hispanic males that they cannot afford to be picky. In other words, the universities' high demand for diversity and the low supply of it might mean BTB has little or no effect on the acceptance rates for black and Hispanic men.

Furthermore, BTB policies may have differential impacts on ex-offenders based on race. Black offenders tend to receive harsher sentences than equivalent white offenders. Perhaps black offenders are also more likely to be charged as adults. Because juvenile records are often sealed (and thus would not need to reported on a college application), fewer white offenders are required to report their criminal convictions than black offenders. Because of this, more black offenders might stand to gain from BTB policies.

Although Doleac and Hansen found that BTB policies in the labor market had no effect on migration, this might not be true at the university level.[46] Perhaps prospective students and parents are greatly concerned about safety during the college search process. If prospective students and their parents believe that BTB policies increase the number of ex-offenders on campus and that this increase means jeopardizing campus safety, then there may be a decrease in application rates, especially among women.

[46] Doleac and Hansen, "Moving to Job Opportunities? The Effect of "Ban the Box" on the Composition of Cities."

A High Stakes Game: Ex-Offenders and Education

Pinning down the effect of BTB policies on application and acceptance rates for different demographic groups is of paramount importance. First, it is critical that we verify BTB policies accomplish what policymakers believe they do and assess any unintended consequences. Second, there is evidence that questions about criminal history may have a substantial impact on ex-offender applicants. A study at State University of New York revealed that 62% of applicants with felony convictions failed to complete their application after reading the criminal history question.[47] Anticipating discrimination, ex-offenders may become discouraged after reading the criminal history question and give up on submitting an application. This may have an adverse effect on the average education level of ex-offenders. Unfortunately, the majority of ex-offenders lack a college degree: 52% do not have a high school diploma and 41% have a high school diploma, but no college degree.[48] This is particularly unfortunate because education reduces recidivism and increase wages post-incarceration.[49] If BTB policies are not effective, then there may be alternative policies that can increase ex-offender's access to higher education without threatening other demographic groups.

[47] Rosenthal et. al., "Boxed out: Criminal history screening and college application attrition."
[48] Doleac and Hansen, "Does 'Ban the Box' Help or Hurt Low-Skilled Workers?...," 13.
[49] Steurer and Smith, Education Reduces Crime: Three-State Recidivism Study.

Data

Integrated Postsecondary Education Data System (IPEDS)

To conduct my analysis, I used data from the Integrated Postsecondary Education Data System (IPEDS), which is managed by the National Center for Education Statistics (NCES). IPEDS collects information from more than 7,000 universities that receive federal aid annually. I limited my sample to the 300 top-ranked "national universities" (according to the U.S. News & World Report).[50] "National universities" are research institutions with both Bachelor's and graduate degree programs.[51] I chose to use "national universities" because the majority of undergraduate students in the United States attend one of these universities.

IPEDS provided data on application, acceptance, and enrollment rates, as well as demographic characteristics, for each institution. IPEDS demographic data was available from 2001 to 2017. In order to maximize my sample size and policy variation, I used data from the entire period. The table below summarizes all variables that were downloaded or derived from IPEDS.

Variable Name	Description
unitid	Unique numeric string assigned to institution
institution	Institution name
year	Survey year
total	Number of first-time, undergraduate students enrolled during fall term
total_men	Number of first-time, undergraduate male students enrolled during fall term

[50] U.S. News and World Report, "National University Ranking."
[51] *ibid*

total_women	Number of first-time, undergraduate female students enrolled during fall term
black_total	Number of first-time, undergraduate black students enrolled during fall term
black_men	Number of first-time, undergraduate black male students enrolled during fall term
black_women	Number of first-time, undergraduate black female students enrolled during fall term
hispanic_total	Number of first-time, undergraduate Hispanic students enrolled during fall term
hispanic_men	Number of first-time, undergraduate Hispanic male students enrolled during fall term
hispanic_women	Number of first-time, undergraduate Hispanic female students enrolled during fall term
white_total	Number of first-time, undergraduate white students enrolled during fall term
white_men	Number of first-time, undergraduate white male students enrolled during fall term
white_women	Number of first-time, undergraduate white female students enrolled during fall term
total_apps	Number of applications by students who would be first-time undergraduates
total_mapps	Number of applications by male students who would be first-time undergraduates
total_fapps	Number of applications by female students who would be first-time undergraduates
total_admits	Number of admitted students who would be first-time undergraduates
total_madmits	Number of admitted male students who would be first-time undergraduates
total_fadmits	Number of admitted female students who would be first-time undergraduates
total_enrolled	Number of first-time undergraduates who enrolled
total_menrolled	Number of first-time male undergraduates who enrolled
total_fenrolled	Number of first-time female undergraduates who enrolled
rate_accept	Acceptance rate for first-time undergraduate applicants
rate_maccept	Acceptance rate for first-time undergraduate male applicants

rate_waccept	Acceptance rate for first-time undergraduate female applicants
rate_enroll	Enrollment rate for first-time undergraduate applicants who were accepted
rate_menroll	Enrollment rate for first-time undergraduate male applicants who were accepted
rate_wenroll	Enrollment rate for first-time undergraduate female applicants who were accepted
percent_black	Proportion of the first-time, undergraduate student body that is black
percent_hispanic	Proportion of the first-time, undergraduate student body that is Hispanic
percent_white	Proportion of the first-time, undergraduate student body that is white
percent_mblack	Proportion of the first-time, undergraduate male student body that is black
percent_mhispanic	Proportion of the first-time, undergraduate male student body that is Hispanic
percent_mwhite	Proportion of the first-time, undergraduate male student body that is white
percent_fblack	Proportion of the first-time, undergraduate female student body that is black
percent_fhispanic	Proportion of the first-time, undergraduate female student body that is Hispanic
percent_fwhite	Proportion of the first-time, undergraduate female student body that is white
percent_female	Proportion of the first-time, undergraduate student body that is female

Policy Dummies

Unfortunately, IPEDS did not offer data on whether individual universities included criminal history questions on their application in a given year. I contacted the 300 top-ranked national universities individually to get this information. During the first round of data collection, I sent an email to each university's admissions office with the following questions:

1) Does **University Name**'s undergraduate application currently include questions about an applicant's criminal history?

2) Did **University Name**'s undergraduate application ever include questions about an applicant's criminal history? If so, when was this question included?

I received a non-automated response from 148 out of the 300 universities. Many of these responses omitted specific date ranges. Many institutions also reported that they used the Common Application—a central application system used by hundreds of universities nationwide. During the second round of data collection, each of the 148 responding universities was sent a combination of these follow-up questions (depending on the contents of their first email):

1) Which criminal offenses does the **University Name** application inquire about (felonies, misdemeanors, arrests, etc.)?
2) Have these questions been on the application every year since 1998? If not, when was the question added/altered?
3) Do you know what year the **University Name** moved to the Common Application?

The table below summarizes all variables derived from exchanges with individual universities:

Variable Name	Description
type	**1**: Institution uses Common Application **2**: Institution always had criminal history questions on app between 2001 and 2017 **3**: Institution never had criminal history questions on app between 2001 and 2017 **4**: Institution added criminal history questions to app between 2001 and 2017 **5**: Institution removed all criminal history questions from app between 2001 and 2017
crim	**1**: Institution has any kind of criminal history question on their undergraduate application during year i **0**: Otherwise

felony	**1**: Institution has a question about felony convictions on their undergraduate application during year i **0**: Otherwise
misdemeanor	**1**: Institution has a question about misdemeanor convictions on their undergraduate application during year i **0**: Otherwise

Many institutions were unable to access information about the history of their application dating back to 2001. These institutions were excluded from my analysis. A few institutions were able, but unwilling to provide this information. These institutions were also excluded from my analysis. However, 62 institutions were able to report their policies for the full period. I dropped all IPEDS data that did not correspond to one of these 62 schools.

Limitations

The table below shows each institution type's frequency in my sample:

Institution Type	Number of Institutions
1: Institution uses Common Application	8
2: Institution always had criminal history questions on app between 2001 and 2017	16
3: Institution never had criminal history questions on app between 2001 and 2017	25
4: Institution added criminal history questions to app between 2001 and 2017	12
5: Institution removed all criminal history questions from app between 2001 and 2017	1

Unfortunately, there was only one institution that "banned the box" or removed all criminal history questions from their application between 2001 and 2017 in my sample

(the Type 5 university). Although many colleges have decided to "ban the box," these policy changes are fairly recent and demographic data on the cohorts corresponding to these application cycles is not yet available.[52] Because of this, I used my data in two distinct ways.

[52] Camera, "When #MeToo and 'Ban the Box' Collide."

Empirical Strategy A: Two-Way Fixed Effects

First, I focused on the "inverse" of a BTB policy: adding criminal history questions to a university's application when they previously had none. This approach makes a significant assumption. I assumed that adding criminal history questions to an application has the opposite effect that removing criminal history questions has (i.e. the effect of the indicator turning on is the opposite of the effect of the indicator turning off).

Universities' risk preferences and attitudes toward applicants with criminal histories likely differ. Because of this, some universities will be more likely to voluntarily add criminal history questions to their application (and will likely react differently when these questions are added). The effect of the treatment depends on who chooses to administer it. To eliminate this selection bias, I restricted my attention to universities who have not asked criminal history questions (Type 3) and Common Application schools (Type 1). Prior to 2006 (the application for the 2007 cohort), the Common Application did not contain questions about an applicant's criminal history. However, these questions were added to the Common Application in 2006.[53] Because this decision was made by Common Application administrators, the addition of these questions is independent of individual universities' preferences.

While my assumption about equal, opposite effects is likely false, I argue that this approach gives a lower bound on the magnitude of the effect of BTB for this

[53] Lantigua-Williams, "'Ban the Box' Goes to College."

limited sample. Early in the sample, state and federal legislation did not prevent colleges from adding criminal history questions to their application. If colleges had wanted criminal history information, they could have acquired it. Thus, colleges were most likely not interested in guessing who had a criminal history. However, as time went on, some colleges began to add criminal history questions to their application. Criminal history information gradually became desired by some institutions. Restricting admissions officers' access to potentially desired information likely has a greater effect than giving them previously undesired information.

Although the treatment is not randomly assigned, I need to verify that the control (Type 3 institutions) and treatment (Common Application schools) looked as similar as possible prior to when the treatment was administered and would have continued to look similar in the absence of the treatment—referred to as "parallel trends" assumption. I plotted both the treatment and control groups' Hispanic proportion of the student body and acceptance rate (the main significant outcome variables) to verify that they have relatively similar trends.[54]

I used a two-way fixed effects regression model. This model allowed me to use both college and time fixed effects.

$$percent\_black_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

The letter "i" will index different colleges (i.e. i=1 for Cornell University, i=2 for Dartmouth College, etc.). The letter "t" will index different years (i.e. t=1 for 2001, t=2 for 2002 etc.). As discussed earlier, let "percent_black" equal the proportion of the

[54] See Appendix 2 for pre-treatment trends plots of the main outcome variables

first-time, undergraduate student body that is African American enrolled at university i in year t. Alpha represents time fixed effects, meaning that there will be an indicator variable for each time period (excluding the first time period to avoid perfect multicollinearity). This controls for any national time trends that would affect the dependent variable (i.e. national unemployment, interest rates on federal student loans, etc.). C represents college fixed effects, meaning that there will be an indicator variable for each institution (excluding one institution to avoid perfect multicollinearity). This controls for any variation across institutions that is constant over time (i.e. type of institution, location, etc.). Let "crim" be an indicator variable that equals 1 if university i has criminal history questions on their application during period t. I clustered standard errors by institution to combat potential heteroskedasticity and autocorrelation.

