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Financing Hope: The Impact of State and Institutional Financial Aid on Undocumented Student Persistence and Success in Texas

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**Financing Hope: The Impact of State and Institutional Financial Aid on
Undocumented Student Persistence and Success in Texas**

by

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Dedication

I dedicate my dissertation to all undocumented immigrants in the United States and around the world. You are important, you are valued, you matter.

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Financing Hope: The Impact of State and Institutional Financial Aid on Undocumented Student Persistence and Success in Texas

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Abstract: This study examined how financial aid impacts undocumented college students in Texas by evaluating their (1) year-to-year persistence and (2) degree attainment within six years. Texas is one of five states that provide its undocumented residents both in-state tuition and financial aid. Its policy is over a decade old, making it a prime topic of study. While financial aid has been well established as a key component to student success outcomes, such as persistence and degree attainment, the impact of financial aid on undocumented college students remained unexamined. This study used logistic regression analysis to test a composite conceptual framework on public, student-level data from the Texas Higher Education Coordinating Board (THECB) and the Texas Education Agency (TEA). The conceptual framework includes three blocks of covariates: financial aid, demographic profile, and academic preparation. Undocumented students were identified from triangulated THECB data of tuition status, residency status, and ineligibility for federal aid that specifically identifies students who are “non-immigrant residents” who receive in-state resident tuition and state and institutional financial aid. The study found that while financial aid, especially gift, other, and work-study aid increased year-to-year persistence, it did not increase degree attainment within

in six years for undocumented college students. This may be due to insufficient financial aid and/or personal costs of sacrifices and struggles endured by undocumented students. Recommendations for future study include a focus on community colleges, comparison studies with other states, research regarding the lived experiences of undocumented college students in relation to financial aid, and examination of the tipping points in financial aid and departure behavior. Policy and practice recommendations include passing comprehensive immigration reform, passing DREAMer legislation, codifying the Deferred Action for Childhood Arrivals (DACA) policy, creating campus staff positions to support undocumented students, initiating graduation support for undocumented students, presenting training for campus faculty and staff regarding undocumented students, addressing unmet financial need, and providing financial aid and financial literacy counseling. This study is intended to address the gap in research and provide an analysis of data to inform public policy discourse.

Table of Contents

List of Tables	xi
List of Figures	xii
List of Illustrations	xiii
Chapter I: Introduction.....	1
Demographic Profile	7
Immigration Policy and Related Court Cases	9
The Study	23
Purpose of Study.....	27
Research Questions.....	28
Brief Literature Review	28
Conceptual Framework	36
Methodology Overview.....	37
Scope and Limitations	37
Organization of Study	42
Chapter II: Literature Review.....	44
Financial Aid Background.....	44
Persistence.....	53
Success.....	67
Latina/os and Undocumented Immigrant Students.....	74
Frameworks	75
Conceptual Framework	83
CHAPTER III: METHODS	87
Research Questions.....	87
Data and Target and Control Group Selection	90
Variables	92
Analysis Plan and Limitations.....	100
Descriptive Analysis.....	114
T-Tests	118
Logistic Regression.....	120
Limitations	123
Chapter IV: Findings	127
Logistic Regression.....	128
Persistence Models and Findings	131
Graduation Models and Findings.....	158
Chapter V: Summary, Discussion, Implications, and Recommendations	187
Summary of Literature and Argument.....	187
Summary of Methodology and Limitations	191
Summary and Discussion of Findings: Persistence.....	195
Summary and Discussion of Findings: Graduation	206
Implications for Further Research.....	216
Recommendations for Policy and Practice.....	218
Summary.....	224
Appendices.....	227

Appendix A: Comparison of Texas High School Graduation Plans for Academic Year 2014-2015.....	228
Appendix B: Comparison of Texas High School Graduation Plans for Academic Years 2001 to 2015.....	229
Appendix C: Enrollment Tuition Status	232
Appendix D: Enrollment Student Classification	233
References.....	234
Vita.....	281

List of Tables

Table 1.1. States that passed in-state resident tuition policies for undocumented students as of January 2014	3
Table 1.2. State agencies that provide in-state resident tuition to undocumented students as of January 2014	16
Table 1.3. System that provides in-state tuition to undocumented students as of January 2014	16
Table 1.4 States that restrict undocumented students as of January 2015	17
Table 1.5. Systems that restrict undocumented students as of October 2010	18
Table 3.1: Dependent Variables: Educational Outcome Measures	93
Table 3.2 Independent Variable: Academic Preparation	94
Table 3.3 Frequency of high school graduation plans for total graduates for academic year 2001-02	96
Table 3.4 Frequency of high school graduation plans for total graduates for academic year 2005-06	96
Table 3.5 Independent Variables: Student Characteristics	97
Table 3.6 Independent Variables: Financial Aid	98
Table 3.7 Difference in means of first-year Latina/o residents and undocumented students in gift aid	118
Table 4.1 Logistic regression of year-to-year persistence based on FY 2003 & FY 2004 (aid disaggregated)	133
Table 4.2 Logistic regression of year-to-year persistence based on FY 2003 & FY 2004 (aid aggregated)	140
Table 4.3 Logistic regression of year-to-year persistence based on FY 2007 & FY 2008 (aid disaggregated)	149
Table 4.4 Logistic regression of year-to-year persistence based on FY 2007 & FY 2008 (aid aggregated)	152
Table 4.5 Logistic regression of graduation based on FY 2003 (aid disaggregated)	162
Table 4.6 Logistic regression of graduation based on FY 2003 (aid aggregated)	165
Table 4.7 Logistic regression of graduation based on FY 2007 (aid disaggregated)	174
Table 4.8 Logistic regression of graduation based on FY 2007 (aid aggregated)	177
Table 5.1 Change in financial aid in Texas by type	197

List of Figures

Figure 2.1: Conceptual Model	84
Figure 4.1: Persistence Models	129
Figure 4.2: Graduation Models	130

List of Illustrations

Graph 3.1 Undergraduate undocumented student enrollment in Texas public universities from FY 2003 to FY 2013	115
Graph 3.2 Graduate and professional school undocumented student enrollment in Texas public universities from FY 2003 to FY 2013	116
Graph 3.3 Undocumented student racial backgrounds from FY 2003 to FY 2009	117
Graph 5.1 Change in financial aid in Texas by type	198

Chapter I: Introduction

No national policy currently exists that addresses undocumented student¹ access to higher education (Olivas, 2010) though several iterations of the Development, Relief, and Education for Alien Minors (DREAM) Act have been proposed in S. 952, 112th Cong. (2011); S. 3992, 111th Cong. (2010); S. 2205, 110th Cong. (2007); S. 774, 110th Cong. (2007); S. 2075, 109th Cong. (2005); S. 1545, 108th Cong. (2003); H.R. 1275, 110th Cong. (2007); H.R. 5131, 109th Cong. (2006); and H.R. 1648, 108th Cong. (2003). There was also an attempt to incorporate DREAM Act language in the 2010 National Defense Authorization Act (H.R. 5136, 111th Cong., (2010)). None of these attempts was successful. In place of federal involvement, states and higher education systems have acted either to restrict or increase access to undocumented students leading to a disparate response to the issue (Flores & Chapa, 2009). This disparate response is of particular concern since states that traditionally received high numbers of immigrants have generally instituted access policies, while states that traditionally received low numbers of immigrants but are experiencing a swell of new immigrants are implementing more restrictive policies (Flores & Chapa, 2009; Olivas, 2010). This oppositional behavior is demonstrated in the range of state responses, from Texas, which provides in-state resident tuition (ISRT) and financial aid to undocumented residents, to South

¹ I use the term undocumented throughout the work to identify immigrants who are not currently authorized to be in the United States. A broader discussion of my terminology can be found under my “Key Terms” heading (p. 38-39). The Texas Higher Education Coordinating Board uses the term “non-resident immigrant.” (Texas Higher Education Coordinating Board, Education Data Center, 2014)

Carolina, which bans undocumented immigrants outright from participating in state public higher education (Olivas, 2010).

In addition to ISRT policies, five states provide financial aid (See Table 1.1) via state and institutional funds. Texas, the state with the oldest ISRT policy, also provides undocumented students access to state and institutional monies in the form of grants, scholarships, loans, and work-study. In four academic years (Fall 2004 – Summer 2008), Texas awarded \$33.6 million in state and institutional financial aid to undocumented students (Unmuth, 2010), or 0.16% of the \$20.415 billion in financial aid that was awarded to all students enrolled in Texas higher education institutions during that period (Texas Higher Education Coordinating Board, 2006, 2007, 2008, 2009).

The effects of ISRT policies are being broadly studied from the perspectives of persistence (Conway, 2009; Flores & Horn, 2009), access (Flores, 2010a; Flores & Chapa, 2009), local decision-making (Dougherty, Nienhusser, & Vega, 2010; Flores & Oseguera, 2009), legislative agenda-setting (McLendon, Mokher, & Flores, 2011), policy implementation (Oseguera, Flores, & Burciaga, 2010), political economy (Olivas, 2010), human capital creation (Santos, 2006), and impact on undocumented high school student persistence and college choice (Nienhusser, 2013; Potochnick, 2014), etc. But the impact of financial aid, by total and by type, has yet to be studied deeply. This study investigated how state and institutional financial aid impacted the persistence and degree attainment of undocumented students in Texas. This study informs higher educational policy by providing data on the impact of financial aid on critical student outcomes, and by challenging the current discourse regarding undocumented college students which is

Table 1.1. States that passed in-state resident tuition policies for undocumented students as of January 2014

State	Bill Number & Session	Date Enacted	State Code	Provide state fin. aid?
Texas	H.B. 1403 (77th Leg., Reg. Sess.)*	June 16, 2001	TEX. EDUC. CODE ANN. § 54.052	Yes
California	A.B. 540 (2001-2002 Leg., Reg. Sess.)	October 12, 2001	CAL. EDUC. CODE § 68130.5	Yes
Utah	H.B. 144 (54th Leg., Gen Sess.)	March 6, 2002	UTAH CODE ANN. § 53B-8-106	No
New York	S.B. 7784 (225th Leg., 2002 Sess.)	June 25, 2002	N.Y. EDUC. LAW § 355(2)(h)(8)	No
Washington	H.B. 1079 (58th Leg., Reg. Sess.)	May 7, 2003	WASH. REV. CODE ANN. § 28B.15.012	No
Oklahoma	S.B. 596 (49th Leg., 1st Reg. Sess.)	May 12, 2003	OKLA. STAT. ANN. tit. 70, § 3242	No
Illinois	H.B. 60 (93rd Leg., Reg. Sess.)	May 18, 2003	110 ILL. COMP. STAT. ANN. 305/7e-5, 520/8d-5, 660-5-88, 665/10-88, 670/15-88, 675/20-88, 680/25-88, 685/30-88, 690/35-88, 805/6-4a	No
Kansas	H.B. 2145 (2003-2004 Leg., Reg. Sess.)	May 20, 2004	K.S.A. § 76-731a	No
New Mexico	S.B. 582 (47th Leg., Reg. Sess.)	April 5, 2005	N.M. STAT. ANN. § 21-1-1.2	Yes

Note. *Texas law amended by S.B. 1528, 79th Leg., Reg. Sess. (Tex. 2005).

**Oklahoma ISRT policy was repealed in 2007 and authority passed to the state's higher education agency (S.B. 1804 (53rd Leg., Reg. Sess. (Okla. 2007))). See Table 1.2

Table 1.1. (con't)

States that passed in-state resident tuition policies for undocumented students as of January 2014

State	Bill Number & Session	Date Enacted	State Law	Provide state fin. aid?
Nebraska	L.B. 239 (99th Leg., 1st Sess.)	April 13, 2006	NEB. REV. STAT. ANN. § 85-502	No
Wisconsin	A.B. 75*** (99 th Leg., Reg. Sess.)	June 29, 2009	WISC. STAT. ANN. § 36.27(2)(CR)	No
Maryland	S.B. 167**** (Gen. Assemb., 428th Sess., 2011 Reg. Sess.)	July 1, 2011	MD. CODE ANN., EDUC. § 15-106.8	No
Connecticut	H.B. 6390 (Gen. Assemb., 2011 Reg. Sess.)	July 1, 2011	CONN. GEN. STAT. § 10a-29	No
Colorado	S.B. 33 (69th Gen. Assemb., 1st Reg. Sess.)	April 29, 2013	COLO. REV. STAT. § 23-7-110	No
Minnesota	S.F. 1236 (88th Leg., Reg. Sess.)	May 23, 2013	MINN. STAT. § 135A.043	Yes
Oregon	H.B. 2787 (77th Leg. Assemb., 2013 Reg. Sess.)	July 1, 2013	OR. REV. STAT. § 351.641	No
New Jersey	A.4225 (215th Leg., 1st Reg. Sess.)	December 20, 2013	N.J. STAT. ANN. § 18A:62-4.4	No
Florida	H.B. 851 (116th Leg., Reg. Sess.)	June 9, 2014	FLA. STAT. ANN. § 1009.26	No

Note. ***Wisconsin's ISRT policy was repealed via the 2010-2011 budget (A.B. 40 (100th Leg., Reg. Sess. (Wisc. 2011))).

****Maryland's provision states that undocumented students must attend a community college to attain the ISRT benefit. Upon completion of an associate's degree or 60 credits at the community college level, the student may transfer to a four-year institution at the ISRT rate.

predicated on ideology (Kobach, 2006b; Olivas, 2004) and nativist assumptions (Pérez Huber, 2009).

Economic arguments also drive the discussion on whether to provide or deny undocumented students access to higher education (Kobach, 2006b; Santos, 2006). Opponents of ISRT and related policies argue that scarce resources should be used to benefit residents and citizens (Kobach, 2006b; Ramsey, 2010). Proponents counter that these policies prevent the loss of human capital (Santos, 2006), increase productivity, reduce the use of social services, and continue the educational investment (Gonzales, 2007, 2009).

Yet, even within the economic rhetoric of proponents and opponents, a broader and more problematic issue pervades the discussion: undocumented immigrants' legal status. The unsettled status of undocumented immigrants means that they must often live in the shadows of society (Gleeson & Gonzales, 2012). Policy makers who support or deny immigrant rights often face negative repercussions (e.g., struggle to be reelected), further confounding policy making (Ingram, Schneider, & Peter, 2007; Reich & Mendoza, 2008). The fear of minority groups (Appadurai, 2006), the construction of worthiness and the value of life (Inda, 2007), and membership in American society (Perry, 2004, 2006), shape the discourse and policy-making regarding immigrants and undocumented immigrants.

In light of the economic and legal status issues, this study is relevant and valuable for many reasons: (1) it analyzed the impact of a financial aid policy on student success outcomes; (2) it studied a timely issue subject to increased inflammatory rhetoric

regarding the presence of undocumented immigrants and subsequent state and local policies to manage their presence; and (3) it addressed a gap in the research regarding the impact of financial aid on educational outcomes of undocumented students. The study focused on the effects of financial aid on persistence and graduation of undocumented immigrants in two areas:

1. By amount and type of aid (i.e., grants, scholarships, loans, and work-study); and
2. Compared to other racial groups, with native-born Latina/os acting as a control group.

Persistence in this study is defined as year-to-year enrollment (i.e., Fall Year 1 to Fall Year 2). This is modeled closely to the Integrated Postsecondary Education Data System's (IPEDS) definition of retention rate, which is "a measure of the rate at which students persist...from the previous fall who are again enrolled in the current fall" (U.S. Department of Education Institute of Education Statistics National Center for Educational Statistics, n.d.). Success in this study is defined as degree conferment within six years of initial enrollment. This definition is also modeled closely to IPED's "graduation rate," which is "the number completing their program within 150 percent of normal time to completion." Normal time to completion is defined as four-years, thus 150 percent of normal time is six years. This research will inform policy by providing data to timely and controversial issue.

This first chapter lays the foundation for this analysis by providing a historical and policy context for the issue, delineating the problem this study sought to examine, and outlining the study's methodology. First, I provide a demographic profile of

undocumented immigrants in the United States and issues that they face. Second, I briefly discuss modern immigration policy, state and institutional responses to undocumented college students, and relevant legal cases that inform how the United States interacts with undocumented immigrants and undocumented children. Third, I outline the structure of the study, including the problem statement, purpose of the study, rationale for the study, research questions, data used, and short literature review of persistence, success, and undocumented students. Last, I describe the methodology of the study including the conceptual framework, type of analysis, scope, and limitations.

DEMOGRAPHIC PROFILE

The Department of Homeland Security (DHS) reported that approximately 11.4 million undocumented immigrants lived in the United States in 2012 (Baker & Rytina, 2013), while the Pew Research Center estimated that the number was closer to 11.7 million (Passel, Cohn, & Gonzalez-Barrera, 2013). The Pew Research Center estimates that this population made up roughly 3.7% of the total U.S. population and 5.2% of the labor force in 2010 (Passel & Cohn, 2011). Though substantial, this number demonstrates a decrease of almost a million people from 2008 to 2009 (Hoefer, Rytina, & Baker, 2010; Passel & Cohn, 2009). This decrease has been attributed to the 2008 financial crisis (Thornburgh, 2008), increased border security (U.S. Department of Homeland Security, 2010), new restrictive immigration laws, as well as the consistent flux of the undocumented population (Wagner, 2010).

Though traditional settlement states such as California, Texas, Florida, and New York continue to have the highest number of undocumented immigrants, new settlement

states, particularly in the South, are seeing gains (Flores, 2010a; Passel & Cohn, 2009). Undocumented immigrants are mostly comprised of immigrants from Latin American countries, with the majority originating from Mexico (52%) (Passel et al., 2013). They are also more likely to be poor and have lower education attainment than U.S. citizens and legal permanent residents (LPR) (Passel & Cohn, 2009).

Children make up a small portion (8.9%) of undocumented immigrants, while the vast majority are adults (Passel & Cohn, 2011). Of this small group, approximately 1.4 million undocumented children participated in primary and secondary education in 2008 or 2.5% of all K-12 students that year (Passel & Cohn, 2009; U.S. Census Bureau Public Information Office, 2010). Undocumented children are guaranteed a primary school and secondary school education due to the U.S. Supreme Court's decision in *Plyler v. Doe*, 457 U.S. 202 (1982), but this right does not extend to higher education. *Plyler v. Doe* is discussed further in a subsequent section.

Though undocumented students are not guaranteed access to higher education, they still participate. In 2006, the U.S. Census Bureau reported that 1.4 million foreign-born students participated in U.S. higher education². Of this group, undocumented students make up a small segment. The Urban Institute reported that 65,000 high school students who have reached the age of 18 and lived in the United States for five years or more graduate every year, and that between 7,000–13,000 of these students attend post-secondary education (Passel, 2003). Unfortunately, newer numbers for those

² The U.S. Census Bureau reports this number as all students who are not U.S. citizens or legal residents so the number includes international and other immigrant students.

participating in higher education are unavailable. These numbers do not include undocumented older students who have been in the United States less than five years (Chavez, Soriano, & Oliverez, 2007). Passel and Cohn (2009) report that 49% of undocumented immigrants aged 18-24 are in or have attended college. The authors also imply that undocumented immigrants who enter the country before the age of 14 are more likely to participate in higher education (Passel & Cohn, 2009).

Similar to other under-represented groups, undocumented immigrant students attend community college at higher rates than four-year institutions (Gonzales, 2007). Community colleges provide open-access, relatively low-tuition, a location close to home, and a flexible schedule (Cohen, Brawer, & Lombardi, 2008; Long, 2008). In California and Texas, three-fourths of all undocumented immigrant students attend community colleges (Gonzales, 2007).

Finally, though many undocumented students are of Mexican or other Latin American origin, a “hidden diversity” exists (Gonzales, 2009). Gonzales (2009) notes that undocumented students may come from all regions of the world, and specifically explores that experience of Asian undocumented students.

IMMIGRATION POLICY AND RELATED COURT CASES

Undocumented students’ legal status shapes the receiving state’s behavior toward them specifically in two areas: (1) the general immigration laws of the U.S. and (2) education-related laws, policies, and court cases. In this section, I discuss current U.S. immigration policy, including executive orders and proposed immigration reform that impacts undocumented youth. Then, I discuss *Plyler v. Doe*, a landmark case that

increased immigrant children's access to public education and informs policy arguments for undocumented student access to higher education.

Immigration law. Current immigration policy in the United States has four goals: (1) family reunification, (2) admission of workers with specific skills, (3) refugee protection and asylum, and (4) diversity in admission by providing entry to individuals from countries with historically low immigration rates (Congressional Budget Office, 2006). Though family reunification offers many immigrants the best hope of entrance into the United States, the demand for entrance outstrips the number of available entrants that the four priorities offer. This had led to a steady increase of undocumented immigrants since the Immigration Reform and Control Act (IRCA) (1986) (Hoefer et al., 2010; Passel & Cohn, 2009).

Federal response to immigration has been limited. Several attempts at immigration reform have stalled in the U.S. Congress since 2000 (S. 2368, 110th Cong. (2008); S. 1639, 110th Cong. (2007); S. 2661, 109th Cong. (2006); H.R. 5515, 110th Cong. (2008); H.R. 4088, 110th Cong. (2008); H.R. 1645, 110th Cong. (2007)). The most promising in 2008 (H.R. 5515, 110th Cong. (2008)), failed to pass in the waning months of President George W. Bush's administration (Fernández de Castro & Clariond Rangel, 2008). Many of the aforementioned bills focused on deportation or employment verification, and only the 2006 bill was a comprehensive rather than a single-issue immigration bill. Since then, Congress has proposed several measures both comprehensive (S. 744, 113th Cong. (2013); H.R. 15, 113th Cong. (2013)) and piecemeal (H.R. 2278, 113th Cong. (2013); H.R. 1772, 113th Cong. (2013)), none of which has

passed. The only major immigration policymaking in this timeframe has been via an agency policy.

On June 15, 2012, President Obama announced that DHS would provide a deferred action for undocumented individuals who arrived as children to the United States (The White House, 2015). The Deferred Action for Childhood Arrivals (DACA) program provides individuals under the age of 31 who entered the United States without authorization prior to the age of 16 and who also fulfill additional educational and character requirements the ability to stay in the country legally and apply for employment (U.S. Department of Homeland Security, 2012). As of June 30, 2013, over 550,000 individuals have applied for deferred action, and over 400,000 have been accepted (Singer & Svajlenka, 2013). On February 16, 2015, the U.S. Court for the Southern District of Texas placed a temporary injunction on the DACA program, and the program has not expanded as originally planned (*See Texas v. United States*, Civ. No. B-14-254, 2015 WL 648579 (S.D.Tex. Feb. 16, 2015) (order granting preliminary injunction)). The temporary injunction does not affect existing DACA (U.S. Department of Homeland Security, n.d.). Because DACA is an agency policy, it could be easily rescinded forcing DACA individuals back into undocumented status or out of the country.

