NEVADA STUDENT ALLIANCE (NSA)
MINUTES
September 12, 2018
11:00 a.m.
Nevada System of Higher Education (NSHE)
Reno System Administration Building, Main Conference Room
2601 Enterprise Road
Reno, NV 89512

Video Conference Connection from the Meeting Site to:
Battle Mountain – GBC BM 4
Carson City – WNC DINI 105
Elko – GBC LCSL 122
Henderson – NSC RSC 303
Las Vegas – CSN CHEY Bldg C 2638 and NSHE System Admin 105

MEETING IS CALLED TO ORDER AT 11:04 AM BY NSA CHAIR CHRISTOPHER ROYS.

1. ROLL CALL

Mr. Christopher Roys, University of Nevada, Las Vegas, CSUN (NSA Chair) PRESENT
Mr. Andrew Sierra, College of Southern Nevada, ASCSN (NSA Vice Chair) PRESENT
Ms. Ahtziry Vasquez, Truckee Meadows Community College, SGA (NSA Secretary) ABSENT
Ms. Hannah Jackson, University of Nevada, Reno, ASUN PRESENT
Mr. Sandesh Kannan, University of Nevada, Reno, GSA PRESENT AT 11:08
Ms. Becky Linville, Great Basin College, SGA PRESENT
Ms. Viridiana Miranda, Western Nevada College, ASWN ABSENT
Ms. Stephanie Molina, University of Nevada, Las Vegas, GPSA PRESENT
Ms. Nicola Opfer, Nevada State College, NSSA PRESENT
Vacant, Desert Research Institute, GRAD VACANT

A QUORUM OF MEMBERS IS PRESENT.

2. PUBLIC COMMENT **INFORMATION ONLY**

No public comment

3. UPDATE ON NSHE TUITION GUARANTEE WORKING GROUP **INFORMATION ONLY**

Vice Chancellor for Academic and Student affairs, Crystal Abba, speaks to the body of NSA about the NSHE tuition guarantee working group. The issue of guaranteed tuition came up during the June Board of Regents meeting. Before anything is approved by the Board it will be available to the NSA members to review. Chancellor Reilly asked Vice Chancellor Abba to find a specialist in tuition policy to help the group understand if a guaranteed tuition policy would help with student success. When the proposal goes public in November as an information item at the Board meeting, there will be 3 months for the Board to make a decision on approving the proposal at its March meeting, which means the policy would likely be effective in fall of 2019.

The research that was undertaken by the group was based on 2 different lenses, which are fiscal and implementation of the policy. Abba informs body that the policy would not necessarily give students a better offer with lower tuition rates, but instead this policy may do the opposite. She explains in depth the graphs that were presented to the body. Abba talks about how Illinois' institutions have been working with tuition programs and how it worked for them. Timeline of past tuition increases in Nevada is discussed as well as the three different types of programs that come from tuition guarantee programs.

Abba then talks about the current discussion that is happening within the group. The policy is straight to the point and simple so that it will be easier to follow. The policy is following the University of Arizona in detail because the group felt that it was the simplest approach and would be easiest to explain to students. She also explains to NSA why many institutions have not followed through with this guarantee program due to what might happen if there is another recession.

4. NEW BUSINESS **INFORMATION ONLY**

General sentiments about how the body feels about the drafted policy that was discussed in today's meeting. Chair Roys also suggests that the body start thinking about any possible policy ideas.

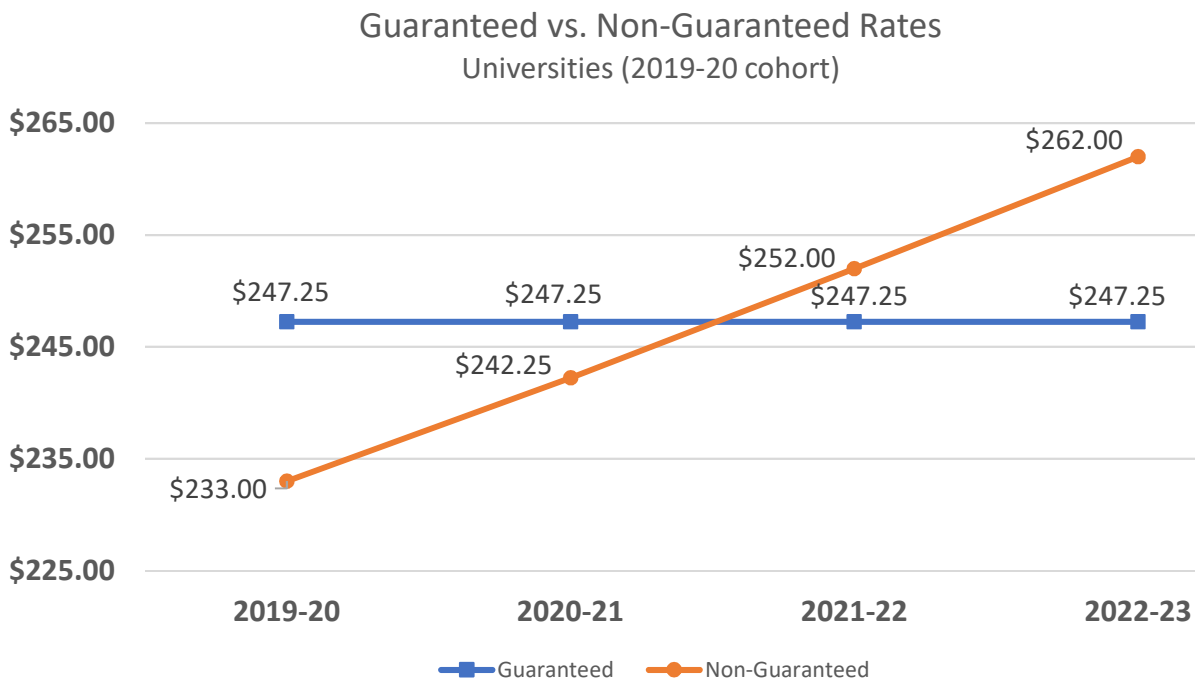
5. PUBLIC COMMENT **INFORMATION ONLY**

No public comment

MEETING IS ADJOURNED AT 12:25 PM

Universities - 2019-20 cohort example

	2019-20	2020-21	2021-22	2022-23
Guaranteed	$247.25	$247.25	$247.25	$247.25
Non-Guaranteed	$233.00	$242.25	$252.00	$262.00



E X A M P L E

For Discussion Purposes Only!

August 12, 2015

Fixed-rate Tuition Plans:

A Survey in Response to Senate Bill 806

State Council of Higher Education for Virginia

Advancing Virginia through Higher Education

TABLE OF CONTENTS

Introduction and Background

Legislation introduced in 2015, including Senate Bill 806, sought to amend the *Code of Virginia* regarding fixed four-year tuition and other costs. Eventually, Senate Bill 1183 was incorporated into Senate Bill 806; the substitute amendment directed the board of visitors of each four-year public institution with an in-state undergraduate population that accounts for less than 80 percent of the total undergraduate population to prospectively "fix" (lock) the cost of in-state tuition for incoming freshman students for four consecutive years, under certain conditions (see Appendix A for the bill text). Further, the legislation allowed the board of each institution to offer a variable in-state rate to incoming in-state freshman students as an alternative to the fixed tuition rate. The Education and Health Committee passed by indefinitely SB 806; subsequently, the Clerk of the Senate requested the State Council of Higher Education for Virginia (SCHEV) to provide a report on the subject matter. SCHEV staff submits this report in fulfillment of that request.

Survey of Fixed-rate Tuition Plans

Context

Nationally, tuition has increased at nearly four times the increase in disposable personal income (income that is available for spending and saving) per capita in the past twenty years. Adjusting for inflation, average tuition and fees at public four-year institutions increased by 110% between 1995 and 2015. By comparison, disposable personal income increased by only 30% over the same period. In Virginia, tuition and mandatory fees at public four-year institutions increased by 85% over this twenty-year period while disposable income increased by only 32%. Rapidly rising tuition has put a strain on college access and affordability and has received much attention from students and parents, policymakers, institutional leaders, and the media at the state and national levels. Various tuition policies and strategies have been proposed and implemented in attempts to improve accessibility to and affordability of higher education.

Introduction

One such tuition strategy is a "guaranteed" tuition plan, which charges a fixed or flat rate to first-time, full-time freshmen for four or more consecutive years, if the student maintains full-time status. In implementation, this type of tuition plan varies in name and detail.

Benefits

Proponents of the guaranteed, fixed- or flat-rate tuition strategy contend that these plans can:

- increase predictability for students and families in budgeting for college and in managing costs;
- increase motivation and incentive for students to make satisfactory progress toward on-time (four year) graduation; and
- reduce loan-debt burdens for students and families by improving their ability to plan for college and potentially shorten the duration of enrollment.

Because flat-rate plans are basically 21st-century phenomena, their effectiveness in achieving the benefits described above has not yet been proven. Nonetheless, such plans have attracted attention at the state and national levels, and some universities, systems and states have pursued such strategies.

Examples

According to the National Center for Education Statistics, 128 four-year colleges and universities offered guaranteed tuition plans in fall 2013. Thirty-four were public four-year institutions, of which 30 were from three states – Illinois, Oklahoma and Texas – that offer state-level, legislature-enacted guaranteed tuition plans. In a fourth state, Georgia, the board of a 35-institution state system initiated and then discontinued a guaranteed tuition plan in the mid-2000s.

- The Illinois legislature enacted a guaranteed tuition plan, the "Truth-in-Tuition Law", in 2003. The program *requires* the institutions of the University of Illinois system to provide first-time full-time in-state incoming freshman students with a flat-rate tuition for six years (prior to 2010, the rate was fixed for only four years).

- The Oklahoma legislature endorsed the "Tuition Lock Program" at the state's public four-year institutions in fall 2008. The program provides first-time full-time incoming freshmen (in-state and out-of-state students) with an *option* to choose the guaranteed tuition rate locked for four years. Each institution's guaranteed tuition rate is restricted to no more than 115% of the non-guaranteed rate.

- The Texas legislature authorized the use of an *optional* four-year tuition plan at the state's public four-year institutions in 2013. The University of Texas system implemented the four-year guaranteed plan as an option for first-time full-time incoming freshmen (in-state and out-of-state students) at its nine four-year institutions in fall 2014; some institutions had already adopted such plans individually. The Texas state plan includes tuition and all mandatory fees.

- The Board of Regents of the University System of Georgia, seeking to provide greater tuition stability and to encourage more on-time graduation, approved in fall 2006 the "Fixed-for-Four" initiative, a guaranteed tuition plan for new freshman students enrolling in its 35 institutions. However, the board discontinued the plan after three years due to a state funding reduction in 2009.

Related Strategies

In the Commonwealth, as elsewhere in the nation, policymakers and institutional leaders have been engaged in the creation of plans to ensure access and affordability for in-state students.

- The Virginia529 prePAID program was established by the 1995 General Assembly and became effective on July 1, 1996. Named for Section 529 of the *Internal Revenue Code*, a 529 plan is a tax-advantaged investment vehicle designed to encourage saving for future higher education expenses of each designated beneficiary. All 50 states offer 529 plans. The Virginia529 prePAID program allows families to prepay future tuition and mandatory fees at Virginia public colleges or universities for newborns through ninth graders during a limited annual enrollment period.

- The Board of Visitors of the College of William and Mary (CWM) introduced a tuition model entitled the "William and Mary Promise" in 2014. The program provides a four-year tuition guarantee for incoming in-state freshman students. CWM leadership believed the new model would not only enhance tuition predictability, affordability, and access for Virginia residents but also would allow the university administration to use additional tuition revenue generated by the model to provide additional financial aid to students from low- and middle-income families. CWM asserts that such generation and provision of need-based aid will lower the average student-loan debt for its Virginia students.

Additional Considerations

While guaranteed-rate tuition plans may offer benefits to some students and families, these strategies also raise broader concerns about affordability, access, institutional planning and outcomes, and state and financial-aid funding. The most frequently articulated issues raised by researchers, the media, institutions and state governments are summarized below.

Affordability

Flat-rate tuition plans can impact the affordability of higher education because these plans frontload projected educational costs and inflation-rate increases over four years. As a result, students enrolling in such plans are charged amounts above each year's cost to educate them (traditional annual tuition) as insurance against higher tuition increases in the future. In this scenario, total cost to students can be higher compared to the traditional, annual tuition plan, which in turn can affect students' and families' ability to afford and maintain required, continuous full-time enrollment.

A recent analysis of guaranteed-tuition laws and policies (the only study of its kind to date) included a finding that, between 2000 and 2011, public institutions in Illinois (where fixed plans are mandatory) increased guaranteed tuition rates on average by about $1,500 more than the average tuition nationally, all else equal (Delaney and Kearney, 2015; see also Appendix F). The researchers concluded that "[a]lthough these laws offer predictability in tuition levels for students, the inherent financial risk built into these programs appear (sic) to encourage tuition increases, which is not clearly beneficial to students and families" (p. 29). In a subsequent interview, one researcher said: "… if the primary intent is to promote affordability …, our results suggest that state-level guaranteed-tuition laws may not be entirely effective" (Delaney, as quoted by Forrest, 2015).

Similarly, an analysis by SCHEV staff of the total cost of guaranteed and non-guaranteed tuition charges over four years (FY2012-2015) at Oklahoma's two major public universities indicated that the total cost of the guaranteed-tuition option was about $2,000 higher than the total cost of the non-guaranteed tuition option (see Appendix F).

Access

Fixed-rate tuition plans can impact access to higher education because these strategies require full-time enrollment and, as noted above, comparatively higher upfront tuition rates. A potential student may decide not to enroll in a fixed-tuition institution, system, state – or in higher education at all – if she or he cannot afford the upfront costs or only can enroll part-time for economic or family reasons.

Access also can be impacted more broadly when low- and middle-income students who are qualified academically for admission to selective institutions choose to enroll in less-selective ones because these institutions' upfront tuition charges are lower. As a result, students who wish to attend less-selective institutions may find fewer seats available to them.

Institutional Planning and Outcomes

Flat-rate tuition plans can impact administrative decision-making and institutional planning and outcomes, particularly when these plans are optional for students or when imposed on less-selective institutions. When fixed plans are optional for students, institutional planners' ability to predict with adequate confidence the number of students who will enroll in the plan can be affected. As a result, whether an institution's projected tuition revenues for operations will be attained – and whether it will be able to address unforeseen revenue shortfalls – can become less certain, especially for small or less-selective institutions that are limited in their price elasticity and private financial reserves.

For example, the cost-frontloading described above can impact students' decisions to participate in optional fixed-rate plans. When upfront costs are perceived by low- and middle-income families to be high relative to their incomes, these frontloaded costs can discourage student participation in the plan, thereby complicating institutional planning and budgeting. In Oklahoma, the student participation rate in the optional Tuition Lock Program decreased from 7.3% in 2008 to 3.5% in 2009 to 2.0% in 2011 (Delaney and Kearney, 2015). In addition, a case study of the price sensitivity of Chicago State University's (mandatory) guaranteed-rate tuition plan revealed that minority students were sensitive to price, and that new students displayed more price sensitivity than continuing students (Robertson, 2007; as cited in Delaney and Kearney, 2015).

State and Financial-aid Funding

The success of fixed-rate plans can be impacted by the stability of state support. While the funding of public higher education is a shared responsibility between the state and students, the economy is cyclical, and state budget support is unpredictable. As a result, under fixed plans, the ability to manage budget cuts can be reduced for some institutions, namely those with limited sources of private funds. Further, each class of incoming students pays a higher tuition that must cover not only rising costs and inflation but also act as a hedge against budget reductions.

The University System of Georgia chose to discontinue its guaranteed-tuition plan after only three years because, immediately following implementation, the state reduced system funding by $274 million. The reduction rendered the plan's resultant tuition too costly to students and families who were experiencing hardships during the economic recession (Corwin, 2009). Central Michigan University also dropped its guaranteed-tuition plan because it became "a financial risk to the university" when the institution could no longer count on the level of state appropriations around which the plan's assumptions were built (Supiano, 2009; see Appendix E).

The success of fixed-rate plans also can be impacted by the sufficiency of funding for student financial aid. Those institutions that lack additional (beyond federal and state) resources for financial aid or the ability to raise private funds for student aid in amounts sufficient to cover or assist adequately with the fixed-plan's frontload costs can find themselves at a competitive disadvantage to elite institutions. Such can further deter financially strained students and families from enrolling in the plans. Moreover, in order to enroll in guaranteed-tuition plans, economically disadvantaged students require even more financial aid than under traditional annual plans. The net effect can be that these students subsidize the cost of educating the students who do not need financial aid (Morphew, 2007).

Conclusions

The provisions of Senate Bill 806 would apply, based on fall 2014 enrollments, to six four-year public institutions: College of William and Mary, James Madison University, University of Virginia, Virginia Military Institute, Virginia State University and Virginia Tech. Administrators at each have expressed concerns similar to those above about legislation that would require action on fixed-tuition plans by their institutions' boards of visitors.

At face value, fixed tuition plans appeal to many parents and students, especially those who are able to attend full-time and can afford the higher upfront costs, because the plans guarantee that they know from day one the tuition sum to be incurred over a four-year enrollment. This peace of mind is of significant value in the face of ever-increasing tuition (see Appendix E). Fortunately, in Virginia, parents and students who plan ahead possess this opportunity already through the Va529 prePAID program.

Fixed plans might appeal to policymakers and institutional leaders because the guaranteed rates allow them to demonstrate that rapid tuition increases have been constrained and to claim that families will save money and that more students will graduate on time. In reality, fixed-rate tuition plans can produce additional unintended and problematic consequences, as described above.

Most importantly, even if institutional experts project accurately the future costs of inflation, utilities, health care and new initiatives, they are not likely to be able to predict future levels of state funding. Tuition increases are linked directly, but not entirely, to state appropriations. A flat-rate tuition plan may be successful at highly selective institutions that have sufficient price elasticity, strong enrollment demand (from both in-state and out-of-state students), and demonstrated ability to raise private funds to offset unforeseen revenue shortfalls. But most public institutions are not highly selective and therefore cannot afford such plans given the constraints placed upon them by the compounding convergences of competitive pricing, enrollment demands, private-funding limitations, and significant student populations in need of substantial amounts of financial aid to complete college.

In the college-cost puzzle, tuition is but one piece, accounting for only about one-third of the total cost of attendance. Institutions charge tuition for instructional-related spending such as faculty salaries and facility maintenance. Students also must pay various mandatory student-life fees such as those for athletic programs, student health, student organization activities, and room and board if living on campus. Additional personal expenses are incurred for textbooks, supplies and transportation (and room and board if living off campus).
To address access, affordability and student success, the trio of state appropriations, tuition and financial aid must be considered in concert. Decisions regarding any one of these elements can greatly affect the other two. Particularly in a decentralized system of higher education where each public-institution board sets tuition, any legislative decision to reduce operating and/or financial-aid appropriations can lead to undesirable tuition increases, which in turn can negatively impact access and affordability.

"Affordable access for all" is Goal 1 of *The Virginia Plan for Higher Education*, the statewide strategic plan for postsecondary education. Sustainable state funding, along with efficient and effective institutional operations, will contribute the most to achievement of the Commonwealth's affordability goals.

References

Corwin, Tom. 2009. "Fixed-for-Four tuition to end", *Augusta Chronicle*, April 14. http://m.chronicle.augusta.com/stories/latest/lat_518278.shtml

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Forrest, Sharita. 2015. "Illinois' guaranteed-tuition law making college less affordable", *Rock River Times*, May 27. http://rockrivertimes.com/2015/05/27/illinois-guaranteed-tuition-law-making-college-less-affordable/

Morphew, Christopher C. 2007. "Fixed-tuition pricing: A solution that may be worse than the problem", *Change: The Magazine of Higher Learning, 39 (10): 34-39*

National Conference of State Legislatures. 2008. *Tuition Policy and Practice.* A webpage excerpted from a policy brief in the series, *Getting What You Pay For*, published by NCSL and the Western Interstate Commission for Higher Education and funded by the Lumina Foundation. http://www.ncsl.org/research/education/tuition-policy.aspx

Supiano, Beckie. 2009. "Locked-in tuition is a win for families but a tough sell for colleges", *Chronicle of Higher Education*, April 14. Reprinted in Appendix E.

Appendix A

SENATE BILL NO. 806

AMENDMENT IN THE NATURE OF A SUBSTITUTE

(Proposed by the Senate Committee on Education and Health on February 5, 2015)

(Patrons Prior to Substitute--Senators Stanley and McWaters [SB 1183])

A BILL to amend and reenact § 23-38.87:18 of the Code of Virginia, relating to four-year public institutions of higher education; fixed four-year tuition and other costs.

Be it enacted by the General Assembly of Virginia:

1. That § 23-38.87:18 of the Code of Virginia is amended and reenacted as follows:

§ 23-38.87:18. Tuition and fees.