In this case, β would be the effect of asking criminal history questions on the proportion of the first-time, undergraduate student body that is black. I will test the significance of β using a t-test (with the null hypothesis: $\beta=0$).

Unfortunately, this regression only would pick up changes in enrollment. If asking criminal history questions reduces black enrollment, then this regression will obscure the causal pathway, conflating whether application and/or acceptance rates among black students were affected. If I find that the coefficient on percent_black is insignificant, I will test whether the number of applications a college received decreases and acceptance rate increased once criminal history questions are implemented. If this is true, this might suggest that fewer minorities are applying. To test this, I would run these regressions:

$$total\_apps_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

$$rate\_accept_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

$$rate\_enroll_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

I would run my original regression with Hispanic and white as opposed to black students as well:

$$percent\_hispanic_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

$$percent\_white_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

I will also run each race's regression again, first restricting our population to only female students then to only male students.

Finally, I will test whether adding criminal history questions has an effect on application, acceptance, or enrollment rates among women.

$$total\_fapps_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

$$rate\_waccept_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

$$rate\_wenroll_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

$$percent\_female_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

Data on applicant and enrollee ages is not public, so I cannot test my hypothesis about older, nontraditional students.

Result A

Each row in the table below represents a regression of the form:

$$y_{it} = \delta + \alpha_t + c_i + \beta crim_{it} + \epsilon_{it}$$

Each regression was run using standard errors clustered by institution.

Y_{it}	β	Robust Standard Error	T-Statistic	P-Value
percent_black	0.0001839	0.0057553	0.03	0.975
percent_hispanic	-0.0395718***	0.0104305	-3.79	0.001
percent_white	0.0098392	0.016507	0.60	0.555
total_apps	-387.1344	2309.211	-0.17	0.868
rate_accept	-0.1222536***	0.0354739	-3.45	0.002
rate_enroll	0.0295757	0.0269445	1.10	0.281
total_fapps	-798.0351	1272.804	-0.63	0.535
rate_waccept	-0.1175786***	0.0339037	-3.47	0.002
rate_wenroll	0.0295334	0.0270692	1.09	0.283
percent_female	0.0203088	0.0147649	1.38	0.179
percent_mblack	0.0009816	0.0051022	0.19	0.849
percent_fblack	-0.0030305	0.00689	-0.44	0.663
percent_mhispanic	-0.0294337***	0.0096654	-3.05	0.005
percent_fhispanic	-0.0470878***	0.0116748	-4.03	0.000
percent_mwhite	0.00889	0.0162427	0.55	0.588
percent_fwhite	0.0107887	0.0174779	0.62	0.541

These results indicate that adding criminal history questions to a university's application reduces the proportion of the student body that is Hispanic by 0.04

percentage points. This effect is significant at the one percent level. This effect does not appear to driven by a particular gender. When criminal history questions are added to the application, the Hispanic proportion of the male student body drops by 0.03 percentage points while the Hispanic proportion of the female student body drops by 0.05 percentage points. This difference is particularly intriguing because Hispanic males are more likely to have a criminal conviction than Hispanic females.[55]

Adding criminal history questions to a university's application appears to reduce its acceptance rate by 0.12 percentage points. However, this causal interpretation should be taken with a grain of salt because the parallel trends assumption is only weakly met (see Appendix 2). This effect is also significant at the one percent level. This effect also does not appear to be driven by a particular gender. On the other hand, criminal history questions did not have a significant effect on the number of applications received (although the coefficient was negative).

All other coefficients were not significant.

[55] Bonczar, "Prevalence of Imprisonment in the U.S. Population, 1974-2001."

Empirical Strategy B: Synthetic Control Method

Next, I restricted my attention to the singular university who implemented a "ban the box" policy between 2001 and 2017 in my sample (Type 5). West Virginia University voluntarily removed criminal history questions from its application in 2009 (the application for the 2010 cohort). Although the choice to administer the treatment (or "ban the box" policy) was not exogeneous, I argue that this method will give a lower bound on any resulting statistical discrimination. Universities who voluntarily implement BTB policies are probably less concerned with admitting ex-offenders than universities who do not elect to implement BTB policies. Because of this, I would expect to see a smaller effect of statistical discrimination, if any at all, among universities who voluntarily implement BTB policies.

In order to construct a counterfactual for West Virginia University, I used the synthetic control method. This approach builds a synthetic control unit using a weighted combination of the institutions in the control group. Here, the control group is made up of universities who asked criminal history questions throughout the duration of my sample (Type 2). The relative weights for different control universities were chosen to maximize the pre-treatment fit of the control unit to West Virginia University. Following the methodology outlined in Botosaru and Ferman (2017), I decided to only match on the pre-treatment outcome of interest.[56]

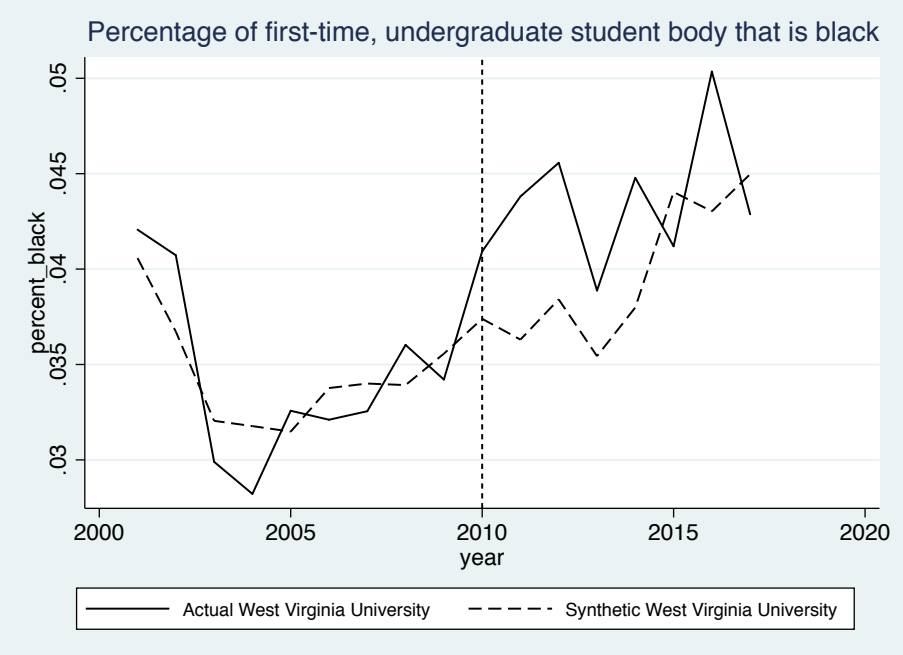
[56] Botosaru and Ferman, "On the role of covariates in the synthetic control method."

I used the synthetic control method for sixteen different outcomes individually: percent_black, percent_hispanic, percent_white, total_apps, rate_accept, rate_enroll, total_fapps, rate_waccept, rate_wenroll, percent_female, percent_mblack, percent_fblack, percent_mhispanic, percent_fhispanic, percent_mwhite, and percent_fwhite (variable descriptions can be found in the Data section).

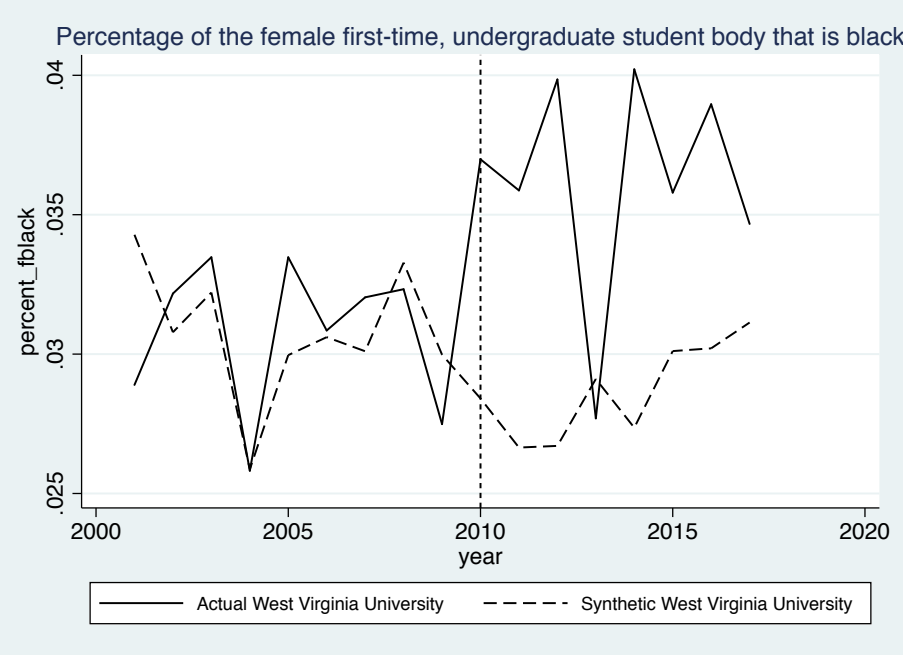
Result B

The results for all sixteen outcome variables can be found in Appendix 3. Here, I will discuss the most notable outcome variables.

In all of the following figures, the solid line will represent West Virginia University. The dotted line will represent the synthetic West Virginia University, which is a different weighted combination of the control universities (depending on the given outcome variable). The vertical dotted line represents when the "ban the box" policy went into effect at West Virginia University. The area to the left of this line is the pre-treatment period while the area to the right is the post-treatment period.

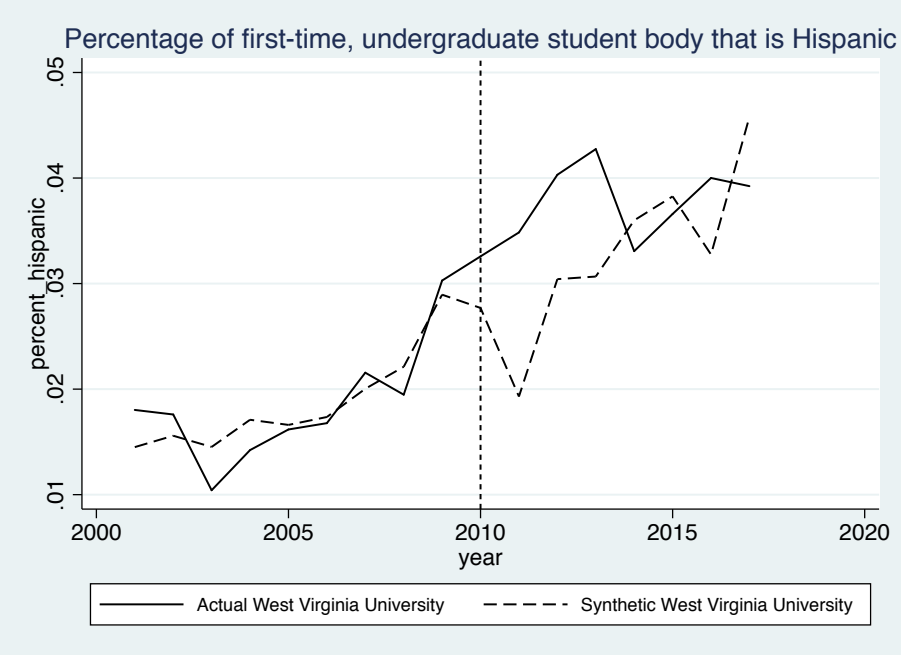


This figure suggests that West Virginia University's "ban the box" policy may have initially increased the percentage of the student body that is black. However, the right-most portion of the graph suggests that this increase might not be persistent. It also appears that this initial increase is driven by black females.

