College Enrollment and Mandatory FAFSA Applications: Evidence from Louisiana

Christa Deneault*

February 12, 2022

Abstract

I estimate the impact of a Louisiana state policy that mandated FAFSA applications as a high school graduation requirement. I find significant increases in FAFSA completion rates (19 percentage points), and my estimates imply an increase in 1-2 percentage points in college enrollment. There is suggestive evidence that these effects were more concentrated among lower-income students/schools and merit-based state financial aid applications also increased. The design of this mandate implies that pushing students into action may be more effective than informational nudges and that localized support systems such as counselors are important for the success of a top-down policy.

*Cornell University, cd576@cornell.edu, 429 Uris Hall, 109 Tower Rd, Ithaca, NY 14853; I thank Maria Fitzpatrick, Evan Riehl, Seth Sanders, Germán Reyes, Julien Neves, Abhishek Ananth, Molly Ingram, participants at a Cornell seminar, anonymous reviewers, and editor C. Kirabo Jackson for comments and suggestions. Any remaining errors are my own.

Despite several decades in the spotlight, the Free Application for Federal Student Aid (FAFSA) remains an important barrier to college enrollment for disadvantaged students. I explore the extent to which the FAFSA completion task still matters and whether governments can reasonably induce matriculation via FAFSA completion by studying a unique policy implemented by the Louisiana Department of Education (LDOE). This policy mandates all high school graduates file a FAFSA in order to meet their high school graduation requirements as of the 2017-18 school year.

The initial differences in the FAFSA completion rates during the pre-treatment period across Louisiana schools provide quasi-random variation in the policy's impact. Intuitively, the policy affected schools where few students were already filing the FAFSA more than schools where nearly all students were already filing the FAFSA (and likely college bound). Utilizing this variation in pre-treatment FAFSA completion rate as a treatment intensity, I estimate a differences-in-differences framework on publicly available school level data provided by the LDOE and the Office of Student Financial Aid. This identification strategy effectively compares the change in college enrollment rates over time between schools that had low pre-treatment FAFSA completion rates (more treated) to the change in college enrollment rates for schools that had high pre-treatment FAFSA completion rates (less treated).

Previous experiments have documented, with varying degrees of success, that the FAFSA and its complexity have acted as a barrier to college enrollment (Dynarski, 2003, 2000; Cornwell et al., 2006; Dynarski and Scott-Clayton, 2006; Bettinger et al., 2012; Bird et al., 2021; Page et al., 2018; Castleman and Page, 2016). Notably, Bettinger et al. (2012) found that low-income high school seniors were significantly more likely to enroll (and receive aid and persist in college) after tax advisors almost entirely completed FAFSAs for experimental participants. Following the Bettinger et al. (2012) experiment, there have been several attempts to nudge students into filing their FAFSA on-time, typically through the use of text messaging reminders (Castleman and Page, 2016; Page et al., 2018; Bird et al., 2021; Avery et al., 2020). The idea behind these nudges is primarily informational - to notify students of a task that needs to be completed and to offer easy access to information that will help them complete their task. One of the largest studies to date, which offers insight both into the relative importance of the information channel as well as the scalability of FAFSA nudges,

is Bird et al. (2021). They find precisely estimated null effects of nudging college intending high school students to complete the FAFSA. Their results seem to fit with more recent evidence that information interventions alone are less effective than "boots on the ground" approaches for college enrollment behavior, and that nudges are more successful when they are received from a source with whom the student may already be familiar (Bergman et al., 2019; Carrell and Sacerdote, 2017; Oreopoulos and Ford, 2019; Avery et al., 2020).

A priori, the effectiveness of the Louisiana FAFSA mandate is ambiguous. Given that the most successful FAFSA experiments have been concentrated among the most likely to be affected by a FAFSA intervention (students eligible for aid but for whom FAFSA filing rates were low) and have been highly personalized, it may be unreasonable to expect much enrollment behavior change due to a blanket state-wide policy. Conversely, the previous research suggests that the filing of the FAFSA is far more successful in inducing matriculation than just providing information about filing the FAFSA. In this sense, the requirement by the LDOE may be strong enough to then affect college enrollment behavior.

As indication that this mandate was highly successful in increasing FAFSA filing behavior in the short-run, the average Louisiana high school increased its FAFSA completion rate among graduating seniors by 19 percentage points to about 72 percent in the post-policy period. Reduced form results of this policy indicate an increase in college enrollment rate[1] of approximately 1 percentage point for a school with a 10 percentage point lower pre-treatment FAFSA completion rate. Over the baseline enrollment rate average from the pre-treatment period (48 percent), this is a 2 percent increase. Back of the envelope estimates imply approximately a 1-2 percentage point increase in on-time college enrollment across all schools in my sample. Instrumental variables estimation indicates that increasing FAFSA completion rates 10 percentage points increases college enrollment rates by 3 percentage points. There is suggestive evidence the treatment effects were larger and more concentrated among schools with a larger percentage of free and reduced-price lunch students, and that applications for merit-based scholarships also increased. I find no evidence that high school graduation rates suffered from the additional requirement.

[1]Here college enrollment in the first fall following high school graduation is defined as a function of cohort size determined by freshman cohort three years prior - see Section 2 for more details.

The interpretation of my reduced form estimates as causal requires the assumption that the time trends for high FAFSA completion rate schools are accurate counterfactuals for time trends in the low FAFSA completion rate schools absent the policy ever being implemented. Event studies, group-specific linear trends, additional controls for heterogeneous trends among subgroups of students, and alternative treatment intensity measures all point to evidence that the assumptions underlying this empirical strategy are reasonable.

The empirical results offer meaningful insights. Namely, FAFSA completion is still an impediment for some students, and that localized efforts (schools) at scale (statewide mandate) have the potential to affect FAFSA application behavior and consequently college enrollment behavior. The Louisiana mandate had a stronger effect on increasing FAFSA applications than previous interventions (Bettinger et al., 2012; Bird et al., 2021; Page et al., 2018; Avery et al., 2020).[2] The estimates of the effect of FAFSA completion on college enrollment based on this mandate fall short of estimates from some prior interventions that offered more targeted and personalized attention to students and families such as Bettinger et al. (2012), but there is evidence that this mandate did modestly affect college enrollment behavior. Removing the possibility of inaction, reducing stigma, and providing tangible support systems (such as increased facetime with counselors) are important mechanisms and support conclusions of similar research. A longer discussion on mechanisms, cost effectiveness, and external validity follows in Section 6.

In addition to the FAFSA completion literature, this paper also contributes to literature on summer melt which generally finds positive effects of interventions during the time between high school graduation and starting college, a period when many students fail to complete all the tasks necessary to start college on-time (Roderick et al., 2008; Castleman and Page, 2014; Castleman et al., 2012, 2014, 2015; Castleman and Page, 2015; Page and Gehlbach, 2017). Broadly, it also adds to literature on financial aid and college enrollment that typically finds positive effects of need-based aid on enrollment and to differential college attendance based on socioeconomic status such as Dynarski et al. (2021), Lovenheim and

[2]LA mandate had a larger percentage point increase than previous research. With regard to percentage increase, LA mandate increased about the same or more than Bettinger et al. (2012), Bird et al. (2021), Page et al. (2018), Avery et al. (2020).

Reynolds (2013), Hoxby and Avery (2012), Hoxby et al. (2013), Andrews et al. (2010), Belley and Lochner (2007), Bergman et al. (2017), Dynarski (2003), McPherson and Schapiro (1991), Nielsen et al. (2010), Mattana (2018), and Page and Scott-Clayton (2016) (a recent literature review) among others.

The remainder of the paper is as follows. Section 1 and 2 offer background information on the Louisiana mandate, data sources, and descriptive statistics. Section 3 outlines a detailed description of the empirical strategy and its identifying assumptions. Section 4 presents the results, and Section 5 provides robustness checks. Sections 6 and 7 conclude with a detailed discussion of mechanisms, previous literature, and implications for policy.

1 Background

1.1 Context

Historically, Louisiana has lagged well behind other states in college readiness, ranking among the bottom in high school graduation rates and in the number of individuals who hold a two- or four-year college degree.[3] However, Louisiana has also seen significant growth in its secondary education outcomes recently. The high school graduation rate has increased about 11 percent from 2013 to 2018 while the comparable growth in the U.S. is about half that rate (5 percent increase), and this growth is particularly strong for black and economically-disadvantaged students.[4]

Recently, the college enrollment rate for high school graduates has maintained relatively stable proportions over time in Louisiana (around 57 percent) and elsewhere (around 66 percent for U.S.). This might not seem like an achievement at face value; however, given that high school graduation rates are increasing so significantly, it remains an accomplishment to simply maintain college enrollment rates. In Louisiana, there are persistent increases in the count of recent high school graduates enrolling in the fall while the U.S. as a whole fluctuates

[3]My calculation from American Community Survey.

[4]Digest of Education Statistics 2019 from NCES - Table 219.46 access here: `https://nces.ed.gov/programs/digest/d19/tables/dt19_219.46.asp`

slightly more.[5][6]

Louisiana's trends in recent years mostly mirror that of the U.S. reflecting greater prioritization of educational attainment over time. Several states including Louisiana have also enacted explicit policies to retain marginal high school dropouts and to better align high school requirements to suit college readiness. For example, common policies which were also implemented in Louisiana in the past several years include promoting career and technical education, increasing efforts to provide advanced placement (AP) and dual-credit classes, and increasing access to standardized testing for college admissions such as funded and mandated ACT or SAT exams. More unique to Louisiana is the implementation of a program meant to specifically encourage students to take advantage of state and federal funds and to push students to consider college enrollment via a mandate to file the FAFSA.

1.2 FAFSA and the Louisiana Mandate

Across the country, filing the FAFSA is mandatory in order to obtain Pell Grants and subsidized and unsubsidized loans, the three largest types of federal financial aid for college.[7] The form asks about students' and parents' income and assets in order to determine expected family contribution (EFC).[8] Then the maximum amount of aid is determined based almost entirely on the cost of attendance (COA) of the college to which the student matriculates and their EFC (Dynarski and Scott-Clayton, 2008). Despite the majority of the calculation coming from just these two measures, students have to answer several questions that may not be applicable to their situation or may be difficult for their families to produce. The Office of Student Financial Aid has implemented several changes in the last decade to mitigate some of the difficulties in filing FAFSAs efficiently. These changes include allowing submissions to start earlier in the current school year (for aid beginning in the following school year),

[5]For this reason, and discussed thoroughly in Section 2, I will define college enrollment rates to be a function of cohort size henceforth.

[6]Digest of Education Statistics 2019 from NCES - Table 302.20 access here: `https://nces.ed.gov/programs/digest/d19/tables/dt19_302.20.asp`

[7]Tax credits are also a source of financial aid which are not determined by FAFSA completion.

