

Making it Free and Easy:

Exploring the Effects of North Carolina College Application Week on College Access

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### Abstract

This study uses a series of panel models to explore the effect of North Carolina (NC) College Application Week (CAW) and college application waivers offered during that week on the number of applications colleges receive and number of low-income students who matriculate. Our panel models suggest that NC saw an increase in applications and low-income student enrollments after the implementation of CAW, but these increases largely occurred at private colleges, seemingly shifting numbers from public universities. We also find that the private colleges offering free applications during NC CAW experienced increases in both the total number of college applications received and low-income students enrolled.

*Keywords:* college application, college access, application fee waivers, low-income students

### **Introduction**

Pursuing postsecondary education is often thought of as a pathway to greater economic success, yet many student populations are still underrepresented in higher education (Perna & Kurban, 2013). Students from disadvantaged families are far less likely to attend college than are their higher-income peers, even after controlling for high school preparation (Bailey & Dynarski, 2011; Dale & Krueger, 2002; Ellwood & Kane, 2000). These inequities in college access are particularly troublesome given the earnings premium associated with a college degree (Card, 2001; Moretti, 2004; Zhang & Thomas, 2005). With the cost of attending college rising significantly in recent years (Ehrenberg, 2002), many low-income students face increasing financial barriers to higher education (Ficklen & Stone, 2002; Long & Riley, 2007). While in recent years we have learned a great deal about how financial aid affects enrollment and other postsecondary outcomes, few have examined barriers in the college application process.

An important, but relatively understudied step of postsecondary enrollment, is the college application process (Klasik, 2012). Some researchers point to the formidable path to college, one that is particularly challenging for certain student populations. Particularly, students from low socioeconomic backgrounds are significantly less likely to apply to college, even when controlling for a host of factors (Cabrera & La Nasa, 2000, 2001). Even for the most informed and well prepared students, the college application process presents numerous hurdles, which seem to differentially affect low-income students. During this process, students must navigate the complex world of college costs, college applications, and financial aid forms. Researchers conclude “a lack of information and a lack of understanding about the process of applying for college and financial aid result in sub-optimal college-going decisions” (Bowen, Kurzweil, & Tobin, 2005, p. 318). While students may have aspirations to pursue postsecondary education,

many of them, unfortunately do not enroll because they fail to complete part of the complex application process (Avery & Kane, 2004).

Low-income students also face unique challenges and financial constraints in the expensive application process (Hoxby & Turner, 2013). Prior to enrollment, students face a multitude of costs including SAT/ACT testing fees, transcript charges, and college application fees. For example, if a student plans to apply to four colleges, they might feasibly pay over \$100 in testing fees and over \$200 in college application fees. Recognizing these cost barriers, the College Board has instituted a fee waiver program for low-income students that will cover the cost of PSAT, SAT, and up to four college applications (College Board, 2014b). However, many students may not know these waivers exist or are not willing put in extra effort to obtain them from a guidance counselor. Only recently has the College Board recognized the potential barrier these steps place in providing free applications to disadvantaged students, and they allow students to get fee waivers directly without including a guidance counselor, given that the student has obtained a testing fee waiver (College Board, 2014a). Even with the removal of the additional guidance counselor step, getting the waiver still presents a potential challenge to those not informed about application fee waivers.

Some studies have found that providing information and assistance during the postsecondary application process can have positive effects. As evidenced in a recent study on the federal financial aid process (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012), simplifying the application process and providing personal assistance with completing application forms can improve college-going rates for low-income students. Another experimental study, found that providing high-achieving, low-income students with customized information on the college application process and net costs resulted in increased application and

acceptance rates for those in the treatment group (Hoxby & Turner, 2013). While these few recent studies provide some important insights into the effects of personal assistance during the application process, we still know relatively little about policies and practices that enhance the likelihood that students will apply to college.

One relatively new initiative aimed at encouraging students to apply for college is College Application Week. Since its statewide pilot in fall 2007, North Carolina (NC) has held College Application Week (CAW), an event aimed at reducing hurdles associated with the college application process and increasing access to higher education, particularly for low-income students (College Foundation of North Carolina [CFNC], 2014). During NC CAW, sites across the state provide application assistance to high school seniors and dozens of colleges and universities waive their application fee during that week. By 2012, nearly half of the states in the U.S. have adopted similar programs, and today nearly every state has adopted a CAW program (American Council on Education, 2014). While these programs have grown in popularity and hold promise, little empirical work has been done to evaluate their effectiveness.

### **Purpose and Research Questions**

The aim of this study is to examine the effects of NC CAW on college applications and low-income student enrollment. Specifically, this study uses institution- and state-level panel data to explore the overall effects of NC CAW, the first of such statewide interventions, and free college applications offered during the week. The first part of our study uses a series of state-level panel models to examine the overall effects of NC CAW on our outcomes. The second explores how offering application waivers during NC CAW affects private college applications and enrollments. In an attempt to isolate the effects of application waivers, we utilize institution-level panel data from the Integrated Postsecondary Data System (IPEDS) and run a series of

panel models comparing NC colleges that offer the waiver during CAW to several college groups (e.g., southeastern states, other states that have CAWs with only college application assistance but no application waivers). We ask the following two research questions:

1. To what extent does NC CAW affect the number of applications NC colleges receive and the number of low-income students who matriculate at NC colleges?
2. To what extent does offering a free college application during NC CAW affect application and low-income student enrollment numbers?

This study holds particular significance as it starts an important conversation around the increasingly popular college application week programs. Given that states are putting resources into these initiatives, it is important to evaluate their effectiveness. More broadly, few studies have examined assistance with postsecondary applications and fee waivers. This study will examine two treatments that are a part of the NC CAW program: application assistance and application fee waivers. While other states have implemented college application weeks and months, most of them do not have the application fee waivers as part of the initiative. Therefore, studying NC CAW is significant, as it is not only the oldest CAW program, but also is one of the only programs where many postsecondary institutions participate by waiving application fees.

Further, this study will use a quasi-experimental research design to examine the causal effects of CAW on college applications and low-income student enrollment. In recent years, there has been increasing concern about the rigor of educational research, as many prior studies on college access initiatives do not make causal inferences (DesJardins & Flaster, 2013). By using a difference-in-difference research design, we are able to examine the plausible exogenous shift in application assistance through CAW and also the shift in removing application fees. By using panel data, we are able to compare participants to non-participants (e.g., institutions, states)

before and after the CAW intervention and assume that the “unobserved heterogeneity is time invariant, so the bias cancels out through differencing” (Khandker, Koolwal, & Samad, 2010, p. 72).

### **Background and Literature**

Students are faced with two major tasks during the search process, which include filling out college applications and paying for college applications. The following reviews studies that examine the college application process and the fees associated with applying to college.

#### **College Application Process**

The path to college is complex and involves many stages. Researchers have frequently characterized the college choice and enrollment process in three stages: predisposition, search, and choice (Hossler & Gallagher, 1987). The predisposition stage describes the development of plans and expectations for college. The search stage includes the collection of information about college and applying to college. The choice stage encompasses the process by which students decide which college to attend. Most of the work on college choice and access focuses on stages one and three, with few studies examining stage two, the search process (Cabrera & La Nasa, 2000, 2001; Klasik, 2012).