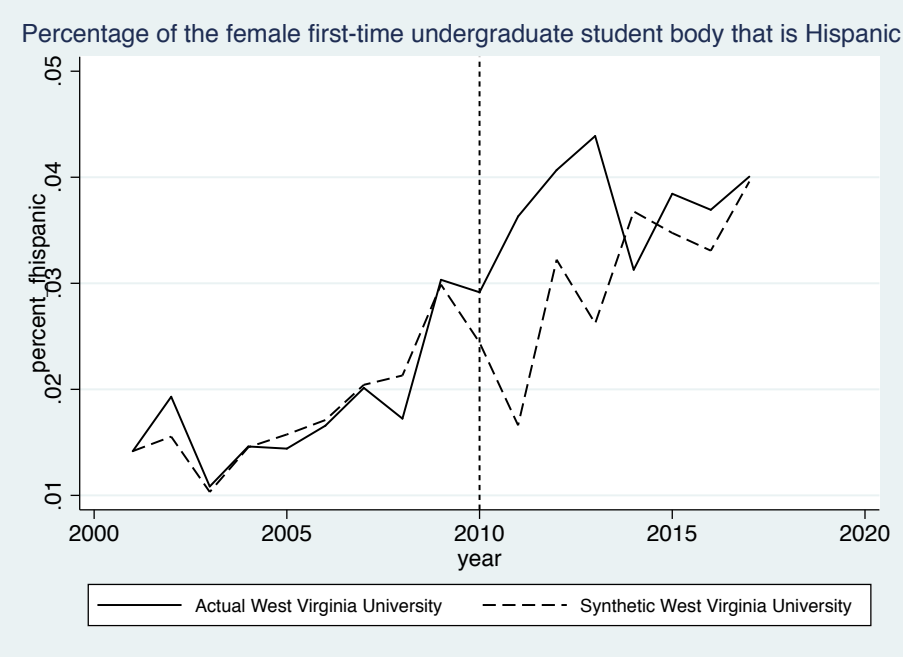


The corresponding graph for black males did not show any significant treatment effects (see Appendix 3).

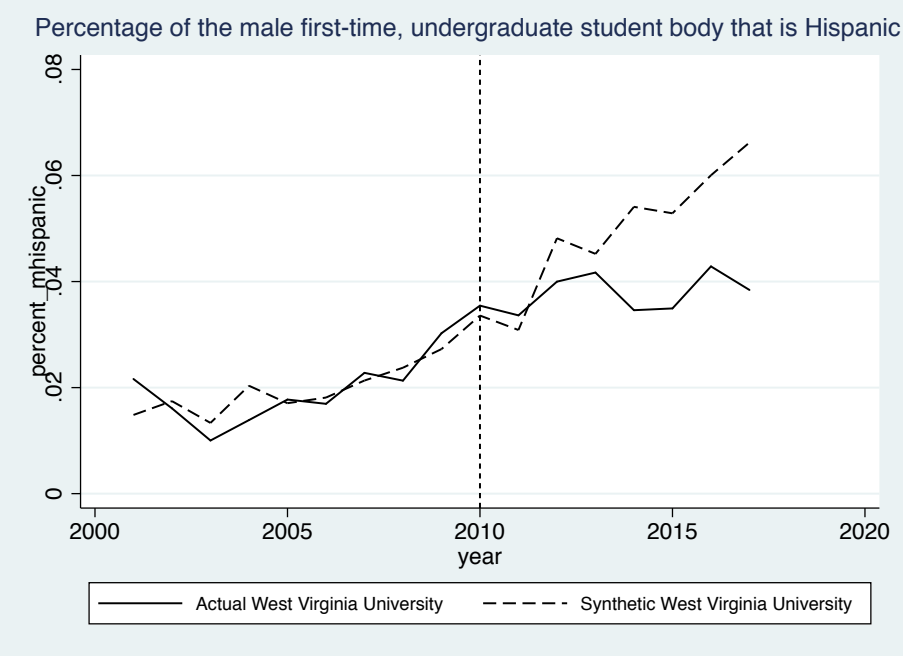
Similarly, the next figure suggests that the "ban the box" policy might have initially increased the percentage of the student body that is Hispanic. Again, this effect does not appear to be persistent.



In a similar fashion, this increase seems to be driven by Hispanic females.



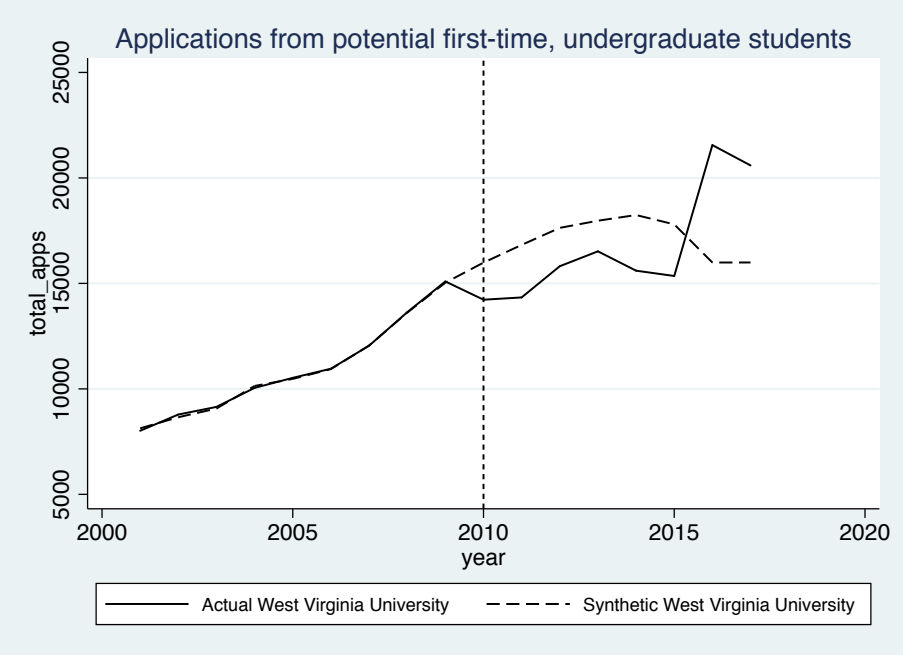
In contrast to black males, it appears that BTB might have a significant effect on Hispanic males.



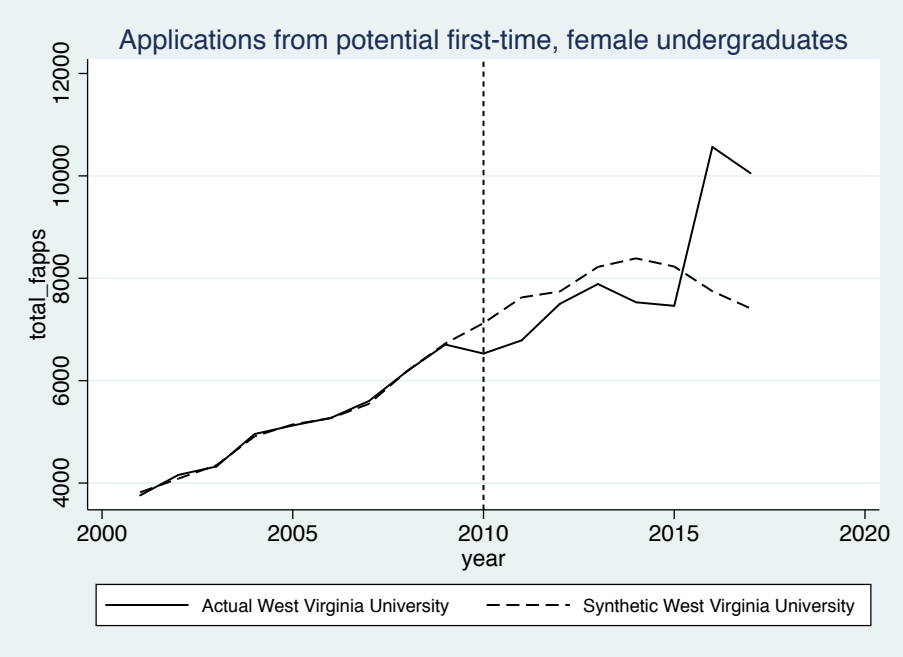
This figure suggests that the proportion of the male student body that is Hispanic decreases following the implementation of a BTB policy. This effect is lagged, but it

appears to be persistent. It is not yet clear who is driving this effect: admissions committees discriminating against Hispanic males or Hispanic males deciding not to apply.

Finally, the following figure suggests that the number of applications a university receives falls following the implementation of a BTB policy.



As shown below, this effect is not driven by a particular gender, which contradicts the hypothesis that females with preferences for safety will drive decrease.



These results suggest that BTB policies may temporarily increase enrollment among black and Hispanic females. However, BTB policies may also decrease enrollment among Hispanic males in the long-run. Furthermore, BTB policies might decrease application rates, among both males and females.

Nevertheless, these results should be considered preliminary. They are based on a singular school who elected to implement a "ban the box" policy (the treatment was not exogeneous). The pool of control universities was relatively small as well and the pre-treatment fit might be improved with a larger pool.

Potential Policy Implications and Future Research

Moving Forward: Universities *without* the Criminal History Question

These results provide a cautionary tale for universities considering adding criminal history questions to their application. When these questions are added, even exogenously, enrollment among Hispanic students drops. This effect might be driven by the universities themselves—the acceptance rate appears to fall, but not the application and enrollment rates. Further research is necessary to verify exactly why enrollment among Hispanic students drops.

Moving Forward: Universities *with* the Criminal History Question

These results have mixed implications for BTB policies. They may temporarily increase enrollment among black and Hispanic females. However, they may also cause a longer-term decrease in enrollment among Hispanic males. It is unclear who causes this decrease. Although BTB policies appear to decrease application rates, it seems unlikely that Hispanic males are driving this. It seems improbable that Hispanic males would decide not to apply to a university following the implementation of the BTB policy, particularly because BTB policies are typically seen as pro-minority policies. Because of this, it seems like that the decrease in Hispanic male enrollment is due to statistical discrimination. Perhaps there was no corresponding decrease in black male enrollment because black male enrollment is already relatively low and universities interested in increasing diversity cannot afford to discriminate against black male applicants.