The DREAM Act. An arguably more permanent federal remedy to undocumented youth, the DREAM Act, has been proposed multiple times³ but has never

³ S. 952, 112th Cong. (2011); S. 3992, 111th Cong. (2010); S. 3827, 111th Cong. (2010); S. 729, 111th Cong. (2009); S. 2205, 110th Cong. (2007); S. 774, 110th Cong. (2007); S. 2075, 109th Cong. (2005); S. 1545, 108th Cong. (2003); S. 1291, 107th Cong. (2001); H.R. 5281, 111th Cong. (2010); H.R. 1751, 111th Cong. (2009); H.R. 1275, 110th Cong. (2007); H.R. 5131, 109th Cong. (2006); H.R. 1684, 108th Cong. (2003); H.R. 1918, 107th Cong. (2001).

passed. In 2001, Senator Orrin Hatch (R-UT) and Representative Chris Cannon (R-UT) proposed the first versions of the DREAM Act, S.1291 and H.R. 1918, respectively, in the 107th Congress. Both bills met an early demise, dying in committee. Since this first attempt, several iterations of the bill (S. 952, 112th Cong. (2011); S. 3992, 111th Cong. (2010); S. 729, 111th Cong. (2009); S. 2205, 110th Cong. (2007); S. 774, 110th Cong. (2007); S. 2075, 109th Cong. (2005); S. 1545, 108th Cong. (2003); H.R. 1275, 110th Cong. (2007); H.R. 5131, 109th Cong. (2006); H.R. 1648, 108th Cong. (2003)) have met similar fates.

The DREAM Act focuses on the creation of a pathway to legal residency via higher education or military service (National Immigration Law Center, 2010). The DREAM Act provides for an adjustment of status if the immigrant (1) had been in the U.S. for at least five years before the enactment of the bill and entered the U.S. when they were 15 years old or younger; (2) is a “person of good moral character;” (3) is currently enrolled in an institution of higher education, earned a high school diploma, or obtained a GED; and (4) has not reached the age of 35 on the date of enactment (S. 3992, 111th Cong. § 3 (2010)). If, as a result of the DREAM Act, one’s status is adjusted to “alien lawfully admitted for permanent residence,” this conditional permanent resident status is valid for six years (S. 3992, 111th Cong. § 4(a)(1)). The process to citizenship continues if those whose with conditional permanent status (1) earn a degree from an institution of higher education or complete two years of college for a bachelors degree, or (2) serve in the military without being dishonorably discharged (S. 3992, 111th Cong. § 1(d)). In addition to citizenship status, the DREAM Act would make these students eligible for

federal loans, federal work-study, and grants such as the Pell Grant (S. 3992, 111th Cong. § 11). Finally, it would repeal Section 505 of the Illegal Immigration Reform & Immigrant Responsibility Act (IIRIRA) (1996) (S. 3992 §, 111th Cong. 3(a)), which states:

Notwithstanding any other provision of law, an alien who is not lawfully present in the United States shall not be eligible on the basis of resident within a State...for any postsecondary education benefit unless a citizen or national of the United States is eligible for such a benefit (in no less an amount, duration, and scope) without regard to whether the citizen or national is such a resident (8 U.S.C. § 1623).

Though legislation has been proposed, no federal action has been taken. In response to the federal inaction on undocumented college students, states and higher education institutions have stepped in to address the issue.

State and institutional responses to undocumented college students. Since 2001, eighteen states have enacted⁴ residency laws that offer in-state resident tuition (ISRT) to undocumented students. See Table 1.1. Texas became the first state to pass ISRT legislation in 2001 with House Bill 1403 (clarified by Senate Bill 1528 in 2005). This residency law provides in-state tuition to individuals who have (1) lived in Texas the three years prior to high school graduation or receipt of the GED, and (2) resided in Texas the year prior to enrollment in college. If a student is not a U.S. citizen or LPR, the student must file an affidavit with her institution demonstrating that her intent to

⁴ Oklahoma and Wisconsin have repealed their laws. See Table 1.1.

apply for LPR status (Texas Higher Education Coordinating Board, 2013). The number of undocumented students utilizing this law has grown substantially from 3,792 in Fall 2004 (Keeton Strayhorn, 2006) to 24,760 in 2013 (Ura & McCullough, 2015). Even with this increase, undocumented students only account for 2% of all college students in Texas. Finally, over 70% of undocumented college students attend community colleges (Ura & McCullough, 2015).

States that offer ISRT to undocumented students require them to fulfill state-specific residency criteria. Generally, students are required to: (1) have attended a school within the state for a specified number of years, (2) graduated or obtained a GED from a state high school, and (3) have a signed affidavit that they have applied or will apply to legalize their status or do so as soon as they are eligible (National Immigration Law Center, 2014). Of these states, California, Minnesota, New Mexico, Texas, and Utah offer some form of state financial aid (Flores, 2010a; National Conference of State Legislatures, 2014).

Additionally, some state agencies that oversee higher education and university systems have also provided ISRT to undocumented immigrants. See Table 1.2. Oklahoma, which previously had an ISRT policy regarding undocumented students, has directed the Oklahoma State Regents for Higher Education, the state agency overseeing the state's colleges and universities, to decide the criteria for ISRT (Okla. State Regents for Higher Educ., Policy and Procedures Manual § 3.17.5). Likewise, the Rhode Island Board of Governors for Higher Education approved a measure to allow undocumented immigrant students ISRT in 2011 (Mancuso, 2011). The University of Hawai'i System

and The University of Michigan System⁵ have also approved policy or guideline changes to allow undocumented immigrant students to pay ISRT (Jesse, 2013; The University of Hawai'i System Board of Regents, 2013; University of Hawai'i News Staff, 2013; University of Michigan, The Office of the Vice President for Communications, 2013). The Arizona Board of Regents, the governing board for the state's public universities, allows DACA students with an Employment Authorization Document who meet the statutory and policy requirements for residency to pay ISRT (Arizona Board of Regents, 2015). See Table 1.3. The North Carolina State Community College Board has reversed its policy five times, including twice banning undocumented immigrant students. Though undocumented immigrant students are allowed entrance, they are required to pay out-of-state tuition, nearly five times the in-state tuition rate, to attend (Moltz, 2009; National Conference of State Legislatures, 2014).

In contrast to states that have enacted ISRT policies, some states have restricted access to higher education. See Table 1.4. Arizona, Georgia, and Indiana passed legislation that specifically prohibits the state from awarding in-state tuition rates to undocumented immigrant students (National Conference of State Legislatures, 2014). South Carolina and Alabama went further by banning undocumented student

⁵ The University of Michigan System ISRT change allows for all military veterans honorably discharged, those who participated in the U.S. Public Health Service, and students who have attended middle and high school in Michigan to pay ISRT (University of Michigan, The Office of the Vice President for Communications, 2013).

Table 1.2. State agencies that provide in-state resident tuition to undocumented students as of January 2014

State	State Agency	Administrative Code	Date Policy Enacted
Oklahoma	Oklahoma State Regents for Higher Education	Okla. State Regents for Higher Educ., Policy and Procedures Manual § 3.17.5 (last updated Apr. 2013)	November 1, 2007
Rhode Island	Rhode Island Board of Governors for Higher Education	R.I. BD. OF GOVERNORS FOR HIGHER EDUC., POLICY MANUAL S-5.0 (rev. Sept. 26, 2011)	September 26, 2011

Table 1.3. System that provides in-state tuition to undocumented students as of January 2014

State	System	Source	Date Policy Enacted
Hawai'i	University of Hawai'i	UNIV. OF HAW. SYS. BD. OF REGENTS, BOARD OF REGENTS POLICIES § 6-9 at 6-11	February 21, 2013
Michigan	University of Michigan	Univ. of Mich., Guidelines for In-State Tuition (July 2013), <i>adopted by</i> Univ. of Mich. Bd. of Regents, Minutes of July Meeting 2013 17–19 (July 18, 2013)	July 18, 2013
Arizona	Arizona Board of Regents	Ariz. Bd. of Regents, Minutes of a Special Board Meeting at 1-2 (May 7, 2015)	May 7, 2015

Table 1.4 States that restrict undocumented students as of January 2015

State	Bill/Legislation Number & Session	State Law	Date Enacted
Arizona	S.C.R. 1031* (47th Leg., 2nd Reg. Sess.)	ARIZ. REV. STAT. ANN. § 15-1825	September 21, 2006
Georgia	S.B. 529 (148th Leg., 2nd Reg. Sess.)	GA. CODE ANN. § 50-36-1	July, 1, 2007
Indiana	H.B. 1402 (117th Gen. Assemb., 1st Reg. Sess.)	IND. CODE § 21-14-11-1	July 1, 2011
South Carolina	H.4400 (117 th Gen. Assemb, 2nd Reg. Sess.)	S.C. CODE ANN. § 59-101-430	June 4, 2008
Alabama	H.B. 56 (2011 Reg. Sess.)	ALA. CODE § 31-13-8	June 9, 2011

Note. The Arizona legislation was precipitated by voter referendum.

Table 1.5. Systems that restrict undocumented students as of October 2010

State	System	Institutions Affected	Date Policy Enacted
Alabama	Alabama State Board of Education	Community Colleges	September 25, 2008
North Carolina	North Carolina State Community College Board	Community Colleges	September 18, 2009*
Georgia	The Board of Regents of the University System of Georgia	Prestigious Public 4-Year Universities**	June 4, 2008

Source: (Managan, 2008; Stripling, 2010; Moltz, 2009).

* North Carolina State Community College Board reversed their May 2008 decision, which banned undocumented students from attending their institutions. The current policy now allows entrance provided they pay out-of-state tuition (Moltz, 2009).

** Institutions affected include: University of Georgia, Georgia Institute of Technology, Georgia State University, Medical College of Georgia, and Georgia College & State University (Stripling, 2010).

participation in public higher education altogether (Hing, 2012; National Conference of State Legislatures, 2014; Olivas, 2010).

Just as some higher education systems have provided ISRT policies without accompanying legislation, some institutions have gone beyond their accompanying legislation by implementing policies that restrict undocumented student access. See Table 1.5. The Georgia Board of Regents implemented a rule that any of its institutions that has not admitted all academically qualified applicants may not enroll undocumented students. Specifically, this rule impacts its most prestigious institutions: University of Georgia, Georgia Tech, Georgia State University, the Medical College of Georgia, and Georgia College & State University. Similarly, the Alabama Community College System bans undocumented students from attending their institutions (Mangan, 2008; National Conference of State Legislatures, 2014; Russell, 2011).

Though the number of undocumented students utilizing ISRT is small compared to the number of all college students, the policy continues to be contentious because of two key issues: a focus on national security and sovereignty following the terrorist attacks of September 11, 2001 (Flores, 2010a; Martin, 2008) and a desire to focus scarce resources on citizens (Inda, 2007; Kobach, 2006b; Ramsey, 2010). With the passage of Arizona's S.B. 1070 (a broad and stringent illegal immigration law (Archibold, 2010)), and a similar law in Alabama, H.B. 56 (2011) and its revised bill H.B. 658 (2011) (Hing, 2012), the issue of undocumented immigration remains is a hot button issue. With diametrically contrasting laws and policies by states in regards to undocumented college

students and an unsettled federal policy, ISRT policy continues to be in the forefront of public, legislative, and post-secondary discourse.

Plyler v. Doe. Prior to the current legislative and policy status, a landmark U.S. Supreme Court case provided the foundation to for current discourse regarding undocumented students: *Plyler v. Doe*. In 1975, a new Texas state law withheld state funds from local school districts that educated children who were not "legally admitted" into the U.S. (TEX. EDUC. CODE ANN. § 21.031 (Vernon Supp. 1981)). To recoup funds, the Tyler Independent School District (ISD) in Tyler, Texas, began charging tuition of \$1,000 annually for each undocumented child. Other school districts in the state completely excluded undocumented students from enrolling, including border school districts such as Ysleta ISD in El Paso (one of the largest districts in the state) and Brownsville ISD, as well as Dallas ISD, the second largest district in the state (Olivas, 2005).

The first attempt to challenge the Texas law was the Texas state case of *Hernandez v. Houston Independent School District*, 558 S.W.2d 121 (Tex. Civ. App.—Austin, 1977, writ ref'd n.r.e.). The district court and court of civil appeals rejected the plaintiff's due process and equal protection claims. In addition, maintaining the anonymity of the students was also hard won, as students in the *Hernandez* case were placed at risk of deportation. The Immigration and Naturalization Service (INS) conducted immigration sweeps to coerce families to drop their case (Olivas, 2005). Texas State Judge William Wayne Justice allowed the students to be identified as "John Doe" plaintiffs (Olivas, 2005).

In 1978, Judge Justice struck down the Texas law, and the U.S. Supreme Court eventually heard the case. Writing for the majority, Justice William Brennan stated that the revised Texas education law “imposes its discriminatory burden on the basis of a legal characteristic over which children can have little control” (*Plyler*, 457 U.S. at 220).

Texas provided three arguments to justify requiring tuition from undocumented children. First, the state argued that this statute “protected them from an influx of illegal immigrants” (*Plyler*, 457 U.S. at 228). Justice Brennan dismissed this claim by noting that there was no evidence that demonstrated that these children would be an economic burden. He went on to state that the “[c]harging [of] tuition to undocumented children constitutes a ludicrously ineffectual attempt to stem the tide of immigration” (*Plyler*, 457 U.S. at 228). Texas’s second claim was that the state could exclude undocumented children as they impede the “State’s ability to provide high-quality public education” (*Plyler*, 457 U.S. at 229). Justice Brennan stated that there was no evidence that exclusion of these students would “improve the overall quality of the state” (*Plyler*, 457 U.S. at 229), and that the state lacked support for targeting undocumented children for exclusion. Finally, Texas argued that undocumented children were singled out as their “unlawful presence within the United States renders them less likely than other children to remain within the boundaries of the State, and to put their education to productive social or political use within the State” (*Plyler*, 457 U.S. at 229-30). Justice Brennan also dismissed this claim by stating that the state has no assurance that even a citizen will employ their education within the state. In striking down this claim, the majority questioned the motives of Texas’s desire to exclude undocumented children:

It is difficult to understand precisely what the State hopes to achieve by promoting the creation and perpetuation of a subclass of illiterates within our boundaries, surely adding to the problems and costs of unemployment, welfare, and crime. It is thus clear that whatever savings might be achieved by denying these children an education, they are wholly insubstantial in light of the costs involved to these children, the State, and the Nation (*Plyler*, 457 U.S. at 230). In his analysis, Justice Brennan used Texas's economic arguments against the state and stated that the education of undocumented immigrants would lead to a reduction in the use of social services.

Finally, Justice Brennan found that Texas had enacted a classification that discriminated against non-residents. Texas had argued that undocumented immigrants were not protected under the Fourteenth Amendment and not protected by the Equal Protection Clause, a claim Justice Brennan rejected. Even in his dissent Chief Justice Warren Burger agreed that the Equal Protection Clause of the Fourteenth Amendment extended to undocumented immigrants (*Plyler*, 457 U.S. at 213, 243; Olivas, 2005).

Proposition 187 (1994) in California and the Gallegly Amendment (1996) challenged the *Plyler* decision. Proposition 187 was a ballot initiative that would deny "virtually all state-funded benefits including public education" to undocumented immigrants (Olivas, 2005, p. 212). Proposition 187 was overturned by the U.S. District Court for the Central District of California, which relied on *Plyler* in its analysis (Olivas, 2005). The second was a proposed amendment to the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 (IIRIRA) advanced by Representative Elton

Gallegly (R-CA), which would have “allowed states to charge tuition to undocumented students or exclude them from public school” (Olivas, 2005, p. 213; Schneider, 2000). Again, the arguments focused on public resources being siphoned away from citizen children to undocumented children: “When illegal immigrants sit down in public school classrooms, the desks, textbooks, blackboards in effect become stolen property, stolen from the students rightfully entitled to those resources” (Schneider, 2000 (citing 142 Cong. Rec. H2488 (daily ed. Mar. 20, 1996) (statement of Rep. Gallegly))). The amendment was never added to the final bill (Olivas, 2005; Schneider, 2000).

Current arguments against undocumented students’ access to higher education mirror the defendant’s arguments in *Plyler v. Doe*. These arguments include a need to reduce access to social services (Drachman, 2006; Kobach, 2006b, 2006b); that access to education will lead to a tidal wave of undocumented immigrants (Kobach, 2006a, 2006b; Stripling, 2010); that undocumented immigrant negatively impact education quality (Kobach, 2006a, 2006b); and the necessity to use public resources for citizens (Davenport & Myers, 2010; Stripling, 2010).

THE STUDY

Problem statement. Only five of the states that provide ISRT for undocumented students also provide some form of financial aid. Texas, one of the five, provides comprehensive state and institutional financial aid. Texas has the oldest ISRT policy in the nation enacting its ISRT policy in 2001. For this reason, Texas is a prime venue for study. Although ISRT programs have been widely studied, no research has yet analyzed the impact of financial aid on persistence (i.e., year-to-year enrollment) and success (i.e.,

degree attainment) of these students. This study addresses this gap in the literature by investigating the impact of financial aid in the persistence and success of entering first-year undocumented students at four-year public higher education institutions in Texas. The study also investigates differences between undocumented students and other students of color in terms of persistence and degree attainment in relation to financial aid.

Undocumented students. Although there has been a recent uptick of research regarding undocumented students (Abrego & Gonzales, 2010; Collins & Reid, 2009; Conger & Chellman, 2013; Conway, 2009; Dougherty et al., 2010; Flores, 2010a, 2010b; Flores & Chapa, 2009; Flores & Horn, 2009; Flores, Horn, & Crisp, 2006; Flores & Oseguera, 2009; Gonzales, 2007, 2009, 2011; McLendon et al., 2011; Muñoz & Maldonado, 2012; Nienhusser, 2013; Olivas, 2004, 2008, 2009, 2010; Oliverez, 2006; Oseguera et al., 2010; Pérez Huber, 2009; Perry, 2004, 2006; Potochnick, 2014; Reich & Mendoza, 2008; Rincon, 2010; Rincón, 2010; Santos, 2006), research regarding undocumented student persistence and success in higher education is limited. The lack of data and thus dearth of research are a direct result of undocumented immigrants' vulnerable status (i.e., potential deportation), which can make them difficult to identify and study (Flores, 2010b).

Research on undocumented college students has explored student outcomes, student experience, policy making, historical accounts, and legal theory. Several empirical studies have reviewed the impact of ISRT policies on college-going rates and persistence of undocumented students (Conger & Chellman, 2013; Flores, 2010a; Flores & Horn, 2009). Flores and Horn (2009) focused on a four-year public research

university, while others have focused on the legal and historical nature of ISRT policies and other policies that have impacted access to undocumented students (Chavez et al., 2007; Olivas, 2009, 2010; Reich & Mendoza, 2008; Rincón, 2010). Finally, others explore access through personal narratives (Muñoz & Maldonado, 2012; Oliverez, 2006; Pérez Huber, 2009; Perez, Espinoza, Ramos, Coronado, & Cortes, 2009; Potochnick, 2014), identity creation (Gildersleeve & Hernandez, 2012; Gonzales, 2010, 2011), and community identification (Perry, 2004, 2006).

Several conceptual frameworks have been utilized to understand the experiences of undocumented immigrants. Approaches include critical perspectives such as membership theory (Perry, 2006), human capital (Santos, 2006), localism (Flores & Oseguera, 2009), and advocacy coalition (Rincón, 2010). Others have used political economy (Olivas, 2010), cost-benefit analysis (Flores, 2010a), and grounded theory (Albrecht, 2007) to study undocumented college students. Some blend multiple frameworks (Oliverez, 2006) to guide their study.

Though several studies exist evaluating the affect of ISRT policies as a form of financial aid (i.e., tuition reduction) (Flores, 2010b; Flores & Chapa, 2009), and the persistence rates of undocumented college students at a selective four-year public institution (Flores & Horn, 2009), no research has yet focused on the effects of state and institutional financial aid on the persistence and success of undocumented college students.

Rational for the study. Since 2006, Georgia, Alabama, South Carolina, and Indiana have passed legislation and/or administrative policies to restrict or ban

undocumented students from participating in higher education (National Conference of State Legislatures, 2014). Policy decisions were based on legal interpretations and ideological positions (e.g., the use of resources for citizens and not for undocumented immigrants). In contrast, this study informs higher educational policy by providing data on the impact of financial aid on critical student outcomes to aid policy makers in making decisions beyond traditional ideological arguments.

Data access. This study used an integrated database of multiple higher education datasets, including enrollment, graduation, and financial aid from fiscal year⁶ (FY) 2003 to FY 2012; and public education datasets, which include data regarding graduation and demographic profile information. The Texas Higher Education Coordinating Board (THECB) and the Texas Education Agency (TEA) collected the data used for this study. The datasets are located at the Texas Education Research Center (Texas ERC) housed at The University of Texas at Austin. Texas ERCs are legislatively-created research centers that house Texas data (e.g., TEA, THECB, Texas Workforce Commission [TWC] etc.) and facilitated research to inform all levels of education in Texas (Texas Education Research Center, n.d.). Several studies have used data provided by the Texas ERC (e.g., Fuller, Young, & Baker, 2011; Heilig, Rodriguez, & Somers, 2011; Reyes, Alexander, & Giani, 2012), but no studies have yet evaluated undocumented students.

⁶ Fiscal years are used throughout this paper to denote academic years. This naming convention is used by THECB and TEA to coincide with the Texas fiscal year, which runs from September 1 to August 31. As an example, the 2015-2016 academic year is FY 2016.

PURPOSE OF STUDY

This research study investigated the impact of state and institutional aid⁷ in the persistence (i.e., year-to-year enrollment) and success (i.e., degree attainment within six years of enrollment) of entering first-year undocumented students at four-year public higher education institutions in Texas. Though undocumented students are more likely to attend a community college (Ura & McCullough, 2015), I chose to focus on four-year institutions because community college data often lacked financial aid data. I discuss future research regarding community college undocumented students in regards to financial aid and student outcomes in Chapter V. I used a quantitative, longitudinal approach to identify to what extent state and institutional financial aid impacted undocumented college students' persistence and graduation from four-year public institutions of higher education in Texas. Persistence is measured as year-to-year enrollment (i.e., Fall Year 1 to Fall Year 2) and success is measured as degree attainment within six years (i.e., student enrolled in Fall Year 1 and attained a degree by Spring of Year 6). These definitions model the IPEDS definition of "retention" and "graduation rate," respectively (U.S. Department of Education Institute of Education Statistics National Center for Educational Statistics, n.d.). The study reviewed two cohorts of entering first-year students from two (2) different years of matriculation: FY 2003 and FY 2007. The study also investigated the impact of aid by type (i.e., gift, loan, other, and work-study aid) on persistence and success, as well as the difference between

⁷ Undocumented students are ineligible to obtain federal financial aid as they are not citizens, United States nationals, or LPR (U.S. Department of Education, Office of Federal Student Aid, 2014)

undocumented students and other groups of color in persistence and success. The study is guided by the following research questions.

RESEARCH QUESTIONS

1. How does financial aid affect undocumented college student persistence?
 - 1.1. How does the amount of financial aid affect the persistence of undocumented students? Does the type of aid (i.e., gift, loan, other, and work-study aid) affect persistence?
 - 1.2. How does financial aid affect undocumented college students' persistence compared to those of other ethnic groups (e.g., native-born Latina/os, African Americans, Asian American/Pacific Islanders, etc.)?
2. How does financial aid affect undocumented college student success?
 - 2.1. How does the amount of financial aid affect the degree attainment of undocumented students? Does the type of aid (i.e., gift, loan, other, and work-study aid) affect degree attainment?
 - 2.2. How does financial aid affect undocumented college students' degree attainment compared to those of other ethnic groups (e.g., native-born Latina/os, African Americans, Asian American/Pacific Islanders, etc.)?