Two recent studies find that applying to college, while a seemingly small task, is a critical step where many college degree aspirants become discouraged. Klasik (2012) found a steep drop off when high school students moved from previous college preparation steps to applying for college. Avery and Kane (2004) found that a large percentage of students who indicated a desire to go to college did not apply. They did, however, find that nearly every student who applied, even those with low test scores and grade point averages, were admitted to a college.

It seems that the complicated application process has heterogeneous effects. Even after accounting for a host of factors (e.g., ability), students from disadvantaged families are significantly less likely to apply to college (Cabrera & La Nasa, 2000, 2001). We have ample evidence to indicate that disadvantaged families often do not have the necessary information required to successfully navigate the choice process (Hossler, Schmit, & Vesper, 1999; McDonough, 1997; Perna, 2006), and, more specifically, some evidence indicating low-income students do not know much about the application process (Bowen, Kurzweil, & Tobin, 2005). While we are aware of how challenging the application process can be and the effects it has, we know surprisingly little about how to ameliorate these effects. This study seeks to examine one possible intervention, NC CAW, to understand how providing application assistance during a week-long, statewide event affects college applications and low-income student enrollments.

Additional evidence of the income gap in the application process can be found in where students apply. What may surprise some is that low-income students are less likely to apply to and enroll in selective colleges and universities (Hoxby & Avery, 2013; Bastedo & Flaster, in press). They conclude that most high-achieving, low-income students do not apply to selective colleges, while their high-achieving, high-income counterparts apply to a range of colleges, including those that are highly selective. This concept of undermatching has been explored and documented by several other studies (see, for example, Bowen, Chingos, & McPherson, 2009, Roderick, Coca, & Nagaoka, 2011). Selectivity and reputation are associated with the number of applications they receive and the composition of the applicant pool. Not surprisingly, academic reputation is positively associated with the number of applications a college receives and the geographic diversity of the applicants (Alter & Reback, in press). While some have effectively critiqued the concept of undermatching (see Bastedo & Flaster, in press, for critique), it is clear

that application behaviors are shaped by institutional prestige and a student's socioeconomic status. Perhaps interventions like CAW could serve to reduce application barriers faced by low-income students and increase their application pool. This may result in college choices that more closely match students' ability to college selectivity.

### **College Application Fees**

In addition to informational barriers presented in the application process, the fees associated with applying to college present another nontrivial hurdle. For some, a \$50 application fee is inconsequential, while others this presents a substantial obstacle. Further application fees have been increasing each year, with nearly forty institutions in the nation charging at \$75 or more per college application (Smith-Barrow, 2014). Research suggests that even relatively small fees do have an effect on the application process. One study (Pallais, in press) examined the effect of increasing the number of free ACT scores a student can send to a college at no cost. The price to send one additional report is only \$6, but removing that cost significantly increased the number of reports sent to colleges and resulted in students applying to more colleges. The same study found that low-income students were more likely to attend a selective college after ACT increased the free score reports.

Many low-income students are likely eligible for application fee waivers, but obtaining these waivers is not without effort. Students must request these waivers from their high school staff or pre-college program, and many require verification by a counselor. Low-income students are eligible for College Board college application fee waivers if they meet income qualifications and complete the CSS profile. Recent research on the financial aid process suggests requiring relatively simple paperwork can negatively affect access (Bettinger et al., 2012). More directly related to this study, others (Hoxby & Turner, 2013) found that no paperwork fee waivers

increased the number of colleges to which a student applied. Furthermore, they found that students who were offered no effort fee waivers were more likely to utilize them than those who had access to the more traditional waivers for low-income students (e.g., SAT fee waivers).

In addition to the hurdles presented by the fee waiver paperwork, it also seems reasonable that disadvantaged students may simply be unaware of these waivers. Students from low-income families often do not have the necessary information required to successfully navigate the choice process (Hossler, Schmit, & Vesper, 1999; McDonough, 1997; Perna, 2006). For example, they are less knowledgeable about financial aid programs and ways to fund college (Hossler, Schmit, & Vesper, 1999; McDonough, 1997; Perna, 2006) and likely have less information about the costs and benefits of higher education (Goldrick Rab, Harris, & Trostel, 2009). Recent field trials on the positive effects of coaching (Carroll & Sacerdote, 2013) and college advising (Hoxby & Turner, 2013) highlight the importance of information in the college choice process.

### **Conceptual Framework**

We frame our study using human capital theory. This economic framework suggests that individuals accumulate human capital (e.g., knowledge, skills) through investments in education, which can be exchanged for increased earnings, power, and status (Becker, 1993). Therefore, students decide to enroll in college by comparing the expected benefits (monetary and non-monetary) with the expected costs (costs of attendance and foregone earnings). College choice decisions are based on available information, regardless of its depth or accuracy (DesJardins & Toutkoushian, 2005). This rational decision making model does not assume that individuals have perfect or complete information but evaluate their options based on the information that they have about costs and benefits. These decisions are made during each stage of the application process, where students must re-evaluate their human capital decisions with every hurdle they

face (Klasik, 2012). We suggest that NC CAW seeks to reduce the barriers presented in the complicated application process by providing assistance to students.

It is important to note that students have differential access to information (Perna, 2006). Research overwhelmingly suggests that low-income students, in particular, have less complete and more inaccurate information about the college choice process (Hossler, Schmit, & Vesper, 1999; McDonough, 1997). More specifically, studies looking at the college application process have found substantial information gaps between low- and high-income students (Klasik, 2012; Hoxby & Turner, 2013). Armed with limited information, one would expect that disadvantaged students would likely have difficulty navigating the complex application process and would apply to fewer colleges (or none at all) relative to their more advantaged peers.

There are also financial costs associated with applying for college. Here we use the micro-economic principal of demand elasticity (for additional explanation of the concept of demand elasticity, see DesJardins & Bell, 2007) to frame our understanding of the effects of application waivers during NC CAW. Demand elasticity suggests that consumption is negatively related to the price of the good or service. In the context of this paper, we examine the relationship between application fees (price) and applications (consumption). We argue that as the price of applying to college goes to zero, the demand for applications increases.

We also predict that waiving an application fee will not have the same effect on everyone. Low-income students are more responsive to prices than high-income students. For example, it is well documented that low-income students are far more responsive to changes in price (tuition) than their wealthier peers (Curs & Singell, 2010; DesJardins, Ahlburg, & McCall, 2002, 2006; Heller, 1997). Therefore, we hypothesize that low-income students will be more likely to apply and subsequently enroll in colleges where the application fee has been waived during CAW.

