

# Estimating the Impact of Tennessee Promise Eligibility on Tuition, Fees, and Enrollment

Elizabeth Bell  
University of Oklahoma  
Department of Political Science  
[Bell3922@ou.edu](mailto:bell3922@ou.edu)  
(512) 492-5594

February 25, 2018

## Contact Information:

University of Oklahoma  
Center for Risk and Crisis Management  
Five Partners Place  
201 Stephenson Pkwy, Suite 2300  
Norman, OK 73019

## Abstract

Tuition-free community college policies have gained momentum since the implementation of the first state-wide scholarship program, the Tennessee Promise, which provides last-dollar assistance to students pursuing two-year post-secondary degrees. While previous research has addressed the effects of similar programs on student outcomes (Carruthers and Fox 2016), scholars have yet to investigate the potential impacts of free community college programs on ineligible universities. In this paper, I evaluate the impacts of Tennessee Promise eligibility on enrollment and tuition and fees. Main findings indicate significant shifts in racial and ethnic minority enrollment, as well as in-state and out-of-state enrollment at ineligible institutions. Additionally, the empirical results suggest that promise eligible institutions raised tuition in response, providing some support for the Bennett hypothesis. The implications of these findings are relevant for scholars and policymakers interested in the potential effects of designing tuition-free community college policies with limited institutional eligibility.

**Keywords:** higher education policy, college affordability, financial aid

**Acknowledgements:** Special thanks to the generous contributions from Deven Carlson, Jennifer Delaney, and Emily House.

Tuition-free community college policies have become ubiquitous as states look to expand access to affordable higher education opportunities; to date, over 200 tuition-free community college initiatives have been proposed or implemented at the state and local level (College Promise 2017). Many of these policies resemble the Tennessee Promise, the first state-wide free community college program to provide last-dollar scholarships to students pursuing two-year post-secondary degrees<sup>1</sup>. While the effects of similar programs on student enrollment have been examined (Carruthers and Fox 2016), research has yet to address the potential impacts of limiting institutional eligibility on surrounding ineligible universities.

In this analysis, I estimate the effects of Tennessee Promise eligibility on enrollment and tuition and fees. Specifically, I leverage annual institutional level data from the Integrated Postsecondary Education Dataset (IPEDS) from 2012-2016 to evaluate the extent to which Tennessee Promise eligibility impacted total undergraduate enrollment, racial and ethnic minority enrollment, and tuition and fees at both eligible and ineligible institutions. The empirical analysis reveals significant shifts in both tuition and fees and enrollment after the implementation of the Tennessee Promise.

Specifically, the descriptive analysis reveals three main findings that are robust across multiple specifications and robustness checks. First, after the implementation of the Promise scholarship, black student enrollment significantly dropped at private ineligible schools. In fact, black enrollment at private ineligible universities was reduced by approximately 2.3 percent after the implementation of the Promise policy. Second, while total undergraduate enrollment did not

---

<sup>1</sup> Last dollar assistance programs require students to use all other forms of financial aid such as Federal Pell Grants, the Tennessee HOPE scholarships and other forms of state grants. After students have obtained these other forms of financial assistance, last dollar assistance programs close the gap between the cost of tuition and fees not covered by these federal and state grants and scholarships. See [College Promise](#) for a detailed description of all the states, regions and localities that have implemented these promise policies.

significantly change at private promise eligible institutions, public promise eligible institutions experience large gains in in-state enrollment (approximately 4.5 percent). Furthermore, public ineligible institutions face large declines in in-state enrollment (approximately -6 percent) and an increase in out-of-state enrollment (approximately 14 percent). These changes suggest that public ineligible institutions (public four-year universities) shift to recruiting more out-of-state students to offset the losses to in-state enrollment and ensure adequate revenue streams.<sup>2</sup> Finally, public promise eligible institutions significantly raise annual average tuition and fees after the implementation of the scholarship program (approximately 9.8 percent increase in average tuition and fees). This finding, in particular, is significant not only in substantive impact but also in the contribution to the development of the Bennett Hypothesis in the field of higher education. While previous studies have revealed mainly mixed findings in the context of traditional financial aid programs, tuition-free community college programs may represent a context in which institutions are particularly susceptible to exhibiting behavior in line with the Bennett hypothesis.

The paper proceeds with a discussion of the theoretical framework and previous literature followed by an in-depth description of the Tennessee Promise policy. Next, I lay out the data, sample, measures, and analytical approach. Then, I present the findings and robustness checks. Finally, I discuss the theoretical and practical implications for future research.

### **Theoretical Framework**

Due to declining college affordability (Deming and Dynarski 2010; Baum and Ma 2014; Martin and Gillen 2011), many states have implemented policies designed to reduce the price of college (i.e., tuition freezes), or provide scholarships via merit- or need-based aid programs. An

---

<sup>2</sup> All substantive impact assessments are calculated based on the model coefficient and the pre-treatment means for each institution type and treatment group.

extensive body of work addresses the effects of these policies on student outcomes and institutional behavior (Scott-Clayton 2011; McBain 2011; Toutkoushian and Shafiq 2009; Deming and Dynarski 2009; Deming and Walters 2017), yet there has not been sufficient scholarly effort dedicated to investigating the behavioral responses by both institutions *and* students to tuition-free community college policies. However, there is an abundance of scholarship on institutional and individual responses to non-institutional financial aid policies more generally, which I draw upon in my analysis (Doyle et al. 2009, Long 2004; Lowry 2001; Rizzo and Ehrenberg 2003; Curs and Dar 2010a; Delaney and Kearney 2016).

### *Shifts in Institutional Behavior*

The overarching theoretical framework in many of these studies relies on resource dependence theory (RDT), which posits that an institution's external environment influences the organization's behavior in the pursuit of adequate resources (Pfeffer & Salancik, 1978; Delaney and Kearney 2016). In this way, non-institutional aid induces changes in pricing behavior and recruitment of certain types of students (i.e. out-of-state students that bring in more tuition revenue) in order to ensure access to adequate resources (Rizzo and Ehrenberg 2003). In the context of the Tennessee Promise, ineligible institutions might exhibit these types of risk averse behaviors as they attempt to cope with the increased competition for qualified in-state students. Indeed, due to the magnitude of the incentive for students to attend Promise eligible institutions, the excluded institutions will likely have to significantly shift priorities in order to maintain financial solvency.

The next theoretical frame underlying this literature is the Bennett hypothesis, which builds on RDT by suggesting that institutions will raise tuition in response to increasing levels of student aid from non-institutional sources (i.e. state or federal government). In this way,

institutions can “capture some of the state financial aid resources through increases in tuition” (Curs and Dar 2010a, 7). However, based on the mixed findings regarding the effects of rising levels of non-institutional aid (i.e. state or federal financial aid) on tuition levels in previous studies, the Bennett hypothesis may or may not be an accurate characterization of institutional behavior. For instance, Rizzo & Ehrenberg (2003) found no significant evidence that federal or state aid policies changed in-state or out-of-state tuition at public universities. In fact, scholars found that public institutions actually lower tuition as states invest in more financial aid (Curs and Dar 2010a) and that public institutions are largely compliant with state prioritization of need- versus merit-based financial aid (Doyle et al. 2009). On the other hand, in the context of the Georgia HOPE scholarship, scholars have found that institutions with a greater proportion of HOPE recipients increase tuition and fees at higher levels than other institutions (Long 2004). Additionally, this revenue capturing behavior has also been identified in the context of Pell grants and state need-based and merit-based financial aid, especially among private institutions (Singell and Stone 2007; Curs and Dar 2010b). Given the mixed nature of previous findings along this line of inquiry, this study will contribute to the scholarly literature by providing another assessment of the validity of the Bennett hypothesis in the new and unique context of the Tennessee Promise. Indeed, the Tennessee Promise represents a deviation from the norm in higher education finance by providing full coverage of tuition and fees with a comparatively small number of means-tested requirements. Furthermore, the number of students participating in the program is enormous. Together, both the universality and high levels of participation in the Promise program creates serious potential for Promise eligible institutions to exhibit behavior in line with the Bennett hypothesis.

Furthermore, the literature suggests that there will likely be heterogeneity based on the type of institution in pricing shifts in response to the Promise scholarship program. By nature of their funding streams, public institutions face greater accountability pressure from political principals, which translates into varying institutional behavior in the wake of expanded state financial aid resources (Delaney and Hemenway 2017). Therefore, public institutions may be especially likely to engage in compliant behavior due to a greater reliance on state government funding. For instance, as alluded to above, studies have found that increases in Pell funding have resulted in rising tuition at private universities, but have not found the same behavior at public institutions (Singell and Stone 2007). In addition, the structure of the higher education governance system also influences institutional behavior and the compliance of universities. For instance, in states with consolidated governing boards, which have more authority over higher education institutions, public universities are more likely to lower net price in response to increased financial aid while private universities remain unresponsive (Curs and Dar 2010a). In Tennessee, the state higher education governance structure is the less authoritative coordinating board, which likely results in greater heterogeneity in institutional responses and may not produce as compliant behavior on the part of public universities. Nevertheless, based on these findings, I conduct analyses that distinguishes between publicly and privately-owned institutions in addition to the main analysis on all institutions in order to reveal potential heterogeneity.

Finally, previous studies also suggest that tuition is not the only relevant area in which to observe shifts in institutional behavior in response to non-institutional aid; scholars have uncovered significant shifts among in-state fees, out-of-state tuition and room and board in response to shifting state financial policy environments (Delaney and Kearney 2016; Long 2004). These behaviors align with RDT in that institutions were able to secure revenue streams

by raising out-of-state tuition or by manipulating less visible elements of price, while also avoiding the politically infeasible option of raising in-state tuition (Delaney and Kearney 2016; Long 2004).<sup>3</sup> Based on these findings, one might expect similar institutional behavior in response to the Tennessee Promise, which sharply increases competition for highly qualified in-state students. For instance, with the potential loss in enrollment in mind, one might expect ineligible institutions to raise less visible elements of price in order to make up for decreasing enrollment in a politically feasible way. However, we might also expect that ineligible institutions would decrease the marketable, publicized cost so that they seem competitive with the other institutions and recruit students that pay more in tuition and fees on average. In order to uncover these shifts in institutional price setting, this analysis includes variables that capture both in-state and out-of-state combined tuition and fees coupled with measures of required fees specifically.<sup>4</sup>

### *Shifts in Enrollment Behavior*

Another area of potential impacts is enrollment behavior, which is also likely subject to change in the wake of Promise implementation. The literature on enrollment trends is dominated by studies on the effects of state and federal grant aid on college enrollment in general (Dynarski, 2000; Dynarski 2008; Scott-Clayton 2011; Cornwell, Mustard and Sridhar 2006; Sjoquist and Winters 2012; Dynarski 2003; Lovenheim and Owens 2014), and for racial and ethnic minorities specifically (Jackson 1990; John and Noell 1989; Ches and DesJardin 2010). In addition, recent work uncovers the impact of local Promise programs on college enrollment,

---

<sup>3</sup> Another potential shift occurs in the allocation of institutional aid and institutional spending priorities; scholars have identified a negative relationship of increasing state financial aid on institutional aid levels (Turner 2009) and shifting spending priorities among institutions that are eligible for a Promise Scholarship (Delaney and Hemenway 2017). However, this is beyond the scope of this project, as it would require a more thorough investigation into institutional spending behavior, as opposed to price setting behavior and enrollment trends.

