EXPLORING THE CHANGE IN INSTITUTIONAL CHARACTERISTICS, FINANCIAL AID, AND STUDENT DEMOGRAPHICS WITH THE IMPLEMENTATION OF THE CSS PROFILE

Kailey Nicole Kraft

A THESIS

Presented to the Faculty of Miami University in partial fulfillment of the requirements for the degree of

Master of Arts in Economics

Department of Economics

The Graduate School
Miami University
Oxford, OH

2024

Dr. Riley Acton, Advisor
Dr. Jim Flynn, Reader
Dr. Peter Nencka, Reader

Abstract

The College Scholarship Search (CSS) Profile is a supplementary financial aid profile created by the College Board to provide more robust financial aid information to colleges about applicants. While there is an expansive literature on the FAFSA and other state and institution-level financial aid, no work exists that looks at how the CSS Profile can change student outcomes and financial aid decisions. This paper aims to fill this gap by measuring how colleges implementing the CSS Profile as a determination of financial aid affects student demographics, institutional characteristics, and financial aid outcomes. I use an event-study and difference-in-difference model in order to measure these effects, utilizing data from the Integrated Postsecondary Education Data System and the College Board. I find suggestive evidence that net price, tuition rates, and the number of applicants increased when colleges implemented the CSS Profile, but most demographic and other financial aid characteristics remain the same. This study establishes that the CSS Profile may be used to better price discriminate, and may entice students to apply to a specific college in hopes of receiving financial aid.

Contents

1 Introduction **1**

2 Background **1**

3 Data Sources **4**

4 Descriptive Statistics **4**

5 Methodology **5**

6 Results **6**

7 Conclusion **8**

8 Tables and Figures **12**

List of Tables

1 Public vs Private Summary Statistics for CSS Adopters 13
2 List of CSS Adopters 14
3 Summary Statistics for CSS Adopters and Others 15
4 Description of Regions in Data Set 16
5 DID Institutional Characteristics 17
6 DID Student Characteristics 18
7 DID Financial Aid 19
8 DID Socioeconomic Diversity 20
9 DID Revenue and Expenditures 21

List of Figures

1 CSS Adoption Years 22
2 Number of Applicants Event Study 23
3 Mean SAT Scores of Accepted Students Event Study 24
4 Acceptance Rate Event Study 25
5 Racial Composition of Freshman Class Event Study 26
6 Tuition Price Event Study 27
7 Net Price Event Study 28
8 Net Price Across Income Quintiles Event Study 29
9 Composition of Students Receiving Aid vs Not Receiving Aid 30
10 Percent of Students Receiving the Pell Grant 31
11 Expenditures and Revenue per Pupil 32

1 Introduction

With the popularity of attending college increasing, financial aid policy has become more important than ever before both nationally and internationally (Dynarski *et al.*, 2022). Financial aid is administered in numerous ways in the United States, from federal loans and grants, such as subsidized and unsubsidized loans and the Pell Grant, as well as institutional and state-specific policies. As financial aid becomes a more instrumental part of college decisions- both among individuals as well as institutions- the question of how colleges determine how to award aid has become even more pressing.

This paper seeks to measure the impact of how implementing the College Scholarship Service (CSS) profile into financial aid decisions impacts student outcomes, demographics, and enrollment as well as net price and financial aid decisions. In this paper, I test to see how these outcomes of interest change once the CSS Profile is implemented at a specific institution using an event study framework as well as a simple difference-in-difference model. I also add in selectivity and regional fixed effects to further capture how institutions could vary based on different factors. I contribute to a robust literature surrounding financial aid and price discrimination in higher education by studying the CSS Profile, which has not been extensively studied before.

2 Background

In order to receive federal financial aid, students must complete the Free Application for Federal Student Aid (FAFSA), that determines financial aid administered at both a federal and institutional level. The FAFSA is utilized to calculate a student's Estimated Family Contribution (EFC), a measurement of what the U.S. Department of Education determines a family can feasibly pay out of pocket for college. EFC is calculated from many factors, but primarily takes into account family income, family size, and whether or not a student is "independent"of their parents. Once this EFC is calculated, a student's estimated need is calculated by subtracting the EFC from the cost of attendance of a particular institution. Upon this calculation, students are offered various financial aid sources such as grants, loans, and scholarships at a national, state, or institutional level. Filling out the FAFSA in a timely manner is strongly encouraged, as some types of aid are given on a first-come, first-serve basis (Anderson, 2020). The FAFSA form can create accessibility issues, as it requires students to fill out forms relating to family income and assets, as opposed to being automatically enrolled in financial aid. Additionally, the FAFSA works under the assumption that a student is financially dependent on their family, and that there will be familial contributions to a student's tuition. A student's status as dependent vs independent can lead to large changes in financial aid (Denning, 2019), with research finding that a change from dependent to independent status leads to an increase in aid as well as a high likelihood of graduation for college seniors.

With the requirement to "opt-in" to financial aid through filling out FAFSA forms, attempts have been made to encourage more students to fill out the FAFSA. Some states have moved to requiring FAFSA completion to graduate, which increases FAFSA filing, and ultimately enrollment (Deneault, 2023). The H&R FAFSA experiment, where low income

families had assistance completing financial aid forms, found that assistance led to higher rates of FAFSA filing, college attendance, and college persistence (Bettinger *et al.*, 2012). Other strategies, such as text message reminders have also been studied, but their efficacy has been less apparent (Castleman *et al.*, 2017).

Along with federal aid, students also depend on financial aid through their state and individual institutions. Unlike federal aid, that is relatively standard nationally, there is a large variation in how aid is determined and disbursed on both a state and institutional level. While 75 percent of state aid has a need-based component to it, less than half of state aid is based predominately on need, and instead has more merit-based criteria to satisfy (Dynarski *et al.*, 2022). Merit-based criteria varies by states, and is typically based on GPA, standardized test scores, and class rank. Past literature has found that these programs can have varied effects on students. While merit-based aid can have positive effects on students, when used as an alternative to affirmative action policy or scholarships aimed toward minority students, their benefits can be more ambiguous. In Texas, the move from affirmative action policies to the Top 10% Plan in Texas led to a fall in freshman retention and six-year graduation amongst minority students (Cortes, 2010). In Massachusetts, it was found that when high-achieving students were given tuition waivers to in-state public colleges with lower graduation rates than available alternative colleges, college completion rates lowered (Cohodes & Goodman, 2014). In Georgia, its HOPE merit-based scholarship has had more positive impacts, as it led to a 5.9% increase in freshmen enrollment, as well as an increase in black enrollment (Cornwell *et al.*, 2006).

Along with merit-based financial aid, individual colleges can also disburse institutional financial aid through grants and scholarship programs. Specific programs targeted towards low-income students that utilized price transparency, such as the HAIL program at the University of Michigan were found to increase application rates, admission rates, and enrollment rates (Burland & Shwetha, 2018). Pricing progressivity aimed to make flagship universities more accessible to low and middle income students has also been studied, and it was found that tuition increases moved at a faster rate than net prices for low and middle income students, suggesting that price progressivity and price discrimination can help students with less economic resources (Cook & Turner, 2022). While there can be benefits to institutions having higher "sticker prices,-5 as it allows them to generate more revenue from high-income students, which can offset the cost of low-income students, concern has risen over how financial aid forms could lead to price discrimination, as financial aid offices can more accurately predict how much a student can afford to pay for tuition. Recent work also has studied how colleges used information collected on FAFSA in determining financial aid using structural model, finding that restricting institutions from seeing family income and other reported assets from FAFSA tends to benefit higher income and middle class students and disadvantage low income students. Additionally, it was found that colleges successfully capture an average of 70 % of the total match surplus through price discrimination, indicating that price discrimination in prevalent in the financial aid offices across the country. Using a structural model, researchers were able to find that restricting income tends to benefit higher income and middle class students and disadvantage low income students. With colleges being able to capture 70% of total match surplus, it was found that the remaining 30% was passed on to students (Fillmore, 2023).

Concerns over price discrimination are especially relevant in recent years, as colleges can

more accurately measure willingness to pay by requiring the completion of the CSS Profile, as there are more questions than the FAFSA that could better pinpoint the value of a student's assets. Past research has found students would be charged lower prices if FAFSA information was restricted, which drives the question of if the same effects would be seen with the requirement of the CSS Profile (Fillmore, 2023). Past research has argued that financial aid offered by colleges is effectively used as price discrimination, so any form that could more accurately pinpoint a student's financial need could theoretically lead them to receive more or less aid than they would have previously (Lawson & Zerkle, 2006; Wolla, 2014).