A. The board of visitors of each of the Commonwealth's public institutions of higher education, or in the case of the Virginia Community College System the State Board for Community Colleges, shall continue to fix, revise from time to time, charge and collect tuition, fees, rates, rentals, and other charges for the services, goods, or facilities furnished by or on behalf of such institution and may adopt policies regarding any such service rendered or the use, occupancy, or operation of any such facility.

B. Except to the extent included in the institution's six-year plan as provided in subsection C, if the total of an institution's tuition and educational and general fees for a fiscal year for Virginia students exceeds the difference for that fiscal year between (i) the institution's cost of education for all students, as calculated pursuant to clause (i) of subsection B of § 23-38.87:13, and (ii) the sum of the tuition and educational and general fees for non-Virginia students, the state general funds appropriated for its basic operations and instruction pursuant to subsection A of §23-38.87:13, and its per student funding provided pursuant to § 23-38.87:14, the institution shall forego new state funding at a level above the general funds received by the institution during the 2011-2012 fiscal year, at the discretion of the General Assembly, and shall be obligated to provide increased financial aid to maintain affordability for students from low-income and middle-income families. This limitation shall not apply to any portion of tuition and educational and general fees for Virginia students allocated to student financial aid, to an institution's share of state-mandated salary or fringe benefit increases, to increases with funds other than state general funds for the improvement of faculty salary competitiveness above the level included in the calculation in clause (i) of subsection B of § 23-38.87:13, to the institution's share of any of the targeted financial incentives described in § 23-38.87:16, to unavoidable cost increases such as operation and maintenance for new facilities and utility rate increases, or to other items directly attributable to an institution's unique mission and contributions.

C. Nothing in subsection B shall prohibit an institution from including in its six-year plan required by § 23-38.87:17(i) new programs or initiatives including quality improvements or (ii) institution-specific funding based on particular state policies or institution-specific programs, or both, that will cause the

total of the institution's tuition and educational and general fees for a fiscal year for Virginia students to exceed the difference for that fiscal year between (a) the institution's cost of education for all students, as calculated pursuant to clause (i) of subsection B of § 23-38.87:13, and (b) the sum of the tuition and educational and general fees for the institution's non-Virginia students, the state general funds appropriated for its basic operations and instruction pursuant to subsection A of §23-38.87:13, and its per student funding provided pursuant to § 23-38.87:14.

D. Notwithstanding subsection A or any other provision of law, the board of visitors of each four-year public institution of higher education shall, beginning with the 2017-2018 academic year, prospectively fix the cost of in-state tuition for incoming freshman undergraduate students for four consecutive years under the following conditions: (i) the student shall be enrolled full time and remain continuously enrolled as a full-time student for the period of eligibility; (ii) an in-state class rate for tuition is established in accordance with any requirements set forth in the appropriation act; (iii) rules are clearly established to address eligibility of in-state freshman undergraduate students and any unforeseen circumstances that may require eligible students to take a leave of absence from the institution; and (iv) information is disseminated to all in-state students applying to the relevant institution that clearly and concisely explains the costs and terms. However, the board of visitors of each four-year public institution of higher education, in addition to offering a fixed in-state tuition rate, may offer a variable in-state tuition rate. For any four-year public institution that offers both a fixed and a variable in-state tuition rate, an incoming in-state freshman undergraduate student enrolled at an institution that offers a variable in-state tuition rate shall have the option of paying either the fixed or the variable in-state tuition rate.

E. The provisions of subsection D shall not apply to any four-year public institution of higher education that maintains an in-state undergraduate student population that composes at least 80 percent of the total undergraduate student population.

Appendix B

COMMONWEALTH OF VIRGINIA

SUSAN CLARKE SCHAAR
CLERK OF THE SENATE
P.O. BOX 396
RICHMOND, VIRGINIA 23218

SENATE

March 10, 2015

Peter A. Blake
Director, State Council of Higher Education for Virginia
101 N. 14th St., 10th Floor
James Monroe Building
Richmond, Virginia 23219

Dear Mr. Blake:

This is to inform you that, pursuant to Rule 20 (o) of the Rules of the Senate of Virginia, the Senate Committee on Education and Health has referred the subject matter contained in Senate Bill 806 to the State Council of Higher Education for Virginia for study. It is requested that the appropriate committee chair and bill patron receive a written report, with a copy to this office, by November 1, 2015.

With kind regards, I am

Sincerely yours,

Susan Clarke Schaar

SCS:mpt

cc: Sen. Stephen H. Martin, Chair, Senate Committee on Education and Health
Sen. William M. Stanley, Jr., Patron of SB 806
Sen. Jeffrey L. McWaters
Thomas Stevens, Division of Legislative Services

Appendix C

Department of Planning and Budget
2015 Fiscal Impact Statement

1. **Bill Number:** SB 806

House of Origin	☒	Introduced	☐	Substitute	☐ Engrossed
Second House	☐	In Committee	☐	Substitute	☐ Enrolled

2. **Patron:** Senator Stanley

3. **Committee:** Education and Health

4. **Title:** Establish a fixed four-year tuition and fees rate at higher education institutions

5. **Summary:** This bill requires the boards of visitors of Virginia's public four-year higher education institutions to prospectively freeze the cost of tuition, room and board, and other mandatory fees for incoming in-state freshman undergraduate students for four consecutive years under the following conditions:
   - eligible students shall be enrolled full-time and remain continuously enrolled as full-time students for the period of eligibility;
   - a class rate is annually established, in accordance with any requirements set forth in the appropriation act;
   - rules are clearly established to address the eligibility of freshman undergraduate students, the eligibility of transfer students, and any unforeseen circumstances that may require eligible students to take a leave of absence from the institution; and
   - information is disseminated to all students applying to the relevant institution that clearly and concisely explains program eligibility and costs.

6. **Budget Amendment Necessary**: No.

7. **Fiscal Impact Estimates:** Indeterminate (see Section 8)

8. **Fiscal Implications:** Due to the uniqueness and diversity among the Commonwealth's public higher education institutions and the ever changing variables used to calculate adjustments to tuition and fees, a measurable fiscal impact for this proposed legislation would be difficult to determine.

   With the exception of the College of William and Mary, which introduced a guaranteed tuition model in FY 2014 to have a fixed tuition for its in-state undergraduate students for four years, all of Virginia's other public institutions are charging full-time undergraduate students with either a full-time rate or a per-credit-hour rate. The full-time rate permits students to take 12 or more credits per semester for a flat tuition. In some instances, institutions cap the flat tuition between 15 and 18 credit hours. Students who exceed the cap are expected to pay a per-credit-rate for each credit above that cap. On the other hand, the per-credit hour rate approach sets a tuition rate per credit hour, regardless of a student's course load. Currently, Old Dominion University, Norfolk State University, and Longwood

University employ the per-credit-hour rate. Virginia Commonwealth University implemented a modified per-credit-hour model in fiscal year 2014 that charges students on a sliding per-credit-hour basis with a 50 percent discount for 15 or more credits per semester.

Setting tuition and fees for a four-year period has both advantages and disadvantages. Advantages of this bill include: (1) providing predictable tuition and fees revenue, (2) offering stability and improved budgeting for families planning for college, (3) providing an incentive for students to graduate on time, and (4) permitting institutions the opportunity to adjust tuition and fees so that the net effect resulting from the fixed price approach is the same revenue amount that would be generated over the same four-year period under one of the current methodologies. Disadvantages include: (1) penalizing students who do not graduate on time, (2) discouraging students from transferring among institutions, (3) increasing the risk of detrimental financial consequences during economic downturns or unexpected reductions in state support, and (4) initial unknown administrative costs for institutions associated with the implementation of the fixed price methodology.

This bill would also require students to pay more during the early part of the four-year period than they would otherwise under an annual tuition and fees increase scenario.

9. **Specific Agency or Political Subdivisions Affected:** Virginia's four-year public institutions of higher education

10. **Technical Amendment Necessary:** No.

11. **Other Comments:** Any significant changes to the current tuition and fee pricing model used by Virginia's public four-year higher education institutions should be discussed with the Virginia529 College Savings Plan to ensure that sufficient adjustments are in place for an orderly transition.

    SB 1183 is similar in that it establishes a fix in-state tuition rate for four consecutive years. However, it does not freeze fees or room and board charges.

Date: 01/28/15 sas
Document: f:\ga sessions\2015\fiscal impact statements\sb806.docx

c: Secretary of Education

Appendix D

Department of Planning and Budget
2015 Fiscal Impact Statement

1. **Bill Number:** SB 1183

House of Origin	☒	Introduced	☐	Substitute	☐ Engrossed
Second House	☐	In Committee	☐	Substitute	☐ Enrolled

2. **Patron:** Senator McWaters

3. **Committee:** Education and Health

4. **Title:** Establish fixed four-year tuition rate at higher education institutions

5. **Summary:** This bill requires the board of visitors of Virginia's public four-year higher education institutions to prospectively freeze the cost of tuition for incoming in-state freshman undergraduate students for four consecutive years under the following conditions:
   - eligible students shall be enrolled full time and remain continuously enrolled as full-time students for the period of eligibility;
   - an in-state class rate is annually established, in accordance with any requirements set forth in the appropriation act;
   - rules are clearly established to address the eligibility of in-state freshman undergraduate students and any unforeseen circumstances that may require eligible students to take a leave of absence from the institution; and
   - information is disseminated to all in-state students applying to the relevant institution that clearly and concisely explains program eligibility and costs.

6. **Budget Amendment Necessary**: No.

7. **Fiscal Impact Estimates:** Indeterminate (see Section 8)

8. **Fiscal Implications:** Due to the uniqueness and diversity among the Commonwealth's public higher education institutions and ever changing variables used to calculate adjustments to tuition, a measurable fiscal impact for this proposed legislation would be difficult to determine.

   With the exception of the College of William and Mary, which introduced a guaranteed tuition model in FY 2014 to have a fixed tuition for its in-state undergraduate students for four years, all of Virginia's other public institutions are charging full-time undergraduate students with either a full-time rate or a per-credit-hour rate. The full-time rate permits students to take 12 or more credits per semester for a flat tuition. In some instances, institutions cap the flat tuition between 15 and 18 credit hours. Students who exceed the cap are expected to pay a per-credit-rate for each credit above that cap. On the other hand, the per-credit hour rate approach sets a tuition rate per credit hour, regardless of a student's course load. Currently, Old Dominion University, Norfolk State University, and Longwood University employ the per-credit-hour rate. Virginia Commonwealth University

implemented a modified per-credit-hour model in fiscal year 2014 that charges students on a sliding per-credit-hour basis with a 50 percent discount for 15 or more credits per semester.

Setting tuition for a four-year period has both advantages and disadvantages. Advantages of this bill include: (1) providing predictable tuition revenue, (2) offering stability and improved budgeting for families planning for college, (3) providing an incentive for students to graduate on time, and (4) permitting institutions the opportunity to adjust tuition so that the net effect resulting from the fixed price approach is the same revenue amount that would be generated over the same four-year period under one of the current methodologies. Disadvantages include: (1) penalizing students who do not graduate on time, (2) discouraging students from transferring among institutions, (3) increasing the risk of detrimental financial consequences during economic downturns or unexpected reductions in state support, and (4) initial unknown administrative costs for institutions associated with the implementation of the fixed price methodology.

This bill would also require students to pay more during the early part of the four-year period than they would otherwise under an annual tuition increase scenario.

9. **Specific Agency or Political Subdivisions Affected:** Virginia's four-year public institutions of higher education

10. **Technical Amendment Necessary:** No.

11. **Other Comments:** Any significant changes to the current tuition pricing model used by Virginia's public four-year higher education institutions should be discussed with the Virginia529 College Savings Plan to ensure that sufficient adjustments are in place for an orderly transition.

    SB 806 is similar in that it freezes the cost of tuition, room and board, and other mandatory fees for incoming in-state freshman undergraduate students for four consecutive years.

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Appendix E

THE CHRONICLE OF HIGHER EDUCATION

Tuesday, April 14, 2009

Locked-In Tuition Is a Win for Families but a Tough Sell for Colleges

By BECKIE SUPIANO

Tuition just about always moves in the same direction: up. So wouldn't it be great if students could lock in tuition at their college and know they will pay the same amount for four years?

It seems like a no-brainer, especially now. But some colleges have tried the strategy only to find it hard to convince families that it's a good idea.

That hasn't stopped colleges from trying. The University of Texas at Dallas began its Guaranteed Tuition Rate Plan in the fall of 2007, as a way to "provide simplicity, predictability, and clarity for our students," says Curt Eley, the university's vice president for enrollment management.

Under the plan, incoming students are promised that their tuition and mandatory fees will remain the same for four years from the time they begin their studies. "It takes what I call the inflation risk out of tuition and fees for each individual student," Mr. Eley says. The university even offers the guarantee to students enrolling in Texas community colleges who plan to transfer. Those students sign a document that binds the university to charge them the university's current tuition rate but doesn't obligate them to attend.

The Dallas campus's program began before the economy tanked, but it could be even better for families now. Many households don't expect their incomes to go up in the next year, and it would be especially helpful if their college expenses remained flat.

Strategy Reliant on Growth

Under the plan, the college gets fewer tuition dollars from each continuing student. But Mr. Eley says the university has been able to finance it by substantially increasing its student body through both recruitment and retention. That growth is providing a cushion while the university adjusts to the new tuition model. It would be much harder to start such a program at a college that had already reached full capacity, he says.

Letting students lock in their tuition isn't a new idea, but as the recession pressures families and colleges alike, pricing strategies are particularly important, and many colleges will be trying to think creatively. As colleges contemplate pricing, they must keep in mind not only the actual cost to families but also the perceived cost.

On its face, Texas at Dallas's guarantee is an obvious boon for students and their families. Not only does the program take the guesswork out of what next year's tuition will be, but it also provides savings for students who stay long enough to complete their degree.

Letting students lock in tuition is a great idea in theory, says Kathy Kurz, vice president of the higher-education consulting company Scannell & Kurz. But in reality, it is not so simple for colleges to market.

For the last few years, tuition has increased by an average of 4.5 to 6.5 percent a year, depending on the type of institution. But if a college has a tuition guarantee, it won't have those year-to-year increases. To compensate, colleges must raise tuition significantly from one year's freshman class to the next. An incoming freshman at a college with fixed tuition may find herself paying 12 percent more than freshmen did the year before.

That, Ms. Kurz says, creates a marketing problem. Though families may be set up to save money over the long run with guaranteed tuition, they often don't look past the first-year price tag—which is likely to be higher than that of similar institutions. "The biggest concern is, at least initially, families pay more," Ms. Kurz says. Paying more that first year even if it means future savings—strikes many families as too risky, she says.

That is especially true this year, as college after college has announced its lowest tuition increase in years. "Colleges, by and large, are having a much smaller rate of tuition increase than any time in the last five or six years," says Robert A. Sevier, senior vice president for strategy at Stamats, a higher-education-marketing company. "It's not the time for a nine-, 10-, 11- or 12-percent increase, which a lot of four-year fixed rates need."

A Retention Tool

For that reason, Texas at Dallas educates families about its program throughout the admissions process, helping them think through the cost of a whole college education rather than focusing on that first year, Mr. Eley says. "I would make the argument to a family, it's great that college X is increasing tuition by 2.5 percent and not 5 percent, but we're raising it 0 percent" for continuing students. "College X isn't making a contractual promise. There's no reason they can't turn around and raise tuition 10 percent next year."

And, Mr. Eley says, the program is primarily designed to encourage retention, making it easier for students to plan for all four years and encouraging them to graduate on time.

Even when families understand the potential benefits, they may be wary of locking in tuition. What if the student transfers or drops out? Officials at Oklahoma City University have noticed that reluctance.

The university also began a tuition guarantee recently, though it operates differently from Dallas's. At Oklahoma City, the program is optional, and those students who enroll in it are charged several hundred dollars a semester more in tuition their first year. Officials there say

only 14 percent of students opt in to the program, even though it works out to be a good deal for any student who stays four years.

Other colleges have abandoned tuition-guarantee programs in recent years. Central Michigan University used to offer guaranteed tuition for up to five years, but stopped doing so in the summer of 2008. The program, though popular, had become "a financial risk to the university," says Steven F. Smith, director of media relations. It was premised on a level of state appropriations that the university no longer can count on, he says.

The guaranteed-tuition program at Pace University also ran into trouble. Offering students a flat tuition rate "requires a degree of stability in everything else," says Stephen J. Friedman, the university's president, who was hired after Pace abandoned its program in 2007. Sustaining the guaranteed-tuition program required large year-to-year increases, hitting 19 percent by the end. While he describes the model as "creative," Mr. Friedman says it also was difficult to sell to families.

Mr. Eley admits the marketing isn't easy, but says that for his institution, it is worth it. "It's more work than a typical pricing strategy," he says, "but morally better for families."

Appendix F

Illinois Tuition Comparison to National Average

Excerpts from "Impact of Guaranteed Tuition Policies on Postsecondary Tuition Levels: A Difference-in-Difference Approach" by Jennifer Delaney and Tyler Kearney, 2015

(A) "There is anecdotal evidence that Illinois' program had some impact on tuition levels. In 2002, Illinois ranked 13th among states in average tuition at four-year public institutions. In 2007 following the implementation of the Truth-in-Tuition Law, this ranking had risen to 6th (COGFA, 2008). In addition, the average tuition growth rate at Illinois four-year public institutions was 12.0% between 2003 and 2007, compared to a national average of 8.8% (COGFA, 2008)" (p. 3).

Note: COGFA is the acronym for Illinois's Commission on Government Forecasting and Accountability. Authors' source was COGFA's "Higher education: Funding and tuition rates", http://cgfa.ilga.gov/Upload/2008-DEC%20Higher%20Education%20Funding%20Tuition%20Rates.pdf

(B) "On average, institutions subject to this law increased annual tuition by approximately 26-30% and aggregate four-year tuition by approximately 6-7% in excess of the amount predicted by the trend for institutions not subject to the law. These findings … support the idea that state-level guaranteed tuition programs encourage large institutional tuition increases" (p. 1).

Oklahoma Universities Tuition Comparison

University of Oklahoma						
	FY12	**FY13**	**FY14**	**FY15**	**Total**	**Difference**
Guaranteed Tuition	$4,425.00	$4,425.00	$4,425.00	$4,425.00	$17,700.00	$1,809.00
Non-guaranteed Tuition	$3,849.00	$3,957.00	$3,957.00	$4,128.00	$15,891.00	

Oklahoma State University						
	FY12	**FY13**	**FY14**	**FY15**	**Total**	**Difference**
Guaranteed Tuition	$4,948.80	$4,948.80	$4,948.80	$4,948.80	$19,795.20	$2,216.70
Non-guaranteed Tuition	$4,303.50	$4,425.00	$4,425.00	$4,425.00	$17,578.50	

Source: Annual Tuition and Fee Rate by Oklahoma State Regents for Higher Education.

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Rising College Costs and an Illinois Effort to Control Them: A Preliminary Review

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Rising college costs are of increasing concern. At the 12 public universities in Illinois, average increases in tuition were modest, generally in the 4% range, until 1999 when individual campuses begin to increase tuition at double digit rates. In 2002-2003, the overall average increase in tuition/fees more than doubled at 13.79%. In an effort to provide students/families with a more predictable college education cost and moderate the rising costs of a college education, WIU began a 4-year tuition, student fees, and room/board (all-costs) rate guarantee program in Fall 1999. Following the perceived success of this model, which is ascertained in this study, the State mandated that all public universities in Illinois offer a 4-year guarantee for tuition beginning Fall 2004.

Keywords: college tuition, controlling college costs, guaranteed tuition program

The Problem

Toutkoushian (2001) noted the cost incurred by students attending both public and private U.S. colleges and universities increased at 2-3 times the rate of inflation during the 1980s. Harvey, Williams, Kirshstein, and Wellman (1998) likewise noted that tuition rates increased 400% between 1976 and 1996. Despite these increased costs, a college degree remains a wise investment. Lifetime earnings differentials of college graduates compared to high school graduates increased from 47% in 1963 to a stable 75% since 1990, with students having degrees in computers, engineering, and business experiencing even higher average earning differentials (Paulsen, 2001b). Yet, the public is understandably concerned about the rising cost of higher education. This is especially a concern as financial aid has turned largely to loan programs, with grants declining from 56% of aid in 1980 to only 40% in the mid-to-late 1990s (Paulsen, 2001b). As important as attaining a college degree is, its rising cost seems on the brink of excluding all but the wealthiest and brightest students, or requiring students to incur greater levels of financial debt.