<sup>4</sup> This choice is also informed by limitations in the data source utilized in this study.



retention, and local economic development (Bartik et al. 2015; LeGower and Walsh 2017; Pluhta and Penny 2013; Miller-Adams 2009, 2015). Yet, despite the substantial scholarly effort in this area, scholars have yet to thoroughly investigate the effects of state-wide tuition-free community college policies like the Tennessee Promise on enrollment behavior.

However, previous studies do highlight the increase in total enrollment and particularly pronounced surges in racial and ethnic minority enrollment in response to many state and federal aid policies and to local promise policies like Kalamazoo Promise (Dynarski 2000; Scott-Clayton 2011; John and Noell 1989; Bartik et al. 2015; Pluhta and Penny 2013). As a particularly well publicized and marketed increase in the availability of state funds, the Tennessee Promise likely induces similar increases in enrollment among the general population as well as the racial minority population in Tennessee.<sup>5</sup> Nevertheless, in this context the increase in aid can only be utilized at some institutions, which likely will shift enrollment of the general population and specifically racial minorities across institutions based on Promise eligibility.

Furthermore, an emerging research agenda reveals potential shifts in student enrollment across sectors in response to tuition-free community college policies (Carruthers and Fax 2016; Lowry 2017; Delaney and Hemenway 2017; Deming 2017). For instance, in their evaluation of the Knox Achieves program<sup>6</sup>, Carruthers and Fax (2016) identify increases in enrollment at two-year colleges, but not at four-year colleges. In fact, although the results were statistically insignificant, all of the estimates for the effect of the Knox Achieves on enrollment at four-year institutions were negative. This proposition is supported by other preliminary analyses

---

<sup>5</sup> Even for those students whose tuition and fees would have been covered by Pell grants, the messaging of free community college may also induce higher levels of enrollment, even though these students don't receive any additional financial aid.

<sup>6</sup> The Knox Achieves program was the regional last-dollar scholarship in Knox County, Tennessee that motivated the passage of the Tennessee Promise.

suggesting that free community college policies will likely have positive effects on enrollment at two-year institutions, but potentially negative effects on enrollment at both four-year public and private institutions (unless students transfer to four-year public institutions after finishing the two-year program at a community college) (Moody's Investor's Service 2017). Together, these studies suggest that, in the context of the Tennessee Promise, one might expect to see heterogeneous effects of the policy on enrollment based on the institutional sector.

### **Policy Background**

Before delving into the data collection and empirical analysis, it is necessary to better understand the Tennessee Promise Scholarship in more detail. In 2014, the Tennessee state legislature became the first to pass a state-wide universal free community college policy providing last-dollar assistance and college mentoring to students accepted into the program. The financial aid and the mentoring components of the program were combined to achieve the goal of increasing college access and success for Tennessee high school students. In order to be admitted to the Tennessee Promise program, students have to meet specific eligibility requirements and enroll at an eligible Promise institution.

Based on correspondence with THEC, eligibility is based solely on whether the institution offers an associate's degree (either of arts or sciences).<sup>7</sup> Originally, only public universities were going to be eligible, but based on a compromise with private universities, any institution that offers an associate's degree was deemed eligible for the Promise. Additionally, it should be noted that while the Promise scholarship covers all tuition and fees for associate's degrees at public universities, students wanting to attend a private university might not have all of tuition and fees covered. According to THEC, students attending private universities will only

---

<sup>7</sup> Students may still use the financial aid to pursue a certification, but the institutional eligibility is based on associate's programs specifically.

receive the amount of aid that they would have received at a public (based on the average tuition and fees of the same program at public universities in the state). This makes the potential impacts on private universities even more likely, as the incentive structure is mainly focused on increasing college attendance at public universities.

For students starting with the graduating class of 2015, high school seniors who graduate from a Tennessee eligible high school could apply for the Promise program.<sup>8</sup> To receive financial aid under the Tennessee Promise program, students must complete an application, complete the FAFSA, and qualify for in-state tuition.<sup>9</sup> However, all students who apply for the Promise program receive a mentor, who assists with FAFSA filing and provides encouragement and advice on college options. In the Fall of 2014, almost 90 percent of high school seniors, or approximately 58,000 students applied for the program and 16,291 students enrolled in Fall 2015 (National Conference of State Legislators 2016). The difference between the number of applicants and recipients reflects the number of students that did not meet eligibility requirements, or attended colleges outside of Tennessee Promise eligibility, or those students who did not end up enrolling in college full-time or at all.

If the applicants are deemed recipients of the Promise Program they receive last-dollar assistance covering tuition and fees (i.e. not living and book expenses) at one of the 27 colleges

---

<sup>8</sup> “Tennessee Promise defines an eligible high school as TN public secondary school; private secondary school that is located in the state and is approved by the state board of ed. as a Category 1, 2, or 3; a secondary school operated by the DOD on a military base that is located in whole or part in TN; an out-of-state public secondary school located in a county bordering TN that residents are authorized to attend.” (Tennessee Department of Education 2015)

<sup>9</sup> It should also be noted that once a student becomes a recipient of the Promise Scholarship they must meet additional requirements to retain the financial aid. First, Promise Scholarship recipients must attend at least one college orientation session and enroll in college full-time (National Conference of State Legislators 2016). Second, once students begin attending the eligible college, they must maintain full-time consecutive enrollment status as well as a 2.0 GPA and complete eight hours of community service every semester (ibid.). This aspect of the program is facilitated by the Tennessee Student Assistance Corporation (TSAC), which partners with local non-profit organizations to coordinate both mentoring and community service opportunities (Tennessee Department of Education 2017).

of applied technology, 13 community colleges or one of the in-state private or public 4-year universities that offers an associate's degree or an equivalent technical certificate and are deemed eligible by the Tennessee Higher Education Commission (THEC). However, the last-dollar aid cannot be used at a non-eligible Promise institution. As one of the central components of the analysis, it is important to note the number of institutions in each sector that are promise eligible and ineligible. In Table 1 below, I provide a description of the eligible and ineligible Tennessee institutions by ownership and sector.

[Insert Table 1 Here]

### **Data Description**

The institutional level, annual data for the years 2012-2016 underlying this analysis were collected from the Integrated Postsecondary Education Dataset (IPEDS).<sup>10</sup> For each institution, the key dependent variables of interest for cost of attendance include: annual average tuition and fees<sup>11</sup>, in-state tuition and fees, out-of-state tuition and fees, in-state required fees, and out-of-state required fees. The dependent variables measuring enrollment include: the total number of enrolled undergraduate students, the number of in-state and out-of-state first-time undergraduate students enrolled, the percentage of students that are Black, and the percentage of students that

---

<sup>10</sup> While it is ideal to have three years of pre-treatment and three years of post-treatment data, but this will be impossible in this context both due to data availability and due to the changes that are being made to the in the Fall of 2017.

<sup>11</sup> This measure includes both institutions reporting tuition and fees at the institutional level, and the program level. I utilize combined tuition and fees due to the lack of isolated tuition measures for institutions reporting by program. To combine these measures, I take the tuition and fees of the largest program at the latter type of institution as the proxy measure of tuition and fees at these institutions. It should be noted that the tuition and fees data is limited by its inability to capture within institution variation tuition and fees levels by program. In the measure of tuition and fees, the annual tuition and fees of the largest program are presented for the institutions reporting by program. This may mask interesting variation among tuition levels by the type of program, but the data does provide an annual average tuition and fees that differentiates between in-state and out-of-state students.

are Latino. Unfortunately, due to delayed releases of IPEDS enrollment data for 2016, these variables are missing for this year.<sup>12</sup>

Most importantly, the dichotomous variable indicating whether the institution was included in the Promise program was hand coded for both 2015 and 2016 based on the official list of eligible institutions by the Tennessee Higher Education Commission. Interestingly, five private colleges became eligible in 2016 while three colleges that were eligible for the Promise in 2015 were no longer eligible in 2016. Additionally, it should be noted that some private colleges were no longer in business in 2016. The data are summarized in Table 2 below.

[Insert Table 2 Here]

In Table 2, I also include the means for promise eligible and ineligible institutions as well as the comparison group of institutions at bordering states with coordinating boards for both pre- and post-implementation years. While there are not many significant descriptive changes in these means in pre- and post-implementation for all institutions, these estimates neglect heterogeneity by the sector of the institution, which will be explored in the formal analysis.

### **Sample and Measures**

The sample consists of all postsecondary institutions in Tennessee, including colleges eligible for the Tennessee Promise program and those that were excluded. In addition, I gather data on institutions in all states to provide multiple specifications of the hypothetical counterfactual condition to the Tennessee intervention in order to provide the most robust comparison group and increase confidence in the estimates.<sup>13</sup>

---

<sup>12</sup> It is important to note that some of the variables such as fees, in-state, and out-of-state enrollment are missing for some of the institutions. After exploring whether these missing observations were systematic it became clear that while almost all of the public institutions report differences in in-state and out-of-state tuition and fees, private institutions do not report this information to IPEDS.

<sup>13</sup> I conducted analysis utilizing all states, all states with similar higher education governance structures, bordering states with similar higher education governance structures and Kentucky as the alternative comparison groups. After comparing these counterfactual groups, it became clear that the best fit comparison group was the group of

Furthermore, based on previous research, I include a multitude of measures for the cost of attendance to capture more nuanced variation in the institutional pricing behavior (Long 2004). Specifically, distinguishing between in-state and out-of-state tuition and fees will capture the potential for institutions to differentially shift pricing based on the residence of the student. Finally, isolating the in-state required fees and the out-of-state required fees can illuminate whether institutions are keeping tuition stable, but manipulating fees.