Based on these results, President Ray's assumptions that BTB policies increase minority enrollment may be incorrect. In fact, BTB policies may hurt some of the communities that they are designed to protect.

Proposal for Future Research

In 2018, the Common Application, used by more than 800 universities, decided to discard all criminal history questions.[57] For the first time since 2006, the 2019 Common Application will not feature any criminal history questions. Unless universities move criminal history questions to their Supplemental Questions section, this restriction of information will be independent of individual universities' risk preferences.

In a few years, this policy change can be leveraged to determine the effect of BTB on application, acceptance, and enrollment rates among different demographic groups. An analogous two-way fixed effects framework model will still be relevant for all of our former outcome variables:

$$y_{it} = \delta + \alpha_t + c_i + \beta btb_{it} + \epsilon_{it}$$

It is imperative to continue investigating the impact of BTB policies to prevent policymakers from designing policies based on faulty assumptions.

[57] Camera, "When #MeToo and 'Ban the Box' Collide."

Appendix 1 — Complete List of Top-Ranked National Universities

University Name	Received a Non-Automated Response?	University Type
Princeton University	Yes	-
Harvard University	No	-
Columbia University	No	-
Massachusetts Institute of Technology	Yes	-
University of Chicago	No	-
Yale University	No	-
Stanford University	No	-
Duke University	No	-
University of Pennsylvania	No	-
Johns Hopkins University	No	-
Northwestern University	No	-
California Institute of Technology	No	-
Dartmouth College	Yes	1
Brown University	No	-
Vanderbilt University	No	-
Cornell University	Yes	1
Rice University	No	-
University of Notre Dame	Yes	-
University of California- Los Angeles	Yes	3
Washington University in St. Louis	No	-
Emory University	No	-
Georgetown University	No	-
University of California- Berkeley	Yes	3
University of Southern California	No	-
Carnegie Mellon University	Yes	-
University of Virginia	Yes	-
Tufts University	No	-
University of Michigan- Ann Arbor	No	-
Wake Forest University	No	-
New York University	Yes	-
University of California- Santa Barbara	Yes	3
University of North Carolina- Chapel Hill	Yes	-
University of California- Irvine	Yes	3
University of Rochester	No	-
Brandeis University	No	-
Georgia Institute of Technology	No	-
University of Florida	No	-

Boston College	No	-
College of William and Mary	Yes	-
University of California- Davis	Yes	3
University of California- San Diego	Yes	3
Boston University	Yes	-
Case Western Reserve University	No	-
Northeastern University	No	-
Tulane University	No	-
Pepperdine University	Yes	-
University of Georgia	Yes	-
University of Illinois- Urbana-Campaign	Yes	2
Rensselaer Polytechnic Institute	Yes	1
University of Texas- Austin	No	-
University of Wisconsin- Madison	No	-
Villanova University	No	-
Lehigh University	No	-
Syracuse University	No	-
University of Miami	Yes	1
Ohio State University- Columbus	Yes	-
Purdue University- West Lafayette	No	-
Rutgers University- New Brunswick	No	-
Pennsylvania State University- University Park	Yes	2
Southern Methodist University	No	-
University of Washington	No	-
Worcester Polytechnic Institute	Yes	1
George Washington University	Yes	-
University of Connecticut	No	-
University of Maryland- College Park	No	-
Brigham Young University- Provo	No	-
Clark University	No	-
Clemson University	Yes	-
Texas A&M University- College Station	Yes	3
Florida State University	No	-
Fordham University	No	-
Stevens Institute of Technology	No	-
University of California- Santa Cruz	Yes	3
University of Massachusetts- Amherst	Yes	-
University of Pittsburgh	No	-
University of Minnesota- Twin Cities	Yes	4
Virginia Tech	Yes	-
American University	No	-
Baylor University	Yes	-
Binghamton University- SUNY	No	-
Colorado School of Mines	Yes	-

North Carolina State University- Raleigh	No	-
Stony Brook University- SUNY	Yes	2
Texas Christian University	Yes	1
Yeshiva University	Yes	-
Michigan State University	Yes	4
University of California- Riverside	Yes	3
University of San Diego	Yes	-
Howard University	Yes	-
Indiana University- Bloomington	Yes	-
Loyola University Chicago	No	-
Marquette University	Yes	2
University at Buffalo- SUNY	No	-
University of Delaware	No	-
University of Iowa	Yes	4
Illinois Institute of Technology	No	-
Miami University- Oxford	Yes	2
University of Colorado- Boulder	Yes	-
University of Denver	Yes	1
University of San Francisco	No	-
University of Vermont	Yes	-
Clarkson University	No	-
Drexel University	No	-
Rochester Institute of Technology	Yes	1
University of Oregon	Yes	-
New Jersey Institute of Technology	No	-
Saint Louis University	Yes	-
SUNY College of Environmental Science and Forestry	No	-
Temple University	No	-
University of Arizona	Yes	-
University of New Hampshire	Yes	-
University of South Carolina	Yes	-
University of the Pacific	No	-
University of Tulsa	Yes	2
Arizona State University- Tempe	Yes	-
Auburn University	Yes	-
Rutgers University- Newark	No	-
University of Tennessee	Yes	-
DePaul University	No	-
Duquesne University	No	-
Iowa State University	Yes	4
Seton Hall University	Yes	-
University of Utah	Yes	4
University of South Florida	Yes	-
University of St. Thomas	No	-

San Diego State University	Yes	-
University of Dayton	Yes	-
The Catholic University of America	No	-
University of Alabama	No	-
University of Illinois- Chicago	No	-
University of Kansas	Yes	3
University of Missouri	Yes	-
University of Nebraska- Lincoln	No	-
University of Texas- Dallas	No	-
George Mason University	Yes	-
Michigan Technological University	Yes	4
University of California- Merced	Yes	3
University of La Verne	No	-
Colorado State University	Yes	2
Hofstra University	No	-
Louisiana State University- Baton Rouge	Yes	-
Mercer University	Yes	-
Oregon State University	Yes	3
University at Albany- SUNY	Yes	2
Washington State University	Yes	3
Adelphi University	No	-
Kansas State University	Yes	4
The New School	Yes	-
University of Cincinnati	Yes	-
University of Kentucky	No	-
St. John Fisher College	No	-
St. John's University	No	-
Union University	Yes	-
University of Arkansas	Yes	4
University of Mississippi	No	-
Biola University	Yes	-
Missouri University of Science & Technology	No	-
Oklahoma State University	Yes	-
University of Alabama- Birmingham	No	-
University of Alabama- Manoa	No	-
University of Massachusetts- Lowell	Yes	-
University of Rhode Island	Yes	-
Virginia Commonwealth University	Yes	-
Edgewood College	No	-
University of Central Florida	No	-
University of Idaho	Yes	-
University of Maryland- Baltimore County	Yes	-
Montclair State University	Yes	-
Seattle Pacific University	Yes	-

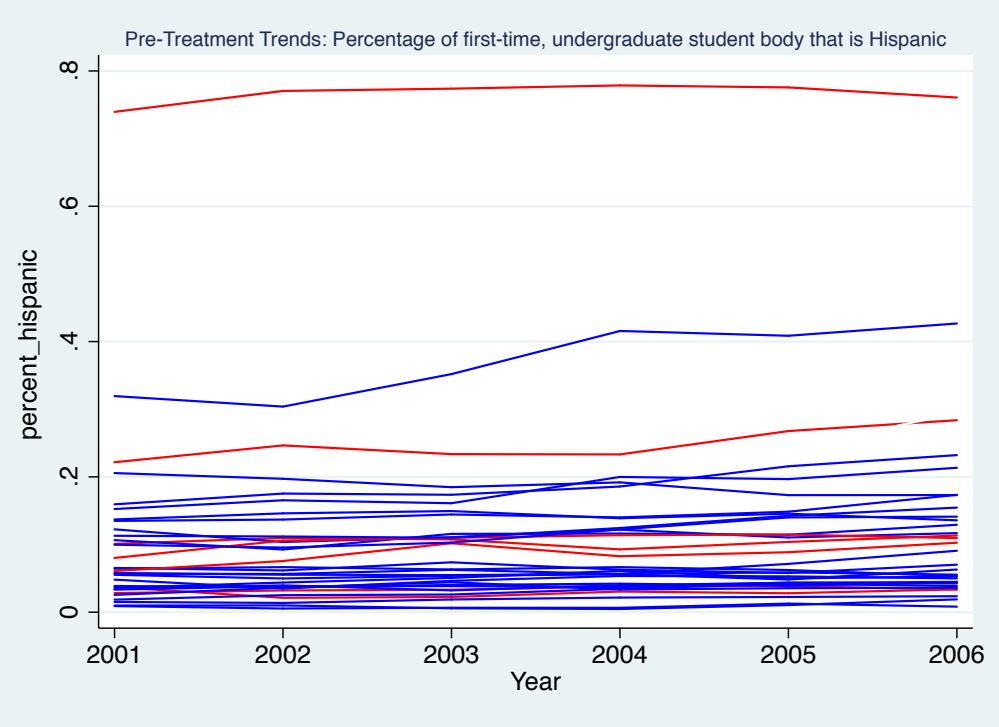
Ball State University	Yes	-
Illinois State University	No	4
Ohio University	No	-
Rowan University	No	-
University of Houston	Yes	-
University of Louisville	Yes	-
Florida Institute of Technology	No	-
Maryville University of St. Louis	No	-
Mississippi State University	No	-
Pace University	No	-
Suffolk University	Yes	2
University of Maine	No	-
Immaculata University	No	-
Lesley University	No	-
Robert Morris University	No	-
University of Wyoming	No	-
Florida International University	No	-
Georgia State University	No	-
Texas Tech University	No	-
University of New Mexico	Yes	-
Kent State University	No	-
Nova Southeastern University	Yes	-
University of Massachusetts- Boston	Yes	-
Andrews University	Yes	-
East Carolina University	No	-
Indiana University- Purdue University- Indianapolis	Yes	-
Lipscomb University	Yes	2
University of Hartford	No	-
University of North Carolina- Charlotte	Yes	-
Widener University	No	-
Regent University	No	-
University of Montana	Yes	2
University of Nevada- Reno	No	-
University of North Carolina- Greensboro	Yes	-
Azusa Pacific University	Yes	-
California State University- Fresno	Yes	-
Central Michigan University	No	-
Montana State University	Yes	-
University of Colorado- Denver	No	-
University of North Dakota	No	4
Utah State University	Yes	4
Wayne State University	No	-
Western Michigan University	Yes	-
West Virginia University	Yes	5

