POLICY BRIEF:

College Costs and Educational Choices of Undocumented Immigrants in Texas

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SUMMARY

Equal access to higher education has been a long-standing education policy goal. To this end, in 2001, Texas became the pioneering state to pass a policy which made undocumented immigrant students eligible for in-state tuition in all postsecondary public institutions.

Using administrative data from 1995-2013, this paper examines the impact of the in-state tuition policy on educational choices of undocumented immigrants enrolled in two-year and four-year colleges. Comparing un-documented Hispanic students to US-born Hispanics, I find that the policy lead to an increase in likelihood of graduation, probability of graduating with an associate degree or an advanced certifi- cate (as compared to a basic certificate), and the probability of graduating with an academic major for undocumented immigrants.

The evidence presented in this paper suggests that the in-state resident tuition policy has reduced the gap in educational opportunities between undocumented Hispanics and their US-born peers in the state of Texas.

Introduction

Undocumented immigrants constitute about 3.5% of the current US population and Texas ranks second, after California, in the number of unauthorized immigrant population (Pew Research Centre, 2015).[1],[2] Annually, about 65,000 undocumented children graduate from American high schools. While 25-30% of all 16 to 24 year-olds enroll in some college, only 10% of the undocumented immigrants in this age group do so (The UndocuScholars Project Report, 2015). One of the explanations for this enrollment gap is the high cost of postsecondary education. Unlike their US-born peers, the children of undocu-mented immigrants do not qualify for in-state tuition, making college costs prohibitively high. In 2001, Texas became the pioneering state to pass a policy allowing in-state tuition to undocumented immigrants (House Bill 1403) to provide equal opportunity for college education. In this paper, I study the impact of reduced college tuition on educational decisions of undocumented immigrants.

Using the variation provided by the in-state resident tuition policy of Texas, I estimate the effect of changes in college costs resulting from the in- state resident tuition reforms on educational decisions of undocumented immigrants in Texas. Specifically, I employ a difference-in-differences technique to estimate the impact of in-state tuition on probability of graduation, type of degree and choice of major for undocumented immigrants. Comparing undocumented Hispanics to the U.S. born Hispanics, I find that the reduced college costs significantly increased the graduation rate for undocumented immigrants enrolled in community colleges, but had no significant impact on students in four-year universities. The policy increased the probability of graduating with an academic degree or an advanced certification from community

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[1] Undocumented refers to a foreign-born person without proper authorization or legal basis of residence in the United States. I use the terms undocumented and unauthorized interchangeably. The terms Latino and Hispanic are also used interchangeably. For additional information on these terms, see Bean and Lowell (2007).
[2] http://www.pewresearch.org/fact-tank/2015/07/24/5-facts-about-illegal-immigration-in-the-u-s/

colleges. I also find that policy had a larger impact for males than females. The effect of the policy on timely graduation and choice of major (academic or technical) is unclear and is sensitive to the choice of specification. The evidence presented in this paper suggests that the in-state resident tuition policy reduced the gap in opportunities for higher education, but its impact was primarily concentrated among students enrolled in community colleges.

This paper makes three contributions to the literature. First, this paper extends the analysis of the effect of in-state tuition policy beyond enrollment to examine other important decisions such as major choice, degree obtained, and timely graduation. Though the in-state resident tuition policy has received much attention from various fields, most of these studies are qualitative in nature (Batalova and Fix, 2006; Castillo, 2007; Feder, 2006; Flores and Chapa 2009; Olivas, 2004, 2008; Perry, 2006), and quantitative evidence on the effect of such law changes on education outcomes is limited to enrollment (Amuedo-Dorantes and Sparber, 2014; Chin and Juhn, 2010; Flores 2010a,b; Potochnick, 2014; Kaushal, 2008). Second, the existing literature has largely examined the impact of the in-state tuition policy on enrollment outcomes in any college, without distinguishing between the type of colleges and degrees (Chin and Juhn, 2010; Flores, 2006). Due to their residency status, the returns to a college education are lower for undocumented immigrants compared to their U.S. born peers. Thus, another important contribution of this paper is to separate the effect of the policy between different channels of postsecondary education, i.e. 4-year public university degree and community colleges. Third, existing literature studying undocumented immigrants suffers from high measurement error due to lack of identifiers for the illegal immigration status in government surveys. Using unique administrative data from Texas allows identification of undocumented immigrants with higher precision, improving the precision of estimates over the existing literature.

Study Overview

Institutional Background

Education attainment rates for undocumented immigrants are lower than their US-born peers at all levels of education. Just 54 percent of undocumented youth have at least a high school diploma, compared to 82 percent for their US-born peers (Passel and Cohn, 2009). Among high school graduates, only 5- 10 percent enroll in postsecondary institutions, and far fewer graduate with a degree (Department of Education Report, 2015). Financial barriers have been noted as one of the key explanations for the low education attainment among undocumented youth. Undocumented immigrants are ineligible for Title IV federal financial aid, making college education unaffordable for them. To improve college access, some states and public universities have passed policies allowing in-state resident tuition to undocumented youth.