BRIEF LITERATURE REVIEW

In this section I provide a brief overview of persistence and success literature, financial aid research, and literature relating to undocumented students. A more in-depth literature review of these topics is discussed in Chapter II.

Persistence. Tinto (1975, 1997) and Bean (1980, 1985) created two of the foundational models of persistence: Student Integration and Student Attrition models, respectively. Tinto's (1975) model focuses on the social and academic integration of students into their college experience as two streams that support retention. Bean (1980, 1985) acknowledged Tinto's two integration paths, but also argued that external forces, such as work, impact a student's ability to persist.

Newer models have identified additional factors that facilitate or hinder student persistence. Research has examined how discrimination and hostile environments have negatively impacted the persistence of historically underrepresented groups and how campus cultures play a role in creating these environments (Carter, 2006; Hurtado & Carter, 1997; Hurtado, Carter, & Spuler, 1996). Titus (2004, 2006) and Tinto (2010) have examined the impact of institutional factors, such as institutional resources and institutional support. Issues such as academic preparation, parental educational, family responsibilities, dependents, enrollment status, intensity of non-academic work (Adelman, 2006; Barnett, 2011; Cabrera, Castañeda, Nora, & Hengstler, 1992; Carter, 2006; Crisp & Nora, 2010; Herzog, 2005; Kinzie, Gonyea, Shoup, & Kuh, 2008; Voorhees, 1987), and attending multiple institutions ("swirling") (McCormick, 2003) have also been studied in relation to persistence. The impact of non-cognitive factors (i.e., non-academic factors such as self-efficacy, resiliency, grit, etc.) on persistence has also been extensively reviewed (Allen, 1999; Lent, Brown, & Larkin, 1984; Robbins et al., 2004; Robbins, Allen, Casillas, Peterson, & Le, 2006; J. B. Torres & Solberg, 2001; V. Torres, 2006; Tracey & Sedlacek, 1982; Yeager & Dweck, 2012; Yeager & Walton,

2011). Yeager and Dweck (2012) found that students who were trained to believe that knowledge is not static but can be developed persisted at a higher rate than students who did not (Yeager & Dweck, 2012). The effect of financial aid on persistence has also been extensively reviewed, both by full financial aid package and by financial aid type (e.g., grant, scholarship, loan, work-study, etc.) (Bettinger, 2004; Cabrera, Nora, & Castañeda, 1992; Chen, 2008; Cofer & Somers, 2000; Crisp & Nora, 2010; Dowd & Coury, 2006; Dynarski, 2000; Jensen, 1981; Lee et al., 2011; Perna, 1998; St. John, Andrieu, Oescher, & Starkey, 1994; St. John, Hu, & Weber, 2001; St. John, Kirshstein, & Noell, 1991).

Finally, research regarding persistence behavior of undocumented students is emerging. Flores and Horn (2010) found that undocumented students who attended a prestigious public four-year institution in a state with an ISRT policy persisted at a similar rate as their native-born Latina/o peers. Conway (2009) also found that immigrant students (Latina/o, African, and Asian/Pacific Islander) persisted at similar rates as their native-born peers in community college settings. Muñoz and Maldonado (2012) offer counterstories of the undocumented female student experience in higher education including how they maintain their academic aspirations, persist, and pursue a degree, and demonstrate how these students have persisted in the face of adversity.

Success. Degree attainment, which for this study is defined as degree attainment within six years of initial enrollment, has become a vital indicator of success in higher education due to a political environment has demanded a higher form of accountability (Conner & Rabovsky, 2011; Mallory & Clement, 2009; Rabovsky, 2012). In response, several governmental organizations have weighed in on success measures. The White

House has created a College Scorecard, which provides critical information to students and their families regarding cost, loan amount, loan default, and importantly, graduation rates (The White House, n.d.). The THECB, via its *Closing the Gaps* initiative, also demonstrated its commitment to increase success in Texas higher education with the explicit goal to “increase by 50 percent the number of degrees, certificates and other identifiable student successes from high quality programs” (Texas Higher Education Coordinating Board, 2000, 2010). Given governmental and institutional desire to increase student success, researchers have focused on factors that lead to increased student success.

Several factors have been shown to positively impact college degree attainment. Academic preparation in the form of a rigorous curriculum (Adelman, 2006), SAT scores (Titus, 2004), and number of math courses taken in high school (Arbona & Nora, 2007; Crisp & Nora, 2010) have shown to positively impact completion. Student engagement has also shown to aid in completion. George Kuh and others have demonstrated that participating in high-impact activities, such as undergraduate research, study abroad, first-year seminars, learning communities, service learning, writing-intensive courses, and capstone projects, increases completion (Kinzie et al., 2008; Kinzie & Kuh, 2004; Kuh, 2008; Kuh, Kinzie, Schuh, & Whitt, 2010). This success results from: (1) increased investment of the student in their college career in terms of the time and effort expended in participating in events and projects; (2) increased collaboration with peers and faculty; (3) increased access to diversity and global perspectives; (4) increased level of feedback;

(5) ability to see their work in environments on and off the campus; and (6) these activities leading to a life-changing event (Kuh, 2008).

The impact of taking developmental education courses has had mixed results. Crisp and Nora (2010) have shown that developmental education does not have an impact on second-year persistence or third-year transfer or degree attainment for Latina/o community college students when controlling for academic preparation and student demographics. Bettinger and Long (2005) find little positive impact of developmental education on success, while Burley and others (2001) find that developmental education students at Texas community colleges stop out and drop out at higher rates.

Several behaviors negatively impact success. Students who delay enrollment into higher education after high school graduation reduce their chances of earning a degree (Crisp & Nora, 2010; Arbona & Nora, 2007; Adelman, 2006; Fry, 2002). Also, attending postsecondary education as a part-time student decreases success (Crisp & Nora, 2010; Adelman, 2006; Fry, 2002). Latina/os are more likely to be affected by these issues due to their low socio-economic status, lack of social capital, and participation in schools that often do not have rigorous curriculums or course offerings (Adelman, 2006). Titus (2006) found that students at four-year institutions who had unmet need were less likely to attain a degree. Working excessive hours per week negatively impacted degree attainment (Crisp & Nora, 2010; Titus, 2006). High educational aspirations have shown to aid in increasing enrollment, but have not shown to increase degree or certificate attainment (Adelman, 2006).

Financial aid. Modern financial aid was created for two reasons: (1) to reward students for academic achievement, and (2) to aid needy students in pursuing higher education (Jackson, 1978). Financial aid, as a whole and by type, plays a significant role in achieving positive student success outcomes. Loans have been shown to either negatively impact or have no impact on persistence and success (Dowd & Coury, 2006; St. John et al., 1994). Cofer and Somers (2000), in contrast, found that loans aid in persistence of community college students. In another study, students who received loans persisted no better than students who received no aid (St. John et al., 2001). Grant aid, on the other hand, has shown to facilitate (Cofer & Somers, 2000) or at least equalize persistence (St. John et al., 2001), but the effect is small (Dynarski, 2000). Grants do not affect degree attainment for community college students (Dowd & Coury, 2006). Bettinger (2004) found that Pell Grants reduce drop-out rates and aid in college completion. Surprisingly, little research exists regarding work-study. In one study, Velez (1985) showed that work-study did have a significant impact on completion. Unmet need has been shown to inhibit success and persistence (Jensen, 1981; Nora, 1990; St. John et al., 1994; Titus, 2006).

Low-income students and Latina/os face several issues in financing their college careers. Often these students must work to meet financial demands (Crisp & Nora, 2010; Fry, 2002). Latina/os are often averse to debt (Chen, 2008; Crisp & Nora, 2010) because of a lack of financial sophistication regarding financial aid decisions (Avery & Hoxby, 2003).

No studies have reviewed financial aid in reference to undocumented students, perhaps due to undocumented students' inability to access federal financial aid (U.S. Department of Education, Office of Federal Student Aid, 2014). The impact of state and institutional aid provided to undocumented students by the five ISRT states also has not been studied.

Undocumented students. Due to similar backgrounds, Latina/os and undocumented students often have similar college educational outcomes. Undocumented immigrant students participate, persist, and graduate at rates similar to those of their Latina/o peers in a state that has ISRT and financial aid for undocumented students (Flores, 2010b; Flores & Horn, 2009). Conger and Chellman (2013), however, found that undocumented students in a state with ISRT but no financial aid persist but do not graduate at similar rates as their citizen peers. Participation rates of undocumented students increase in states with ISRT policies (Flores, 2010b), but Diaz-Strong and others (2011) found that financial constraints, even in states that have ISRT policies, impact college choice. Unfortunately, the majority of research regarding educational outcomes is focused on four-year institutions, while the majority of undocumented students participate in community colleges (Flores & Oseguera, 2009).

Another area of research focuses on documenting and humanizing the undocumented student experience. Chavez and et al. (2007) describe the challenges undocumented students confront in higher education, such as the struggle to afford college; perseverance in the face of disenfranchisement and antagonism; student activism; and the fear of being uprooted and displaced. Seif (2004) continues this

argument by discussing undocumented student activism in persuading Latina/o legislators to pass Assembly Bill (A.B.) 540 (2001), an ISRT policy, in California. Additional authors focus on the experience of undocumented immigrant youth and the obstacles they overcame to succeed (Abrego & Gonzales, 2010; Gonzales, 2010, 2011; Morales, Herrera, & Murry, 2011; Muñoz & Maldonado, 2012; Oliverrez, 2006).

Undocumented students in higher education are also examined by legal analysis and political theory. Legal experts have argued the legality of ISRT policies, especially in relation to provisions in the Immigration Reform and Immigrant Responsibility Act (IIRIRA) of 1996 that may or may not allow for state ISRT policies (Kobach, 2006a, 2006b; Olivas, 2008, 2009). Policy research has reviewed coalition building (Rincon, 2010), agenda-setting (McLendon et al., 2011), and policy implementation (Oseguera et al., 2010; Reich & Mendoza, 2008) regarding undocumented students, as well as research regarding the political environment for immigration (Martin, 2008). These studies also provide a context for the discussion of undocumented immigrants' use of public resources.

Finally, emerging research regarding membership theory challenges the notion that membership in American society (i.e., who belongs and who does not) is based on citizenship. Perry (2006) examines the meaning making of legislators, undocumented students, legislative staff, educators, and other community members to evaluate how groups identify members in their community and society. His work confronts issues of discrimination and worth, and challenges lawmakers to re-evaluate what it means to be a member in society.

CONCEPTUAL FRAMEWORK

I use a synthesis of Chen's (2008) and Crisp and Nora's (2010) conceptual models to study the persistence and success of entering first-year undocumented students at four-year public universities in Texas. Chen's (2008) conceptual framework integrates eight constructs to act as independent variables: student background, educational aspiration, pre-college preparation, financial factors, college experience, institutional characteristics, interaction effects, and time in college. Student outcomes are measured by three forms of departure behavior: stop-out, institutional departure, and system departure.

Crisp and Nora (2010) also use an integrated conceptual framework to study persistence, degree/certificate attainment, and transfer decisions of Latina/o community college students. The authors use five sets of independent variables: demographic, pre-college experience, socio-cultural, higher education academic experiences, and environmental pull factors. Student outcomes are measured as success in the second year (persistence) and success in the third year (degree-attainment or transfer).

These sets of variables examine the complexity of the experience and attributes of students. Some data measures outlined by Chen (2008) and Crisp and Nora (2010) are unavailable in Texas ERC data, such as student experience in higher education, environmental pull factors, and some forms of academic preparation. The conceptual model focuses on three sets of independent variables blocks: (1) individual (student) characteristics, (2) academic preparation, and (3) financial aid to predict the student

outcomes of persistence and success. Chapter II provides a fuller discussion of the conceptual model as well as a visual representation.

METHODOLOGY OVERVIEW

This study used logistic regression analysis to identify how financial aid impacts the odds of undocumented students persisting at or graduating from a public four-year institution. This study used public higher education and public education data collected by THECB and TEA, housed at the Texas ERC, from FY 2003 to FY 2012. Native-born Latina/o students were used as a control group due to their similar demographic and educational profiles. The study followed two cohorts of students from two different years of matriculation: FY 2003 and FY 2007.

SCOPE AND LIMITATIONS

Scope. This study reviewed the persistence and success of two cohorts of entering first-year undocumented students at four-year public universities in Texas. The first cohort entered higher education in FY 2003⁸ (the first full year ISRT was available) and was reviewed until FY 2008. The second cohort entered higher education in FY 2007⁹ (the first full year after the clarifying legislation) and was reviewed until FY 2012. I focused on public four-year institutions only because the issue of public monies are addressed both by this study and the political environment. I also focused on four-year institutions as much of the community college data lacked financial aid data.

⁸ The effective date of H.B. 1403 (2001) was September 1, 2001, almost a month after higher education students started the Fall semester.

⁹ The effective date of S.B. 1528 was September 1, 2005, almost a month after higher education students started the Fall semester.

Additionally, public health institutions are not included since this study focuses on the undergraduate experience.

This research is a context-specific study regarding a policy in Texas. Though this study is specific to Texas, Carter and Hurtado (2007) identify that context-specific studies play “an important role in understanding the universality of truths we uncover in our efforts to improve postsecondary education” (p. 31). The authors also state that context-specific studies must “highlight the unique aspects of the context” being studied and must “adhere to methodological rigor” (Carter & Hurtado, 2007, p.31). The findings of this study can inform states without ISRT policies, states with ISRT policies but no financial aid, and states that restricted access higher education and to financial aid for undocumented students.

Limitations. Several limitations exist in researching undocumented immigrants, not the least of which is their vulnerable status. In the following section I identify additional limitations and methods used to address them.

Identification. The passage of S.B. 1528 (2005) in Texas provided ISRT to any individual who met the residency requirements as an attempt to undermine the argument that the ISRT policy targeted only undocumented students (Texas Higher Education Coordinating Board, 2008b). By this policy, individuals who are not undocumented students may be identified through their tuition status (i.e., residence status based on Section 54.052(a)(3) of the Texas Education Code). Tuition status and residency will act as proxies for undocumented college students in Texas. Additionally, this population can be identified through their ineligibility to access federally-funded financial aid programs.

Financial aid subjectivity. Financial aid decisions are calculated based on a number of factors including need and merit. Additionally, decisions are made by the expertise and discretion of financial aid officers. In other words, there is no standard method for allocating funds. This is not to say the decisions are arbitrary, only that the process may vary from institution to institution.

Population size. In comparison to the 1.3 million students participating in public higher education in 2013 (Texas Higher Education Coordinating Board, Texas Higher Education Data, 2015), the undocumented student population was 24,760, less than 2% of the student population. Of the undocumented population in 2013, 71.6% attended community colleges, while 28.3% attended four-year universities (Ura & McCullough, 2015). Additionally, the proportion at specific institutions will be substantially smaller. Analysis of the results took into account that there may be some bias due to the small population.

High school graduation plan. The high school graduation plans used as proxies for academic preparation were implemented in 2001, which means that many students in the first cohort were not identified with a plan or only had a year or two under the plan. Additionally, the high school graduation plan many have not been consistently implemented for Cohort 1. These two issues may impact the impact of academic preparation for Cohort 1. Cohort 2 should not be impacted.

Self-selection. All college students self-select into certain institutions based on academic preparation, individual characteristics, and financial aid issues. Additionally, societal, institutional, and systemic factors influence a student's choice of the type of

college they will and can attend. Undocumented students may not choose to enter higher education, at even higher rates than their Latina/o and low-socioeconomic peers, because of limited future employment opportunities, limited financial resources and access to credit and loans, issues regarding their status, etc. Self-selection limits our understanding of factors that also influence persistence and success for undocumented students.

Missing data and mis-entry. Data for this study are collected from 38 universities and over 1,200 school districts. It is to be expected that some data may be missing or mis-entered. In addition, some universities did not start identifying their undocumented students until 2005. I attempted to limit the error created by missing data and mis-entry by using an integrated dataset with multiple undocumented student identifiers to uncover students who were mislabeled.

Data limitation. Variables that would have aided in examining persistence and success were unavailable in the datasets that were used in this study. These include: education preparation data (e.g., high school GPA); higher education experiences (e.g., participated in high impact experiences); and external factors (e.g., dependents, working full-time, etc.). This lack of data may lead to omitted data bias.

Key Terms. Throughout the study I use several terms to describe groups and behaviors. The following are some of the key terms.

Latina/o is utilized to describe individuals with cultural backgrounds in Latin America including, Mexico, Central America, the Caribbean, and South America.

Hispanic may also be used, in particular when organizations (e.g., U.S. Census Bureau,

Pew Research Center, Texas Higher Education Coordinating Board, etc.) employ this terminology.

African American, Black, and non-Hispanic Black are used interchangeably to include individuals of African origin who do not identify as Latina/o. *Black* will consciously be spelled with a capital “B” per Harris (1993) and Crenshaw (1988) to define a culture group, or as Crenshaw (1988) articulates, “Black, like Asians, Latinos and other ‘minorities’ constitute a specific culture groups and as such require denotation as a proper noun” (p. 1332, n.2).

Undocumented immigrant describes immigrants who are not currently authorized to be in the United States. Some may object to this terminology as a form of revisionist language. I use this term in contrast to illegal alien and even illegal immigrant because of the pejorative undertones and the focus on a perceived criminal activity. In contrast, Ngai (2005) claims that it is a precise term, as it identifies a “[a person who is not a citizen] who is unlawfully present...or who otherwise commits a deportable offense” (p. xi). Further, Ngai (2005) states that “not all illegal aliens are illegal because they lack documents; there are other types of unlawful presence and other grounds for deportation” (p. xi). Even “undocumented” is inaccurate as some, including DACA recipients, have a legal status to be in the U.S. and have legal documentation. Nonetheless, the derogatory connotations related to the term “illegal alien” and its use to dehumanize this population dissuades me from Ngai’s arguments. I also use the term “undocumented student” to identify all undocumented students in K-12 and higher education, and will clarify if the student is in higher education with “undocumented college students” when necessary.

Success and persistence are the key learning outcomes investigated in this study. Success is defined as degree-attainment and not certificate-attainment due to a lack of wide spread use of certificates by institutions. This issue is discussed in more detail in Chapter III. Persistence is defined as year-to-year enrollment (Fall Year 1 to Fall Year 2).

ORGANIZATION OF STUDY

In Chapter II, I extensively review literature regarding financial aid, its history, its impact on student success outcomes, and its impact on historically underrepresented groups. I also examine research regarding persistence and degree attainment, including early model of retention as well as new models focused on students of color, low-income students, as well as review factors such as student background, academic preparation, and financial aid that impact student success outcomes. Additionally, I review research regarding undocumented students, including research on student behavior such as enrollment, persistence, and success. I also review ISRT policies and their effects on student success outcomes. I examine research on the lived experiences, or *testimonios*, of undocumented students. I also review critical immigration theory, membership theory, and a cultural wealth framework. Finally, I detail the conceptual framework used for this study.

In Chapter III, I outline the methodology I followed for the study. I present the research questions that guided my study. I describe the data used, the methods used for cleaning and conditioning the data, as well as the statistical software packages utilized. I define the variables used in the analysis. I provide a descriptive analysis of the

undocumented student population at public universities in Texas. I explain limitations to my study.

In Chapter IV, I present my findings. Findings are explained by research question, by cohort, and by disaggregated financial aid (i.e., aid that is divided by type: gift, loan, other, and work-study aid) and then by aggregated financial aid (i.e., total aid). I present statistical tables to provide visual representations of the findings. I also discuss differences in the findings of Latina/o and undocumented students.

In Chapter V, I provide a review of the first three chapters and discuss the findings presented in Chapter V. I provide background information regarding undocumented immigrants and undocumented students, a short review of the literature, and a review of the methodology employed and the research questions. I discuss the findings and provide literature to support the findings. I also provide recommendations for future research regarding undocumented students in relation to financial aid and student success outcomes. I then provide policy and practice recommendations in light of my findings. Finally, I summarize the research study.

Chapter II: Literature Review

This study examined the effect of state and institutional financial aid on the persistence and success of undocumented college students at four-year public institutions of higher education in Texas. This second chapter reviews research regarding four components of the study: persistence, success, financial aid, and undocumented students. First, I provide a context of financial aid, specific information regarding financial aid in Texas, and a review of the financial aid literature. I discuss the impact of financial aid on persistence and success in their respective sections. Second, I review persistence research, including foundational retention models, persistence in relation to underrepresented students, and factors, including financial aid, that impact persistence. Third, I review success research, including factors that impact success such as, academic preparation, demographic factors, and financial aid, as well as success in relation to underrepresented groups. Fourth, I review literature regarding undocumented students, including persistence and graduation of undocumented students, and research regarding personal narratives. Finally, I present the conceptual framework of the study.

FINANCIAL AID BACKGROUND

Modern U.S. higher education financial aid was created by the Guaranteed Student Loan program of the Higher Education Act of 1965 (Pub. L. No. 89-329, §§ 421–435, 79 Stat. 1219, 1236–49 (1965) (codified as amended at 20 U.S.C. §§ 1071–1087-4)). It expanded to include targeted aid for needy students with the Basic Education Opportunity Grant (BEOG), known as the Pell Grant, established by the 1972 Higher Education Act Reauthorization (Higher Education Amendments of 1972, Pub. L. No.

92- 318, § 131, 86 Stat. 235, 247–60 (1972) (codified as amended at 20 U.S.C. §§ 1070–1070h)) (Long, 2008; Heller, 1997). The Pell Grant continues to be the largest need-based grant program in the United States (Long, 2008). In fiscal year (FY) 2014, Texas distributed \$2.00 billion in Pell Grant money, or 44.7% of all grant aid (Texas Higher Education Coordinating Board, 2015).¹⁰ Between FY 2008 and FY 2012 there was a marked increase in federal grant aid awarded due to (1) increased number of needy students enrolling, and (2) an increase in the number and average amount of Pell Grant awards (Texas Higher Education Coordinating Board, 2013). This changed in FY 2012 as the average award for Pell Grants fell and federal grant aid flattened (Texas Higher Education Coordinating Board, 2013). Though most federal grants are need based, merit-based grant funding has become more popular as it directs scarce resources to high-achieving students (Hoxby, 2000; Long, 2008). In contrast to need aid, merit aid disproportionately benefits high-income students (Long, 2008).

In the past 20 years, due to the decline of federal grant aid, loans make up the largest form of federal aid (Long, 2008). In Texas, \$4.90 billion was distributed in loan aid in FY 2014. Although substantial, as a percentage of aid loan aid has been slowly decreasing from 59% in FY 2005 to 51.9%, in FY 2014 (Texas Higher Education Coordinating Board, 2006, 2015).

Work-study, the third and smallest form of aid (Long, 2008) “provides part-time jobs for undergraduate and graduate students with financial need” (U.S. Department of

¹⁰ This number does not include for-profit institutions, and only identifies money distributed to non-profit public and independent institutions.

Education, Office of Federal Student Aid, 2014). In Texas, work-study accounted for \$60 million or 0.7% of all aid in FY 2014 (Texas Higher Education Coordinating Board, 2015).