## Methods

### Description of the Intervention

Our first research question and set of analyses examines the effect of the broader intervention, NC CAW. The NC CAW is an initiative that is co-sponsored by the College Foundation of North Carolina (CFNC) and the Carolinas Association of Collegiate Registrars and Admissions Officers (CACRAO). NC CAW is partially funded by the U.S. Department of Education's College Access Challenge Grant. The overarching goal of NC CAW "is to provide every graduating high school senior the opportunity to apply to college online through CFNC.org. Special focus is placed on students who would be the first in their families to attend college and students who may have not otherwise seriously considered attending college" (CFNC, 2014).

The NC CAW initiative is held in the fall during a designated week in November. This initiative has two primary elements at work: (1) sites (e.g., high schools, community centers) provide college application assistance, and (2) some colleges and universities volunteer to waive the application fee. By 2013, more than 500 sites held coordinated events to assist high school seniors with college applications. Each site has a registered coordinator, usually a school guidance counselor, armed with support materials, including a site coordinator handbook, training videos, student checklists, posters, and other planning resources.

After determining whether NC CAW affects our outcomes, we then examine whether fee waivers offered by individual colleges during NC CAW have an effect on applications and low-income student enrollment. All 110 universities and community colleges participate in NC CAW, which means that during the event each college will accept the College Board fee waivers, as they would any other time. These fee waivers are available to low-income students and the majority of colleges accept these waivers outside of the NC CAW event. While technically all

institutions participate in NC CAW and accept College Board fee waivers, according to CFNC, there are select institutions that go “above and beyond” by offering a free application to *all* NC students during CAW.

Beginning in 2005, North Carolina was the first state to implement a College Application Week program (American Council on Education, 2014). The first two years of the program were pilot years, in which only a few high schools participated in completing applications during a designated week. In 2007, the program became a statewide effort and 26 institutions participated in CAW by outright waiving application fees. In this year and in subsequent years, select institutions participating in CAW agreed to offer free applications for admissions during the designated week in November.

During the first four years of the CAW program, only private institutions offered the fee waiver. From 2011 - 2012, four public historically black universities also participated (Elizabeth City State University, Fayetteville State University, North Carolina A&T University, and Winston-Salem State University). Given that our second research question seeks to examine the effects of CAW before and after an institution waived application fees during CAW, we do not have enough post-year data to understand the effects of these few public institutions that joined the initiative in more recent years. For this reason we limit our second set of analyses to private institutions only. Table 1 provides a list of all private colleges in NC and indicates the years that specific institutions participated in CAW and eliminated the application fee during the designated week. One will notice that some private institutions in NC have never participated in CAW (these colleges are in italics) and these colleges tend to be considered more selective (e.g. Duke University).

Insert Table 1 about here

**Data**

This study utilizes institutional- and state-level data from the academic years 2002-2003 through 2012-2013. We constructed a dataset that merges several surveys from the Integrated Postsecondary Education Data System (IPEDS) administered by the National Center for Education Statistics (NCES). Specifically, this study uses IPEDS institutional characteristics, enrollment, and student financial aid and net price surveys. IPEDS is the only national data set that captures enrollment and application trends for postsecondary institutions. With this data we are able to compare North Carolina institutions that participate in CAW with several other comparison groups, both within and outside of the state. From 2007-2012, approximately twenty-six to thirty-one total institutions participated in NC CAW each year by waiving the application fee (see Table 1).

**Analytical Approach**

We use a difference-in-differences (DiD) approach, which treats NC CAW and the associated fee waivers as a plausible source of exogenous variation allowing us to estimate the causal impact of the program and waivers. We run two series of models, each answering one of our research questions. The first examines the overall effect of NC CAW by comparing NC to other state comparison groups (e.g., all states, southeastern states). The second explores the effect of offering an application fee waiver during NC CAW by comparing those private NC colleges offering the waiver with other private colleges in NC, in the southeast, in other CAW states, and across the nation.

The logic behind the DiD approach is that we first identify the differences in outcomes within states/institutions before and after the introduction of NC CAW. This allows us to observe changes in “treated” institutions pre and post treatment, but it does not allow us to determine if

these states/colleges differ in our outcomes than do comparable states/colleges. When we employ DiD, we also estimate the differences in outcomes within the comparison groups (e.g., national, regional, statewide) over time and examine the differences between “treatment” and “control” groups.

### **Empirical Models**

We use a series of panel models in an attempt to isolate the association between two conditions, NC CAW and fee waivers as a part of NC CAW (treatment variables), and number of college applications and low-income student enrollments (outcome variables). Guided by our theoretical framework, one would expect that making the application process easier through support during NC CAW and offering free applications during that week would increase number of applications colleges receive. Our conceptual framework also suggests that low-income students would be more sensitive to assistance and free applications. While IPEDS does not include the income distribution of applicants, it does include the number of students on federal grants (e.g., need based aid such as Pell Grants). We use this as a proxy for the effect of application assistance and fee waivers on low-income students. Because each of the outcome variables have a skewed distribution, we transform them using the natural log before including them in our models.

**NC CAW models.** Our first set of models explore the relationship between NC CAW and our dependent measures, and are represented with the following equation.

$$Y_{it} = \alpha + \beta_1(NC\ CAW\ *post) + \delta_i + \eta_t + u_{it}$$

where  $Y_{it}$  is our dependent measure (applications, low-income student enrollment) in each state ( $i$ ) over time ( $t$ ). We estimate the effects of NC CAW fee waiver by setting  $NC\ CAW*post$  by

setting all non-NC states to 0, and NC to 1 ( $i$ ) for each of the years ( $t$ ) after the introduction of NC CAW.  $\beta_1$  then is the coefficient for the effect of NC CAW on our outcome variables.

Our model also includes state ( $\delta_i$ ) and year fixed effects ( $\eta_t$ ), along with an error term ( $u_{it}$ ). State fixed effects reduce bias by capturing the effect of unobserved heterogeneity that is relatively stable over time (e.g., region). Year fixed effects reduce omitted variable bias by accounting for changes that occur over time to all colleges. For example, any policies that may affect enrollments, such as changes in Pell eligibility in 2009, occurred across all states.

**Fee waiver models.** Our second set of models examines the effects of free college applications, particularly as part of application week, on private college application numbers and low-income student enrollments. The following equation represents the relationship between our two conditions and our dependent measures.

$$Y_{it} = \alpha + \beta_1(\text{NC CAW fee waiver} * \text{post}) + \beta_2(\text{no application fee} * \text{post}) + \beta_3(\text{vector of controls}) \\ + \delta_i + \eta_t + u_{it}$$

where  $Y_{it}$  is our dependent measure (applications, low-income student enrollment) at each institution ( $i$ ) over time ( $t$ ). We test the effect of two different types of fee waivers in this model. We estimate the effects of NC CAW fee waiver by setting *NC CAW fee waiver\*post* by setting no waiver colleges to 0, and to 1 for treated institutions ( $i$ ) for each of the years ( $t$ ) after the introduction of the NC CAW waiver.  $\beta_1$  then is the coefficient for the effect of NC CAW fee waivers on our outcome variables. In the same model, we also estimate the effect of no application fees as standard practice. For this, we set *no application fee\*post* to 0 for all colleges that charge an application fee, and set it to 1 for treated institutions ( $i$ ) for each of the years ( $t$ ) after the introduction of the standard waiver, where  $\beta_2$  is the estimate for the effect of standard application fee waivers.

