

In-State Tuition for Undocumented Immigrants and the Effect on In-State versus Out-of-State Students¹

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Abstract

This paper studies whether laws allowing undocumented students to pay in-state tuition (and in some cases receive financial aid) impacts the enrollment of in-state students using difference-in-differences and an event study. Identification comes from whether and when states implement these types of laws. While the previous literature has found mixed results on whether undocumented immigrants increased their enrollment, this paper can reconcile the null and positive effects. If all states are aggregated together into one coefficient there is no significant effect using the difference-in-differences strategy. If Texas has its own coefficient, there is a significant increase in non-resident aliens in Texas but not in the other pooled states. Texas also offers financial aid which is likely part of the reason why the effect is larger. Defining treatment by type of policies reveals that only states with both in-state tuition and financial aid policies simultaneously implemented have positive enrollment impacts on non-resident aliens across types of public schools. In Texas four-year public schools there is an increase in the enrollment of in-state students which indicates that allowing undocumented immigrants to pay in-state tuition did not lead to these schools enrolling more out-of-state students who would still pay higher out-of-state rates.

Keywords: Undocumented immigrants, tuition policy, initial college choice

JEL: I22, I23, I28

1 Introduction

This paper empirically tests whether tuition and financial aid policies for undocumented¹ students impacts the enrollment of in-state students using a difference-in-differences and event study. The impact of immigration policy is an important question since President Trump has ended the Deferred Action for Childhood Arrivals or DACA program which impacts the undocumented students who were brought to the United States as children. Congress must now decide how to address the legal status of these individuals. Previous work on aid policies for undocumented immigrants have focused on being eligible for in-state tuition instead of also addressing whether undocumented students are eligible for other various types of financial aid. We would expect the treatment to vary across states because reduced tuition is a different treatment from reduced tuition and financial aid. Texas implemented both laws at the same time so previous work attributing an increase in enrollment to the reduced tuition could not actually know if it was driven by the reduced tuition, the additional financial aid or the interaction of both policies. Texas ranks first in terms of having the highest estimated number of undocumented immigrants per capita (United States Citizenship and Immigration Services, 2000).² Warren and Warren (2013) estimates that Texas ranks second in terms of states having the largest unauthorized migrant population in 2010. I estimate a separate treatment effect for Texas because of the larger pool of potential people who could be eligible under the law and the change included both reduced tuition and additional financial aid. Texas is the only state with in-state tuition in which there is a detectable effect on non-resident alien enrollment. If states are instead aggregated by type of program (tuition only versus tuition policy and financial aid versus adding a financial aid) the largest positive magnitude tends to be from states with both in-state tuition and financial aid policies. Thus, the magnitude of the change in college affordability matters for enrollment.

Previous studies that have examined the enrollment and graduation of undocumented students and natives use individual level Census data. Flores (2010a) focuses on the response of foreign-born non-citizen Latino/a students in Texas to their in-state tuition policy and finds a significant

¹An undocumented immigrant is a person who is not lawfully residing in the United States due to overstaying a visa or entering illegally.

²Arizona ranks number two, but bans undocumented immigrants from qualifying for in-state tuition.

increase in enrollment for this group. Flores (2010b) expands the analysis to all states with a tuition policy and again finds a significant increase in the enrollment of foreign-born non-citizen Latinos. Heilig, Rodriguez and Somers (2011) find that English learners experienced large enrollment gains and increased their graduation rates at Texas flagship universities after the Texas law passed. Kaushal (2008) finds these tuition laws increased enrollment for undocumented immigrants while having no negative effect on the educational outcomes of natives. However, not all previous work has found an increase in enrollment for those likely to be undocumented immigrants. For example, in Chin and Juhn (2011) the enrollment impacts on non-citizens who were Mexican childhood immigrants tend to be insignificant. Amuedo-Dorantes and Sparber (2014) find the impact on undocumented immigrants is not robust to different specifications. Including state specific time trends results in insignificant point estimates. These were not included in Flores (2010b) which found significant increases in enrollment. Amuedo-Dorantes and Sparber (2014) also test for crowding out of native Hispanics and non-Hispanic natives and find positive effects for native Hispanics and no effects for non-Hispanic natives. The authors suggest the increase for native Hispanics is the result of a cohort effect. However, these papers do not take into account that some states also had other financial aid policies in play that could interact with the tuition policy and instead estimate pooled effects. Both the sign and the magnitude of the treatment effects vary if you group states into type of policy. For example, in states that implemented both policies at the same time, there is a seven percent increase (but not precisely enough estimated to be significant) in non-resident alien enrollment in public schools, but in states with only in-state tuition the point estimate is actually negative (6.5 percent decrease) for public schools.