The Cause

Using empirical data combined with microeconomic theory, Paulsen (2001a) concluded that there are several factors behind college tuition increases that have exceeded the rate of inflation since 1980. These factors include: (a) decreased share of institutional revenue from state government appropriations, (b) increased administrative expenses, (c) increased student services, (d) increased instructional expenses, (e) increasing numbers of potential college-bound students, and (f) increased need for institutional-based financial aid. Of these factors, most seem to agree that the decrease in state funding has been the major cause of increased college tuition (Mumper, 2001; Pearson & Baldi, 1998; Winston, 1998). In 1974-75, society contributed 87% of the cost of a public 4-year college education, with students paying the remaining 13% in tuition expenses. Just 20 years later, society's contribution decreased to 80.7% (Paulsen, 2001b). The National Center for Education Statistics (1999) reported that 1980 state appropriations supplied 44% of public higher education institutional revenue. However, by the 1995-96 term, this

had fallen to 32.5%, forcing institutions to increase tuition to cover expenses. This direct link between decreased state support and higher tuition costs has resulted in less equitable opportunities to obtain a college education.

Declining state support of higher education does not ignore the public good of higher education that far exceeds the individual student benefit. For example, Leslie et al. (1992, as cited in Paulsen, 2001b) estimated that each $1 million of spending from a 4-year college budget generates $1.8 million in business spending and 53 additional jobs in the community. Pencavel's 1993 study (as cited in Paulsen, 2001b), concluded that 14.6% of American economic growth between 1973 and 1984 was a direct result of investment in higher education. Paulsen's (2001b) own research found that each 1.0% increase in high school graduates who obtain

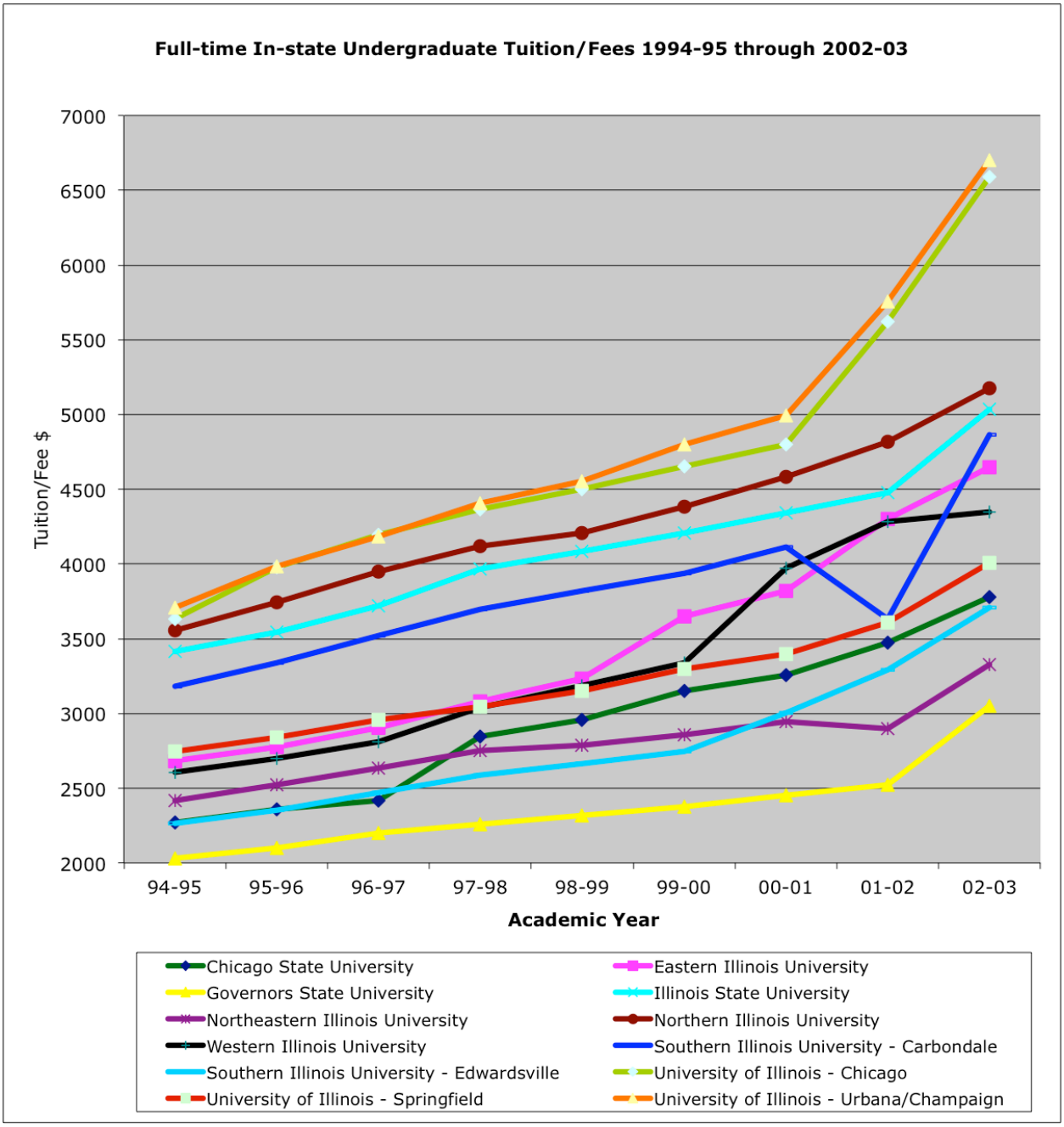

Figure 1. Tuition/Fees for full-time undergraduate students enrolled at each of the 12 public universities in Illinois from the 1994-95 through 2002-03 academic year (IBHE, 1995-2003).

college degrees contributes a 1.2% increase in the state's workforce productivity. Yet, the devolution of federal programs to state responsibility has placed states in a difficult fiscal position as they attempt to balance their budgets.

> Since 1990 there were increases in all major state expenditure categories except higher education…. State policy makers were trapped between pressures to increase K-12 education, prisons, medical care, and welfare on one hand and pressures to hold down taxes and legal requirements to balance their state budgets on the other. Given these cross pressures, many policy makers felt as though higher education was the only place they could reduce spending. (Mumper, 2001, p. 329)

In fact, Mumper (2001) reports that between 1990 and 1995, state Medicaid expenditures increased 10% per year, expenditures for prisons increased 8.5% per year, K-12 expenditures increased 3.7% per year, and welfare and family support expenditures increased 1.6% year, while state expenditures for higher education decreased 0.6% per year.

Public University Tuition/Fees in Illinois

Information provided by the Illinois Board of Higher Education (IBHE) in their annual reports of tuition and mandatory fee totals for full-time, in-state, undergraduate students allow for comparisons at the 12 Illinois public universities (Illinois Board of Higher Education [IBHE], 1995-2003). As is apparent in Figure 1, for the most part each of the Illinois public universities exhibited fairly modest annual tuition/fee increases from 1994-95 to 2001-2002, but tuition/fees began a more rapid rise in 2002-03.

Table 1 provides a more detailed look at the relative size of these annual tuition/fee increases (IBHE, 1995-2003). While there were individual circumstances leading to some anomalies, the average rate of tuition/fee increase was very modest until 2002-03, with the annual increase in tuition/fees for all 12 public Illinois universities ranging from 3.27-6.10% between 1995-96 and 2001-02. However, for the 2002-2003 academic year, the average increase in tuition/fees more than doubled at 13.79%. Only four of the universities did not see double digit tuition/fee increases for the 2002-03 term, and only Western Illinois University (WIU) did not exceed the prior 6.10% threshold.

A Western Illinois University Cost Guarantee Solution

In Fall 1999, WIU debuted a unique and innovative cost guarantee program to simplify college expense budgeting and to help control the rising costs of higher education (Board of Trustees [BOT], 1998-1999). While this initially resulted in a higher than previous tuition/fee increase to provide amatorized 4-year tuition projections (IBHE, 1995-2003), each newly matriculating

Table 1
Annual Rate Change for Undergraduate Tuition/Fees 1995-95 through 2002-03

University	Academic Year							
	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03
Chicago State University	3.79	2.72	17.60	3.90	6.56	3.30	6.73	8.78
Eastern Illinois University	3.46	4.61	5.96	5.00	12.96	4.57	12.65	8.07
Governors State University	3.25	4.77	2.73	2.66	2.59	3.20	2.93	20.90
Illinois State University	3.75	5.00	6.69	2.95	3.03	3.09	3.18	12.48
Northeastern Illinois University	4.39	4.40	4.48	1.34	2.47	3.08	-1.63	14.77
Northern Illinois University	5.34	5.42	4.41	2.13	4.13	4.54	5.06	7.48
Western Illinois University	3.64	4.00	8.08	4.87	4.77	19.06	7.78	1.61
Southern Illinois University Carbondale	4.90	5.51	4.88	3.44	3.01	4.52	-11.67	33.87
Southern Illinois University Edwardsville	3.89	4.93	4.78	3.02	2.96	9.58	9.44	12.70
University of Illinois Chicago	9.52	5.38	4.05	3.07	3.47	3.14	17.08	17.30
University of Illinois Springfield	3.42	4.12	3.01	3.45	4.76	2.88	6.36	11.02
University of Illinois Urbana/Champaign	7.50	4.99	5.28	3.36	5.45	4.00	15.22	16.51
Average	4.74	4.65	6.00	3.27	4.68	5.41	6.10	13.79

Note. Percentage tuition/fee increases for full-time undergraduates at each of the 12 public universities in Illinois from the 1995-96 academic year through the 2002-03 academic year (IBHE, 1995-2003).

WIU student was guaranteed no increase in tuition, fees, or room/board for the 4-year duration of their degree program, an all-costs guarantee (BOT, 1998-1999). Majors that required longer to complete, such as teacher education programs, had their cost guarantee extended to the normal length of their program. Billed as a one-of-a-kind program, it immediately attracted considerable student and family interest. A 2001 survey of new freshmen and their parents, with nearly 700 responding for a 34% response rate, found that 99.7% of respondents felt that WIU should continue to offer the all-costs (tuition, fee, and room/board) guarantee (North, 2002). Under the WIU all-costs guarantee program (BOT, 1998-1999), no longer are students met with yearly tuition, fee, and room/board increases as the institution tries to balance their declining state revenues with greater student-generated revenue. Rather, once students enroll, they know what the total cost of their degree program will be, making budgeting for college expenses a much easier proposition for students and their families (BOT, 1998-1999; North, 2002).

WIU's all-costs guarantee (BOT, 1998-1999) also attracted considerable attention from the state legislature which had taken notice of the public's concern about the rising cost of higher education. On July 22, 2003, Illinois Governor Rod Blagojevich signed Public Act 93-0228 into law, legislating a 4-year tuition guarantee for all new students entering Illinois public colleges and universities beginning with the Fall 2004 academic term. This new legislation did not, however, follow WIU's all-cost model that also prevented increases in fees and room/board during the student's normal degree completion timeframe (BOT, 1998-1999). Rather, Public Act 93-0228 limited only tuition increases, failing to protect students from increases in fees and room and board.

> Sec. 25. Limitation on tuition increase.
> This Section applies only to those students who first enroll after the 2003-2004 academic year. For 4 continuous academic years following initial enrollment (or for undergraduate programs that require more than 4 years to complete, for the normal time to complete the program, as determined by the University), the tuition charged an undergraduate student who is an Illinois resident shall not exceed the amount that the student was charged at the time he or she first enrolled in the University. However, if the student changes majors during this time period, the tuition charged the student shall equal the amount the student would have been charged had he or she been admitted to the changed major when he or she first enrolled. (Illinois Public Act 93-0228, Illinois General Assembly, § 25, 2003)

Has the Western Illinois University Cost Guarantee Worked?

Given the preceding average tuition/fee rates and the annual increases at each of the 12 public universities in Illinois as shown in Figure 1 and Table 1 (IBHE, 1995-2003), attention can now turn to the special case of WIU to determine whether their unique all-costs guarantee has helped to moderate rate increases, or if the benefit resides solely in the opportunity it affords students and their families to determine the cost of a college degree at the outset of a student's initial enrollment. Historical data for this analysis were obtained directly from information provided by WIU in the 1994-1995 Board of Governors report and subsequent 1995-2004 Board of Trustee reports (institutional oversight changed from a statewide Board of Governors to a campus level Board of Trustees in 1995-96). Numbers may differ somewhat from those presented earlier that were based on IBHE information (1995-2003) because IBHE standardizes to full-time enrollment status to provide better cross-university comparison.

Prior to the Fall 1999 semester, all WIU students were subject to annual increases in tuition, fees, and room/board (BOT, 1998-1999). Consequently, a student's sophomore year expenses were higher than they had been their freshmen year, and so on. Beginning with new students who enrolled Fall 1999 or later, all costs (tuition, fees, and room/board) were guaranteed to remain constant during the conventional 4-year degree completion timeframe. Each year, annual tuition, fee, and room/board increases affected only new students, i.e., new freshmen or transfers, or those who had not finished their degree program in the 4-year normative degree time limit. Thus, by the time of the guarantee's full effect in the fourth year of the program, any published tuition, fee, and room/board rates would affect only about 30% of students, i.e., the new incoming class (BOT, 1998-1999). Figure 2 helps ascertain the effect these guaranteed rates had on annual increases.

As shown in Figure 2, when WIU moved to an all-costs rate guarantee beginning Fall 1999, there was not an increase in the rate at which either fees or room/board rates increased, with both continuing their same rate of growth. However, while tuition increases ranged from 3.47-3.88% between Fall 1994 and Fall 1997 and held steady in Fall 1998, the first year of the rate guarantee in Fall 1999 saw a major increase of 28.82% as the University adapted to realigned budgeting scenarios (Board of Governors [BOG], 1994; BOT, 1995-1999). However, the tuition increase for new students in Fall 2000 was back to 3.02% (BOT, 2000).

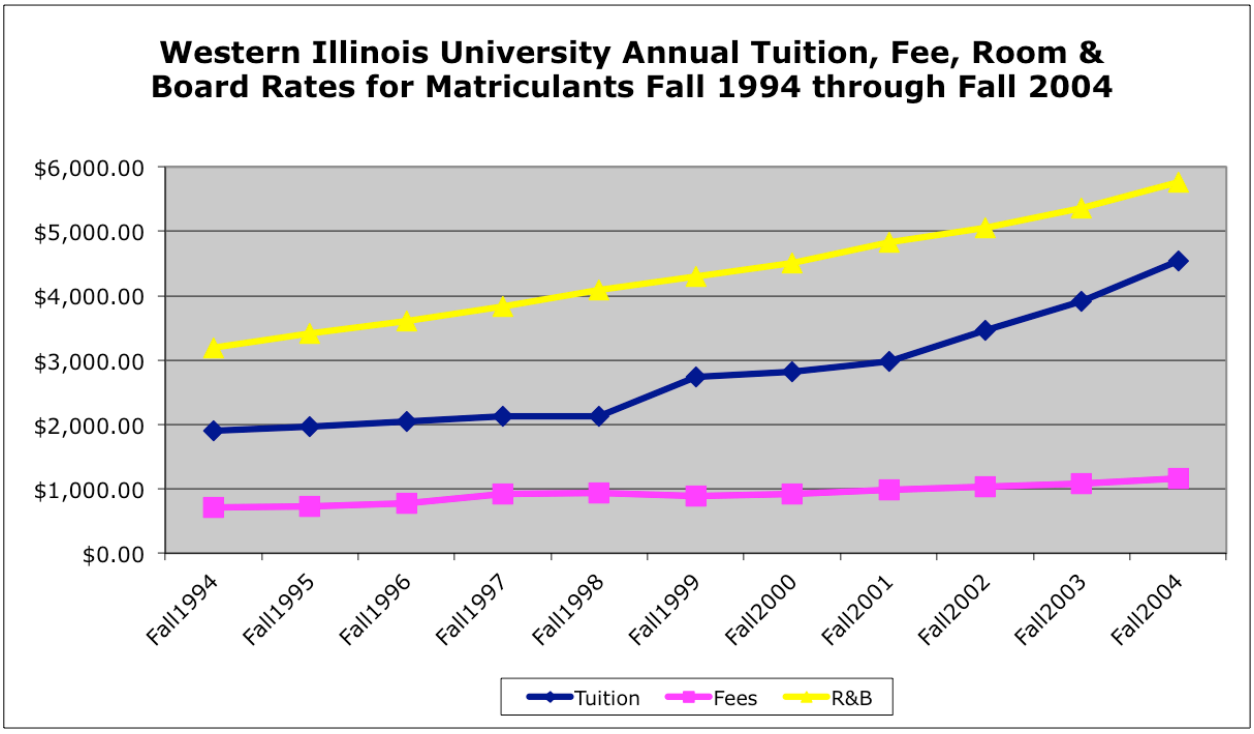

Figure 2. WIU tuition, fee, and room/board rates for the academic terms beginning Fall 1994 through Fall 2004 (BOG, 1994; BOT, 1995-2004).

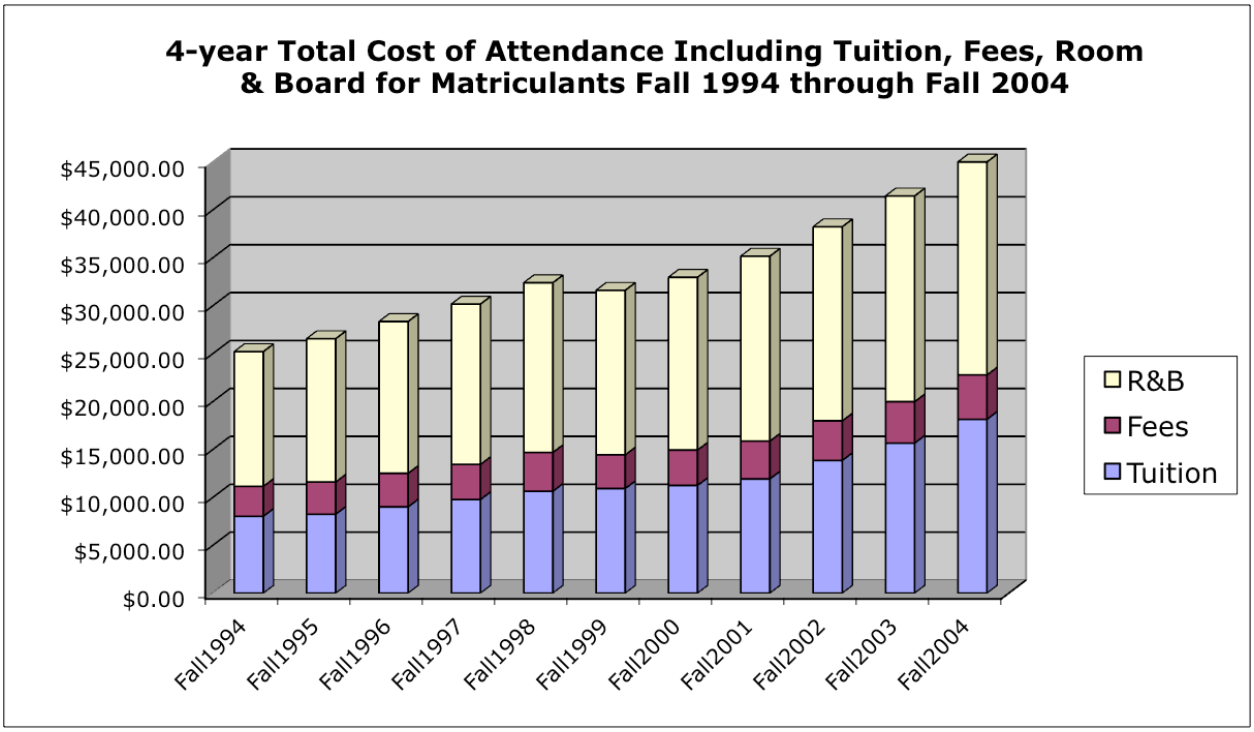

Figure 3. Cost of a 4-year degree at WIU, including tuition, fees, and room/board for students who began their degree in Fall 1994 through Fall 2004 (BOG, 1994; BOT, 1995-2004).

Unfortunately, Fall 2001 tuition rates coincided with the beginning of the statewide and national economic downturn, resulting in an emergency 6.03% increase compared to Fall 2000 rates (BOT, 2001). As the situation continued to affect the economy, WIU's share of state appropriations also began to decrease. Based on information reported by the IBHE (1995-2003), WIU's funding declined $320,800, or 0.34%, for the 2002-03 academic year while total state public higher education appropriations increased almost $3.2 billion, or 1.52%. For 2003-04, the total state appropriation to public higher education declined by more than $4.1 billion or 1.97%, thus falling below the 2001-02 level (IBHE, 2002). WIU's loss was even greater, totaling almost $3 million, or 3.14% (IBHE, 2002). Consequently, WIU began to see double digit tuition increases beginning with the 2002-03 academic term, as can be intuited from Figure 2. Fall 2002 tuition rates increased 16.20% over those in Fall 2001, Fall 2003 tuition rates increased 12.99%, and Fall 2004 tuition rates increased 15.90% (BOT, 2002-2004). However, one should keep in mind that these rate increases affected only new WIU students, because students were guaranteed their tuition, fee, and room/board rates at the time of their enrollment.