In addition to federal funds, states and higher education institutions also distribute targeted aid to students including grant, loan, and work-study aid. In Texas, institutional aid accounts for 13.5% of all aid while the state supplies 6.5% of all financial aid in FY 2014. Federal aid accounted for 71.1% of all aid, while “other”¹¹ aid accounted for 8.9% in FY 2014 (Texas Higher Education Coordinating Board, 2015).

Impact of financial aid. Financial aid impacts potential and current students in ways that influence student behavior and outcomes, such as college-going behavior and completion. As stated in Chapter I, financial aid was created to recognize talented students and help needy students access higher education (Heller, 1997). Financial aid has been shown to influence student behavior, including enrollment, retention, academic performance, and degree attainment.

In an early work, Jackson (1978) found that students who receive financial aid were 8.5% more likely to participate in higher education than their peers who received no aid. Leslie and Brinkman (1987), in their extensive review of financial aid literature, evaluated student response to price changes in tuition on the institutional level and found that tuition reduction increased enrollment more than increasing tuition reduced enrollment. Tuition sensitivity, the responsiveness of students to tuition increases, is

¹¹ Other aid includes categorical aid, institutional merit aid, alternative loans, and other types of aid that are too small for their own categories (Texas Higher Education Coordinating Board, 2015).

more strongly related to a number of sociological variables, such as socioeconomic status (SES) and parental education, than college price, and thus, better predicts college enrollment (Leslie & Brinkman, 1987). Leslie and Brinkman (1987) also identified that enrollments at institutions nationwide did not decrease due to increased tuition rates. During this time the amount of financial aid distributed increased exponentially, women increased their participation, there was an increase in the perceived return on investment from a college degree, and students began to attend less expensive institutions at higher rates (Leslie & Brinkman, 1987). Since then, higher education and financial aid have changed dramatically.

Tuition has increased much faster than personal income (Long, 2008) due mostly to the divestment of states in their higher education institutions (Rampell, 2012a, 2012b; Tandberg, 2010), an increase in college administrators, and capital spending (Rampell, 2012a, 2012b). Federal assistance has moved from a reliance on federal grants to federal loans (Dynarski, 2002; Long, 2008). Students continue to attend less expensive institutions, though low-income and students of color attend these institutions at disproportionate rates (Adelman, 2006). Heller (1997) found that students from community colleges and African American and Latina/o students were more tuition-sensitive. These students are more likely to be negatively impacted by tuition changes (Dowd & Coury, 2006; Heller, 1997).

Rational actors. The term rational actor(s) is used to denote an individual or group who can “calculate the likely costs and benefits of any action before deciding what to do” (Scott, 1999, p. 126). In terms of financial aid, behaving as a rational actor would

mean that students deciding about attending or persisting in college would make rational decisions based on their economic and financial background. Heller (1997) and Avery and Hoxby (2004) argue that students do not behave as rational actors. Heller (1997) states that students respond differently to various types of aid (e.g., loans, grants, etc.) even if the amount is the same. Additionally, students are often affected by the sticker price of tuition, and are either unaware of financial aid or do not believe they will qualify for financial aid (Heller, 1997). Students also superficially attracted by aspects of grant aid, such as the appeal of being awarded an endowed (or named) scholarship (Avery & Hoxby, 2004). Students also are more attracted to loans and work-study than grants due to the amount that loans and work-study offer (Avery & Hoxby, 2004) even is the subsidy is much lower than grant aid (Dynarski, 2002). Many students who are eligible for financial aid fail to complete financial aid forms, and community college students are the least likely to begin the process (American Council on Education, 2006; Gidjunis, 2004).

At times, rational actor discourse uses deficit language to discuss student behavior. To counter this, Tierney and Venegas (2009) recommend the use of both a rational choice model and a cultural framework to better identify factors that would affect the decision-making process. Their cultural ecological framework positions individuals as agents in their own lives, while still a part of a social environment, making decisions based on the social norms and rules of a larger community. The authors state that a rational choice model assumes that students make linear decisions that are focused on a cost-benefit analysis. They argue that a student's decision to attend a college or

university is non-linear, with several social and environmental outputs that influence behavior. In particular, students of color and low-income students are affected by “social context and access to resources [that] shape the decision making processes in ways that belie the possibility of fully informed decision making” (Tierney & Venegas, 2009, p. 370). This framework informed my analysis regarding persistence and success behavior for undocumented students. Their decisions to pursue a college degree, persist, and complete are not solely predicated on access to financial aid or the amount. Other issues, such as access to legal documentation, fear of deportation, access to post-college employment opportunities, family responsibilities, and other financial and social concerns, as well as academic performance (i.e., GPA), all impact a student’s decision to continue or exit higher education.

Latina/o participation in higher education and financial aid. In the past 50 years Latina/os have made great strides in participation in higher education. Swail et al. (Swail, Cabrera, & Lee, 2004) found that 82% of Latina/o students that complete high school enter higher education by the age of 26. Only Asian American students participated in higher education at higher rates (Swail et al., 2004). In 2012, 2.98 million students, or 68.5% of all Latina/o high school completers entered higher education (National Center for Educational Statistics, 2013a). Unlike Asian American and White students, Latina/o students are highly concentrated in community colleges (Fry, 2002; Heller, 1997), with almost half of Latina/o students enrolled in a two-year institution (National Center for Educational Statistics, 2013b). In comparison, fewer than a third of

White students enroll in two-year institutions (National Center for Educational Statistics, 2013b).

Financial aid is an important factor for Latina/os in persisting and earning a degree. Nora (1990) found that financial aid was a significant variable in the retaining Latina/os at community colleges, more so than a student's high school or college GPA. The author argues that Latina/o students are not leaving higher education due to academic issues, but rather due to financial constraints (Nora, 1990), including unmet need, difficulty navigating the financial aid process, and an aversion to accumulating debt.

Latina/o students also may be less knowledgeable about financial aid (Heller, 1997; Kao & Tienda, 1998). Kao and Tienda (1998) identified that having a low socio-economic status (SES) was a major barrier to accessing higher education. The authors state that having a low income could make college an "impossible dream," as students may believe that they are ineligible for financial aid (Kao & Tienda, 1998). O'Connor et al. found that a lack of knowledge regarding financial aid inhibits access to higher education for Latina/os and contributes to Latina/o overrepresentation at two-year institutions (O'Connor, Hammack, & Scott, 2010).

The types of financial aid (i.e., gift, loan, and work-study aid) they receive also affect Latina/os differently. In the past Latina/os relied heavily on grants (Olivas, 1985), but in Texas Latina/os have increasingly begun to take out loans and increased their loan amounts. Alon (2007) found that gift aid increased parity between students of color (Latina/os and African American students) and White students at elite private institutions. Ishitani (2006) found that first-generation students, including Latina/os, who had grant or

work-study aid were less likely to leave higher education than those who did not have financial aid although Latina/os were less likely to graduate than White students. Gross et al. found that grants help Latina/os persist, but federal grants and loans do not significantly impact graduation (Gross, Torres, & Zerquera, 2012).

As financial aid policies have changed to favor loans over grants (Long, 2008), Latina/os had been asked to accept more student loans. St. John and Noell (1989), also found that the extension of loans did not increase the accessibility of higher education to Latina/os. Latina/os have generally been found to shun loans due to an aversion in accruing debt while also relying on employment to fund their higher education. Unfortunately, this may lead to negative educational outcomes, such as attrition, poor integration, and delayed graduation (Crisp & Nora, 2010; Hu & St. John, 2001).

Debt aversion (Chen, 2008; Crisp & Nora, 2010), credit and liquidity constraint (Avery & Hoxby, 2003; Chen, 2008), and price elasticity of demand (Chen, 2008) are exacerbated by a lack of knowledge regarding financial aid (Dowd & Coury, 2006). Credit constraint and liquidity constraint signal limitations to funds or credit that a family or individual may access to fund higher education. Credit and liquidity constraints can originate from poor credit or ignorance of how to access credit, funds, or financial aid for higher education (Avery & Hoxby, 2003). Price elasticity of demand is the proportionate change in demand by the proportionate change in price (Chen, 2008). Latina/os have higher price elasticity for higher education than other groups. That is, the choice to attend higher education relies heavily on the price of higher education. For their White peers, the cost of higher education is price inelastic (Chen, 2008).

Finally, very little has been written regarding work-study aid. Ishitani (2006) found that first-generation students with work-study jobs in their first year are more likely to persist than students who do not. Velez (1985) found that work-study positions helped a student better integrate into their college and aided in persistence. But Swail et al. found no significant difference in the effect of grants, loan, or work-study on the persistence of Latina/os (Swail, Cabrera, Lee, & Williams, 2005).

Undocumented students are generally absent from the financial aid conversation, due to their inability to access federal financial aid funds (U.S. Department of Education, Office of Federal Student Aid, 2014). Instead, price-reduction, in the form of in-state resident tuition (ISRT), has been used to discuss price-sensitivity of undocumented immigrants in terms of their participation or non-participation in higher education. Flores (2010) and Flores and Chapa (2009) found that undocumented students enroll in higher education at similar rates as their native-born Latina/o peers in states with ISRT policies. Additionally, Flores and Horn (2009) found that undocumented students in an ISRT state who have access to financial aid persist at a selective four-year university at similar rates as their native-born Latina/o peers. In contrast, Diaz Strong et al. found that undocumented students in an ISRT state without financial aid struggled to finance their education and had to attend part-time, work-full time, and stop out to earn funds to attend college (Diaz-Strong, Gómez, Luna-Duarte, & Meiners, 2011). The impact of tuition reduction is discussed further in the “Undocumented Student” section.

Financial aid influences student behavior and choice. In the next two sections, I discuss persistence and success generally, and then discuss the intersection of financial aid and persistence and degree attainment.

PERSISTENCE

Persistence is defined as a student's continuation in higher education from one year to the succeeding year (Dowd & Coury, 2006; Texas Higher Education Coordinating Board, 2012), term-to-term enrollment (Cabrera, Nora, & Castañeda, 1992; Hu & St. John, 2001), continuous enrollment (Crisp & Nora, 2010), continued enrollment or degree attainment within a certain number of years (Pascarella, Smart, & Ethington, 1986; Titus, 2004, 2006b), or eventual attainment of the degree (Pascarella et al., 1986; Texas Guaranteed Student Loan Corporation, 1999). In this study, persistence is defined as year-to-year enrollment (i.e., Fall Year 1 to Fall Year 2), which is modeled after the IPEDS definition of retention (U.S. Department of Education Institute of Education Statistics National Center for Educational Statistics, n.d.).

Some confuse the terms *persistence* and *retention*. Persistence, unlike retention, situates the action of continuing education in the hands of the students. Students are actors in their own educational career, not molded by the actions of institutions (Adelman, 2006; Tierney & Venegas, 2009). Retention on the other hand, locates the center of control at the institutional level (Adelman, 2006). The location of responsibility and choice with the student, as well as recognition of agency and power makes *persistence* the more meaningful term for this study.

The definition of enrollment behavior often varies by the type of student, type of institution, and variables reviewed. “Year-to-year” may be more likely to be used for traditional college-age students who attend four-year institutions (Bean, 1980, 1985; Cabrera, Castañeda, Nora, & Hengstler, 1992; Pascarella & Terenzini, 1983, 2005; Tinto, 1975). Hu and St. John (2001) posit that traditional college-age students “reflect on the academic and social aspects of their college between years,” and year-to-year persistence may be more appropriate for these students (p. 266).

On the other hand, “term-to-term” is more appropriate for non-traditional aged students and/or students who attend two-year institutions. These students are more likely to have irregular attendance due to financial pressures, family responsibilities, and other external factors (Bers & Smith, 1991; Voorhees, 1987). Nonetheless, investigating persistence in community colleges have used year-to-year persistence measures (Crisp & Nora, 2010; Dowd & Coury, 2006). Finally, “term-to-term” enrollment is the most useful in identifying the effect of financial and economic variables on persistence (Hu & St. John, 2001). I chose to define persistence as year-to-year since the students in the study attended four-year institutions and is similar to the definition used by IPEDS (U.S. Department of Education Institute of Education Statistics National Center for Educational Statistics, n.d.).

Foundational research models of persistence. The foundational works in persistence are Tinto’s (1975) Student Integration Model and Bean’s (1980, 1985) Student Attrition Model. Tinto’s model stemmed from Durkheim’s (1961) suicide model, which stated that suicide is more likely to happen when individuals are not

integrated well into society. Durkheim's model influenced Tinto (1975) to identify social integration as a key indicator in reducing student dropout behavior. Tinto's model focused on the longitudinal process of attrition, which recognizes interactions between the individual student and the academic and social systems at the institution. The Social Integration Model uses five forms of variables that impact the student's decision to remain or leave an institution, which include: (1) student's demographics, individual attributes, and academic preparation; (2) goal and institutional commitment; (3) interactions with peers and faculty, and academic success; (4) academic and social integration, which will reinforce (5) goal and institutional commitment (Tinto, 1975).

Numerous studies have used the Student Integration Model either in part or in its entirety (See, Cabrera, Castañeda, et al., 1992; Chen, 2008; Cofer & Somers, 2000; Conway, 2009; Dowd & Coury, 2006; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; St. John, Andrieu, Oescher, & Starkey, 1994; St. John, Hu, & Weber, 2001; St. John, 1994). When using Tinto's model, Kuh et al. (2008) found that student educational engagement in purposeful activities led to higher first-year grades and increased persistence. The need for student integration, or membership, is seen as an integral construct within models studying financial aid (Cofer & Somers, 2000; Dowd & Coury, 2006; St. John, 1994; St. John et al., 1994, 2001), immigrant students (Conway, 2009), and students of color (Hurtado & Carter, 1997; St. John et al., 2001).

Still, Tinto's model has been criticized for a number of flaws. Bean (1980, 1985) observed that the Student Integration Model lacked consideration of the impact of external forces on student persistence or attrition. Additionally, he noted that the path

structure failed to recognize the directional causality of the variables within the process.

Bean (1980, 1985), in response to gaps in Tinto's model, used Price (1977) and Price and Mueller's (1981) work regarding industrial employee turnover to study higher education student attrition and create his Student Attrition Model.

Bean (1980) used four sets of variables to create his causal model: (1) background or student characteristics; (2) organizational determinants or institutional experiences and interactions; (3) intervening variables such as student satisfaction and institutional commitment; and (4) the dependent variable of "dropout." Bean (1980) found that institutional commitment and routinization, or "the degree to which the role of being a student is viewed as repetitive" (p. 159), were important components in reducing dropout behavior. External forces affecting persistence in this study were identified as "alternative roles" that the student may pursue instead of being a student (i.e., transferring, working, or returning home).

In an expansion of his prior study, Bean (1985) reformulated his model to include exogenous variables (e.g., academic, social-psychological, and environmental factors), and endogenous variables (e.g., college grades, institutional fit, institutional commitment), that leads to persisting or dropping out of college. This model argues not only that environmental factors such as finances could lead to dropout behavior, but also that peer attitudes and support are important factors in the retention of students.

Tinto's and Bean's models continue to provide the basis of most current persistence models, but new models are emerging to capture the experiences and diverse backgrounds of the modern college student. This includes models that address students

of color, women, first-generation, post-traditional students, etc. In the next section, I discuss critiques of Tinto's and Bean's models and present several new models of persistence that expand traditional models to include diverse communities.

New populations in persistence and models. The main critique of the Social Integration and Student Attrition models is their exclusion of underrepresented populations. As an example, Bean's (1980, 1985) Social Attrition model's demographic were non-Hispanic White, traditional-age, United States citizens who were single. New models challenge the Social Integration and Student Attrition models by expanding the student population studies to see how these students experience and integrate into higher education. Hurtado and Carter (1997) found that historically underrepresented racial groups defined integration into higher education differently than their White peers. For example, Latina/o students defined membership as affiliation in multiple peer groups, and not as participation or non-participation in college (Hurtado & Carter, 1997). The authors also found that multiple peer membership increased Latina/o students' persistence in higher education. This finding expands Bean's (1980, 1985) conclusion that peers have a direct and significant impact on students' persistence.

Hurtado and Carter (Hurtado & Carter, 1997) found that Latina/o students' participation in such as social-community and religious organizations increased their persistence. The authors posited that these organizations allowed students of color to connect with external groups that facilitate a connection to pre-college communities. These connections to outside communities allow Latina/os at predominantly White institutions to feel at home on their campuses (Hurtado & Carter, 1997). In contrast, the

authors found that Latina/o students who perceived a hostile campus environment had a lower sense of belonging (Hurtado & Carter, 1997).

Another critique of the Social Integration and Social Attrition models is the passive role of the institutions. Students are expected to access resources, connect with faculty, facilitate peer groups, and cultivate a positive relationship with the institution, but there is no expected reciprocity from the institution. Authors have argued that hostile environments and discriminatory atmospheres may exist on at higher education institutions and negatively impact underrepresented groups (Hurtado & Carter, 1997; Hurtado, Carter, & Spuler, 1996). Studies of public and private four-year institutions in Indiana, found that African American students did not persist at the same rates as their White peers within the same academic disciplines (St. John et al., 2001). Issues of low academic achievement and social capital do not fully explain the variance in the outcomes. It was hypothesized that a discriminatory environment may be impeding student achievement in the state's higher education institutions (Carter, 2006). Additionally, Hurtado and Carter (1997) found that ease of transition into higher education helped fashion a student's perception of a welcoming or hostile environment. If Latina/o students identify their college campus as hostile, they may wish to disassociate from the institution leading to possible attrition (Castillo et al., 2006).

Limited research exists regarding undocumented students and persistence, but new studies have begun to emerge. Flores and Horn (2009) found that undocumented students who attended a prestigious public four-year institution in a state with an ISRT policy and financial aid for undocumented students persisted at similar rates as their

native-born Latina/o peers. In another study, undocumented students in a state with an ISRT policy but no financial aid persisted at a higher rate than their citizen peers (Conger & Chellman, 2013). Conway (2009) also found that immigrant students (Latina/o, African, and Asian/Pacific Islander) persist at similar rates as their native-born peers in community college settings. Yet, the author found that persistence rates depended on race and attendance in U.S. or foreign high school. Black immigrants who had been educated in foreign high schools persisted at higher rates than other groups including Latina/o immigrants who had been educated in the United States. This difference may be due to language issues for Latina/o immigrants (Conway, 2009).

Financial aid and persistence. Research regarding the effects of financial aid on persistence has been developing and evolving for the past 20 years. Although Bean (1985) identified that finances may lead to leave behavior, the direct and indirect influence of financial aid has only recently begun to emerge. St. John et al. (1996) identified the need to create an integrated model of persistence that includes student background, college choice, college experience, college aspirations, and price (i.e., financial aid, tuition charges, and living expenses).

In addition to integrated models that include financial aid, examination of the specific effects by type of aid (i.e., grants, loans, and work-study) has become even more important, as both federal and state policy regarding student financial aid has “shifted from need-based grants to merit-based aid, student loans, and tax credits” (Long, 2008, p. 1-2). This change is a fundamental shift from the perception of higher education as a public good (St. John, 1994) to higher education as a personal benefit.

Studies differ on how financial aid impacts persistence. Jensen (1981) found that financial aid increased persistence in the first year, but that a perceived financial unmet need still negatively impacted students (Jensen, 1981). Perna (1998) found that simply receiving financial aid did not impact persistence, but rather the type of financial package a student received did make an impact. The author found that financial aid packages that contained work-study funds and packages that contained only grants positively affected persistence (Perna, 1998). Perna (1998) also found that grants were more effective in increasing persistence than loans. Research has also found that financial aid assists in student integration. Cabrera, Nora & Castañeda (1992) argue that financial aid can facilitate social interaction, and thus indirectly lead to increased persistence. Crisp and Nora (2010) found that high levels of financial aid increased the odds of persisting for Latina/os community college students who intended to transfer to a four-year institution.

Grant aid, i.e., gift aid that does not need to be repaid (Long, 2008), is considered to be an equalizer for higher education, providing funding, often in the form of Pell Grants (Long, 2008; Dynarski, 2002; Chen, 2008). In Indiana, state grant aid was shown to level persistence, with students from low-income and upper-middle income families persisting at similar rates (St. John et al., 2001). Cofer and Somers (2000) found grants increased persistence for community college students, while Dowd and Coury (2006) found that grant aid did not affect persistence of community college students. On the other hand, St. John, et al. (1994) found that grant aid, by itself or with loans, negatively impacted persistence of traditional age students at four-year institutions. Only when the financial aid package had all three forms of aid was the package positively statistically

significant for students at four-year universities (St. John et al., 1994, 2001). The findings of no or low effect of grants on persistence may be due to the impact of unmet need, i.e., insufficient aid (St. John et al., 1994), or a systemic reduction in grant funding (St. John et al., 2001). As with research on grants, research on student loans has also found mixed results on persistence.

In the past 20 years, as federal grant dollars per student has diminished, loans have become the most prominent form of student aid (Long, 2008). Cofer and Somers (2000) found that loans aid in persistence in community college students. In contrast, Dowd and Coury (2006) found that loans had a negative impact on persistence for students at two-year institutions, though the authors note that loans may actually affect enrollment more than re-enrollment. Also, St. John et al. (2001) found that students in Indiana who received only loans, persisted no better than students who received no aid. Financial aid packages that included loans exclusively grants plus loans were negatively associated with persistence for students at four-year institutions (St. John et al., 1994). Earlier studies show that loans and loans plus grants aided persistence, but this may be due to changes in financial aid policy that moved to awarding more student loans than grants (St. John, Kirshstein, & Noell, 1991).

The reasons for conflicting findings regarding persistence and loans range from changes in federal financial aid policy (Cofer & Somers, 2000; St. John et al., 1991) to a focus on upper-income students (Dynarski, 2002). Dowd and Coury (2006) rightly note that a dangerous convergence is emerging: (1) a majority of community college students are not completing their academic programs (Fry, 2002; Long, 2008), and (2) an

increasing reliance on loans for higher education. Students who do not complete their degree may be struggle under a “burdensome level of indebtedness” (Dowd & Coury, 2006, p. 53).

Work-study has not been highly researched, but in general it has shown to increase persistence. Velez (1985) found that work-study aided in retaining a student as the position integrated the student into the college and connected them with faculty. Perna (1998) also found that students who had work-study funds persisted at higher rates than their peers who did not. Swail et al. (2005), though, found that work-study aid did not significantly impact Latina/o student persistence.

Finally, financial aid affects students differently not only by type of aid awarded, but also by ethnicity of the student. Hu & St. John (2001) found that different types of financial aid packages affected ethnic groups differently leading to dissimilar persistence outcomes. The authors divided financial aid packages in four categories: (1) grants only, (2) loans only, (3) grants and loans, and (4) other packages. In 1996-1997, the authors found that African Americans persisted at significantly higher rates when they received any form of financial package than those who received no aid. For Latina/o students all four financial aid packages aid in persistence, though a combination of grants and loans and other financial aid packages were found to be the most effective. White students on the other hand, were significantly affected only by a combination of loans and grants, as well as other aid packages, but at lower significance rates than their African American and Latina/o peers (Hu & St. John, 2001).