Additionally, this paper ties in with the broader literature on capacity constraints and crowd out in higher education. For example, Bound and Turner (2007) find the elasticity of supply is less than perfectly elastic using demographic variation. Also, they find that larger cohorts have relatively lower degree attainment as a result of fewer resources per student. Bound, Braga, Khanna and Turner (2016) find that as state budget allocations to public colleges and universities declines, schools are able to increase their enrollment of foreign students who will pay out-of-state tuition. Hoxby (1998) tests whether immigrant students crowd out native minority students in

selective California schools and can not reject that there is one-for-one crowding out. She focuses is on international students crowding out native students of the same race or ethnicity. Thus, it is of interest whether in-state students are crowded out in favor of out-of-state students when undocumented students become eligible for in-state tuition (and sometimes additional state or private aid).

Which college a person matriculates at affects the likelihood of graduation and later labor market success. Goodman, Hurwitz, and Smith (2015) exploit a cutoff in SAT scores in Georgia that determined access to four-year public colleges. They find that access to four-year public colleges significantly increases completion of bachelor's degrees, especially for low-income students. Additionally, they find the graduation rate of the first college a student attends (since some transfer) explains a large part of the student's individual likelihood of graduation even if academic ability is controlled for in the regression. Seki (2012) finds that attending less selective schools leads to lower wages later in life. Thus, if natives residents are attending less prestigious schools, they may experience meaningful costs due to the implementation of the policy. Additionally, resident natives may face an additional financial burden if they are getting crowded out of public in-state schools and end up in more expensive private or out-of-state schools.

The rest of the paper is organized such that Section 2 includes additional background information on policies that allow in-state tuition (and sometimes financial aid as well) for undocumented immigrants. Section 3 describes the Delta Cost Project data used in the analysis while Section 4 describes the estimation methods. The results are discussed in Section 5 and the paper concludes in Section 6.

2 Background on in-state tuition for undocumented immigrants

Recent estimates suggest there are more than 2.1 million undocumented young adults in the United States who were brought as children (Gonzales, 2011). The debate over whether to invest in education for undocumented immigrants has been on-going. The Supreme Court Case

Plyler versus Doe (1982) decided states cannot deny K-12 schools funding for undocumented immigrants. The Supreme Court argued that the lack of funding would lead to “the creation and perpetuation of a subclass of illiterates within our boundaries, surely adding to the problems and costs of unemployment, welfare and crime.” In 1996 the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) was passed in order to set rules about in-state tuition eligibility for illegal immigrants in postsecondary education (Olivas, 2004). IIRIRA Section 505 forbids states from “providing a postsecondary education benefit to an alien not lawfully present unless any citizen or national is eligible for such benefit.” Differences in interpretation and acknowledgement of this law have led to variation across states in the financial treatment of undocumented students at public postsecondary institutions. These in-state tuition laws do not apply to international students who come to the United States solely for their postsecondary education.

While the federal government has the authority to set immigration laws in the United States, states may pass legislation pertaining to the treatment of immigrants with regards to other aspects of life. States can create laws that affect access to higher education for undocumented immigrants. According to the National Immigration Law Center (NILC), “The DREAM Act would permit certain immigrant students who have grown up in the U.S. to apply for temporary legal status and to eventually obtain permanent legal status and become eligible for U.S. citizenship if they go to college or serve in the U.S. military.” Proponents of in-state tuition for undocumented immigrants argue that it is unfair for undocumented students to pay more for postsecondary education and the kids are being punished for their parents’ decisions. Opponents argue that states should not help those who have broken the United States’ immigration laws. They also argue that with the current fiscal situation, states cannot afford to subsidize postsecondary education for undocumented immigrants.

Eighteen states have their own version of a state DREAM Act: Texas (2001), California (2001 but implemented in 2002), New York (2002), Utah (2002), Washington (2003), Illinois (2003), Kansas (2004), New Mexico (2005), Nebraska (2006), Wisconsin (2009), Connecticut (2011), Maryland (implemented in 2012), Colorado (2013), Minnesota (2013), New Jersey (2014) and Florida (2014) . State variation occurs in the implementation and repeal of these laws. In Rhode

Island the legislature did not pass a bill but instead the Board of Regents voted in favor of allowing the policy in 2012. In January 2017, HB 5237 was introduced to make the Regent's policy the state law. In Oklahoma a bill was passed in 2003, but then in 2008 a bill was passed placing the decision in the hands of the Oklahoma Board of Regents. The appendix has more information.

The allowances for undocumented immigrants to pay in-state tuition differ by state. Generally there is a requirement for the individual to live in the state for a certain amount of time, graduate from a high school or get a GED in that state, attend a public college or university and sign an affidavit agreeing to apply for legal United States residency as soon as legally possible (National Conference of State Legislatures, 2011b). Thus, legal immigrants who come to the United States just for college are not eligible for in-state tuition under these laws. Undocumented students are not eligible for federal financial aid, although some states allow undocumented students to receive state financial aid (for example, Texas, California, Minnesota, New Mexico and Oregon). At the other end of the spectrum, Alabama and South Carolina prohibit undocumented students from enrolling at any public postsecondary school.