We also include a vector of controls for these models to account for SAT scores, undergraduate enrollment, total undergraduate tuition and fees, and average institutional aid awarded to students. We presume that each of these may account for institutional efforts aimed at increasing applications and undergraduate representation of low-income students during the timeframe of our study. For example, we use average institutional aid award, or average tuition discount, to account for need-based financial aid efforts an institution may initiate to increase low-income student enrollment. We also include median SAT scores to account for shifts in selectivity or reputation that may influence our outcomes. Finally, as we have argued, students are responsive to price, so we include total undergraduate tuition and fees in our models to account for how changes in price may influence application and enrollment decisions. Our models also include institutional ( $\delta_i$ ) and year fixed effects ( $\eta_t$ ), along with an error term ( $u_{it}$ ).

### **Counterfactual**

The representative characteristics of comparison groups are an important consideration for difference-in-differences. These comparison groups serve as the counterfactual, and one would expect them to have similar application and enrollment trajectories as those in the NC CAW. We utilize different comparison groups in order to reduce the bias presented by using only one group.

**Overall effects of NC CAW.** For our first set of analyses, we compare NC to all other states. Figure 1 shows application trends over time and suggests NC CAW impacts college applications in NC, particularly at private colleges. The top panel shows overall college application trends. The NC and other states average lines are parallel prior to the 2007 CAW

implementation<sup>1</sup>, but the lines diverge after 2007, with a slight increase in applications in NC. The middle panel presents private school application trends. Here we also see parallel lines before 2007 but also a sharp increase in private college applications in NC after the implementation of CAW. When we isolate public universities (bottom panel of Figure 1), the NC college applications trend appears to mirror all other states, both before and after the NC CAW implementation.

Insert Figure 1 about here

Turning to low-income student enrollments, figure 2 presents trends comparing NC to all other states. When examining trends at all colleges and universities (top panel), NC and all other states had steady low income-student enrollments prior to 2007, when they saw a parallel spike. At private colleges, however, it seems the post-2007 boost in NC was larger than in other states. The public college trends, presented in the bottom panel, are similar to the overall low-income student trends seen in the top panel. Both groups were relatively flat in their low-income student enrollments until 2007, where they saw a jump in enrollments.

Insert Figure 2 about here

**The effects of free applications during NC CAW.** The increases in the private college application numbers and low-income student enrollments suggest something unique is happening at NC private colleges. Our second research question about the effects of private college application waivers during NC CAW explores one possible explanation. We use several comparison groups. The first group is the largest and includes 1,831 private colleges and universities in the US. The breadth of this comparison may prove problematic in isolating the effects of application fee waivers.

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<sup>1</sup> For this set of comparison groups and application and low-income student enrollment outcomes, we tested the parallel assumption of DiD by running our models interacting pre-intervention years and NC vs. all other states. None of these interaction terms were statistically significant, indicating similar pre-intervention trends for NC and our comparison groups.

The second comparison group includes 795 private colleges from states that have CAW programs. These 21 states<sup>2</sup>, including NC, as identified by the American College Application Campaign, participate in this nation-wide initiative aimed at increasing access to college (American Council for Education, 2014). What is appealing about this comparison groups is that none of the states, during the years studied here, have systematic fee waivers during their college application week and simply offer application assistance at various sites across the state. We, therefore, believe that this allows us to better isolate the effect of fee waivers during NC CAW and provides similar statewide emphasis on low-income college access.

We also utilize private colleges from two other regional comparison groups. The first of these is colleges in the southeast region. Using IPEDS, we identified 385 private colleges located in the southeast region of the US. These present an attractive comparison groups, as conditions in these states (e.g., unemployment, support for higher education, college going rates) are similar. Finally, we run our models only on the 53 NC private colleges. While the institutions used as comparisons to NC CAW colleges (e.g., Davidson, Duke) are somewhat unique in terms of selectivity and we likely have limited power given the small number of schools, we nevertheless feel that providing a NC only analysis provides another lens through which to examine the relationship between fee waivers and application and enrollment behaviors.

Figures 3 and 4 present the average application and low-income student enrollment trends for NC private colleges who waive their application fee during NC CAW and the four comparison groups. Figure 3, which shows application trends, indicates an upward trend in

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<sup>2</sup> These states include Arizona, Delaware, District of Columbia, Georgia, Hawaii, Illinois, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Montana, Ohio, Oklahoma, Oregon, Rhode Island, Virginia, Washington, West Virginia, and Wisconsin.

application numbers for all groups<sup>3</sup>. The colleges offering free applications as part of NC CAW saw a substantial increase in applications after the program was implemented, while colleges in the other comparison groups had steady, parallel increases in their application numbers. Average low-income student enrollments appear steady for all groups prior to 2007, where the averages for colleges across all groups increase (see Figure 4). It does appear that the average increase for NC CAW is slightly greater than colleges in the comparison groups.

Insert Figures 3 and 4 about here

## Results

### Overall Impact of NC CAW

Table 2 presents the summary results of our models comparing NC to other states and the number of applications colleges in the states received to evaluate the overall impact of NC CAW. After the implementation of NC CAW, NC colleges and universities had statistically significantly more applications, approximately 12% on average, than did colleges and universities in other states. However, the increase in applications is not statistically significant for public colleges, but it is for privates, suggesting that the overall increase in state applications was likely isolated to private colleges. On average, private colleges in NC received approximately 15% more applications than private colleges in other states.

Insert Table 2 about here

Table 3 displays the effects of NC CAW on low-income student enrollments in NC relative to other states. In the model of all colleges (column 1) and public institutions (column 2), we do not see a difference between NC and colleges and universities in other states. Relative to

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<sup>3</sup> For this set of comparison groups and application and low-income student enrollment outcomes, we tested the parallel assumption of DiD by running our models interacting pre-intervention years and NC vs. all other states. We found that only one interaction term, for 2005 in the private college model of applications, was statistically significant.

private colleges in other states, private colleges in North Carolina did see a statistically significant increase in low-income student enrollments after the implementation of NC CAW. On average, they had 15% more low-income students enrolled than private colleges in other states.

Insert Table 3 about here

### **Impact of the Fee Waiver**

For each of our four comparison groups we run two models. The first (odd numbered models) includes SAT scores, undergraduate enrollment, and total undergraduate tuition and fees. Because IPEDS does not yet include 2012 financial aid data, we include this in the second model. It is therefore important to note that the second model (the even numbered models) within each set does not include 2012 data. Likewise, our second dependent measure, the number of students receiving federal financial aid, is only available until 2011. Thus, all models of federal aid enrollments only include data until 2011. For all of our models, we are particularly interested in the *NC CAW fee waiver\*post* and *no application fee\*post* variables as these provide estimates of the effects of two fee waiver scenarios on our outcome variables.