Financial aid acts to meet the financial needs of the student, but often a gap in cost and funding exists. Several authors have argued that unmet need is a principle factor in attrition (Long & Riley, 2007; Murdock & Others, 1995; St. John, Paulsen, & Starkey, 1996; Tinto, 2004; Titus, 2006a). St. John et al. (1996) found that inadequate financial aid led to student attrition. Murdock et al. (1995) found that unmet need and award amount, not financial type, were the most significant financial aid factors in retaining students from their second to third year. Tinto (2004) argued that low-income students have substantial unmet need, which influences them to attend two-year institutions, attend college part-time, live off-campus, and work longer hours. Unmet need can lead to students' increasing their non-academic work intensity instead of engaging in the campus community, which in turn acts as a pull factor that reduces persistence in Latina/os (Crisp & Nora, 2010). Unmet need can lead students to delay completion or to stop out to earn funds to continue their education (St. John, Paulsen, & Carter, 2005). The Advisory Committee on Student Financial Assistance (2001) stated that "excessive levels of unmet need" may lead low-income students to "abandon plans of full-time, on-campus attendance and attend part-time, work long hours and borrow heavily" (p. v.), leading to lower persistence. Long and Riley (2007) found that a decrease of need-based aid and an increase in loans, merit-based aid, and education tax breaks have led to an increase in unmet need for both low-income students and students of color. This is because loans, merit-based aid, and education tax breaks disproportionately benefit middle- and high-income families, and students of color are more likely to be low-income (Long & Riley, 2007).

Demographic and academic factors and persistence. In addition to financial aid, individual characteristics and academic factors also impact persistence. These include: race, gender, parental education level, income, dependency status, enrollment status, institution type, swirler status, and academic preparation.

Race, Latina/o. Latina/o students are less likely to persist than White students, although they enroll at higher rates than all groups except Asian Americans (Fry, 2002, 2004; Swail et al., 2005). Fry (2004) argued that Latina/os are less likely to graduate because they attend less selective institutions than their White peers; that is, they are more likely to attend two-year and open access institutions. Latina/os may also have low persistence rates as they are more likely to have parents who have low education attainment (Brown & Patten, 2014b), and students whose parents did not attend college are less likely to graduate (Choy, 2001). Additional factors such as low high school rigor (Adelman, 2006, 2008), influence of peers (Arbona & Nora, 2007), and racial climate (Hurtado & Carter, 1997) also impact Latina/o student persistence.

Gender. Research has shown that female students are more likely to persist than male students (Conger & Long, 2010; Hu & St. John, 2001; King, 2000). Conger and Long (2010) identified several factors that increase female persistence including: higher high school GPAs, college major selection, and college course selection. Sáenz and Ponjuan (2009) identified that Latino male students are less likely to persist than their Latina counterparts, possible because Latinas are more motivated and have better coping strategies than Latinos (Gloria, Castellanos, & Orozco, 2005) as well as a more positive self-image and stronger identification with their ethnic identity than their male

counterparts (Barajas & Pierce, 2001). Additionally, push and pull factors, such as working, needing to support one's family, and lower degree aspirations for Latino males compared to Latinas (Saenz & Ponjuan, 2009) may impact persistence.

Parental education. As stated earlier, low parental education can lead to lower persistence. Choy (2001) found that students whose parents did not attend college had lower persistence rates. Warburton et al. (2001) found that higher levels of parental education were positively associated with college persistence even when controlling for academic preparation. Crisp and Nora (2010) found that low parental education negatively impacted Latina/o community college students' persistence and transfer to a four-year institution.

Socio-economic status. Low SES has been shown to be a barrier for persistence (Cabrera & Nasa, 2001; Cabrera, Nora, et al., 1992; DesJardins, Ahlburg, & McCall, 2006; St. John et al., 1991; Titus, 2006a). Walpole (2003) identified that students who are low SES often display different behavior than their higher SES peers, such as the need to work full-time, be less engaged in college, study less, and have lower GPAs, all of which can inhibit a student from persisting and graduating. Titus (2006a) found that students with low SES were less likely to persist and graduate than students with high SES. Cabrera and Nasa (2001) had a similar finding. Cabrera et al. (1992) found that financial aid acted as an equalizer between low-income and higher-income students, although low-income negatively impacted persistence. DesJardins et al. (2006) found that being low-income reduces one's chances of persisting, and that racial differences were explained by income, age at higher education entry, and high school performance.

Finally, St. John et al. (1991) found that family income was significant in the persistence of a student from year three to year four and that as a result financial aid may not “entirely mitigate the negative effects of poverty on persistence” (p. 401).

Dependency status. Dependency status, being dependent or independent of one’s parents or guardians, also impacts student college persistence. Dowd & Coury found that identifying as independent decreased a community college student’s persistence. In contrast, St. John et al. (St. John, Hu, & Tuttle, 2000) found that being independent increased persistence for traditional-aged students at an urban public four-year institution.

Enrollment status. Enrollment status is defined as full-time or part-time academic status. In general, research has found that being a part-time student can negatively impact persistence (Adelman, 2006; Advisory Committee on Student Financial Assistance, 2001; Fry, 2002; Horn, 1996). Adelman (2006) found that being enrolled part-time reduced the probability of persistence and college completion. Horn (1996) also found that part-time status increased the chance of attrition. Fry (2002) also argued that part-time students had a greater risk of not completing a degree than full-time students. Finally, Crisp and Nora (2010) also found that enrolling part-time negatively impacted persistence for Latina/o community college students.

Academic preparation. Academic preparation is defined as the level of academic rigor a student experienced before entering higher education. Several authors have found that the more rigorous a curriculum a student has in high school, the better their academic outcomes (Adelman, 2006; Choy, 2001; Crisp & Nora, 2010; Warburton et al., 2001). Crisp and Nora (Crisp & Nora, 2010) found that Latina/o community college students

who had higher levels of high school math were more likely to persist and transfer to a four-year institution. Adelman (2006) identifies academic intensity as necessary for academic success. Warburton et al. (2001) found that more than 80% of students who persisted had taken a rigorous curriculum in high school. Academic rigor or intensity can be subjective, and several different proxies were used to identify rigor, such as Advance Placement (AP) courses (Adelman, 2006), the number of math courses completed (Crisp & Nora, 2010), or a curriculum that included science, math, foreign language, and AP courses or test scores (Choy, 2001; Warburton et al., 2001).

Swirler. Swirlers are defined in this study as students who are attending more than one institution simultaneously in their first year. Hurtado, et al. (2010) defined swirlers as “students with multi-institutional attendance that is multi-directional.” In this definition, students could swirl between institutions simultaneously or serially or both. Adelman (2006) found that students who “swirl” among institutions have low persistence rates.

SUCCESS

Success in this study is defined as degree attainment within six years. Nora and Crisp (2010) used a similar definition to study persistence and success for community college students. The authors’ definition also includes transfer from a community college to a four-year university within three year as a form of success (Crisp & Nora, 2010). Dowd and Coury (2006) also use degree completion as forms of success.

Success has become a vital indicator of achievement in higher education due to a demand for higher education accountability. With public resources diminishing and

higher levels of scrutiny on the return of public investment in higher education, elected officials and the public are insisting on higher levels of educational outcomes such as degree completion (Mallory & Clement, 2009). Texas has included increasing success measures as a major aim of its public higher education plan, with a goal of increasing the “number of degrees, certificates and other identifiable student success from high quality programs” within 15 years (Texas Higher Education Coordinating Board, 2000, p. 2). Texas is not on target to meet this goal and has created an accelerated plan to increase student success measures by focusing on Latina/o and African American students (Texas Higher Education Coordinating Board, 2010). Due to public demands, economic interests, and genuine concern about future employment and life opportunities following higher education, investigating factors that aid in degree completion has gained in importance (Long, 2008).

In the following sections, I outline factors such as race and ethnicity, socio-economic status, academic preparation, financial aid, and institutional action as they stimulate, inhibit, or do not significantly affect student success behavior.

Academic preparation. In Adelman’s (2006) extensive study, the author investigated the 1988 eighth grade cohort’s movement from secondary to postsecondary education to postsecondary graduation. The author identified academic preparation (i.e., academic rigor in high school) and immediate transition from secondary to postsecondary education (i.e., no lag time from high school graduation to Summer/Fall enrollment into higher education) as two key factors in predicting completion (Adelman, 2006).

Academic preparation has consistently been demonstrated as a predictor for student persistence (See Bean, 1980, 1985; Crisp & Nora, 2010; Kuh et al., 2008; Tinto, 1975). It also is an important factor for success. High school GPA, high school class rank, and highest math course completed positively predicted college graduation (Adelman, 2006). Additionally, level of rigor of high school math courses is a predictor of success for community college students (Arbona & Nora, 2007; Crisp & Nora, 2010). At four-year institutions, public and private, academic factors such as SAT scores, highly predict degree completion within six years (Titus, 2006). Academic rigor in the form of a combination of math, science, foreign language, and AP course or score also increased degree attainment (Choy, 2001; Warburton et al., 2001).

Adelman (2006) identified a rigorous high school academic experience as a prerequisite for success. The author also recommended a demanding and thorough curriculum with courses that challenge students with a high level of “academic intensity.” The author also noted that a student who did not require remediation would be more likely to complete a degree (Adelman, 2006). In contrast, Crisp and Nora (2010), found that participation in developmental education actually aided in a community college student’s degree completion and transfer to a four-year institution.

Though Latina/os often do not have access to Advance Placement (AP) courses and high-level courses (e.g., calculus, trigonometry, physics, etc.) (Adelman, 2006; Fry, 2002), graduation plans in Texas have attempted to address the need for academically rigorous preparation. The three plans, Distinguished, Recommended, and Minimum offer an array of academic courses (19 TEX. ADMIN. CODE §§ 74.62–.64 (2010)), although only

the first two plans are considered to meet all college-readiness standards. Though the graduation plans have been hailed as offering a clear blueprint to prepare students academically for higher education, there is still concern that students of color and low-income students will be tracked into less rigorous academic plans (A. Cortez, 2010; J. D. Cortez, 2010). Starting in academic year of 2014-2015, a new graduation program, the Foundation High School program, will be in effect for entering first-year students.¹² This program did not affect this study, as the impacted students were not part of the study.

Related to academic preparation is immediate enrollment into higher education after high school graduation. Students who delay enrollment into higher education after high school graduation reduce their chances of earning a degree (Adelman, 2006; Arbona & Nora, 2007; Crisp & Nora, 2010; Fry, 2002) and in transferring from a two-year institution to a four-year institution (Crisp & Nora, 2010). Community college students who did not delay their entrance to higher education significantly increased their probability of attaining a bachelor's degree (Arbona & Nora, 2007). Interestingly, non-delayed enrollment had a higher positive impact on completion of a bachelor's degree for community college students than for students who started at a four-year institution (Arbona & Nora, 2007).

Socio-economic status and social capital. Issues of academic preparation and delay of entry into higher education are often related to issues of socio-economic status (SES) and a student's social capital. Many students at two-year institutions are low-

¹² See the Texas Education Agency website at <http://www.tea.state.tx.us/index2.aspx?id=25769806149> for more information regarding the new Texas high school.

income students, who often attend part-time, as they work to finance their education (Fry, 2002; Long, 2008). Part-time status has shown to decrease success for students (Adelman, 2006; Crisp & Nora, 2010), and Latina/os in particular (Fry, 2002). Part-time status acts as an environmental pull factor (Crisp & Nora, 2010), delaying completion or leading to dropping out. This affect can be mitigated, though, if students complete at least 20 course credits by the end of their first academic year (Adelman, 2006). Continuous enrollment, even as a part-time student, is less harmful to success than excessive stopping out (Adelman, 2006). Stop-out periods and part-time status are often a result of the need to acquire money for school and/or a student's family (Fry, 2002) though stop-out behavior is more closely associated with a student's academic achievement in higher education, parental education, and low-SES (Horn & Carroll, 1998).

Working part-time also impacts a student's success rate. Working high and excessive hours per week (Crisp & Nora, 2010; Titus, 2006b) and transferring from a two-year institution to a four-year institution (Crisp & Nora, 2010) negatively impacted degree attainment. This is due to reduced time focusing on schoolwork and/or lower engagement in the college environment because of the need to finance one's education. In related research, Dowd and Coury (2006) did not find that low-income inhibited graduation for students at two-year institutions although Titus (2006) found that higher levels of SES positively affected degree attainment at four-year institutions.

Finally, parental education was found to be a significant positive predictor of degree completion (Adelman, 2006; Choy, 2001; Crisp & Nora, 2010; Warburton et al.,

2001). The higher the level of education a student's parent(s) achieved, the more likely the student is to attain a degree or certificate, and/or transfer.

Financial aid. Unsurprisingly, financial aid, or the lack thereof, can significantly affect the success of students in higher education. Unmet need, the net price to students after applying financial aid, is a main factor. Titus (2006) found that students at four-year institutions who had unmet need were less likely to earn a degree. Grants and loans were not found to aid in degree attainment for community college students though loans did negatively impact persistence (Dowd & Coury, 2006).

Several authors (e.g., Carter, 2006; Chen, 2008; Crisp & Nora, 2010; Hu & St. John, 2001; Long, 2008; Tierney & Venegas, 2009) have noted that the increasing reliance on loans to finance higher can have numerous negative impacts on low-income and middle-class students, especially if they do not earn a degree. Crushing debt, inability to pay back loans, loan default, and an aversion to taking on debt, which can lead to working more hours, all affect students during their college career and beyond.

Interestingly, states that allocated higher proportions of their state budgets to higher education and that utilized a higher percentage of tuition for instruction had higher rates of degree attainment (Titus, 2006b). It can be surmised that states and institutions that use higher amounts of their own resources, rather than relying more heavily on student tuition, have a higher investment in retaining and graduating their students.

Race, ethnicity, and immigrant status. Race and ethnicity as variables are not significant in understanding success when controlling for other factors (Adelman, 2006; Light & Strayer, 2002). Still, Latina/os and other historically under-represented groups

graduate at lower rates than Whites and Asian Americans (Fry, 2002). In 2012, almost 2.98 million Latina/o students were enrolled in higher education in the United States (National Center for Educational Statistics, 2013b). Of these students, 48.5% were enrolled in two-year institutions (National Center for Educational Statistics, 2013b). Community college students have lower degree attainment than their four-year university peers as these students are more likely to be enrolled part-time, working full-time, older, and be single parents (Fry, 2002; Long, 2008). All of these factors inhibit time for study and integration into campus life. These factors match issues that Latina/o students are facing as they pursue their college dreams (Fry, 2002). Latina/os are also more likely to be low-SES and have low parental educational attainment, both of which directly or indirectly inhibit their ability to earn a degree (Brown & Patten, 2014a).

Finally, the above-mentioned traits also impact immigrant students, as the foreign-born population is most likely to be Latina/o (Brown & Patten, 2014b). Latina/o immigrants are poorer, earn less, and have lower levels of educational attainment than the general public (Brown & Patten, 2014b). All these factors can negatively impact an immigrant student's persistence and graduation behavior. Rendón and Valadez (1993) found that immigrant students' low social capital acted as a barrier to their ability to transfer from a two-year institution to a four-year institution. Latina/o immigrant students also work at proportionately higher rates while in college as they often act as breadwinners for their families (Fry, 2002). In the next section, I discuss issues impacting undocumented immigrant students in higher education and how these issues intersect with similar concerns facing native-born Latina/o students.

LATINA/OS AND UNDOCUMENTED IMMIGRANT STUDENTS

Higher education. Undocumented students must complete several levels of educational success, including grade promotion, passage of accountability measures, graduation, college application, and acceptance before they even arrive at the opportunity of college. Low graduation rates for Latina/os diminish the numbers of these students participating in higher education (Crisp & Nora, 2010), and immigrants, particularly those with limited English proficiency, have even lower high school graduation rates (Swanson, 2004). Undocumented students have low participation rates, making up only 1% of all college students (Passel, 2003).

Latina/os and undocumented students have similar educational outcomes in higher education in states with ISRT policies that also provide financial aid to undocumented students. Undocumented students participate and persist in higher education at rates similar to those of their Latina/o peers in IRST states (Flores, 2010; Flores & Horn, 2009). Rates for participation of undocumented students increased in states with ISRT policies (Flores, 2010). These rates are also higher for female students and for those who reside in metro (i.e., urban and suburban) areas (Flores, 2010). Additionally, students who benefit from the ISRT policy at a selective public higher education institution in Texas graduate at the same rates as their Latina/o counterparts (Flores & Horn, 2009). In states with ISRT policies but no financial aid, the picture is different. Diaz-Strong et al. (2011) described the struggle that undocumented students with ISRT but no financial aid face in financing their college career, including working full-time and stopping out to earn funds. Conger and Chellman (2013) found that

undocumented students in a state with ISRT but no financial aid persist at similar rates as their citizen peers, but do not graduate at similar rates. The authors posit that increased costs associated with higher education, including financial costs and stress, may inhibit undocumented student degree attainment (Conger & Chellman, 2013).

Unfortunately, the majority of research regarding educational outcomes is focused on four-year institutions while the majority of undocumented students attend community colleges (Flores & Oseguera, 2009). This, too, is the case for their native-born Latina/o counterparts (Fry, 2005). As a result, a major gap in our understanding of undocumented college students exists, though recent research regarding community colleges, Latina/os, and undocumented immigrants will provide greater insight over time (Flores & Oseguera, 2009; Teranishi, Suárez-Orozco, & Suárez-Orozco, 2011).

FRAMEWORKS

Policy and politics. The issue of undocumented students in higher education can be better understood within an immigration policy framework. Martin (2008) provides a framework that describes groups with competing interests regarding immigration policy. The first group consists of the “Advocates,” who believe in increasing the number of immigrants allowed into the United States, as well as the protection and extension of rights to them. They also recommend the creation of a process for citizenship and permanency for immigrants. Organizations within this group include the National Immigration Law Center and the Roman Catholic Church. The second group, the “Free Marketers” strive for cheap labor to maximize profits and thus support increasing the number of immigrants. But their focus is on temporary workers rather than permanent legal residents (i.e., immigrants), and

they are unwilling to expand rights, such as workers' rights, health care, citizenship, etc., which would reduce their financial return. This group is composed of the U.S. Chamber of Commerce and business interests, in particular, manufacturing, agriculture, and construction. "Restrictionists" make up the third group. Their goals are to restrict the rights of immigrants by constraining the number of immigrants who can enter the country, with and without documentation. Issues of national security and the impact of cheap labor on native population employment influence their attitudes. The Federation for American Immigration Reform and the Kansas Secretary of State and law professor Kris Kobach are examples of this group. The fourth group are the "Integrationists," who support immigrant rights but want to restrict the number of immigrants so as to reduce cheap labor that may negatively impact United States workers. Integrationists consist of groups such as unions like the ALF-CIO and the United Farm Workers (Martin, 2008). The political camps, ones that are less formal than political parties and even advocacy groups, demonstrate both differing goals of groups regarding immigration, but also how strange bedfellows are created. These alliances can lead to compromised policy solutions and problem definition.

When reviewing the history of the Texas ISRT, Ricón (2006) recognized that these alliances often compromised policy solutions. She identified three key areas that are considered to be positive outcomes of educating undocumented students: (1) positive fiscal impact on the state and students; (2) increased assimilation; and (3) a reduction in criminal actions. To achieve these outcomes, groups that often worked on opposing sides, such as immigrant rights groups, the Roman Catholic Church, education rights groups, and the business community worked together to pass this legislation.

The case for providing higher education for undocumented immigrants focuses on the personal and societal benefits of the policy, while attempting to quell nativist concerns. Proponents of ISRT policies advance five arguments: (1) children should not be blamed for the sins of their parents; (2) a pathway to college will reduce high school dropout rates; (3) undocumented students have assimilated into society and their residence in the United States is permanent, if not legal; (4) undocumented individuals come to the United States for work and not education; and (5) these students offer a unique form of diversity to the student population (Drachman, 2006). These arguments focus potential positive educational, economical, and social outcomes for students and society, but without a clear pathway to citizenship, insufficient incentives exist for undocumented students to fully integrate into American society.

In contrast to the reasons above, are nativist fears of a changing country and the syphoning of public resources to non-citizens. Huntington expressed this concern in his argument that Latina/os, in particular Mexicans, have failed to assimilate into American society and have low levels of language acquisition. He argues: “There is no Americano dream. There is only the American dream created by an Anglo-Protestant society. Mexican Americans will share in that dream and in that society only if they dream in English” (Huntington, 2004, p. 11). These fears are present in arguments against ISRT policies, which include the violation of the Supremacy Clause of the United States Constitution (U.S. CONST. art. VI); of federal primacy in the area of immigration (Drachman, 2006; Kobach, 2006a, 2006b; Olivas, 2008); social benefits conferred to

noncitizens (Drachman, 2006); national security risk (Smith, 2003); and the transformation of the United States into a Latina/o nation state (Drachman, 2006).

Human Capital. Immigration policy and policies pertaining to undocumented immigrants participating in higher education often are examined using a cost-benefit analysis (Flores, 2010; Martin, 2008; Reich & Mendoza, 2008). An alternative to the cost-benefit analysis of undocumented students in higher education is that of human capital theory. Becker (2008) defines human capital as the abilities and knowledge of individuals and groups as “people cannot be separated from their knowledge, skills, health, or values in the way they can be separated from their financial and physical assets.” Advocates of IRST policies point to education as a way to amplify the human capital of undocumented immigrants, who, in turn, would increase state and national productivity (Santos, 2006). The concept of human capital humanizes a capitalistic society, while at the same time, working within the strongly held belief in individual achievement, productivity, and wealth accumulation. Employing human capital theory would suggest “that we *want* as many high school graduates to move on to college so they may contribute to the economic and social good of society [emphasis in original] (Santos, 2006, p. 54).

Humanizing the issue also provides a critique to the traditional cost-benefit analysis. Chavez et al. (Chavez, Soriano, & Oliverez, 2007) describe the day-to-day difficulties of undocumented students, such as struggling to afford college expenses; perseverance in the face of disenfranchisement and antagonism; student activism; and the fear of being uprooted and displaced. Chavez, et al. (2007) documented the lived

experiences of undocumented students, presenting both their struggles and successes to provide a human voice to an often vitriolic discourse. Diaz-Strong et al. (2011) also described the struggles that undocumented students and their families face as they attempt to finance their college experience. Seif (2004) presents undocumented student activism and their ability to persuade Latina/o legislators in passing A.B. 540 in California, the state's ISRT policy. Undocumented student activists aid legislators in "humaniz[ing] the plight of immigrants in the communities they represent" (Seif, 2004, p. 228). The humanization of the issue permits emotive, ethical, humanitarian, and social justice perspectives to enter the discourse and moves away from the cold equations of economic benefit and loss.

Legal. The legal argument regarding undocumented college students is divided into two camps: those who believe that undocumented immigrants have the legal right to access higher education through ISRT policies and those who believe that immigration law explicitly denies these students access. These positions have been exemplified in the writing battles of Olivas and Kobach, respectively.

Kobach (2006a, 2006b) adamantly disagrees with the premise of ISRT policies and describes the federal version (i.e., the DREAM Act) as a "nightmare" (Kobach, 2006b). Kobach (2006a, 2006b) presented two arguments in opposition to ISRT policies. First, the Supremacy Clause (U.S. CONST. art. VI, cl. 2) prevents states from creating legislation that impact immigrants since immigration is under the purview of the federal

government¹³. Second, he attacked ISRT policies for providing public benefits in the form of in-state tuition, to noncitizens, which are not available to non-resident citizens. He invoked the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) of 1996, which states that:

Notwithstanding any other provision of law, an alien who is not lawfully present in the United States shall not be eligible on the basis of residence within a State (or a political subdivision) for any postsecondary education benefit unless a citizen or national of the United States is eligible for such a benefit (in no less an amount, duration, and scope) without regard to whether the citizen or national is such a resident (8 U.S.C. § 1623(a) (2000)).