[8]Parental income is not inquired about in the case of independents. For dependency requirements see `https://studentaid.ed.gov/sa/fafsa/filling-out/dependency`

allowing family income from two years prior instead of current year's income, and the use of IRS data retrieval tool so students can retrieve their parents' income straight from previous tax filings if they file online.[9] From application year 2014-15 to 2017-18, the Office of Student Financial Aid reports a stable number of FAFSA submissions of about 1.9 million per year.[10]

Prior to Louisiana's mandate, roughly half of high school seniors were filing the FAFSA. This represented a larger proportion of high school seniors than the typical state.[11] However, given that so many students were still not filing and that Louisiana offers merit grants which require FAFSA completion, LDOE officials felt that there were too many students missing out on potential merit and need-based financial aid (March, 2016; Kaufman et al., 2018). They worked with the State Board of Elementary and Secondary Education to implement a mandate that all graduating seniors, beginning in the 2017-18 school year, 1) complete and submit a FAFSA; 2) complete and submit a Taylor Opportunity Program (TOPS) application, a Louisiana state financial aid program which nests FAFSA completion within its requirements; 3) apply for a waiver; or 4) get written permission from a parent or legal custodian to not file the FAFSA[12] (Louisiana Office of Student Financial Assistance (LOSFA), 2019).

In addition to this requirement, the state provides information on their website on how to file the FAFSA and phone assistance in completing the FAFSA (Louisiana Department of Education, 2019b). More locally, there are six regions which may hold events on scholarship information and FAFSA assistance (Louisiana Department of Education, 2019a). Finally, school counselors are expected to explain the process to students and ensure they understand how to file the FAFSA (Kaufman et al., 2018).

[9]See `https://www.irs.gov/pub/irs-utl/oc_irsdataretrievaltoolisnowavailablefor2012v4final.pdf` data retrieval tool, implemented starting 2012-13, and `https://blog.ed.gov/2016/08/2-major-fafsa-changes-need-aware/` for the others, beginning in 2016.

[10]FAFSA Data by Demographic Characteristics, Total 18 years or less, reported here: `https://studentaid.gov/data-center/student/application-volume/fafsa-school-state`

[11]For comparison across states, I divide the total FAFSA completed by June in each state from the Office of Student Financial Aid (see Data section) by the Western Interstate Commission for Higher Education numbers of public and private school students.

[12]LAC 28:CXV.901.7.D Historical Registers can be found: `https://www.doa.la.gov/Pages/osr/reg/register.aspx`

In practice, there are two ways in which students demonstrate the FAFSA requirement. Some schools may simply have the student show the school counselor the email confirmation for a submitted FAFSA. Alternatively, school systems can also connect with another Louisiana department, Louisiana Office of Student Financial Assistance, for a list of students who have completed FAFSA applications. This list may not be comprehensive and potentially requires follow up. In general, about 20 percent of graduating seniors choose to not submit a FAFSA, with the most common alternative being the parental opt out form (example of this form in the Appendix).[13] Although the mandate is required from the LDOE, the implementation of the policy places the majority of the work on local schools to satisfy the requirements as they see best fit.

2 Data and Descriptive Statistics

The data are school-year observations from two main sources: Louisiana Department of Education (LDOE) and the Office of Student Financial Aid (Louisiana Department of Education, 2020a; Federal Student Aid, 2020). Unless otherwise stated, data comprise years 2014 through 2019. For the remainder of the paper, a year listed by itself refers to the graduating year (2013-14, henceforth 2014).

2.1 LDOE

Data from the LDOE include college enrollment, student count totals, ACT scores, graduation rates and expenditures per pupil. These numbers are posted to their website by school and year, and all data were merged to match the primary college enrollment file.

The college enrollment statistics include the number of students who graduated from each high school and, of these graduates, the percentage who enrolled in college in the fall of their graduating year. It additionally reports the percentage of the college enrolled students studying at a two-year or four-year institutions and the percentage enrolled in-state. The LDOE obtains these estimates from National Student Clearinghouse which reportedly

[13] Information from discussions with LDOE official and from Louisiana Department of Education (2020b).

captures 98 percent of all college attendees.[14] For data privacy concerns, some school observations were listed as missing values, typically in cases where the cell size was fewer than 10 students. As such, this paper may not be representative of small schools.

The LDOE reports the percentage enrolled in college as the number of students enrolled in college over the total number of high school graduates. If Louisiana schools maintain the average number of students enrolled in college year over year, but increase their graduation rate, the percentage enrolled in college as a function of high school graduates will decline. Defining percent enrolled in college as college enrollment count over the freshman cohort size three years prior adjusted for movements of students across schools or migration out-of- or into- the state mitigates this issue. The starting point of using freshman cohort is because it represents the final year before students have the option to drop out.[15] Henceforth, percentage enrolled in college will refer to percentage as a function of cohort size, with explicit clarifications, when necessary, to diminish effects of changes in high school graduation rates on the primary outcome variable.

Practically, I calculate percent enrolled in college as a function of cohort size by taking LDOE-defined percentage enrolled in college (as a function of high school graduates) times graduation rate.[16] However, which students are counted in the graduation rate versus the high school graduate numbers may not be an identically overlapping set as student movements across schools and exceptions may cause the accounting to be different. As such, I additionally report estimates of the percent enrolled in college as a function of high school graduates and enrollment counts in Section 4 as additional robustness checks.

The demographic measurements come from LDOE October Multiple Statistics by Site which reports student counts by grade, total number of white, black, Hispanic, and Asian

[14] The National Student Clearinghouse coverage of LA colleges and universities over this time period is balanced, allowing for unbiased estimates of the policy's effect on enrollment.

[15] The freshman cohort size for the current high school graduating seniors is the denominator in the high school graduation rate.

[16] $$\underbrace{\frac{\text{Number Enrolled in College}}{\text{Number of High School Graduates}}}_{\text{LDOE \% Enrolled}} * \underbrace{\frac{\text{Number of High School Graduates}}{\text{9th Grade Cohort Size}}}_{\text{Graduation Rate}} = \underbrace{\frac{\text{Number Enrolled in College}}{\text{9th Grade Cohort Size}}}_{\text{Newly Defined \% Enrolled}}$$

students attending a particular school for each year. The LDOE additionally releases estimated current total expenditures per pupil by school for years 2014 through 2018. These are calculated based on local, state, and federal funds. Also included in these financial files are estimates of the average salary of teachers and number of full-time equivalent teachers. I present the financial data in the descriptive statistics, but I do not include them as controls in the main empirical estimation given the financial data is not covered for all post-treatment years.[17]

Additionally, LDOE publishes the average ACT composite scores for a school using each student's best exam. Because all students are required to take the ACT as of the 2012-13 school year,[18] these averages are representative of the entire school. Again, due to privacy concerns, some small schools' ACT scores were coded as missing values. Finally, the graduation rate is available by school for all relevant years. Some rates were suppressed as greater than 95 percent. These were top coded to be 97.5 percent. This represents about 16 percent of school-year observations.

2.2 Office of Federal Student Aid

The Office of Federal Student Aid, part of the U.S. Department of Education, started reporting FAFSA completion and submission numbers by school level for the 2015-16 aid application cycle. These data represent the number of "first-time filing applicants who are no older than 19 at the cutoff date who will have received their high school diploma by the start of the school year to which they are applying for aid" (Office of Federal Student Financial Aid, 2019). This file contains the total number of completed FAFSAs through June of the beginning college aid year.[19] The earliest data represent the senior class of 2015. The Office of Federal Student Aid does not report the number of completed FAFSAs for schools

[17] In using just one-year post treatment test the inclusion of the extra control variable for expenditures per pupil doesn't meaningfully change the outcome.

[18] `https://www.louisianabelieves.com/newsroom/news-releases/2014/08/20/report-shows-record-number-of-louisiana-students-achieving-college-level-act-scores`

[19] For concreteness, this captures all the FAFSAs completed by June (example: 2015) of the senior's graduating year (example: school year 2014-15, graduates in 2015) for financial aid beginning for the next school year starting in the fall (example: 2015-16).

that have fewer than five submissions. To reiterate earlier statements, this study may not accurately reflect small schools or schools with extremely low FAFSA completion rates.

The school's completion number in June is divided by the number of high school graduates in the enrollment statistics to obtain a completion rate estimate. Note that these two sums may not cover the same universe of students within a school due to movements during the school year or age differences. Completed FAFSAs are filed correctly while submitted FAFSAs may contain errors. For this reason, I prefer using completed FAFSA rate as opposed to submitted FAFSA rate. In practice, the ratio of completed to submitted FAFSA by June during each of my sample periods is more than 0.9, implying that the vast majority of FAFSAs are completed without error.

2.3 Other Sample Selection

I dropped schools coded as special education institutions. This included just four schools in my sample. Excluded from my data set are schools for which the graduating class's freshman cohort size was not available.[20] Additionally, two schools were removed for having small total student to teacher ratios (less than 5) or extremely large (greater than 100) ratios.[21] The basis for this decision is to eliminate schools that may be representing non-traditional students (the former represents a special education setting and the latter removes virtual schools that may be tailored for working/older students).

I create a balanced panel by keeping schools that have the complete set of nonmissing control and outcome variables for specification (1) discussed in Section 3. In practice, this may eliminate smaller schools that had control and outcome variables suppressed due to small sample sizes. It also excludes schools that are non-traditional including charter schools or schools that closed during this time frame. This deleted an additional 44 schools from my sample. A list of schools that were dropped from the sample due to the above criteria or any complications in merging is provided in the Appendix. Additional data trimming removes about 15 percent of the schools that could not be matched to the Office of Student financial data leaving exactly 259 schools represented each year. My results are robust to a

[20]This included less than 30 schools.

[21]Reported by LDOE as part of their financial statistics.

non-balanced panel as well.

2.4 Descriptive Statistics

For the remainder of the paper, all graphs, tables, and equations have been weighted by relative school size so as to represent the average student. Weights are defined to be the average (2014-2017) of the total number of students in a school divided by the number of grades taught.

Table 1 presents descriptive statistics of the schools in my sample partitioned into the quartile ranking of their average (over 2015 and 2016) FAFSA completion rates. Thus, the "lowest" column represents the schools with the smallest completion rate numbers in the pre-treatment period and so on. Schools that have higher FAFSA completion rates tend to be larger schools (up through third quartile), have better ACT composite scores, higher graduation rates, and higher percentages of high school graduates attending college in the fall. The schools with lower completion rates in the pre-treatment period tend to be more diverse (the percentage race is reported for the whole school not just for seniors) and serve more free and reduced-price lunch students. The students in low-completion-rate-schools also attend two-year institutions more often than four-year universities. However, teacher salary and current per pupil expenditures, both calculated based on 2014-2018, are relatively similar across schools. See Figure A1 and Table A1 in the Appendix for more descriptive statistics by year.