Bowling Green State University	No	-
North Dakota State University	Yes	-
Old Dominion University	No	-
Shenandoah University	No	-
University of Alaska- Fairbanks	Yes	3
University of Massachusetts- Dartmouth	No	-
Benedictine University	No	-
California State University- Fullerton	No	-
Dallas Baptist University	Yes	2
New Mexico State University	Yes	-
University of Texas- Arlington	No	-
South Dakota State University	Yes	-
Southern Illinois University- Carbondale	Yes	4
University of Missouri- St. Louis	No	-
University of South Dakota	No	-
American International College	No	-
Ashland University	Yes	-
Augusta University	No	-
Barry University	Yes	-
Boise State University	No	-
Cardinal Stritch University	No	-
Clark Atlanta University	No	-
Cleveland State University	No	-
Eastern Michigan University	No	-
East Tennessee State University	Yes	2
Florida A&M University	No	-
Florida Atlantic University	No	-
Gardner-Webb University	No	-
Georgia Southern University	No	-
Grand Canyon University	No	-
Indiana State University	No	-
Indiana University of Pennsylvania	No	-
Jackson State University	No	-
Kennesaw State University	Yes	-
Lamar University	Yes	-
Liberty University	Yes	-
Lindenwood University	Yes	2
Louisiana Tech University	No	-
Middle Tennessee State University	Yes	3
Morgan State University	No	-
National Louis University	No	-
North Carolina A&T State University	No	-
Northern Arizona University	No	-
Northern Illinois University	Yes	-

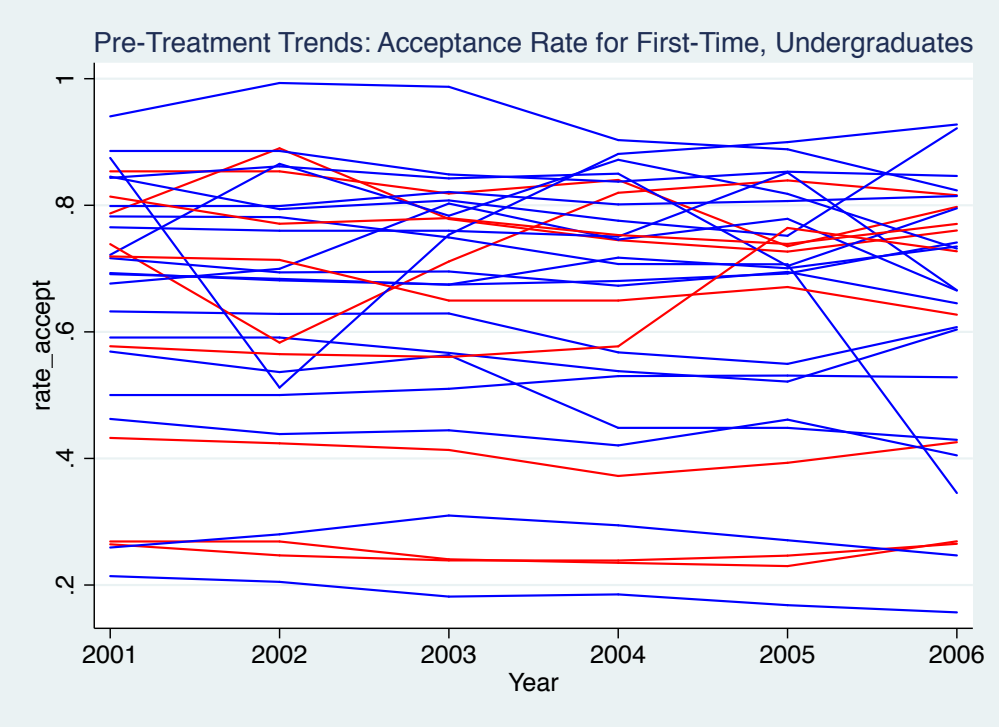
Oakland University	Yes	-
Portland State University	Yes	3
Prairie View A&M University	No	-
Sam Houston State University	Yes	-
San Francisco State University	No	-
Spalding University	No	-
Tennessee State University	Yes	3
Tennessee Technological University	Yes	-
Texas A&M University- Commerce	Yes	3
Texas A&M University- Corpus Christi	Yes	3
Texas A&M University- Kingsville	No	-
Texas Southern University	Yes	-
Texas State University	Yes	3
Texas Woman's University	Yes	-
Trevecca Nazarene University	Yes	-
Trinity International University	No	-
University of Akron	Yes	-
University of Alabama- Huntsville	Yes	-
University of Arkansas- Little Rock	No	-
University of Louisiana- Lafayette	Yes	-
University of Louisiana- Monroe	Yes	3
University of Maryland- Eastern Shore	No	-
University of Memphis	No	-
University of Missouri- Kansas City	Yes	-
University of Nebraska- Omaha	No	-
University of Nevada- Las Vegas	Yes	3
University of New Orleans	No	-
University of Northern Colorado	No	-
University of North Texas	No	-
University of South Alabama	No	-
University of Southern Mississippi	No	-
University of Texas- El Paso	Yes	3
University of Texas- Rio Grande Valley	No	-
University of Texas- San Antonio	No	-
University of the Cumberlands	No	-
University of Toledo	Yes	2
University of West Florida	No	-
University of West Georgia	Yes	-
University of Wisconsin- Milwaukee	No	-
Valdosta State University	Yes	2
Wichita State University	Yes	3
Wilmington University	Yes	-
Wright State Univerity	Yes	-

Appendix 2 — Pre-Treatment Trends

In both figures below, each red line represents an individual institution in the treatment group. Each blue line represents an individual institution in the control group. Both figures illustrate trends in a specified outcome variable during the pre-treatment period, 2001-2006. To satisfy parallel trends, the slope of the red lines should be very similar to the slope of the blue lines.



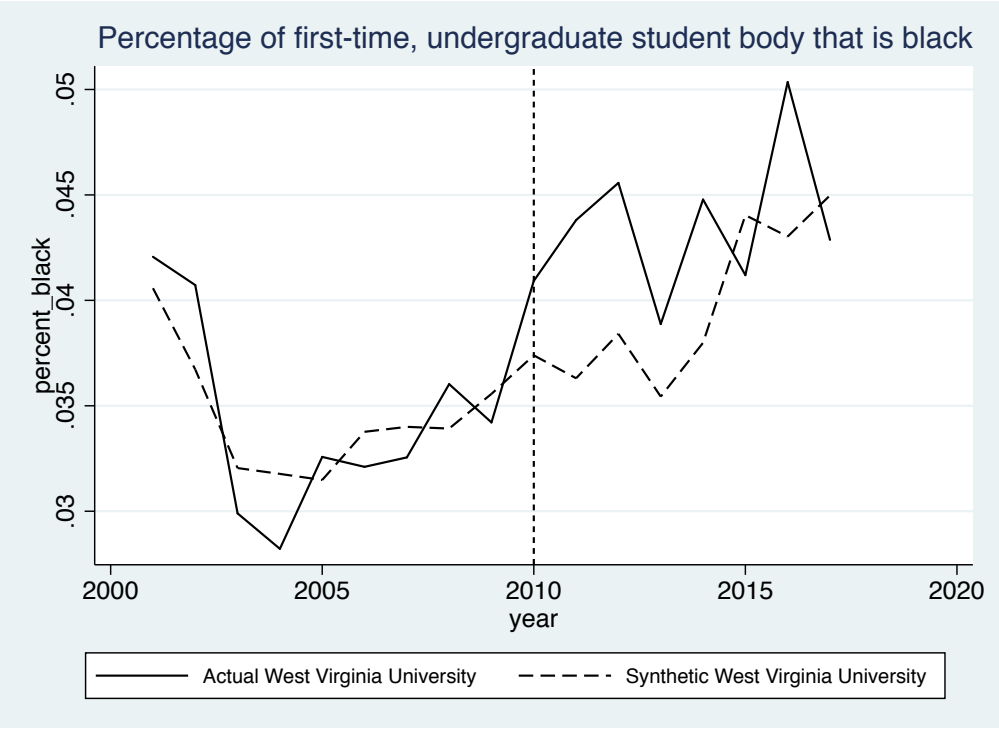
For the most part, both the red and blues appear to be fairly flat. There are a few blue lines that have steeper trends and are cause for concern. However, dropping these observations from the dataset had little effect on the sign or significance of the coefficients.

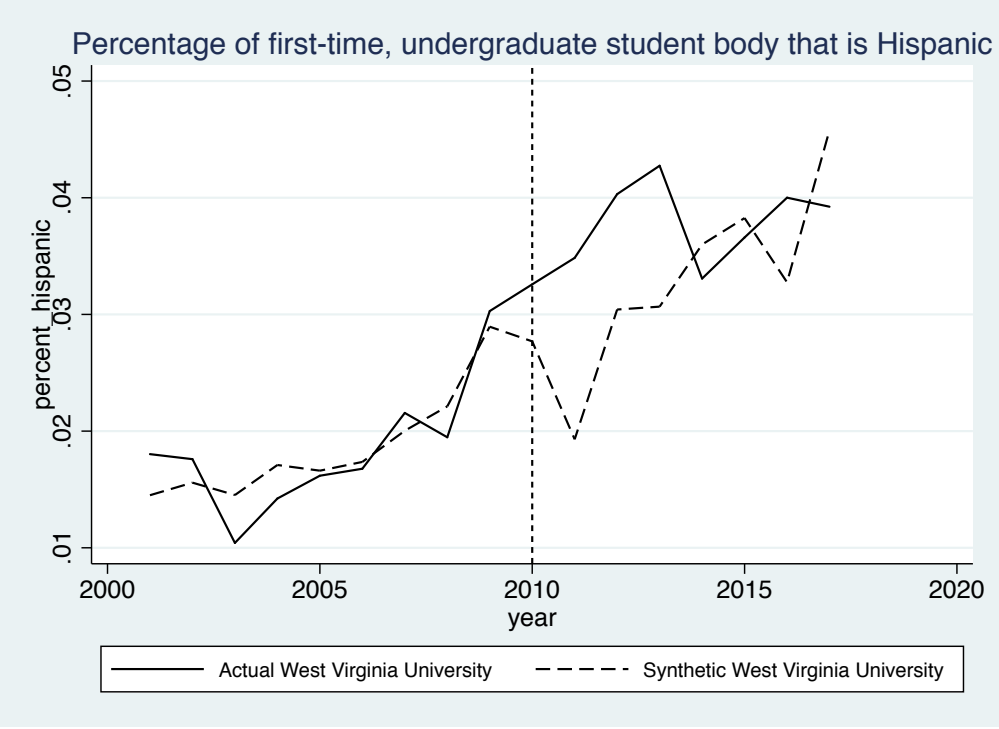


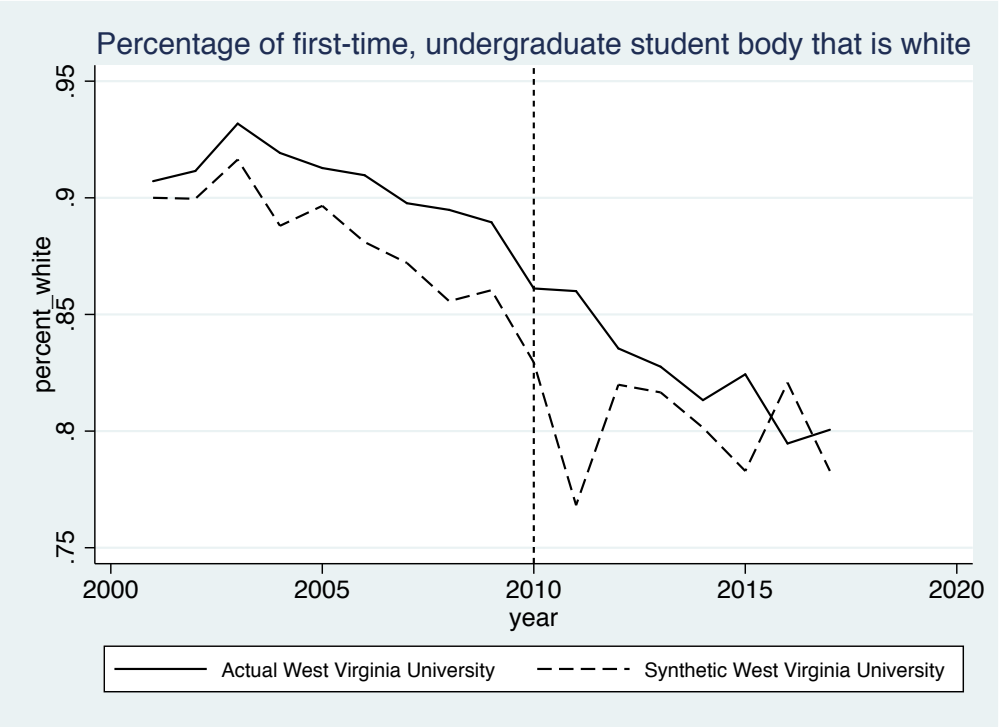
Unfortunately, the trends in acceptance rate are more variable. Here, we may be concerned that the parallel trends assumption is not fully met. However, dropping the control observations that depart that most dramatically from the treatment observations had little effect on the sign and significance of the coefficients.