Additionally, some states also allow undocumented students to receive other financial aid or financial benefits in addition to reduced tuition. For example, Texas, Oklahoma (this policy was previously in place but has since been repealed), Minnesota, Washington, Oregon, California, and New Mexico allow undocumented students to also be eligible for state financial aid programs. Illinois has created the Illinois DREAM Fund Scholarship in addition to allowing undocumented students to take advantage of financial benefits such as college savings programs. Utah has created the Utah Undocumented Student Scholarship Fund to help make college more affordable. While some states implemented this as a separate policy from the in-state tuition policy (for example Illinois and California), other states implemented them as a joint policy (for example Texas and Minnesota). Thus, it is important to take into consideration that not all tuition policies are the same, and we might expect the treatment effect to differ by whether students were also able to access financial aid to help them pay for tuition.

During the fall semester of 2001 in Texas, 1,500 students took advantage of the new law (Lewis 2005). By the fall of 2009, 12,138 students enrolled in a public university in Texas under the state

DREAM Act which was approximately one percent of all students in the state (Unmuth 2010). In Wisconsin, during the 2009 school year, 70 students took advantage of its DREAM Act and 100 students used it in 2010 (Ziff 2011). According to Robinson (2007), the Utah Board of Higher Education reported the number of students who used its state DREAM Act increased from 87 during the 2003-2004 school year to 182 during the 2005-2006 school year. Lewis (2005) also reported that 41 students in New Mexico, 221 students in Kansas, and 27 students in Washington used state DREAM Acts in the fall of 2005. Students might not take advantage of the law if they are still worried about alerting authorities of their immigration status.³

3 Data

While previous work has used individual level Census data, this paper uses school level data because it contains information on in-state versus out-of-state college attendance. The education data come from the Delta Cost Project at American Institutes for Research which compiles data from the Integrated Postsecondary Education Data System (IPEDS). IPEDS contains data from annual surveys conducted by the National Center for Education Statistics, which includes every college, university, technical and vocational institution that participates in or is applying to participate in federal student financial aid programs. It is mandatory for schools to complete the surveys in order for their students to receive any federal financial aid. In addition to containing the total enrollment, enrollment data are disaggregated into in-state students versus out-of-state students versus non-resident alien students. Since schools in New York decided if they would allow undocumented students in-state tuition rates without regard to whether a law was in place or not, these schools are dropped from the sample. Additionally, schools are dropped if they are not located in one of the fifty states or the District of Columbia. For example, this includes schools in Guam and Puerto Rico. Also, since the laws impacted public schools directly, the sample is

³Borjas and Katz (2005), DebBurman (2005), Chiswick (2005) and many other papers have shown that Latino immigrants tend to have low levels of educational attainment. Thus, some undocumented students might decide not to attend any postsecondary school even if they can afford it. However, Gonzales (2010) argues that the reason many undocumented students do not move from high school to postsecondary education is due to financial constraints.

restricted to two-year and four-year public institutions. While IPEDS is mandatory, there is some missing data⁴. There are 19,629 school by year observations. Since college attendance is likely affected by the labor market opportunities available, state by year employment rates are taken from Census data. This was downloaded from the IPUMS-USA database of Ruggles, Genadek, Goeken, Grover, and Sobek (2017).

Descriptive statistics by treatment status can be found in Table 1. The average total undergraduate enrollment is 1,401 people larger in the in-state tuition states during the untreated period than in the control. The split between two-year public institutions and four-year public institutions is very similar for the controls and treatment group in the pre-period. Non-resident aliens make up a small portion of the student body in both the control and treatment states prior to implementation. The number of in-state students is also very similar across states that did and did not implement the policy. Thus, overall schools looked quite similar in terms of enrollment measures regardless of whether their state implemented the policy, although the treatment states had slightly larger total enrollments.

Enrollment data are from 2000 to 2015. This restriction is due to IPEDS changing the questions in their survey. The first year that IPEDS annually included information about the state of resident when students first matriculated is in 2000 and the last year the data is available is in 2015. While it would be optimal to be able to look at more years prior to implementation, there are major data concerns with previous data⁵. Thus, the paper focuses on 2000 through 2015 because those years seem much more reliable⁶.