3 Empirical Specification and Identification

Outlined in what follows, I estimate two primary effects. The first is the reduced-form effect of the Louisiana mandate on college enrollment in the following fall for high school seniors and the second is the direct effect of FAFSA completion on college enrollment.

3.1 Reduced Form Effect

Louisiana's policy that mandates all high school graduates file the FAFSA is expected to increase FAFSA completions more for students attending schools with low pre-treatment FAFSA completion rates, as these schools had the most room for growth. Figure 1 presents the percentage change in FAFSA completion rates from 2015 to the average of 2018 and 2019. It illustrates that schools with low FAFSA completion rates initially had the largest growth in completion rates as a result of the mandate. Schools with the lowest FAFSA completion rates in the pre-treatment period experienced more than a 60 percent increase in their post-mandate FAFSA completions. This contrasts to schools with high FAFSA completion rates in the pre-mandate period with growth pre- to post-mandate hovering closer to 20 percent. This variation across schools is exploited as a treatment intensity. Intuitively, if FAFSA applications induce students to enroll in college who would not have otherwise, then the FAFSA application requirement should have a larger effect for schools that have a greater change in FAFSA applications, or those that had lower completion rates prior to the policy. This too is consistent with the raw data in Figure 1 where the lowest FAFSA completion rate schools additionally have larger pre- to post-treatment college enrollment growth.

Thus, the net change over time in the college enrollment rate between schools that had low pre-treatment FAFSA completion rates and high pre-treatment FAFSA completion rates represents the overall reduced form effect of the mandate. I estimate this intent-to-treat effect, represented by β, in the following dosage style differences-in-differences equation:

$$Y_{st} = \alpha + \lambda_s + \gamma_t + \beta(\text{1-(Ave FAFSA Completion Rate)})_s * \text{Post}_t + \mu' X_{st} + \epsilon_{st} \qquad (1)$$

The level of observation is school (s) - year (t), and outcome variable, Y_{st}, is the percentage of students enrolled in college in the fall as a function of the freshman cohort three years prior as discussed in Section 2. I consider alternative outcome variables and treatment intensity discussed in Sections 4 and 5.

Treatment intensity is one minus the average FAFSA completion rate in years 2015 and 2016 for each school and is multiplied by Post_t which takes a value one only in the post-treatment periods and zero otherwise.[22] School level fixed effects, λ_s, capture any time

[22]The closer the completion rate gets to 1, or 100%, it becomes part of the control group. It is standard

invariant characteristics that are unique to each school. Additionally, the year fixed effects, γ_t absorb any trends over time that are common across schools. Controls that vary by school and year are included in the vector X_{st}. They are the percentage of a school who are black, white, Hispanic, and Asian students, ACT composite scores, and total enrollment and its square. Finally, standard errors are clustered at the school level to control for serial correlation among the error terms, ϵ_{st} (Bertrand et al., 2004; Cameron and Miller, 2015).

3.2 Threats to Causal Interpretation of Reduced Form

When can the reduced form effect, β, be thought of as a causal estimate? Given the fixed effects and school-year varying controls, this requires that there are no other omitted time-varying and school specific characteristics that are correlated with the introduction of this policy, pre-treatment completion rate intensity, and college enrollment. A common way of phrasing this is to assume the schools that had a low pre-treatment completion rate would have had similar changes in college enrollment over time relative to schools with high completion rates had the policy never been implemented, or that the "comparison" schools' time trends represent an accurate counterfactual for the more "treated" schools. Note that the average completion rate is based on the pre-treatment period, and as such cannot be endogenous to the implementation of the policy. Moreover, the school fixed effects will capture any time invariant feature of the school that may be correlated with having lower FAFSA completion rates (as determined by pre-treatment time period).[23]

One way to test the assumption of parallel trends across completion rate status is via an event study. In the following equation, I adapt the main specification (1) to replace treatment intensity multiplied by a post-treatment dummy with year dummies times the pre-treatment value of completion rate:

$$Y_{st} = \alpha + \lambda_s + \gamma_t + \sum_{t=-4}^{1} \beta_y \mathbb{1}(\text{year-2018} = \text{t}) * (1 - (\text{Ave FAFSA Completion Rate}))_s + \mu' X_{st} + \epsilon_{st} \tag{2}$$

to report estimates where the control group is represented by 0. Thus I define FAFSA completion rate to be 1-(completion rate) so that the control group is reaching 0 and treatment is reaching 1.

[23] I purposely do not include 2017 values in calculation of the treatment intensity as some FAFSA filing support was initiated in the 2016-17 school year.

The β_y coefficients are all relative to 2017, the year prior to the mandated policy, which is normalized to zero. Ideally the coefficients representing the effect of the treatment intensity relative to 2017, would be zero in the pre-treatment period. If not, this could potentially imply the low FAFSA completion rate schools were exhibiting differential trends, mean reversion for instance, and this would bias the intent-to-treat effect, β, on the main equation (1). As evidence of the mandate exerting a causal effect on FAFSA completion and enrollment, it is expected that the coefficients relative to 2017 in the post-treatment period exhibit positive values indicating that there is a positive treatment effect relative to a year prior to the mandate.

This prediction is borne out in the event studies illustrated in panels A and B of Figure 2 where the outcome, Y_{st}, represents the college enrollment rate and FAFSA completion rate for school s and year t, respectively. The figure illustrates a large post-treatment jump in FAFSA completion rates for the lowest treatment intensity schools relative to the highest.[24] Importantly, there are no pre-treatment trends for college enrollment as all the coefficients are nearly zero and not statistically different from zero. Additionally, relative to 2017, there is a clear increase in the coefficients for the post-treatment years on college enrollment, which are statistically different from zero. I cannot reject the null that the effects in both years of post-treatment are identical for college enrollment. Together, this suggests that the time trends assumption is reasonable, and that the policy did have an effect on FAFSA completions and college enrollment.

While the event studies lend credibility to the exogeneity of the timing of the mandate that induced increases in both FAFSA completion rates and college enrollment, no one test is singularly perfect. As discussed formally later, the primary specification is impervious to additional controls and treatment intensities, and I report other sensitivity checks in Section 5.

[24]The pre-treatment coefficients for the FAFSA completion rate outcome are negative relative to 2017. This is likely due to the partial roll out of the program in the 2016-17 school year. This would likely downward bias the estimates on college enrollment subject to the fact that I treat 2017 as a pre-treatment year. The coefficient for year 2013-14 is not included as Office of Student Financial Aid did not report data prior to the aid application 2015-16 cycle.

3.3 Direct Effect of FAFSA Completions on College Enrollment

Equation (1) describes how the LDOE mandate affects on-time college enrollment behavior, or it is the reduced form estimate of the mandate with respect to matriculation. This is different from asking how FAFSA filing affects college enrollment behavior. Under the assumption that the LDOE mandate only affects college enrollment via the increase in the number of FAFSA completions (exclusion restriction), the policy can be instrumented for the FAFSA completion rate in a two-stage least squares (TSLS) approach. This assumption would be violated if the FAFSA mandate increased awareness around college enrollment or increased school (guidance counselor) involvement which in turn affected on-time college enrollment, for instance. Given it is likely the FAFSA mandate increased school involvement in ways that may affect college enrollment but are not directly related to FAFSA completion, these IV estimates are meant to be suggestive evidence of the causal effect of FAFSA completions on college enrollment. Importantly, increased awareness or effort by administrators surrounding this policy generally would *upward* bias the IV estimates, and we may want to think of the FAFSA mandate and its corresponding increases in FAFSA completion as a package of all of these components.

$$\text{FCR}_{s,t} = \tilde{\alpha} + \lambda_s + \gamma_t + \tilde{\beta}(\text{1-(Ave FAFSA Completion Rate)})_s * \text{Post}_t + \tilde{\mu}' X_{st} + \tilde{\epsilon}_{st} \quad (3)$$

$$Y_{st} = \alpha + \lambda_s + \gamma_t + \delta(\widehat{\text{FCR}})_{s,t} + \zeta' X_{st} + \epsilon_{st} \quad (4)$$

The first stage, equation (3), indicates how successful the mandate was at increasing FAFSA completion rates (FCR) across schools while the second stage, equation (4), quantifies the relationship between FAFSA completion rates and on-time college enrollment.

4 Results

4.1 Mandate's Estimated Effect on FAFSA Completion

Both total FAFSA completions and FAFSA completion rates increased significantly starting in 2018 - see Figure 3. Noticeably, while the FAFSA completion rates across schools increased

by about 19 percentage points to 72 percent post-policy, they still do not reach 100 percent of seniors filing the FAFSA as would be expected under a mandate. In discussions with LDOE officials, most of the graduates who did not file instead opted for a parent/guardian nonparticipation release.[25] This accounted for the majority of the 20 percent of nonparticipation in the FAFSA *submissions*. The remaining difference represents FAFSA submissions with errors which are not considered *completed* FAFSAs. In any case, this is consistent with a large increase in FAFSA filing across schools resulting from the implementation of the mandate.

Policy makers may be concerned that the FAFSA mandate acts as a preventative measure to high school graduation as it adds an additional requirement. Figure 3 illustrates that high school graduation rates overall did not decrease as a result of this policy, and, in fact, graduation rates slightly increased each year during this period. Furthermore, as a point I address more formally in Section 5, I find no evidence that graduation rates for low FAFSA rate schools declined relative to high FAFSA rate schools upon implementation of the mandate.

How the mandate affected FAFSA completions - the first stage - is visualized in Figures 1 and 2 and formally estimated via equation (3) with results reported in Table 2.[26] Columns 1 and 2 present estimates of the policy's effect on FAFSA completion rates from specifications without and with controls, respectively. I find that a school in the pre-treatment period with a zero percent completion rate would have a 41 percentage point increase in completion rate as a result of this policy relative to schools that had a 100 percent completion rate in the pre-treatment period.[27]

[25]See PDF forms of the parental release and the school waiver in the Appendix

[26]Figure A4 shows the raw percent change in college enrollment over the percent change in FAFSA completion rates by treatment intensity.

[27]The calculation of the differential percent increase in completion rate changes post-mandate between two schools is explained in the Appendix.

4.2 Estimated Reduced Form Effect of the Mandate on College Enrollment

As hypothesized, the estimates in Table 2 demonstrate schools that were more affected by this policy, ones with low FAFSA completion rates in the pre-treatment period, had a larger increase in percentage of students enrolled in college in the fall as indicated in columns 3 and 4. These estimates represent the reduced form estimates of β as calculated from equation (1) without and with controls, respectively. My preferred specification includes controls (column 4) which indicates that the policy increased students enrolled in college in the fall for a school with zero FAFSA completions in the pre-treatment period relative to a school with a 100 percent completion rate in the pre-treatment period by 13 percentage points. This estimate is statistically significant at the 1 percent level.