A major benefit of WIU's all-costs rate guarantee for tuition, fees, and room/board is that students and their families are assured of the total cost of their 4-year degree when they first enroll. Consequently, it is perhaps most telling to look at what the cost of a degree program was for students who enrolled as freshmen from Fall 1994 to Fall 2004, as is shown in Figure 3.

Figure 3 shows that except for the beneficial decrease for the first class of students who entered under the initial year of the all-costs rate guarantee program in Fall 1999, the total cost of a degree program grew each year. However, the percentage increases approximated those prior to the rate guarantee program until Fall 2002 (BOG, 1994; BOT, 1995-2002). There were double digit tuition increases for the 2002-2003 and 2003-2004 academic terms, an aspect that resulted from the significant decreases in state appropriations mentioned above. This decline in state funding for public higher education in Illinois led to a more rapid increase in the total cost of obtaining a degree for those who began their program in Fall 2002 and after (BOT, 2002-2004).

As can be seen in Figure 4, using Fall 1994 as the initial base, WIU 4-year degree completion total costs, including tuition, fees, and room/board, increased between 5.36% and 7.39% for each year's new matriculants from Fall 1995 to Fall 1998 (BOG, 1994; BOT, 1995-1998). The inaugural class of the all costs guarantee program in Fall 1999 actually saw total degree completion costs decrease 2.44% (BOT, 1999). For new matriculants between Fall 2000 and Fall 2003, the 4-year degree completion total costs did continue to increase, but these increases of 4.31-8.73% were comparable to those

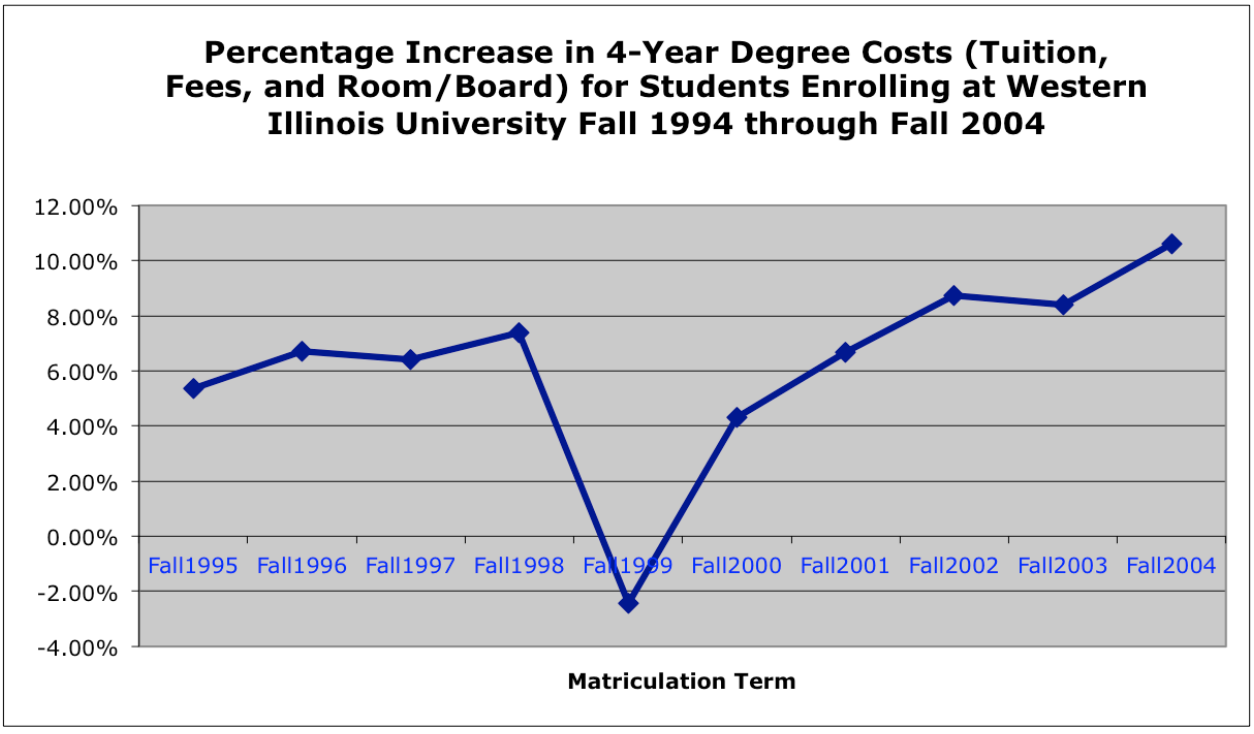

Figure 4. Percentage increase in the total cost of a 4-year degree for WIU students beginning their degree programs from Fall 1994 through Fall 2004 (BOG, 1994; BOT, 1995-2004).

seen prior to WIU's implementation of their all-costs rate guarantee program (BOT, 2000-2003). Only the incoming class in Fall 2004 saw a double digit increase of 10.61% in the combined tuition, fees, and room/board costs of their degree program (BOT, 2004).

The Future in Illinois

WIU's all-costs 4-year tuition, fees, and room/board rate guarantee program has not only simplified student and family financial budgeting for degree completion, it has also helped to moderate degree completion increased costs. However, the ultimate effect of Public Act 93-0228 (2003) in legislating a 4-year tuition guarantee for all new students entering all Illinois public colleges and universities beginning with the Fall 2004 academic term remains to be seen. While officials at these newly affected institutions are notably concerned about having to accept a 4-year risk when establishing the fixed tuition rate new students will pay throughout their degree program, perhaps the greater risk is placed on the student. Although tuition rates are guaranteed at these other institutions as per Public Act 93-0228 (2003), there is no state mandate to control student fee and room/board rates. Thus, these other institutions can generate greater revenue while still observing the guidelines of Public Act 93-0228, by simply increasing student fees or room/board rates. If this happens, not only will the students and their families suffer, but the very intent of the Act in terms of moderating the increasing costs of higher education will have been blatantly disregarded. Certainly this issue and its ramifications deserve continued study by the IBHE and other interested parties.

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Guaranteed Tuition Plans Pose Greater Risk Than Potential Benefit

FEB 29, 2016  Stephanie Keaveney 1 Comment

AMID WHAT APPEARS TO BE A NATIONAL CRISIS OF STUDENT DEBT, LEGISLATORS AND HIGHER education leaders have clamored for a more affordable route to a bachelor's degree. Guaranteed tuition programs are among the innovations gaining traction. More than 300 colleges offer these programs, and a group of North Carolina legislators wants to explore whether to add the state's 17 public universities to the growing list.

North Carolina House Bill 657, which was introduced last year, instructs the UNC System's Board of Governors to "study the establishment of a fixed tuition program as a payment option at the UNC system schools," asserting that "the citizens of North Carolina would benefit greatly…."

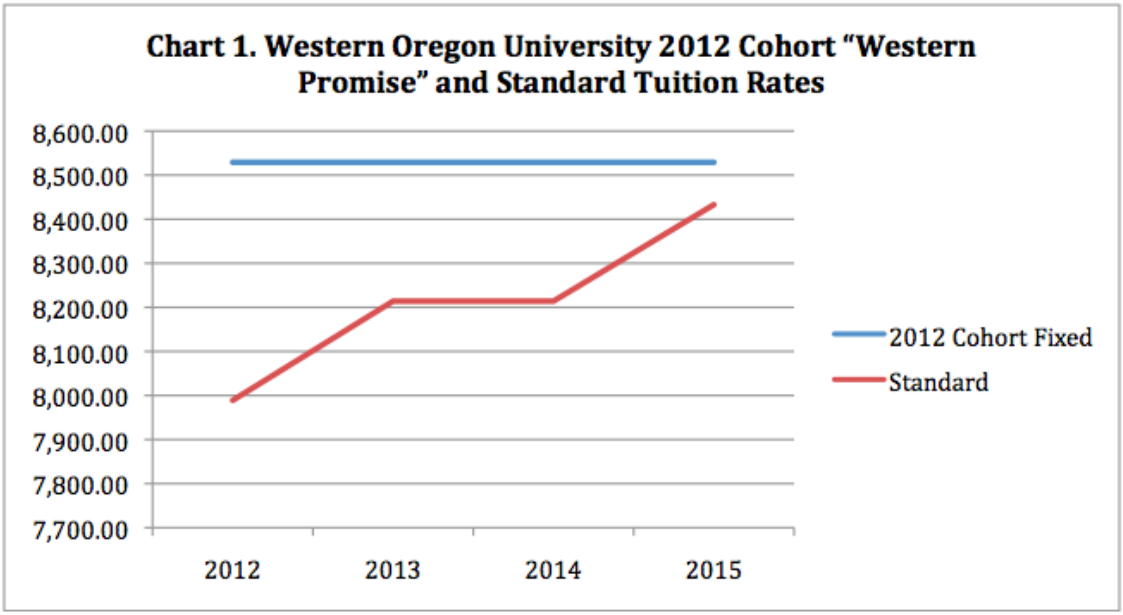
Tuition guarantee programs may seem like a good idea at first glance, but there are potential negative consequences for both students and universities. Under a guaranteed tuition plan, students are promised a constant rate of tuition for a limited time while they pursue their degrees. But the details of these plans vary widely, and some are more effective than others.

The Illinois University System was one of the first public school systems to launch tuition guarantees in 2004. Under its program each public university is required to adopt a tuition plan that holds tuition constant for four academic years (or more for designated five-year programs) for first-time in-state students. Similarly, both Western Oregon University's "Western Promise" program and the University of Kansas's "tuition compact" offer a four-year flat rate, but extend a similar option to out-of-state students as well, at a higher rate.

By enrolling in guaranteed tuition programs, students and their families essentially take a gamble, which may or may not pay off. Students who choose a guaranteed program agree to pay a surcharge—often ranging from 5-15 percent over standard tuition—on the assumption that standard

tuition will rise beyond that in the ensuing four years. However, if state legislators invest more in higher education, or if the student doesn't earn a degree, guaranteed plans can cost students much more than standard tuition.

For a while Western Oregon University succeeded in setting rates in the Western Promise program, to save students in the long run. But beginning with the 2012 cohort (students who first entered the university in Fall of 2012), that no longer seems true, as students who chose the program ended up paying $1,266 more than those in the standard plan.



Sources: Western Oregon University and Oregon University System Fact Book

Similarly, the University of Kansas failed to save students money in every cohort since 2009. Although students paid less on fixed plans in the last two years, it was not enough to offset the high rates they paid the first two, costing 2009 cohort students only $45, but 2012 cohort students paid $417 more.

Table 1. University of Kansas 2009 Cohort "Tuition Compact" and Standard Tuition Rates

	2009	2010	2011	2012
2009 Cohort Fixed	3679.5	3679.5	3679.5	3679.5
Standard	3283.5	3583.5	3805.5	3999.75

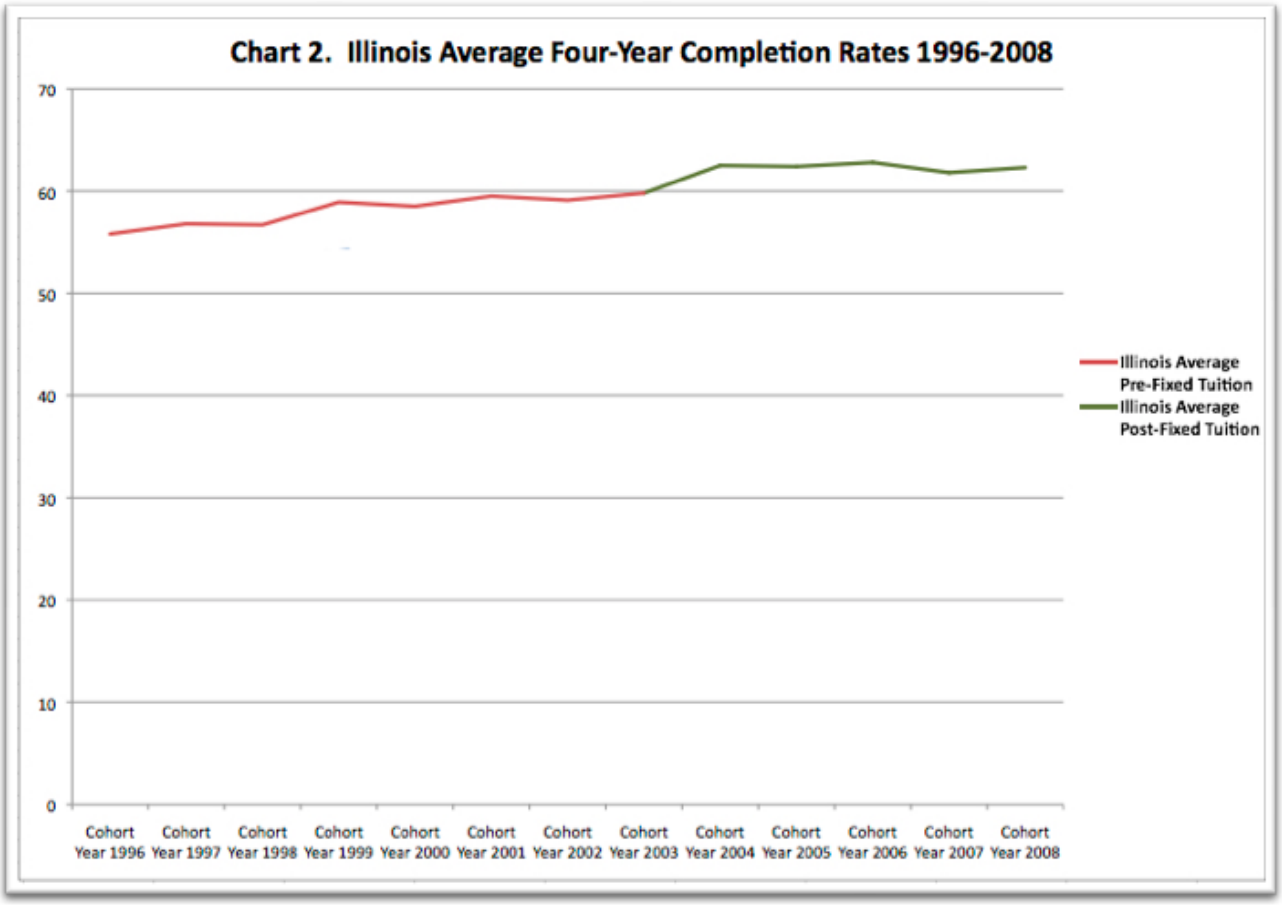
Source: University of Kansas

Table 2. University of Kansas 2012 Cohort "Tuition Compact" and Standard Tuition Rates

	2012	2013	2014	2015
2012 Cohort Fixed	4395	4395	4395	4395
Standard	3999.75	4197.75	4403.25	4561.5

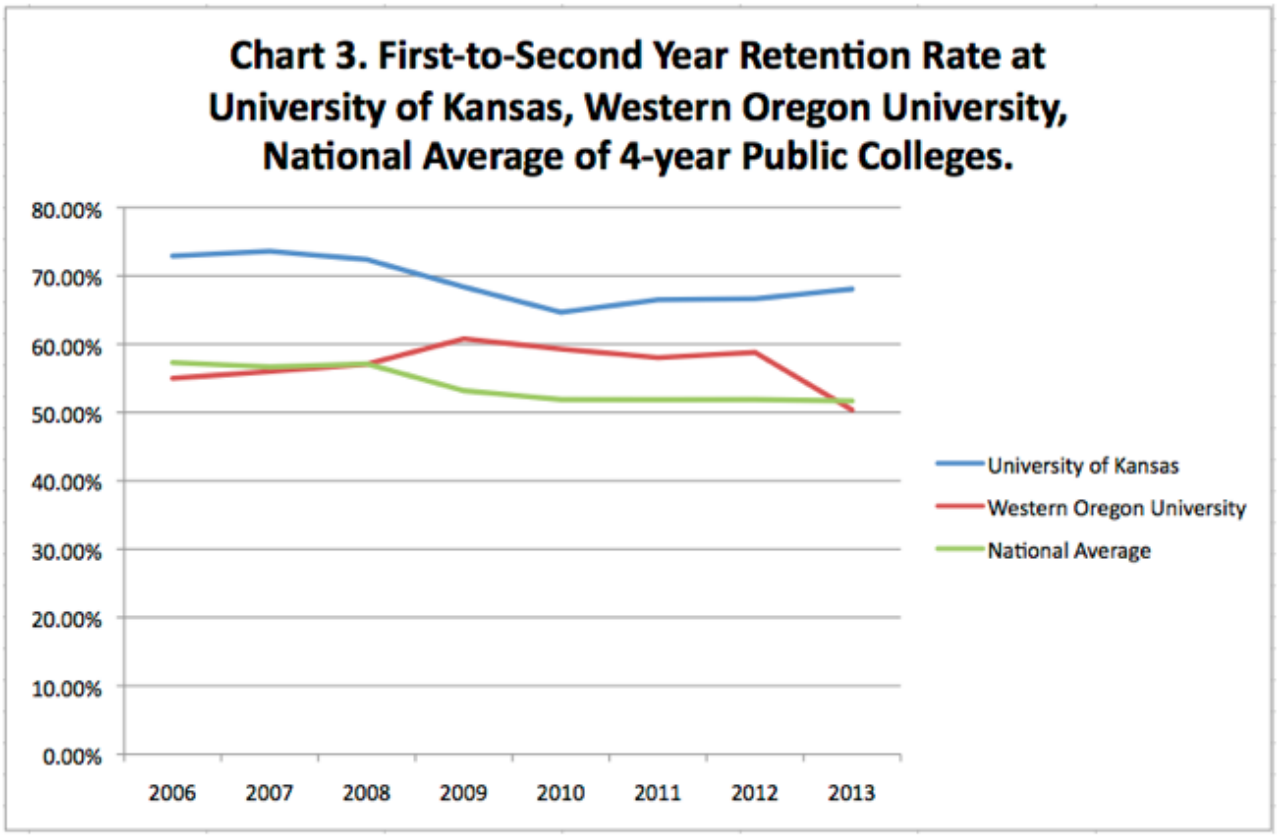
Source: University of Kansas

Universities also assert that by putting a four-year limit on tuition guarantees, students will be incentivized to complete their degrees during that period. However, despite a slight trend upward, four-year completion rates at Illinois public universities don't appear to have been greatly affected by the introduction of tuition guarantees.



Source: Integrated Postsecondary Education Data System

Supporters of tuition guarantees also claim that year-to-year retention rates increase under these plans because students are able to accurately plan for costs. While first-to-second year retention rates remained much higher at the University of Kansas than the national average, the introduction of guaranteed tuition in 2008 doesn't seem to have had a measurable impact. After an initial increase peaking in 2009, the Western Oregon University retention rates have declined steadily.



Source: Integrated Postsecondary Education Data System

While these plans may succeed in providing students and their families financial certainty from a tuition perspective, nearly all universities do not include room, board, and other fees in the fixed tuition rate, which means that students could still experience new unexpected costs each year.

Despite the claim to provide students the ability to be more financially prepared, the risks of these programs are not nearly as ambiguous as the benefits. Illinois's current budget crisis illustrates the consequences of legislatively mandated tuition guarantees.

There has been no state aid for the public universities for more than eight months due to a state budget standoff between the legislature and the governor. Illinois's 12 public universities have struggled to maintain operations while waiting out the crisis; however, because of the guaranteed tuition law, administrators are not legally allowed to raise rates on current students to cover short-term operational needs. The situation has caused Moody's Investors Service to downgrade the credit rating of three of the state's universities and pushed Chicago State University to accelerate the current semester and close its doors for the summer early.

At the very least, schools that freely choose to start tuition guarantee programs may also choose to end them in case of financial hardship. Some schools that turned to tuition savings programs because of the touted benefits realized that they are not always the most prudent option. The University System of Georgia discontinued its guaranteed tuition program in 2009 after just three

years, citing decreased budget flexibility and necessitated budget reductions as factors in the decision. Similarly, Central Michigan University ended its program in 2008 because of diminished state funding.

Universities are consistently bad at predicting multiyear costs, and fixed tuition plans only further diminish budget flexibility. Since they lose the ability to spread sudden financial need to all students—for example, in the face of a budget crisis—the burden is placed entirely on incoming students. Furthermore students seem uninterested in the financial risk of guaranteed plans when given the choice, as evidenced by Texas' lackluster rollout in the fall of 2014.

North Carolina legislators are right to be curious about the potential benefits of tuition guarantees. However, According to a 2014 report from the National Association of Student Financial Aid Administrators, there is no evidence that tuition guarantees actually affect retention or graduation. The report also cautions against attempting to use tuition guarantees to control the cost of attendance. Legislators and the public must be cautious about jumping on the bandwagon of a potentially damaging financial scheme in the name of affordability and student success.