To Kobach's point, the legislative intent of the bill was to reduce social benefits for undocumented immigrants and legal permanent residents. This is now done through a telephonic and electronic immigration verification system, (Congressional Budget Office, 2006) now known as E-Verify (U.S. Department of Homeland Security, U.S. Citizenship and Immigration Services, 2014). Other scholars find the language and intent less clear.

In contrast to Kobach, Olivas (Olivas, 2003, 2004, 2008, 2009, 2010) supports ISRT policies and believes that the IIRIRA legislation actually supports states in their creation of these benefits. Unlike Kobach (2006a), Olivas believes that the statute is not written in "plain language that any layman could understand" (Kobach, 2006a, p. 477). Rather, he argued that the language of the statute is "confusing" and "badly written"

¹³ Interestingly, this same argument has been made against the controversial Arizona H.B. 1070 immigration law (Schwinn, April, 28, 2010).

(Olivas, 2009), although it is uncertain whether he believes that it purposefully so. In Olivas's interpretation of the statute, the benefit is read as a "monetary benefit," not necessarily a social benefit, and thus allows states the opportunity to create and manage their own ISRT policies (Olivas, 2009).

Additionally, Olivas (2008) contended that the United States Congress does not have the authority to regulate a purely state benefit. Arguments against ISRT note that most higher education institutions utilize federal funds, either via grants or more likely through federal financial aid, and thus cannot use federal monies for undocumented students' benefits. Olivas (2008) argued, though, that the designation of residency is a state benefit. Finally, Olivas (2009) stated that he believes that it is the ethical duty of federal, state and, local governments to educate undocumented college students and use public resources to do so.

Court cases and legal opinions have been instrumental in the formation and shaping of education, from *Brown v. Board of Education*, 438 U.S. 265 (1954), to *Regents of the University of California v. Bakke* 438 U.S. 265 (1978), to *Plyler v. Doe*. In conjunction with legal theory, emerging theories, such as membership theory, are already adding to the discourse regarding undocumented immigrant participation in higher education.

Membership. Membership theory argues that issues of membership do not rest solely on the possession or lack of documentation, but also additional factors such as connection and interaction with and integration into the society one presumes to be a member. Membership literature identifies a tension between nationalistic membership

and a post-World War II membership that is more “universal” and based on “personhood” (Soysal, 1994). In the United States, the distribution of rights, including higher education, are bound by citizenship rather than “personhood, human rights, and residency” (Perry, 2006). But this practice is challenged by the theory that membership is not simply based on citizenship.

As a way to identify how stakeholders regarding ISRT policies define membership, Perry (2006) employed Rawls’s *veil of ignorance* as a method to justly distribute resources. Perry (2006) found that stakeholders, including undocumented students, legislators, legislative staff, agency staff, think tank staff, a high school principal, and a formal judiciary officer, define membership using similar terms what it means to be a substantive member of a community. Respondents identified moral character, allegiance to country, belief in core community values, economic and social investments, cultural awareness, and length of time spent in a community as factors that create a member in a community and society. Although the stakeholders had similar definitions of membership, policy differences were based on variant beliefs regarding naturalization rules, utilizing higher education resources for citizens, the effect of distributing higher education to undocumented students on national goals, and “simple discrimination” (Perry, 2006). Perry (2006) argued, though, that if membership is understood only as citizenship, the desire to withhold access to undocumented students and not implement ISRT policies undermines our country’s morality and ability to be culturally and economically successful.

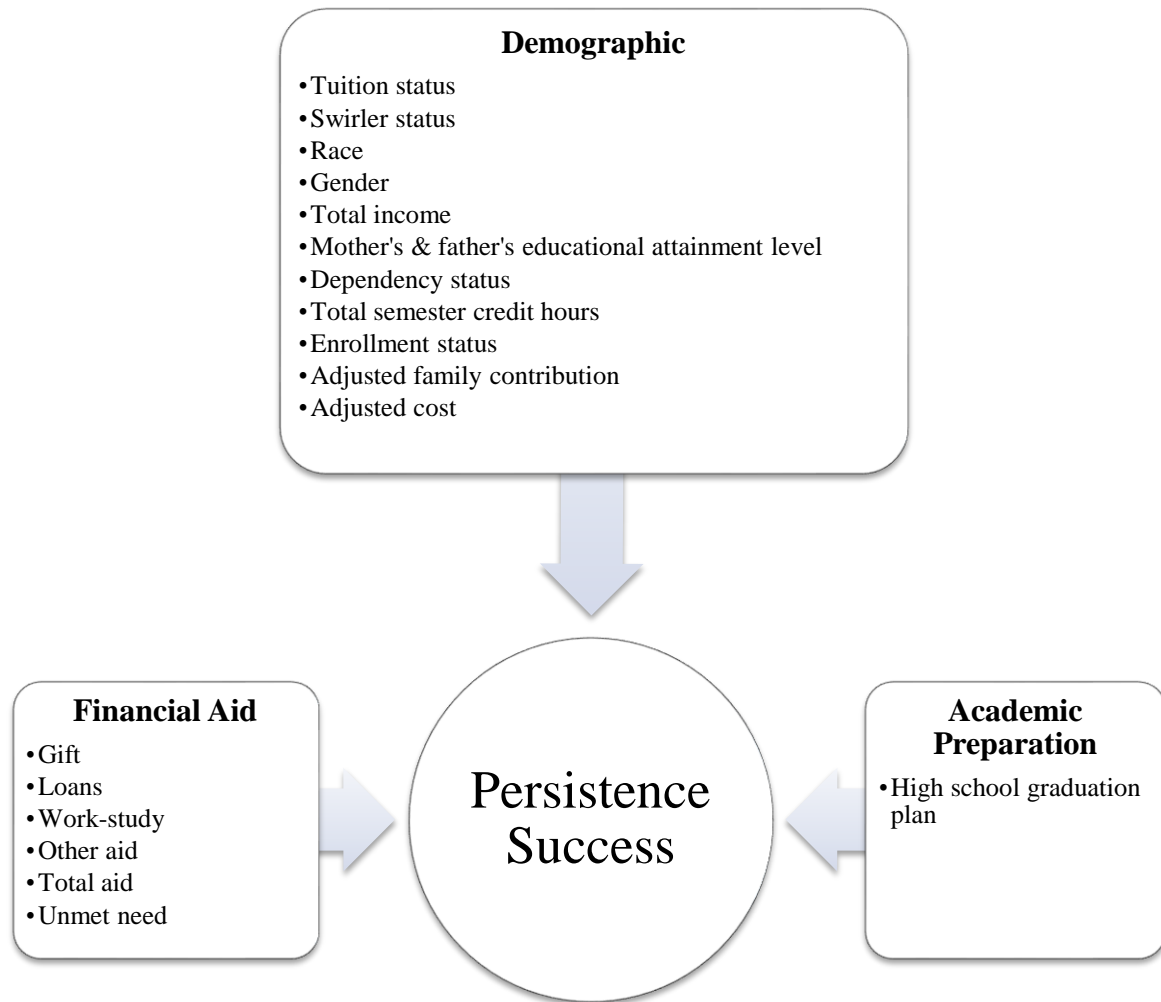
CONCEPTUAL FRAMEWORK

To evaluate the effect of state and institutional financial aid on the persistence and success behavior of undocumented students at public four-year institutions in Texas, I used a synthesis of two conceptual frameworks: Chen's (2008) and Crisp and Nora's (2010) models regarding persistence. Chen (2008) developed a conceptual framework to assess the effects of "student aid policies on reducing dropout risks" (p. 223). Chen's conceptual framework integrated eight constructs to act independent variables: student background, educational aspiration, pre-college preparation, financial factors, college experience, institutional characteristics, interaction effects and time in college. Student outcomes were measured by three forms of departure behavior: stop-out, institutional departure (leaving a particular institution of higher education), and system departure (leaving higher education entirely).

Crisp and Nora (2010) also used an integrated conceptual framework to study persistence and transfer decisions of Latina/o community college students. The authors presented five sets of dependent variables: demographic, pre-college experience, socio-cultural, higher education academic experiences, and environmental pull factors. Student outcomes were measured as success (i.e., persistence, transferring, or earning a degree) in their second year and third year of enrollment to identify differences between these two years.

Based on the literature reviewed in this chapter, issues regarding demographic characteristics, social capital, academic preparation, and financial aid impact persistence and success behavior by students, in particular Latina/o students. Figure 2.1 is a

Figure 2.1: Conceptual Model



conceptual model employed in the study to identify the impact of financial aid on persistence and degree attainment for undocumented students. It is important to note that the three sets of independent variables also interact with each other; thus the variables should not be viewed as discrete from each other. So as not to bias main effects, interaction effects are crucial to include in the model (Chen, 2008).

The three independent variable blocks of the conceptual model (i.e., financial aid demographic, and academic preparation) were used to predict persistence and degree attainment. Demographic variables included gender, race, total income, dependency status, tuition status, swirler status, enrollment status, parent's educational attainment, and total cost. Financial aid variables include gift aid (i.e., grants and scholarships), loans, other, and work-study aid. The academic preparation variable is the Texas high school graduation plan. See Appendices A and B for an outline of the Texas high school graduation plans.

The review of the literature identified that student characteristics, financial aid, and academic preparation affect student success outcomes. Types of aid, along with a student's socio-economic status, ethnicity, and academic preparation can interact to inform the interpretation of persistence and success rates. This study's conceptual model identifies several factors that can impact the education outcomes of students.

Undocumented students are identified in the data via their residency status, tuition status, and the types of financial aid they are eligible to receive. The proposed conceptual model pointedly evaluates undocumented students by identifying issues that affect them as first-generation and Latina/o: parental education, income and socio-economic status, race and ethnicity, high school preparation, and accessibility and procurement of financial aid.

Due to the limitations of the data used in this study, several but not all of the suggested variables and variable sets were used in the conceptual model of this study. Specifically, several important variables, such as higher education, academic, and social experiences are not included in the model. Student perceptions regarding their

environment and their higher education aspirations are also not included as that data is not available in the dataset used. Finally, high school achievement, such as a student's high school GPA, is unavailable for this study. A discussion regarding data limitation is found in Chapter III.

In Chapter III, I outline the methodology for the study. First, I present my research questions, describe the data and the data cleaning and conditioning process, and define my variables. Second, I also provide a descriptive analysis of the undocumented student population at public universities in Texas. Third, I outline the logistic regression analysis I used to answer my research questions. Finally, I explain limitations to my study.

CHAPTER III: METHODS

The purpose of this study is to explore the effect of state and institutional financial aid on persistence and degree attainment of undocumented college students at four-year public universities in Texas. In this chapter, I identify the methods employed to investigate the research questions and hypotheses of this study. First, I outline the study's research questions and the datasets used for analysis. Second, I describe the data used to answer the study's research questions and provide detail regarding the target and control group selection. Third, I review the independent and dependent variables used in the study. Fourth, I outline the analysis plan and limitations of the study. Finally, I provide descriptive analysis of the population, as well as t-tests to identify differences in aid between undocumented and Latina/o resident students.

RESEARCH QUESTIONS

Research questions. The research questions that directed the analysis were:

1. How does financial aid affect undocumented college student persistence?
 - 1.1. How does the amount of financial aid affect the persistence of undocumented students? Does the type of aid (i.e., gift, loan, other, and work-study aid) affect persistence?
 - 1.2. How does financial aid affect undocumented college students' persistence compared to those of other ethnic groups (e.g., native-born Latina/os, African Americans, Asian American/Pacific Islanders, etc.)?
2. How does financial aid affect undocumented college student success?

- 2.1. How does the amount of financial aid affect the degree attainment of undocumented students? Does the type of aid (i.e., gift, loan, other, and work-study aid) affect degree attainment?
- 2.2. How does financial aid affect undocumented college students' degree attainment compared to those of other ethnic groups (e.g., native-born Latina/os, African Americans, Asian American/Pacific Islanders, etc.)?

Dataset overview. The dataset used in this study is an integrated dataset of collected student information regarding Texas public high school graduation and Texas public higher education enrollment, graduation, and financial aid. The Texas Education Research Center (Texas ERC) provided access to this data. The Texas ERC houses data from the TEA, the THECB, and the Texas Workforce Commission (TWC), which collects information regarding employment through the state.

The datasets used in this study date range from Spring 2002 to Spring 2013. Four datasets were constructed for the analyses: two persistence datasets and two graduation datasets. The first persistence dataset contained Fiscal Year (FY) 2002 Texas high school graduation data, enrollment data from FY 2003 and FY 2004, and financial aid data from FY 2003 and FY 2004.¹⁴ This dataset was used to review Cohort 1¹⁵. The second persistence dataset contained FY 2006 Texas high school graduation data, enrollment data from FY 2007 and FY 2008, and financial aid data from FY 2007 and FY 2008.

This dataset was used to review Cohort 2.

¹⁴ Per the operating manuals of the TEA and the THECB, fiscal years use the Spring semester calendar year as the year date (e.g., Fall 2002 is fiscal year 2003).

¹⁵ Cohort 1 includes students who enrolled in FY 2003. Cohort 2 includes students who enrolled in FY 2007.

The first graduation dataset contained FY 2002 Texas high school graduation data, enrollment data from FY 2003, graduation data from FY 2003 to FY 2008, and financial aid data from FY 2003 and FY 2004. This dataset was used to review Cohort 1. The second graduation dataset contains FY 2006 Texas high school graduation data, enrollment data from FY 2007, graduation data from FY 2007 to FY 2012, and financial aid data from FY 2007 and FY 2008. This dataset was used to review Cohort 2.

I chose to review Cohort 1's persistence and graduation starting Fall 2002 (FY 2003) to allow for a year of lag time for H.B. 1403 policy implementation. The effective date of the H.B. 1403 (2001) was September 1, 2001. Students who started in Fall 2001 would have been admitted and enrolled prior to the effective date of the policy. By starting my study in Fall 2002 I can capture undocumented students while also allowing administrators in both Texas high school and Texas higher education institutions the time to learn, implement, and market the policy. Similarly, Cohort 2 allows for a year lag time of the implementation of S.B. 1528, the clarifying legislation to H.B. 1403.

The dates were also chosen to study two cohorts over a six-year period. I am using a six-year time period as my window of study to allow for an extended time-to-graduation, while also using a period of time used by Texas and the U.S. Department of Education to define "graduating on time" (Texas Higher Education Data, 2011; U.S. Department of Education Institute of Education Statistics National Center for Educational Statistics, 2015, n.d.). The first cohort is reviewed from Fall 2002 (FY 2003) to Spring 2008 (FY 2008) and the second from Fall 2006 (FY 2007) to Spring 2012 (FY 2012). The overlap is due to the effective dates of the corresponding Texas laws (H.B. 1403

(2001) and S.B. 1528 (2005)) of September 1, 2001 and September 1, 2005, while allowing for the year of lag for implementation of both policies.

This study uses six THECB datasets and one TEA dataset. THECB data includes: enrollment, graduation, and financial aid data. Enrollment data is based on the twelfth school day enrollment census (Texas Higher Education Coordinating Board, Education Data Center, 2014). Graduation data is based on graduation by the end of the Spring semester, for both higher education and high school. Students who graduated during the Fall semester are also captured in this data. Financial aid data is based on monies students received for the fiscal year. The TEA data is composed of all Texas public high school students who graduated within the fiscal year. The integration of these datasets over 10 years provides a longitudinal perspective to identify the policy effect of state and institutional aid over the life of the policy.

DATA AND TARGET AND CONTROL GROUP SELECTION

The target population for this study is entering first-year undocumented undergraduate students in public four-year institutions of higher education in the state of Texas. An advantage of using multiple datasets is the ability to better estimate the undocumented college student population via different variables. In my study, undocumented students were identified by several variables in the data. First, they were identified by their tuition status as non-citizen Texas residents per Section 54.052 of the Texas Education Code (TEX. EDUC. CODE ANN. § 54.052 (West 2006)). Undocumented students are also identified by their residency status, which identifies them as non-immigrant residents (Texas Higher Education Coordinating Board, Education Data

Center, 2014). Finally, undocumented students were identified by the type of financial aid for which they are eligible. Undocumented students are ineligible for federally-funded programs and only have access to state and institutional funding. Each of these groups of variables acts as a proxy for undocumented students, and a triangulation of these variables allows for greater precision in identifying these students. First-time students are identified via a classification variable available in the enrollment dataset. All students in the enrollment dataset who were not first-year students were removed from the study.

It should be noted that other undocumented students may be participating in higher education but are not identified via these variables. This is a disadvantage of the variables available. The ISRT policy identifies only undocumented students who have lived in Texas at least three years prior to high school graduation or GED acquisition (Texas Higher Education Coordinating Board, 2013). It is unlikely that this is a large population, due to as the cost of higher education. Without the tuition reduction in the form of the ISRT policy and state and institutional financial aid, higher education would be out of reach for many undocumented immigrant students who do not meet the ISRT criteria. I believe the use of the triangulation of variables provides the best estimation that the student is undocumented.

Additionally, few undocumented students participate in higher education in Texas. In FY 2013 24,760 students were identified as non-citizen immigrants (i.e., undocumented immigrants) per Section 54.052 of the Texas Education Code. This

constitutes less than 2% of the total student population that year¹⁶ (Texas Higher Education Data, 2015; Ura & McCullough, 2015).

To answer the research question above and with the guidance of research literature regarding financial aid, persistence, and graduation, I selected three sets of independent variables. The first set of variables is composed of financial aid variables including gift, loan, other, work-study, and total variables. The second set of variables is composed of individual characteristic variables such as gender, parental education, race, tuition status, dependency status, etc. The third is academic preparation, which is the Texas high school diploma plan.

VARIABLES

In this section I describe the dependent (output) and independent (input) variables I use in my study.

Dependent variables. The dependent variable used to measure persistence is enrollment in Fall Year 2, and for success, level of degree conferred. See Table 3.1. To identify persistence and success, I created persistence and graduation variables. If a student was enrolled in Fall 2002 and enrolled in Fall 2003, the student was identified as persisting year-to-year. This was also done for both cohorts. A graduation variable was created identifying students who graduated within the six-year window. This variable encompassed all graduating students regardless of degree conferred (i.e., undergraduate,

¹⁶ The total student population at four-year and two-year public higher education institutions was 1,304,626. Undocumented students made up 1.9% of the population (Texas Higher Education Data, 2015; Ura & McCullough, 2015).

graduate, or professional degree).¹⁷ Again this variable was created for both cohorts (See Table 3.1). Both of these variables were dummy coded for logistic regression analysis.

Table 3.1: Dependent Variables: Educational Outcome Measures

Variables	Categories
Persistence variable	
Enrollment	0: Not Enrolled, 1: Enrolled
Success variable	
Degree conferred	0: No, 1: Yes

Note: These variables are data points gathered by the THECB as provided by individual institutions.

Two additional forms of completion were included in the original variable: Baccalaureate-Level Certificate and Graduate-Level Certificate. Baccalaureate-Level Certificate is defined as “an upper-level undergraduate certificate requiring completion of an organized program of study that includes 21-35 hours in disciplinary areas where the institution already offers an undergraduate degree program” (Texas Higher Education Coordinating Board, 2012, p. 8). Running a descriptive analysis, these programs are mainly found in two-year institutions and were not included in the analysis. Graduate-Level Certificate is defined as a credential “that requires the completion of an organized program of study that includes 16-29 hours in disciplinary areas where the institution already offers a graduate program at the same level as the certificate” (Texas Higher Education Coordinating Board, Education Data Center, 2014). A descriptive analysis of this variable showed that these certificates were conferred at a small number of institutions. The Graduate-Level Certificate category was not included in the analysis.

¹⁷ In the future, it would be interesting to study whether financial aid impacts the type of degree conferred.

Independent variables. The independent variables selected fall into three categories: financial aid, demographic profile, and academic preparation. Academic preparation is measured by high school diploma plan (See Table 3.2).

Table 3.2 Independent Variable: Academic Preparation

Items	Categories or Range
Graduation Plan	0: Recommended High School Program: 1: Distinguished Achievement Program

Note: This variable is a data point gathered by the TEA via individual school districts.

In Texas, students can complete one of four high school diploma programs: Special Education, Minimum High School Program (MHSP), Recommended High School Program (RHSP), and Distinguished Achievement Program (DAP)¹⁸. All students who enter the ninth grade are immediately enrolled in the Recommended plan and can only change to a different plan with parental permission and in consultation with school counselors (19 TEX. ADMIN. CODE § 74.61 (2010)). The Minimum plan requires students to complete 22 course credits (19 TEX. ADMIN. CODE § 74.62 (2010)), while the Recommended and Distinguished plans require 26 (19 TEX. ADMIN. CODE §§ 74.63–.64 (2010)). Students who complete the RHSP or DAP are considered college-ready as both high school graduation plans require Algebra II. Most higher education institutions continue to require Algebra II for admittance even with the passage of H.B. 5 (2013), which removed Algebra II as a requirement for graduation (Ahmed, 2014). See

¹⁸ These diploma plans were replaced starting in Fall 2014 with the Foundation diploma plan. This change will not affect this study and no student under this plan was part of the study. Further information regarding the Foundation diploma plan can be found on the Texas Education Agency’s website, <http://www.tea.state.tx.us>.

Appendix A for a breakdown of the high school graduation plans. A descriptive analysis of the high school plans showed that very few Special Education and Minimum plan students attended four-year public universities. Individuals with these plans were removed from the study.

The high school diploma plan variable is a recoded variable. The high school diploma plans were changed over time, which means that students can have graduated with a RHP slightly different than another one even if they graduated from high school in the same year. Some changes include eliminating the Health and Technology Applications requirements for all plans after the 2003-04 academic year; increasing math and science requirements for RHP and DAP in 2007-08 academic year, and adding a fine arts requirement for the MHSP in AY 2010-2011. See Appendix B for a comparison of the different plans over the life of the plans. After reviewing the high school diploma plans, I concluded that the differences within the plans were minimal and recoded the variable so that all Special Education, MHSP, RHP, and DAP were in a single category. The frequency of each plan for total high school graduating classes of academic years 2002 and 2009 is demonstrated in Table 3.3 and Table 3.4, respectively. When I merged financial aid data with the high school graduation data, I noticed that a high percentage of students did not have high school graduation plans. The number of missing students' high school diploma plans is notable and factored into my analysis.

Demographic variables describe aspects of the student's background and profile. These variables include gender, parental education, race; enrollment status, dependency

Table 3.3 Frequency of high school graduation plans for total graduates for academic year 2001-02

Plans	Frequency	Percent
Special Education	6977	3.1
Minimum High School Program	87153	38.7
Recommended High School Program	117989	52.4
Distinguished Achievement Program	13007	5.8
Total	225126	100.0

Note: Gathered by the TEA via individual school districts.

Table 3.4 Frequency of high school graduation plans for total graduates for academic year 2005-06

Plans	Frequency	Percent
Special Education	8851	3.7
Minimum High School Program	49626	20.6
Recommended High School Program	157612	65.6
Distinguished Achievement Program	24355	10.1
Total	240444	100.0

Note: Gathered by the TEA via individual school districts.