The College Scholarship Service (CSS) Profile is a supplementary financial aid form that colleges can choose to require in the financial aid process. While the College Board does not provide an exact date of when the CSS Profile was first introduced, archives of the College Board website indicates that it was first used in the 1999-2000 application cycle (The College Board, 1999). As of the 2024-2025 cycle, over 300 colleges allow for submission of the CSS Profile. Typically required by private colleges with a high cost of attendance, the CSS profile asks more detailed questions than the FAFSA form, with colleges having the ability to add specific questions to the form for their institution. While the FAFSA can have administrative burdens, the CSS is vastly more detailed and complicated, with students needing to have copies of their parents' W-2 forms, other records of current year income, and records of untaxed income and benefits, assets, and bank statements. Along with the more detailed questions and forms needed, the CSS profile also has an initial 25 dollar submission fee, with submission to additional schools costing 16 dollars each, creating additional financial burdens for families already paying for expensive college applications. A fee waiver is available for students with family incomes under 100,000 dollars, students that qualify for SAT waivers, and students that are orphans or wards of the state. While this fee waiver can mitigate the financial burden for some students, many are left paying these fees, and those that do use the fee waiver must deal with the administrative burden of filling out additional forms (Rosinger *et al.*, 2021; Blume, 2017). While past research has looked at how the FAFSA form impacts students, little work has been done to look at the effects of the CSS profile. This paper aims to analyze student outcomes, institutional characteristics, and financial aid changes when the CSS profile is implemented. Since the CSS profile provides more extensive information on financial aid, students may be encouraged to apply to these institutions in hopes of receiving aid, which could impact acceptance rates and admissions metrics. On the other hand, there is potential that some students would be dissuaded from applying due to the increased administrative burden. Additionally, financial aid distribution could potentially change, either positively or negatively. There is potential for colleges to raise net prices as they could have means to better price discriminate, or net prices could fall if colleges offer more generous financial aid to some students due to having more information on their financial background. Lastly, it is important to consider how the CSS profile could impact diversity amongst students, as it could increase or decrease access to college. Using difference-in-difference and event study models, I find suggestive evidence that the number of applicants, net price, and tuition costs increased after the CSS Profile was adopted.

3 Data Sources

This paper connects information on educational institutions who implemented the CSS profile to data from the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS) in order to study changes in enrollment and financial aspects of an institution once the CSS profile is required using IPEDS data. IPEDS contains rich information on institutional applications, admission criteria, student demographics, and financial aid. This data is at an institutional and yearly level, allowing for analysis across time for each institution. Along with this data, I use data collected from College Board resources to construct my panel.

Each year, the College Board releases a student guide to completing the CSS profile with information on how to complete the form deadlines, and a list of participating institutions and a corresponding CSS code. For my analysis, I produced a dataset that includes the name of the institution, state, years that the institution was listed as requiring the CSS profile, a dummy variable indicating that the CSS profile was required at a specific institution in a specific year, and the first year the CSS profile was required for an institution. I then merged this data to the IPEDS panel using institution name, state, and year, with the final result being a panel of data at a year and institution level. Lastly all colleges that did not require the CSS profile during this time period were assigned a 0 for the CSS dummy variable in order to conduct a difference-in-differences analysis.

My panel of data has been restricted to four-year, degree-granting, nonprofit institutions that had data available for every year between 2008-2019. The time frame has been restricted from 2011-2019 as the list of institutions requiring the CSS profile is could only be recovered online after the 2010-2011 school year. Additionally, this data provides a time frame before the COVID-19 pandemic, which removes problems that could arise due to increased financial volatility.

I also restrict the sample to only include private colleges, as public colleges make up less than 3 percent of institutions that require the CSS profile in our sample, and have varying institutional factors such as enrollment, grant size, acceptance rate, and tuition costs (See Table 1).

4 Descriptive Statistics

I restrict my sample to four-year colleges that have non-missing data for every year from 2010 to 2019. I also drop non-accredited colleges, colleges outside of the 50 U.S. states, and colleges with a 100% acceptance rate. Of the 1,592 institutions in the sample, 217 require the CSS Profile during our time period, with 38 of those adopting the CSS Profile during our time period (See Table 2). I also create a histogram to analyze the timing of when schools adopted the CSS Profile. As seen in Figure 1, there is large number of schools adopting towards the beginning of our sample, especially in 2012 and 2013.

Institutional Characteristics

Table 3 provides descriptive statistics on institutional characteristics at the beginning of our sample period, separated by institutions that never required the CSS profile, adopted the

CSS profile sometime before our sample period started (called Always Required for convenience), and adopted the CSS profile during our sample period. Most notably is the share of private institutions, as institutions that always had the CSS are primarily private (over 97 percent), compared to those that adopt and those that never adopt the CSS profile. Institutions always requiring the CSS profile tend to be more selective with higher average SAT scores and lower acceptance rates. Underrepresented minority enrollment is also lower for institutions that always required the CSS profile.

Financial Aid Characteristics
Table 3 also provides descriptive statistics on financial aid, with further breakdowns based on income quintiles as defined by the NCES, with quintile 1 having family income of under $30,000, quintile 2 having family income between $30,001 and $48,000, quintile 3 having family income between $48,001 and $75,000, quintile 4 having family income between $75,001 and $110,000, and quintile 5 having family income of $110,001. Institutions that report always requiring or adopting the CSS Profile have significantly higher tuition rates than those who never require the CSS Profile. The percentage of students receiving Pell Grants is significantly lower for those that adopt or always require the CSS Profile at 28 and 22 percent respectively compared to 46 percent at institutions that do not require the CSS profile.

5 Methodology

To estimate how institutions' outcomes—such as enrollment, finances, racial composition—change as a result change as a result of colleges requiring the CSS profile as a financial aid form, I estimate the event study equations of the following form:

$$Y_{it} = \sum_{k=-7}^{10} \beta_k [t - t*_i = k] + \theta_i + \delta_t + u_{it} \tag{1}$$

where Y_{it} is an outcome of interest for institution i in year t and $t*_i$ is the year in which institution i starts requiring the CSS profile as a measure of financial aid. θ_i is an institution-level fixed effect that captures time-invariant differences across institutions. δ_t is a year-level fixed effect that captures any differences across years that are constant from school to school. u_{it} is an idiosyncratic error term.

The relative time indicators, $[t - t*_i = k]$, are equal to 1 when an observation is k = -7,..., 10 years away from the year in which an institution requires the CSS profile for the first time and zero for all institutions who never require the CSS profile. I omit any colleges that adopted the CSS profile before our sample period. The omitted year, k = -1, corresponds to the year before the CSS profile is adopted, therefore k = 0 indicates the first year that a college requires the CSS profile. The β_k terms indicate the trend of an outcome of interest for institutions that eventually adopt the CSS profile, before and after the year of adoption. This framework holds when parallel trends are present, which will be evident if there are flat pre-trends, meaning that if a college did not implement the CSS Profile, it would continue on the same path as colleges that did not implement the CSS Profile for a given outcome variable. I also make the assumption that there are no correlated shocks or policies occurring

the same time as CSS Profile implementation by using regional and time fixed effects.

To account for potential different trends across regions, I add in a year-by-region fixed effect utilizing the regional classifications in the IPEDS dataset, as displayed in Table 4. I estimate the event study equations of the following form:

$$Y_{itr} = \sum_{k=-7}^{10} \beta_k[t - t*_i = k] + \theta_i + \delta_t + \gamma_r + \delta_t * \gamma_r + u_{it} \tag{2}$$

where γ_r is a region-level fixed effect and all other variables are defined as in equation (1).

To account for potential differences across schools with different levels of selectivity, I add in a year-by-selectivity fixed effect by sorting the colleges into deciles of selectivity with a baseline year of 2010. Past research has found that some colleges have become increasingly selective in the past 50 years, leading to a widening of the selectivity distribution. It has also been found that more selective colleges can provide for more opportunities for human capital investment (Hoxby, 2009, 2016). I estimate the event study equations of the following form:

$$Y_{its} = \sum_{k=-7}^{10} \beta_k[t - t*_i = k] + \theta_i + \delta_t + \zeta_s + \delta_t * \zeta_s + \delta_t * \gamma_r + u_{it} \tag{3}$$

whereζ_s is a selectivity decile fixed effect and all other variables are defined as in equation (1).

To summarize these event study results, I also utilize a two-way fixed effects specification in the following form:

$$Y_{it} = \beta CSS_{it} + \theta_i + \delta_t + \mu_{it} \tag{4}$$

where Y_{it} is an outcome of interest for institution i in year t, the β coefficient captures how the outcome of interest changes after the CSS profile is required, θ_i captures institutional fixed effects, δ_t captures year fixed effects, and u_{it} is an idiosyncratic error term. The identifying assumptions for this model are the same as our event study models.