A major problem in studying undocumented immigrants is identifying them in the data. After the law passed, schools could have data on who applied under the state DREAM Acts, but there is no way to identify this group of students before the law passed. Similar to the prior research, this paper uses a proxy for undocumented immigrants. Undocumented immigrants should be included

⁴It is more common for these to be two-year public schools (77 percent) and of these two-year public schools 48 percent of the missing data is from Tennessee, Florida, Oklahoma and Ohio

⁵IPEDS did ask about migration and residency in 1994, 1996 and 1998. However, when those data are pulled and a percent of resident natives is formed by dividing the number of students who report residing in the state by the fall first time undergraduate total enrollment there are issues. The average is .11 for these years which seems impossibly low and there is a lot of missing data. These years with questionable data are missing from the Delta Cost Project.

⁶The average percent of residents or in-states students is 65 percent for public schools during this period.

in the data set as non-resident aliens. According to National Center for Education Statistics a non-resident alien is defined as “A person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely”. There is no way to verify how students fill out the forms used to categorize themselves though (this is a student reported measure). Non-resident aliens will also include international students and it is not possible to disentangle the two groups within that category. However, this proxy should be less of a concern given that this paper uses changes in enrollment. International students did not qualify for in-state tuition under these laws so they would still have to pay out-of-state tuition. The residency variable is based on which state the student reported residing in at the time of matriculation. Previous literature has been able to narrow the criteria used to determine a proxy for undocumented immigrants. However, this data does not allow for a more fine proxy. The trade-off of using school data is a more coarse proxy, but the benefit is being able to separate students into in-state and out-of-state students. Since the main outcome of interest is the impact on individuals paying in-state tuition, individual level data from the Census cannot be used because the exact school attended is unknown.

4 Estimation

A difference-in-differences approach is also used to estimate the effect of in-state tuition laws on native residents and to test whether this data can replicate previous findings. Previous literature on the effects on undocumented immigrants tends to employ difference-in-differences. The benefit of the difference-in-difference models is that by combining all years into one treatment effect, there is more power to detect effects. Difference-in-differences assumes that the group that receives treatment would have acted like the control group in the absence of treatment conditional on the fixed effects. In particular, it is assumed that the timing of the implementation of in-state tuition is exogenous. The difference in enrollment in schools prior to and after the law is passed is compared with the difference in enrollment in schools located in states that do not pass the law

over the same time period. The basic model is

$$Y_{sjt} = \beta + \alpha(DREAM)_{st} + \gamma_s + \lambda_t + \sigma_s t + \rho * unempl_{jt} + \varepsilon_{sjt}$$

where $DREAM_{st}$ is a dummy variable for whether or not school s is located in a state with a DREAM Act at time t , γ_s is a time-invariant fixed effect for each school, λ_t is a time (year) fixed effect common across groups that varies over time, $\sigma_s t$ is a school specific linear time trend and ε_{sjt} is the error term. This paper first tests for capacity constraints in which Y_{sjt} is the log of the undergraduate enrollment. To test whether undocumented immigrants significantly responded to in-state tuition laws, Y_{sjt} is the log of the number of non-resident aliens. To test for crowding out of resident natives, Y_{sjt} the log of the number of in-state students. The parameter of interest is α which estimates changes due to implementing the in-state tuition policies for undocumented students. Given that difference-in-differences assumes there are parallel trends, the school specific time trends are included so significant impacts are not detected just because there was a trend prior to implementation.

With the additional power from the difference-in-differences, this paper is able to document differences between Texas and the rest of the states with such laws. Texas ranks first in terms of having the highest estimated number of undocumented immigrants per capita (United States Citizenship and Immigration Services, 2000).⁷ Warren and Warren (2013) estimates that Texas ranks second in terms of states having the largest unauthorized migrant population in 2010. This taken with the reports of about one percent of students in Texas using this law indicates there should be enough power to detect a separate effect in Texas.

In order to account for heterogeneous effects a vector of DREAM variables is estimated. The DREAM variable measures the pooled effect in California, Utah, Washington, Illinois, Kansas, New Mexico, Nebraska, Wisconsin, Maryland, Connecticut, Colorado, Minnesota, New Jersey, Florida, Rhode Island and Oklahoma which are called “other”. Additionally, there is the inclusion

⁷Arizona ranks number two, but bans undocumented immigrants from qualifying for in-state tuition.

of a separate coefficient for Texas. The second version of the model is

$$Y_{syt} = \beta + \alpha_1(DREAM * TX) + \alpha_2(DREAM * other) + \gamma_s + \lambda_t + \sigma_s t + \rho * unempl_{jt} + \varepsilon_{syt}$$