Likewise, the various measures of enrollment trends capture multiple potential areas for shifts to occur. While total enrollment is interesting, the difference between the enrollment of first-time undergraduate in-state and out-of-state students may also reveal shifting institutional priorities in recruitment. Additionally, the shifts in enrollment among racial and ethnic minorities also provides a more nuanced analysis of the types of students whose enrollment behavior is changing as a result of the Promise scholarship.

### **Empirical Approach**

To evaluate the effects of Tennessee Promise eligibility on tuition and fees and enrollment, I employ an innovative design that leverages the introduction of the Promise policy as the source of plausibly exogenous variation along with pre- and post-implementation variation. While it would be ideal to observe true counterfactual conditions, as in randomized experiments, this design attempts to account for the potential selection bias through the comparison of treatment and control groups over time (Morgan and Winship 2014). As such, the specification of the comparison group is especially important for the validity of the design. For this reason, I perform the analysis on multiple comparison groups. In the results presented below, I utilize the most empirically robust and theoretically relevant comparison group, which consists

---

bordering states with similar higher education governance structures (i.e. coordinating boards). However, the results are also presented with all states as the comparison group in Appendix A.

of neighboring states with similar higher education governance structures.<sup>14</sup> Within the analysis, there are three groups of institutions specified: the first group is made up of institutions eligible for the Tennessee Promise, the second group is made up of the institutions in Tennessee that are not Promise eligible and the final group of institutions in the comparison group serve as the hypothetical counterfactual to both of the previous two groups.

The comparison or nonequivalent no-treatment control group provides a comparison with a group of institutions that might be affected by other events that could be influencing Tennessee institutions but not through the treatment. Thus, this comparison decreases the likelihood of omitted variable bias. Furthermore, by using the timing of an intervention (plausibly exogenous variation) to construct pre-post conditions, a comparison can be made between treatment and control groups with regard to pre-treatment conditions. In effect, this design exploits within-institution and inter-temporal variation to estimate the difference in post-implementation outcomes (enrollment and tuition and fees) for ineligible and for eligible Tennessee Promise institutions as compared to the institutions in the no-treatment control group. In essence, I utilize the introduction of the Promise program as a natural or quasi- experiment for assessing the impact of the policy on outcomes of interest.

This design will be implemented in a regression framework represented in the equation below:

$$\text{Cost}_{it} = \alpha + \beta_n(\text{Promise}_i * D_n) + \alpha_i + \lambda_t + \epsilon_{i,t} \quad (1)$$

$$\text{Enroll}_{it} = \alpha + \beta_n(\text{Promise}_i * D_n) + \alpha_i + \lambda_t + \epsilon_{i,t} \quad (2)$$

---

<sup>14</sup> These states are Alabama, Kentucky, Arkansas, Virginia, Missouri, and South Carolina. Based on the work of policy diffusion scholars (Shipan and Volden 2008) and higher education policy scholars on governance structures (Knott and Payne 2004), this comparison group should (and does) provide the best approximation of a hypothetical counterfactual to Tennessee institutions.

Equation 1 and 2 predict enrollment and tuition and fees, as a function of two separate dichotomous eligibility variables indicating whether institutions ( $i$ ) were eligible or ineligible (*Promise*) interacted with each year relative to implementation ( $D_n$ ), as well as the intercept  $\alpha$ , and a vector of individual, institutional effects ( $\alpha_i$ ) and a vector of time, year-level effects ( $\lambda_t$ ). I include institution and year fixed effects to control both for time-invariant individual specific factors as well as individual-invariant unobserved time factors, respectively.<sup>15</sup> The parameter of interest is  $\beta_n$  which will be presented in each year ( $n$ ) relative to the year of implementation to allow for a nuanced evaluation of the parallel trend assumption, or the likelihood that institutions in Tennessee are not comparable on some measures to institutions in the control group in the years leading up to Promise implementation. To do so, this innovative model estimates a coefficient for each pre-treatment as well as post-treatment year that compares the eligible and ineligible institutions in Tennessee to those institutions in the control group.<sup>16</sup> Previous literature has utilized this model to explore displaced workers and the impact of school closure, but it has not been effectively integrated into the higher education literature to the best of my knowledge (Jacobson et al. 1993; Stevens 1997; Brummet 2014). This type of model is uniquely suited for assessing a policy like the Tennessee Promise given the potential for pre-treatment trends to confound the model.

Finally, it should be noted that in each of the models, I exclude the dichotomous variable representing one year prior to the year in which there are likely impacts of the Tennessee Promise. This is so that all values are held constant and compared to the hypothetical

---

<sup>15</sup> For all of the models, standard errors are clustered at the institution level in accordance with the best practices advocated by Bertrand et al. (2002).

<sup>16</sup> If any of the pre-treatment coefficients are statistically different from zero, this is considered as violating the parallel trend assumption, suggesting that the comparison group is not providing a good counterfactual on that measure.



counterfactual year in which the Promise was not yet impacting eligible and ineligible institutions. Therefore, for the models assessing the impact of eligibility on enrollment, the year of announcement (2014) is utilized as the reference category. This is due to the fact that students start to experience the impacts of the Promise program immediately in the year of implementation due to increased availability of state funds for eligible institutions (2015). However, in the models utilizing tuition and fees as the dependent variable, the first year of implementation (2015) is utilized as the reference category for multiple reasons. First, this year makes more sense as the reference category due to the fact that university administrators set tuition and fee levels prior to the beginning of each school year and are only able to observe major shifts caused by the Promise policy on enrollment and capacity levels after the first year of implementation. While the shifts in tuition and fees during the year of implementation likely represent *symbolic* impacts of the Promise policy, this paper is more concerned with the shifts caused by the observed impacts of the Promise policy on enrollment and capacity, which emerge after the first year of implementation.<sup>17</sup>

### *Identification Assumptions*

The primary identification assumption of this design is that there are parallel pre-treatment trends in the treatment and comparison groups. In order to formally test this assumption, I include the set of pre-implementation dummies to assess trends prior to implementation. Given that I expect the implementation of the Promise program to be exogenous, the coefficients on these variables should be similar and generally indistinguishable from zero. If this is not the case, I caution interpreting the results below as causal estimates. As a preliminary assessment, I provide descriptive visual evidence of the trends in tuition and fees and

---

<sup>17</sup> I also perform the analysis with 2014 as the reference year, and can present those results as well upon request.

total enrollment for promise eligible, promise ineligible and comparison in the main and alternative comparison group in Figures 1-2. Both of these figures provide preliminary evidence in support of the parallel trends assumption; neither of the treatment groups exhibit drastically different pre-treatment trends in tuition and fees and total enrollment compared to the hypothetical control group. However, this becomes a serious problem when I restrict the sample to subsets of institutions. As a result, I caution against causal interpretation of the estimates presented in the findings.

[Insert Figure 1 & Figure 2]

Another important identification assumption of this design is that any relative shift in the outcomes are attributable to shifts in response to the implementation of the Promise program and not another policy that was implemented simultaneously. This is a major barrier to uncovering causal estimates in this case due to the large number of policy innovations that Tennessee has pursued in higher education in recent years. For example, changes have been made to remedial education through the SAILS program, the Knox Achieves and the TN Achieves programs could be simultaneously affecting enrollment outcomes. Additionally, there has been legislation on tuition and fees that may also be a concern. In order to address this concern, I reviewed the legislation passed in the 2014 and 2015 state legislative sessions and spoke with the Tennessee Higher Education Commission. The main piece of legislation that appeared to present this type of threat was the tuition stability act, which was not passed by the state legislature. However, in order to account for the potential symbolic influences of this act, I gathered data from IPEDS on whether institutions implemented tuition guaranteed plans, in which they can only raise tuition by a certain percentage each year.<sup>18</sup> Only 16 institutions in Tennessee have implemented tuition

---

<sup>18</sup> For more info on tuition guaranteed policies see Delaney and Kearney (2016).

guaranteed policies total; 13 of these institutions are private for-profit schools while the remaining 3 are private non-profit schools. In order to control for this potentially confounding influence, I included this dichotomous variable in the models as a robustness check. Based on the similarity of these results, I exclude this variable in the main models presented below and conduct analysis that includes these institutions assuming that this influence is captured in the institutional fixed effect. Furthermore, while I have attempted to control for the confounding influences of simultaneously occurring policies, it should be noted that the results should still be interpreted with a degree of caution when it comes to causality. However, given the data that are available, this empirical approach gets the closest it can to uncovering precise estimates in cases where the parallel trend assumption is not violated.

## **Results**

The model results for changes in enrollment for all higher education institutions are summarized in Table 3 below. The years prior to implementation are reported as a validity check assessing the presence of pre-treatment trends. As you can see, these pre-treatment coefficients are all not statistically different from zero except for a couple of cases. Thus, the results for this variable should be interpreted with caution, due to the violation of the parallel trends assumption. In fact, even in cases where there are not violations of this assumptions, readers should still interpret the results with serious caution due to the fact that we now know that institutions in Tennessee are exhibiting different pre-treatment trends in some of these measures. This means that other simultaneously occurring innovations in Tennessee are likely also playing a role in the results. Therefore, these estimates are likely better interpreted as descriptive.

[Insert Table 3 Here]

As you can see, promise eligible institutions experienced significant increases in total enrollment post-implementation. Given the magnitude of the incentives and the widespread take-up of Promise benefits, this approximately 3 percent increase in enrollment at eligible institutions was expected.<sup>19</sup> Additionally, black enrollment declines at in-eligible institutions after the implementation of the Promise scholarship. This is in line with previous research that suggests increasing financial aid has a strong positive effect on the number of Black student college applications and enrollment (Jackson 1990; John and Noell 1989). Furthermore, in this context, this finding suggests that the Promise scholarship may have led to a displacement of some Black students from ineligible Promise institutions. This is especially important to note for the potential effects this shift in enrollment might have on diversity at both promise eligible and promise ineligible institutions.