6 Results

The outcomes of interest of this study can be broadly defined by three categories: institutional characteristics, student outcomes and demographics, and financial aid outcomes.

Institutional Characteristics

I first test to see how the number of applicants and acceptance rates change with the implementation of the CSS profile. It is unclear which way we expect these variables to move, as the addition of another financial aid form (and ultimately a higher administrative burden) could dissuade students from applying to a particular institution, leading to a drop in the number of applicants and a potential increase in acceptance rates. However, applications could rise if students believe that the CSS profile will lead to them getting more generous financial aid. Figure 2 measures the raw number of applicants across three different specifications. Looking at Figure 2, we can see that there is suggestive evidence that the number

of applicants increases when the CSS profile is implemented, indicating that students may have been motivated to apply to these colleges in hopes of receiving a more robust financial aid package. We also see that the measurements and confidence intervals for all three estimates are very similar, indicating that our year-by-region and year-by-selectivity fixed effects are not drastically altering the results. This will be the case for most of our measurements, indicating that there are not underlying trends between institutions regionally or selectivity-wise. SAT scores do increase slightly, which could indicate that there is suggestive the new applicants could have higher test scores (see Figure 3).While the number of applicants and mean SAT scores rise, we do not see evidence that acceptance rates change, as shown in Figure 4 indicating that colleges do not become more selective when they adopt the CSS. While the event study shows suggestive evidence of number of applicants rising, the difference-in-difference model does not have any statistically significant results (see Table 5). It is also important to note that there are pre-trends for our event studies, which could be driving the null results for the difference-in-difference model.

Student Demographics

From an equity perspective, colleges may be more inclined to adopt the CSS Profile if there is evidence that it leads to an increase in diversity, both racially and socioeconomically, amongst its students. If the CSS Profile is able to offer better targeted financial aid, we may anticipate an increase of lower income students as well as students from underrepresented groups. I test to see how the percentage of different racial groups changed after the implementation of the CSS profile. Looking at Figure 5, there is suggestive evidence that the percent of Black and Asian-American students increased among schools that implemented the CSS Profile. There is also weak suggestive evidence that the number of Hispanic and Latinx students decreased, which can also be seen by the difference-in-difference study in Table 6, however it is difficult to measure how much of this is driven by the CSS profile as there is some evidence of a pre-trend.

Financial Aid Outcomes

The primary concern from those with reservations about the CSS profile is that it could allow for colleges to better financially discriminate with a more robust financial aid profile. I first test the change in tuition rates after CSS implementation and find suggestive evidence that listed tuition rates, also known as the "sticker price-5, increase after colleges adopt the CSS profile, as seen in Figure 6. This can also be seen in the difference-in-difference model, as tuition increases by roughly $1244 after the CSS Profile is implemented (See Table 7). Further evidence of prices increasing can be seen when looking at average net price, which is the cost of attendance for students after all financial aid such as scholarships, grants, and loans. Figure 7 show that there is suggestive evidence that net price increases after colleges implement the CSS profile. With increases in net price and tuition, I test to see if these changes disproportionately affect different income quintiles, but find no evidence that a specific group is absorbing all of these changes (see Figure 8).

While the net cost students receiving financial aid pay remains relatively unchanged, there is potential that the number of students receiving financial aid could change, impacting the socioeconomic diversity of institutions. I test the percentage of students receiving aid by quintile as well as the percentage of students not receiving financial aid. Figure 9 illustrates

that there is relatively no change in the composition of students receiving financial aid. There is some suggestive evidence that the percentage of students not receiving aid increases slightly in the 3 years after the CSS Profile is implemented, but these results are a bit ambiguous as the percentage falls in the 5th post year. This can further be seen in Table 8, where most of the changes in percentages are insignificant and those that are have very small coefficients. I also test to see if the percentage of students receiving the Pell grant changes, and there is no evidence that there is a change (see Figure 10).

I also test to see how expenditures and revenues per pupil are impacted. If the CSS Profile were able to better price discriminate, we may expect revenue from tuition and other student fees such as room and board, which are referred to as auxiliary fees to increase. While this could have negative connotations, it could be beneficial if the revenue was used to enrich student experience, which would be seen in increases in teaching expenditures and other student services. The difference-in-difference model shows that revenue stays relatively the same and expenditures rise slightly (See Table 9). Figure 11 indicates that there is suggestive evidence expenditures rise while revenue stays the same when the CSS Profile is implemented. However, we cannot determine if this rise in expenditures is due to the implementation of the CSS Profile, or if it is due to other factors such as increasing cost of housing students, maintaining buildings, or other reasons.

Overall, these results indicate that the CSS Profile does not have a large impact on the socioeconomic diversity of colleges, nor does it effectively price discriminate to a large extent.

Power Analysis

One factor that could be driving the pretends seen in these results would be the power of my studies. Since there are only 38 adopters during the time frame I study, the heterogeneity of these institutions could lead to larger confidence intervals. Since the confidence intervals appear to be relatively the same when adding in the regional and selectivity interactions, there could simply be a layer of heterogeneity amongst the adoption institutions. Since institutions conduct institutional financial aid dispersion and admissions independently, these results could indicate that different institutions are using the CSS Profile to adjust their admissions or financial aid process in different ways. One way to mitigate this power issue would be to use a longer time frame. If the time frame was able to span from the time the CSS Profile was first implemented to the present, there may be tighter confidence intervals since more institutions would be treated.

7 Conclusion

Between 2011 and 2019, 48 colleges adopted the CSS profile as a part of their financial aid process. In this paper, I find suggestive evidence that tuition rates, net price, and the number of applicants rises when the CSS Profile is implemented.

While the net price students pay increases, it does not seem that the costs are passed on to a specific group of students, and the overall composition of students by socioeconomic is relatively unchanged. Many outcomes are unchanged with this implementation, suggesting that student demographics are not changing with the implementation of the CSS Profile.

Overall, it appears that adopting the CSS Profile does not significantly change the so-

cioeconomic or racial diversity of an institution, but may slightly increase net prices and application numbers. Further work showing how the CSS Profile price discriminates could be done if more robust data was available. Additionally work involving application rates and college decisions could have valuable insights, as there is evidence that students are motivated to apply to colleges with more robust financial aid determination.

References

Anderson, Drew M. 2020. When financial aid is scarce: The challenge of allocating college aid where it is needed most. *Journal of Public Economics*, **190**, 104253.

Bettinger, Eric P, Long, Bridget Terry, Oreopoulos, Philip, & Sanbonmatsu, Lisa. 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.

Blume, Grant H. 2017. On the frontlines of college access: Navigating the administrative burden of applying to public universities.

Burland, Elizabeth, Dynarski Susan Michelmore Katherine Owen Stephanie, & Shwetha, Raghuraman. 2018. The power of certainity: Experimental evidence on the effective design of free tuition programs. *NBER Working Paper*.

Castleman, Benjamin L, Meyer, Katharine E, Sullivan, Zachary, Hartog, William D, & Miller, Scott. 2017. Nudging Students beyond the FAFSA: The Impact of University Outreach on Financial Aid Behaviors and Outcomes. *Journal of Student Financial Aid*, **47**(3), 2.

Cohodes, Sarah R., & Goodman, Joshua S. 2014. Merit Aid, College Quality, and College Completion: Massachusetts' Adams Scholarship as an In-Kind Subsidy. *American Economic Journal: Applied Economics*, **6**(4), 251–85.

Cook, Emily E, & Turner, Sarah. 2022. Progressivity of pricing at US public universities. *Economics of Education Review*, **88**, 102239.

Cornwell, Christopher, Mustard, David B, & Sridhar, Deepa J. 2006. The enrollment effects of merit-based financial aid: Evidence from Georgia's HOPE program. *Journal of Labor Economics*, **24**(4), 761–786.

Cortes, Kalena E. 2010. Do bans on affirmative action hurt minority students? Evidence from the Texas Top 10% Plan. *Economics of Education Review*, **29**(6), 1110–1124.

Deneault, Christa. 2023. College enrollment and mandatory FAFSA APPLICATIONS: Evidence from louisiana. *American Economic Journal: Economic Policy*, **15**(3), 465–494.

Denning, Jeffrey T. 2019. Born under a lucky star: Financial aid, college completion, labor supply, and credit constraints. *Journal of Human Resources*, **54**(3), 760–784.

Dynarski, Susan, Page, Lindsay C, & Scott-Clayton, Judith. 2022. *College costs, financial aid, and student decisions*. Tech. rept. National Bureau of Economic Research.