In 2001, House Bill 1403 was passed in the Texas Senate, which allowed in-state resident tuition to any student that met the following criteria: (i) must have graduated from a public or private high school or received an equivalent of a high school diploma in Texas, (ii) must have resided in the state for at least 3 years as of high school graduation date or the date when they received equivalent of a high school diploma, (iii) must register as an entering student in an institution of higher education not earlier than the 2001 fall semester, and (iv) must provide the institution an affidavit stating that the individual will file an application to become a permanent resident at the earliest opportunity the individual is eligible to do so (HB 1403, 77th Leg., Reg. Sess. [Tex. 2001]).

Recent studies have found that the choice of major is sensitive to the price of college education (Stange 2012, Denning and Turley 2016). The cost of college is a function of the total number of credit hours taken, and
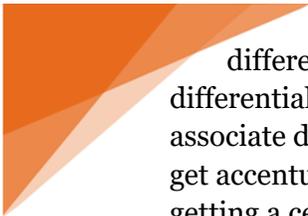
different degrees/majors require a different number of credits. As a result, students face differential pricing based on their major and degree choice. For instance, the cost of getting an associate degree is substantially higher than getting a professional certificate. These differences get accentuated if a student has to pay nonresident tuition. Figure 1 plots the tuition costs for getting a certificate, advanced technical certificate, and an associate degree. As shown in the figure, the nonresident tuition for a certificate course is very similar to in-district tuition for an advanced technical certificate. Similarly, the nonresident tuition for an advanced technical certificate is very similar to in-district tuition for an associate degree. If students are financially constrained, qualifying for in-state resident tuition could allow them to afford previously unaffordable degrees. To illustrate this point, consider a student whose financial affordability is represented by line A. In the absence of in-state tuition policy, this student can at best afford an advanced technical certificate, but cannot afford an associate degree. However, with the in-state tuition policy, this student can now afford to get an associate degree. Thus, the change in college costs would not only affect enrollment, but are likely to influence the choice of degrees for students enrolled in colleges. In Section 3, I analyze the impact of the in-state tuition law on the probability of graduating with different types of degrees and majors.

Another important but understudied aspect of in-state resident tuition policy is its linkages with labor market returns. While the in-state tuition reform is aimed at reducing the gap in opportunity for education, it does not address the gap between returns to education for undocumented immigrants and their U.S. born peers. The federal law prohibits employers from hiring an undocumented immigrant, making their labor market returns to college education lower compared to US-born students. How- ever, hiring an independent contractor without seeking proof of immigration is within the bounds of the legal framework. Thus, postsecondary degrees which facilitate obtaining professional licenses for self-employment offer better labor market opportunities for undocumented immigrants. Given that the community colleges offer low-cost options of professional courses compared to most 4-year universities, I expect a greater strategic response to the change in college costs for students who attend community colleges.

Data

In this paper, I use the individual-level administrative data collected by the Texas Education Resource Center (ERC). For my analysis sample, I use the students who enrolled as freshman in public colleges between 1995-2013 for community colleges, and 1995-2011 for four-year public universities.[3] I restrict my primary sample to include only Hispanics. Undocumented Hispanics constitute the treatment group and US born Hispanics form the control group. For year 2001 onwards, the data includes an identifier for individuals who are exempted from nonresident tuition under HB1403. Using the status of the tuition paid, I classify Hispanic students into US born (if they pay resident tuition) and undocumented Hispanics if they pay resident tuition under HB 1403. However, this identifier is available only after the year 2001. To be able to classify students into different categories by residency status for the entire time- period (1995-2011), I predict the probability of a Hispanic student being an immigrant based on their place of residence, age intervals, whether they have a valid social security number, and whether they are internationals who pay or would have paid nonresident tuition in the absence of the policy.[4][5] I regress the subsample of years 2001-2013, for which I have identifiers for

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[3] While the data is also available for students who enrolled until 2015, I use the information on students who are scheduled to graduate by 2015. Thus, for two-year colleges, I use data for students enrolled up until 2013, and for four-year universities, I use data for students enrolled up until 2011.

[4] Place of residence variable includes dummies for counties for those living in border counties, a dummy for those who live in non-bordering Texas counties, a dummy for students from Mexico, a dummy for international students, and a dummy for non-Texas US resident.

[5] As per the Social Security Administration, an individual needs to be a citizen or a documented immigrant to receive a social security number. In 2012, Deferred Action for Childhood Arrivals (DACA) allowed temporary work permits to be given to undocumented immigrants who moved to the US as children. My results remain similar if I exclude the students who were enrolled in college after DACA was passed.

undocumented immigrants, on these parameters, and then use the estimated coefficients to predict the probability of being undocumented for the entire sample. Panel A of Table 1 shows that the summary statistics for these characteristics for undocumented and US born Hispanic students. As is evident from this table, undocumented immigrants are more likely to not have a social security number and are more likely to be from Mexico than US born Hispanics.[6]

Note that the sample used only includes individuals who are already enrolled in college. Hence, the analysis of educational choices of undocumented immigrants is conditional on enrollment. According to the literature, the in-state resident tuition policy increased enrollment in college. Although I cannot estimate the effect of the in-state tuition law on enrollment because of data constraints, summary statistics from the data show that share of undocumented immigrants in community colleges increased from 0.5 percent in 2001 to 5.2 percent in 2013. Given the increase in share of undocumented immigrants in colleges, there is a concern that compositional effects could be driving the results. While I add demographic controls to alleviate this concern, the results should be interpreted with caution.