Table 4 presents the results of our models predicting logged value of the number of applications to private colleges. We see consistent evidence of the association between no application fees and increased applications. We see across all comparison groups that the introduction of an application fee waiver as part of college application week positively affects the number of applications a private college receives.

The effect of introducing a fee waiver as part of standard practice, in general, appears less to have no influence on college applications. With only one of our comparison groups – North Carolina private colleges – did standard application fee waivers have a statistically significant

effect. In that case, application fee waivers were positively associated with the number of applications a private college in North Carolina receives.

Table 5 presents the models of students enrolled who are on federal grant aid (proxy for low-income students). When we compare NC CAW fee waiver colleges to all US private colleges, to private colleges in other CAW states (keep in mind the colleges in the CAW comparison group do not provide fee waivers as part of the week during the period of our study), and to privates in southeastern US, we see that the NC CAW waiver positively affects low-income student enrollment. The effect when compared to other NC privates was not statistically significant, perhaps due to relatively low power.

We also find that having a free application as part of standard practice is also related with low-income student enrollments, but this relationship goes in the opposite direction of NC CAW. In the all private college and CAW state models, the effect of a standard free application is negatively associated with low-income student enrollments. The effect is negative, but not statistically significant in the southeastern region and NC models.

### **Limitations**

This study is limited in three important ways. First, we need to be cautious of the interpreting the findings here as causal. While we use analytical approaches that likely reduce selection bias, it is quite possible that providing an application waiver as part of NC CAW or as normal operating procedure is part of an overall recruitment and enrollment management strategy. To reduce concerns about potential selection bias, we utilize several comparison groups and test for the assumption that our outcome trends are parallel across groups prior to NC CAW implementation. Future research may utilize a randomized trial to confirm what we have done here.

Second, it is important to recognize that some of our dependent measures are imperfect proxies. It would be ideal to have the income distribution of applicants in order to assess the extent to which having no application fees shapes low income student application behavior. We use actual enrollments to explore the impact of free applications on low income students, but this measure may be too distal given the intervention likely occurs in fall the previous year. Furthermore, the federal grant aid recipient variable is not a perfect measure of low income. While Pell eligibility closely aligns with the poverty line, some Pell recipients are above this line.

Third, it is difficult to determine the fidelity of treatment as it relates to the support services provided by the different NC CAW support sites. While it seems unlikely that differences in the types of support provided and differences in the people served by the sites would systematically bias the results of this study, we acknowledge that bias is possible. Future research might look into how these sites are working, and the effects of individual sites on outcomes.

### **Discussion and Implications**

These findings contribute to a growing body of research on college applications and barriers that students face in the college choice process. Namely, this study adds to important research (e.g., Bettinger et al., 2012, and Hoxby & Turner, 2013) that suggests removing barriers, however small, in the college process is associated with increased application activity and access. It seems a statewide concerted effort that combines application assistance and free applications, in many cases, is an effective way to boost applications and to provide disadvantaged students access to college.

This study also provides evidence to suggest that students are responsive to application fee pricing, particularly when free applications are part of a larger campaign like CAW. The fee

waivers associated with NC CAW were related with increased numbers of applications relative to all four comparison groups. We also find indirect evidence that low-income students (as proxied by Federal grant aid recipient enrollees) may be more sensitive to application prices. Across three of our four sets of models, NC CAW fee waiver private colleges saw increases in their low-income student enrollments after participating in the program.

These findings hold several implications for policy and institutional practice. With the continued college enrollment and degree attainment gap between low- and high-income students (Bailey & Dynarski, 2011), this study points to an approach that appears to increase college access for disadvantaged students. Application support initiatives and policies that ease the process for low-income students to get application fee waivers as part of a larger enrollment initiative would likely remove an additional barrier to college access. While policymakers are exploring inducements for colleges to enroll and graduate low-income students, they might also consider ways to reward colleges that have high numbers of disadvantaged student in their applicant pools. States might also continue to support efforts like CAW that provide colleges support for application efforts.

Recognizing that application fees can be a barrier to many students, policymakers are advised to explore options for providing low-income students with application waivers. The challenge here is that these waivers must be easy to obtain and widely publicized. The College Board has provided eligible low-income students with up to four college application fee waivers. Students are eligible for fee waivers if they have taken an SAT test using a fee waiver that is verified by a counselor. Interestingly, the College Board has started a new initiative in 2014, which will distribute college application fee waivers (CAFW) electronically to eligible students (College Board, 2014a). Prior to this year, students had to obtain college application fee waivers

from their guidance counselor or pre-college program (e.g. Upward Bound, GEAR UP). College Board (2004a) indicates “because students who take the SAT using a fee waiver have already had their eligibility verified by their counselor, CAFWs do not require additional counselor approval.” Finding ways to capitalize on initiatives like this or creating other mechanisms for getting waivers into the hands of disadvantaged students seems important given the findings of this study.

Further, this study also informs college enrollment strategies. Because we see evidence to suggest that offering free applications during a well-publicized application week campaign does increase applicant pools, this may be a useful strategy for enrollment-driven private colleges. Colleges in states where CAW does not exist or in states where no systematic application waivers are provided could develop their own marketing campaigns around a one-week free application drive. It is also important to consider that processing applications can be quite costly, and colleges use these application fees to offset these costs. However, a nonselective school that is having difficulty meeting target enrollments could offset these costs and lost application fee revenue with the possible boost in tuition revenue.

### **Future Research**

This study points to several areas of future research. A study focusing on public colleges would further enrich our understanding of application fees as a barrier to enrollment. Because of perceived and real high cost of private colleges, a study of public institutions may yield different results than what we observed here. As more public colleges (primarily HBCUs) have begun

waiving applications fees during college application week, a future study could explore the effects of NC CAW on public school enrollment.

Researchers also might employ a field experiment, where they randomly distribute no effort application vouchers to students and examine application and enrollment behavior. This would not only provide a different perspective than we offer in this study, it would eliminate some of the potential biases we may have introduced here. A randomized experiment similar to the FAFSA study by Bettinger and colleagues (2012) could possibly be conducted at various sites. Randomly assigning fee waivers to students could be logistically difficult. However, a large scale grant project could possibly fund an initiative that pays for students' application fees.

Future research might also explore other application assistance and fee waiver programs. These two aspects of the college application process are relatively understudied and require more attention. Students cannot enroll in college without completing the complex application process. More research should be conducted on application assistance initiatives, such as FAFSA completion days (often held at community colleges) and college counseling services. Further, more research should be conducted on application fee waivers. More work should examine the effects of large scale fee waiver programs, such as College Board and ACT, as well as smaller scale programs, such as individual institutions waiving college application fees for low-income students or during on-site application reviews.

Finally, it would also be useful to more extensively evaluate NC CAW and other CAW initiatives. This study suggests that NC CAW is having some positive effects, but a broader and deeper study would shed light into the mechanisms by which these effects are achieved. As of 2014, almost all states have some type of college application initiative that promotes application completion and where sites provide personal assistance (ACE, 2014). The variation in these

initiatives should be studied, as some states have application weeks and others extend their initiatives to college application months. A few other states including Colorado, South Carolina, and Tennessee also have college application week/month initiatives, where some postsecondary institutions waive their application fees as part of the program. Researchers could study the effects of fee waivers in these states as well.