Illinois Kansas

AUTHOR
Stephanie Keaveney

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Jennifer A. Delaney
Tyler D. Kearney

Alternative Student-Based Revenue Streams for Higher Education Institutions: A Difference-in-Difference Analysis Using Guaranteed Tuition Policies

This study considered the impact of state-level guaranteed tuition programs on alternative student-based revenue streams. It used a quasi-experimental, difference-in-difference methodology with a panel dataset of public four-year institutions from 2000–2012. Illinois' 2004 "Truth-in-Tuition" law was used as the policy of interest and the treatment condition. Following the introduction of Illinois' guaranteed tuition law, required fees and out-of-state tuition increased significantly at institutions subject to the law, but not the number or percent of out-of-state students. These results were robust to specifications with alternative comparison groups and the inclusion of state-specific linear time trends.

Keywords: higher education, quasi-experimental, difference-in-difference, tuition, fees, out-of-state enrollment

College affordability has taken center stage as the primary higher education policy issue in the United States today. The topic has received much attention by many stakeholders and has led institutional leaders and state policymakers to consider a variety of measures to ensure affordability (Kim & Ko, 2014). One of the more direct approaches is freezing tuition for one or more years (Krogstad, 2012). A related approach involves fixed rate, or guaranteed, tuition in which students do not experience annual increases in tuition.[1] Guaranteed tuition

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programs are becoming more prevalent across the nation. In 2008, 356 higher education institutions had guaranteed tuition plans in the United States; by 2013, 507 institutions offered a guaranteed tuition plan (IPEDS, n.d.). Of the institutions that offered guaranteed tuition plans in 2013, by far the most common institutional type was for-profit institutions. For-profit institutions offered 76.5% (388/507) of guaranteed tuition plans, with most of these tuition guarantees in private for-profit two-year or less than two-year institutions (342 institutions). In that year, 8.3% of guaranteed tuition programs were in public four-year institutions, 9.7% were in private nonprofit four-year institutions, and 2.8% were in public two-year (or less) institutions. By 2013, Alaska, Montana, and Wyoming were the only states with no institutions offering a tuition guarantee. In addition to institutional level plans, a number of states have enacted state-level programs. Illinois, Oklahoma, and Texas have all enacted state-level guaranteed tuition policies. This study is part of a line of research on the effects of these state-level guaranteed tuition policies on student costs.

Higher education institutions charge students user fees through a variety of mechanisms. The primary source of user-based charges for instruction at institutions of higher education is tuition. However, there are a number of alternative student-based revenue streams that are commonly used by institutions, but less well researched in the academic literature. Students are often charged required fees in addition to paying tuition. These fees can be added on to students' bills for a variety of purposes including course-related fees, athletics fees, health care fees, and student activity fees. Some institutions, like the University of Massachusetts at Amherst, charge the majority of their student-based charges in the form of fees. For example, in the 2014–2015 academic year, full time undergraduate resident tuition at UMass-Amherst was $857, but the institution's mandatory curriculum fee was $4,707 (University of Massachusetts-Amherst Office of the Bursar, 2014).

In addition, there is a growing trend of tuition differentiation (Nelson, 2008) which has resulted in different charges for different types of students. Differentials can be set based on a number of metrics including the class level of students, residency status, or major. These tuition differentials also represent an alternative student-based revenue stream for institutions. One of the most common types of differential tuition charged by public institutions is a nonresident tuition charge. Institutions and state leaders often argue that this differential is necessary since nonresident students did not contribute to the state tax base that is used to subsidize resident student tuition levels. Because of this, nonresident student charges are generally substantially higher than resident

student prices. This project uses the unique policy innovation of state-level guaranteed tuition policies as a quasi-experiment to test institutional behavior in relation to alternative student-based revenue streams. In order to make causal inferences, this study employs a difference-in-difference methodological design.

Guaranteed tuition plans have been shown to have a positive effect on tuition levels for in-state students which is, at least partially, explained by tuition "frontloading" whereby four-years of tuition increases are expected to be built into the guaranteed rate of tuition. However, our prior research showed an increase in tuition levels beyond what would have been expected by frontloading, yielding price increases for students and families (Delaney & Kearney, 2015b). This current study considered whether these laws also have effects on other types of student charges and alternative revenue streams for institutions. In particular, it considered the impact of guaranteed tuition laws on required student fees, which are not regulated under the guaranteed tuition law, and non-resident tuition and enrollments, which relate to students who are not legally subject to fixed rate tuition policies. It was structured to answer the following two research questions:

1. *Does the implementation of state-level guaranteed tuition programs lead to changes in the level of required fees for in-state students at public four-year institutions of higher education?*
2. *Does the implementation of state-level guaranteed tuition programs lead to changes in the number or percent of out-of-state students who enroll at public four-year institutions of higher education or the amount of tuition that these students pay?*

The findings of this study will add to the understanding of guaranteed tuition laws and alternative student-based revenue streams for higher education institutions in the field. Both of these are under-researched topics, but are becoming more important as guaranteed tuition programs become more popular and revenue sources for institutions become more diversified. As such, this study makes an important contribution to the literature and addresses important policy issues that are useful for policymakers, institutional researchers, and university leaders.

Among states with guaranteed tuition laws, only Illinois' "Truth-in-Tuition" law, which took effect in fall 2004, is mandatory and affects all incoming resident students at Illinois' public four-year institutions (Illinois Public Act 093–0228). Illinois' law requires public four-year institutions to set prices such that resident students pay the same rate for four continuous academic years. This means that "the tuition charged

an undergraduate student who is an Illinois resident shall not exceed the amount that the student was charged at the time he or she first enrolled in the University" (Illinois Public Act 093–0228). Within the four-year window, the student may change majors and "the tuition charged the student shall equal the amount the student would have been charged had he or she been admitted to the changed major when he or she first enrolled" (Illinois Public Act 093–0228). Students enrolled in degree programs that require more than four years receive the guarantee for "the normal time to complete the program, as determined by the University" (Illinois Public Act 093–0228).[2]

Oklahoma and Texas' programs only require that institutions offer students the option of a guaranteed rate. Both of these programs are newer than Illinois' law: Oklahoma's "Tuition Lock Program" was passed in 2007 and Texas law was passed in 2013. In Oklahoma, the optional guaranteed tuition plan is set at 15% more than the current standard (variable) rate, and the plan has had very low participation rates to date (Oklahoma State Regents for Higher Education, 2011; Mauck, 2013). Due to its mandatory nature and the availability of more years of data post-enactment, Illinois' guaranteed tuition law offers the best opportunity to study these plans and will be the focus of this work.

Literature Review

There is relatively little peer-reviewed literature on the topic of guaranteed tuition policies, although there is often coverage of these programs in the media. In general, the literature is focused on individual institution-level programs (e.g., NAICU, n.d.; Supiano, 2009; Thorne & Wright, 1999; Troutt, McEwen, & Yew, 1995). However, some literature has focused on state-level guaranteed tuition programs (Delaney & Kearney, 2015a; Delaney & Kearney, 2015b, Delaney, Kearney, & Hemenway, 2016). A few studies have specifically addressed Illinois' guaranteed tuition program and the context of its adoption (e.g., Kim, 2004; Thomson, 2005), and its effects on enrollments (Robertson, 2007). Other literature is critical of tuition guarantee programs. Morphew (2007), for example, has suggested that tuition guarantees are misleading and have negative effects for underrepresented minority and poor students since they are less likely to persist and graduate. One newspaper article questioned the unintended consequences of the Truth-in-Tuition law by linking it to fee increases, "Because fees aren't included in the law, schools can raise them each year, even when tuition remains frozen" (Nickeas, 2009).

There is a large body of literature on the general pricing of higher education. However, this literature focuses almost exclusively on tuition. Fees are commonly grouped with tuition in an aggregate "tuition and fees" measure (e.g., College Board, 2013), but very little attention has been paid specifically to student fees associated with higher education in the U.S. In one of the very few studies of higher education fees, Arnott (2012) presented a descriptive analysis that found evidence that fee setting may vary by institutional type, state, region, governance structure, and political culture. The student price response literature generally shows that students respond to price changes and we have little reason to believe that student price responses would be substantially different for fees as opposed to tuition charges. An inverse relationship has consistently been found between tuition levels and enrollment (e.g., Heller, 1996; Hemelt & Marcotte, 2008; Jackson & Weathersby, 1975; Kane, 1995, 1999; Leslie & Brinkman, 1988; McPherson, 1978) and, to a lesser extent, persistence (Paulsen & St. John, 1997; St. John, 1990, 1992; St. John & Starkey, 1995).

There is a small amount of literature on nonresident and out-of-state enrollments, but it is similarly a subset of the general enrollment literature. Several studies have considered the relationship between nonresident tuition rates and nonresident enrollments. Some of these studies have found a negative relationship between the two (Curs & Singell, 2002; Noorbakhsh & Culp, 2002), while others have found that nonresident enrollment at public institutions is relatively inelastic, especially at selective institutions (Dotterweich & Baryla, 2005; McHugh & Morgan, 1984; Mixon & Hsing, 1994; Zhang, 2007). This suggests that institutions may be able to increase revenues by raising nonresident tuition rates without adversely affecting demand. Gonzalez Canche (2014) showed that institutions are spatially dependent and local competition drives nonresident tuition prices. Using out-of-state tuition as the hypothesized mechanism through which institutions are able to raise alternative revenue, Jaquette and Curs (2015) found a negative relationship between state appropriations for higher education and nonresident freshman enrollment. The relationship between resident and nonresident enrollments has also been explored in the literature. Winters (2012), for example, found evidence that increases in resident enrollments were associated with decreases in nonresident enrollments and increases in nonresident tuition rates. In an interesting study of the motivations for nonresident enrollments, Rizzo and Ehrenberg (2004) suggested that flagship public institutions did not use nonresident enrollments to increase revenues, but rather to achieve other outcomes, like academic quality or diversity. This runs counter to the conventional wisdom that

institutions may view nonresident enrollments as a means to supplement or replace other revenues.

Theoretical Framework

This study relied on resource dependence theory (RDT) for its theoretical framework. RDT originated in the field of organizational behavior (Pfeffer & Salancik, 1978), but it has been used fairly robustly in the study of higher education organizations (e.g. Gumport, 2012; Mendoza & Berger, 2008; Morphew, 2002; Tolbert, 1985). The main tenet of RDT is that a firm's external environment strongly influences its organization and behavior as it seeks to acquire and maintain resources (Pfeffer & Salancik, 1978). The higher education literature has used RDT to explain the emphasis placed on research by institutions and individual faculty members in recent decades—as federal policies designed to enhance global competitiveness have provided funds for specific fields of research (often applied sciences), institutions and faculty have responded by emphasizing these fields and competing for the federal resources (e.g. Mendoza & Berger, 2008; Slaughter & Leslie, 1997).

This article uses RDT to explain institutional responses to a state-level policy change. In this case, the policy change is the implementation of a guaranteed law. Guaranteed tuition laws reduce the amount of flexibility that institutions have in raising tuition revenue—in any given year, the institution can only adjust tuition for the incoming cohort of freshmen. The cohort increases are by no means capped; in fact, we (Delaney and Kearney, 2015b) found that guaranteed tuition laws were associated with larger tuition increases than otherwise would have been expected in the absence of the law. However, Bowen's (1980) revenue theory of cost asserts that a higher education institution "raises as much money as it can," and "spends all it raises" (p. 20). Given this propensity toward revenue-maximization, RDT suggests that institutions may look to other revenue streams that are not subject to the law, like fees and out-of-state tuition, to compensate for the loss of the ability to make annual adjustments to tuition for all students. In other words, institutions subject to guaranteed tuition laws may focus their annual revenue-maximizing activities on fees and out-of-state tuition by increasing these revenue streams more than institutions that have the ability to make annual adjustments to tuition.

This may also be categorized as revenue diversification, which Froelich (1999) identified as an RDT strategy to cope with external uncertainty common among nonprofit organizations. Under a RDT framework, institutions would be expected to diversify their revenue

streams following the introduction of a guaranteed tuition law. Because the guaranteed tuition law takes away institutions' ability to make annual adjustments to in-state tuition levels for all students, alternative student-based revenue streams (such as required fees and nonresident tuition) will become more important to institutions seeking to diversify and maximize their revenue streams. Hence, we hypothesized that both in-state required fees and out-of-state tuition would rise following the introduction of a guaranteed tuition law. The effect on out-of-state enrollments is an interesting empirical question. Increasing out-of-state enrollments would seem to be a revenue-maximizing strategy and would increase institutions' ability to make annual tuition adjustments for more students. However, the expected increase in out-of-state tuition may lead to a decline in demand from out-of-state students. An inverse relationship between price and enrollment is consistent with the prior student price response literature discussed in the literature review above.

Research Methods and Data

In studying the effect of state-level guaranteed tuition laws on alternative student-based revenue streams for institutions, this work used a quasi-experimental research design and employs a difference-in-difference approach. Selection bias and omitted variable bias are challenges in the higher education literature, which this study sought to alleviate by using a quasi-experimental technique (for a more complete discussion of these challenges in the higher education literature, see Cellini, 2008).

Figure 1 shows a graphical representation of the difference-in-difference model that was used in this work. Only the model for required fees is shown, but the models for out-of-state enrollments and out-of-state tuition are similar. At the enactment of the guaranteed tuition law, the treatment group was expected to experience an increase in required fees in excess of any secular trend experienced by the control group (such that $Fee_2 > Fee_1$). The difference in required fee levels after the enactment of the tuition guarantee law represents the treatment effect, or the increase in required fees resulting from the policy.

One necessary step in using a difference-in-difference approach is determining if there were concurrent changes that could hide or mitigate the effects of the policy tested, in this case the passage of a guaranteed tuition law. In order to test this, we searched all of the legislation passed in 2004 in Illinois that included the word "tuition." In the 93rd General Assembly (2003–2004), six public acts related to higher education tuition were enacted. Two of the acts addressed residency status, but only for select types of students: active duty military personnel (PA

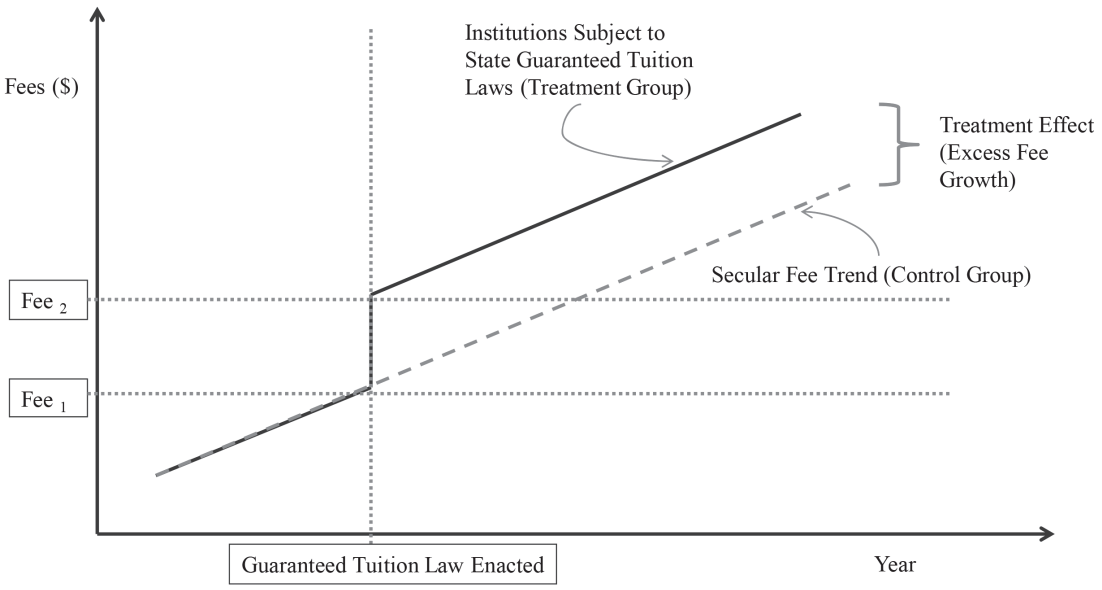

FIGURE 1. Predicted Effect of State Guaranteed Tuition Laws on Required Fees for Higher Education

93–0738) and students attending high school in the state (PA 93–0007). Three acts made technical changes to the Illinois Prepaid Tuition Trust Fund (PA 93–0056), the Illinois National Guard Grant (PA 93–0856), and the credit hour eligibility limit for Monetary Awards Program grants, the state's need-based financial aid program (PA 93–1032). Only the "Truth-in-Tuition" legislation could be expected to materially impact all in-state students at public four-year institutions and student-based institutional revenue streams. Because of this search we felt confident that our model would test only the effect of Illinois' guaranteed tuition law. Additionally, we assumed that nothing else changed in Illinois around this time that would have impacted tuition levels differently in Illinois than in other states.

An additional key assumption of the difference-in-difference design is that the treatment and control groups followed similar trends before the enactment of the treatment condition. One way to test this assumption is to observe the trends in the outcome variable before and after the implementation of the policy, in this case the passage of the guaranteed tuition law. Figure 2 shows these trends for each of the three outcome variables of interest. The graphs show averages for institutions

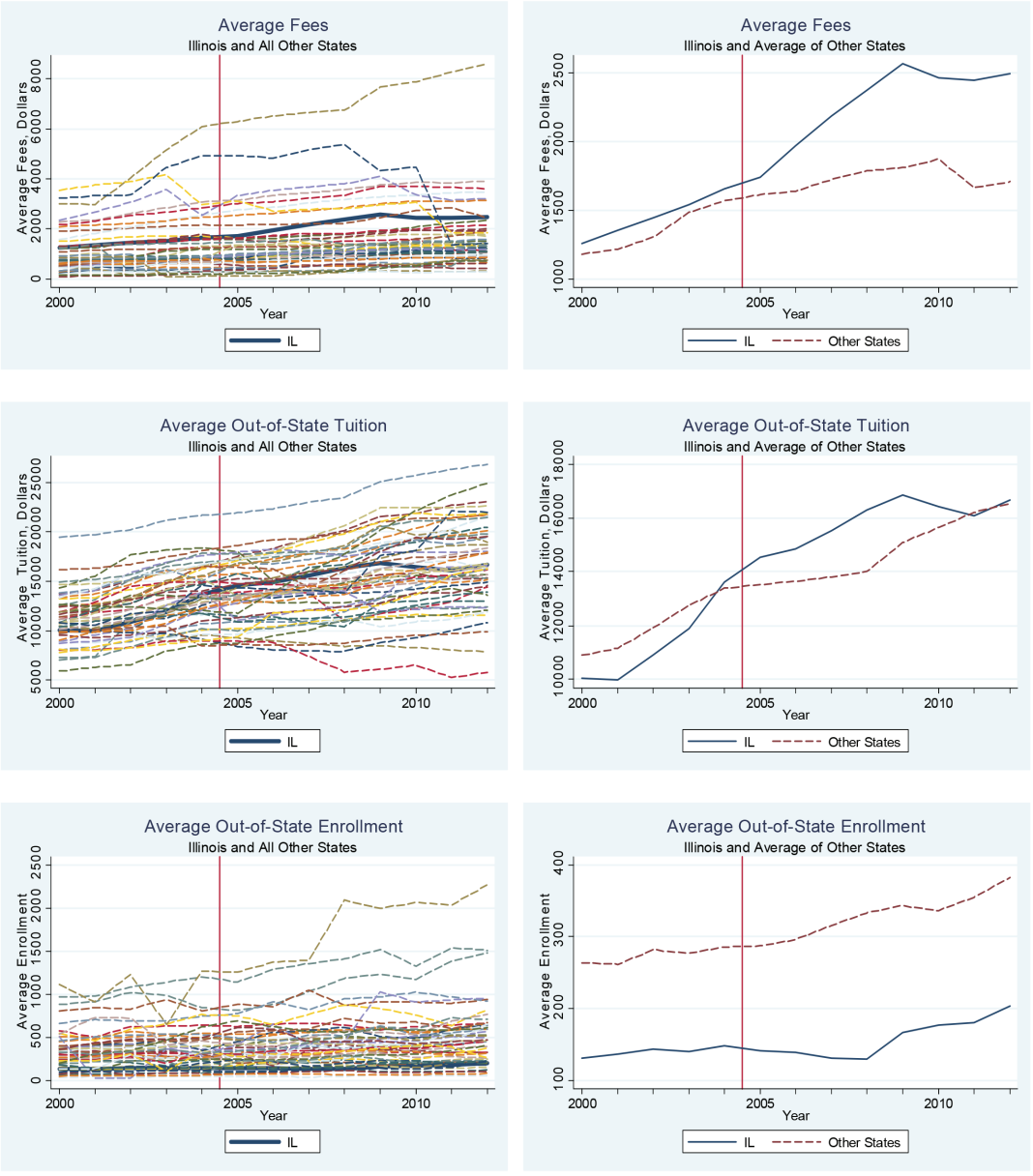

FIGURE 2. Time Trends for Outcome Variables in the Treatment and Control Groups

in Illinois and all other states (on the left). On the right, averages for Illinois are shown with averages of institutions in all other states. The visual evidence shows that the outcome variable trends for the treatment and control groups were generally parallel, except around the time of the implementation of guaranteed tuition. For out-of-state tuition, the expected jump for Illinois institutions appears to begin the year before the guaranteed tuition policy was implemented. This may be explained by the fact that the law was debated and passed the year before it was implemented and became mandatory for public institutions. This preliminary increase the year prior to implementation may have been the result of institutions anticipating the newly passed law. Ideally for the difference-in-difference design, we would have the policy intervention passed and implemented in the same tuition cycle to help us more clearly identify the effect. However, because we were confident that the guaranteed tuition law was the only policy change in Illinois likely to produce changes in the trends of the outcome variables relative to other states, we believed that the shifts in the time trends visible in Figure 2 were attributable to this law. Running our models on the year in which the law was implemented, rather than when it was passed, was the more direct approach, although it may have underestimated the effects on out-of-state tuition due to the effects of anticipation of the law.