Graduate-level education was reviewed only in the area of level of award as this research focuses solely on undergraduate undocumented students.

status, total income, adjusted family contribution, swirler status, adjusted cost, unmet need, and tuition status (See Table 3.5.). The final variable, residency, identifies undocumented students as “non-immigrant residents.” This terminology is preferred by the THECB as a more appropriate description of the student rather than undocumented (personal communication, November 3, 2010). The tuition status variable identifies undocumented students as “Student classified as a resident based on TEC 54.052(a)(3) who is not a U.S. citizen or permanent resident but is allowed to pay resident tuition” (Texas Higher Education Coordinating Board, 2013). The educational level classification

and tuition status variables include categories for graduate and professional level students.

Table 3.5 Independent Variables: Student Characteristics

Items	Scale and Range
Dependency Status	0: Dependent; 1: Independent
Enrollment Status	0: Full-time; 1: Part-time
Est. Family Contribution	Continuous variable
Gender	0: Male; 1: Female
Mother's & Father's Level of Educational Attainment	0: Elementary; 1: High School; 2: College or Beyond; 3: Unknown
Total Income	0: No Income; 1: \$1-21,000; 2: \$21,001-40000; 3: \$40,001-65000; 4: \$65,001-highest
African American	0: Not African American; 1: African American
American Indian or Alaska Native	0: Not American Indian or Alaska Native; 1: American Indian or Alaska Native
Asian American, Native Hawaiian, or Other Pacific Island	0: Not Asian American, Native Hawaiian or Other Pacific Island; 1: Asian American, Native Hawaiian or Other Pacific Island
International	0: Not International; 1: International
Latina/o/Hispanic	0: Not Latina/o; 1: Latina/o
Unknown or Not Reported	0: Not Unknown or Not Reported; 1: Unknown or Not Reported
Tuition Status	0: Resident Tuition; 1: Non-resident Immigrant

Note: These variables are data points gathered from the THECB

* This category is used only for students who refuse to report their ethnic origin.

** This category is used only for private institutions and for students not receiving any state aid.

The final independent variables focus on the different types of financial aid, including: gift, loan, other, work-study, and total aid (See Table 3.6).

Table 3.6 Independent Variables: Financial Aid

Items	
Gift	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest
Loans	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest
Other	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest
Work-Study	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest
Total	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest

Note: These variables are constructed from data gathered from the THECB via individual institutions.

One stream for state financial aid funding is through tuition set-asides. H.B. 3015 (2003) required universities to set-aside “at least 15 percent of the amount of undergraduate and graduate designated tuition charged in excess of \$46 per semester credit hour.” Institutions use this set-aside for financial aid in the form of grants, loans, and work-study. In FY 2013, over \$173 million in financial aid, generated from HB 3015 tuition set-asides, was distributed to needy students (Texas Higher Education Coordinating Board, 2014b). This stream of funding is only found in the second cohort as the bill became effective September 1, 2003, and the first cohort started in August 2002 and their second year started August 2003.

In addition to set-aside funds, other institutional and state financial aid is available to undocumented students. Institutional work-study is available on a need-based basis. Grant and scholarship funds can also be accessed from the Texas Education Opportunity Grant (TEOG), the Student Deposit Scholarship, as well as other scholarship and grant monies. Finally, undocumented students have access to several forms of loans, including the College Access Loan (CAL), which is available to all Texas residents, along with other long-term loans (Texas Higher Education Coordinating Board, 2013).

Undocumented students also have access to work-study via H.B. 3015 Work-Study, funded through tuition set-asides. Due to federal employment eligibility, undocumented students are unable to access federal work-study, including AmeriCorps. Additional Texas state work-study programs require the student to be a Texas resident: this definition excludes undocumented students from this status (Texas Higher Education Coordinating Board, 2014c).

Other funds not identified by the Texas Higher Education Coordinating Board under the three categories of gift, loan, and work-study are included in the “other financial aid” variable. This includes the Teacher Grant and H.B. 3015 Other.

Financial aid packages will be compared as a total financial aid package (i.e., total aid) and by type (i.e., gift, loan, other, and work-study aid). I do not compare state and institutional aid across subgroups. Because citizens and Legal Permanent Residents have access to federal funds that undocumented students do not. This federal funding can account for the bulk of the financial aid package for the two former groups.

ANALYSIS PLAN AND LIMITATIONS

I performed the majority of the statistical analysis using IBM Statistical Package for the Social Sciences (SPSS) software. This includes all descriptive analysis and data cleaning. Due to limitations of the SPSS software package available at the Texas ERC at the time of my analysis, STATA was used for all logistic regression analysis.

Data Cleaning and Conditioning. To prepare for the study's analysis, the data housed at the Texas ERC had to be appropriately cleaned and conditioned to meet the needs of the study and the standards set by similar research. In this section, I outline the methods and rationale for selecting datasets and variables; for discarding certain variables from selected data sets; for recoding variables; and for merging data.

As stated earlier, the data used in this study includes financial aid, demographic, persistence, and success data collected from the THECB, which in turn collected it from individual institutions. Also included was Texas high school graduation plan data collected by the TEA via school districts. The four datasets were FADS (financial aid), CBM_001 (higher education enrollment), CBM_009 (higher education graduation), and the PIEMS graduation dataset (high school graduation). All of the datasets include the variable of "ID2," which is a unique identifier for students. I used this variable to merge the four datasets.

I reviewed the effect of financial aid on undocumented students with two cohorts to identify what the impact of the policy has over time. Cohort 1 is composed of first-year students who began their college career in FY 2003. Year-to-year persistence for Cohort 1 was Fall FY 2003 to Fall FY 2004. Six-year graduation for Cohort 1 was from

FY 2003 to FY 2008. Cohort 2 is composed of first-year students who began their college career in FY 2007. Year-to-year persistence for Cohort 2 was Fall FY 2007 to Fall FY 2008. Six-year graduation for Cohort 2 was from FY 2007 to FY 2012.

FADS. The THECB Financial Aid Data Set (FADS) contains detailed information regarding a student's financial aid package. This dataset was selected for its extensive information regarding financial aid and also because it included a variable that identified a student as a non-immigrant resident. Included in this dataset are all eligible aid applicants who are enrolled at higher education institutions in Texas. This includes all students who completed a FASFA or TASFA (even if the student did not receive aid) and students who received aid but who may not have completed either the FASFA or TASFA (Texas Higher Education Coordinating Board, 2014c). A current list of all elements in the current FY 2014 academic year FADS can be found at the Texas Higher Education Data website <http://www.txhigherdata.org>.

FADS elements have changed throughout the years. Specifically, the types of grants, scholarships, loans, and work-study opportunities have changed. Some opportunities have been added, like the H.B. 3015 grants, loans, work-study, and other, while others have been eliminated and/or consolidated, like the LEAP Grant and Byrd Scholarship. As an example, in FY2003, there were twelve types of loan elements. By FY2014, there were only nine.

The variables I recoded were primarily the financial aid elements though several other variables were also recoded. All grants and scholarships were recoded into one variable. The THECB designates these variables as "31" elements. An example of this is

the Federal Pell Grant is element 31a, the Federal SEOG is element 31b, H.B. 3015 Grants/Scholarships is 31g, etc. Work-study opportunities were “32” elements, loans “33” elements, and other programs “34” elements. I recoded all “31” elements into a “total grant/scholarship aid” variable, all “32” elements into a “total work-study aid” variable, all “33” elements into a “total loan aid” variable, and all “34” elements into a “total other aid” variable. Some variables that included aid were not included in the 31-34 elements. One example is the “Top 10 Percent Scholarship.” In this instance, this variable was included in the scholarship/grant variable. All others, like the Teach Grant or Teach for Texas, were included in the other aid variable as they were not easily identifiable as a grant or scholarship, or because they were once a separate element and then in later manuals were included under “Other Programs.”

From the recoded variables of “total grant/scholarship aid,” “total work-study aid,” “total loan aid,” and “total other aid,” I created several other variables. I created a “total aid” variable that combined the four variables above. I created an “unmet need” variable, which includes the variables of: Cost of Attendance; Expected Family Contribution; Enrollment Adjustment Percentage (EAP) for Cost of Attendance; EAP for Total Family Contribution; and the created variable of “total aid.” This variable can be explained by the following expression:

$$\begin{aligned}
 & (Expected\ Family\ Contribution)(EAP\ for\ Expected\ Family\ Contribution) \\
 & - ((Cost\ of\ Attendance)(EAP\ for\ Cost\ of\ Attendance) + Total\ Aid) \\
 & = Unmet\ Need
 \end{aligned}$$

Cost of Attendance, Expected Family Contribution, EAP for Cost of Attendance, EAP for Total Family Contribution variables were all recoded from string variables to numeric variables to allow for this variable to be created. Additionally, the EAP variables had to be transformed to accurately portray meaning mathematically. EAP variables were entered as whole numbers instead as percentages. As an example, a student whose status was half time was entered as a “50” instead as 0.50. Additionally, a full-time student was entered as a “0” and was transformed to be a 1.00, and students who were missing were recoded to be a 0.00.

I also recoded the variables regarding financial aid as categorical in the style of Crisp and Nora (2010). I divided the categories by 1,000s of dollars (See Table 3.6). If I ran a similar analysis in the future, I would not separate the variable into categories and run the financial aid variables as continuous variables instead. Nonetheless, as the categories are ordinal, they still meet the requirements for a logistic analysis.

Several demographic variables were recoded from string variables into numeric variables. Dependency status is also an ordinal variable ranging from “less than half-time” to “full-time.” Gender was also recoded as a dummy variable. A further discussion of gender is discussed below. Ethnicity was recoded to be individual racial/ethnicity dummy variables. This recoding is described in more detail below. Mother’s and father’s educational attainment level was recoded to ordinal from “elementary” to “college or beyond.” A detailed description of these variables can be seen in Table 3.5. I also recoded the residency status variable. The original variable identified individuals who were residents, out-of-state or foreign, had tuition exemptions,

paid thesis tuition or law tuition, and were non-immigrant students. I chose not to use this variable to identify residency because data regarding residency status of non-immigrant students did not become available until FY 2006. This change in identification came after the clarification of the ISRT policy by S.B. 1528 in 2005, as S.B. 1528 came into effect September 1, 2005 and was not implemented until FY 2006.

With an increase of swirling behavior, students attending more than one institution at a time, I needed to include some duplicates. I sorted by duplicates and by semester credit hours and kept the duplicate case's top two institutions by total aid. To be able to merge the dataset, I restructured the duplicates. Restructuring means that cases are changed to variables. An example is that if a student attends two four-year higher education institutions in Texas, there would be two cases. Restructuring would identify duplicates and change cases into variables; in this case, it would mean two variables for institution, two variables for different types of aid, two variables for race, etc. Additionally, if the individual had more than two institutions, I removed additional cases. Overall, there were few duplicates (i.e., few swirlers) and even fewer students attending more than two institutions. In FY 2003, there were 1506 duplicates out of 221,527 cases or 0.7 percent and only five individuals who had three institutions. No individual had more than three institutions. In FY 2007, there were 4051 duplicate cases out of 320,848 cases or 1.3 percent and 38 who had three institutions and one who had four. The cases of three institutions were removed. No individuals were lost in the process.

Finally, only students who attended four-year public Texas higher education institutions were included in the FADS merged data.

Enrollment dataset. The THECB CBM001 Student Report dataset (“enrollment dataset”) is a detailed Texas public higher education enrollment dataset. The Student Report “reflects all students enrolled at the reporting institution as of the official census date, which is the 12th class day for the Fall and Spring semesters (16-week session) and the 4th class day for each of the summer terms (six-week session)” (Texas Higher Education Coordinating Board, Education Data Center, 2014). Students who withdraw before the census date are not included (Texas Higher Education Coordinating Board, Education Data Center, 2014). I used the FY 2003 and FY 2004 enrollment datasets for the first cohort and FY 2007 and FY 2008 to identify entering first-time students and to identify persistence.

As stated earlier (see Table 3.1) I created a persistence variable. First, I created an enrolled variable for Fall FY 2003 and Fall FY 2004 for the first cohort and Fall FY 2007 and Fall FY 2008 for the second cohort. The latter variables of each cohort acted as persistence variables.

In addition to computing new variables, I also recoded several. The demographic variables of gender and race/ethnicity were recoded into dummy variables and numeric variables. A full description of this recoding is described below in a different section. I also recoded tuition status. Appendix C has a full account of all different tuition statuses currently available. First, I recoded tuition status to be numeric. After I merged the datasets, I then recoded the variable to be 0: Resident Tuition, 1: Non-Resident Immigrant, and 2: All Other Tuition Statuses and selected only resident tuition and non-resident immigrant for analysis. I also recoded the student classification. Again, I

recoded the variable to be numeric and included eight options (See Appendix D). In the merged dataset, I recoded this variable to be 0: not a Freshman and 1: Freshman, and then selected only first-year students from the FY 2003 and FY 2007 datasets. Finally, I also recoded the Total Semester Credit Hour variable (total SCH) as numeric. In later THECB datasets, total SCH was separated into on- and off-campus SCH, but for the datasets in this study, the total SCH was combined.

Again, I restructured the dataset to retain swirlers. I sorted by identification number and then by total SCH to capture the institutions where the student has the highest attendance. In FY 2003, there were 3200 duplicates out of 458,108 cases or 0.7 percent, 3029 were at two institutions, 165 were at three institutions and six were at four institutions. In FY 2007, there were 3624 duplicate cases out of 493,868 or 0.7 percent, 3399 were at two institutions, 217 at three institutions and eight at four institutions. The cases of three or more institutions were removed from both datasets. No individuals were lost in both processes.

Graduation dataset. The THECB CBM009 Graduation Report dataset (“graduation dataset”) is a detailed Texas public higher education graduation dataset. The Graduation Report “reflects degrees conferred [and certificates completed] during the fiscal year immediately preceding the fall semester in which the report is submitted (Texas Higher Education Coordinating Board, Education Data Center, 2014). Students who do not meet these criteria are not included. Reported degrees and certificates must be listed in the institution’s Inventory of Approved Degree Programs or the institution’s program inventory, respectively (Texas Higher Education Coordinating Board, Education

Data Center, 2014). “If a student is awarded more than one award in a reporting period,” a separate record is created for each degree and/or certificate (Texas Higher Education Coordinating Board, Education Data Center, 2014). This reporting structure explicitly creates duplicates. I used the graduation datasets from FY 2003 to FY 2008 for the first cohort and FY 2007 to FY 2012 to identify degrees conferred. As stated earlier in this chapter, I chose to include only degrees in my analysis, and not certificates, as certificates were only found in a few institutions.

I created a success variable that identified degree conferral. I computed this variable for all who were in the dataset after I had selected out certificates. This success variable was per fiscal year. An example of this is `gradtypeFY03`, which signifies obtaining any degree in FY 2003. This is a dummy code: 0: did not receive a degree, and 1: did receive a degree. I did not differentiate the type of degree (Arts, Science, Fine Arts, etc.) or if it was an undergraduate, graduate, or professional degree.¹⁹ After I merged the datasets, I created a new success variable. This variable was coded to include all six year-specific success variables from the six datasets. If a student received a 1 in any of the six year-specific success variables then they would receive a 1. Missing data would be coded as a 0.

As with previous datasets, I restructured the dataset to retain swirlers, and in this case duplicates. Students who received multiple degrees (e.g., dual majors, undergraduate degree in the Fall and graduate degree in the Spring, etc.) received

¹⁹ It is possible that a student received an undergraduate, graduate, and/or professional degree within the six-year period. I did not review degree conferment by type, though it would be an interesting line of inquiry for the future.

multiple entries. I wanted to keep all students and all degrees earned. I sorted by identification number and then restructured the dataset. As stated earlier, a dummy success variable was created if a student had an entry for a degree in the original dataset. No individuals were lost in both the restructures.

Finally, I recoded gender and race/ethnicity as I did in previous datasets. A full discussion on this recoding is below.

PEIMS high school graduation dataset. The PEIMS high school graduation dataset is a TEA dataset providing high school graduation information for Texas high school graduates. In particular, this dataset included high school graduation type, grade level, graduation date as well as the campus and district information, which includes all school districts and charter schools and is provided by local education agencies (LEAS). PEIMS data is collected at four different points throughout the year, including a Fall Snapshot. The information from the high school graduation dataset is collected in Collection 3, which includes course completion. This data includes all students who have graduated in the fiscal year, regardless of whether they graduated in the Fall or the Spring semester (Texas Education Agency, 2014).

This dataset is narrow and I needed only to recode the high school graduation plan variable. As discussed above and in Table 3.3, each high school graduation plan had a number of different iterations and I recoded them so that all special education plans were under “Special Education,” all minimum high school plans were under “Minimum High School Program,” etc. I then removed Special Education and MHSP plans, and reviewed only RHSP and DAP plans.

For duplicate cases, I chose the case with the highest high school graduation plan (e.g., DAP over RHSP). Overall, there were very few duplicates, and most of the duplicate cases had the same high school graduation plan.

All datasets. For all datasets, I had to recode numerous variables from string to numeric. An example would be the gender variable. The variable in THECB datasets was entered as an F for female students and M for male students. I recoded the gender variable to Male=0.00 and Female=1.00 for all datasets.²⁰ For racial/ethnic groups I recoded variables as dummy variables. Each racial group was recoded into its own variable. As an example, students identifying as Native American/American Indian/Native Alaskan were coded as a 1, and all students not identifying as Native American/American Indian/Native Alaskan were coded as a 0.

One difficult spot was the recoding of Latina/os after 2010 due to changes in the 2010 U.S. Census. In 2010 U.S. Census, race, and Hispanic origin were separate questions. The Hispanic origin question allowed respondents to identify as not Hispanic or to choose a specific cultural heritage such as Mexican, Puerto Rican, Cuban, etc. This question is based on cultural and ethnic heritage rather than race. The U.S. Census defined Hispanic or Latino as “a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race” (Humes, Jones, & Ramirez, 2011, p. 2). Also, an instruction was added to the U.S. Census that stated, “for this census, Hispanic origins are not races.” This instruction was given because the federal statistical system considers Hispanic origin to be a “separate concept from race”

²⁰ This variable does not include the ability to identify as transgender, neutral-gender, genderqueer, etc.

(Humes et al., 2011, p. 5). Individuals identifying as Hispanic or Latino in the race category were identified as “some other race,” a category that includes multiracial groups and others who did not include themselves in the White, African American, American Indian/Alaska Native, Asian, or Native Hawaiian/Pacific Islander groups. Because of these changes, Hispanic/Latina/o was no longer a category for the race/ethnicity variable in the enrollment and graduation datasets. A new variable, ethnic origin, was created to identify Latina/os. Students could choose to answer that they were Latina/o/Hispanic, not, or decline to choose. The FADS dataset had a similar change but also kept the old race/ethnicity variable.

As the changes in the way race and ethnicity were recorded occurred in the third year of my second cohort, I chose to use the racial/ethnic identity from their entering year for both cohorts from the enrollment data.

An additional consideration was the student’s racial identity development. During their time in higher education, students develop not only in terms of their skills and academic abilities, but also as individuals with a racial identity. This includes racial identity development. Racial identity development is formed on the basis of an individual’s sense of self as part of a racial or ethnic group (Bernal, Knight, Ocampo, Garza, & Cota, 1993). This development is critical to students’ overall development and impacts their experience in college. In this analysis I chose not to review a change in racial/ethnic identity. I chose to focus on other demographic and financial aid and constraint factors. Future research should investigate whether a student; changed their ethnic or racial selection from the first year to the final year in higher education had an

impact on persistence and success. A dummy variable that demonstrated a change (i.e., 0.00 = no change and 1.00 = change) could be one method of identifying racial/ethnic identity development. The THECB has changed how it undocumented students can racially identify. In the past, undocumented students could identify their race and/or ethnicity: in my study students were still able to identify themselves by race and ethnicity. In recent iterations of reporting, however, undocumented students who are “allowed to pay the ‘Resident Tuition’ rate due to a waiver...[are] report[ed] with the international code” (Texas Higher Education Coordinating Board, Education Data Center, 2014).

Datasets and Variables Included and Excluded. The selection of datasets to use for this study was key. As I stated in the description of datasets, each dataset had meaningful information for my study. Included in these datasets were financial aid data, demographic data, enrollment and graduation data, and Texas public high school graduation data. As I created my model, I identified information I wanted to have for the study (e.g., amount of aid and by type, race/ethnic identification, gender, high school graduation plan, etc.). After reviewing datasets available via the Texas ERC, I found several data elements that I believed would be helpful in explaining variance that I had not previously identified (e.g., dependency status, enrollment status).

In my review of the datasets, I also discovered some data points that I would liked to have used in my model but were not available, including an overall high school grade point average (GPA) and SAT and ACT composite scores. In regards to the former, there is no single variable for high school GPA in the Texas ERC data: the TEA allows

districts to set their own GPA policy, and do not require districts to submit GPA data. The Admissions dataset (cbm00b) presents high school ranking data, which provides information on whether students ranked in the top 10% of their class, 11-25% of their class, or neither. This ranking is still not a GPA, which provides richer information. One other method available is to use TEA course data and calculate a high school GPA. This data has some missing data elements, in particular the number of attached to each course. Due to this limitation, I did not include high school GPA. Future studies would do well to include a variable that encompasses all grades earned over a high school career, often over a four-year period. A high school GPA can be a better indicator of college success, both in the first-year and over the college career, than a standardized test score such as the SAT or ACT, which is more highly correlated with family income (Geiser & Santelices, 2007). High school GPA would have been an excellent academic preparation indicator. SAT and ACT scores were also not used. When I presented my study to the Texas ERC review board, I was told that the SAT and ACT data was not reliable and often was missing (personal communication September 24, 2014).

A dataset that was not used but could be useful in future studies is the CBM_002 Texas Success Initiative (TSI) dataset. This data is collected to assess college readiness at public higher education institutions. The current practice, which utilizes a diagnostic tool to measure college readiness in Texas, focuses on improving developmental education and student outcomes, measures knowledge and skills identified as critical for student success, and is a tool for academic advisors in targeting support services for students (Texas Higher Education Coordinating Board, 2014a). The TSI initiative

identifies whether entering students are college-ready in three areas: math, reading, and writing. Prior to Fall 2013, meeting a certain grade threshold in one of the following tests THEA/TASP, ASSET, COMPASS, MAPS, and ACCUPLACER was considered college-ready. Starting in Fall 2013 a new TSI assessment tool is used in place of the other indicators. Students could be exempt from taking the diagnostic tool if they achieved appointed scores in different standardized tests such as the ACT, SAT, and TAKS, as well as graduated from an accredited higher education institution and/or had the requisite military service (Texas Higher Education Coordinating Board, Education Data Center, 2014). College-readiness could be a good academic preparation indicator, but I believe that the high school graduation plan, which is in the analysis, is as good if not a better indicator. First, a presentation by the THECB Commissioner Raymund Paredes showed that college-readiness, as defined by TSI, follows high school graduation plans closely. Second, assessments can be predicated on a single data point (e.g., one test score such as an ACT score), while a graduation plan may follow a student through their entire high school career and is made up of many courses. The former provides a fuller and richer description of college-readiness. Although I did not use college-readiness indicators or other academic preparation data found in the TSI dataset, I believe that the high school graduation plan provides strong academic preparation data.