In addition, it is expected that the treatment effect will vary by the type of program instituted (in-state tuition only versus in-state tuition and financial aid versus adding financial aid to an existing in-state tuition policy). Thus, a third version of the model that is estimated is

$$Y_{syt} = \beta + \alpha_1(OnlyTuition) + \alpha_2(TuitionAid) + \alpha_3(AddAid) + \gamma_s + \lambda_t + \sigma_s t + \rho * unempl_{jt} + \varepsilon_{syt}$$

where the hypothesis is that states with tuition and aid would see a larger impact on the enrollment of non-resident aliens than states with only in-state tuition policies. To further check the robustness of the results, this paper also employs an event study. The event study provides a built-in test for enrollment trends prior to the passage of the law allowing undocumented immigrants to pay in-state tuition which also helps check for the parallel trends assumption. This method allows for the effect to vary over time since it may take time for potential college students to respond to the new law. The downside is that by estimating separate point estimates for different years, there is less power to detect changes across states. With lags and leads of treatment in the set $K = (\leq -2, -1, 0, 1, \geq 2)$ the equation estimated is:

$$Y_{syt} = \beta + \sum_{k \in K} \alpha(DREAM)_{t-k} + \gamma_s + \lambda_t + \rho * unempl_{jt} + \varepsilon_{syt}$$

where $DREAM_{t-k}$ is a dummy variable for whether or not school s is located in a state j with a DREAM Act at time $t-k$, γ_s is a time-invariant fixed effect for each school, λ_t is a time (year) fixed effect common across groups that varies over time, ρ is the effect of the unemployment rate in the state j a school is located in during year t and ε_{syt} is the error term. The unemployment rate is controlled for since changes in the opportunity cost of college attendance will likely affect enrollment decisions. Y_{syt} is again the log of total enrollment, the log of the number of non-resident aliens and the log of the number of resident natives.

Standard errors are calculated two ways. The first method is clustering at the state level since the state government passes the law allowing undocumented immigrants to pay in-state tuition rates. The related literature clusters the standard errors. The problem with this approach is that statistical inference benefits from large samples, but here the number of groups that allow undocumented immigrants to pay in-state tuition is only eighteen. The problem is even worse for the interactions with Texas because inference is done with a sample size of one. The point estimates are inconsistent. The approach created by Conley and Taber (2011) is implemented as the second way of calculating standard errors to remedy these problems. Their approach allows for consistent estimates of the asymptotic distribution of the treatment effect point estimate and the creation of confidence intervals (Conley and Taber, 2011).

5 Results

The first analysis estimates whether there are changes in the total enrollment. The potential for crowding out depends on the elasticity of supply. If colleges do not respond at all (no change in the enrollment) then non-resident aliens would cause a one-for-one crowding out of other students from the matriculating class. On the other hand, if schools increase their enrollment when the laws are passed then there would be less than a one-for-one crowd-out. If schools increase enrollment enough it is possible to absorb all of the increase in undocumented students without any crowding out of other students. Schools may be constrained in terms of space (not enough dorm rooms or classrooms available on campus) or by not being able to hire enough additional instructors or support staff to serve the additional students. Results are in Table 2 and Table 3. Starting with the difference-in-difference results, all states pooled together results in a significant increase in the number of students enrolled at four-year public institutions. Breaking states down into Texas versus ‘other’ reveals that this is driven by ‘other’ states, although the significance is only at the ten percent level. If the treatment is instead based on type of policy, the only significant increase is in four-year public schools that allowed for both in-state tuition and financial aid. Given that this is a larger change in affordability, states with both policies likely experienced larger increases

in students wanting to enroll. On the other hand, states that add financial aid policies to existing in-state tuition policies experience a marginally negative effect on their total enrollment in the two-year public schools. The event study shows that four year publics increased enrolled in the year of implementation and the year following, but then the treatment effect becomes insignificant after that. Perhaps schools anticipated many students would want to enroll due to the reduced cost of attendance and made efforts initially to increase enrollment, but scaled back efforts once they had an idea of how many students were actually using the law.

Next, I test whether the school level data shows an increase in non-resident aliens (proxy for undocumented immigrants) similar to Flores (2010a), Flores (2010b), and Kaushal (2008) or finds results more similar to Chin and Juhn (2011) and Amuedo-Dorantes and Sparber (2014). The results can be found in Table 4 and Table 5. The difference-in-differences shows that the increase in non-resident aliens is driven by Texas alone. In both two-year public and four-year public schools, Texas experienced an increase in the number of non-resident alien students following implementation. In the ‘other’ states there was no impact. This findings are consistent with media reports on how few students used the laws in states other than Texas while Texas schools reported much larger numbers. Conley-Taber standard errors are used to determine whether the effect in Texas holds once inference issues associated with only one treatment state are addressed. The Conley-Taber standard errors for all public schools, two-year public schools and four-year public schools all show a significant increase in enrollment of non-resident aliens. Thus, the results hold once standard errors are corrected for which provides further evidence that the impact is driven by Texas. In the event study, there appears to be a delayed effect in four-year public schools which must be driven by Texas given the difference-in-difference results. There is no evidence of a pre-trend driving the results.