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Table 1

*North Carolina College Application Week Participation*

<b>NC Private Institution</b>	<b>2007</b> (Nov 12-16)	<b>2008</b> (Nov 10-14)	<b>2009</b> (Nov 16-20)	<b>2010</b> (Nov 15-19)	<b>2011</b> (Nov 14-18)	<b>2012</b> (Nov 12-16)
Barton	X	X	X	X	X	X
Belmont-Abbey	X	X	X	X	X	X
Bennett	X	X	X	X	X	X
Brevard	X	X	X	X	X	X
Cabarrus County of Health Sciences	X	X				X
Campbell	X	X	X	X	X	X
Catawba	X	X	X	X	X	X
Chowan		X	X	X	X	X
<i>Davidson</i>						
<i>Duke</i>						
<i>Elon</i>						
Gardner-Webb	X	X	X	X	X	X
Greensboro		X	X			
Guilford	X	X	X	X	X	X
<i>High Point</i>						
Johnson C. Smith		X	X	X	X	X
Lees-McRae	X	X	X	X	X	X
Lenoir-Rhyne	X	X	X	X	X	X
Livingstone		X	X	X	X	X
Louisburg	X	X	X		X	X
Mars Hill	X	X	X	X	X	X
Meredith	X	X	X	X	X	X
Methodist	X	X	X	X	X	X
Montreat	X	X	X	X	X	X
Mount Olive	X	X		X	X	X
NC Wesleyan	X	X	X	X	X	X
Pfeiffer	X	X	X	X	X	X
Queens	X	X	X	X	X	X
Saint Augustines	X	X	X	X	X	X
Salem	X	X	X	X	X	X
Shaw		X	X	X	X	X
St. Andrews	X	X	X	X	X	X
<i>Wake Forest</i>						
Warren Wilson	X	X	X	X	X	X
William Peace	X	X	X	X	X	X
Wingate	X	X	X	X	X	X
<b>Total</b>	<b>26</b>	<b>31</b>	<b>29</b>	<b>28</b>	<b>29</b>	<b>30</b>

*Note.* Institutions in *italics* have never participated in CAW. These universities are among the more selective private institutions in North Carolina.

FREE COLLEGE APPLICATIONS

Table 2

*The effects of NC CAW on college application numbers (natural log)*

	All		Public		Private	
NC CAW*post	0.116	**	0.139		0.146	**
	(0.036)		(0.108)		(0.457)	
State higher ed expenditures	-0.153		-0.391		-0.032	
	(0.118)		(0.357)		(0.086)	
Constant	13.817		18.080		10.180	
	(2.369)	***	(7.168)	***	(1.732)	***
State & year fixed effects	yes		yes		yes	

*Note.* Panel corrected standard errors in parentheses

\*p<.05, \*\*p<.01, \*\*\*p<.001

Table 3

*The effects of NC CAW fee waivers on federal aid recipient enrollments (natural log)*

	All	Public	Private	
NC CAW*post	-0.023 (0.256)	-0.055 (0.030)	0.151 (0.056)	**
State higher ed expenditures	-0.047 (.053)	-0.053 (0.062)	-0.161 (0.142)	
Constant	9.247 (1.067)	9.045 (1.249)	10.301 (2.847)	*** **
State & year fixed effects	yes	yes	yes	

*Note.* Panel corrected standard errors in parentheses

\*p<.05, \*\*p<.01, \*\*\*p<.001

Table 4

*The effects of CAW fee waivers on private college application numbers (natural log)*

	All		CAW states		Southeastern region		North Carolina	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
NC CAW free app*post	0.285 *** (0.044)	0.285 *** (0.044)	0.266 *** (0.045)	0.267 *** (0.004)	0.234 *** (0.048)	0.233 *** (0.048)	0.206 ** (0.074)	0.206 ** (0.074)
Standard free app*post	0.030 (0.022)	0.030 (0.022)	0.004 (0.035)	0.004 (0.035)	0.023 (0.036)	0.024 (0.037)	0.211 ** (0.077)	0.211 ** (0.077)
SAT median	0.000 *** (0.000)	0.000 *** (0.000)	0.000 ** (0.000)	0.000 ** (0.000)	0.000 ** (0.000)	0.000 * (0.000)	0.000 (0.000)	0.000 (0.000)
Tuition & Fees (\$1000s)	0.018 *** (0.002)	0.018 *** (0.002)	0.021 *** (0.003)	0.021 *** (0.000)	0.020 *** (0.004)	0.020 *** (0.004)	0.016 * (0.008)	0.016 * (0.008)
UG enrollment (ln)	1.154 *** (0.011)	1.154 *** (0.011)	1.149 *** (0.020)	1.149 *** (0.020)	1.149 *** (0.026)	1.149 *** (0.026)	1.143 *** (0.067)	1.143 *** (0.067)
Avg. institutional grant (\$1000s)		0.000 (0.001)		0.001 (0.000)		0.001 (0.002)		0.000 (0.004)
Constant	0.011 (0.043)	0.011 (0.043)	-0.002 (0.070)	-0.001 (0.069)	0.001 (0.100)	-0.002 (0.099)	0.155 (0.236)	0.155 (0.234)
Observations	1831	1831	795	795	385	385	53	53
College & year fixed effects	yes							

*Note.* Panel corrected standard errors in parentheses

\*p<.05, \*\*p<.01, \*\*\*p<.001

Table 5

*The effects of CAW fee waivers on private college federal aid recipient enrollments (natural log)*

	All		CAW states		Southeastern region		North Carolina	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
NC CAW free app*post	0.232 *** (0.061)	0.253 *** (0.069)	0.225 *** (0.063)	0.241 ** (0.072)	0.211 ** (0.065)	0.232 ** (0.072)	0.291 (0.181)	0.304 (0.185)
Standard free app*post	-0.167 *** (0.039)	-0.111 ** (0.037)	-0.223 *** (0.056)	-0.237 *** (0.049)	-0.124 (0.087)	-0.107 (0.079)	-0.242 (0.162)	-0.324 (0.170)
SAT median	0.000 (0.000)	0.000 * (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Tuition & Fees (\$1000s)	-0.037 *** (0.005)	-0.042 *** (0.006)	-0.040 *** (0.009)	-0.048 *** (0.008)	-0.014 (0.013)	-0.028 * (0.012)	-0.011 (0.027)	-0.017 (0.029)
UG enrollment (ln)	0.087 *** (0.014)	0.078 *** (0.013)	0.064 ** (0.021)	0.057 ** (0.020)	0.072 ** (0.022)	0.074 ** (0.021)	0.007 (0.026)	-0.011 (0.026)
Avg. institutional grant (\$1000s)		0.136 *** (0.005)		0.135 *** (0.009)		0.114 (0.012)		0.086 (0.024)
Constant	3.269 *** (0.091)	2.689 *** (0.089)	3.535 *** (0.141)	2.961 *** (0.136)	3.434 *** (0.197)	3.061 *** (0.178)	4.054 *** (0.328)	3.779 *** (0.341)
Observations	1831	1831	795	795	385	385	53	53
College & year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes

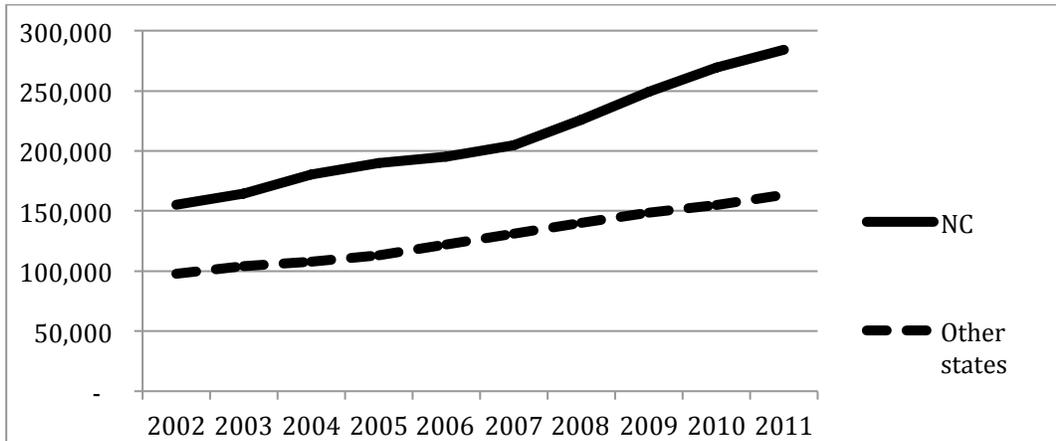
*Note.* Panel corrected standard errors in parentheses

\*p<.05, \*\*p<.01, \*\*\*p<.001

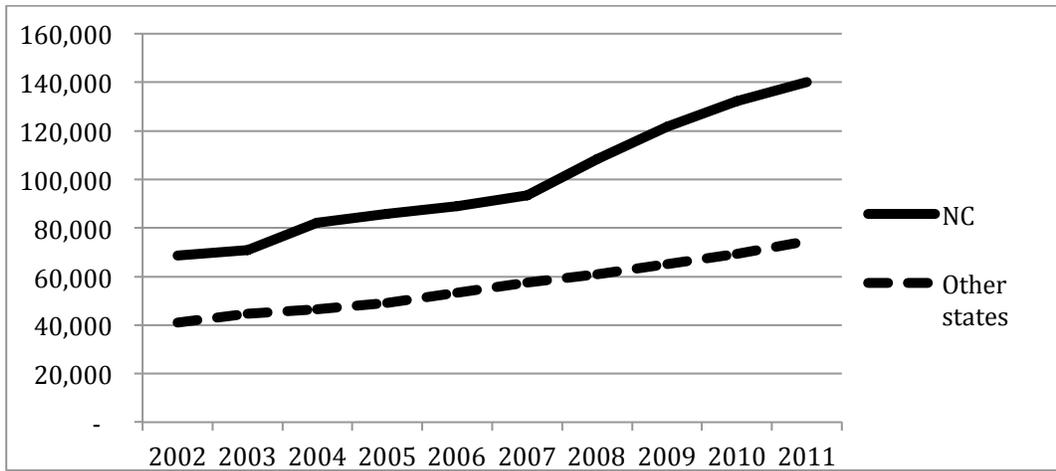
# FREE COLLEGE APPLICATIONS

Figure 1. College application trends, North Carolina vs. other states

## Overall applications



## Private college applications



## Public college applications

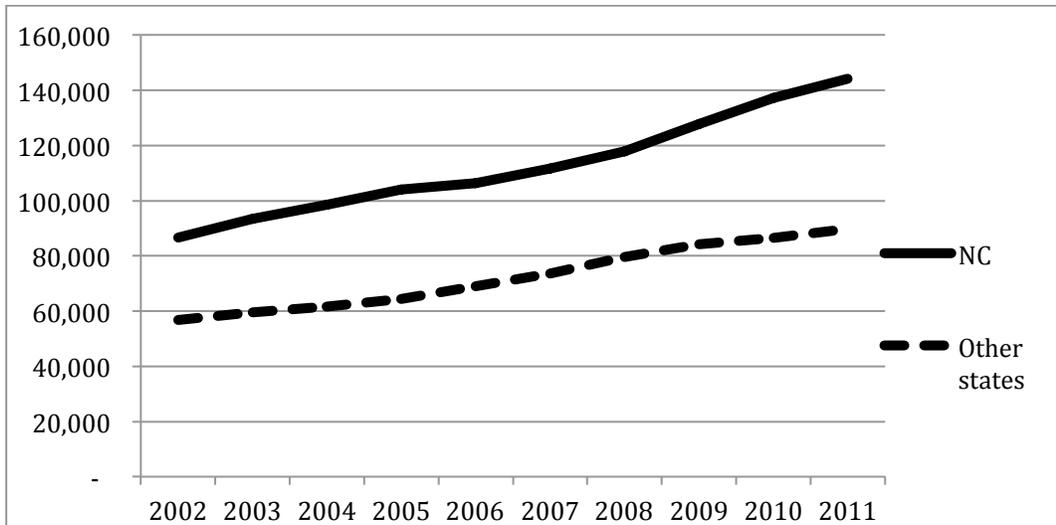
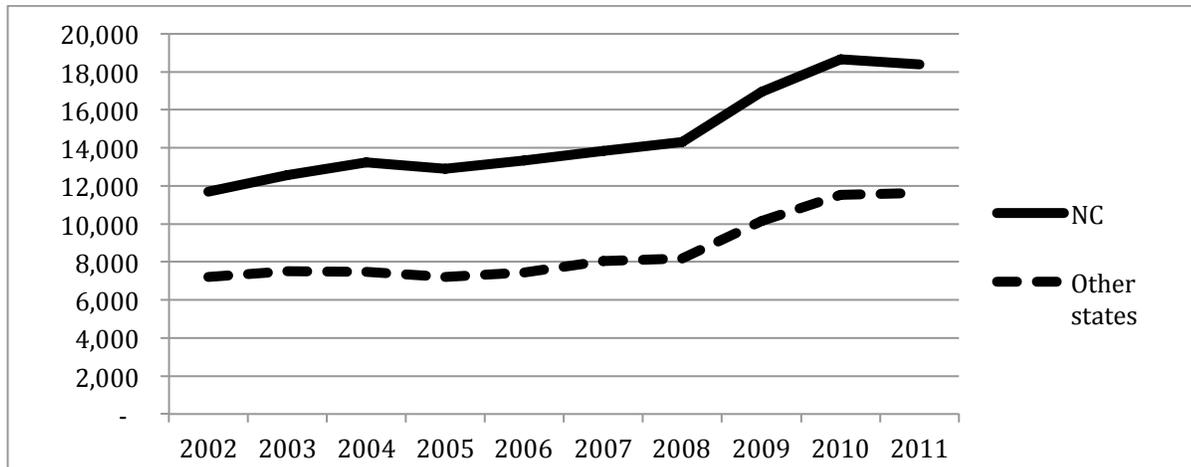
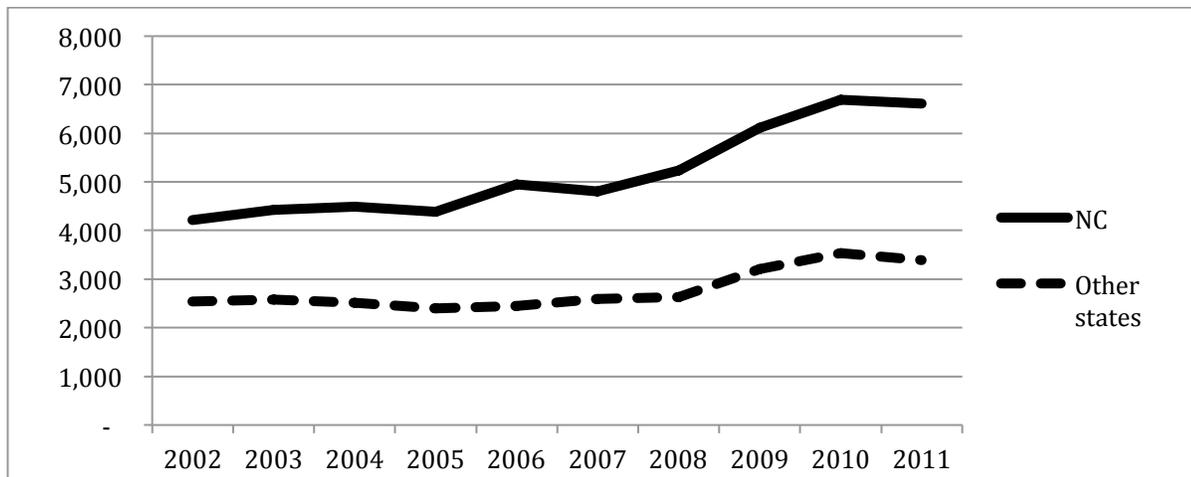