Figure 1: Trends in College Tuition
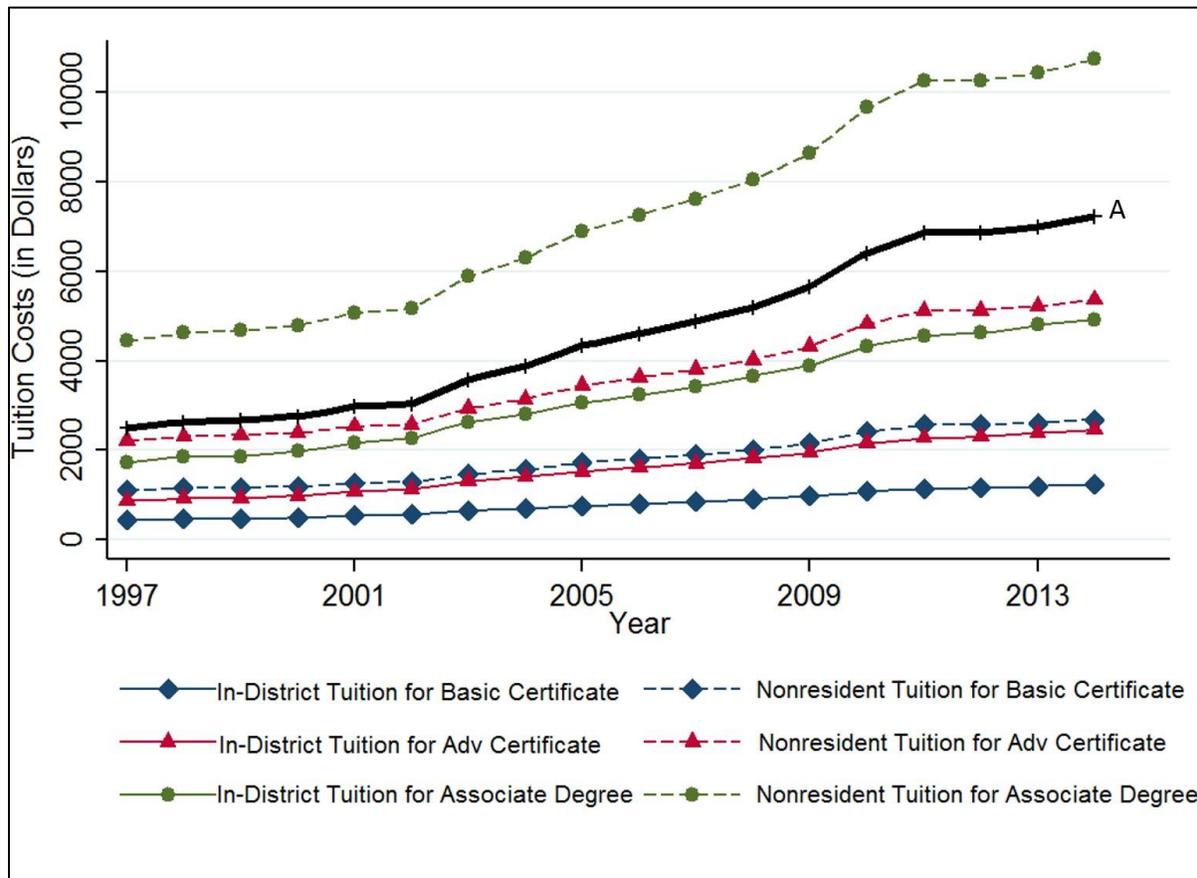
Notes: This figure plots the trends in average college tuition for different degrees/certificate in Texas community colleges over time period 1997-2014. The solid lines represent average in-district tuition and dashed lines represent average nonresident tuition. The green series with circles shows average tuition costs for associate degree, with an average requirement of 60 semester credit hours (SCH). The red series with triangles shows average tuition costs for advanced technical certificates, with an average requirement of 30 SCH. The blue series with diamonds shows average tuition costs for basic certificates, with an average requirement of 15 SCH. Source: Statistics from Texas Association of Community Colleges.

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[6] To confirm that this model reasonable predicts the probability of being undocumented, I used a random 80 percent subsample for the 2001-2013 period to run the model, and used the estimated coefficients to predict the probability of the remaining 20 percent of the sample. This analysis found that anyone who had a predicted probability of higher than 0.85 was indeed an undocumented immigrant.