There are a couple of reasons why Texas would be the only state with a detectable change in non-resident aliens. The first is that there are more individuals in Texas who could potentially use this policy than in other states with lower levels of undocumented immigrants. The second is that Texas is one of the states that also allows undocumented immigrants to receive state financial aid. Using the type of policy as the treatment results in the point estimate for the ‘both’ group always

being positive for the non-resident alien enrollment but it is not precisely estimated. This is likely due to a positive impact on Texas being averaged with null effects in other states. In states that only offer in-state tuition, the enrollment effect of non-resident aliens in four-year public schools is a two percent increase, but there a thirteen percent decrease in the two-year public schools.

Given that there is not a detectable effect in the “other” states there could be no crowding out of in-state students there. Table 6 shows the impact on in-state students using a difference-in-differences framework while Table 7 shows the impact on native residents in the event study framework. In the difference-in-differences regression, there is a decline in in-state students with the pooled estimates. However, when the states are separated, there appears to be a much different pattern in Texas versus the ‘other’ states. While ‘other’ states experienced a significant decline, Texas four-year public schools had a significant increase in in-state students. This result is robust to using Conley-Taber standard errors instead of clustering by state. Despite a negative impact on the other states, the lack of increase by non-resident aliens suggests that this decline can not be due to crowding out due to undocumented immigrants. In the event study, the negative affect in ‘other’ states is picked up in the two-year public schools. Also, since many two-year public schools are open access institutions, the decline in enrollment could be driven by a decrease in applicants instead of acceptances. If treatment is again broken down by type of financial aid policy, the impact of four-year public schools with both in-state tuition and financial aid policy (which includes Texas) leads to a 5.2 percent increase in in-state students despite not being statistically significant. The coefficient for only offering in-state tuition is essentially zero (.5 percent increase).

6 Conclusion

This paper uses another plausible source of exogenous variation to look at the elasticity of supply in higher education. The event study shows any increase in enrollment was short lived and did not occur in Texas, which was the only state to experience an increase in enrollment of non-resident natives. This paper also shows that previous contradictory findings appear to be due to results being driven by Texas alone. Also, previous work has not addressed that Texas’s

policy is different from many other states in that they also allow undocumented immigrants to receive state financial aid. Thus, it is not surprising to see larger effects in Texas compared to states that only allowed for in-state tuition without providing additional financial aid. In fact, when treatment is defined by type of aid policy, the states with both in-state tuition and financial aid are the only group with positive coefficients on non-resident alien enrollment across types of public schools. Texas schools experienced an increase in in-state students in four-year public schools, which suggests that schools did not merely cut back on in-state students in order to gain more revenue from out-of-state students once the price changed for undocumented immigrants happened.

Finding that most states that implemented in-state tuition policies did not experience a significant increase in non-resident aliens should assuage concerns about expanding in-state tuition policies to more states as in-state students cannot be crowded out if hardly any students are using the policy. Also, even in Texas which has a larger share of undocumented immigrants there was an increase in enrollment of in-state students in four-year public schools which suggests schools are not crowding out in-state students to make room for out-of-state students who will pay more. As policy makers debate the costs and benefits of allowing these individuals to remain it is important to take into consideration how natives are impacted by these policies. This paper helps quantify the extent to which in-state students bear an educational cost to allowing undocumented immigrants to remain in the United States.

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7 Appendix: Details on in-state tuition laws

California passed a state DREAM Act for the 1986-1987 school year. This law was abolished in 1990 for the University of California system and the California community college system (but not the California State system) due to *Regents of the University of California versus Bradford*. In 2001 California passed a state DREAM Act again which went into effect during the spring of 2002 (CA AB 540). Although this law did not specifically say it was for undocumented immigrants, under the law undocumented immigrants became eligible for the out-of-state tuition exemption (CNN, 2011). This law was also challenged in the courts, and in June 2011 the United States Supreme Court ruled California can allow undocumented immigrants to pay in-state tuition (Gordon and Savage, 2011). In July of 2011 California passed the California 'Dream Act' which allows undocumented immigrants to receive private scholarships (Dobuzinskis, 2011). Students in California can also receive state financial aid (National Conference of State Legislatures 2012).

Schools in New York also switched between allowing and not allowing undocumented immigrants to pay in-state tuition. Hebel (2002) notes that the City University of New York (CUNY) and the State University of New York (SUNY) offered in-state tuition rates to undocumented immigrants prior to the state legislation in 2002. CUNY and SUNY stopped this practice at different times once they became aware that they might be in violation of federal immigration law (Hebel, 2002). Due to the complicated situations in California and New York, Texas is considered the first state to pass the DREAM Act. In addition to in-state tuition, Texas allows undocumented students to apply for state financial aid (Finaid.org).