Fillmore, Ian. 2023. Price discrimination and public policy in the US college market. *The Review of Economic Studies*, **90**(3), 1228–1264.

Hoxby, Caroline M. 2009. The changing selectivity of American colleges. *Journal of Economic perspectives*, **23**(4), 95–118.

Hoxby, Caroline M. 2016. The dramatic economics of the us market for higher education. *NBER Reporter*, 1–6.

Lawson, R, & Zerkle, Ann. 2006. Price discrimination in college tuition: an empirical case study. *Journal of Economics and Finance Education*, **5**(1), 1–7.

Rosinger, Kelly, Meyer, Katharine, Wang, Jialing, *et al.* 2021. Leveraging insights from behavioral science and administrative burden in free college program design: A typology. *Journal of Behavioral Public Administration*, **4**(2).

The College Board. 1999. *College Board Financial Aid Resoruces*. Accessed: March 10, 2024.

Wolla, Scott A. 2014. The Rising cost of college: Tuition, financial aid, and price discrimination. *Page One Economics®*.

8 Tables and Figures

Table 1: Public vs Private Summary Statistics for CSS Adopters

	(1) Public Adopters mean	(2) Private Adopters mean
Public	1.000	0.000
Bachelor's Highest	0.000	0.289
Master's Highest	0.143	0.342
PhD Highest	0.857	0.368
Acceptance Rate	67.28	61.58
Mean SAT	1,186	1,158
Mean ACT	25.67	25.26
Freshman Full Time Enrollment	3598	884
Percent White	0.687	0.646
Percent Black	0.056	0.089
Percent Hispanic / Latinx	0.098	0.084
Percent Asian	0.064	0.044
In State Tuition	7169	28781
Out of State Tuition	23,378	28,781
Percent Pell	0.229	0.289
Percent Institutional Grant	0.423	0.879
Net Price Quintile 1	7,338	18,239
Net Price Quintile 2	10,436	19,992
Net Price Quintile 3	15,062	22,445
Net Price Quintile 4	17,042	25,887
Net Price Quintile 5	17,105	28,529
Undergraduate Full Time Enrollment	16,847	3,933
Graduate Full Time Enrollment	4,047	1,520
Total Full Time Enrollment	20,894	5,453
Average Grant Q1	14,552	24,392
Average Grant Q2	11,454	22,639
Average Grant Q3	6,828	20,187
Average Grant Q4	4,848	16,744
Average Grant Q5	2,386	12,802
Percent Total Aid Q1	0.334	0.209
Percent Total Aid Q2	0.135	0.137
Percent Total Aid Q3	0.141	0.184
Percent Total Aid Q4	0.159	0.193
Percent Total Aid Q5	0.230	0.276
Total Grant Q1	5,708,881	2,726,117
Total Grant Q2	2,106,585	1,653,745
Total Grant Q3	1,220,743	1,899,209
Total Grant Q4	573,277	1,742,307
Total Grant Q5	438,374	2,174,917
N	7	38

This table compares public institutions that adopted the CSS Profile during the time frame of my study to private institutions that adopted the CSS Profile during the time frame of my study.

Table 2: List of CSS Adopters

Institution Name	State	Year Adopted
Birmingham Southern College	AL	2015
University of San Francisco	CA	2015
Westmont College	CA	2015
University of New Haven	CT	2012
Catholic University of America	DC	2013
University of Miami	FL	2013
Stetson University	FL	2013
Agnes Scott College	GA	2015
Berry College	GA	2017
Morehouse College	GA	2013
Lake Forest College	IL	2013
Wheaton College	IL	2012
Bethel College	IN	2012
Grinnell College	IA	2014
Northwestern College	IA	2012
Springfield College	MA	2014
Alma College	MI	2012
Saint Louis University	MO	2013
William Jewell College	MO	2017
New England College	NH	2013
Long Island University	NY	2014
Marist College	NY	2013
New York University	NY	2014
High Point University	NC	2013
Denison University	OH	2017
Ohio Wesleyan University	OH	2012
Albright College	PA	2014
Drexel University	PA	2014
Rosemont College	PA	2013
Baylor University	TX	2013
University of Dallas	TX	2013
Saint Edward's University	TX	2013
Texas Christian University	TX	2012
Trinity University	TX	2014
Beloit College	WI	2013
Lawrence University	WI	2012
Northland College	WI	2012
Saint Andrews College	ID	2018

This table lists the institutions in the sample that begin requiring the CSS Profile some time after our baseline year of 2010.

Table 3: Summary Statistics for CSS Adopters and Others

	(1) Never CSS mean	(2) Always CSS mean	(3) Adopt CSS mean
Bachelor's Highest	0.198	0.315	0.289
Master's Highest	0.490	0.240	0.342
PhD Highest	0.312	0.445	0.368
Acceptance Rate	66.427	49.969	61.586
Mean SAT	1035	1249	1158
Percent White	0.648	0.654	0.646
Percent Black	0.130	0.061	0.089
Percent Hispanic	0.077	0.071	0.084
Percent Asian	0.025	0.063	0.044
Tuition	23,235	35,488	28,781
Percent Pell	0.419	0.219	0.289
Percent Receiving Institutional Grant	0.913	0.727	0.879
Average Net Price	19,967	24,921	24,959
Net Price Q1	16,215	14,491	18,240
Net Price Q2	16,979	15,911	19,993
Net Price Q3	19,433	19,918	22,445
Net Price Q4	21,502	24,776	25,887
Net Price Q5	23,362	33,869	28,530
Undergraduate Full Time Enrollment	2,189	3,449	3,933
Graduate Full Time Enrollment	595	1,250	1,520
Total Enrollment	2,784	4,699	5,453
Percent Receiving Aid Q1	0.265	0.167	0.209
Percent Receiving Aid Q2	0.153	0.122	0.137
Percent Receiving Aid Q3	0.201	0.170	0.184
Percent Receiving Aid Q4	0.189	0.192	0.193
Percent Receiving Aid Q5	0.192	0.348	0.276
Total Grant Q1	1,582,673	2,227,767	2,726,118
Total Grant Q2	920,955	1,604,265	1,653,745
Total Grant Q3	109,134	2,012,354	1,899,209
Total Grant Q4	937,283	1,972,951	1,742,307
Total Grant Q5	929,346	2,444,137	2,174,917
N	551	146	38

This table looks at various characteristics in the starting year in the sample for institutions that never adopted the CSS Profile, adopted the CSS Profile before 2010, and adopted the CSS Profile after 2010

Table 4: Description of Regions in Data Set

Region	Frequency	Percent
New England: CT, ME, MA, NH, RI, and VT	3	7.89
Mid East: DE, DC, MD, NJ, NY, and PA	7	18.42
Great Lakes: IL, IN, MI, OH, and WI	9	23.68
Plains: IA, KS, MN, MO, NE, ND, and SD	4	10.53
Southeast: AL, AR, FL, GA, KY, LA, MS,	7	18.42
Southwest: AZ, NM, OK, and TX,	5	13.16
Rocky Mountains: CO, ID, MT, UT, and WY	1	2.63
Far West: AK, CA, HI, NV, OR, and WA	2	5.26

This table shows the regional composition of CSS adopters in the sample. While the sample is distributed across the country, the majority of colleges are concentrated in the Mid East, Great Lakes, and Southeast regions

Table 5: DID Institutional Characteristics

	Has CSS
(1) Log Number Applied	0.026
	(0.038)
(2) Acceptance Rate	-1.168
	(1.237)
(3)Number of Applicants	772.3
	(637.2)
N	5889

This table shows results from a simple difference-in-difference model. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 6: DID Student Characteristics

	Has CSS
(1) Percent White	-0.001
	(0.009)
(2) Percent Black	0.007
	(0.005)
(3) Percent Asian	0.003*
	(0.002)
(4) Percent Multiracial	-0.002
	(0.002)
(5) Percent Pell	0.006
	(0.005)
(6) Percent Hispanic/Latino	-0.006**
	(0.003)
N	5889

This table shows results from a simple difference-in-difference model. *** p $<$ 0.01, ** p$<$ 0.05, * p$<$ 0.10.