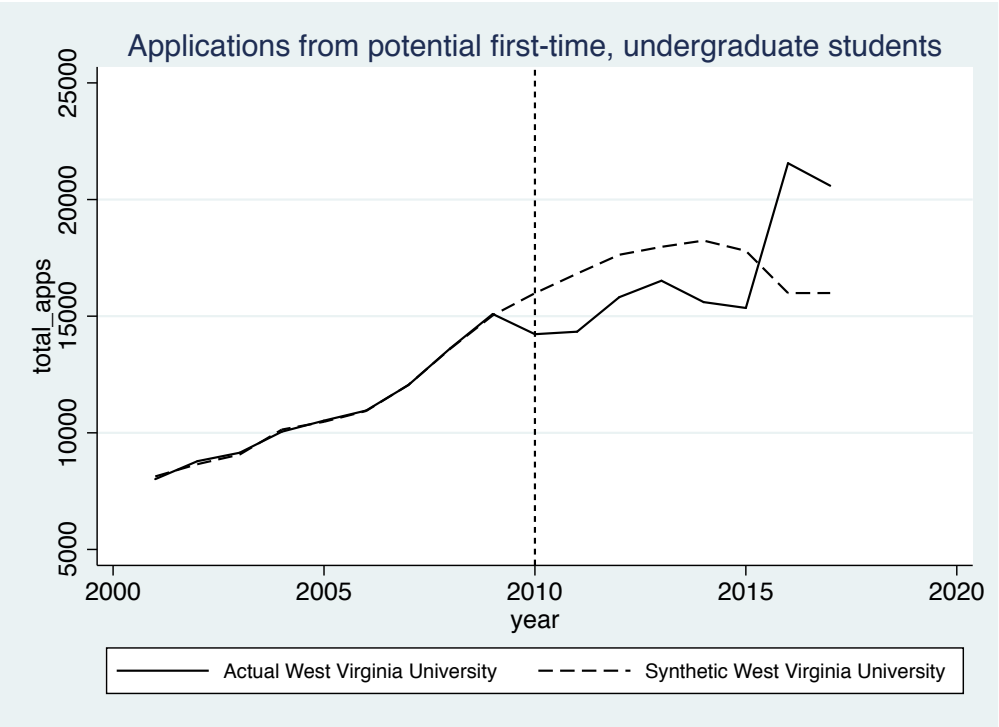
Based on these pre-treatment trends, I am concerned that the parallel trends assumption is only weakly met for acceptance rates. Because of this, any conclusions drawn about acceptance rates should be interpreted cautiously.

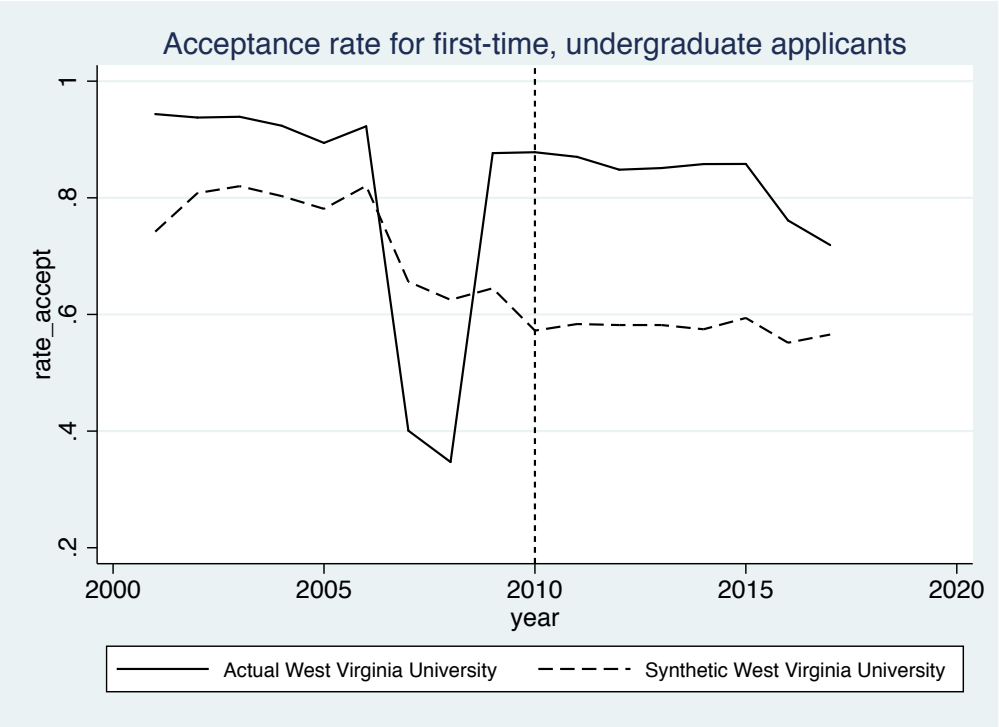
Appendix 3 — Complete Synthetic Control Results