[Insert Table 4 Here]

Next, I present the results on shifts in tuition and fees in Table 4 above. While there are statistically significant shifts in both combined tuition and fees as well as fees, there are problematic pre-treatment trends in the combined tuition and fees models that prevent clear interpretation. Indeed, while it appears that ineligible institutions raised tuition and fees in response to the Promise policy, the significant coefficients in the year prior to implementation make it unclear whether these shifts were caused by the policy or by some other trend happening in ineligible institutions in Tennessee at the same time. However, the decrease in fees by Promise eligible institutions is marginally significant and does not suffer from violating the pretreatment trends assumption. Nevertheless, this relationship does not hold up when an alternative comparison group is utilized, which means that this result should be interpreted with skepticism.

---

<sup>19</sup> All of the substantive impact assessments are based on the model coefficient and pre-treatment mean values.

## **Analysis by Type of Institution**

While the average effects of Tennessee Promise eligibility on all institutions is theoretically interesting, these estimates also mask significant heterogeneity that emerges when each type of institution is considered separately. In this section, I distinguish between the impacts of Tennessee Promise eligibility on public institutions and private institutions. This allows a direct comparison of eligible and ineligible public and private universities in Tennessee and those in the neighboring states included in the control group.

### **Public Institutions**

The results for public institutions are summarized in Table 5 for enrollment and Table 6 for tuition and fees.

[Insert Table 5]

The effects of the Tennessee Promise on enrollment becomes more pronounced when looking at shifts in public institution enrollment. First, public ineligible institutions experience sharp declines in in-state enrollment (approximately 6 percent) and a rise in out-of-state enrollment (approximately 14 percent). The effects of the Promise program are mirrored in the large increase in total enrollment post-implementation for public eligible institutions (approximately 4.5 percent). These findings suggest that ineligible public institutions, possibly in response to declining in-state enrollment due to the Promise policy, recruit more out-of-state students in order to make up for potentially lost enrollment revenue. In this way, as we would expect based on resource dependence theory, these institutions are responding in a risk averse manner in response to the impacts of shifting external environments.

Also, interestingly, ineligible public institutions experience a slight increase in Black enrollment as well as a very small decrease in Hispanic enrollment. This suggests that the overall

decline in Black enrollment at ineligible institutions is not happening at the public institutions. However, these results are substantively small; the increase in black enrollment at ineligible institutions is 0.5 percent and the decline in Hispanic enrollment is 0.2 percent. Therefore, the large substantive decrease in Black enrollment does not appear to be evident in the ineligible public institutions, suggesting that private institutions are the ones that experience drops in Black enrollment after the Promise policy is implemented.

[Insert Table 6]

Furthermore, as you can see, pretreatment trends become a major issue when I restrict the sample to only public institutions and model the impact of promise eligibility on tuition and fees. The only results I interpret as likely somewhat attributable to the Promise implementation are estimates are those without significant coefficients in the pretreatment time periods. Thus, the most striking finding is the large and significant increase in average and out-of-state tuition and fees among Promise eligible institutions (approximately 9.8 percent increase in average tuition and fees). In opposition to previous research that casts doubt on the Bennett hypothesis, this finding provides some support for the notion that eligible institutions attempt to capture additional state dollars after the Promise scholarship is implemented. However, these results are consistent across in-state and out-of-state tuition and fees measures. This could be due to the possibility that promise eligible public institutions are at capacity and no longer need to recruit out-of-state students due to the large increases in in-state enrollment. It could also be the case that Promise institutions are attempting to raise more revenue through tuition and fees due to the increased cost of administration and student services following explosive growth in enrollment. Regardless of the underlying reason, the large and significant increase in tuition and fees by

public promise eligible institutions is an interesting and unexpected finding considering the previous falsifications of the Bennett hypothesis in the context of higher education finance.

Additionally, public institutions that are ineligible for the Promise policy decrease fees in response. These results are particularly pronounced for out-of-state fees and could present more evidence of the shift toward recruiting more out-of-state students in an effort to ensure adequate resources amidst declining in-state enrollment. However, it is interesting that these shifts are evident among less visible costs of attendance such as fees as opposed to tuition levels. Finally, the other results should be interpreted cautiously due to the presence of pretreatment trends, as this violates the identification assumptions of this design. For instance, even though the post-implementation coefficient for average tuition and fees is significant and negative for ineligible institutions, there is an obvious trend prior to implementation that confounds clear interpretation of this relationship.

### **Private Institutions**

Model results for private institutions are presented in Table 7 for enrollment and Table 8 for tuition and fees. It should be noted that private institutions did not indicate a difference between in-state and out-of-state tuition and fee measures. Thus, these results do not give us an idea of whether the tuition and fees varies for in-state and out-of-state students.

[Insert Table 7]

While the majority of the enrollment measures are not statistically significant, the results do suggest a significant shift in Black student enrollment. Specifically, there is a statistically significant decline in the percentage of Black students (around 2.3 percent substantively) at private ineligible institutions post Promise implementation. In fact, when the analysis is conducted separately for non-profit and for-profit colleges, it becomes clear that the drop in

Black enrollment is actually occurring at private for-profit ineligible colleges. Moreover, it is also interesting that there is not a statistically recognizable increase in total enrollment. This suggests that students are flocking to public Promise eligible institutions and not necessarily the private institutions that are eligible for the Promise. Taken together, these results suggest that there is shifting among sectors in response to the Promise policy implementation, especially for some of the most vulnerable student populations. Finally, there are no robust changes in tuition and fees among private institutions as a result of the Promise policy implementation.

[Insert Table 8]

### **Robustness Checks**

To assess the robustness of the results presented above, I rerun the analysis with an alternative comparison group. Specifically, I utilize a comparison group made up of institutions in all states instead of just neighboring states with similar higher education governance structures. The results for these models are presented in the Appendix A and provide similar estimates in almost every model. Indeed, when using all states as the alternative comparison group, the changes in racial and ethnic minority enrollment, as well as the shifting in-state and out-of-state enrollment are consistent. Additionally, the findings reveal remarkably similar estimates regarding the increase in tuition and fees among public promise eligible institutions. Together, the consistency of these results provides more support for the findings regarding shifting enrollment across institutions as a function of eligibility. In addition, this supplementary analysis provides confirmation on the finding regarding Promise eligible institutions shifting price setting behavior to capture additional state dollars (Curs and Dar 2010a).

### **Discussion and Implications**



As expected, Tennessee Promise eligibility had a substantial impact on enrollment and tuition and fees. However, it should be noted that due to the potential for other simultaneously occurring reforms implemented by THEC, it is essential to interpret the results with a degree of caution. Nevertheless, the findings presented above reveal two main insights on the descriptive impacts of Tennessee Promise eligibility. First, the findings reveal significant enrollment shifts across institutions as a function of both eligibility and ownership. Second, the findings uncover large increases in tuition among promise eligible institutions that provides support for the Bennett Hypothesis.

To the first point, as expected, promise eligible institutions experienced large enrollment gains, which supports previous financial aid research showing the positive impacts of financial aid on the likelihood of college enrollment (Dynarski 2000, Dynarski 2003). More specifically, public promise eligible institutions experienced large gains in total and particularly in-state enrollment. Meanwhile, ineligible public institutions experienced highly significant declines in in-state enrollment and an increase in out-of-state enrollment. First, this suggests that the promise policy is contributing to a shift in enrollment among in-state students to Promise eligible public institutions as opposed to largely four-year Promise ineligible public institutions. Second, these findings support RDT and previous research, highlighting the tendency for administrators to recruit more out-of-state students (that pay higher tuition rates on average) to make up for the decline in in-state enrollment due to the Promise policy (Pfeffer & Salancik, 1978; Delaney and Kearney 2016). Taken together, these results likely reflect ineligible public organizations' attempting to ensure their fiscal stability and survival in the midst of a rapidly shifting higher education funding climate.

Furthermore, in line with previous research, racial and ethnic minority enrollment shifted in response to the implementation of the promise policy. Specifically, the percentage of black students at private ineligible institutions declined by around 2.3 percent. This suggests, in line with previous research, that black students in Tennessee were particularly influenced by the availability of state aid flowing to promise eligible institutions when making enrollment decisions (Dynarski 2000; Scott-Clayton 2011; John and Noell 1989). Moreover, the decrease in black enrollment occurred specifically in the private for-profit sector which makes sense given the structure of the promise policy.<sup>20</sup> If a student meets the eligibility criteria and is choosing between a similar program at a two-year public college, where all of tuition and fees would be covered, and a private college where only some or none of tuition and fees would be covered, this incentive tips the balance away from enrolling at private institutions, especially for economically disadvantaged students. Moreover, these types of shifts in enrollment behavior could potentially have an impact on the racial and ethnic diversity at both eligible and ineligible institutions. Yet again, this reflects another potential consequence of Promise policies that should be considered when determining which institutions are eligible and ineligible.

Next, the findings reveal highly significant increases in tuition and fees among public promise eligible institutions, which provides support for the Bennett hypothesis. While many previous studies do not find support for the Bennett hypothesis in the context of other more traditional student financial aid policies, the implementation of a tuition-free community college of this magnitude represents a large deviation from the norm. Whereas previous financial aid policies work as supply side subsidies that offset the cost of tuition, fees, and living expenses,

---

<sup>20</sup> The models were also run restricting the sample to private for-profit institutions and to private non-profit institutions, which revealed the decrease in black students in the for-profits specifically. These model results are available upon request!

tuition-free community college policies essentially erase the cost of tuition and fees from the equation entirely for eligible in-state students. Therefore, it is not entirely surprising that promise eligible public institutions, that are likely already under-resourced, raise tuition and fees in response to the availability of state subsidies which fully cover tuition and fees for all in-state students meeting eligibility criteria.

## **Conclusion**

In the midst of rapidly diffusing tuition-free community college policies, it is essential for scholars to better understand the likely consequences of design choices such as limited institutional eligibility. Based on the results above, two main insights from this study should guide future discussions of institutional eligibility. First, promise eligibility may incentivize institutions to raise tuition and fees to capture additional state dollars, especially due to the nature of the policy design. In-state students no longer have to worry about the sticker price of tuition and fees if they meet the eligibility requirements for the program, which leaves promise eligible institutions without any incentive to control tuition and fee levels.