Table 1: Summary Statistics

	Community Colleges		4-Year Public University	
	Undocumented Immigrants	US-born Hispanics	Undocumented Immigrants	US-born Hispanics
Panel A				
Invalid SSN	0.76	0.04	0.76	0.05
Texas counties	0.84	0.99	0.85	0.94
Non-Texas US counties	0.00	0.00	0.00	0.01
Outside of US	0.16	0.00	0.15	0.06
From Mexico	0.13	0.00	0.12	0.01
Panel B				
Age	19.21	20.78	18.34	18.73
Female	0.53	0.56	0.53	0.53
Academically Disadvantaged	0.65	0.56		
Disable	0.01	0.02		
English Language Proficiency	0.07	0.09		
Displaced homemaker	0.01	0.02		
Single Parent	0.02	0.06		
Number of Observations	36,985	1,090,973	4,270	217,971

Notes: Sample in Columns 1-2 include students enrolled in community colleges from 2001-2013, and sample in Columns 3-4 include students enrolled in 4-year public universities from 2001-2011 in Texas. The unit of observation is an individual. Information on demographics such as disability and single parent is not available for students enrolled in public universities.

Methodology

To estimate the causal effect of the tuition changes on educational choices, I employ the difference-in-differences technique using US-born Hispanics as the control group and the undocumented Hispanic immigrants as the treatment group. This empirical method will allow me to separate the time trends of the educational outcomes that would have existed in the absence of the policy. I estimate the following equation:

$$Y_{it} = \alpha_0 + \alpha_1 X_{it} + Post_t + U I_i + Post_t * U I_i + e_{it} \quad (1)$$

Where Y_{it} is the educational outcome for individual i at time t. The outcomes studied include probability of graduation, probability of graduating on time, graduating with an associate degree, an advanced certificate, or a basic skill certificate, and choice of major. X_{it} is a vector of control variables which includes an indicator for academic disadvantage, disability, if they are single parent, gender, age, limited English proficiency, and dummies for institute and year.[7] $Post_t$ is an indicator that takes value of 1 for years after the in-state policy was introduced, i.e., 2001 onwards, and 0 otherwise. $U I_i$ is a variable used to identify if an individual is an undocumented immigrant. Identifying undocumented immigrants in the sample has been one of the long-standing limitations of the existing literature. In the literature, undocumented immigrants are usually defined as those individuals who are not US citizens. In this paper, I use the following alternative definitions for the undocumented immigrant variable.

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[7] Academic disadvantage is an indicator variable which captures whether a student has college entry level skills in reading, writing or math, based on a local placement test.

Definition 1: U I$_i$ is as an indicator which takes the value of 1 for international Hispanic students who would pay nonresident tuition in the absence of the policy, and 0 for all other Hispanic students.[8] This definition is similar to the one used in the literature and categorizes all immigrants (documented as well as undocumented) as undocumented immigrants.

Definition 2: U I$_i$ is defined as a predicted probability of being undocumented. Section 2.2 de- scribes how this predicted probability is calculated.[9]

The key assumption in this analysis is that in the absence of a policy change, the US-born Hispanics will follow the same trend in their educational choices as that of the undocumented immigrants. To check whether the US-born Hispanics are a reasonable control group, Table 1 provide summary statistics of the observable characteristics of undocumented immigrants as well as US-born Hispanics. Panel B of Table 1 shows that the students from both the subgroups are similar in observable characteristics, except that undocumented Hispanic immigrants are younger and are more likely to be academically disadvantaged. In the analysis, I will control for all these observable characteristics.

Key Findings

Figure 2 and Figure 3 plot trends in the outcome variables for US-born Hispanics and undocumented students enrolled in community colleges. Figure 2 shows the trend for undocumented immigrant based on Definition 1, i.e., all non-citizens are assumed to be undocumented immigrants. For Figure 3, I use the predicted probability of being undocumented as per Definition 2. If the probability of being undocumented exceeds the sample mean of the predicted probability, then the student is categorized undocumented immigrant, and s/he is otherwise categorized as a US-born Hispanic. As shown in these figures, prior to the policy change, the trends for educational choices of undocumented Hispanic immigrants are similar to those of the US-born Hispanics, supporting the aforementioned parallel trend assumption. The probability of graduation, probability of graduating with associate degree and basic certificate for undocumented immigrants jumps at 2001, when the policy was implemented. Figures 2 and 3 suggest that the reduced tuition costs reduced educational gaps of undocumented immigrant students in community colleges.[10]