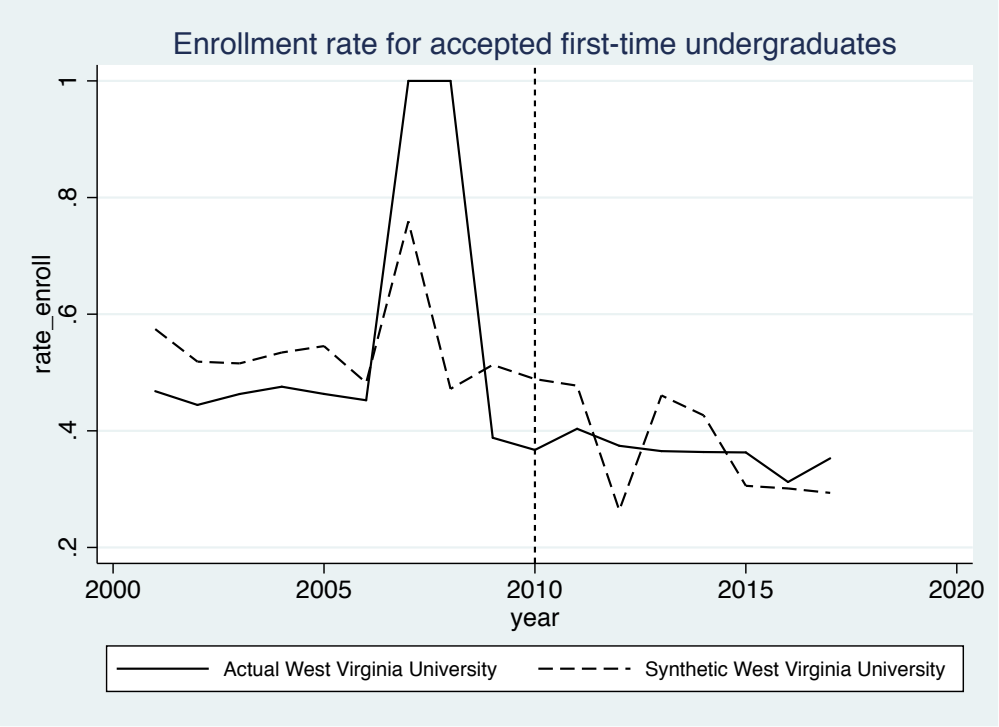


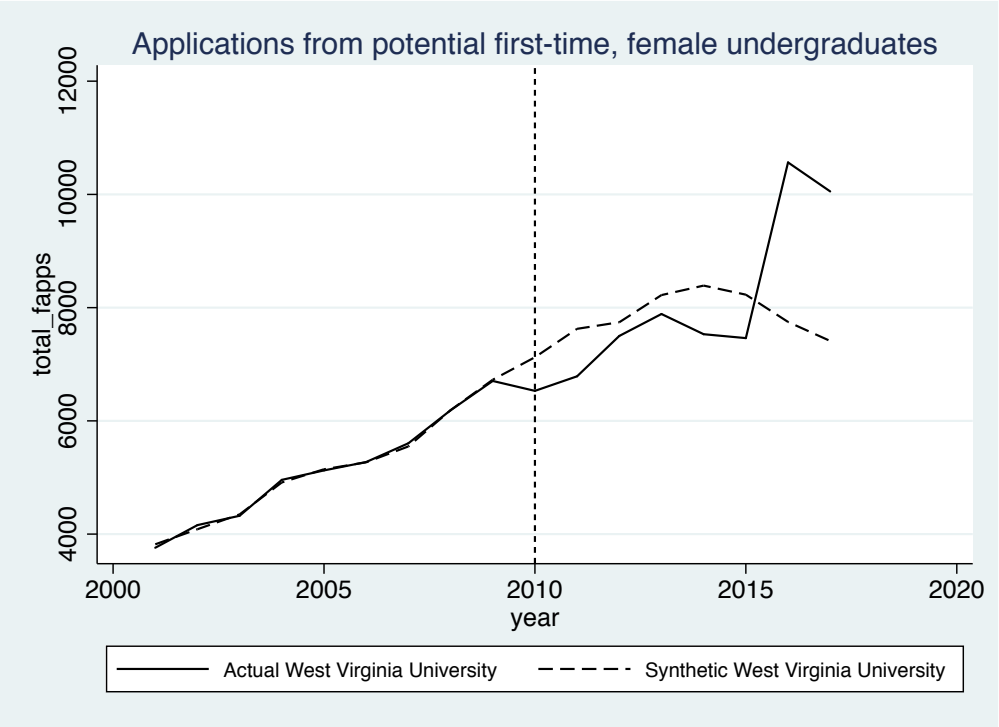


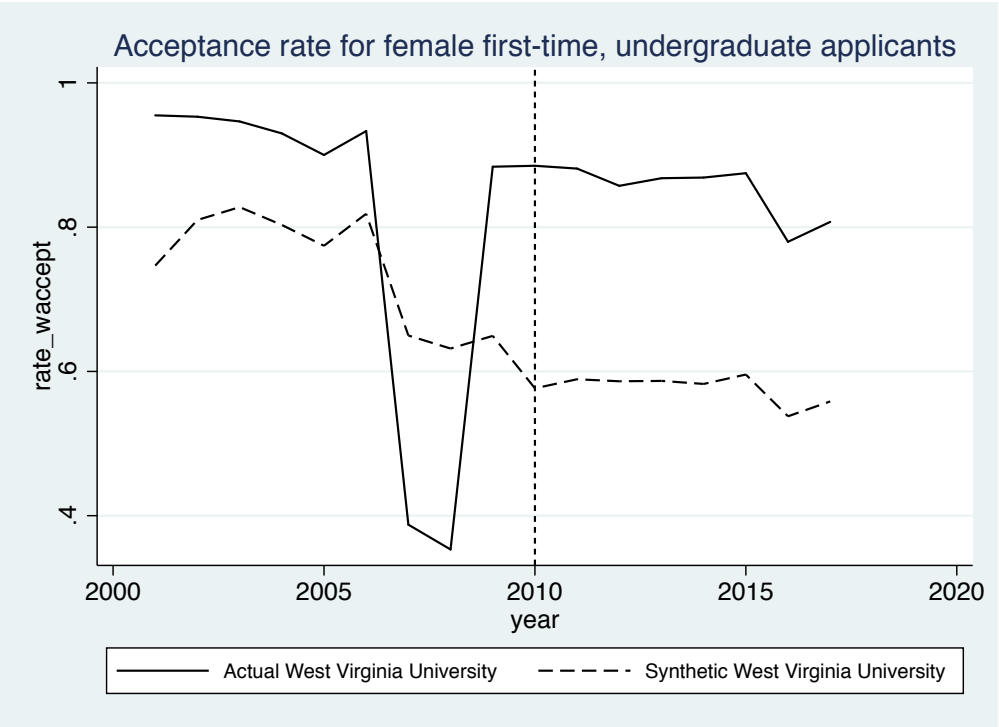

Percentage of first-time, undergraduate student body that is white
percent_white
.75
.8
.85
.9
.95
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

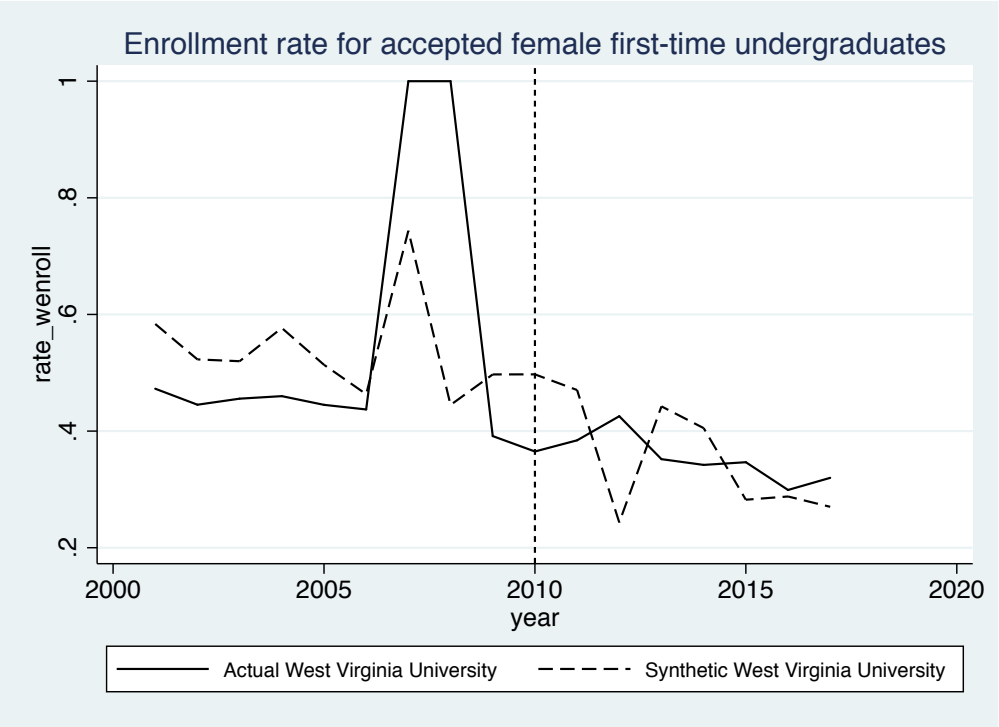

Applications from potential first-time, undergraduate students
total_apps
5000
10000
15000
20000
25000
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

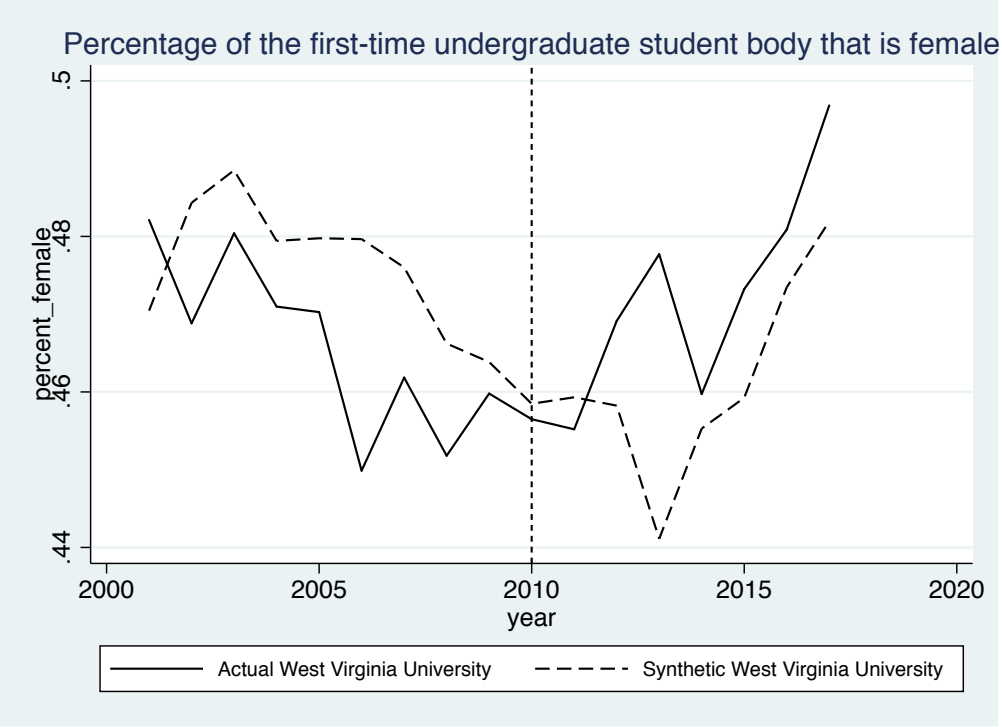

Acceptance rate for first-time, undergraduate applicants
rate_accept
.2
.4
.6
.8
1
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

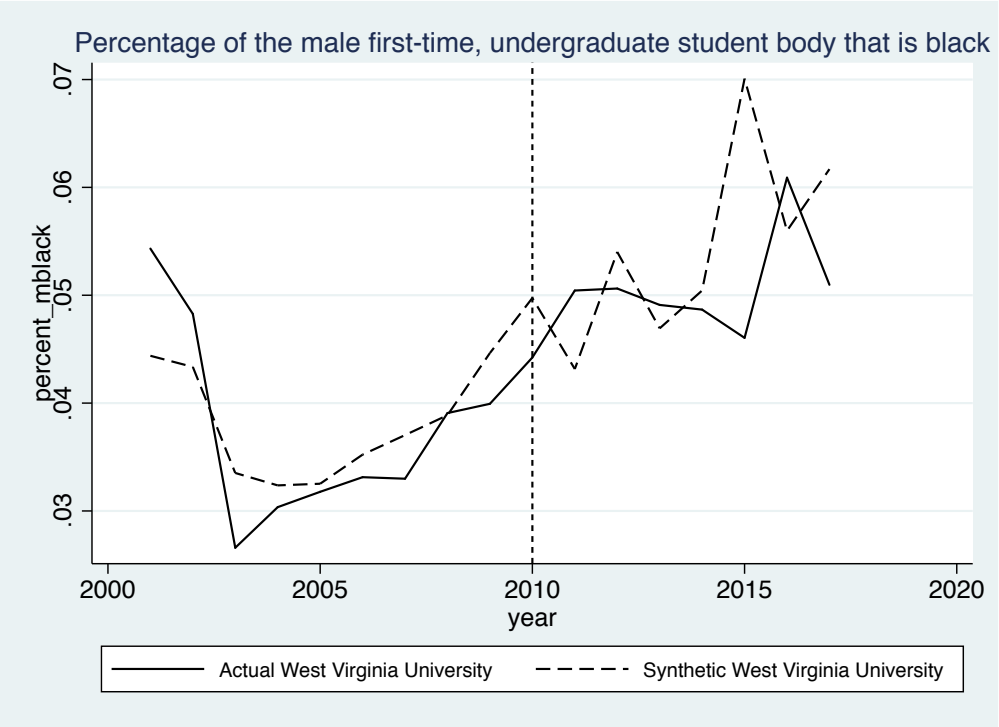

Enrollment rate for accepted first-time undergraduates
rate_enroll
.2
.4
.6
.8
1
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

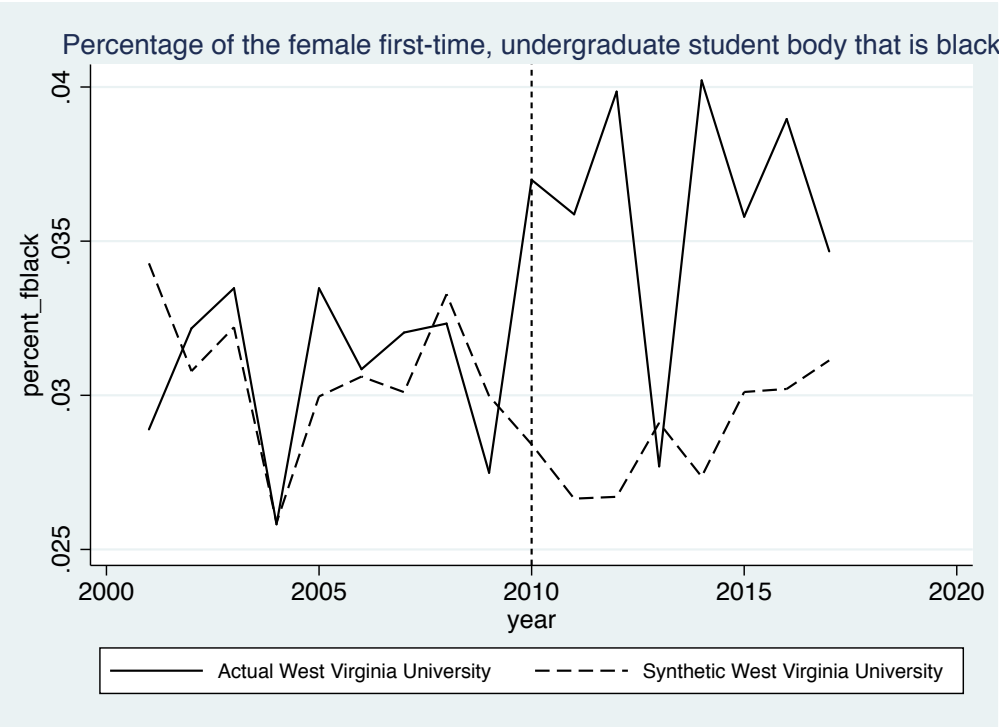

Applications from potential first-time, female undergraduates
total_fapps
4000
6000
8000
10000
12000
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