Second, shifting student behavior in response to Promise programs can fundamentally shift the incentives and constraints that institutions face, which can translate to changing institutional behavior. As more students attend Promise eligible institutions ineligible institutions bear the brunt of these shifts in resource constraints, which has serious implications for institutional behavior. In fact, in a recent interview, the president of the University of Tennessee-Martin said that administrators are working to counter displaced enrollment by recruiting out-of-state students and incentivizing students to transfer from eligible Tennessee Promise institutions (Tamburin 2015). In line with these comments, findings from this analysis suggest that the implementation of the Tennessee Promise had significant effects for enrollment at ineligible

public colleges. Indeed, the most striking results reveal the substantial decline in enrollment at ineligible public (four-year) universities, as well as the displacement of racial and ethnic minority student enrollment away from private ineligible institutions. This could be problematic if by only allowing Promise aid to flow to mainly two-year institutions, we encourage highly qualified students to undermatch, or choose an institution that has a relatively low average achievement level compared to the students' academic merit (Smith et al. 2013; Pallais and Turner 2006; Hoxby and Avery 2013; Dillon and Smith 2017). Furthermore, scholars are beginning to question whether only incentivizing attendance at institutions with the fewest resources (community colleges) will not increase college attainment as originally intended (Deming 2017). This is particularly problematic given the vast increases in enrollment at low resource institutions, that may not be able to offer the same level of quality services in the face of rapid student enrollment growth (Deming 2017).

Moving forward, scholars should investigate the effects of limiting institutional eligibility in other state and local contexts, such as New York, Oregon and Kentucky<sup>21</sup>. Expanding these types of analyses will enable a better scholarly understanding of the ways in which institutions of higher education respond to massive free-tuition programs when they are excluded from eligibility. Moreover, future research should attempt to address the most important limitation in this analysis—the unclear causal mechanism; whether shifts in tuition and fees are caused by shifting enrollment or shifting enrollment caused changes in institutional pricing remains an open question. While the data in this analysis is not well suited to address this question, scholars should investigate this explicitly in future studies. Furthermore, researchers should attempt to

---

<sup>21</sup> The new state-wide Promise program in New York also limits institutional eligibility to only publicly owned institutions, which based on these results may result in consequences both for ineligible institutions and potentially incentivize eligible institutions to raise tuition and fees to capture additional state dollars.

employ models that more clearly isolate the influence of single policy innovations in Tennessee, which is especially difficult considering the fact that some innovations happen simultaneously. Additionally, future research should also address the ways in which institutions are coping with rapidly expanding student populations, especially at the public two-year institutions. Finally, researchers should utilize individual-level data to investigate the undermatch hypothesis in the context of free-tuition policies in which only two-year universities are eligible.

## References

- Bartik, T. J., Hershbein, B. J., & Lachowska, M. (2015). The Effects of the Kalamazoo Promise Scholarship on College Enrollment, Persistence, and Completion (SSRN Scholarly Paper No. ID 2624727). Rochester, NY: Social Science Research Network. Retrieved from <https://papers.ssrn.com/abstract=2624727>
- Baum, S. & Ma, J. (2014). *Trends in college pricing*. College Board, Trends in Higher Education Series.
- Bertrand, M., Duflo, E., & Mullainathan, S. (2002). How much should we trust differences-in-differences estimates? (No. w8841). *National Bureau of Economic Research*.
- Brummet, Q., (2014). The effect of school closings on student achievement. *Journal of Public Economics*, 119, pp.108-124.
- Carruthers, C. K., & Fox, W. F. (2016). Aid for all: College coaching, financial aid, and post-secondary persistence in Tennessee. *Economics of Education Review*, 51, 97-112.
- Chen, R., & DesJardins, S. L. (2010). Investigating the impact of financial aid on student dropout risks: Racial and ethnic differences. *The Journal of Higher Education*, 81(2), 179-208.
- College Promise Campaign. (2017). About the College Promise Movement. Retrieved from <https://collegepromise.org/>
- Curs, B. R., & Dar, L. (2010a). Does state financial aid affect institutional aid? An analysis of the role of state policy on postsecondary institutional pricing strategies. *Social Science Research Network*.
- Curs, B. R., & Dar, L. (2010b). Do Institutions Respond Asymmetrically to Changes in State Need- and Merit-Based Aid? (SSRN Scholarly Paper No. ID 1702504). Rochester, NY: *Social Science Research Network*. Retrieved from <https://papers.ssrn.com/abstract=1702504>
- Delaney, J. A., & Hemenway, B. (2017). Inside the Black Box: A Difference-in-Difference Analysis of Shifts in Postsecondary Institution Spending Patterns in Response to “Promise” Financial Aid Programs. Paper presented at the Association of Education Finance and Policy.
- Delaney, J. A., & Kearney, T. D. (2016). Alternative student-based revenue streams for higher education institutions: A difference-in-difference analysis using guaranteed tuition policies. *The Journal of Higher Education*, 87(5), 731-769.
- Deming, D. & Dynarski, S. (2010). College aid, in *Targeting Investments in Children: Fighting Poverty When Resources are Limited*, ed. by P. B. Levine and D. J. Zimmerman, Chicago, IL: University of Chicago Press, chap. 10, 283–302.
- Deming, D. (2017). *Increasing College Completion with a Federal Higher Education Matching Grant*. The Brookings Institution, The Hamilton Project.
- Deming, D., & Dynarski, S. (2009). Into college, out of poverty? Policies to increase the postsecondary attainment of the poor (No. w15387). *National Bureau of Economic Research*.
- Deming, D., & Walters, C. (2016, November). The Impact of Price and Spending Subsidies on US Postsecondary Attainment. In 2016 Fall Conference: The Role of Research in Making Government More Effective. Association of Public Policy and Management Annual Meeting.

- Dillon, E., & Smith, J. (2017). The determinants of mismatch between students and colleges. *Journal of Labor Economics* 35(1):45–66.
- Doyle, W. R., Delaney, J. A., & Naughton, B. A. (2009). Does Institutional Aid Compensate for or Comply with State Policy? *Research in Higher Education*, 50(5), 502-523.
- Dynarski, S. (2000). Hope for whom? Financial aid for the middle class and its impact on college attendance (No. w7756). *National bureau of economic research*.
- Dynarski, S. M. (2003). Does Aid Matter? Measuring The Effect Of Student Aid On College Attendance And Completion. *American Economic Review*, 279-288.
- Hoxby, C., & Avery, C. (2013). The “missing one-offs”: The hidden supply of high-achieving, low-income students. *Brookings Papers on Economic Activity* 46(1):1–65. doi:10.1353/eca.2013.0000.
- Jackson, G. A. (1990). Financial Aid, College Entry, and Affirmative Action. *American Journal of Education*, 98(4), 523–550.
- Jacobson, L.S., LaLonde, R.J. & Sullivan, D.G. (1993). Earnings losses of displaced workers. *The American economic review*, pp.685-709.
- John, E. P. S., & Noell, J. (1989). The effects of student financial aid on access to higher education: An analysis of progress with special consideration of minority enrollment. *Research in higher education*, 30(6), 563-581.
- Knott, J. H., & Payne, A. A. (2004). The impact of state governance structures on management and performance of public organizations: A study of higher education institutions. *Journal of Policy Analysis and Management*, 23(1), 13-30.
- LeGower, M., & Walsh, R. (2017). Promise scholarship programs as place-making policy: Evidence from school enrollment and housing prices. *Journal of Urban Economics*, 101(Supplement C), 74–89. <https://doi.org/10.1016/j.jue.2017.06.001>
- Long, B. T. (2004). How do financial aid policies affect college? The institutional impact of the Georgia HOPE scholarship. *The Journal of Human Resources*, 39(4), 1045-1066.
- Long, B. T. (2008). *What is Known About the Impact of Financial Aid? Implications for Policy*. Cambridge, MA: National Center for Postsecondary Research.
- Lovenheim, M. F., & Owens, E. G. (2014). Does federal financial aid affect college enrollment? Evidence from drug offenders and the Higher Education Act of 1998. *Journal of Urban Economics*, 81, 1-13.
- Lowry, D. (2017). To Supplement or to Supplant? Institutional responses in financial aid to the Pittsburgh Promise. Paper presented at the 2017 Annual Meeting of the Association of Education Finance and Policy.
- Lowry, R. C. (2001). Governmental Structure, Trustee Selection, and Public University Prices and Spending: Multiple Means to Similar Ends. *American Journal of Political Science*, 45(4), 845-861.
- Martin, R. & Gillen, A. (2011). Measuring College Affordability. *Social Science Research Network*. Retrieved from <https://ssrn.com/abstract=1734914>
- McBain, L. (2011). *State Need-Based and Merit-Based Grant Aid: Structural Intersections and Recent Trends*. American Association of State Colleges and Universities.
- McLendon, M. K., Tandberg, D. A., & Hillman, N. W. (2014). Financing College Opportunity: Factors Influencing State Spending on Student Financial Aid and Campus Appropriations, 1990 through 2010. *The Annals of the American Academy of Political and Social Science*, 655(1), 143-162.