Table 7: DID Financial Aid

	Has CSS
(1)Tuition	1244**
	(517.1)
(3) Net Price	380.5
	(293.2)
(4) Net Price Quintile 1	-126.8
	(334.9)
(5) Net Price Quintile 2	-593.9*
	(340.1)
(6)Net Price Quintile 3	-289.4
	(313.1)
(7) Net Price Quintile 4	-263.4
	(303.1)
(8) Net Price Quintile 5	-66.5
	(381.7)
(9) Net Price No Aid	-2052
	(2675.612)
N	4707

This table shows results from a simple difference-in-difference model. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 8: DID Socioeconomic Diversity

	Has CSS
(1) Percentage Quintile 1	0.008*
	(0.004)
(2) Percentage Quintile 2	-0.001
	(0.002)
(3) Percentage Quintile 3	-0.001
	(0.003)
(4) Percentage Quintile 4	-0.006***
	(0.002)
(5) Percentage Quintile 5	-0.007
	(0.006)
(6) Percentage No Aid	0.008
	(0.007)
N	4706

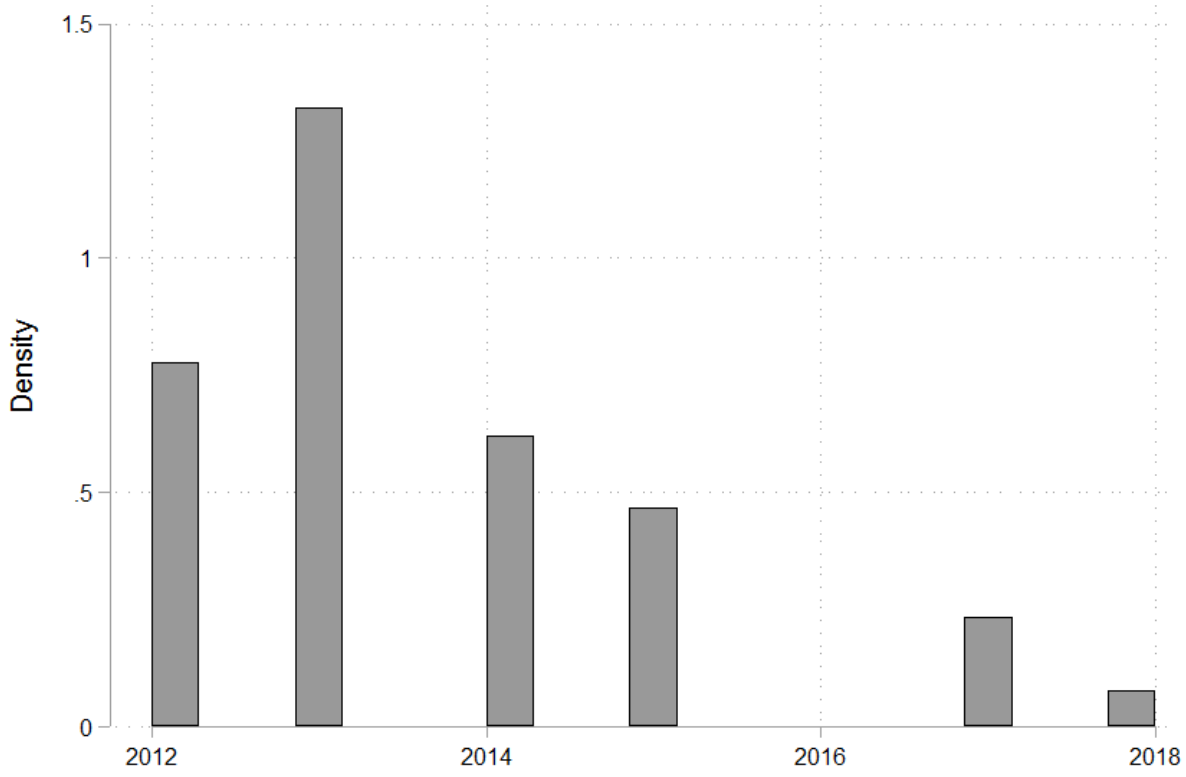
This table shows results from a simple difference-in-difference model. *** p $<$ 0.01, ** p$<$ 0.05, * p$<$ 0.10.

Table 9: DID Revenue and Expenditures

	Has CSS
(1) Revenue from Tuition and Fees	268.971
	(190.674)
(2) Revenue from Auxiliary Expenses	138.760
	(116.060)
(3) Total Revenue	-1396.698
	(2069.105)
(4) Expenditures on Teaching	115.704
	(116.192)
(5) Expenditures on Academic Support	104.966
	(70.329)
(6) Expenditures on Student Services	54.500
	(72.387)
(7) Expenditures on Institutional Support	119.663
	(114.054)
(8) Total Expenditures	1078.363**
	(524.857)
N	4681

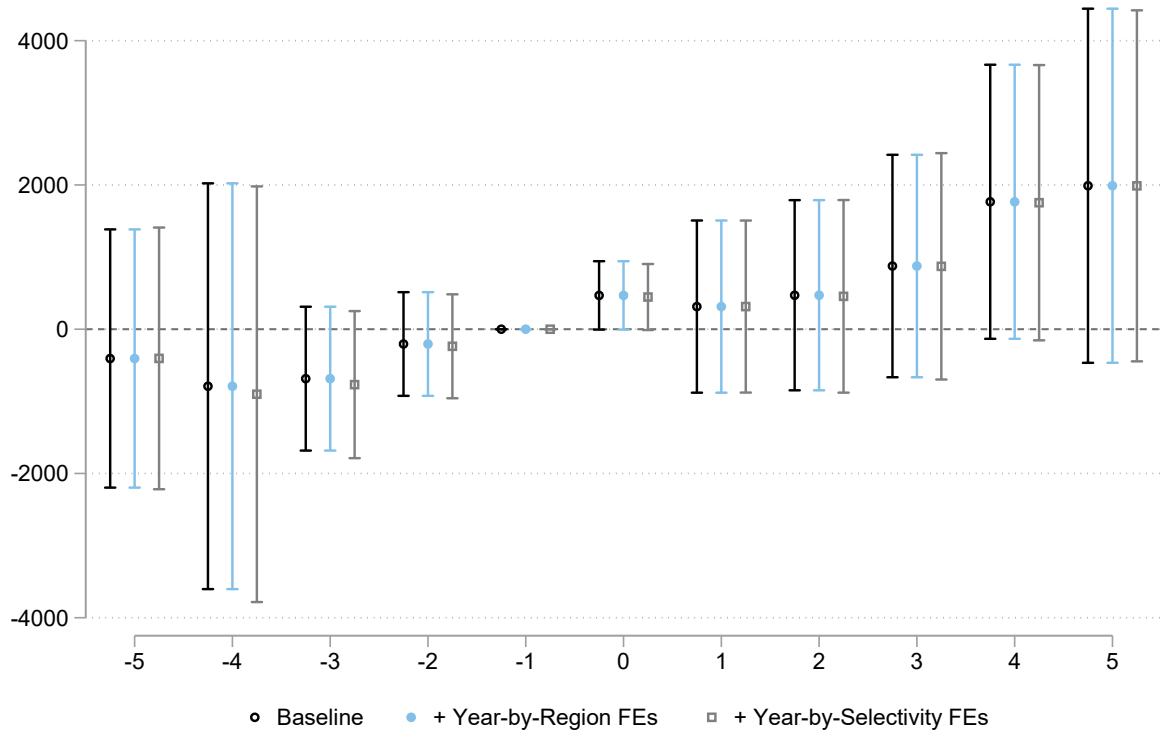
This table shows results from a simple difference-in-difference model. *** p < 0.01, ** p< 0.05, * p< 0.10.