However, this magnitude is not reflective of schools in my sample as it involves comparing schools at extremes which are not well represented.[28] An improved measure is to compare schools within 10 percentage points of each other in pre-treatment FAFSA completion rate (or approximately a standard deviation). Given the linearity assumptions of the differences-in-differences model, this implies an increase of approximately 0.013 ($= 0.1 * 0.13$), or about 1 percentage point, for a school with a 10 percentage point lower pre-treatment FAFSA completion rate. Over the baseline enrollment rate average from the pre-treatment period (48 percent), this is a 2 percent increase. Column 3 presents the same estimates when equation (1) is run without controls, X_{st}. The addition of controls only strengthens the estimated effect of this policy on percentage enrolled from 0.07 to 0.13.[29]

This empirical strategy is not well suited for identifying the overall state-wide effect of mandatory FAFSA completions on college enrollment because the year fixed effects capture any state-wide effects that are common to all schools. However, I calculate a back of the envelope estimate of the total number of students induced to matriculate post-policy to get a sense of the size of this program across all the schools in my sample. I take the expected change in FAFSA completion rate for a school (I use the average post-mandate

[28] See the histogram in the Appendix.

[29] See Figure A6 and associated footnote for more information on compositional changes in schools during this time period.

FAFSA completion rate for a school minus the pre-treatment average FAFSA completion rate) and multiply it by the treatment effect, β. This fraction increase is multiplied by the cohort size and summed across all schools.[30] Roughly 500-870 more students enrolled in college on-time according to this calculation based on estimates without and with controls (approximate cohort size totaled across schools in my sample is 48,000). Alternatively, the weighted average increase across schools in FAFSA completion rates is approximately 19 percentage points. Without and with controls the treatment effect for a one percentage point difference in treatment intensity is $.0007 = (.01 * .07)$ and .0013 $(.01 * .13)$. Multiplying this by the 19 percentage point increase in FAFSA completion rates gives $.01 = (.0007 * 19)$ and $.02 = (.0013 * 19)$ or 1-2 percentage point increase in enrollment rates post-mandate.

Table 2 additionally reports the effect on the percent enrolled in two-year colleges and four-year colleges in columns 5 and 6, respectively. They are roughly similar in magnitude. I cannot parse out any compositional effects such as the policy encouraging seniors to start in four-year university instead of going first to a two-year or marginal students, those who were not planning on going to college prior to policy, starting straight in two-year versus four-year universities. It's possible both occurred. I also estimate the effect on persistence in college. The LDOE only reports these estimates for 2016-2019 which substantially reduces sample size, and as such estimates should be interpreted cautiously. I do not find a statistically significant effect on persistence for low versus high FAFSA completion rate schools after the mandate was implemented - see Table A2. Given the short panel, it is difficult to glean whether the lack of an effect results from lack of power or a true underlying null effect.

Ideally, the effect of the FAFSA mandate on college enrollment would not singularly depend on the functional form of college enrollment. For this reason, I test alternative outcome variables to my primary including the enrollment in college as a count variable and percentage enrolled in college as a function of high school graduates, also reported in Table A2. Overall, the empirical strategy is additionally robust to alternative outcome variables.

[30]

$$\text{New Students} = \beta * \sum_{s \in schools} (\text{FCR Post} - \text{Average FCR})_s * \text{Cohort size}_s \tag{5}$$

4.3 Estimated Direct Effect of FAFSA Completions on Enrollment

The first stage estimation proved to be a strong predictor of changes in FAFSA completion rates (FCR) across schools in 2018 and after - see Table 2 estimates of equation (3). Both the OLS estimates of college enrollment on FAFSA completion rate and the TSLS, equation (4), are presented in Table 3, column 2. The IV results indicate that increasing a school's FAFSA completion rate by 10 percentage points would increase college enrollment rates among students by 3 percentage points. Interpreting these estimates as the causal effect of just the increase in FAFSA applications (as opposed to all of the support provided because of the mandate itself) and on-time college enrollment requires strong assumptions. It is worth noting that the OLS estimates would be expected to be less than the IV - this borne out in the data - but also the direction of the bias given a misspecification of the IV assumptions would bias the estimate *upward*. Regardless, the magnitude is suggestive of a relationship between FAFSA completion and on-time college enrollment.

4.4 TOPS Awards

As additional exploration into the effects of the Louisiana mandate, I consider the Taylor Opportunity Program for Students (TOPS) program. TOPS awards are Louisiana state funded merit-based financial aid to students attending Louisiana colleges, and consist of four levels of scholarships each varying in rigor of qualifications with the total amount of aid offered depending on the university of attendance. For concreteness, the minimum requirements for eligibility for a four-year award include a minimum composite ACT score of 20 (approximately 53rd percentile[31]), 2.5 GPA on core classwork, and full-time attendance at a Louisiana college or university immediately following high school graduation. Historically, these scholarships have gone to students from wealthier families with about 40 percent of recipients coming from households who earn six figures or more (Louisiana Board of Regents, 2019; Emmanuel Felton, 2019).

Because the scholarships depend on threshold levels of ACT scores and GPA, we may

[31] `https://www.act.org/content/dam/act/unsecured/documents/MultipleChoiceStemComposite.pdf`

not expect to see much change in award receipt post-FAFSA mandate given that students cannot drastically change their qualifications in their senior year (GPA might be too low to bring up in a final semester, for instance). On the other hand, the TOPS program requires submission of a FAFSA, so if this additional hurdle worked against students in applying for scholarships they were already eligible for, it could potentially increase aid receipt even among merit-based scholarships.[32]

I obtain data from the Louisiana Office of Student Financial Assistance (LOFSA) and merge it to my primary data set. Some additional schools are lost in this merge, so the sample size is smaller. As a cautionary note, eligibility requirements for core curriculum were subject to change starting in 2018, and this likely effected eligibility for at least one of the four awards.[33]

Figure 4 presents the counts and percentage of graduating cohort who have applied for TOPS scholarships (processed), were eligible for awards, and received awards over the sample period. There is a large and distinctive jump in the number of processed applications starting exactly in 2018, a smaller increase for eligible recipients, and a smaller change for actual recipients. The difference between the averaged 2014-2017 counts of processed applications, eligible awardees, and recipients from the 2018-2019 post-treatment period was 4,000, 2,000, and 200, respectively, for my smaller sample. The same pattern exists for the percent of processed, eligible and received awards as a function of cohort size.[34]

I have estimated equation (1) with TOPS outcomes - see Table A3 for details. I caution interpreting these results as more than suggestive because it is not clear that the treatment intensity represents a straightforward counterfactual for merit-based scholarship receipt and because these regressions do not hold up to robustness checks. However, all the coefficients are positive indicating that low FAFSA completion rate schools exhibited larger growth in merit award processing, eligibility, and receipt for lower FAFSA rate schools, comparatively.

[32]TOPS requires FAFSA submission unless the student can provide the office with proof that they do not qualify for federal aid.

[33]See further details in Appendix.

[34]The mean jump across schools in my sample from pre- to post-treatment is approximately 10 percentage points, 5 percentage points, and less than 1 percentage point increase in percent of cohort who applied, were eligible and ultimately received an award, respectively.

4.5 Heterogeneity

To understand which students may be most affected by the Louisiana mandate, I implement two strategies. The first splits the main sample based on school characteristics such as free and reduced-price lunch, urban/rural status, and by percentage of black students attending the school. The second uses alternative outcome variables that measure the number of black/white/economically disadvantaged students who enroll in college over their respective cohort sizes (the number of black/white/economically disadvantaged freshman three years prior, adjusted for movements, calculated the same way as discussed in Section 2). However, LDOE first started reporting these statistics in 2016 and additionally suppresses cells they believe may affect student privacy. This contributes to much smaller sample sizes and requires analysis to be implemented for years 2016-2019 instead of 2014-2019 for the individual analysis. The results of both strategies should be interpreted as descriptive evidence as the splitting of the sample and the subgroup outcomes of the second strategy significantly reduce sample sizes and the number of schools contributing to identification.

Table 4 reports the estimates of equation (1) separately by quintile of schools' average pre-treatment percentage of students on free and reduced-price lunch.[35] The output demonstrates that the schools which have the largest increases in students enrolling in college are located in the third and fourth quintile range of free and reduced-price lunch status (where a higher quintile indicates a school with a larger fraction of free and reduced-price lunch students). The first stage results also indicate that there was a larger change in completion rates for the lower-income schools (panel A). Other sample splits, such as differences across geography and racial demographics, indicate that the treatment effects are relatively homogeneous, see Table 5 for more details.

Table 5 also describes the effect for the percentage of each subgroup from a school that enrolls in college in the fall. The mandate's effect is larger for black students and Louisiana's defined economic disadvantage (more encompassing than free and reduced-price lunch) relative to white students, and that economically disadvantaged students have the largest treatment effect of these three groups. However, none are statistically significant at conventional

[35]This is possible given there is imperfect correlation between free and reduced-price lunch status and pre-treatment FAFSA completion rate.

levels. I cannot reject the hypothesis that the effect of the mandate on the percentages of black students versus white students enrolling are the same. I also cannot reject the effect of the mandate on the percentages of economically disadvantaged students versus white students are the same.

Overall, there is suggestive evidence this policy may have been more impactful for lower income students. However, there isn't strong evidence that this policy had significant effects across racial groups.

5 Additional Robustness Checks

Table A4 reports the outcomes of high school graduation and college enrollment with additional controls: the pre-sample period shares of average ACT composite scores and average school-level percentage of students who identify as black, white, Asian, and Hispanic each interacted with period fixed effects. The details surrounding this test are provided in the Appendix. They do not meaningfully change the reduced form treatment effect on college enrollment, and the results remain statistically significant at the 5 percent level. This stands in contrast to the effect of differential controls on high school graduation rates. Prior to the inclusion of additional variables, there is evidence that low FAFSA completion schools have higher graduation rates than high FAFSA completion schools. When the additional controls are added, this effect essentially dissipates. A plausible interpretation is that high school graduation rates were increasing more among subgroups that are overrepresented in low FAFSA completion rate schools. Then the inclusion of characteristics that allow for this heterogeneity wipes out the effect of the mandate on high school graduation rates. However, given that the additional controls do *not* seem to affect the college enrollment outcomes despite being significantly taxing on the data, the differential trends do not appear to be a substantial threat to identification of college enrollment. This exercise further suggests there were no negative effects of the mandate on high school graduation rates overall.

In Table A5, I demonstrate the main results are robust to group specific linear trends. I also explore sensitivity to the choice of treatment intensity variable. Across all the specifications the main estimated treatment effect is stable - see Table A6. Additionally, I run a

placebo test where I randomly reshuffle treatment intensity across schools and rerun equation (1) for 1,000 repetitions. Figure A7 plots the density of these estimated parameters, and Table A7 presents the summary statistics from this Monte Carlo exercise. The vast majority of the estimated parameters are effectively zero, implying the possibility of finding such a large effect is not likely due to random chance. Finally, I check the sensitivity of changes in types of diplomas Louisiana offers due to an update in students' career path opportunities. I obtained estimates of career and university diploma paths from 2015-19. In Table A8, I show that the relative proportion of students electing to graduate with a career or university diploma maintains a relatively stable proportion, suggesting this didn't significantly alter students' vocational paths.