Oklahoma repealed its law in 2008 and now allows the Board of Regents to decide the tuition rates for undocumented immigrants. For all practical purposes, though, the Board has allowed undocumented immigrants to pay in-state tuition since the change (National Conference of State Legislatures, 2011b). Maryland passed their own DREAM Act that was signed by the Governor and set to take effect July 1st, 2011. However, opponents launched a petition drive which resulted in a suspension of the law pending a referendum during the 2012 election (Seidman, 2011). Voters supported the measure so the law will go into effect with the requirement that students first

attend a community college (Maxwell 2012). In June 2011, Wisconsin repealed its state DREAM Act (Wisconsin Assembly Bill 40). The law in Utah was not supposed to go into effect until the federal DREAM Act passed due to the “if allowed under federal law” clause (Utah HB 144). Consequently there have been several attempts to repeal the law in Utah; though, none have been successful (Voices of Utah Children, 2009). In Nebraska, Governor Heineman vetoed the bill but the legislature had enough votes to override him. In the following gubernatorial election, Governor Heineman was able to get re-elected in spite of a strong opponent because of his stance on in-state tuition for undocumented immigrants (Wenz, 2011).

Table 1: Descriptive Statistics

<i>Variable</i>	Control	Treatment (Prior)	Treatment (After)
Total Enrollment	8531 (10648)	9932 (10845)	12929 (16797)
Four-Year Public Institution	.41	.38	.34
Two-Year Public Institution	.59	.62	.66
Number of Non-Resident Aliens	252 (682)	292 (644)	425 (1176)
Number of In-state students in fall cohort	824 (1180)	779 (1089)	942 (1483)
Number of Observations	10,342	3,756	5,517

Table 2: Percent Change in Total Undergraduate Enrollment After Allowing Undocumented Immigrants to Pay In-state Tuition: Difference-in-Differences

<i>Type of Institution</i>	All States	Texas	Other
Public	.0244** (.0107)	-.0031 (.0148)	.0268 (.0117)
Two-Year Public	.0252 (.0158)	-.0075 (.0208)	.0283 (.0176)
Four-Year Public	.0158* (.0092)	.0018 (.0073)	.0169* (.0098)
<i>Type of Institution</i>	Tuition Only	Tuition and Fin Aid	Add Aid to Tuition
Public	.0071 (.0116)	.0162 (.0099)	-.0312** (.0152)
Two-Year Public	.0085 (.0191)	.0177 (.0122)	-.0357* (.0191)
Four-Year Public	.0040 (.0117)	.0220* (.0112)	-.0062 (.0129)

Standard errors are clustered at the state level. * indicates significance at the 10 percent level, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level. School fixed effects, school linear time trends and year fixed effects are included in each regression. There are 19,615 school by year observations for all public schools, 12,118 school by year observations for two-year public schools and 7,497 school by year observations for four-year public schools. ‘Tuition only’ refers to states only with a policy that allows undocumented immigrants to pay in-state tuition (but not financial aid), ‘tuition and fin aid’ refers to states with policies that simultaneously allowed in-state tuition and financial aid for undocumented immigrants and ‘add aid to tuition’ refers to states that added financial aid eligibility while already having an in-state tuition policy.

Table 3: Percent Change in Total Undergraduate Enrollment After Allowing Undocumented Immigrants to Pay In-state Tuition: Event Study

<i>Type of Institution</i>	<i>Time Frame</i>			
	$k \leq -2$	$k=0$	$k=1$	$k \geq 2$
Public	.0081 (.0241)	.0124 (.0059)	.0106 (.0064)	-.0314 (.0271)
Two-Year Public	.0137 (.0339)	.0066 (.0079)	.0018 (.0095)	-.0717* (.0347)
Four-Year Public	.0026 (.0168)	.0156*** (.0039)	.0207*** (.0070)	.0332 (.0225)

Standard errors are clustered at the state level. * indicates significance at the 10 percent level, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level. The year prior ($k=-1$) is the base time category. School fixed effects and year fixed effects are included in the regressions. Each column represents a separate regression. There are 19,615 school by year observations for all public schools, 12,118 school by year observations for two-year public schools and 7,497 school by year observations for four-year public schools.