Even though the visual evidence supports the idea that the treatment and control groups followed similar trends before the enactment of the policy and that the assumptions of a difference-in-difference approach were met, we also ran the models with state-specific linear time trends to control for any differences in the trends of the outcome variables in Illinois compared to other states. This approach is discussed below and serves to provide additional confidence that the difference-in-difference design captured the effects of the guarantee tuition law and was not a preexisting time trend.

In addition, to more formally test pretreatment trends, we ran falsification tests to ensure that the difference-in-difference models were truly picking up the effect of the guaranteed tuition law, rather than some preexisting trend in Illinois. Using the models presented in Table 2 (as discussed below) we set the interaction term to Post2002, two years before guaranteed tuition was implemented. As shown in Appendix A, these falsification tests allowed us to test whether a significant difference existed before the law took effect. Significant results for the Post2002 interaction term would indicate a violation of our assumption that Illinois' outcome variable trends were parallel to other states' trends before the guaranteed tuition law. As expected, the falsification tests in

Appendix A did not return significant results, supporting the primary difference-in-difference results discussed below.

This study hypothesized that, following the introduction of a statewide guaranteed tuition law, institutions subject to the law will increase alterative student-based charges (in the form of required fees and out-of-state tuition) as compared with institutions not subject to guaranteed tuition laws. In order to test this, the independent variable of interest in the difference-in-difference analysis seeks to capture those observations (at the institution-year level) for which the guaranteed tuition law applies. For Illinois, the variable of interest was an interaction between an indicator variable ($Illinois_i$) for those institutions located in Illinois and an indicator variable ($PostGuarantee_t$) for the years after the enactment of Illinois' Truth-in-Tuition law. As Illinois' guaranteed tuition law was first implemented in fall 2004, or fiscal year 2005, the latter variable is a dummy for the fiscal years 2005–2012, inclusive. Therefore, the basic empirical specifications for the four different outcome variables are represented by the following equations:

$$Fees_{it} = \beta(Illinois_i * PostGuarantee_t) + \mathbf{X}_{it}\boldsymbol{\gamma} + \mu_i + \nu_t + \varepsilon_{it} \quad (1)$$

$$NonresidentTuition_{it} = \beta(Illinois_i * PostGuarantee_t) + \mathbf{X}_{it}\boldsymbol{\gamma} + \mu_i + \nu_t + \varepsilon_{it} \quad (2)$$

$$NonresidentEnrollNumber_{it} = \beta(Illinois_i * PostGuarantee_t) + \mathbf{X}_{it}\boldsymbol{\gamma} + \mu_i + \nu_t + \varepsilon_{it} \quad (3)$$

$$NonresidentEnrollPercent_{it} = \beta(Illinois_i * PostGuarantee_t) + \mathbf{X}_{it}\boldsymbol{\gamma} + \mu_i + \nu_t + \varepsilon_{it} \quad (4)$$

These specifications include institutional fixed effects (represented by μ_i) and year effects (represented by ν_t); ε_{it} is the error term. $\mathbf{X}_{it}$ is a vector of time-varying control variables as described below. In order to rigorously specify the analysis, fixed effects were included for institutions and years. This approach will help to control for unobserved heterogeneity and common time trends in the data to better isolate the effect of state-level guaranteed tuition laws.

In the unique dataset that was constructed for this study, data were obtained from publicly available sources and were mainly derived from the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS) dataset (IPEDS, n.d.).[3] In addition, our dataset incorporated data from the National Association of State Student Grant and Aid Programs, the U.S. Census Bureau, and the U.S. Bureau of Labor Statistics. The fees outcome variable represents "required fees" from IPEDS, which is defined as, "Fixed sum charged to students for items not covered by tuition and required of such a large

proportion of all students that the student who does not pay the charge is an exception." The out-of-state tuition dependent variable was also collected by IPEDS and represents the amount of money charged for instructional services to students who did not meet the institution's or the state's residency requirements. It is important to note that the out-of-state tuition variable was measuring charged tuition, rather than "sticker price." The out-of-state enrollment variables reflect the total number of students who are not legal residents of the state, and the percentage of total enrollments that these students comprise.

The dataset was identified at the institution-year level. The estimating sample was comprised of public four-year institutions located in one of the U.S. states. Because there can be differences across different types of public four-year institutions, our dataset was further restricted to only consider institutions with similar sizes and missions. We used the 2000 Carnegie classification system available in IPEDS to identify institutional types. During the time period of this study, there were only three types of public four-year institutions operating in Illinois: Masters Colleges and Universities I, Doctoral/Research Universities—Extensive, and Doctoral/Research Universities—Intensive. No Illinois institutions changed categories in the dataset during the time period of the analysis, so the categories remain consistent throughout the analysis. Hence, we restricted the sample to include only these three types of public four-year institutions. The estimating sample was further restricted to only include institutions that met the following conditions: four or more years; Public, 4-year or above; Degree-granting; undergraduate degree or certificate offering; Title IV eligible; and were not a U.S. service institution.

Control Variables

Controls variables were included in the models to increase the precision of the estimates and were grouped into three categories: institutional-level, state-level economic, and state-level political controls. The first group of controls focused on institution-level variables. These included three controls that were only used in select models. These were in-state required fees (in the models where fees was not the dependent variable); out-of-state tuition level (in the models where out-of-state tuition was not the dependent variable); and the number of out-of-state students (in the models where out-of-state enrollment number or percent was not the dependent variable). We included these alternative student-based revenue stream controls in the models since each of these revenue streams was likely to impact the others (for instance, as discussed in the

literature review above, nonresident tuition has been shown to impact nonresident enrollment).

There were also a number of institutional-level control variables that were present in every model. First, we included the number of in-state students from the fall cohort, which was a control for institutional size and has been shown to impact nonresident enrollment (Winters, 2012). Second, we included the percent of full-time first-time undergraduates receiving any financial aid. This measure captured the availability of student financial aid from all sources—federal, state, local, philanthropic, and institutional. This control variable was selected based on findings from the student price response literature; because student aid discounts the price of college it is expected that the availability of all types of student aid will impact enrollment. Third, we included a measure of the gross amount of Pell grants disbursed to recipients at each institution. Because Pell grants are a highly targeted need-based aid program that is consistently applied across institutions, this measure offered a control of the income of the student body. Prior literature (see for instance, Heller, 1996; and McPherson, 1978) has shown an inverse relationship between student income and enrollment. Lastly, we included a control of state general appropriations by institution, to control for non-student-based institutional revenue. A negative relationship between state appropriations and nonresident enrollment was found in Jaquette and Curs (2015), warranting inclusion of this control in our model. All of these institutional-level control variables were taken from IPEDS.[4] Although the expected effect of these control variables on each outcome variable may be slightly different, we included all of these control variables in every model for consistency and to enable comparison across the models.

The second group of controls focused on state-level economic variables. These included total state population and total state revenues from the U.S. Census Bureau (n.d., a; n.d., c), as well as total state postsecondary enrollment from the Digest of Education Statistics (National Center for Education Statistics, n.d.), which were controls for the size of the state. These measures controlled for both the potential demand for higher education by the state population and actual demand based on total state enrollment numbers. The ability of the state to provide support to institutions is based on states' total revenue base. A control was also included for the total state investment in student financial aid, which was captured by the National Association of State Student Grant and Aid Programs (n.d.). This control has been used in prior literature to control for in-state student tuition discounting which may impact the availability of nonresident student spaces (Gonzalez Canche, 2014;

Toutkoushian & Hillman, 2012). In addition, having more state student aid available may influence institutional decisions regarding in-state fee levels.

Differences in economic conditions may drive differences in how state and institutional leaders finance higher education within the state. As such, state economic conditions were captured through controls for state median household income from the U.S. Census Bureau (n.d., b), which controls for the family incomes of students within a state and the capacity for in-state residents to pay required fees. We also controlled for the annual average state unemployment rate from the Bureau of Labor Statistics (n.d., b), as a measure of each state's economic condition. Finally, we controlled for each state's Gini coefficient, which measures the level of income inequality within each state and was published in a report sponsored by the U.S. Census Bureau (Hisnanick & Rogers, n.d.). The level of income inequality is likely to impact in-state student demand and families' ability to pay for higher education, which we expected would influence required in-state fee levels and institutional demand for nonresident students.

The third, and final, group of controls focused on the political processes of each state. Because tuition, fees, and nonresident enrollment levels are set within a political context, it was important to include political controls in our models (McLendon & Hearn, 2007). Furthermore, guaranteed tuition legislation is the result of a political process and tuition and fee decisions are subject to political pressures from multiple interest groups (Institute for Higher Education Policy, 1999). In our models, we used both political controls that considered political parties, capturing formal political organizations in the state, and a control for the level of engagement of the electorate in each state. We included the proportion of Republicans in the state legislature (both the State Senate and House, or the single unicameral legislature in the case of Nebraska) and the political party affiliation of the governor as controls, which were collected from The Council of State Governments (n.d.). We used the measures of political party to control for the level of political gridlock within a state. We also included the state voter participation rate in presidential elections, which was collected by the U.S. Census Bureau (linear smoothing is used in non-election years to make this a continuous measure), which controls for the level of engagement of the electorate in each state (U.S. Census Bureau, n.d., d). We used voting in presidential elections as our measure since these elections generally yield the highest turnouts. Both the state-level economic and political controls are commonly used in analyses of state higher education policy (see for instance, Delaney & Doyle, 2011; McLendon, Hearn, &

Mokher, 2009; Tandberg & Ness, 2011). Throughout the analyses, all financial data were adjusted for inflation (such that 100 = 2012) using the consumer price index (CPI) from the U.S. Bureau of Labor Statistics (n.d., a).

Corollary Analyses

The basic analysis presented in this article was run using the universe of public four-year institutions with 49 states (not Illinois) serving as the control group. In addition, corollary analyses were conducted to test alternative comparison groups that divided the sample by geographic region, governing board structure, and by different institutional peer groups based on the 2000 Carnegie classification system. Because difference-in-difference designs rely on an accurate control group, these corollary analyses were important for understanding the consistency of the results.

The first corollary analysis restricted the sample to only include institutions in the Great Lakes region, which is Illinois' designation in the IPEDS geographic region variable. This geographically-based control group was selected since neighboring states tend to be more similar and geographic proximity has been shown to matter in policy diffusion processes (Berry & Berry, 2007).

The second corollary analysis restricted the sample to only include institutions with similar state-level governance structures. Because higher education coordinating boards and State Higher Education Executive Officers (SHEEO) have different levels of authority in the states related to tuition setting and out-of-state student policy, it is possible that a meaningful comparison group would be one comprised only of states with similar governance structures. We used the higher education governance classification scheme that was developed by McGuinness (1997) to identify different governance structures in the states. Our data were provided by Tandberg (2013) and are a derivative of the Education Commission of the States (ECS) Postsecondary Governance Structures Database.[5] The category of Coordinating/Planning Governing Boards includes the state of Illinois and we restricted the sample to only consider states with this same type of governance structure in this corollary analysis.

Our third corollary analysis organized control groups by institutional type. There was only one institution in Illinois that was categorized as a Doctoral/Research Universities—Intensive institution. Because of this, we combined the two types of doctoral institutions into a single category. Hence, we considered two institutional categories, Masters

Colleges and Universities I and Doctoral/Research Universities—Extensive or Intensive, in separate analyses by institutional type.

Missing Values

Although all institutions are required to report to IPEDS each year in order to continue receiving federal Title IV funds, there were a few missing values in our dataset. We restricted the sample to exclude institutions that had missing values for all of the pretreatment years in the reporting of their out-of-state enrollment figures in IPEDS. This resulted in the exclusion of eight institutions.[6] In addition, one Illinois institution, Governors State University, was excluded from our analysis because this institution only enrolled students in the last two years of their undergraduate programs (juniors and seniors only) during the time period of the analysis. Because not all classes of students were present at the institution, out-of-state enrollment numbers and percentages were unlikely to be comparable with institutions that enrolled four classes of students and could introduce bias into the sample.[7] Nine institutions that did not have observations for more than six years of observations for either gross Pell or state general appropriations were dropped from the dataset to reduce bias.[8] Additional missing values were retained in the dataset because observations were missing for no more than two years per institution, accounting for approximately 1.8% of the dataset (86/4704). More bias was likely to be introduced by dropping the corresponding institutions or observations than retaining this small number of missing values especially in the context of a panel analysis with multiple observations for each institution. The final estimating sample included 4,548 observations from 383 institutions over the years 2000–2012. We chose 2012 as the end year of the dataset because that was the most recent year of data available for all of the variables included in the study. The start date for our sample was also based on data availability. Prior to 2000, tuition and fees were reported together as a single measure in IPEDS. In order to ensure consistent measures of fees and nonresident tuition in the dataset, we only use data after the 2000 adjustment.

Table 1 presents descriptive statistics for the dataset. In-state required fees averaged $1,198.71 and ranged from $19.14 to $11,516.08. Out-of-state tuition levels ranged from $70 to $40,304 with an average of $12,709 in CPI adjusted values. Institutions enrolled approximately 143 out-of-state students on average, with a range from 0 to 3,181 students. On average, out-of-state students made up approximately 14% of the student body, but this average ranged from 0% to 77%.[9]

TABLE 1
Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
Illinois*PostGuarantee	overall	0.0189	0.1361	0.0000	1.0000	*N* = 5,084
	between		0.1060	0.0000	0.6154	*n* = 393
	within		0.0852	–0.5965	0.4035	T-bar = 12.9364
Log In-State Fees (CPI adjusted)	overall	7.0890	0.8796	2.9520	9.3515	*N* = 4,793
	between		0.8437	3.2585	9.0239	*n* = 384
	within		0.3544	4.9050	9.5919	T-bar = 12.4818
Log Average Nonresident Tuition (CPI adjusted)	overall	9.4501	0.4582	4.2485	10.6042	*N* = 5,083
	between		0.3941	6.1153	10.4070	*n* = 393
	within		0.2344	7.1372	12.5651	T-bar = 12.9338
Log Number of Nonresident Students	overall	4.9634	1.3170	0.0000	8.0650	*N* = 4,933
	between		1.2806	0.5973	7.8319	*n* = 391
	within		0.3911	2.3087	7.5615	T-bar = 12.6164
Percent of Nonresident Students	overall	14.1400	12.9877	0.0000	77.0000	*N* = 5,066
	between		12.0900	0.0000	72.6923	*n* = 392
	within		4.7640	–23.8601	43.3707	T-bar = 12.9235
Log Number of Resident Students	overall	7.1128	0.8212	1.7918	8.8899	*N* = 4,949
	between		0.8087	3.5750	8.7990	*n* = 392
	within		0.2392	3.6630	8.8458	T-bar = 12.625
Percent of Full-Time First-Time Undergraduates Receiving Any Financial Aid	overall	78.4656	13.6069	23.0000	100.0000	*N* = 5,067
	between		10.6954	46.7692	97.4615	*n* = 392
	within		8.4372	25.8502	113.3886	T-bar = 2.926
Log Gross Pell (CPI adjusted)	overall	16.0415	0.7547	13.0738	18.4259	*N* = 5,019
	between		0.6787	13.6962	17.5211	*n* = 393
	within		0.3499	13.8978	17.9737	T-bar = 12.771
Log State General Appropriations (by Institution, CPI adjusted)	overall	18.0827	0.9095	14.2833	20.5696	*N* = 4,995
	between		0.9036	15.4231	20.3169	*n* = 393
	within		0.1673	15.7862	19.9944	T-bar = 12.7099
Log Total State Postsecondary Enrollment	overall	12.9332	0.9512	10.2017	14.8219	*N* = 5,084
	between		0.9437	10.3230	14.7128	*n* = 393
	within		0.1144	12.4504	13.3828	T-bar = 12.9364
Log Total State Investment in Student Financial Aid (CPI adjusted)	overall	18.7467	1.5199	12.0596	21.1253	*N* = 5,054
	between		1.5125	13.2535	20.6669	*n* = 393
	within		0.3643	17.1143	22.0487	T-bar = 12.8601

(continued)

TABLE 1 *(continued)*
Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
Log Total State Revenue (CPI adjusted)	overall	24.4593	0.9437	21.6529	26.5558	*N* = 5,084
	between		0.9207	22.1491	26.2344	*n* = 393
	within		0.2055	23.1768	25.0113	T-bar = 12.9364
Log Median Household Income (CPI adjusted)	overall	10.8755	0.1421	10.5089	11.2582	*N* = 5,084
	between		0.1341	10.5989	11.1574	*n* = 393
	within		0.0471	10.6916	11.0281	T-bar = 12.9364
State Unemployment Rate	overall	6.1354	2.1222	2.3000	13.8000	*N* = 5,084
	between		0.9659	3.3385	8.2417	*n* = 393
	within		1.8911	1.5937	12.5661	T-bar = 12.9364
State Gini Coefficient	overall	0.4556	0.0203	0.3841	0.5448	*N* = 5,084
	between		0.0181	0.4059	0.4952	*n* = 393
	within		0.0091	0.4258	0.5619	T-bar = 12.9364
Log Total State Population	overall	15.7777	0.9361	13.1082	17.4542	*N* = 5,084
	between		0.9346	13.1681	17.4000	*n* = 393
	within		0.0393	15.5919	15.9045	T-bar = 12.9364
Proportion of Republican Representatives in State Legislature	overall	0.4845	0.1306	0.0926	0.9111	*N* = 5,084
	between		0.1197	0.1410	0.8116	*n* = 393
	within		0.0528	0.2997	0.7097	T-bar = 12.9364
Republican Governor	overall	1.5490	0.4976	1.0000	2.0000	*N* = 5,084
	between		0.2623	1.0000	2.0000	*n* = 393
	within		0.4230	0.7028	2.4721	T-bar = 12.9364
Voter Participation Rate in Presidential Elections	overall	58.1107	6.4632	39.7000	76.7000	*N* = 5,084
	between		5.9676	44.4769	71.6692	*n* = 393
	within		2.4797	50.4492	67.7107	T-bar = 12.9364

Notes. CPI adjustments such that 100=2012. Linear smoothing is used in off-years to make the presidential voter participation rate a continuous measure. Descriptive statistics are shown for the baseline models that correspond to Table 2.