6 Discussion

6.1 Mechanisms

It is clear from the descriptive and causal analysis that the Louisiana mandate significantly increased the FAFSA filing rates among its students. Across my sample, FAFSA completion rates increased an average of 19 percentage points (or about a 36 percent increase) from pre- to post-treatment periods. The estimates imply an increase of approximately 1-2 percentage points more seniors enrolled on-time in college, and the effects are suggestive of larger treatment effects for mid- to lower-income students.

The results from Louisiana's mandate identify several potential mechanisms that encourage matriculation and build on previous research. Specifically, this mandate is consistent with lowering the likelihood of missing deadlines, reducing inattention, increasing support from school administrators such as counselors, informing students of eligible financial aid, and lessening the stigma of financial aid application.

Practically, there are several tasks seniors must complete prior to enrolling in college on-time in the following fall semester, and it has been documented that college-intending students, especially those lacking access to familial support, miss important deadlines for submitting paperwork (Castleman et al., 2014; French and Oreopoulos, 2017).[36] Students

[36]When college-intending seniors have filed applications and been accepted to college and still fail to enroll

may miss these deadlines either because they lack knowledge about them or because they struggle to focus their attention on completing tasks needed to matriculate.

An important aspect of this mandate is that it reduces inattention for students. There are varying levels of intensity by which interventions can influence students' attention on a task such as college application. Given that I found no evidence of a reduction in high school graduation rates, this mandate forced students to complete a first step towards college enrollment or officially opt out of applying for financial aid. This removed the possibility of inaction and forced them to focus on at least one step of the college application process.[37] By comparison, lighter touch interventions or nudges simply reminding students of application tasks like filing the FAFSA, may not be salient enough to invoke change in FAFSA completion behavior. The lower first stage completions of FAFSAs in the global, upscaled text message nudging campaign in Bird et al. (2021) suggest that students may be ignoring reminders to take action on important application steps.[38] The Louisiana mandate additionally focused attention on other aspects of the college application process. For example, the FAFSA requires indication of at least one (intending) college.[39] As such, just completing the FAFSA requires the student to think of *where* they might attend. Furthermore, interventions that require interaction between students and a tax professional, mentor, guidance counselor, or teacher found increases in applications and college enrollment more in line with this mandate (Bettinger et al., 2012; Carrell and Sacerdote, 2017; Oreopoulos and Ford, 2019; Avery et al., 2020).[40] Intuitively, pushing students into action might be more successful than simply

on-time, this has been coined "summer melt". See Castleman et al. (2012, 2014, 2015); Castleman and Page (2015); Page and Gehlbach (2017) for more information on experiments specifically targeting summer melt.

[37]Thanks to an anonymous reviewer for this framing.

[38]Some earlier studies found text messaging to invoke changes in FAFSA completion behavior, but at a large-scale these seem to not be successful when received from non-local sources (Bird et al., 2021; Avery et al., 2020).

[39]`https://studentaid.gov/apply-for-aid/fafsa/filling-out`

[40]In contrast to other mechanisms similar to inattention such as procrastination, Carrell and Sacerdote (2017) found that students' self-reported organizational skills and procrastination levels were not associated with the treatment effects on college enrollment, and that students gained particularly from guided, personal support (a mentor in this case).The Carrell and Sacerdote (2017) targeted treatment intervention involved reduced fees, help with college essays and applications, FAFSA support, and mentorship from college students.

nudging them.

Despite being implemented statewide, counselors at the Louisiana high schools were primarily responsible for the FAFSA mandate, and the trust students had in them likely played a role in the success of the program. This mandate created an additional reason for counselors to connect directly with students to create real plans for college. Supporting research finds that 1) nudges are more successful when they are received from a source with whom the student may already be familiar, 2) scaling up experiments may be more successful if aggregated from several local organizations - as in this policy where local schools implemented the FAFSA mandate across the state, and 3) counselors have a causal effect on college enrollment and on the type of institution to which students matriculate (Avery et al., 2020; Bird et al., 2021; Mulhern, 2020).[41]

Of course, another straightforward mechanism of mandated FAFSA applications is through increasing students' knowledge of the amount of financial aid for which they are eligible. This channel may be stronger in Louisiana than it would be in other contexts given their TOPS merit-aid program, but it is not clear that this is a particularly cogent mechanism. The FAFSA does not directly give students a financial aid estimate (it does indicate if they are eligible for Pell grants) as eligible aid is conditional on the cost of attendance of the college to which they matriculate. Individual colleges can provide a student with an exact estimate based on the FAFSA information they receive.[42] The extent to which students receive this information depends on taking an additional step to apply to college. Moreover, several papers have also found that information alone does not necessarily induce large changes in enrollment behavior, and even the delivery of information may matter (Bettinger et al., 2012; Bergman et al., 2019; Hyman, 2020; Dynarski et al., 2021; Avery et al., 2020). In one recent exception, Dynarski et al. (2021) discovered that sending high-achieving, low-income students information on their eligibility for financial aid has the potential to affect college enrollment (overall) and particularly at more selective colleges. While their targeted treatment consisted of information only, the financial aid for which students were eligible was

[41] Also see literature on summer melt - Castleman et al. (2012, 2014, 2015); Castleman and Page (2015); Page and Gehlbach (2017) - for the effect of counseling during the summer months.

[42] `https://studentaid.gov/apply-for-aid/fafsa/review-and-correct` and `https://studentaid.gov/complete-aid-process/comparing-aid-offers`

substantial. Previous studies have additionally shown that even small costs can be strong barriers, and many successful college application interventions including fee waivers proved to be an important part of uptake (Oreopoulos and Ford, 2019).

Finally, social influences may also affect enrollment outcomes (French and Oreopoulos, 2017). The mandate removed the stigma of applying for financial aid and receiving help throughout the application process.[43] Reframing the conversation around financial aid application may have helped students identify more with their future aspirations than with the identity surrounding their socioeconomic status (Avery and Hoxby, 2003; Dynarski et al., 2021). Furthermore, it's possible that students felt their schools or counselors/administrators were more invested in their post-graduation outcomes.

The mechanisms outlined thus far highlight the important role of institutions in guiding students through the application process especially for those who may not have support through other channels such as parents (Carrell and Sacerdote, 2017; Castleman and Page, 2015). Effectively, school systems can remove the possibility of inaction by helping students create concrete plans for college. Furthermore, they can reduce stigma and increase access to information on financial aid to additionally support marginal students in their progress towards on-time college enrollment.

6.2 Cost Effectiveness and External Validity

It is natural to ask, given the scale of the program and its untargeted approach, whether this mandate paid off in Louisiana and how it would extend to other contexts.

Following Carrell and Sacerdote (2017), I calculate an approximate cost per additional college enrollee. As a special request, an employee at the Louisiana Office of Student Financial Assistance reported that the annual direct costs of implementing this mandate include $125,000 in salaries and event expenses. Indirect costs include funds utilized by individual schools from their GEAR UP grant which offers financial assistance to schools to help students go to college, and extra time spent by staff to help answer questions and inform students of their requirements. I did not receive an estimate that approximates these indirect

[43] Parishes in LA made FAFSA completion rates into a friendly competition: Compete to Complete `https://competetocompletela.org/`

costs. In an attempt to address indirect costs of support staff, I assume that all support staff and administrators spent 1 percent of their time on FAFSA-related activities, likely an overestimate. Under the 1 percent assumption for time spent, the total indirect salaries is $1.6 million. Added to the $125,000 in direct salaries and program cost totals $1.8 million. Divided by a total of 38,937 seniors in my dataset, this equates to a cost per senior of $45.[44] Taking this amount per senior divided by an overall increase in college enrollment of 1 percentage point gives ($45/.01 =) $4,500 per additional enrollee.[45] By comparison, Carrell and Sacerdote (2017) reported a cost of $2,400 for their intervention activity which included mentoring from a Dartmouth college student, paying for college AP/ACT fees, a $100 cash bonus, and starting the FAFSA for the high school student. The intervention in Bettinger et al. (2012) cost $1,100 per additional student enrolled as cited by Carrell and Sacerdote (2017).

Of course, there are also added costs to the federal financial aid system, any private debt taken on by the student, and, possibly the additional funds from the Louisiana merit aid program. Whether the additional funding is considered worthwhile depends in part on the persistence of students, or whether the program pushed students who would persist to degree into on-time enrollment. While I cannot calculate whether these estimates paid off in the sense of increasing degree receipt, there are reasons to suspect that students will not immediately drop out. First, I find no descriptive evidence that persistence rates changed after the mandate. Second, previous studies, such as Bettinger et al. (2012), Castleman et al. (2014), and Avery et al. (2020), found persistent effects of similar interventions on continued college enrollment.

If I assume only one additional year of schooling for marginal students, I still find that benefits of increased schooling likely exceed both the cost of the program and the additional strain on the financial aid system, which the students are entitled to regardless of degree receipt. Taking a conservative estimate of a constant $2,450 average earnings premium of some college over just high school graduation for the remainder of a student's working career

[44] Another cost includes students' disutility of completing the FAFSA, which is difficult to estimate and is excluded from this calculation.

[45] See Section 4 for calculation across LA. I take a conservative estimate.

(45 years: $\sum_{t=0}^{44}(.97)^t * 2450$), the lifetime discounted earnings minus the cost per enrollee of the FAFSA program at $4,500 would still generate a net gain of $56,000 (Bettinger and Evans, 2019). Thus, the costs for one year of financial aid or debt incurred by the student would have to be less $56,000 for the program to be worthwhile. There are many reasons to suppose that this estimate is conservative. In fact, College Board calculates that individuals with some college and no degree earn approximately $100,000 more in lifetime earnings net the cost of attendance and forgone income during college (Ma et al., 2019).

The FAFSA mandate as implemented in Louisiana had a smaller effect on college enrollment than some previous experiments, but is consistent with lower enrollment effects associated with having an untargeted approach, comparatively (Bettinger et al., 2012; Page et al., 2018; Castleman et al., 2012).[46] For example, the Bettinger et al. (2012) main treatment arm – which provided families/students with important personalized estimates of expected financial aid based on local colleges' cost of attendance and the family's income and also was targeted towards low-income families - had a 50 percent treatment on the treated (TOT) effect. The IV estimates from this study suggest a 100 percentage point increase in FAFSA completions resulting in approximately 33 percentage point higher college enrollment rates.[47] To the extent that there are heterogeneous treatment effects, of which I find suggestive evidence, this would likely place downward pressure on the treatment effect, comparatively, between this policy and more targeted previous experiments.[48] On the other hand, a mandate has the potential to help students and schools who would be unreached under a targeted approach and requiring all students to participate reduces negative stigma attached to financial aid applications.