Figure 1: CSS Adoption Years



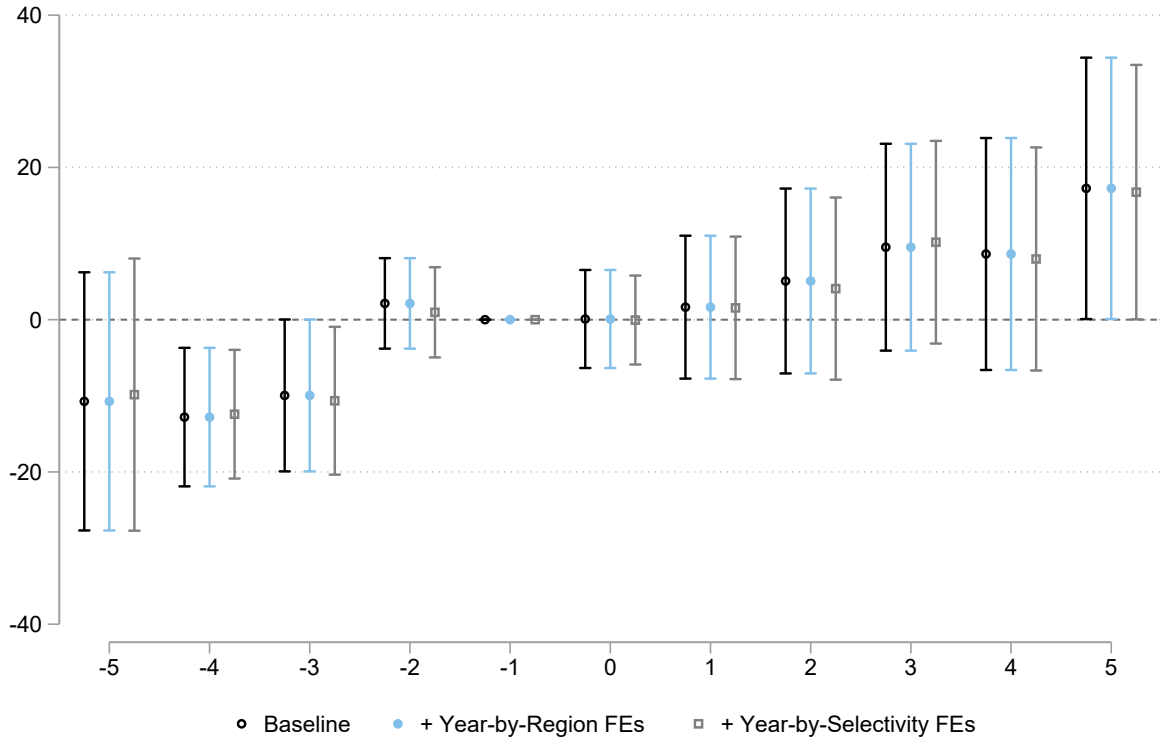
This histogram shows a distribution of which years institutions adopted the CSS Profile.

Figure 2: Number of Applicants Event Study



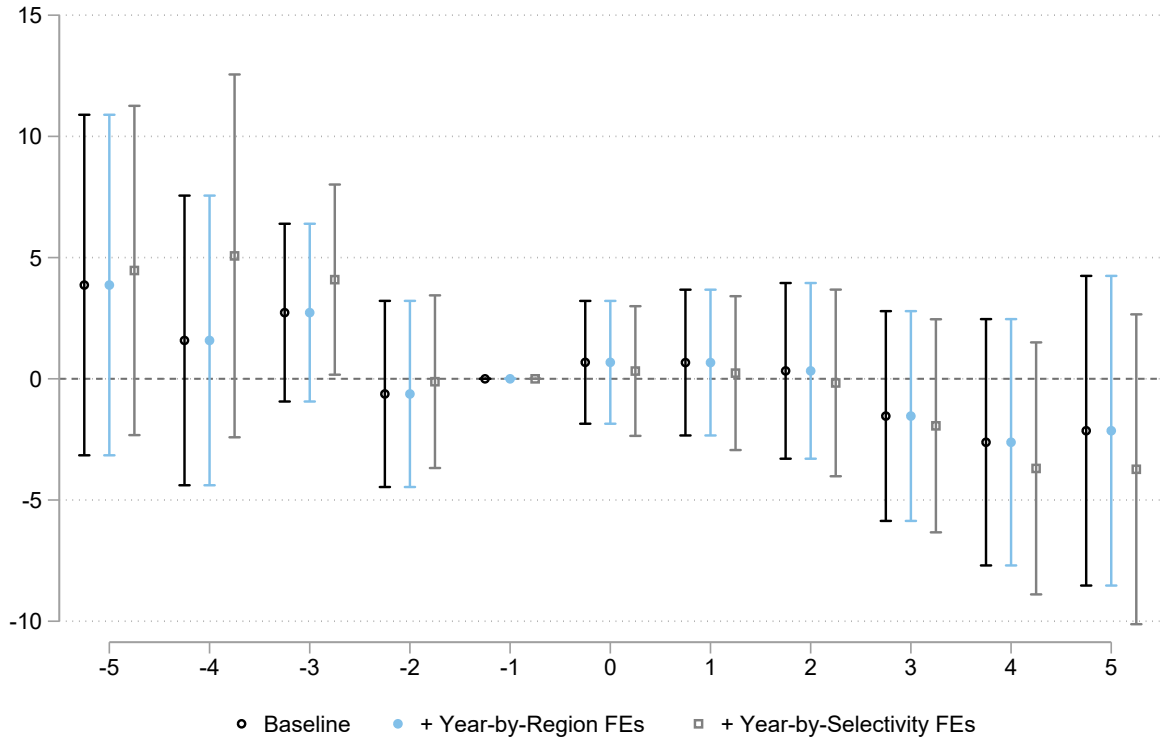
This figure shows the event study framework measuring the number of applicants in a given year. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

Figure 3: Mean SAT Scores of Accepted Students Event Study



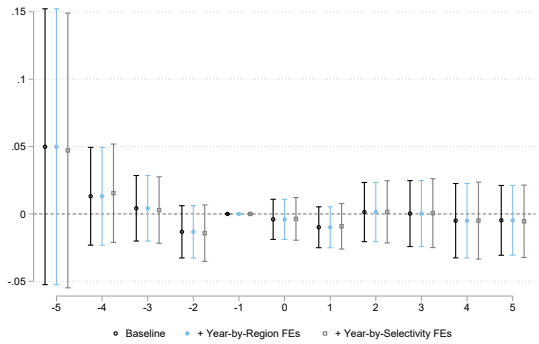
This figure shows the event study framework measuring the number of applicants in a given year. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

Figure 4: Acceptance Rate Event Study

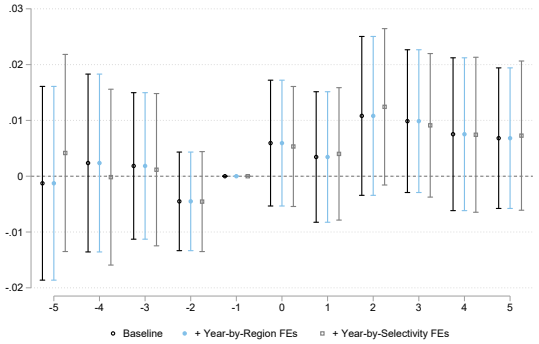


This figure shows the event study framework measuring the undergraduate acceptance rate in a given year. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

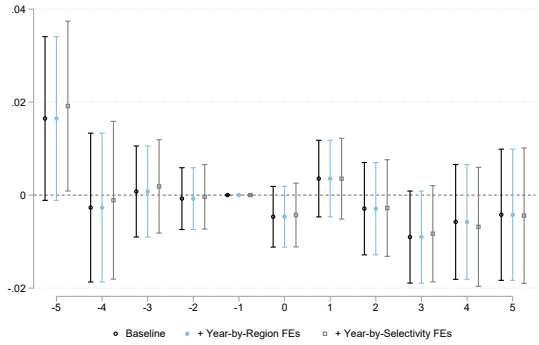
Figure 5: Racial Composition of Freshman Class Event Study