- Miller-Adams, M. (2009). *The Power of a Promise: Education and Economic Renewal in Kalamazoo*. Upjohn Press. <https://doi.org/10.17848/9781441612656>
- Miller-Adams, M. (2015). *Promise Nation: Transforming Communities through Place-Based Scholarships*. Upjohn Press. <https://doi.org/10.17848/9780880995061>
- Moody's Investor's Service. (2017). *Higher Education – US: "Free Tuition" Proposals Modestly Credit Positive For Sector; Poised to Expand*. Retrieved from [https://www.moody.com/research/Higher-Education-US-Free-Tuition-Proposals-Modestly-Credit-Positive-For--PBM\\_1058844](https://www.moody.com/research/Higher-Education-US-Free-Tuition-Proposals-Modestly-Credit-Positive-For--PBM_1058844)
- Morgan, S. L., & Winship, C. (2014). *Counterfactuals and causal inference*. Cambridge University Press.
- National Conference of State Legislators. (2016). Free Community College. Retrieved from <http://www.ncsl.org/research/education/free-community-college.aspx>
- Pallais, A., & Turner, S. (2006). Opportunities for low income students at top colleges and universities: Policy initiatives and the distribution of students. *National Tax Journal* 59(2):357–386. doi:10.17310/ntj.2006.2.08.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Haper & Row, Publishers.
- Pluhta, E. A., & Penny, G. R. (2013). The Effect of a Community College Promise Scholarship on Access and Success. *Community College Journal of Research and Practice*, 37(10), 723–734. <https://doi.org/10.1080/10668926.2011.592412>
- Rizzo, M. J., & Ehrenberg, R. G. (2003). Resident and NonResident Tuition and Enrollment at Flagship State Universities. NBER Working Paper 9516, Cambridge, MA.
- Scott-Clayton, J. (2011). On money and motivation a quasi-experimental analysis of financial incentives for college achievement. *Journal of Human Resources*, 46(3), 614-646.
- Shipan, Charles R., & Volden, Craig. (2008). The mechanisms of policy diffusion. *American Journal of Political Science*, 52(4), 840-857.
- Singell, L. D., & Stone, J. A. (2007). For whom the Pell tolls: The response of university tuition to federal grants-in-aid. *Economics of Education Review*, 26(3), 285–295. <https://doi.org/10.1016/j.econedurev.2006.01.005>
- Sjoquist, D. L., & Winters, J. V. (2012). Building the Stock of College-Educated Labor Revisited." *Journal of Human Resources* 47(1): 270-285.
- Smith, J., Pender, M., & Howell, J. (2013). The full extent of student-college academic undermatch. *Economics of Education Review*, 32, 247-261.
- Stevens, A.H. (1997). Persistent effects of job displacement: The importance of multiple job losses. *Journal of Labor Economics*, 15(1, Part 1), pp.165-188.
- Tamburin, A. (2015). College enrollment jumps under TN Promise. *The Tennessean*. Retrieved from <http://www.tennessean.com/story/news/education/2015/09/11/college-enrollment-jumps-under-tn-promise/72096194/>
- Tennessee Department of Education. (2015). Tennessee Promise: Frequently Asked Questions. Retrieved from <http://bit.ly/2lcpqg7>
- Tennessee Department of Education. (2017). The Tennessee Promise. Retrieved from <http://tnpromise.gov/about.shtml>
- Toutkoushian, R. K., & Shafiq, M. N. (2009). A Conceptual Analysis of State Support for Higher Education: Appropriations Versus Need-Based Financial Aid. *Research in Higher Education*, 51(1), 40-64.



Turner, N. (2009). Who Benefits from Student Aid? The Economic incidence of Tax-Based Federal Student Aid. UC San Diego: Department of Economics, UCSD. Retrieved from: <http://www.escholarship.org/uc/item/7g0888mj>

## Tables and Figures

Table 1. Number of Promise Eligible and Ineligible Tennessee Institutions, by Institution Type

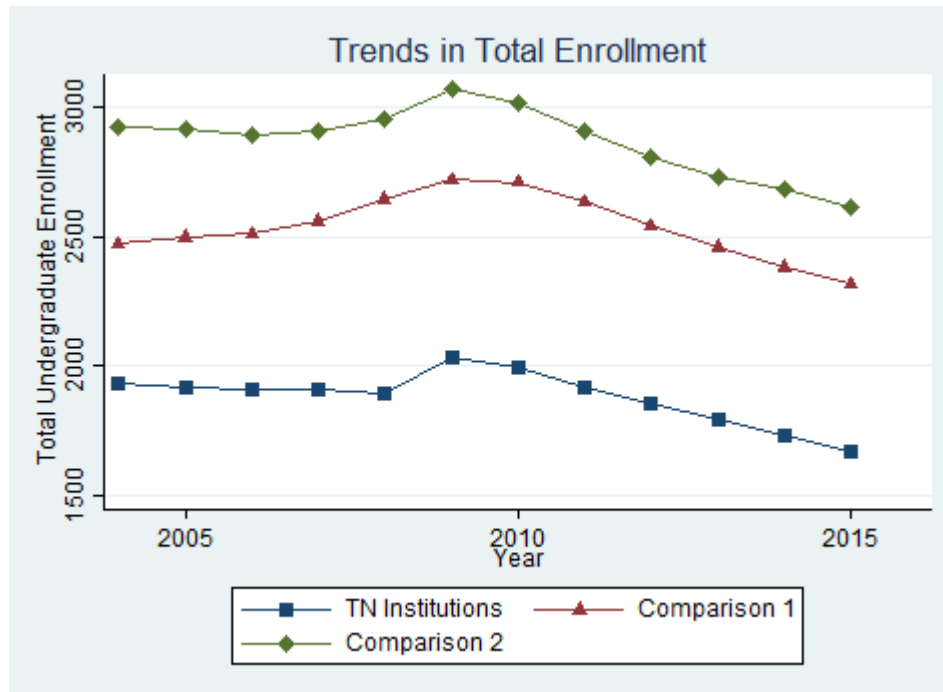
Type of Institution	Promise Eligible Institutions		Promise Ineligible Institutions	
	2015-16	2016-17	2015-16	2016-17
<i>By Ownership</i>				
Public	42	42	8	8
Private-For-Profit	2	1	86	84
Private-Non-Profit	15	18	36	32
<i>By Ownership &amp; Sector</i>				
Public 4-year	2	2	8	8
Public 2-year & Less than 2-year	40	40	0	0
Private 4-year	16	18	49	45
Private 2-year & Less than 2-year	1	1	73	71

**Note:** This table provides a descriptive overview of the variation in institutional eligibility by Promise Year and by institution type.

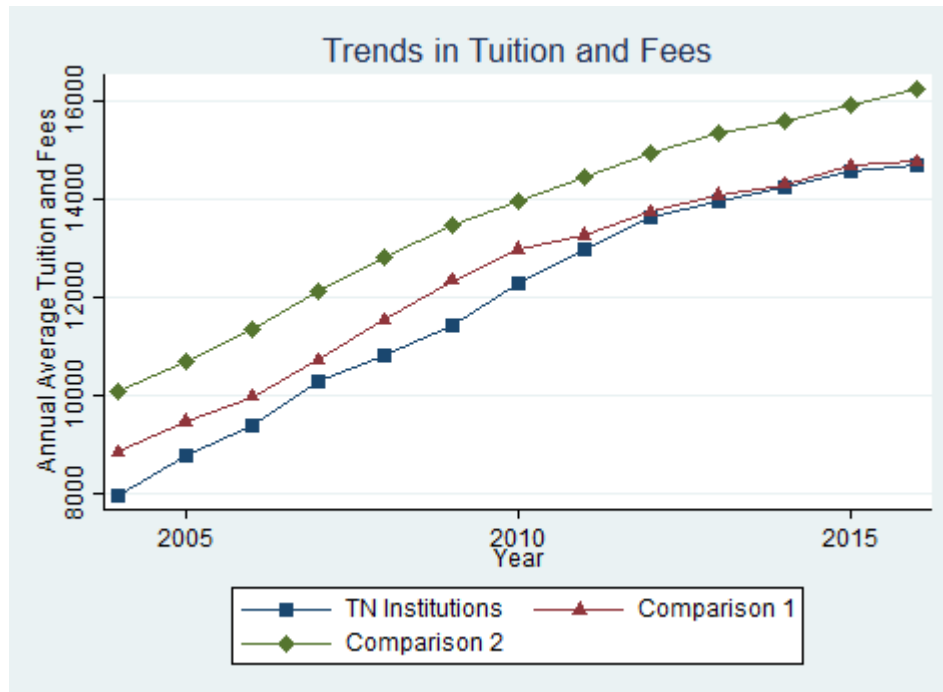
Table 2. Descriptive Statistics

	Sub-Group Means									Full Data		
	Promise			Non-Promise			Comparison Group			Mean	SD	N
	All	Pre	Post	All	Pre	Post	All	Pre	Post			
<b>Outcome Variables</b>												
<i>Tuition and Fees (in thousands)</i>												
Tuition and Fees	10.4	10.1	10.7	16.4	16.2	16.5	14.2	14.0	14.4	15.4	9.5	32817
In-State Tuition and Fees	8.9	8.8	9.2	15.9	15.8	16.1	13.2	13.1	13.4	14.6	9.9	32817
Out-of-State Tuition and Fees	11.8	11.5	12.2	16.8	16.7	17.1	15.1	14.9	15.3	16.1	9.4	32817
In-State Fees	0.58	0.55	0.64	0.66	0.64	0.68	0.75	0.71	0.81	0.76	1.3	20118
Out-of-State Fees	0.67	0.64	0.71	0.67	0.65	0.69	0.86	0.81	0.93	0.81	1.6	20118
<i>Enrollment Characteristics</i>												
Percent Black Enrollment	0.18	0.18	0.18	0.31	0.32	0.30	0.28	0.28	0.28	0.19	0.22	26975
Percent Hispanic Enrollment	0.03	0.03	0.03	0.04	0.03	0.05	0.04	0.03	0.04	0.14	0.19	26975
Total Enrollment	2460	2464	2449	1306	1333	1231	2378	2398	2316	2623.3	5790.9	26975
In-State Enrollment	536.3	474.9	818.9	236.7	214.6	378.4	426.4	396.3	601.1	466.1	915.3	18360
Out-of-State Enrollment	45.9	42.8	60.3	71.9	61.2	140.5	108.3	99.8	158.1	90.3	293.7	18360

**Note:** This table provides the descriptive statistics for both treatment groups and the main control group. The descriptive statistics are broken up by pre-treatment and post treatment to enable a descriptive comparison between these groups across years. All tuition and fees variables are presented in thousands for ease of interpretation.



**Figure 1.** This figure provides a descriptive assessment of the enrollment trends in the treatment group and the two comparison groups in the analysis.



**Figure 2.** This figure provides a descriptive assessment of the tuition and fees trends in the treatment group and the two comparison groups in the analysis.