Results

Table 2 presents results for the two-way fixed effects baseline models in which the comparison group is the universe of public four-year institutions in the United States with similar institutional types. In Model 1, the results for in-state required fees are presented. In this model, a positive, significant effect was found ($p < 0.01$). The magnitude of the effect represents a 40% increase ($100*(e^{0.337}-1)$), on average. Model 2 presents the results for nonresident tuition levels. Here a positive, significant ($p < 0.01$) effect was found and the magnitude of the effect was an approximately 28% increase ($100*(e^{0.249}-1)$), on average. These

TABLE 2

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, 2000−2012

	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
Variables	Institution and Year Fixed Effects Model	Institution and Year Fixed Effects Model	Institution and Year Fixed Effects Model	Institution and Year Fixed Effects Model
Illinois*PostGuarantee	0.3370***	0.2487***	–0.2623**	–1.4800**
	(0.0607)	(0.0592)	(0.1020)	(0.6628)
Log In-State Fees	—	–0.1433***	–0.0053	–0.2442
(CPI adjusted)	—	(0.0340)	(0.0317)	(0.4145)
Log Nonresident Tuition	–0.3099***	—	–0.0461	–0.6844*
(CPI adjusted)	(0.1084)	—	(0.0374)	(0.4016)
Log Nonresident Enrollment Number	–0.0033	–0.0135	—	—
	(0.0200)	(0.0104)	—	—
Log Total Number of In-State Undergraduates	–0.0202	–0.0186	0.2535***	–2.2479***
	(0.0350)	(0.0201)	(0.0962)	(0.6725)
Percent of Full-Time First-Time Undergraduates Receiving Any Financial Aid	4.72e–06	0.0003	–0.0019*	–0.0323***
	(0.0009)	(0.0005)	(0.0011)	(0.0115)
Log Gross Pell (CPI adjusted)	0.0636	–0.0244	0.1609**	–0.1973
	(0.0655)	(0.0497)	(0.0752)	(0.8087)
Log State General Appropriations (By Institution, CPI adjusted)	0.0562	0.0017	–0.1390*	–1.5487
	(0.0752)	(0.0484)	(0.0812)	(1.0590)
Log Total State Postsecondary Enrollment	1.4072***	0.2809*	0.0814	1.7404
	(0.3296)	(0.1606)	(0.2459)	(3.3636)
Log Total State Investment in Student Financial Aid (CPI adjusted)	–0.0049	0.0357**	0.0265	0.6032*
	(0.0317)	(0.0150)	(0.0307)	(0.3264)
Log Total State Revenue (CPI adjusted)	0.0702	0.0240	–0.0600	–0.1104
	(0.0495)	(0.0189)	(0.0521)	(0.6150)
Log State Median Household Income (CPI adjusted)	0.2171	0.1364	–0.0184	1.7877
	(0.1993)	(0.1416)	(0.1950)	(2.1479)
State Unemployment Rate	–0.0427**	0.0187*	–0.0311**	–0.3670**
	(0.0170)	(0.0099)	(0.0150)	(0.1723)
State Gini Coefficient	–3.1757***	–0.1247	0.5017	2.4132
	(1.1970)	(0.8628)	(1.1059)	(14.2998)
Log Total State Population	–1.5478**	–0.1165	–0.9108	–9.5241
	(0.7811)	(0.4481)	(0.5988)	(6.5395)
Proportion of Republican Representatives in State Legislature	0.7145***	0.0869	–0.4331*	–3.4877
	(0.2351)	(0.1085)	(0.2303)	(2.6502)
Republican Governor	0.0554***	0.0121	–0.0077	–0.2039
	(0.0211)	(0.0117)	(0.0214)	(0.2060)

(continued)

TABLE 2 *(continued)*

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, 2000–2012

	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
Variables	Institution and Year Fixed Effects Model	Institution and Year Fixed Effects Model	Institution and Year Fixed Effects Model	Institution and Year Fixed Effects Model
State Voter Participation Rate in Presidential Elections	–0.0028 (0.0039)	–0.0037 (0.0023)	–0.0083** (0.0042)	–0.1309*** (0.0465)
Constant	11.9271 (11.0085)	6.6795 (4.3825)	18.9154** (9.1871)	184.4631** (89.6884)
Institution Fixed Effects?	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes
Observations	4,519	4,519	4,519	4,548
R-squared	0.3071	0.2735	0.0708	0.0538
Number of Institutions	382	382	382	383

Notes. Robust standard errors that are clustered at the institutional level are shown in parentheses. CPI adjustments such that 100 = 2012. Linear smoothing is used in off-years to make the presidential voter participation rate a continuous measure.
***$p < 0.01$. **$p < 0.05$. *$p < 0.1$.

results align with our hypotheses that nonresident tuition and resident fees would increase following the passage of a guaranteed tuition law due as expected under a RDT framework.

In Table 2, Models 3 and 4, the results for out-of-state enrollments are shown as a number and as a percentage of total enrollment, respectively. In both models a negative, significant effect was found ($p < 0.05$) when comparing institutions subject to a guaranteed tuition law to institutions not subject to this law. Model 3 shows a decrease of approximately 23% in the number of out-of-state students ($100*(e^{-0.262}-1)$), on average, all else equal, and a decrease of approximately 1.5% in the proportion of nonresident students. These results support our hypotheses and the enrollment declines may be explained by increases in out-of-state tuition.

To better understand the magnitude of the findings, it is helpful to consider mean values from the year before the Truth-in-Tuition law was enacted. In 2004 at Illinois institutions, mean fees were $1,525 and the mean out-of-state tuition was $13,019 in 2012 CPI adjusted dollars. The mean number of out-of-state students was approximately 57 and the mean percentage of out-of-state students was 4.9%. Hence, the introduction of the guaranteed tuition law in Illinois resulted in approximately a $610 (40%) increase in required fees, a $3,645 (28%) increase in

out-of-state tuition, a 13 (23%) student decrease in out-of-state enrollments, as compared to 2004 levels, on average. Comparing the magnitudes of the baseline findings to 2004 mean values underscores the large impact that the increases in fees and nonresident tuition would have on students, which is reflected in the nonresident enrollment numbers.

Next, we ran three sets of corollary analyses based on alternative control groups as described above. First, the results were run using a comparison of only public four-year institutions in the Great Lakes region. Table 3 presents the results using this geographic region restriction. In each of the models in Table 3, the direction of effect was the same as the baseline results in Table 2, although the models for in-state fees and nonresident enrollment number were not significant. The magnitude of the effect on nonresident tuition was larger than in the baseline model at approximately 47%. Likewise the magnitude of the effect for the percent of nonresident student enrollment was larger than the baseline at approximately a 2% decrease. However, the consistency of the direction and significance in these results promotes confidence in the baseline results.

Table 4 shows the results when the models are run with a comparison group that only includes public institutions in states with a coordinating/planning governing board structure—the governance structure in Illinois. Here the results were very similar to the baseline results, although the magnitude of the effect on required fees was smaller and the out-of-state enrollment percent model was negative, but not significant.

Next, Carnegie classifications were used to form two comparison groups—Masters Colleges and Universities and Doctoral/Research Universities—to determine if the effects of the guaranteed tuition law were different for different types of institutions. For Masters Colleges and Universities (Table 5), the guaranteed tuition law was found to have a positive, significant effect on fees, and nonresident tuition ($p < 0.01$) of similar magnitudes to the baseline models. While the direction of the effect was the same as with the baseline model, the results for the nonresident enrollment models were not significant. For Doctoral/Research Universities (Table 6), however, the guaranteed tuition law was found to have a significant effect on all outcomes ($p < 0.01$), similar to the baseline results. However, the magnitude of the effect on required fees was much larger than in the baseline model (50% versus 40%). Likewise, there were larger magnitudes of effect on nonresident enrollment with Doctoral/Research Universities showing a decline of 29% in nonresident enrollment numbers (as compared to 23% in the baseline model) and decreases of more than double the percent of nonresident enrollment (3.2% vs. 1.5%). This suggests that these different types of

TABLE 3

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Great Lakes Region Only, 2000−2012

	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
Variables	Institution and Year Fixed Effects Model Great Lakes Region Only	Institution and Year Fixed Effects Model Great Lakes Region Only	Institution and Year Fixed Effects Model Great Lakes Region Only	Institution and Year Fixed Effects Model Great Lakes Region Only
Illinois*PostGuarantee	0.0604	0.3820***	–0.1180	–2.0457**
	(0.0831)	(0.0554)	(0.1663)	(0.9628)
Log In-State Fees	—	0.0412	–0.0489	–0.3625
(CPI adjusted)	—	(0.0276)	(0.0791)	(0.4401)
Log Nonresident Tuition	0.1774	—	–0.6848***	–2.1747***
(CPI adjusted)	(0.1076)	—	(0.2150)	(0.7757)
Log Nonresident Enrollment Number	–0.0172	–0.0558***	—	—
	(0.0292)	(0.0185)	—	—
Log Total Number of In-State Undergraduates	–0.1012	–0.0581	0.2413	–3.6379***
	(0.1013)	(0.0695)	(0.1691)	(1.2834)
Percent of Full-Time First-Time Undergraduates Receiving Any Financial Aid	–0.0011	0.0004	–0.0022	–0.0232
	(0.0016)	(0.0009)	(0.0032)	(0.0243)
Log Gross Pell (CPI adjusted)	–0.1066	–0.0525	0.2084	–0.0013
	(0.1459)	(0.0710)	(0.2081)	(1.2200)
Log State General Appropriations (by Institution, CPI adjusted)	0.1828	0.0144	–0.4762*	–2.2625
	(0.1262)	(0.0748)	(0.2525)	(1.7705)
Log Total State Postsecondary Enrollment	–0.4527	1.2009***	2.1219**	6.1947
	(1.0302)	(0.3493)	(0.9840)	(7.0521)
Log Total State Investment in Student Financial Aid (CPI adjusted)	–0.0631	0.0461	0.2129**	1.3837**
	(0.0516)	(0.0390)	(0.0950)	(0.5955)
Log Total State Revenue (CPI adjusted)	0.0397	–0.0427*	–0.0854	–0.1171
	(0.0355)	(0.0222)	(0.0748)	(0.4324)
Log State Median Household Income (CPI adjusted)	0.5506	0.0123	–0.8008	–3.1233
	(0.4699)	(0.2490)	(0.7318)	(3.7535)
State Unemployment Rate	0.0040	0.0613***	–0.0413	–0.5343*
	(0.0354)	(0.0128)	(0.0548)	(0.2801)
State Gini Coefficient	–5.9636	–1.4619	–9.4502	–29.4427
	(4.2131)	(1.6596)	(5.7555)	(33.0135)
Log Total State Population	8.4776***	–5.2047***	–4.6330	11.6575
	(3.0921)	(1.1570)	(4.9478)	(25.6393)
Proportion of Republican Representatives in State Legislature	–0.7729	1.5362***	–0.7301	–6.7216
	(0.5489)	(0.3112)	(0.9071)	(6.4031)
Republican Governor	0.0760	0.0310*	0.0280	–0.1070
	(0.0466)	(0.0166)	(0.0579)	(0.4160)
State Voter Participation Rate in Presidential Elections	0.0073	–0.0006	0.0225*	0.0765
	(0.0140)	(0.0029)	(0.0127)	(0.0883)

TABLE 3 *(continued)*

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Great Lakes Region Only, 2000−2012

Variables	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
	Institution and Year Fixed Effects Model Great Lakes Region Only	Institution and Year Fixed Effects Model Great Lakes Region Only	Institution and Year Fixed Effects Model Great Lakes Region Only	Institution and Year Fixed Effects Model Great Lakes Region Only
Constant	–128.0512***	77.2432***	71.8420	–132.4629
	(42.0199)	(16.8438)	(79.5104)	(375.1267)
Institution Fixed Effects?	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes
Observations	647	647	647	649
R-squared	0.4148	0.6470	0.1637	0.2192
Number of Institutions	54	54	54	54

Notes. Robust standard errors that are clustered at the institutional level are shown in parentheses. CPI adjustments such that 100 = 2012. Linear smoothing is used in off-years to make the presidential voter participation rate a continuous measure.
***$p < 0.01$. **$p < 0.05$. *$p < 0.1$.

TABLE 4

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Coordinating/Planning Governing Board States Only, 2000−2012

Variables	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
	Institution and Year Fixed Effects Model Coordinating/ Planning Governing Board States Only	Institution and Year Fixed Effects Model Coordinating/ Planning Governing Board States Only	Institution and Year Fixed Effects Model Coordinating/ Planning Governing Board States Only	Institution and Year Fixed Effects Model Coordinating/ Planning Governing Board States Only
Illinois*PostGuarantee	0.1642***	0.2766***	–0.2477**	–0.6664
	(0.0587)	(0.0652)	(0.1066)	(0.6918)
Log In-State Fees	—	–0.1377*	–0.0989**	–1.1899**
(CPI adjusted)	—	(0.0819)	(0.0394)	(0.4946)
Log Nonresident Tuition	–0.1458	—	–0.0054	–0.5805
(CPI adjusted)	(0.0889)	—	(0.0366)	(0.3756)
Log Nonresident	–0.0365**	–0.0019	—	—
Enrollment Number	(0.0155)	(0.0130)	—	—
Log Total Number of	–0.0016	–0.0452*	0.2875**	–1.3930*
In-State Undergraduates	(0.0414)	(0.0235)	(0.1279)	(0.7406)
Percent of Full-Time First-Time Under-	0.0008	0.0007	–0.0022*	–0.0411***
graduates Receiving Any Financial Aid	(0.0011)	(0.0008)	(0.0013)	(0.0141)
Log Gross Pell	–0.0202	–0.0281	0.1332	–0.4799
(CPI adjusted)	(0.0837)	(0.0901)	(0.1097)	(1.2446)

(continued)

TABLE 4 *(continued)*

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Coordinating/Planning Governing Board States Only, 2000–2012

Variables	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
	Institution and Year Fixed Effects Model Coordinating/ Planning Governing Board States Only	Institution and Year Fixed Effects Model Coordinating/ Planning Governing Board States Only	Institution and Year Fixed Effects Model Coordinating/ Planning Governing Board States Only	Institution and Year Fixed Effects Model Coordinating/ Planning Governing Board States Only
Log State General Appropriations (by Institution, CPI adjusted)	–0.0340	–0.0230	–0.1237	–0.7465
	(0.0474)	(0.0502)	(0.1084)	(1.1018)
Log Total State Postsecondary Enrollment	0.2036	1.3457***	–0.3414	–3.5135
	(0.4401)	(0.4902)	(0.5983)	(5.7116)
Log Total State Investment in Student Financial Aid (CPI adjusted)	–0.0185	0.0854***	–0.0290	–0.4325
	(0.0383)	(0.0253)	(0.0598)	(0.5151)
Log Total State Revenue (CPI adjusted)	0.0864	–0.0518	0.0095	1.6535
	(0.0924)	(0.0385)	(0.1121)	(1.0478)
Log State Median Household Income (CPI adjusted)	0.7409***	0.4432*	–0.0172	1.3410
	(0.2511)	(0.2662)	(0.2986)	(3.1026)
State Unemployment Rate	0.0113	–0.0173	–0.0048	0.0188
	(0.0219)	(0.0352)	(0.0260)	(0.2790)
State Gini Coefficient	0.1889	2.4127	4.7458	16.7446
	(2.1996)	(2.3229)	(2.9099)	(35.5639)
Log Total State Population	–0.8504	–1.8141	–0.7099	–0.9294
	(0.9297)	(1.4044)	(1.1194)	(10.0739)
Proportion of Republican Representatives in State Legislature	0.6141**	–0.0194	–0.1495	2.4723
	(0.2952)	(0.1830)	(0.4274)	(4.3872)
Republican Governor	–0.0114	0.0172	–0.0130	–0.1518
	(0.0203)	(0.0180)	(0.0351)	(0.2998)
State Voter Participation Rate in Presidential Elections	–0.0039	–0.0077	–0.0014	–0.0631
	(0.0062)	(0.0049)	(0.0077)	(0.0720)
Constant	10.5752	17.0729	18.0139	70.2762
	(10.7592)	(12.3435)	(14.7159)	(132.2996)
Institution Fixed Effects?	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes
Observations	2,488	2,488	2,488	2,510
R-squared	0.4199	0.2065	0.0762	0.0404
Number of Institutions	214	214	214	215

Notes. Robust standard errors that are clustered at the institutional level are shown in parentheses. CPI adjustments such that 100 = 2012. Linear smoothing is used in off-years to make the presidential voter participation rate a continuous measure.
***$p < 0.01$. **$p < 0.05$. *$p < 0.1$.

institutions used alternative student-based revenue streams in different ways and operated in different markets with different levels of student demand.

As a further robustness check, models were run with the addition of state-specific linear time trends. State-specific linear time trends controlled for any differences in the trends of the outcome variables in Illinois compared to other states. This control was useful in case Illinois was on a different trajectory than other states prior to the beginning year of the analysis. Prior literature in other fields has shown that including state-specific or similar time trends can matter to estimates produced in difference-in-difference models (see for instance, Friedberg, 1998; Jacobson, LaLonde, & Sullivan, 1993). State-specific linear trends were incorporated by creating a linear trend variable (increasing by an increment of 1 for each year of the dataset). This state-specific linear trend variable was then interacted with dummy variables for each of the 50 states. These models are presented in Appendix B since it is arguable whether the benefits of controlling for this additional potential source of unobserved heterogeneity outweigh the costs of absorbing more of the variation in the variables of interest. The direction and significance of effect in these state-specific linear time trend models were remarkably consistent with the baseline models (Table 2). These models provide clear support for the findings in this study.[10]

Overall this study found that, as compared to institutions not subject to a guaranteed tuition law, institutions subject to Illinois' Truth-in-Tuition law experienced significant increases in in-state fees and out-of-state tuition, but significant decreases in the number and percent of out-of-state students enrolled. Our analysis also showed that there were differences in how different types of institutions used alternative student-based revenue streams and the markets in which these institutions operated. The negative direction of the effect for out-of-state enrollments was consistent with the prior student price response literature. The decrease in out-of-state enrollments was likely derived from the large increases in nonresident tuition levels, which were shown to have occurred after the introduction of a state-level guaranteed tuition law.

Conclusion

This study found evidence of a significant increase in required fees and out-of-state tuition resulting from guaranteed tuition laws. Although these laws offered predictability in tuition levels for in-state students, the incentives built into these programs appeared to encourage nonresident tuition and fee increases. Furthermore, a negative, significant effect

TABLE 5

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Masters Colleges and Universities I Only, 2000–2012

Variables	(1) Log In-State Fees Institution and Year Fixed Effects Model Masters Colleges and Universities I Only	(2) Log Nonresident Tuition Institution and Year Fixed Effects Model Masters Colleges and Universities I Only	(3) Log Nonresident Enrollment Number Institution and Year Fixed Effects Model Masters Colleges and Universities I Only	(4) Nonresident Enrollment Percent Institution and Year Fixed Effects Model Masters Colleges and Universities I Only
Illinois*PostGuarantee	0.3077***	0.2252***	–0.2425	–0.8948
	(0.0723)	(0.0856)	(0.1552)	(0.8777)
Log In-State Fees (CPI adjusted)	—	–0.1332***	0.0410	0.1230
	—	(0.0264)	(0.0478)	(0.6679)
Log Nonresident Tuition (CPI adjusted)	–0.1931**	—	–0.0629	–1.0950**
	(0.0853)	—	(0.0452)	(0.4784)
Log Nonresident Enrollment Number	0.0179	–0.0189	—	—
	(0.0225)	(0.0123)	—	—
Log Total Number of In-State Undergraduates	–0.0746**	–0.0001	0.2582***	–1.6286**
	(0.0312)	(0.0259)	(0.0783)	(0.8229)
Percent of Full-Time First-Time Undergraduates Receiving Any Financial Aid	–0.0021*	0.0003	–0.0012	–0.0151
	(0.0011)	(0.0008)	(0.0013)	(0.0128)
Log Gross Pell (CPI adjusted)	0.0255	0.0159	0.2070**	–0.0744
	(0.0664)	(0.0733)	(0.0931)	(1.0420)
Log State General Appropriations (By Institution, CPI adjusted)	0.0449	0.1150	–0.1201	–1.6403
	(0.0595)	(0.0921)	(0.1056)	(1.2332)
Log Total State Postsecondary Enrollment	1.5018***	0.3203	–0.1784	–2.9165
	(0.3295)	(0.2190)	(0.3813)	(3.8110)
Log Total State Investment in Student Financial Aid (CPI adjusted)	–0.0698	0.0437*	0.0198	0.3757
	(0.0457)	(0.0222)	(0.0467)	(0.4126)
Log Total State Revenue (CPI adjusted)	–0.0387	0.0054	–0.0773	–0.4761
	(0.0479)	(0.0304)	(0.0760)	(0.7734)
Log State Median Household Income (CPI adjusted)	0.4844**	0.1427	0.0383	0.9383
	(0.2458)	(0.2086)	(0.2706)	(2.8318)
State Unemployment Rate	–0.0258*	0.0205	–0.0191	–0.1583
	(0.0134)	(0.0141)	(0.0216)	(0.2145)
State Gini Coefficient	–3.6437***	1.4968	1.1269	11.5547
	(1.2136)	(1.4092)	(1.5823)	(17.9462)
Log Total State Population	–1.3023*	–0.7348	–0.5753	0.2169
	(0.7024)	(0.8465)	(0.9346)	(8.2584)
Proportion of Republican Representatives in State Legislature	0.7697***	0.2168	–0.2576	–1.1281
	(0.2814)	(0.1658)	(0.3224)	(3.2675)
Republican Governor	0.0686***	0.0133	0.0114	–0.0992
	(0.0255)	(0.0134)	(0.0285)	(0.2236)
State Voter Participation Rate in Presidential elections	–0.0045	–0.0059	–0.0053	–0.0792
	(0.0047)	(0.0037)	(0.0061)	(0.0591)

TABLE 5 *(continued)*

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Masters Colleges and Universities I Only, 2000–2012

Variables	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
	Institution and Year Fixed Effects Model Masters Colleges and Universities I Only	Institution and Year Fixed Effects Model Masters Colleges and Universities I Only	Institution and Year Fixed Effects Model Masters Colleges and Universities I Only	Institution and Year Fixed Effects Model Masters Colleges and Universities I Only
Constant	8.1223	12.5172	14.3640	93.3402
	(9.4732)	(8.4265)	(14.2772)	(115.8735)
Institution Fixed Effects?	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes
Observations	2,771	2,771	2,771	2,798
R-squared	0.3875	0.1811	0.0638	0.0469
Number of Institutions	231	231	231	232

Notes. Robust standard errors that are clustered at the institutional level are shown in parentheses. CPI adjustments such that 100 = 2012. Linear smoothing is used in off-years to make the presidential voter participation rate a continuous measure.
***$p < 0.01$. **$p < 0.05$. *$p < 0.1$.