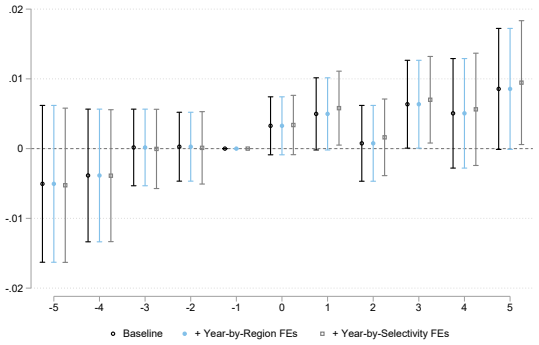
(a) Percent White



(b) Percent Black



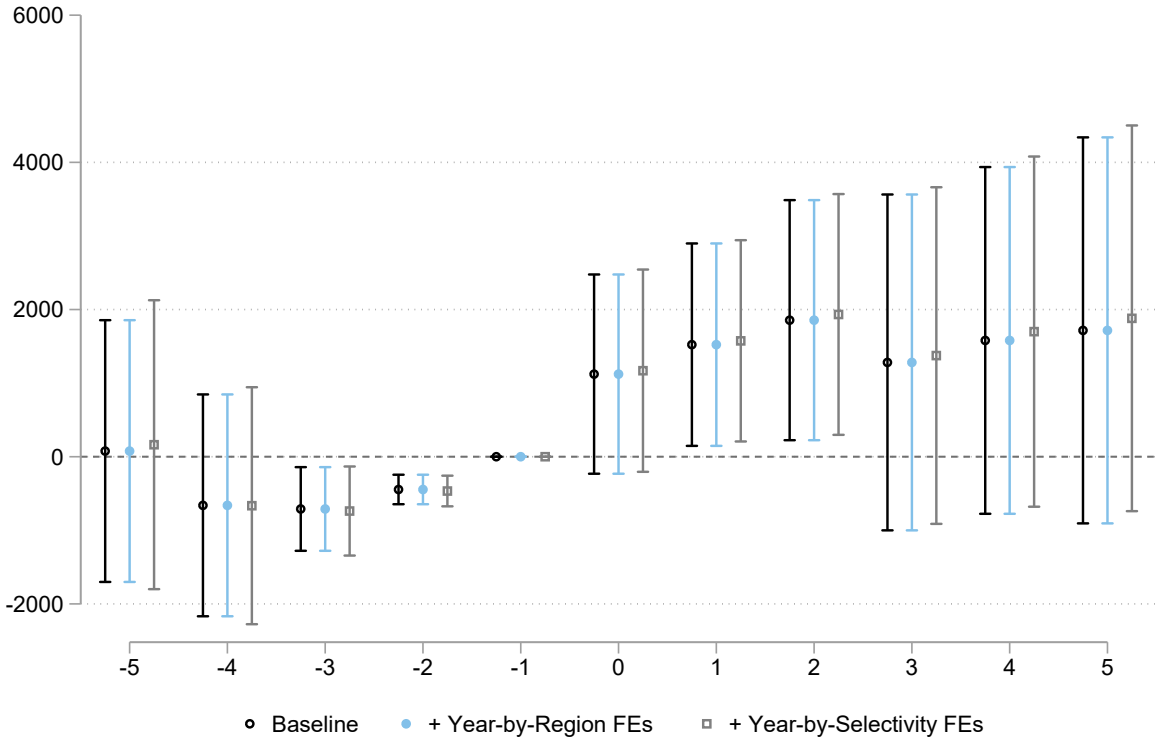
(c) Percent Hispanic/Latino



(d) Percent Asian

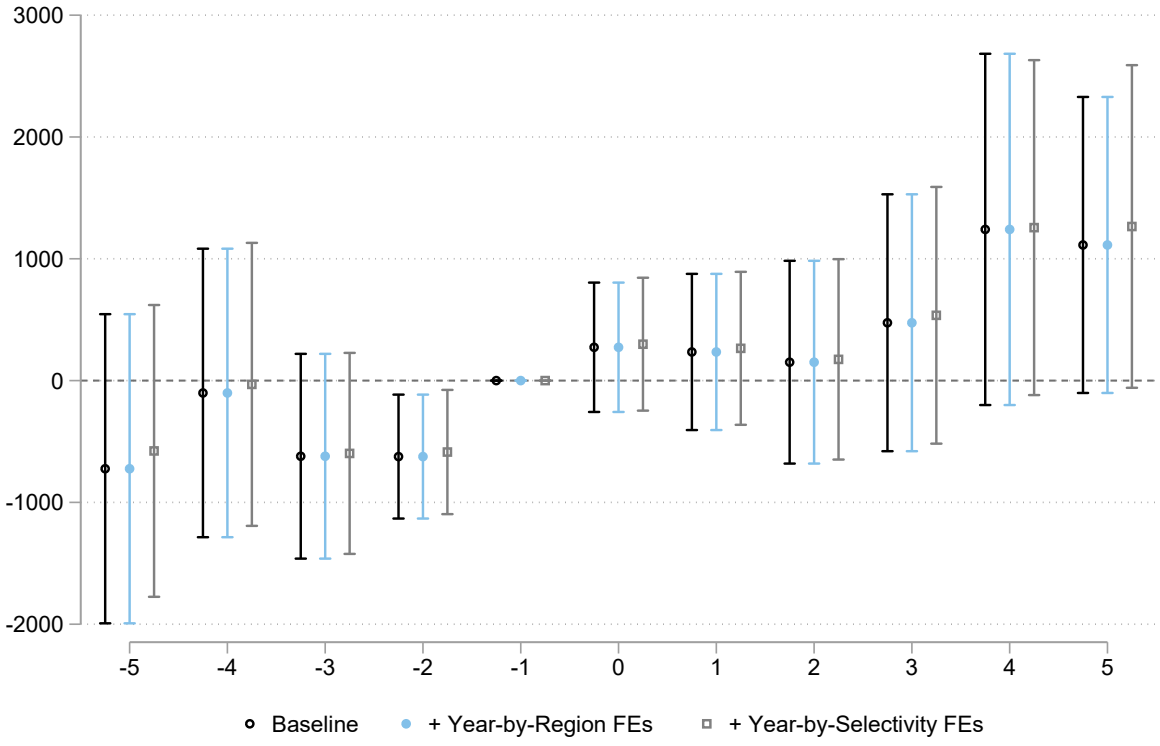
This figure shows the event study framework measuring the percentage of the freshman student body that is a given race in a given year. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

Figure 6: Tuition Price Event Study



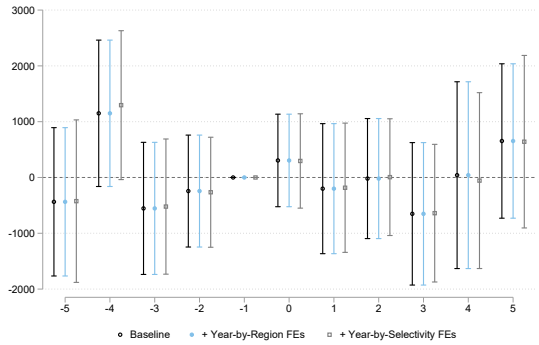
This figure shows the event study framework measuring the full tuition price, also known as the "sticker price" , in a given year. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

Figure 7: Net Price Event Study

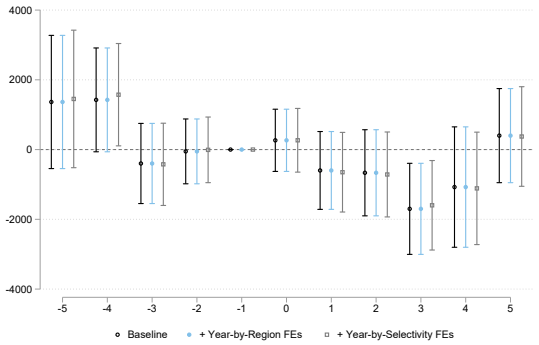


This figure shows the event study framework measuring the net price, which is the cost a student pays to attend a college after all financial aid, in a given year. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

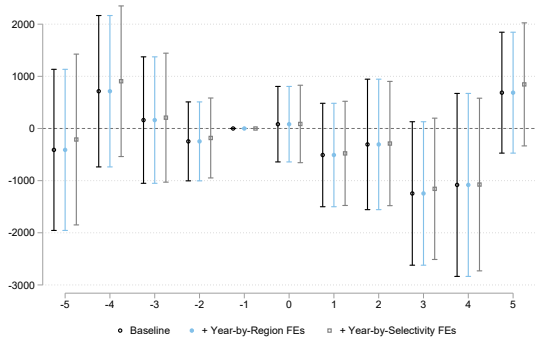
Figure 8: Net Price Across Income Quintiles Event Study



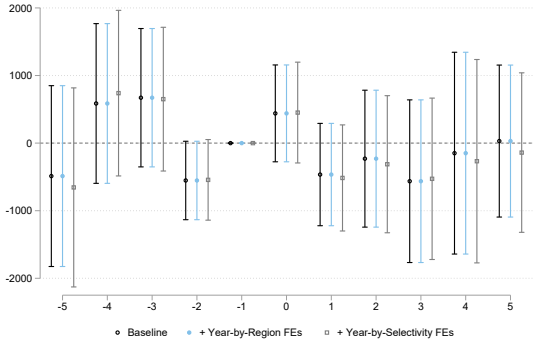
(a) Family income less than $30,000



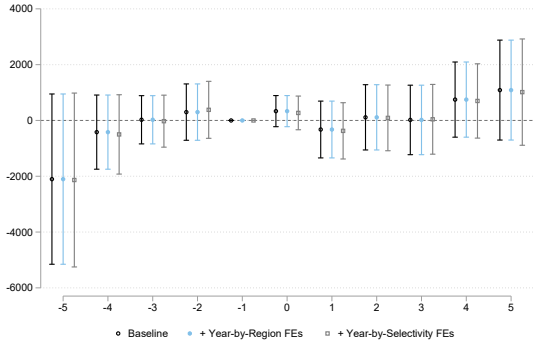
(b) Family income between $30,001 and $48,000



(c) Family income between $48,001 and $75,000



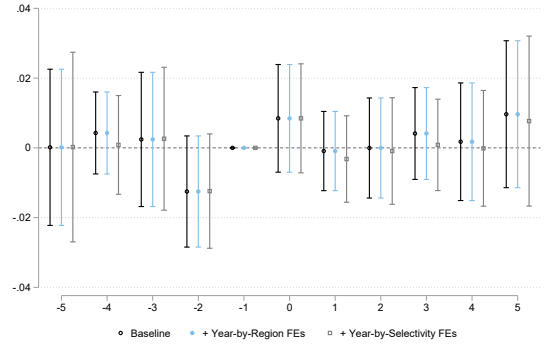
(d) Family income between $75,001 and $110,000