Table 3. Enrollment Estimates for All Institutions

	Enrollment Counts			Percent Racial Minority	
	Total Enrollment	In-state	Out-of-State	% Black	% Hispanic
<i>In-Eligible Institutions</i>					
Pre Year 2 * ineligible	-36.7 (30.5)	-6.6 (6.05)	-0.11 (4.6)	-0.01 (0.07)	-0.002 (0.002)
Pre Year 1 * ineligible	-22.5 (15.9)	<b>-24.5*</b> <b>(13.4)</b>	-1.7 (5.0)	-0.008 (0.005)	-0.002 (0.003)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	20.7 (15.5)	-16.4 (15.2)	5.5 (6.3)	<b>-0.020**</b> <b>(0.009)</b>	0.002 (0.003)
<i>Promise Eligible Institutions</i>					
Pre Year 2 * eligible	31.5 (52.8)	-7.7 (13.9)	0.72 (3.64)	0.005 (0.004)	-0.002 (0.002)
Pre Year 1 * eligible	19.0 (30.3)	<b>-37.2**</b> <b>(14.9)</b>	4.56 (4.40)	0.003 (0.004)	<b>-0.002*</b> <b>(0.001)</b>
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	<b>67.2**</b> <b>(29.3)</b>	<b>196.6***</b> <b>(47.0)</b>	3.47 (6.96)	-0.003 (0.003)	0.002 (0.002)
Constant	2241.2*** (4.5)	410.1*** (1.5)	99.7*** (0.83)	0.28*** (0.001)	0.05*** (0.000)
N	3582	2494	2494	3582	3582
N Institutions	927	896	896	927	927

Note: \*\*\*p < .01; \*\*p < .05; \*p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on states that are bordering Tennessee and have similar higher education governance structures (i.e. coordinating boards instead of governing boards)

Table 4. Cost of Attendance Estimates- All Institutions

	Tuition and Fees			Fees	
	Average	In-state	Out-of-State	In-State	Out-of-State
<i>In-Eligible Institutions</i>					
Pre Year 3 * ineligible	-24.4 (174.2)	-83.4 (172.2)	34.6 (179.8)	66.8 (47.1)	<b>81.5*</b> <b>(47.8)</b>
Pre Year 2 * ineligible	73.6 (141.7)	35.5 (140.0)	111.6 (146.1)	49.5 (41.3)	58.2 (41.6)
Pre Year 1 * ineligible	<b>137.0*</b> <b>(71.7)</b>	<b>121.8*</b> <b>(71.3)</b>	<b>152.2*</b> <b>(72.7)</b>	55.3 (42.2)	61.9 (42.3)
Year of Implementation	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	<b>400.9***</b> <b>(145.2)</b>	<b>431.5***</b> <b>(132.7)</b>	<b>370.5**</b> <b>(170.2)</b>	-14.1 (19.1)	-20.7 (19.3)
<i>Promise Eligible Institutions</i>					
Pre Year 3 * eligible	114.9 (163.2)	164.7 (161.6)	65.2 (173.4)	35.4 (42.7)	37.2 (44.6)
Pre Year 2 * eligible	-138.2 (122.2)	-96.7 (120.3)	-179.7 (132.1)	1.9 (37.1)	0.81 (37.9)
Pre Year 1 * eligible	34.1 (81.2)	49.6 (81.6)	18.7 (81.7)	-0.44 (17.9)	1.6 (18.2)
Year of Implementation	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	164.5 (163.0)	146.3 (156.4)	182.6 (178.2)	<b>-39.6*</b> <b>(21.3)</b>	<b>-41.7*</b> <b>(21.9)</b>
Constant	14620.6*** (34.3)	13687.8*** (33.2)	15553.5*** (36.2)	754.1*** (5.5)	816.8*** (6.0)
N	4355	4355	4355	2900	2900
N Institutions	945	945	945	621	621

Note: \*\*\* p < .01; \*\* p < .05; \* p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on states that are bordering Tennessee and have similar higher education governance structures (i.e. coordinating boards instead of governing boards)

Table 5. Enrollment Estimates- Public Institutions

	Enrollment Counts			Percent Racial Minority	
	Total Enrollment	In-state	Out-of-State	% Black	% Hispanic
<i>In-Eligible Institutions</i>					
Pre Year 2 * ineligible	230.8 (334.3)	20.7 (55.9)	-35.3 (27.6)	0.005 (0.005)	-0.000 (0.002)
Pre Year 1 * ineligible	43.3 (160.3)	-70.6 (79.3)	-30.9 (21.8)	0.000 (0.003)	0.000 (0.001)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	-115.7 (85.3)	<b>-168.1***</b> <b>(30.4)</b>	<b>29.8*</b> <b>(17.3)</b>	<b>0.005**</b> <b>(0.002)</b>	<b>-0.002**</b> <b>(0.001)</b>
<i>Promise Eligible Institutions</i>					
Pre Year 2 * eligible	-40.5 (80.1)	-28.8 (19.4)	8.7 (6.2)	0.003 (0.005)	-0.003 (0.002)
Pre Year 1 * eligible	-22.7 (45.4)	<b>-58.9***</b> <b>(20.1)</b>	<b>14.8**</b> <b>(6.1)</b>	0.001 (0.004)	-0.002 (0.002)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	<b>136.9***</b> <b>(43.5)</b>	<b>229.8***</b> <b>(52.9)</b>	0.21 (8.3)	-0.003 (0.003)	-0.001 (0.002)
Constant	5494.8*** (12.1)	949.9*** (4.0)	166.5*** (1.9)	0.20*** (0.001)	0.03*** (0.001)
N	1104	929	929	1104	1104
N Institutions	277	273	273	277	277

Note: \*\*\* p < .01; \*\* p < .05; \* p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on states that are bordering Tennessee and have similar higher education governance structures (i.e. coordinating boards instead of governing boards)



Table 6. Cost of Attendance Estimates- Public Institutions

	Tuition and Fees			Fees	
	Average	In-state	Out-of-State	In-State	Out-of-State
<i>In-Eligible Institutions</i>					
Pre Year 3 * ineligible	<b>-912.7*</b> (484.0)	<b>-866.1**</b> (344.7)	-959.3 (786.7)	-135.2 (92.3)	-90.7 (91.8)
Pre Year 2 * ineligible	-276.7 (343.8)	<b>-381.9***</b> (107.5)	-171.4 (640.4)	-80.3 (68.6)	-49.9 (66.6)
Pre Year 1 * ineligible	<b>-161.3**</b> (69.7)	<b>-114.9 **</b> (54.8)	<b>-207.8*</b> (109.0)	-2.7 (85.2)	18.1 (83.9)
Year of Implementation	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	<b>-1116.5**</b> (561.0)	<b>-545.3***</b> (171.4)	-1687.6 (1199.3)	<b>-29.1*</b> (16.2)	<b>-43.1**</b> (17.5)
<i>Promise Eligible Institutions</i>					
Pre Year 3 * eligible	169.8 (119.6)	115.7 (92.3)	223.8 (168.3)	<b>104.8***</b> (28.6)	<b>112.1**</b> (43.0)
Pre Year 2 * eligible	-1.2 (107.8)	-3.5 (90.1)	1.2 (145.1)	<b>71.7***</b> (23.2)	<b>70.8**</b> (32.5)
Pre Year 1 * eligible	82.7 (80.2)	65.3 (77.3)	100.1 (87.0)	<b>35.4**</b> (13.8)	<b>43.7**</b> (17.9)
Year of Implementation	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	<b>659.4***</b> (177.9)	<b>624.9***</b> (133.3)	<b>693.9**</b> (241.2)	<b>-48.9***</b> (13.8)	<b>-56.9***</b> (16.3)
Constant	9293.5*** (40.5)	6313.2*** (30.0)	12273.8*** (54.4)	976.4*** (7.7)	1247.8*** (10.5)
N	1363	1363	1363	1100	1100
N Institutions	277	277	277	224	224

Note: \*\*\* p < .01; \*\* p < .05; \* p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on states that are bordering Tennessee and have similar higher education governance structures (i.e. coordinating boards instead of governing boards)

Table 7. Enrollment Estimates- Private Institutions

	Enrollment Counts			Percent Racial Minority	
	Total Enrollment	In-state	Out-of-State	% Black	% Hispanic
<i>In-Eligible Institutions</i>					
Pre Year 2 * ineligible	-17.7 (17.5)	-2.3 (3.5)	-1.3 (4.3)	-0.010 (0.008)	-0.003 (0.002)
Pre Year 1 * ineligible	-7.8 (10.9)	-9.5 (9.0)	-4.1 (4.2)	-0.007 (0.006)	-0.002 (0.003)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	9.8 (12.6)	0.87 (6.0)	5.6 (4.8)	<b>-0.023**</b> <b>(0.009)</b>	0.003 (0.003)
<i>Promise Eligible Institutions</i>					
Pre Year 2 * eligible	17.4 (38.3)	16.2 (23.5)	-1.5 (7.4)	-0.001 (0.006)	0.001 (0.002)
Pre Year 1 * eligible	22.9 (31.7)	1.7 (20.7)	-12.9 (11.4)	-0.002 (0.005)	-0.001 (0.002)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	-20.7 (34.9)	19.1 (14.9)	3.1 (7.7)	0.003 (0.006)	0.005 (0.004)
Constant	791.6*** (3.6)	88.9*** (0.9)	60.6*** (0.8)	0.32*** (0.002)	0.04*** (0.001)
N	2478	1565	1565	2478	2478
N Institutions	650	623	623	650	650

Note: \*\*\* p < .01; \*\* p < .05; \* p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on states that are bordering Tennessee and have similar higher education governance structures (i.e. coordinating boards instead of governing boards)

Table 8. Cost of Attendance Estimates- Private Institutions

	Tuition and Fees	Fees
<i>In-Eligible Institutions</i>		
Pre Year 3 * ineligible	84.9 (203.4)	57.3 (50.7)
Pre Year 2 * ineligible	121.6 (162.8)	42.4 (45.8)
Pre Year 1 * ineligible	<b>179.9**</b> <b>(87.6)</b>	55.7 (46.9)
Year of Implementation	OMIT	OMIT
Post Year 1 * ineligible	<b>338.8**</b> <b>(145.7)</b>	-8.8 (22.9)
<i>Promise Eligible Institutions</i>		
Pre Year 3 * eligible	-283.2 (344.3)	-0.03 (68.6)
Pre Year 2 * eligible	<b>-423.2*</b> <b>(238.7)</b>	-32.8 (58.6)
Pre Year 1 * eligible	-92.5 (144.9)	-15.1 (28.3)
Year of Implementation	OMIT	OMIT
Post Year 1 * eligible	-232.2 (521.6)	-14.3 (42.0)
Constant	17078.5*** (46.6)	618.7*** (7.4)
N	2969	1798
N Institutions	645	395

Note: \*\*\*p < .01; \*\*p < .05; \*p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on states that are bordering Tennessee and have similar higher education governance structures (i.e. coordinating boards instead of governing boards)

## Appendix A: Results with All States as Comparison Group

Table 1A. Enrollment Estimates for All Institutions

	Enrollment Counts			Percent Racial Minority	
	Total Enrollment	In-state	Out-of-State	% Black	% Hispanic
<i>In-Eligible Institutions</i>					
Pre Year 2 * ineligible	-17.6 (28.6)	<b>-9.4*</b> (5.1)	-0.6 (4.2)	<b>-0.01*</b> (0.007)	<b>0.004*</b> (0.002)
Pre Year 1 * ineligible	-6.5 (14.4)	-11.0 (12.5)	-2.2 (4.1)	-0.008 (0.005)	0.002 (0.003)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	5.8 (14.9)	<b>-25.3*</b> (13.4)	6.9 (6.4)	<b>-0.022**</b> (0.01)	-0.000 (0.003)
<i>Promise Eligible Institutions</i>					
Pre Year 2 * eligible	40.8 (43.2)	-7.5 (11.9)	1.2 (2.6)	0.005 (0.003)	0.004 (0.001)
Pre Year 1 * eligible	32.5 (24.6)	<b>-29.1**</b> (12.0)	2.7 (4.1)	0.004 (0.003)	0.001 (0.001)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	40.8 (29.2)	<b>157.1***</b> (45.8)	6.4 (5.8)	-0.004 (0.003)	-0.001 (0.002)
Constant	2612.2*** (3.3)	461.0*** (0.9)	90.1*** (0.6)	0.19*** (0.000)	0.14*** (0.000)
N	26975	18360	1860	26975	26975
N Institutions	7065	6777	6777	7065	7065

Note: \*\*\* p < .01; \*\* p < .05; \* p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on institutions in all other states.