Figure 2. Low-income student enrollment trends, NC vs. other states

Overall low-income student enrollments



Private college low-income student enrollments



Public college low-income student enrollments

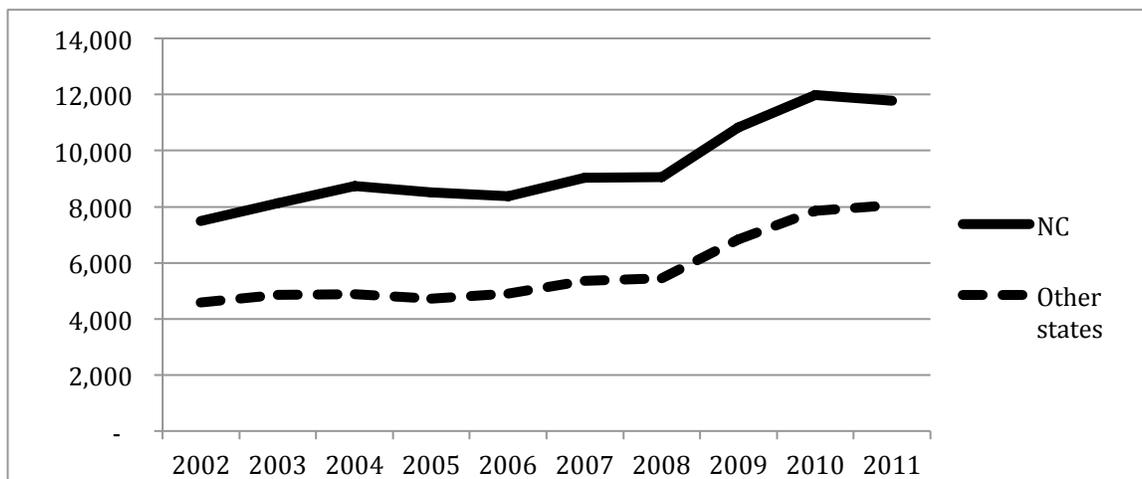


Figure 3. Private college application trends

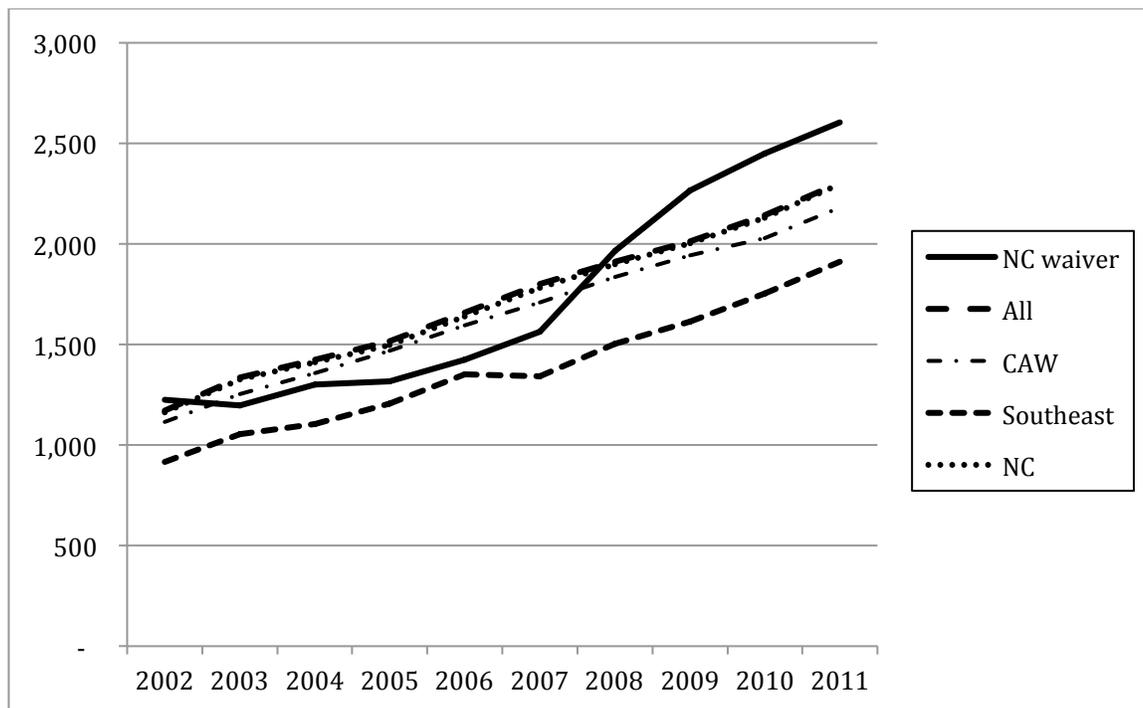


Figure 4. Private college low-income student enrollment trends