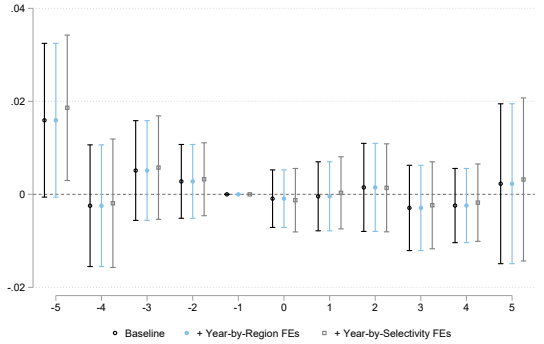
(e) Family income over $110,000

This figure shows the event study framework measuring the net price for each income quintile for each year. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

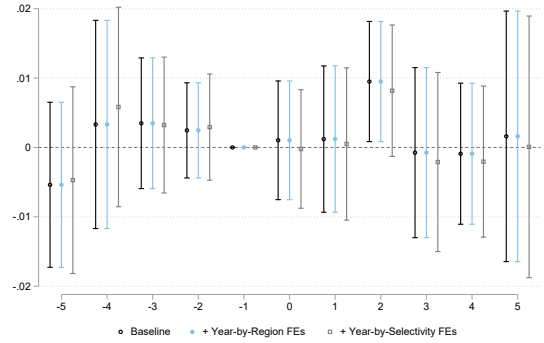
Figure 9: Composition of Students Receiving Aid vs Not Receiving Aid



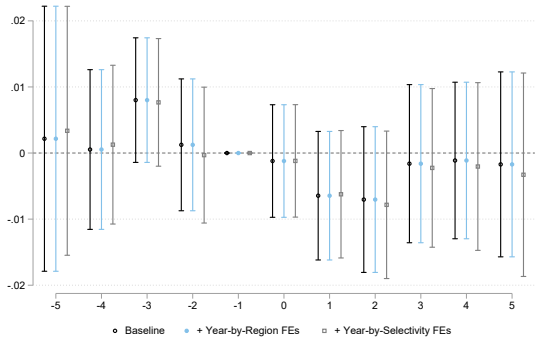
(a) Percent of Students with family income less than $30,000



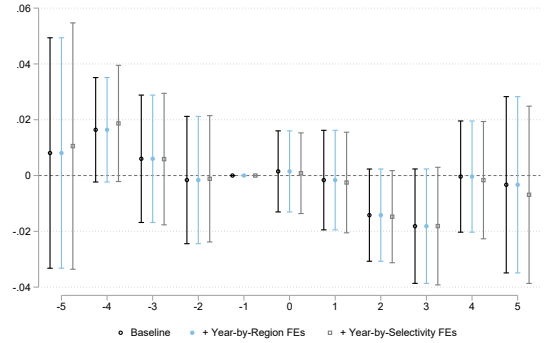
(b) Percent of Students with family income between $30,001 and $48,000



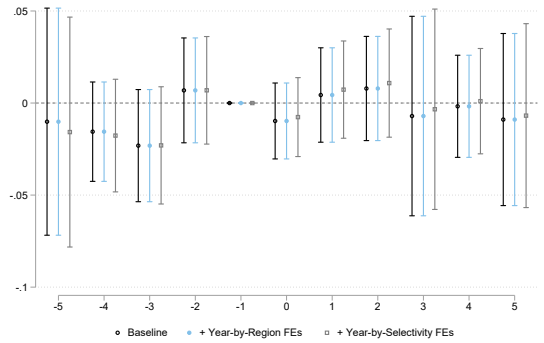
(c) Percent of Students with family income between $48,001 and $75,000



(d) Percent of Students with family income between $75,001 and $110,000



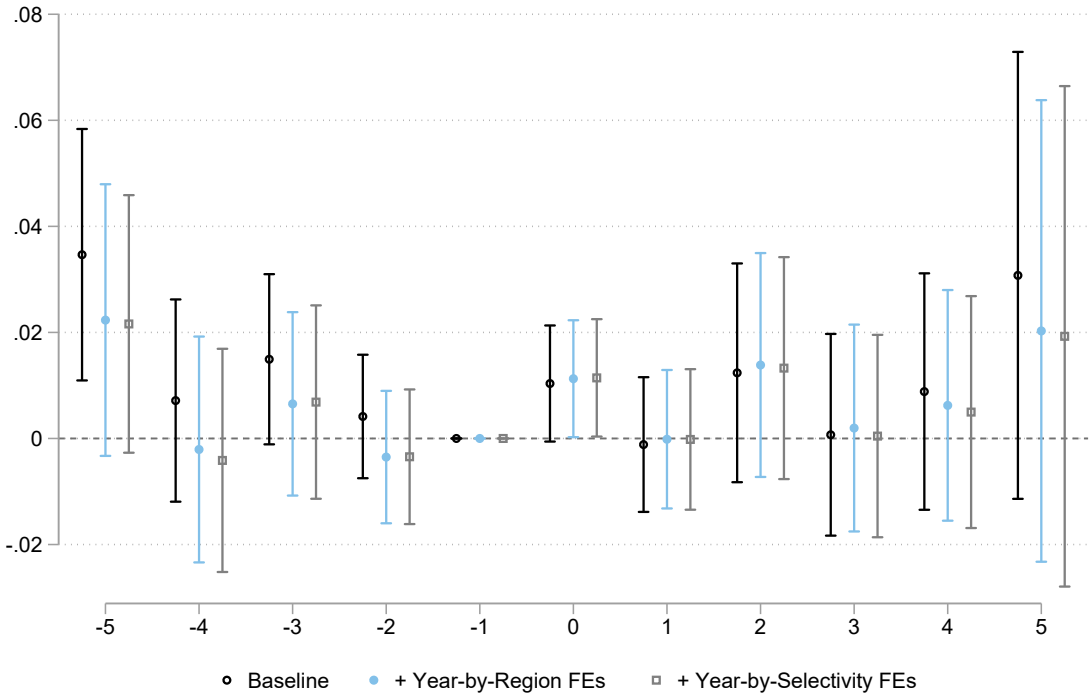
(e) Percent of Students with family income over $110,000



(f) Percent of Students not receiving Financial Aid

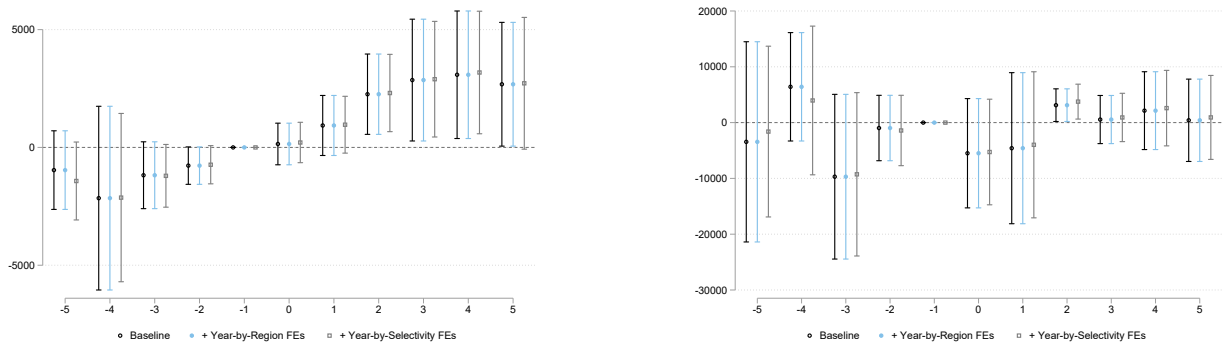
This figure shows the event study framework measuring percentage of students receiving financial aid broken down by income quintiles and the percentages of students not receiving financial aid. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

Figure 10: Percent of Students Receiving the Pell Grant



This figure shows the event study framework measuring percentage of students receiving the Pell grant The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).

Figure 11: Expenditures and Revenue per Pupil



(a) Total Expenditures per Pupil

(b) Total Revenue per Pupil

This figure shows the event study framework measuring the revenue and expenditure per pupil. The baseline measurement uses the specifications in equation (1). The year-by-region fixed effects measurement uses the specifications in equation (2). The year-by-selectivity fixed effects measurement uses the specification in equation (3).