The context in Louisiana was particularly well suited for detecting positive college en-

[46]For a comparison of the estimates across similar studies see Table A9.

[47]A few more recent studies have TOT effects more in line with this study here, and have more involved interventions. Both Carrell and Sacerdote (2017) and Oreopoulos and Ford (2019) find comparable TOT effects of around 13 percent (IV estimates) and 36 percent (=5ppt enrollment/15ppt increase in applications), respectively.

[48]Recall that students who comply with the mandate include individuals for whom we might expect FAFSAs to help in their college application process and those who may 1) already know they're not eligible for aid but still are college-intending or 2) know they will under no circumstances be attending college.

rollment effects resulting from the mandate which may imply smaller enrollment effects if a similar requirement were to be implemented in other states. The attention surrounding both the mandate and updates to graduation diplomas[49] during this time may be particularly unique to Louisiana. To the extent that counselors' support is a strong mechanism, these policies could have ultimately created joint positive effects by creating an opportunity for greater alignment among high school courses and college requirements and greater facetime with counselors. As discussed in Section 1, Louisiana relative to other states had fairly low college enrollment rates. This implies that the mandate may have affected more students than it would in other states that have higher college enrollment rates. Furthermore, while Louisiana's state aid is merit-based, it is financially generous, covering a large portion of tuition. Students are particularly sensitive to costs, and the extent other states have less generous aid packages available may again reduce enrollment effects in their states (Dynarski et al., 2021; Oreopoulos and Ford, 2019).[50]

7 Conclusion

Louisiana implemented a policy that required FAFSA applications as part of high school graduation requirements beginning in the 2017-18 school year. I find that this mandate significantly increased the FAFSA filing rates among its students. Across my sample, FAFSA completion rates increased an average of 19 percentage points (or about a 36 percent increase) from pre- to post-treatment periods. The estimates imply the mandate caused approximately 1-2 percentage points more students to enroll on-time in college, and the results suggest larger treatment effects for mid- to lower-income students. Furthermore, descrip-

[49]LDOE updated their career diploma requirements and removed an intermediary, basic diploma. There were no changes for the most common diploma type - university diploma. These diploma changes were in full effect by the 2017-18 school year.

[50]LDOE requires all students to take the ACT. If another state were to implement this, but did not require standardized college admissions exams, they may see more tempered results as standardized exams are often part of the application package. Or it may actually have downward biased results since mandatory standardized exams have the potential to push marginal college goers to enroll, capturing potential would-be marginal FAFSA enrollees (Hyman, 2017).

tive evidence implies the number of processed applications for merit-based state financial aid increased by approximately half the increase in FAFSA completions from pre- to post-treatment periods. Finally, there is no evidence that high school graduation rates suffered because of this additional requirement.

Though it is not clear that a FAFSA requirement alone would be as successful in other states as it was in Louisiana, the results presented here align with previous research which found assisting students with important college paperwork and applications are worthwhile investments for public schools with the goal of maximizing their students' on-time college enrollment. The results indicate it is imperative to remove inaction, reduce stigma, and to provide tangible support systems to students for college applications. Additionally, integrating more of the college application process into the high school curriculum provides opportunity for collaboration between secondary school systems and higher education.

In future work, it is important to study other states who have recently implemented similar FAFSA mandates on high school seniors.[51] More work is also needed to assess how these mandates influence college persistence and aid receipt, and whether there are long-run gains from implementing financial aid application requirements.

[51] Texas and Illinois are two recent examples and several other states are considering this legislation (Smalley, 2019).

References

Andrews, R. J., DesJardins, S., and Ranchhod, V. (2010). The effects of the kalamazoo promise on college choice. *Economics of Education Review*, 29(5):722–737.

Avery, C., Castleman, B. L., Hurwitz, M., Long, B. T., and Page, L. C. (2020). Digital messaging to improve college enrollment and success. Technical report, National Bureau of Economic Research.

Avery, C. and Hoxby, C. M. (2003). Do and should financial aid packages affect students' college choices? Technical report, National Bureau of Economic Research.

Belley, P. and Lochner, L. (2007). The changing role of family income and ability in determining educational achievement. *Journal of Human capital*, 1(1):37–89.

Bergman, P., Denning, J. T., and Manoli, D. (2017). Broken tax breaks? evidence from a tax credit information experiment with 1,000,000 students. Technical report, IZA Discussion Paper.

Bergman, P., Denning, J. T., and Manoli, D. (2019). Is information enough? the effect of information about education tax benefits on student outcomes. *Journal of Policy Analysis and Management*, 38(3):706–731.

Bertrand, M., Duflo, E., and Mullainathan, S. (2004). How much should we trust differences-in-differences estimates? *The Quarterly journal of economics*, 119(1):249–275.

Bettinger, E. P. and Evans, B. J. (2019). College guidance for all: A randomized experiment in pre-college advising. *Journal of Policy Analysis and Management*, 38(3):579–599.

Bettinger, E. P., Long, B. T., Oreopoulos, P., and Sanbonmatsu, L. (2012). The role of application assistance and information in college decisions: Results from the h&r block fafsa experiment. *The Quarterly Journal of Economics*, 127(3):1205–1242.

Bird, K. A., Castleman, B. L., Denning, J. T., Goodman, J., Lamberton, C., and Rosinger, K. O. (2021). Nudging at scale: Experimental evidence from fafsa completion campaigns. *Journal of Economic Behavior & Organization*, 183:105–128.

Cameron, A. C. and Miller, D. L. (2015). A practitioner's guide to cluster-robust inference. *Journal of Human Resources*, 50(2):317–372.

Carrell, S. and Sacerdote, B. (2017). Why do college-going interventions work? *American Economic Journal: Applied Economics*, 9(3):124–51.

Castleman, B. L., Arnold, K., and Wartman, K. L. (2012). Stemming the tide of summer melt: An experimental study of the effects of post-high school summer intervention on low-income students' college enrollment. *Journal of Research on Educational Effectiveness*, 5(1):1–17.

Castleman, B. L., Owen, L., and Page, L. C. (2015). Stay late or start early? experimental evidence on the benefits of college matriculation support from high schools versus colleges. *Economics of Education Review*, 47:168–179.

Castleman, B. L. and Page, L. C. (2014). A trickle or a torrent? understanding the extent of summer "melt" among college-intending high school graduates. *Social Science Quarterly*, 95(1):202–220.

Castleman, B. L. and Page, L. C. (2015). Summer nudging: Can personalized text messages and peer mentor outreach increase college going among low-income high school graduates? *Journal of Economic Behavior & Organization*, 115:144–160.

Castleman, B. L. and Page, L. C. (2016). Freshman year financial aid nudges: An experiment to increase fafsa renewal and college persistence. *Journal of Human Resources*, 51(2):389–415.

Castleman, B. L., Page, L. C., and Schooley, K. (2014). The forgotten summer: Does the offer of college counseling after high school mitigate summer melt among college-intending, low-income high school graduates? *Journal of Policy Analysis and Management*, 33(2):320–344.

Cornwell, C., Mustard, D. B., and Sridhar, D. J. (2006). The enrollment effects of merit-based financial aid: Evidence from georgia's hope program. *Journal of Labor Economics*, 24(4):761–786.

Dynarski, S. (2000). Hope for whom? financial aid for the middle class and its impact on college attendance. Technical report, National bureau of economic research.

Dynarski, S., Libassi, C., Michelmore, K., and Owen, S. (2021). Closing the gap: The effect of reducing complexity and uncertainty in college pricing on the choices of low-income students. *American Economic Review*, 111(6):1721–56.

Dynarski, S. M. (2003). Does aid matter? measuring the effect of student aid on college attendance and completion. *American Economic Review*, 93(1):279–288.

Dynarski, S. M. and Scott-Clayton, J. E. (2006). The cost of complexity in federal student aid: Lessons from optimal tax theory and behavioral economics. Technical report, National Bureau of Economic Research.

Dynarski, S. M. and Scott-Clayton, J. E. (2008). 4 complexity and targeting in federal student aid: A quantitative analysis. *Tax policy and the economy*, 22(1):109–150.

Emmanuel Felton (2019). How Louisiana's TOPS program lets state's richest students go to school, while poor students are often left out. `https://thelensnola.org/2019/10/30/how-louisianas-tops-program-lets-states-richest-students-go-to-school-while-poor-stud`

Federal Student Aid (2015–2020). Data Center. `https://studentaid.gov/data-center` (accessed August 2020).

French, R. and Oreopoulos, P. (2017). Behavioral barriers transitioning to college. *Labour Economics*, 47:48–63.

Hoxby, C., Turner, S., et al. (2013). Expanding college opportunities for high-achieving, low income students. *Stanford Institute for Economic Policy Research Discussion Paper*, 12:014.

Hoxby, C. M. and Avery, C. (2012). The missing" one-offs": The hidden supply of high-achieving, low income students. Technical report, National Bureau of Economic Research.

Hyman, J. (2017). Act for all: The effect of mandatory college entrance exams on postsecondary attainment and choice. *Education Finance and Policy*, 12(3):281–311.

Hyman, J. (2020). Can light-touch college-going interventions make a difference? evidence from a statewide experiment in michigan. *Journal of Policy Analysis and Management*, 39(1):159–190.

Kaufman, J. H., Cannon, J. S., Culbertson, S., Hannan, M., Hamilton, L. S., and Meyers, S. (2018). *Raising the Bar*. RAND Corporation.

Louisiana Board of Regents (2019). TOPS Report: Analysis of the TOPS Program from 2009-2018. https://regents.la.gov/wp-content/uploads/2019/11/2019-TOPS-Report-October.pdf.

Louisiana Department of Education (2014–2020a). Data Center. https://www.louisianabelieves.com/resources/library/data-center (accessed August 2020).

Louisiana Department of Education (2019a). Financial Aid Calendar of Events. http://www.louisianabelieves.com/docs/default-source/course-choice/financial-aid-calendar-of-events.pdf?sfvrsn=2.

Louisiana Department of Education (2019b). Financial Aid Funding My Future. https://www.louisianabelieves.com/courses/financialaid.

Louisiana Department of Education (2020b). FAFSA Data Frequently Asked Questions. https://www.louisianabelieves.com/docs/default-source/course-choice/fafsa-faqs.pdf?sfvrsn=2.

Louisiana Office of Student Financial Assistance (LOSFA) (2019). 2018-2019 Tops Questions and Answers. Technical report, Louisiana Board of Regents.

Lovenheim, M. F. and Reynolds, C. L. (2013). The effect of housing wealth on college choice: Evidence from the housing boom. *Journal of Human Resources*, 48(1):1–35.