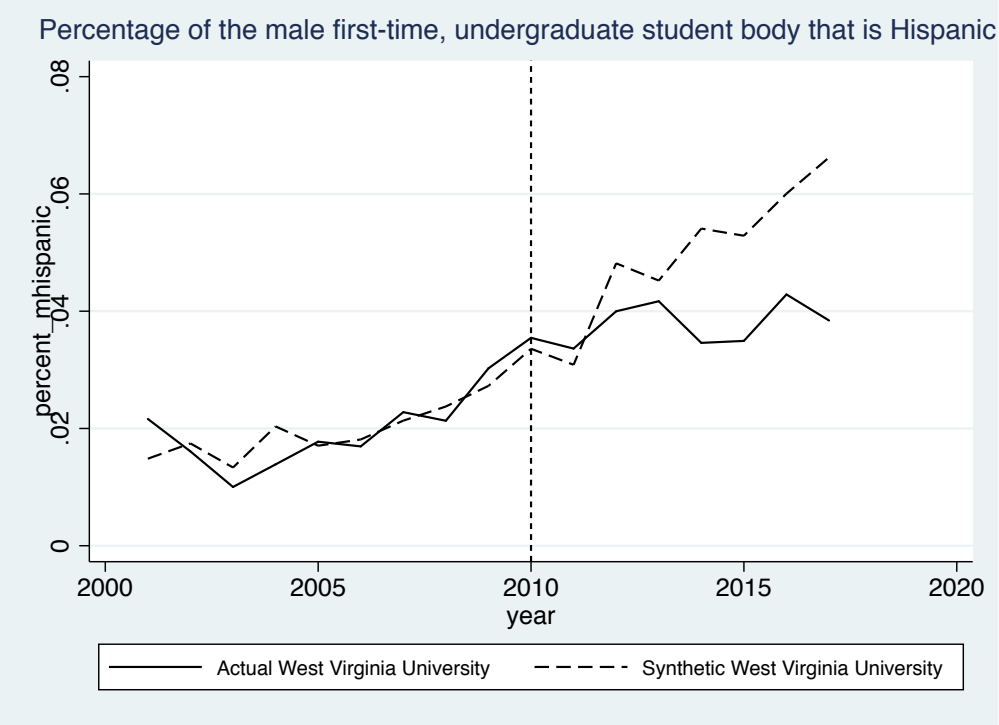

Acceptance rate for female first-time, undergraduate applicants
rate_waccept
.4
.6
.8
1
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

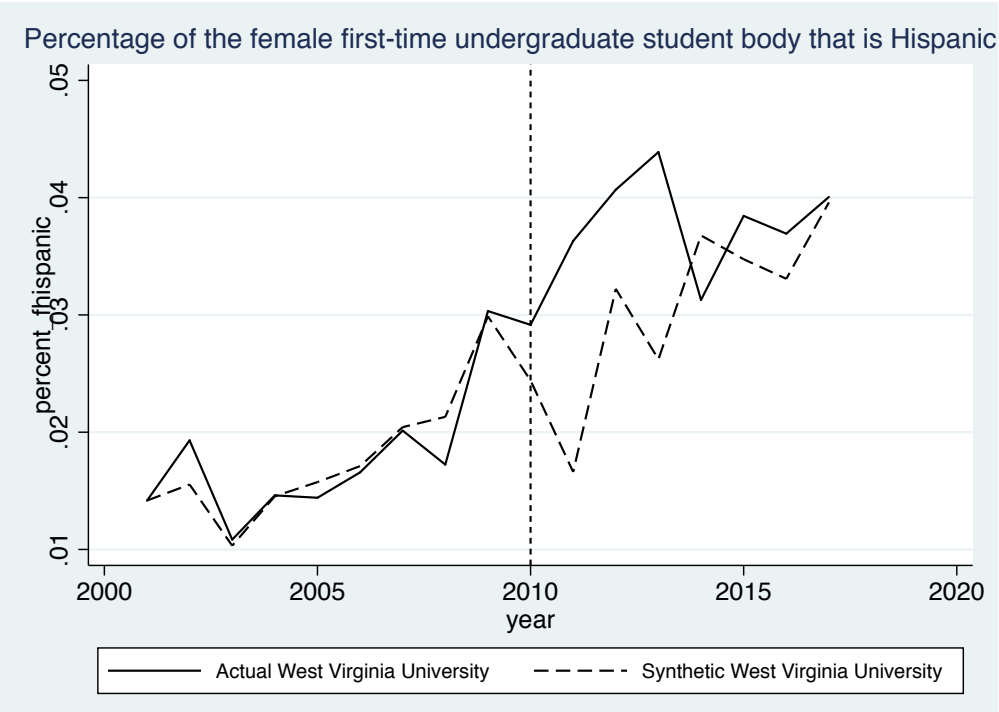

Enrollment rate for accepted female first-time undergraduates
rate_wenroll
.2
.4
.6
.8
1
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

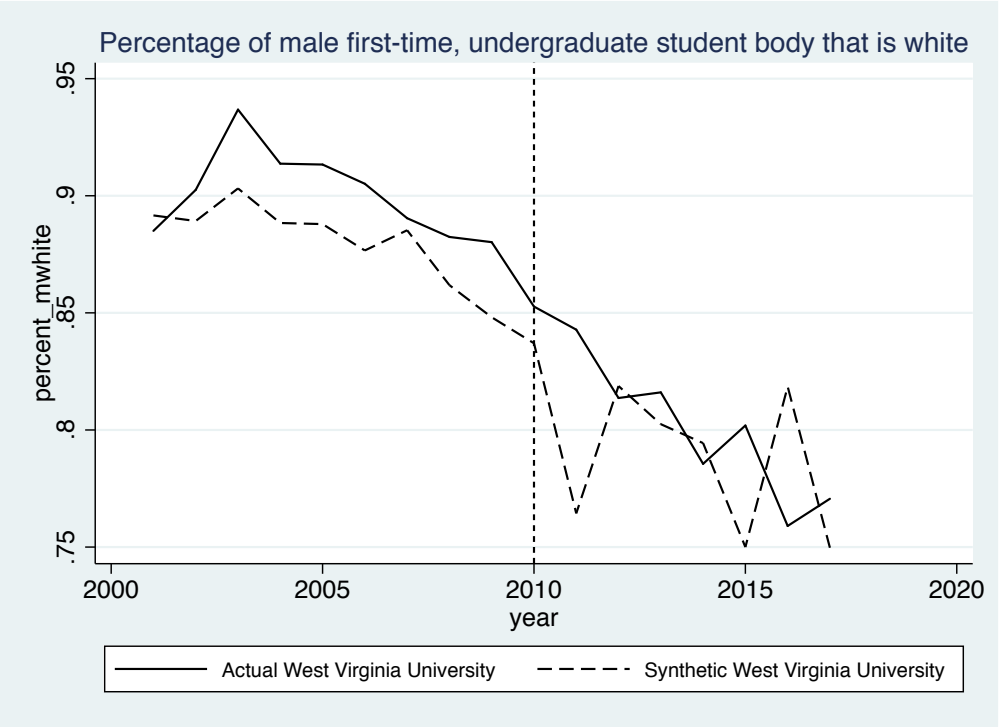

Percentage of the first-time undergraduate student body that is female
percent_female
.44
.46
.48
.5
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

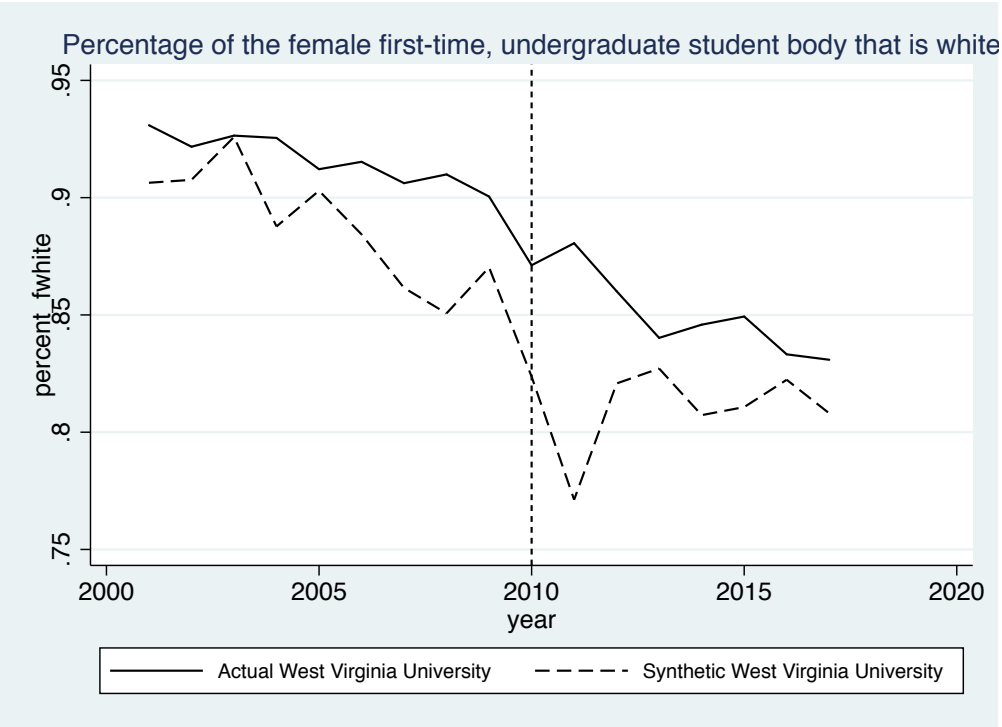

Percentage of the male first-time, undergraduate student body that is black
percent_mblack
.03
.04
.05
.06
.07
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University


Percentage of the female first-time, undergraduate student body that is black
percent_fblack
.025
.03
.035
.04
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University


Percentage of the male first-time, undergraduate student body that is Hispanic
percent_mhispanic
0
.02
.04
.06
.08
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University


Percentage of the female first-time undergraduate student body that is Hispanic
percent_fhispanic
.01
.02
.03
.04
.05
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University


Percentage of male first-time, undergraduate student body that is white
percent_mwhite
.75
.8
.85
.9
.95
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University


Percentage of the female first-time, undergraduate student body that is white
percent_fwhite
.75
.8
.85
.9
.95
2000
2005
2010
2015
2020
year
Actual West Virginia University
Synthetic West Virginia University

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