Table 4: Change in the Number of Non-Resident Aliens After Allowing Undocumented Immigrants to Pay In-state Tuition: Difference-in-Differences

<i>Type of Institution</i>	All States	Texas	Other
Public	.0145 (.0734)	.4109*** (.0418)	-.0217 (.0738)
Two-Year Public	.0048 (.1070)	.4169*** (.0691)	-.0366 (.1110)
Four-Year Public	.0317 (.0471)	.3867*** (.0300)	.0017 (.0433)
<i>Type of Institution</i>	Tuition Only	Tuition and Fin Aid	Add Aid to Tuition
Public	-.0654 (.0870)	.0724 (.1153)	-.0819 (.1179)
Two-Year Public	-.1336 (.1362)	.1105 (.1273)	-.0825 (.1697)
Four-Year Public	.0243 (.0631)	.0389 (.0964)	-.0179 (.0609)

Standard errors are clustered at the state level. The dependent variable is the ln(number of non-resident aliens). * indicates significance at the 10 percent level, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level. School fixed effects, school linear time trends and year fixed effects are included in each regression. There are 20,675 school by year observations for all public schools, 12,970 school by year observations for two-year public schools and 7,705 school by year observations for four-year public schools. ‘Tuition only’ refers to states only with a policy that allows undocumented immigrants to pay in-state tuition (but not financial aid), ‘tuition and fin aid’ refers to states with policies that simultaneously allowed in-state tuition and financial aid for undocumented immigrants and ‘add aid to tuition’ refers to states that added financial aid eligibility while already having an in-state tuition policy.

Table 5: Change in the Number of Non-Resident Aliens After Allowing Undocumented Immigrants to Pay In-state Tuition: Event Study

<i>Type of Institution</i>	<i>Time Frame</i>			
	$k \leq 2$	$k=0$	$k=1$	$k \geq 2$
Public Schools	-.0425 (.0770)	-.0488 (.0452)	.0045 (.0489)	-.0220 (.0857)
Two-Year Public	-.1148 (.0893)	-.0331 (.0386)	.0200 (.0600)	-.0806 (.1116)
Four-Year Public	.0432 (.0646)	-.0393 (.0473)	.0071 (.0431)	.1078* (.0640)

Standard errors are clustered at the state level. The dependent variable is the ln(number of non-resident aliens). * indicates significance at the 10 percent level, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level. The year to prior to implementation ($k=-1$) is the base time category. School fixed effects and year fixed effects are included in each regression. There are 16,361 school by year observations for all public schools, 9,172 school by year observations for two-year public schools and 7,189 school by year observations for four-year public schools.

Table 6: Change in the Number of In-State Students After Allowing Undocumented Immigrants to Pay In-state Tuition: Difference-in-Differences

<i>Type of Institution</i>	All States	Texas	Other
Public	-.0386* (.0194)	.0263 (.0315)	-.0442** (.0198)
Two-Year Public	-.0780*** (.0253)	-.0360 (.0439)	-.0820*** (.0264)
Four-Year Public	.0182 (.0221)	.1396*** (.0212)	.0083 (.0206)
<i>Type of Institution</i>	Tuition Only	Tuition and Fin Aid	Add Aid to Tuition
Public	-.0501 (.0238)	.0110 (.0228)	.0111 (.0601)
Two-Year Public	-.1001*** (.0348)	-.0151 (.0403)	-.0077 (.0852)
Four-Year Public	.0050 (.0280)	.0515 (.0361)	.0184 (.0323)

Standard errors are clustered at the state level. The dependent variable is the ln(number of in-state students). * indicates significance at the 10 percent level, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level. School fixed effects, school linear time trends and year fixed effects are included in each regression. There are 19,629 school by year observations for all public schools, 12,128 school by year observations for two-year public schools and 7,501 school by year observations for four-year public schools. ‘Tuition only’ refers to states only with a policy that allows undocumented immigrants to pay in-state tuition (but not financial aid); ‘tuition and fin aid’ refers to states with policies that simultaneously allowed in-state tuition and financial aid for undocumented immigrants and ‘add aid to tuition’ refers to states that added financial aid eligibility while already having an in-state tuition policy.

Table 7: Change in the Number of In-State Students After Allowing Undocumented Immigrants to Pay In-state Tuition: Event Study

<i>Type of Institution</i>	<i>Time Frame</i>			
	$k \leq 2$	$k=0$	$k=1$	$k \geq 2$
Public Schools	-.0176 (.0810)	.0053 (.0248)	-.0439 (.0402)	-.0679 (.0686)
Two-Year Public	.0084 (.0678)	-.0342 (.0420)	-.0960* (.0513)	-.1443** (.0666)
Four-Year Public	-.0009 (.0814)	.0511 (.0346)	.0323 (.0287)	.0772 (.0633)

Standard errors are clustered at the state level. The dependent variable is the ln(number of in-state students). * indicates significance at the 10 percent level, ** indicates significance at the 5 percent level and *** indicates significance at the 1 percent level. The year to prior to implementation ($k=-1$) is the base time category. School fixed effects and year fixed effects are included in each regression. There are 19,629 school by year observations for all public schools, 12,128 school by year observations for two-year public schools and 7,501 school by year observations for four-year public schools.

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