1. College Completion. Table 2 shows the results for estimating equation. The regressions include demographic controls such as age, gender, academic disadvantage, limited English language proficiency, and year fixed effects. Panel A shows the regression results using the first definition of undocumented immigrants, where any international student paying nonresident tuition is recorded as an undocumented immigrant. Panel B shows the results using Definition 2, i.e., the predicted probability of being an undocumented immigrant. Column 1 shows that the in-state tuition policy increased the probability of graduation for undocumented immigrants enrolled in community colleges by 12-14 pp. In contrast, Column 3 of Table 2 shows that the policy had no economically or statistically significant effect on the completion of degrees from four-year colleges. Given the larger cost and the lower returns of a four-year college degree for undocumented immigrants, it is not surprising that the in-state tuition policy did not have any impact on completion of four-year college degree.
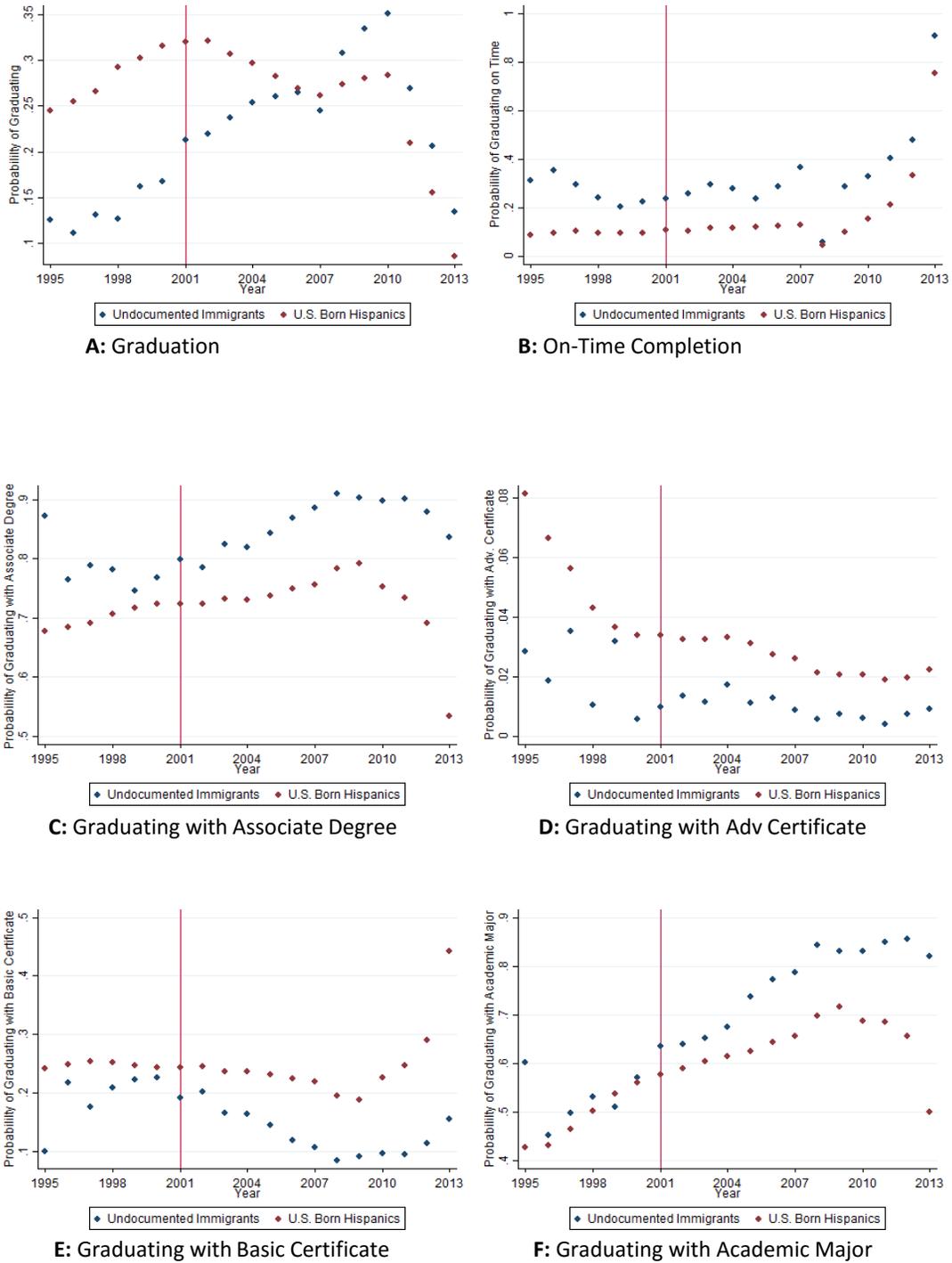
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[8] For years prior to 2001, these are students who paid nonresident tuition and after 2001, this includes students who pay nonresident or in-state under HB 1403.

[9] I use another definition in which UI is an indicator that takes value of 1 if the predicted probability of being undocumented is greater than 0.5, and 0 otherwise. The results (not presented here) are similar in sign and significance.

[10] Plots for four-year public universities are similar and available upon request.

Figure 2: Trends for US-born Hispanics and Undocumented Immigrants (Based on Definition 1)