Ma, J., Pender, M., Hurwitz, M., and Welch, M. (2019). Education pays 2019. Technical report, College Board.

March, S. (2016). No fafsa, no diploma for louisiana students. *Shreveport Times*, Available at https://www.shreveporttimes.com/story/news/2016/01/13/fafsa-requirements-changing-louisiana/78686226/, Jan. 15, 2016.

Mattana, E. (2018). Literature review on financial aid to university students. *Baggrundsnotat, De Økonomiske Råds Sekretariat*.

McPherson, M. S. and Schapiro, M. O. (1991). Does student aid affect college enrollment? new evidence on a persistent controversy. *The American Economic Review*, 81(1):309–318.

Mulhern, C. (2020). Beyond teachers: Estimating individual guidance counselors' effects on educational attainment. Technical report, Working Paper.

Nielsen, H. S., Sørensen, T., and Taber, C. (2010). Estimating the effect of student aid on college enrollment: Evidence from a government grant policy reform. *American Economic Journal: Economic Policy*, 2(2):185–215.

Office of Federal Student Financial Aid (2019). FAFSA® Completion by High School and Public School District. https://studentaid.ed.gov/sa/about/data-center/student/application-volume/fafsa-completion-high-school.

Oreopoulos, P. and Ford, R. (2019). Keeping college options open: A field experiment to help all high school seniors through the college application process. *Journal of Policy Analysis and Management*, 38(2):426–454.

Page, L. C., Castleman, B., and Meyer, K. (2018). Customized nudging to improve fafsa completion and income verification. *Available at SSRN 2854345*.

Page, L. C. and Gehlbach, H. (2017). How an artificially intelligent virtual assistant helps students navigate the road to college. *AERA Open*, 3(4):2332858417749220.

Page, L. C. and Scott-Clayton, J. (2016). Improving college access in the united states: Barriers and policy responses. *Economics of Education Review*, 51:4–22.

Roderick, M., Nagaoka, J., Coca, V., and Moeller, E. (2008). *From High School to the Future: Potholes on the Road to College. Research Report.* ERIC.

Smalley, A. (2019). States Looking at Ways to Promote FAFSA Completion. https://www.ncsl.org/blog/2019/12/10/states-looking-at-ways-to-promote-fafsa-completion.aspx.

8 Tables

Table 1: Descriptive Statistics: Mean and Standard Deviations by FAFSA Completion Rate Quartile Rankings

Pre-treatment FAFSA Quartile:	Lowest		Second		Third		Highest	
HS Grads	115	(87)	140	(109)	156	(117)	141	(136)
Number of HS Grads Enrolled in College in Fall	55	(44)	73	(63)	93	(77)	98	(102)
Student Count in School (all grades)	680	(380)	776	(459)	830	(499)	774	(545)
9th Grade Cohort	163	(129)	192	(150)	213	(163)	177	(172)
Teacher Salary	50,525	(4,024)	50,369	(4,052)	50,810	(3,523)	52,345	(3,809)
Current per Pupil Expenditures	11,356	(2,122)	10,723	(1,754)	10,585	(1,876)	11,006	(2,102)
Composite ACT (out of 36)	17.54	(1.36)	18.64	(1.22)	19.35	(1.52)	21.26	(2.14)
Graduation Rate	76.96	(12.15)	80.80	(10.20)	83.78	(8.48)	88.00	(7.59)
Percent College Enrolled (9th Grade Cohort)	36.99	(10.36)	42.37	(9.70)	50.09	(9.29)	61.23	(12.23)
Percentage College Enrolled (HS Grad)	47.66	(8.96)	52.09	(8.36)	59.63	(8.46)	69.25	(10.45)
Percentage of Enrolled Attending 2 Year*	41.88	(13.42)	36.73	(13.61)	31.24	(11.28)	22.05	(11.71)
Percentage of Enrolled Attending 4 Year*	58.10	(13.46)	63.26	(13.62)	68.75	(11.29)	77.95	(11.72)
Percentage of Enrolled Attending In State*	90.08	(7.32)	92.32	(6.52)	91.74	(5.41)	88.99	(7.23)
Percentage White	33.30	(26.87)	50.41	(22.65)	51.94	(28.22)	59.00	(24.21)
Percentage Black	55.31	(27.44)	39.48	(22.27)	41.13	(28.76)	33.04	(24.05)
Percentage Hispanic	7.05	(9.53)	6.45	(8.79)	3.86	(4.07)	3.79	(3.18)
Percentage Asian	1.41	(1.96)	1.38	(1.84)	1.34	(1.75)	2.54	(3.44)
Percentage Free/Reduced Lunch	64.94	(15.11)	55.79	(14.24)	51.66	(18.52)	40.87	(17.28)
FAFSA Completion Rate (June of graduating year)	55.02	(14.08)	58.68	(11.66)	63.44	(10.07)	71.96	(10.67)
Observations	390		390		390		384	

Note: These means (standard deviations in parentheses) are weighted by the average of the 2014-2017 total number of students in a school divided by the number of grades taught (high school graduates, number of high school graduates, student count, and 9th grade cohort are all unweighted so as to reflect cross school averages). Sources include Louisiana Department of Education, NCES Common Core Data, and Office of Student Financial Aid. Averages are based on 2014-2019 except for teacher salary and current expenditures per pupil which are calculated over (2014-18) and FAFSA completion rate (2015-19). FAFSA completion rate represents completions by June of high school graduating year. The schools in each column are partitioned into quartiles based on their average FAFSA completion rate in 2015-2016. * - Percent of those enrolled in college as a function of high school graduates who attend either a 2 year university, 4 year university or attended in Louisiana state.

Table 2: Estimates of the Effect of Mandatory FAFSA Completion on Completion Rates and College Enrollment

	FAFSA Completion Rate		%Enrolled in College		%Enroll 2-Year Inst.	%Enroll 4-Year Inst.
	(1)	(2)	(3)	(4)	(5)	(6)
(1-Ave Comp Rate)*Post	0.385	0.421	0.070	0.133	0.070	0.063
	(0.059)	(0.059)	(0.037)	(0.033)	(0.022)	(0.031)
Controls	no	yes	no	yes	yes	yes
Observations	1294	1294	1554	1554	1554	1554
R2	0.799	0.816	0.886	0.909	0.697	0.937
Mean (Outcome)	0.625	0.625	0.480	0.480	0.147	0.333

Note: Coefficients are estimates of β from equation (1) and outcome variable is listed in the columns. Columns 1 and 2 correspond to the first stage- the effect of the mandate on FAFSA completion rate for schools. Columns 3 and 4 are the percent of the cohort enrolled in college in the fall, or the reduced form effect on college enrollment. Columns 5 and 6 are the percent of cohort enrolled in 2-year and 4-year institutions of higher education, respectively. Standard errors are in parenthesis, clustered at the school level. Source - LDOE and Office of Student Financial Aid.

Table 3: IV Estimates using the FAFSA Mandate as an Instrument

	%Enrolled in College (of HS Grad)	%Enrolled in College (of 9th Grade Cohort)
	(1)	(2)
Panel A - OLS		
FAFSA Completion Rate	0.207	0.180
	(0.028)	(0.026)
Controls	yes	yes
Panel B - IV		
FAFSA Completion Rate	0.232	0.334
	(0.077)	(0.074)
Controls	yes	yes
Observations	1294	1294
Mean (Outcome)	0.571	0.481

Note: Coefficients for the IV estimates based on δ from equation (4). Standard errors are in parenthesis, clustered at the school level. The data comprise years 2015-2019. Source - LDOE and Office of Student Financial Aid.

Table 4: Estimates of the Effect of Mandatory FAFSA Completion on College Enrollment by Free and Reduced-Price Lunch Status

Quintiles of FRL:	Lowest	Second	Third	Fourth	Highest
Panel A - Completion Rate					
(1-Ave Comp Rate)*Post	0.186	0.011	0.506	0.318	0.529
	(0.121)	(0.123)	(0.135)	(0.199)	(0.130)
Observations	260	260	260	260	254
R2	0.866	0.831	0.835	0.788	0.784
Mean (Outcome)	0.677	0.618	0.598	0.586	0.604
Panel B - % Enrolled					
(1-Ave Comp Rate)*Post	0.072	0.017	0.221	0.174	-0.027
	(0.067)	(0.064)	(0.089)	(0.115)	(0.109)
Observations	312	312	312	312	306
R2	0.903	0.828	0.866	0.802	0.752
Mean (Outcome)	0.607	0.483	0.429	0.385	0.383

Notes: Each column corresponds to a quintile ranking for a school, and equation (1) estimates β for each quinitle separately. Standard errors are in parenthesis, clustered at the school level. Source - LDOE, Office of Student Financial Aid, NCES Common Core data for free and reduced price lunch students - see Appendix for data details.

Table 5: Estimates of the Effect of Mandatory FAFSA Completion on College Enrollment by Rural/Urban and Racial Demographics

	Geography		School % Black Rel. to Median		% Enrolled by Student Characteristics		
	Rural	Urban	Below	Above	Black	Econ Dis	White
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1-Ave CR)*Post	0.132	0.134	0.135	0.116	0.078	0.082	0.056
	(0.053)	(0.044)	(0.047)	(0.044)	(0.068)	(0.051)	(0.057)
Observations	1050	504	780	774	734	918	809
R2	0.825	0.948	0.872	0.909	0.867	0.844	0.922
Mean (Outcome)	0.472	0.486	0.533	0.435	0.447	0.391	0.518

Note: Coefficients are estimated from equation (1). The first four columns are estimated from split samples based on *school* characteristics. Below median uses schools that had a below median average percent black students in the pre-treatment period. Above median uses schools that had above median average percent black students in the pre-treatment period. Urban/Rural is estimated separately based on NCES classification of geography. Columns 5 - 7 are the percent of black, economically disadvantaged, and white students of their cohort who enroll in college in the fall across all schools. Sample sizes are smaller due to data compression from LDOE. Standard errors are in parenthesis, clustered at the school level.