Table 2A. Cost of Attendance Estimates All Institutions

	Tuition and Fees			Fees	
	Average	In-state	Out-of-State	In-State	Out-of-State
<i>In-Eligible Institutions</i>					
Pre Year 3 * ineligible	-10.7 (152.0)	-56.4 (150.1)	34.9 (157.3)	64.0 (45.4)	<b>76.5*</b> <b>(45.7)</b>
Pre Year 2 * ineligible	78.3 (128.3)	38.2 (126.8)	118.5 (132.4)	40.3 (39.9)	49.3 (41.9)
Pre Year 1 * ineligible	92.5 (60.7)	79.1 (60.4)	<b>105.9*</b> <b>(61.4)</b>	41.4 (44.6)	48.3 (41.9)
Year of Implementation	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	160.9 (125.7)	<b>198.1*</b> <b>(116.8)</b>	123.7 (146.5)	8.5 (17.7)	12.8 (19.3)
<i>Promise Eligible Institutions</i>					
Pre Year 3 * eligible	141.4 (145.6)	202.3 (143.9)	80.4 (156.4)	30.2 (41.8)	29.3 (43.4)
Pre Year 2 * eligible	-124.0 (129.7)	-85.4 (107.7)	-162.6 (120.0)	-9.7 (36.5)	-10.8 (37.6)
Pre Year 1 * eligible	6.4 (73.7)	22.4 (74.2)	-9.5 (73.9)	-14.2 (16.9)	-12.8 (17.7)
Year of Implementation	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	-66.1 (147.7)	-78.6 (144.5)	-53.6 (158.2)	-18.1 (20.0)	-9.9 (21.6)
Constant	15823.3*** (19.3)	15036.0*** (19.1)	16610.6*** (19.8)	786.8*** (3.0)	848.5*** (5.1)
N	32817	32817	32817	20118	20118
N Institutions	7276	7276	7276	4454	4454

Note: \*\*\*p < .01; \*\*p < .05; \*p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on institutions in all other states.

Table 3A. Enrollment Estimates for Public Institutions

	Enrollment Counts			Percent Racial Minority	
	Total Enrollment	In-state	Out-of-State	% Black	% Hispanic
<i>In-Eligible Institutions</i>					
Pre Year 2 * ineligible	358.8 (371.9)	12.0 (61.9)	-47.5 (30.5)	0.004 (0.005)	<b>0.009***</b> <b>(0.001)</b>
Pre Year 1 * ineligible	103.2 (182.0)	-58.3 (79.6)	<b>-39.9*</b> <b>(21.6)</b>	0.003 (0.003)	<b>0.005***</b> <b>(0.001)</b>
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	<b>-160.8*</b> <b>(95.3)</b>	<b>-160.7***</b> <b>(25.4)</b>	<b>32.9*</b> <b>(19.4)</b>	0.001 (0.002)	<b>-0.004***</b> <b>(0.001)</b>
<i>Promise Eligible Institutions</i>					
Pre Year 2 * eligible	-11.6 (68.0)	-20.1 (16.9)	3.1 (2.8)	0.003 (0.004)	<b>0.007***</b> <b>(0.002)</b>
Pre Year 1 * eligible	10.6 (38.3)	<b>-53.3***</b> <b>(17.9)</b>	<b>7.6***</b> <b>(2.4)</b>	0.003 (0.004)	0.002 (0.002)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	<b>82.4**</b> <b>(37.5)</b>	<b>197.1***</b> <b>(53.6)</b>	2.3 (6.7)	-0.001 (0.003)	<b>-0.003*</b> <b>(0.002)</b>
Constant	6854.0*** (7.5)	1145.6*** (2.7)	122.9*** (0.6)	0.14*** (0.000)	0.13*** (0.000)
N	7780	6248	6248	7780	7780
N Institutions	1967	1934	1934	1967	1967

Note: \*\*\*p < .01; \*\*p < .05; \*p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on institutions in all other states.

Table 4A. Cost of Attendance Estimates- Public Institutions

	Tuition and Fees			Fees	
	Average	In-state	Out-of-State	In-State	Out-of-State
<i>In-Eligible Institutions</i>					
Pre Year 3 * ineligible	<b>-1110.1**</b> (477.4)	<b>-1038.9***</b> (339.6)	-1181.2 (775.1)	<b>-170.9*</b> (89.8)	-131.6 (88.0)
Pre Year 2 * ineligible	-391.3 (337.7)	<b>-513.8***</b> (97.9)	-268.8 (633.3)	-109.3 (66.9)	-76.9 (65.1)
Pre Year 1 * ineligible	<b>-238.9***</b> (64.3)	<b>-191.5***</b> (51.1)	<b>-286.4***</b> (102.7)	-14.8 (84.6)	6.4 (84.2)
Year of Implementation	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	<b>-1162.5**</b> (538.9)	<b>-572.9***</b> (140.4)	-1752.1 (1175.7)	9.7 (16.3)	22.3 (24.4)
<i>Promise Eligible Institutions</i>					
Pre Year 3 * eligible	72.4 (101.4)	51.0 (78.4)	93.9 (145.7)	<b>69.0***</b> (21.3)	<b>71.2**</b> (35.5)
Pre Year 2 * eligible	-115.8 (93.0)	<b>-135.3*</b> (78.6)	-96.3 (126.8)	<b>42.7**</b> (18.9)	43.9 (29.9)
Pre Year 1 * eligible	5.1 (75.5)	-11.3 (74.5)	21.5 (79.2)	<b>23.3*</b> (13.3)	31.9 (21.1)
Year of Implementation	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	<b>613.3***</b> (101.6)	<b>597.3***</b> (90.7)	<b>626.4***</b> (129.5)	-10.1 (14.0)	8.5 (23.6)
Constant	8686.6*** (14.9)	5996.5*** (11.2)	11376.7*** (20.7)	985.8*** (5.3)	1140.1*** (11.6)
N	9579	9579	9579	8007	8007
N Institutions	1960	1960	1960	1641	1641

Note: \*\*\*p < .01; \*\*p < .05; \*p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on institutions in all other states.

Table 5A. Enrollment Estimates for Private Institutions

	Enrollment Counts			Percent Racial Minority	
	Total Enrollment	In-state	Out-of-State	% Black	% Hispanic
<i>In-Eligible Institutions</i>					
Pre Year 2 * ineligible	-14.8 (16.0)	<b>-8.0***</b> <b>(3.1)</b>	0.9 (3.8)	-0.013 (0.008)	0.003 (0.002)
Pre Year 1 * ineligible	-2.8 (10.0)	0.6 (7.8)	0.6 (3.3)	-0.008 (0.005)	0.001 (0.003)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * ineligible	9.6 (14.6)	-7.6 (5.5)	2.6 (4.4)	<b>-0.023**</b> <b>(0.010)</b>	0.000 (0.003)
<i>Promise Eligible Institutions</i>					
Pre Year 2 * eligible	25.4 (28.2)	4.0 (15.8)	3.8 (5.3)	0.000 (0.004)	<b>0.004***</b> <b>(0.002)</b>
Pre Year 1 * eligible	25.4 (23.9)	-4.4 (14.7)	-1.4 (9.8)	0.002 (0.003)	0.002 (0.001)
Year of Announcement	OMIT	OMIT	OMIT	OMIT	OMIT
Post Year 1 * eligible	-27.5 (39.4)	1.8 (9.9)	10.9 (7.5)	0.005 (0.005)	0.000 (0.003)
Constant	892.9*** (3.6)	107.5*** (0.6)	73.3*** (0.8)	0.21*** (0.000)	0.15*** (0.000)
N	19195	12112	12112	19195	19195
N Institutions	5098	4843	4843	5098	5098

Note: \*\*\*p < .01; \*\*p < .05; \*p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on institutions in all other states.



Table 6A. Cost of Attendance Estimates- Private Institutions

	Tuition and Fees	Fees
<i>In-Eligible Institutions</i>		
Pre Year 3 * ineligible	179.3 (161.9)	76.0 (47.9)
Pre Year 2 * ineligible	173.2 (138.4)	45.5 (43.4)
Pre Year 1 * ineligible	<b>146.9**</b> <b>(67.8)</b>	40.1 (45.3)
Year of Implementation	OMIT	OMIT
Post Year 1 * ineligible	23.7 (121.0)	0.3 (19.4)
<i>Promise Eligible Institutions</i>		
Pre Year 3 * eligible	-162.9 (335.7)	11.5 (68.4)
Pre Year 2 * eligible	-357.1 (230.1)	-38.3 (58.6)
Pre Year 1 * eligible	-84.1 (141.4)	-31.6 (26.9)
Year of Implementation	OMIT	OMIT
Post Year 1 * eligible	-527.3 (515.4)	-9.1 (40.2)
Constant	18871.8*** (26.8)	655.9*** (3.5)
N	22978	11968
N Institutions	5056	2670

Note: \*\*\*p < .01; \*\*p < .05; \*p < .1 Robust standard errors clustered by institution in parentheses. The comparison group results are based on institutions in all other states.