A: Graduation

B: On-Time Completion

C: Graduating with Associate Degree

D: Graduating with Adv Certificate

E: Graduating with Basic Certificate
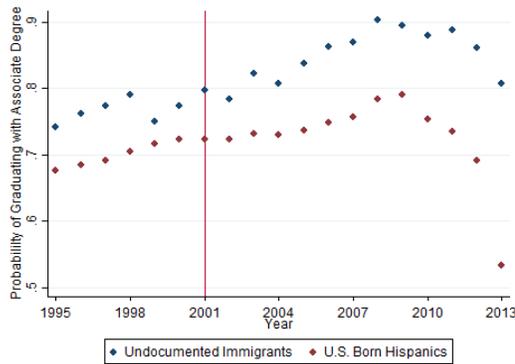

F: Graduating with Academic Major

Notes: This figure plots the time trends in the outcomes for US born Hispanics and the undocumented Hispanic immigrants enrolled in community colleges. Undocumented immigrants in this figure are defined using Definition 1, i.e., as all US noncitizens who paid nonresident tuition are categorized as undocumented immigrants.
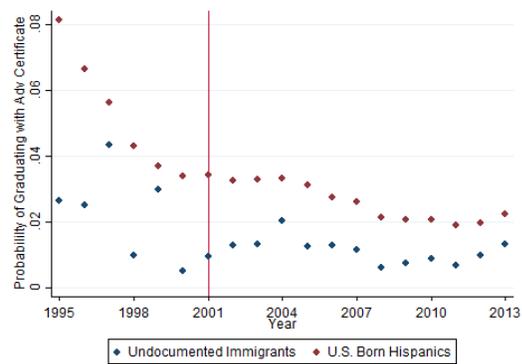
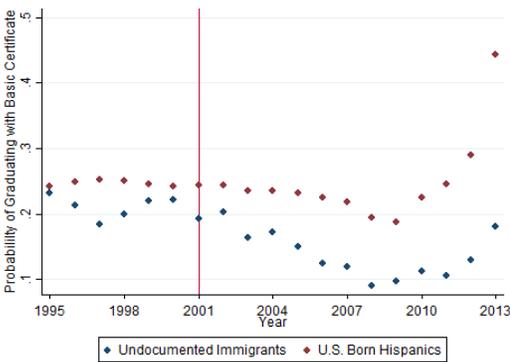**Figure 3:** Trends for US-born Hispanics and UI (Based on Definition 2)
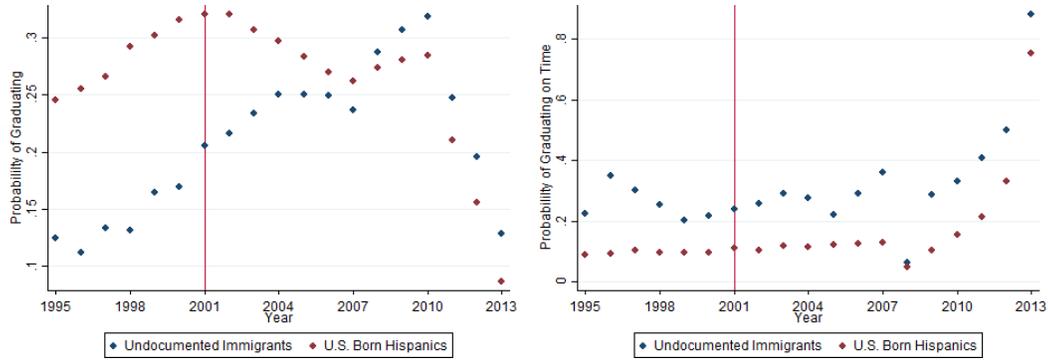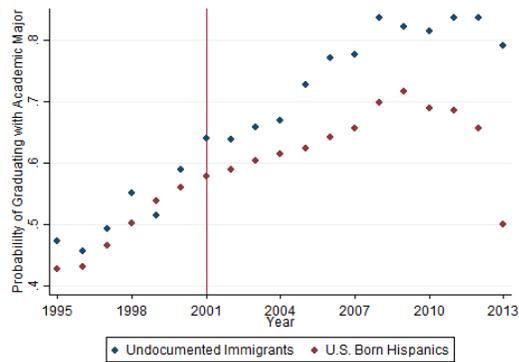

A: Graduation

B: On-Time Completion

C: Graduating with Associate Degree

D: Graduating with Adv Certificate

E: Graduating with Basic Certificate

F: Graduating with Academic Major

Notes: Undocumented immigrants in this figure are defined based on the predicted probability of being undocumented calculated using region dummies, valid social security number, age interval for the student, and whether they are internationals who pay or would have paid nonresident tuition in the absence of the policy. The students who predicted probability is equal to or higher than the sample mean are categorized as undocumented immigrants, and others are categorized as US-born Hispanics.

Table 2: Regression Results

	Community College		4-year Public University	
	Graduation	On-time Completion	Graduation	On-time Completion
	(1)	(2)	(3)	(4)
Panel A: UI is defined as US noncitizens				
Post 2001*UI	0.139***	-0.005	0.007	-0.083***
	(0.003)	(0.009)	(0.009)	(0.016)
UI	-0.114***	0.143***	-0.146***	0.244***
	(0.003)	(0.009)	(0.007)	(0.012)
Mean of Dep Var	0.14	0.25	0.31	0.71
Panel B: UI is defined using Predicted Probability of Undocumented Immigrants				
Post 2001 * UI	0.122***	-0.037***	-0.005	-0.023
	(0.003)	(0.010)	(0.008)	(0.020)
UI	-0.158***	0.186***	-0.273***	0.189***
	(0.003)	(0.010)	(0.007)	(0.016)
Mean of Dep Var	0.27	0.10	0.42	0.60
Observations	1687230	429091	332025	139159

Notes: The unit of observation is an individual. Demographic controls include: student's age and gender, an indicator for academic disadvantage, an indicator for whether they are a single parent, diability, English language proficiency, and dummies for institute and year. For Columns 3-4, demographic controls do not include an indicator for academic disadvantage, an indicator for whether they are a single parent, diability and English language proficiency. Each Column correspond to an outcome. In Panel A, UI is defined as an indicator for US noncitizens, and in Panel B, UI is defined as the predicted probability of being an undocumented immigrant. Columns 1-2 use a sample of freshman year students enrolled in community colleges during 1995-2013. Columns 3-4 use a sample of freshman year students enrolled in four-year public universities during 1995-2011. Robust standard errors are in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