9 Figures

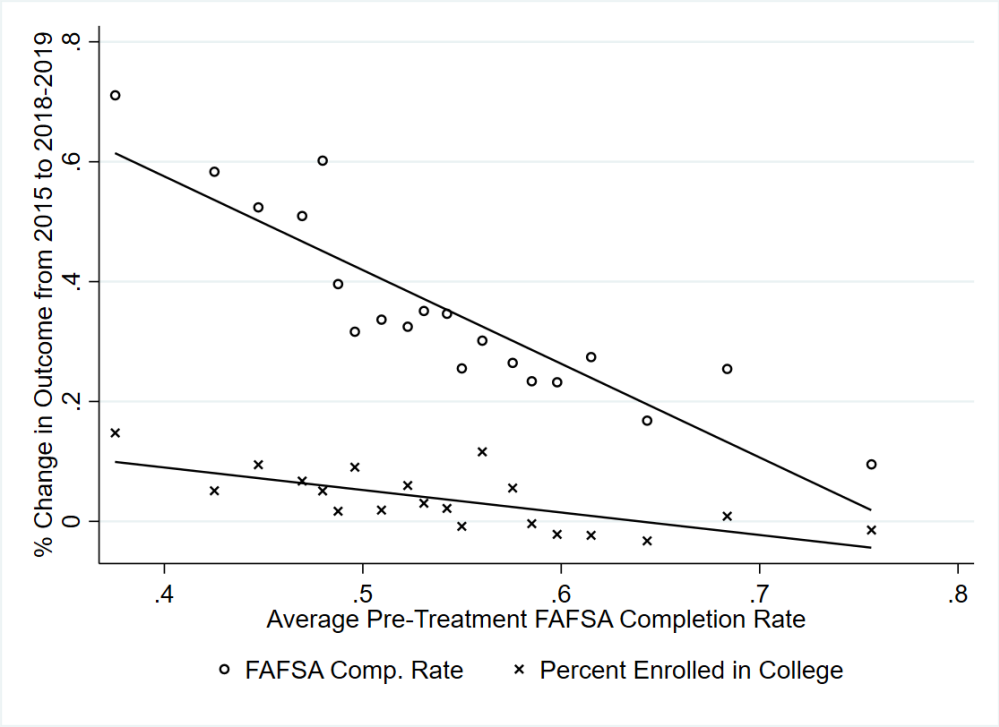


Figure 1: Percentage Change in FAFSA Completion Rates and Percent Enrolled in College from 2015 to 2018-2019 by Pre-treatment FAFSA Completion Rate Status

Note: Data come from both the Office of Student Financial Aid and LDOE. The y-axis represents the percentage change in FAFSA completion rate or college enrollment rates per cohort from 2015 to the average of 2018 and 2019 (For FAFSA completion rate: $\frac{(\text{Average Completion Rate 2018}-2019)-\text{Completion Rate 2015}}{\text{Completion Rate 2015}}$). A value of .4 is equivalent to .4*100 = 40% increase in completion rate/percent enrolled from 2015 to average of 2018-2019. Each point is a weighted average of the schools which fall in 20 equally spaced bins (determined by average completion rates in 2015 and 2016). Scatter plots are available in the Appendix, Figure A2 and A3. For the percent change in enrollment over the percent change in FAFSA completion, see Figure A4.

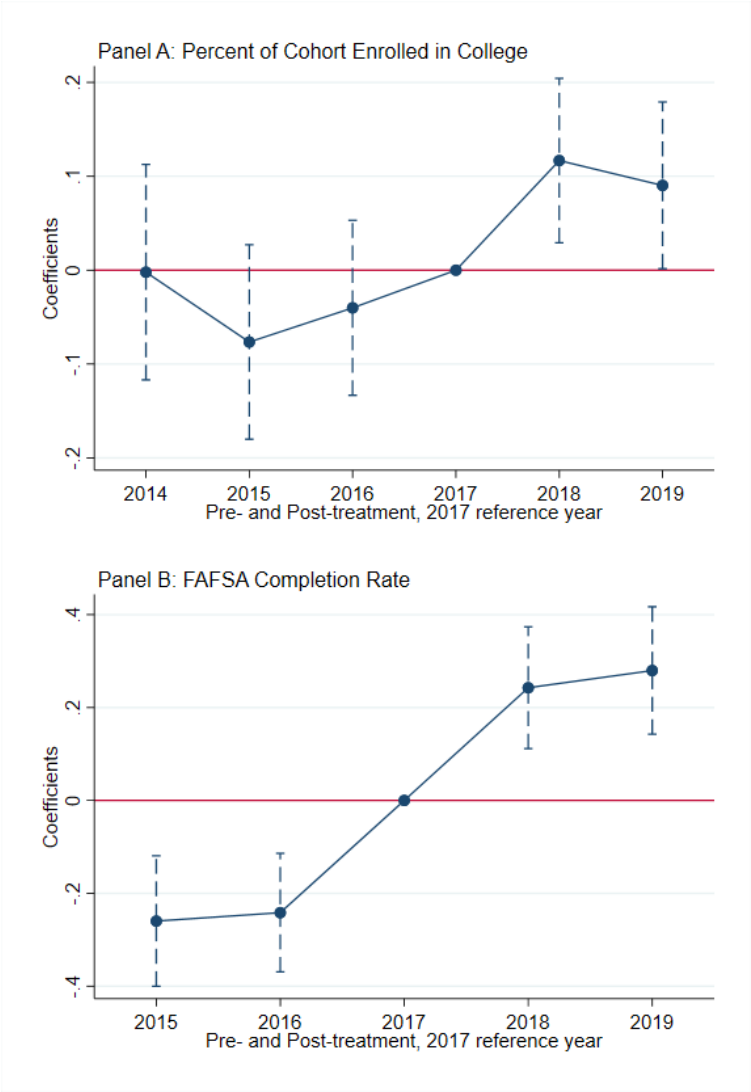


Figure 2: Event Study

Note: These represent β_y from equation (2). All of the coefficients are relative to 2017, and outcome for Panel A is percent of cohort enrolled while the outcome for Panel B is FAFSA completion rate. Point estimates are displayed along with their 95% confidence intervals as described in equation (2). The baseline (omitted) base period is 1 year prior to the adoption of the mandate. These equations were estimated using weights described in the text. Data come from both the Office of Student Financial Aid and LDOE. The pre-treatment coefficients for the FAFSA completion rate outcome are negative relative to 2017. This is due to the partial roll out of the program in the 2016-17 school year, and would likely downward bias the estimates on college enrollment subject to the fact that 2017 is considered a pre-treatment year. The coefficient for year 2013-14 on FAFSA completion rates is not included as Office of Student Financial Aid did not report data prior to the aid application 2015-16 cycle.

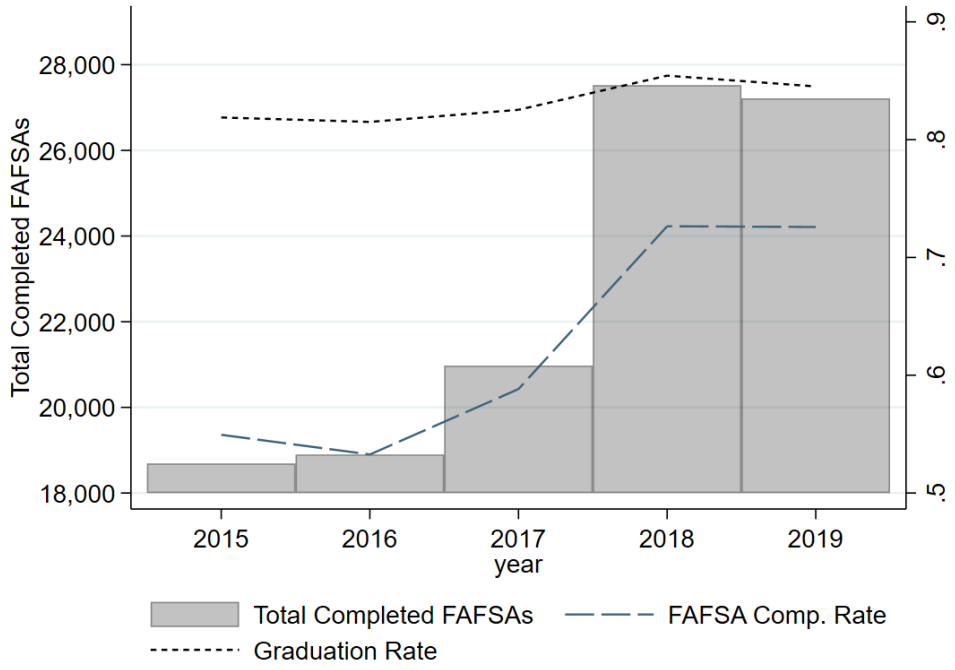
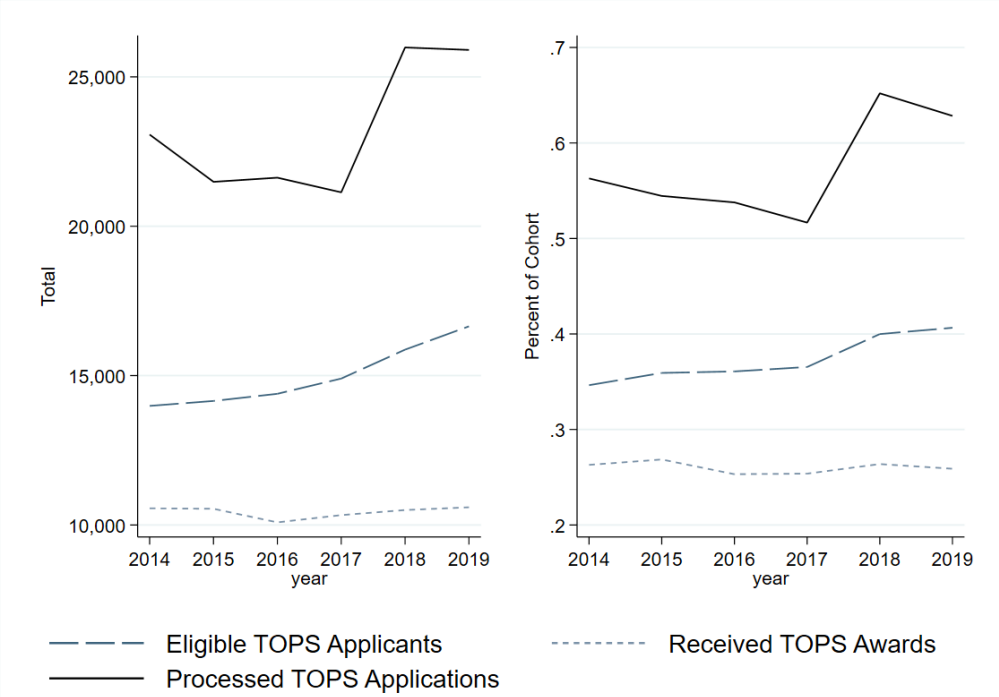


Figure 3: Total FAFSAs Completed, FAFSA Completion Rate, and High School Graduation Rates

Note: Total completions are total FAFSA completions as of June of the students' graduating year for the schools in my sample. Completion rate and graduation rate are the weighted average of these schools. Data come from both the Office of Student Financial Aid and LDOE.

Figure 4: TOPS Program



Note: Total includes counts of the number of TOPS applications processed, total number TOPS applications that meet eligibility requirements, and the total number of TOPS recipients. Percent of cohort comprise the total for each category divided by the cohort from three years prior (freshman cohort for each school). Percent of cohort are weighted averages across schools. These data come from Louisiana Office of Student Financial Assistance. The TOPS program is *merit*-based financial aid.