TABLE 6

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Doctoral/Research Universities–Extensive or Intensive Only, 2000–2012

Variables	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
	Institution and Year Fixed Effects Model Doctoral/Research Universities - Extensive or Intensive Only	Institution and Year Fixed Effects Model Doctoral/Research Universities - Extensive or Intensive Only	Institution and Year Fixed Effects Model Doctoral/Research Universities - Extensive or Intensive Only	Institution and Year Fixed Effects Model Doctoral/Research Universities - Extensive or Intensive Only
Illinois*PostGuarantee	0.4116***	0.2601***	–0.3391***	–3.1768***
	(0.1004)	(0.0746)	(0.1271)	(0.9313)
Log In-State Fees	—	–0.1350**	–0.0337	–0.3086
(CPI adjusted)	—	(0.0592)	(0.0421)	(0.5127)
Log Nonresident Tuition	–0.5628***	—	–0.0775	–0.3528
(CPI adjusted)	(0.1017)	—	(0.0863)	(0.7115)
Log Nonresident Enrollment Number	–0.0379	–0.0209	—	—
	(0.0469)	(0.0228)	—	—
Log Total Number of In-State Undergraduates	0.0196	–0.0149	0.2861	–2.7537**
	(0.0695)	(0.0393)	(0.2181)	(1.1190)
Percent of Full-Time First-Time Undergraduates Receiving Any Financial Aid	0.0027*	0.0004	–0.0027*	–0.0535***
	(0.0016)	(0.0007)	(0.0016)	(0.0202)

(continued)

TABLE 6 *(continued)*

Difference–in–Difference Models for Illinois' Truth–in–Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two–Way Fixed Effects, Doctoral/Research Universities – Extensive or Intensive Only, 2000–2012

Variables	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
	Institution and Year Fixed Effects Model Doctoral/Research Universities - Extensive or Intensive Only	Institution and Year Fixed Effects Model Doctoral/Research Universities - Extensive or Intensive Only	Institution and Year Fixed Effects Model Doctoral/Research Universities - Extensive or Intensive Only	Institution and Year Fixed Effects Model Doctoral/Research Universities - Extensive or Intensive Only
Log Gross Pell (CPI adjusted)	0.1053	–0.0874**	0.1169	0.0830
	(0.1285)	(0.0374)	(0.1165)	(1.1162)
Log State General Appropriations (By Institution, CPI adjusted)	0.0185	–0.0620***	–0.0946	–0.7727
	(0.1180)	(0.0193)	(0.1089)	(1.3550)
Log Total State Postsecondary Enrollment	1.3076**	0.0982	0.1691	4.3250
	(0.5301)	(0.2129)	(0.3026)	(4.8196)
Log Total State Investment in Student Financial Aid (CPI adjusted)	0.0532	0.0315	0.0415	0.8911*
	(0.0451)	(0.0220)	(0.0388)	(0.4602)
Log Total State Revenue (CPI adjusted)	0.2548***	0.0272	–0.0346	0.3894
	(0.0944)	(0.0233)	(0.0611)	(0.8529)
Log State Median Household Income (CPI adjusted)	–0.1662	0.1059	–0.0761	3.9560
	(0.3439)	(0.1362)	(0.2508)	(2.9582)
State Unemployment Rate	–0.0584*	0.0207*	–0.0479***	–0.6589**
	(0.0338)	(0.0115)	(0.0183)	(0.2590)
State Gini Coefficient	–3.0400	–2.1262***	0.0421	–7.8322
	(2.0032)	(0.7836)	(1.4944)	(21.4903)
Log Total State Population	–1.4599	0.2296	–1.7314**	–27.1090***
	(1.3830)	(0.3022)	(0.7711)	(9.6485)
Proportion of Republican Representatives in State Legislature	0.5437	0.0536	–0.7056**	–7.5991*
	(0.4268)	(0.1257)	(0.2970)	(4.1920)
Republican Governor	0.0342	0.0243*	–0.0506*	–0.6103*
	(0.0369)	(0.0141)	(0.0273)	(0.3643)
State Voter Participation Rate in Presidential Elections	–0.0032	0.0005	–0.0110**	–0.2083***
	(0.0067)	(0.0025)	(0.0054)	(0.0714)
Constant	12.7623	7.1340*	32.2615***	392.4153***
	(19.8693)	(4.1758)	(11.0343)	(132.0481)
Institution Fixed Effects?	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes
Observations	1,748	1,748	1,748	1,750
R-squared	0.2633	0.4946	0.1658	0.1548
Number of Institutions	151	151	151	151

Notes. Robust standard errors that are clustered at the institutional level are shown in parentheses. CPI adjustments such that 100 = 2012. Linear smoothing is used in off-years to make the presidential voter participation rate a continuous measure.
***$p < 0.01$. **$p < 0.05$. *$p < 0.1$.

was found on out-of-state enrollments. These results were consistent in the direction of the effect, although not always in the level of significance of the effect, across models that used alternative comparison groups, and on a highly specified model that incorporated state-specific linear time trends. Taken together the results of the various models tested in this study produces a high level of confidence in the findings. Collectively, these findings suggest that guaranteed tuition programs are not clearly beneficial for either in-state or out-of-state students. Consistent with RDT, which views revenue diversification as an enhancement to an institution's resource dependence, these findings also provide evidence that institutions may use alternative student-based revenue streams, like required fees and out-of-state tuition, in addition to in-state tuition, to offset the loss of flexibility inherent in guaranteed tuition programs. This provides insight into how institutions use various revenue streams and suggests that they are complementary, rather than replacements for one another.

Prior studies have found that guaranteed tuition laws (Delaney & Kearney, 2015b) and other types of state interventions aimed at affordability, like prepaid tuition programs (Baird, 2006a, 2006b), can lead to unintended consequences that might negatively impact affordability. In particular, the finding that guaranteed tuition laws encouraged increases in required fees for in-state students has direct implications for college affordability in states with these laws. The results of this study show that affordability may have been negatively impacted not only for all students through higher fees, but even more so for out-of-state students through higher nonresident tuition because of guaranteed tuition laws. Given the typical price response of higher education enrollments (e.g., Leslie & Brinkman, 1987; Heller, 1997), these increases likely created a barrier to access for some students. A related implication is that these increases may have reduced the competitiveness of public institutions in attracting and retaining students. Lawmakers, who are often concerned about higher education access and affordability as means to develop a highly skilled workforce in the state, should balance this evidence against any benefit of the guaranteed nature of flat-rate tuition. This may be particularly important in states where public institutions comprise a large percentage of overall higher education enrollments. This study shows that, although the law may be crafted in such a way so as to only address tuition, the effects of guaranteed tuition laws extend to other student-based prices that could impact enrollment and raise related concerns about access and affordability.

The findings of this study contribute to the scholarly literature on alternative student-based revenue streams for higher education. In

addition, these findings should be useful for policymakers in states considering guaranteed tuition or similar policies. These findings also have the potential to encourage state policymakers or university leaders in states with these laws to make changes to the policy, because of the unintended consequences of these laws.

Notes

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[1] We specify our usage of "guaranteed tuition" because there is not consistent usage of this term in the field. Guaranteed tuition has been used to refer to prepaid tuition plans (like a 529 plan) whereby parents pay a specified amount that is guaranteed to cover tuition expenses in the future (Hauptman, 1990). Our use of "guaranteed tuition" refers only to flat rate tuition plans whereby students pay the same level of tuition throughout their undergraduate programs.

[2] These are the only pricing elements specified in the law. However, individual institutions were able to make institutional rules that were compliant with the law. Two institutions (Illinois State University and Western Illinois University) voluntarily included fees in their guarantee.

[3] The Delta Cost Project data were also considered for use in this study, but IPEDS data were selected instead due to the preferred use of parent/child campuses in IPEDS which is masked in the Delta Cost Project dataset. A detailed source listing of all of the variables used in this study is available from the authors upon request.

[4] The gross Pell and state appropriations variables changed names in IPEDS in 2002. Because there were no substantive changes other than the names, the pre-2002 variables were joined to produce a panel spanning 2000 to 2012.

[5] McGuinness' (1997) typology included four different types of governance structures: a Consolidated Governing Board, A Planning Agency, a Regulatory Coordinating Board (or a Coordinating/Planning Board as termed by Tandberg), and an Advisory Coordinating Board (or Weak Coordinating Board). A single year of data, 2004, was chosen to identify the states with Coordinating/Planning Governing Boards. States that were included in this category of Coordinating/Planning Board governance structure were: Alabama, Arkansas, Colorado, Connecticut, Idaho, Illinois, Kansas, Kentucky, Louisiana, Massachusetts, Minnesota, North Dakota, New Hampshire, Nevada, New York, Ohio, Rhode Island, South Dakota, Tennessee, and Washington.

[6] These institutions were: the CUNY Graduate School and University Center, SUNY Institute of Technology at Utica-Rome, Texas A & M University-Texarkana, the University of Baltimore, the University of California-San Francisco, the University

of Houston-Clear Lake, the University of Houston-Victoria, and the University of Maryland-Baltimore.

[7] In addition, one observation for seven institutions was dropped from the dataset due to likely data errors. Observations that showed an unusually high out-of-state enrollment percent were dropped. In none of the other years of observations did any of these institutions have an out-of-state enrollment value greater than 27% or 1,400 students. Hence, observations that reported greater than 85% or more than 3,400 in a single year out-of-state students were dropped. These included East Central University in 2000, Grand Valley State University in 2001, University of South Florida in 2003, and the University of Washington-Seattle in 2000.

[8] These institutions were: Lincoln University of Pennsylvania, Pennsylvania State University-Penn St Harrisburg, Pennsylvania State University-Main Campus, Rutgers University-Camden, Rutgers University-New Brunswick, Rutgers University-Newark, Temple University, University Of Delaware, University of Pittsburgh-Main Campus. In addition, Clarion University of Pennsylvania-Venango Campus was dropped because this institution did not have observations beyond 2001.

[9] We realize that some of the maximum values seem large in this dataset, but the values are accurate. The maximum resident fee was charged in 2012 at the University of Massachusetts Amherst, an institution that had CPI adjusted in-state fees of over $10,000 since 2009. The maximum out-of-state tuition was charged in 2012 at the University of Michigan in Ann Arbor, MI, an institution that has charged over $30,000 in out-of-state tuition in CPI adjusted dollars since 2003. The maximum number of out-of-state students (3,181) was in 2012 at Purdue University, an institution that had more than 2,000 out-of-state students in each year of the dataset. The maximum percent of out-of-state students was in 2008 at Delaware State University, an institution reporting more than 60% out-of-state students each year of the dataset.

[10] We also conducted a second set of three robustness checks that restricted the sample to exclude non-Illinois institutions that instituted guaranteed tuition programs independently from state-level programs; Western Illinois University, which instituted guaranteed tuition before the Illinois law; and all California institutions, some of which reported all user-based charges as fees instead of tuition, for some years in IPEDS. These institutions might have had unobserved differences from other institutions that did not select to implement these programs at the institution-level. With all three of these robustness checks, the level of significance and direction of the effect was found to be the same as in the baseline models shows in Table 2. A table showing these robustness check results is available from the Ohio State University Library's Knowledge bank at: http://hdl.handle.net/1811/77772.

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APPENDIX A

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Falsification Tests, 2000–2004

	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Log Nonresident Enrollment Percent
Variables	Institution and Year Fixed Effects Model Illinois*Post2002	Institution and Year Fixed Effects Model Illinois*Post2002	Institution and Year Fixed Effects Model Illinois*Post2002	Institution and Year Fixed Effects Model Illinois*Post2002
Illinois*Post2002	–0.0092	0.0919	0.0180	–0.4946
	(0.0334)	(0.0730)	(0.0885)	(0.4631)
Log In-State Fees	—	–0.0644***	–0.0770	–0.0269
(CPI adjusted)	—	(0.0244)	(0.0493)	(0.4252)
Log Nonresident Tuition	–0.1869**	—	–0.1965**	–1.2882*
(CPI adjusted)	(0.0751)	—	(0.0765)	(0.7353)
Log Nonresident	–0.0319*	–0.0281***	—	—
Enrollment Number	(0.0177)	(0.0097)	—	—
Log Total Number of	–0.0108	0.0169	0.4215***	–1.4078
In-State Undergraduates	(0.0308)	(0.0170)	(0.1333)	(1.0215)
Percent of Full-Time First-Time Under-	–0.0004	0.0008	–0.0017	–0.0289***
graduates Receiving Any Financial Aid	(0.0007)	(0.0005)	(0.0011)	(0.0097)
Log Gross Pell	–0.0002	–0.0134	0.0064	–0.6747
(CPI adjusted)	(0.0498)	(0.0485)	(0.0734)	(0.5828)
Log State General Appropriations	0.0969	–0.0137	0.1119	1.3570
(by Institution, CPI adjusted)	(0.0730)	(0.0345)	(0.1029)	(1.1448)
Log Total State	–0.4731	–0.1031	0.7580**	9.0340***
Postsecondary Enrollment	(0.4017)	(0.1564)	(0.3274)	(3.2751)
Log Total State Investment in	0.0098	0.0014	0.0979*	0.5939
Student Financial Aid (CPI adjusted)	(0.0386)	(0.0200)	(0.0557)	(0.4267)
Log Total State Revenue	0.1837***	–0.0232	–0.0073	–0.2018
(CPI adjusted)	(0.0570)	(0.0390)	(0.0920)	(1.1476)
Log State Median Household Income	0.0064	–0.1263	–0.2352	–2.5587
(CPI adjusted)	(0.2370)	(0.1177)	(0.2965)	(2.6648)
State Unemployment Rate	0.0310	0.0021	–0.0220	–0.5151*
	(0.0218)	(0.0142)	(0.0300)	(0.2949)
State Gini Coefficient	–1.8188	–1.7267**	–0.4531	–3.9560
	(1.2347)	(0.7896)	(1.4372)	(18.4930)
Log Total State Population	–3.5879**	0.1923	–2.5532**	–41.9213***
	(1.7745)	(0.5272)	(1.1435)	(11.3995)
Proportion of Republican	0.3654	0.1377	–0.2678	1.0772
Representatives in State Legislature	(0.2688)	(0.1251)	(0.3729)	(3.0219)
Republican Governor	0.0468*	0.0214**	0.0053	–0.1885
	(0.0274)	(0.0105)	(0.0209)	(0.2423)

(continued)

APPENDIX A *(continued)*

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, Two-Way Fixed Effects, Falsification Tests, 2000–2004

	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Log Nonresident Enrollment Percent
Variables	Institution and Year Fixed Effects Model Illinois*Post2002	Institution and Year Fixed Effects Model Illinois*Post2002	Institution and Year Fixed Effects Model Illinois*Post2002	Institution and Year Fixed Effects Model Illinois*Post2002
State Voter Participation Rate in Presidential Elections	–0.0098 (0.0061)	–0.0049 (0.0044)	–0.0109 (0.0068)	–0.0951 (0.0670)
Constant	66.4283** (27.5191)	11.4975 (7.4057)	34.9004** (16.8928)	602.3106*** (166.5498)
Institution Fixed Effects?	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes
Observations	1,695	1,695	1,695	1,708
R-squared	0.3177	0.3625	0.1300	0.0459
Number of Institutions	371	371	371	373

Notes. Robust standard errors that are clustered at the institutional level are shown in parentheses. CPI adjustments such that 100=2012. Linear smoothing is used in off-years to make the presidential voter participation rate a continuous measure.
***$p < 0.01$. **$p < 0.05$. *$p < 0.1$.

APPENDIX B

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, With State-Specific Linear Time Trends, 2000–2012

	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
Variables	Institution and Year Fixed Effects Model with State Specific Linear Time Trends	Institution and Year Fixed Effects Model with State Specific Linear Time Trends	Institution and Year Fixed Effects Model with State Specific Linear Time Trends	Institution and Year Fixed Effects Model with State Specific Linear Time Trends
Illinois*PostGuarantee	0.3308*** (0.0547)	0.2228*** (0.0542)	–0.2495* (0.1329)	–1.3865** (0.6623)
Log In-State Fees (CPI adjusted)	— —	–0.1421*** (0.0356)	–0.0098 (0.0329)	–0.2483 (0.4167)
Log Nonresident Tuition (CPI adjusted)	–0.3228*** (0.1074)	— —	–0.0506 (0.0399)	–0.6092 (0.4012)
Log Nonresident Enrollment Number	–0.0060 (0.0199)	–0.0136 (0.0096)	— —	— —
Log Total Number of In-State Undergraduates	–0.0169 (0.0351)	–0.0247 (0.0196)	0.2602*** (0.1001)	–1.9759*** (0.6457)
Percent of Full-Time First-Time Undergraduates Receiving Any Financial Aid	–0.0003 (0.0009)	0.0006 (0.0006)	–0.0019* (0.0011)	–0.0303*** (0.0110)

APPENDIX B *(continued)*

Difference-in-Difference Models for Illinois' Truth-in-Tuition Policy on Required Fees Levels, Nonresident Tuition Levels, Nonresident Enrollment, With State-Specific Linear Time Trends, 2000–2012

Variables	(1) Log In-State Fees	(2) Log Nonresident Tuition	(3) Log Nonresident Enrollment Number	(4) Nonresident Enrollment Percent
	Institution and Year Fixed Effects Model with State Specific Linear Time Trends	Institution and Year Fixed Effects Model with State Specific Linear Time Trends	Institution and Year Fixed Effects Model with State Specific Linear Time Trends	Institution and Year Fixed Effects Model with State Specific Linear Time Trends
Log Gross Pell (CPI adjusted)	0.0487	–0.0039	0.1706**	–0.0764
	(0.0646)	(0.0425)	(0.0770)	(0.7853)
Log State General Appropriations (by Institution, CPI adjusted)	0.0732	–0.0169	–0.1064	–1.2645
	(0.0709)	(0.0359)	(0.0667)	(0.8803)
Log Total State Postsecondary Enrollment	1.4750***	0.1372	0.1817	2.8104
	(0.2873)	(0.1447)	(0.2422)	(3.0924)
Log Total State Investment in Student Financial Aid (CPI adjusted)	0.0172	0.0286**	0.0279	0.3813
	(0.0323)	(0.0141)	(0.0343)	(0.3430)
Log Total State Revenue (CPI adjusted)	0.0583	0.0247	–0.0429	0.0322
	(0.0461)	(0.0195)	(0.0485)	(0.5320)
Log State Median Household Income (CPI adjusted)	0.1340	–0.0011	0.0291	2.2679
	(0.1952)	(0.0939)	(0.2028)	(2.0876)
State Unemployment Rate	–0.0412**	0.0170**	–0.0258	–0.2820
	(0.0163)	(0.0074)	(0.0161)	(0.2062)
State Gini Coefficient	–3.6698***	–0.6479	0.4066	4.3129
	(0.9578)	(0.6124)	(1.0399)	(13.2472)
Log Total State Population	–1.8171**	0.1808	–1.1252*	–8.5380
	(0.7802)	(0.4108)	(0.6565)	(6.3424)
Proportion of Republican Representatives in State Legislature	0.8473***	0.1343	–0.4801*	–4.3519
	(0.2302)	(0.0964)	(0.2543)	(2.6848)
Republican Governor	0.0801***	0.0163*	0.0253	–0.0488
	(0.0209)	(0.0087)	(0.0205)	(0.1973)
State Voter Participation Rate in Presidential Elections	0.0009	–0.0045**	–0.0105**	–0.1699***
	(0.0040)	(0.0022)	(0.0043)	(0.0474)
Constant	16.0606	5.7325	19.4228*	141.2730
	(10.1168)	(4.4934)	(10.2116)	(88.7221)
Institution Fixed Effects?	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes
State-Specific Linear Time Trends?	Yes	Yes	Yes	Yes
Observations	4,519	4,519	4,519	4,548
R-squared	0.3437	0.3452	0.0900	0.0913
Number of Institutions	382	382	382	383

Notes. Robust standard errors that are clustered at the institutional level are shown in parentheses. CPI adjustments such that 100 = 2012. Linear smoothing is used in off-years to make the presidential voter participation rate a continuous measure.
***$p < 0.01$. **$p < 0.05$. *$p < 0.1$.