The estimates for probability of graduating on time shown in Column 2 and Column 4 are sensitive to the definition of the key independent variable. Panel A shows a statistically insignificant effect of the policy on graduating from community colleges, but a negative effect of the policy on on-time completion of a bachelor degree. Panel B shows that the in-state tuition policy had a negative and significant impact on on-time graduation from community college of students with higher likelihood of being undocumented immigrants, but no significant effect on on-time graduation from four-year public universities. While the precision of the estimates is sensitive to the definition, the results suggest that the in-state resident tuition had a negative effect on on-time graduation. An explanation for this could be compositional effects. For instance, it is possible that the reduced college tuition increased the number of financially constrained students. These students might drop out of school for semesters to support families, which could result reduced on-time graduation. More detailed data will be required to understand what is driving the negative effect on-time graduation.

2.   Type of Degree: Table 3 shows the regression results for students who graduated from community colleges. The estimates suggest that the in-state tuition policy increased the probability of graduating with an associate degree or an advance certificate for undocumented immigrants, and reduced the probability of graduating with a basic level-1 certificate. As mentioned earlier, Figure 1 shows that the in-state tuition policy significantly reduced the cost differential across different college degrees, which may have allowed some

students to afford previously unaffordable degrees. The results shown in Table 3 are consistent with this expectation that as college costs decreases, students start opting for advanced certificates or associate degrees.

Table 3: Types of Degrees

	Graduating with an Associate Degree	Graduating with an Advanced Certificate	Graduating with a Basic Certificate
	(1)	(2)	(3)
Panel A: UI is defined as US noncitizens			
Post 2001*UI	0.059***	0.005	-0.064***
	(0.009)	(0.003)	(0.009)
UI	0.054***	-0.008**	-0.047***
	(0.009)	(0.003)	(0.008)
Mean of Dep Var	0.77	0.02	0.21
Panel B: UI is defined using Predicted Probability of Undocumented Immigrants			
Post 2001*UI	0.067***	0.008*	-0.075***
	(0.010)	(0.003)	(0.010)
UI	0.025**	-0.011***	-0.014
	(0.010)	(0.003)	(0.009)
Mean of Dep Var	0.70	0.05	0.25
Observations	429091	429091	429091

Notes: The unit of observation is an individual. Demographic controls include: student's age and gender, an indicator for academic disadvantage, an indicator for whether they are a single parent, diability, English language proficiency, and dummies for institute and year. Each Column correspond to an outcome. In Panel A, UI is defined as an indicator for US noncitizens, and in Panel B, UI is defined as the predicted probability of being an undocumented immigrant. Sample includes freshman year students enrolled in community colleges during 1995-2013. Columns 1-3 show the probability of graduating with an associate degree, advanced certificate and a basic certificate, respectively. Robust standard errors are in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Choice of Major: Majors in community colleges are categorized into academic major or technical major.[11] Table 4 shows the effect of the in-state tuition policy on choice of major. Column 1 shows the probability of graduating with an academic major, and Column 2 shows the probability of choosing a STEM major at a 4-year university. The estimates show that in-state tuition policy resulted in an increase in probability of graduating with an academic major for undocumented immigrants enrolled in community colleges but had no significant impact on the probability of graduating with STEM major from a 4-year university.

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[11] A third category, technical-prep major, is included in technical major category for the purpose of this study.

Table 4: Dependent Variable: Probability of Choosing Academic Major

	Community College	4-year Public University
	Acadmic Major	STEM
	(1)	(2)
Panel A: UI is defined as US noncitizens		
Post 2001 * UI	0.107***	-0.006
	(0.011)	(0.016)
UI	-0.015	0.144***
	(0.010)	(0.012)
Mean of Dep Var	0.53	0.31
Panel B: UI is defined using Predicted Probability of Undocumented Immigrants		
Post 2001 * UI	0.100***	0.031
	(0.011)	(0.020)
UI	-0.019	0.086***
	(0.011)	(0.016)
Mean of Dep Var	0.49	0.19
Observations	429,091	139,159

Notes: The unit of observation is an individual. Demographic controls include: student's age and gender, an indicator for academic disadvantage, an indicator for whether they are a single parent, diability, English language proficiency, and dummies for institute and year. Each Column correspond to an outcome. In Panel A, UI is defined as an indicator for US noncitizens, and in Panel B, UI is defined as the predicted probability of being an undocumented immigrant. Columns 1 uses a sample of freshman year students enrolled in community colleges during 1995-2013. Column 2 uses a sample of freshman year students enrolled in four-year public universities during 1995-2011, and does not include the following demographic controls: an indicator for academic disadvantage, an indicator for whether they are a single parent, diability and English language proficiency. Robust standard errors are in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

4. Heterogeneity in Results: Table 5 and Table 6 show the heterogeneity in results by gender. Table 5 suggests that the policy had a larger effect on graduation rate of male compared to female undocumented immigrants at community colleges as well as four-year universities. However, the effect of the policy on on-time graduation was larger for females compared to male undocumented immigrants.

Table 6 shows that in-state tuition policy had a larger effect on educational choices of males than females. Male undocumented students were more likely to graduate, and graduate with associate degree or advanced certificates after the policy than female undocumented immigrants.

In sum, I find that reduced college costs in community colleges, resulting from the in-state tuition policy, lead to an increase in the likelihood of graduation, on-time graduation, and probability of graduating with an associate degree or an advanced certificate compared to a basic certificate.

Conclusion

The evidence presented in this paper shows that reducing the gap in opportunities for higher education can result in improved educational outcomes for disadvantaged population groups. However, inadequate effort on the labor market integration of undocumented immigrants can restrict the benefits from any pol- icy aimed at reducing the educational achievement gap. As shown in this paper, a reduction in college costs only affected the education outcomes of those enrolled in community college, but not in four-year public universities. One

of the reasons for this differential impact could be that four-year college costs, even after allowing for in-state resident tuition, remain prohibitively high for undocumented immigrants. Another plausible explanation is that the returns to four-year college degree are not very high for undocumented immigrants due to their restrictive legal employment channels. Future research on the effect of in-state tuition policies on labor market outcomes will be helpful in improving our understanding of inequalities in opportunities for disadvantaged populations.

Table 5: Heterogeneity in Results

	Community College		4-year Public University	
	Graduation	On-time Completion	Graduation	On-time Completion
	(1)	(2)	(3)	(4)
Panel A: UI is defined as US noncitizens				
Post 2001 * UI* Male	0.014***	-0.030***	0.032**	-0.011
	(0.003)	(0.006)	(0.011)	(0.019)
Post 2001 * UI	0.132***	0.009	-0.010	-0.078***
	(0.004)	(0.010)	(0.011)	(0.018)
UI	-0.114***	0.143***	-0.146***	0.245***
	(0.003)	(0.009)	(0.007)	(0.012)
Male	-0.042***	0.017***	-0.089***	-0.044***
	(0.001)	(0.001)	(0.002)	(0.002)
Panel B: UI is defined using Predicted Probability of Undocumented Immigrants				
Post 2001 * UI* Male	0.033***	-0.021***	0.078***	-0.008
	(0.003)	(0.006)	(0.010)	(0.022)
Post 2001 * UI	0.106***	-0.027**	-0.046***	-0.019
	(0.003)	(0.010)	(0.010)	(0.022)
UI	-0.158***	0.186***	-0.273***	0.189***
	(0.003)	(0.010)	(0.007)	(0.016)
Male	-0.043***	0.016***	-0.090***	-0.043***
	(0.001)	(0.001)	(0.002)	(0.002)
Observations	1687230	429091	332025	139159

Notes: The unit of observation is an individual. Demographic controls include: student's age and gender, an indicator for academic disadvantage, an indicator for whether they are a single parent, diability, English language proficiency, and dummies for institute and year. For Columns 3-4, demographic controls do not include an indicator for academic disadvantage, an indicator for whether they are a single parent, diability and English language proficiency. Each Column correspond to an outcome. In Panel A, UI is defined as an indicator for US noncitizens, and in Panel B, UI is defined as the predicted probability of being an undocumented immigrant. Columns 1-2 use a sample of freshman year students enrolled in community colleges during 1995-2013. Columns 3-4 use a sample of freshman year students enrolled in four-year public universities during 1995-2011. Robust standard errors are in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Table 6: Heterogeneity in Results - Types of Degrees

	Graduating with an Associate Degree (1)	Graduating with an Advanced Certificate (2)	Graduating with a Basic Certificate (3)
Panel A: UI is defined as US noncitizens			
Post 2001 * UI* Male	0.115***	0.010***	-0.125***
	(0.005)	(0.001)	(0.005)
Post 2001 * UI	0.004	0.001	-0.004
	(0.009)	(0.003)	(0.009)
UI	0.055***	-0.008**	-0.047***
	(0.009)	(0.003)	(0.009)
Male	-0.118***	-0.008***	0.127***
	(0.001)	(0.001)	(0.001)
Panel B: UI is defined using Predicted Probability of Undocumented Immigrants			
Post 2001 * UI* Male	0.095***	0.012***	-0.106***
	(0.005)	(0.001)	(0.005)
Post 2001 * UI	0.022*	0.003	-0.024*
	(0.010)	(0.003)	(0.010)
UI	0.026**	-0.011***	-0.015
	(0.010)	(0.003)	(0.009)
Male	-0.119***	-0.009***	0.127***
	(0.001)	(0.001)	(0.001)
Observations	429091	429091	429091

Notes: The unit of observation is an individual. Demographic controls include: student's age and gender, an indicator for academic disadvantage, an indicator for whether they are a single parent, diability, English language proficiency, and dummies for institute and year. Each Column correspond to an outcome. In Panel A, UI is defined as an indicator for US noncitizens, and in Panel B, UI is defined as the predicted probability of being an undocumented immigrant. Sample includes freshman year students enrolled in community colleges during 1995-2013.Robust standard errors are in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

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