Other variables that would have been useful in my analysis are college GPA, participation in dual credit and early college high school, type of institution (e.g., research extensive, doctoral granting, etc.), and major. The first variable is not available in the datasets available via the Texas ERC and so could not be included. Time

constraints made using the other variables impossible but should be reviewed in future studies.

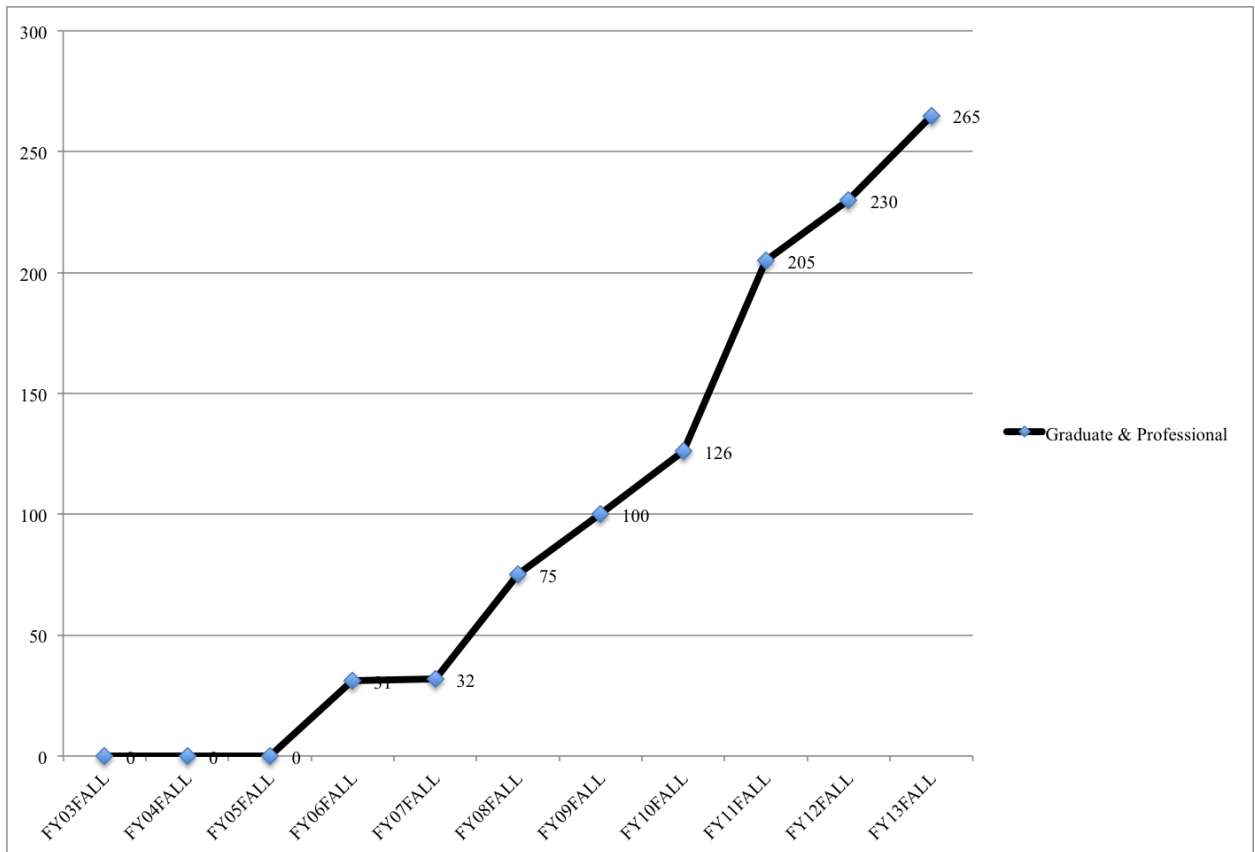
As with any analysis, time constraints and mistakes lead to omissions in the analysis. In particular, my recoding of financial aid led to my analysis being as robust less than I would have liked. In following the model of Crisp and Nora, I recoded my aid as categorical (e.g., \$0-1,000, \$1,001-2,000, etc.). Other omissions include major, type of institution, and dual credit and early college high school participation, among others. Last, due to the need to use STATA for my logistical analysis and attendant time constraints, I did not have the opportunity to analyze time to degree.

DESCRIPTIVE ANALYSIS

Gravetter & Wallnau (2006) define descriptive analysis as “statistical procedures used to summarize, organize, and simplify data” (Gravetter & Wallnau, 2006, p. 6). To discern differences in the population, I ran frequencies and crosstabs to review the undocumented student population, and I conducted t-tests between native-born Latina/os and undocumented immigrant students to discern whether significant differences exist in the average amount of aid in total and amount of aid by type that the students are receiving. This pre-analysis was done to identify possible significant differences that may influence the results of the logistic regression analyses.

Descriptive Analysis. In 2002, the reported number of undocumented students enrolled in public four-year higher education in Texas was 237, 202 of whom were first-year students. This number is based on the enrollment data submitted by each institution and is coded as “non-immigrant resident.” The number of undocumented immigrants

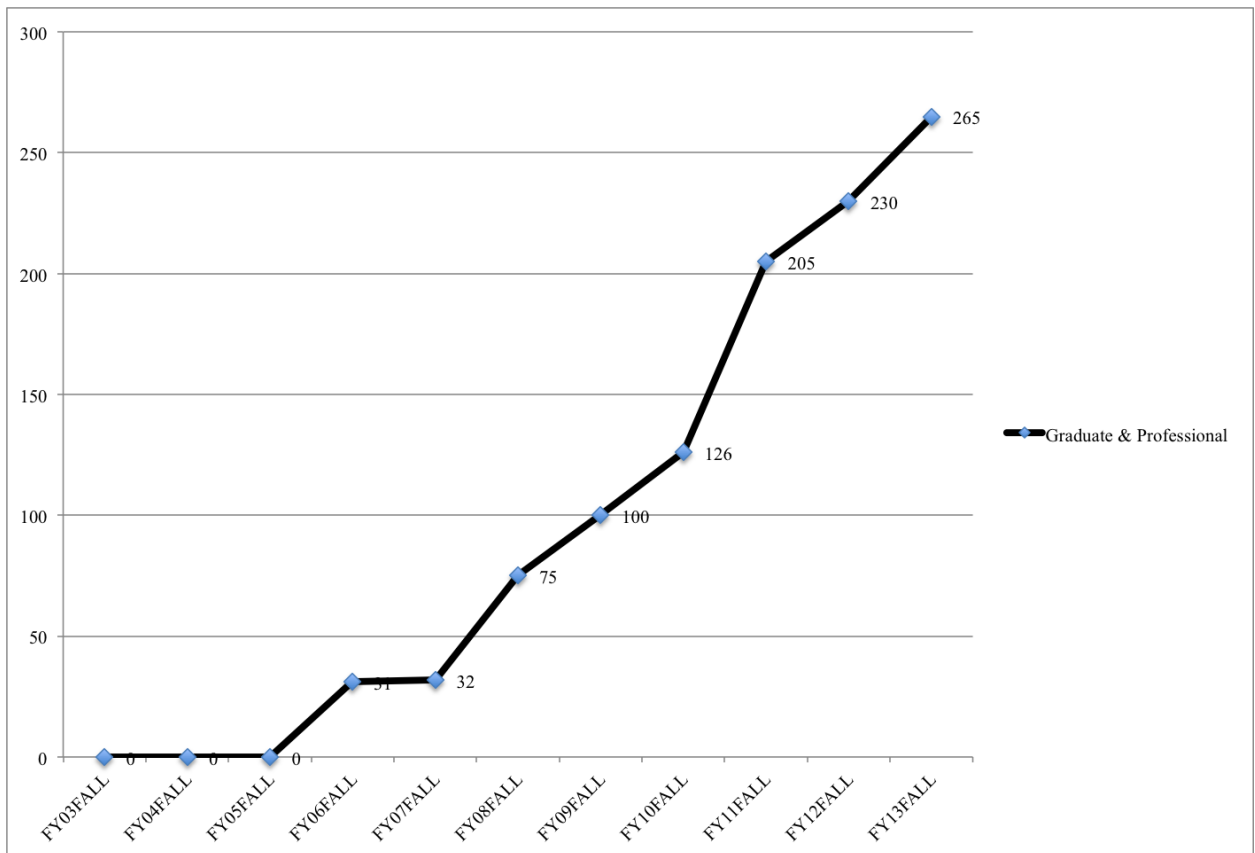
Graph 3.1 Undergraduate undocumented student enrollment in Texas public universities from FY 2003 to FY 2013



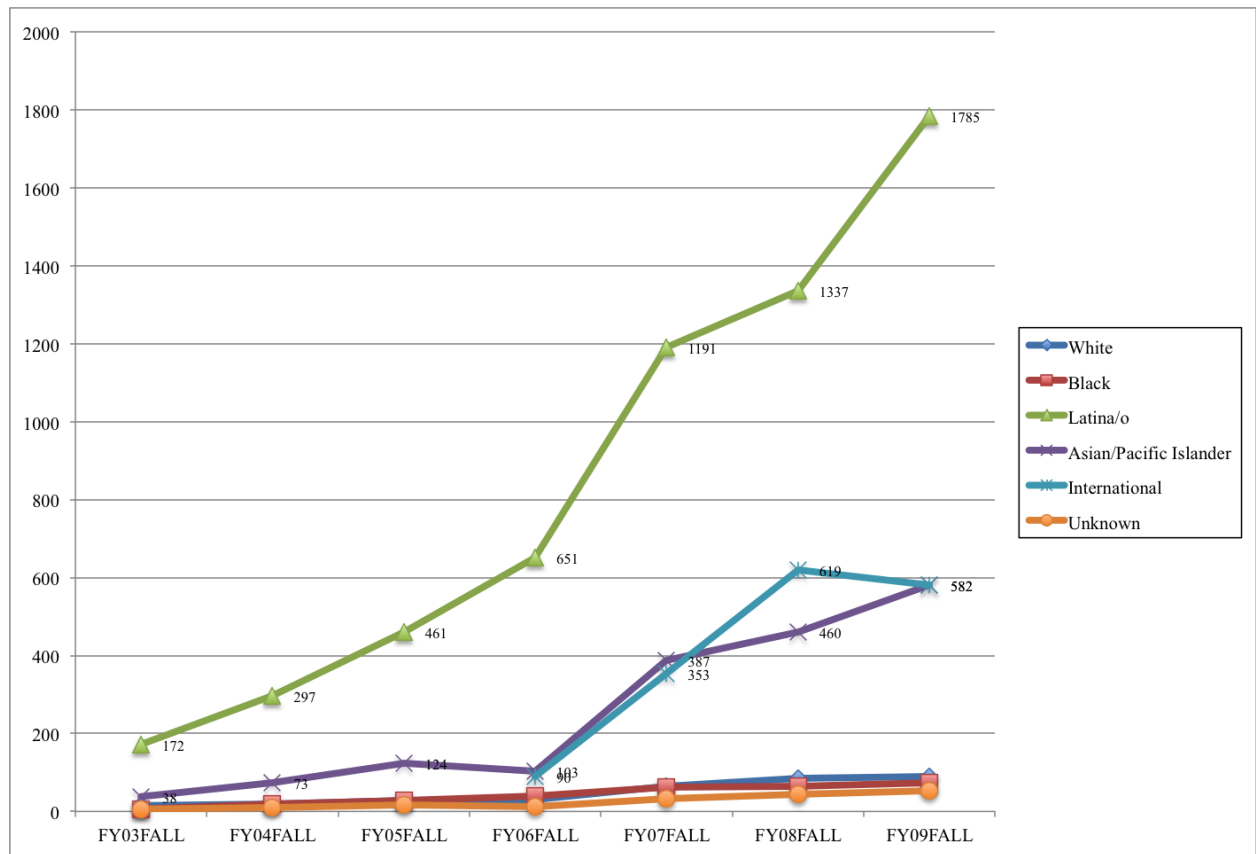
participating in Texas higher education has steadily increased during the life of the ISRT policy to include undergraduate students of all levels, graduate students, and professional school students. Using the THECB data, Graph 3.1 and Graph 3.2 provide a visual representation of this increase, respectively. The numbers identified in these graphs are for Fall semester enrollment. Spring and especially Summer semester enrollments were lower, as was common across student tuition types (e.g., resident, out-of-state/foreign, etc.). Note that these enrollments capture only a small portion of the entire undocumented student population as the majority (71.6% in 2012-2013) of these students

attend a community college. Graduate and professional school numbers were combined to mask low numbers per the Texas ERC requirements. Graph 3.1 shows a jump in enrollment between the fiscal years of 2006 and 2007. FY 2006 was the last year that used the first iteration of the ISRT policy, and FY 2007 the first year of the clarified policy. The results shown in Graph 3.1 show a gradual increase in previous and subsequent years in undergraduate enrollment. Similarly, Graph 3.2 shows two points of substantial increase between FY 2005 and FY 2006 as well as between FY 2007 and FY 2008.

Graph 3.2 Graduate and professional school undocumented student enrollment in Texas public universities from FY 2003 to FY 2013



Graph 3.3 Undocumented student racial backgrounds from FY 2003 to FY 2009



Undocumented students were mostly likely to identify as Latina/os. In 2003, the majority of undocumented students identified as Latina/o; of the 237 enrolled undocumented students, 172 or 72.6% of undocumented students identified as Latina/o. This number is consistent over the course of the study. Graph 3.3 presents a visual display of the change in racial identification of undocumented students from Fall FY 2003 to Fall FY 2009²¹. For comparison, in the same year, 89,816, or 22.3%, of Texas residents identified as Latina/o.

²¹ This chart is constrained by the following elements. First, Native American as a racial group was removed from the list because than 5 per year of undocumented students identified as part of that racial

T-TESTS

First, I ran an independent-samples t-test to identify differences in financial aid between Latina/o residents and undocumented students. The t-tests included identifying differences in means between the target and control groups in gift aid, loan aid, other aid, and total aid. I reviewed these differences for years FY 2003 for the first cohort and FY 2007 for the second cohort.

Table 3.7 Difference in means of first-year Latina/o residents and undocumented students in gift aid

<i>Year</i>	<i>Type of Aid</i>	Resident Latina/os		Undocumented		<i>t</i>	<i>p</i>
		<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>		
FY 2003	Gift	3.706	2.245	3.714	1.021	0.674	0.972
	Loan	2.549	0.011	0.092	0.675	3.300	0.000*
	Other	0.276	0.889	0.653	1.574	3.300	0.000*
	Work-study	0.157	0.614	0.020	0.142	3.300	0.000*
	Total	5.179	1.340	3.959	1.323	3.300	0.000*
FY 2007	Gift	2.575	2.347	4.881	1.468	3.300	0.000*
	Loan	4.248	2.419	1.071	2.224	3.300	0.000*
	Other	0.111	0.651	0.952	1.847	3.300	0.000*
	Work-study	0.109	0.593	0.143	0.783	0.674	0.714
	Total	5.098	1.805	5.405	1.083	0.674	0.271

* Indicates a significant result

Note: for FY 2003 n=41,165 and for FY 2007 n=22,2726.

group and Texas ERC policy dictates that small numbers be masked. Second, Black, International, and White breakdowns could not be included for the same reason. Third, to compare apples to apples FY 2010 and later were not included since the racial identity markers were changed from including Latino/Hispanic to removing this selection and creating a new variable for Hispanic/Latino Origin. See Chapter 3, Limitations.

T-test FY 2003. In FY 2003, there was no significant difference in the gift aid of resident Latina/os ($M=3.706$, $SD=2.245$) and undocumented students ($M=3.714$, $SD=1.021$); $t(45165)=0.674$, $p=0.972$. Both sets of students had similar gift aid package amounts. In contrast, there was a significant difference in loan aid for resident Latina/os ($M=2.549$, $SD=0.011$) and undocumented students ($M=0.092$, $SD=0.675$); $t(45165)=3.300$, $p=0.000$, with undocumented students having significantly less loan aid distributed. There was also a significant difference in other aid of resident Latina/os ($M=0.276$, $SD=0.889$) and undocumented students ($M=0.653$, $SD=1.574$); $t(45165)=3.300$, $p=0.000$. Undocumented student had higher “Other” aid amounts. Work-study aid was also significantly different between resident Latina/os ($M=0.157$, $SD=0.614$) and undocumented students ($M=0.020$, $SD=0.142$); $t(45165)=3.300$, $p=0.000$. Resident Latina/os had larger work-study aid amounts. Finally, there was a significant difference in the total aid package of resident Latina/os ($M=5.179$, $SD=1.340$) and undocumented students ($M=3.959$, $SD=1.323$); $t(45165)=3.300$, $p=0.000$. In general, resident Latina/os had larger aid packages. See Table 3.7.

T-test FY 2007. In FY 2007, there was a significant difference in the gift aid of resident Latina/os ($M=2.575$, $SD=2.347$) and undocumented students ($M=4.881$, $SD=1.468$); $t(22726)=3.3$, $p=0.000$. Also, there was a significant difference in the loan aid of resident Latina/os ($M=4.248$, $SD=2.419$) and undocumented students ($M=1.071$, $SD=2.224$); $t(22726)=3.3$, $p=0.000$, and a significant difference in the other aid of resident Latina/os ($M=0.111$, $SD=0.651$) and undocumented students ($M=0.952$, $SD=1.847$); $t(22768)=3.3$, $p=0.000$. There was no significant difference in the work-

study aid of resident Latina/os ($M = 0.109$, $SD = 0.593$) and undocumented students ($M = 0.143$, $SD = 0.783$); $t(22768) = 0.674$, $p = 0.714$, nor in total aid of resident Latina/os ($M = 5.098$, $SD = 1.805$) and undocumented students ($M = 5.405$, $SD = 1.083$); $t(22768) = 0.674$, $p = 0.271$. See Table 3.7.

LOGISTIC REGRESSION

To examine Research Questions 1.1, 1.2, 1.3, 2.1, 2.2, and 2.3, I utilize a logistic regression model. Linear regression is defined by Gravetter and Wallnau as “the statistical technique for finding the best-fitting straight line or a set of data” (2006). Multivariate and logistic regression are two forms of linear regression (Agresti & Finlay, 2008; Hosmer, Lemeshow, & Sturdivant, 2013). Hosmer et al. (2013) state that logistic regression and linear regression employ the same set of general principles, but a key difference is that in logistic regression the outcome variable is binary, or dichotomous.

Logistic regression is a preferred statistical tool for persistence (Chen, 2008; Crisp & Nora, 2010; Dowd & Coury, 2006; St. John, Paulsen, & Carter, 2005; St. John, Paulsen, & Starkey, 1996; Voorhees, 1987) and success (Crisp & Nora, 2010; Dowd & Coury, 2006), specifically for large datasets such as the National Postsecondary Student Aid Survey (St. John et al., 2005) and National Center for Education Statistics (Dowd & Coury, 2006). Other studies have used hierarchical general linear modeling (Titus, 2004, 2006), structural equation modeling (Cabrera, Castañeda, Nora, & Hengstler, 1992; Cabrera, Nora, & Castañeda, 1992), and factor analysis (Hurtado & Carter, 1997) to examine persistence and success behavior. This study uses a conceptual model, which

merges Crisp and Nora's (2010) and Chen's (2008) conceptual frameworks, where the predicted variables of persistence and success are dummy coded.

In my study, the success and persistence variables are dummy coded to provide a dichotomous outcome. For the success variable, the dummy is: did the student graduate or not. For the persistence variable, the binary outcomes are: did the student persist from one year to another, or not. A full description of dummy coding can be found Table 3.1. Using logistic regression allowed me to identify significant factors that predict persistence and success.

The multivariate logistic regression model for year-to-year persistence used three blocks of covariates: financial aid, demographic, and academic preparation. The multivariate logistic regression model for year-to-year persistence is:

$$\text{logit} [P(y = 1)] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3$$

$$\text{logit} [P(y = 1)] = \alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3$$

where $\text{logit} [P(y = 1)]$ is the predicted value, or logit; α is the intercept; β_i is the regression coefficient for the blocked covariates; R^2 (strengthen of association) is used to identify variables that explain the variance in the model.

The probability model is:

$$P(y = 1) = e^{\alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3} / 1 + e^{\alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3}$$

$$P(y = 1) = e^{\alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3} / 1 + e^{\alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3}$$

where $P(y = 1)$ is the probability, and e is the antilog.

Log odds prediction equation is:

$$\text{odds} = e^{\alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3}$$

$$\text{odds} = e^{\alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3}$$

A similar analysis was used for six-year graduation. In addition to the three blocks, an additional block of other demographic and financial variables was included. See Graph 4.2. The multivariate logistic regression model for graduation in six years is:

$$\text{logit} [P(y = 1)] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4$$

$$\text{logit} [P(y = 1)] = \alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3 + \beta_4(\text{additional demographic and academic variables})_4$$

where $\text{logit} [P(y = 1)]$ is the predicted value, or logit; α is the intercept; β_i is the regression coefficient for the blocked covariates; R^2 (strengthen of association) is used to identify variables that explain the variance in the model.

The probability model is:

$$P(y = 1) = e^{\alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4} / 1 + e^{\alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4}$$

$$P(y = 1) = e^{\alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3 + \beta_4(\text{additional demographic and academic})_4} / 1 + e^{\alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3 + \beta_4(\text{additional demographic and academic})_4}$$

where $P(y = 1)$ is the probability, and e is the antilog.

Log odds prediction equation is:

$$\text{odds} = e^{\alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4}$$

$$\text{odds} = e^{\alpha + \beta_1(\text{financial aid})1 + \beta_2(\text{demographic profile})2 + \beta_3(\text{academic preparation})3 + \beta_4(\text{additional demographic and academic})4}$$

Undocumented students are the treatment group, and native-born Latina/o students are the control group since they share many of the similar academic and individual traits of their undocumented peers. Flores (2007, 2010a, 2010b) used a similar control group to examine college participation in undocumented students in Texas (Flores, 2007, 2010b), in states with ISRT policies (Flores, 2010a).

LIMITATIONS

Limitations to this data analysis plan focus on the availability and accuracy of the data and selection of appropriate variables.

Accurately locating undocumented students. Although similar definitions are used to identify undocumented students by the different datasets, the number of students identified is not uniform. In 2001, the first year of the ISRT policy, no undocumented students were identified in the enrollment data, but they were in the financial aid data. Using multiple data sets aided in discovering inconsistencies with reporting. In particular, triangulating undocumented students by tuition status, residency status, and ineligibility to access financial aid provides a useful method to identify undocumented students in Texas.

High school graduation plan. The high school graduation plan that is used as a proxy for academic preparation was implemented in Fall 2001 for high school students. This means that for Cohort 1, the students graduating would have only had one year under this plan. In the data, many students were missing their high school plan as a data

point. This could be because they graduated under the previous plan, their graduation plan was not entered, or their school/district did not fully implement the new plan. In my analysis, this meant that more than half of the students were lost when I added academic preparation. This did not happen with Cohort 2. Due to length of time of the policy, I did not lose Cohort 2 students and the results were consistent with the literature.

Additional policies. Additional policies not included in this study may also have contributed to enrollment behavior. An infusion of financial aid money due to the Reauthorization of the Higher Education Act of 1965 may have positively impacted enrollment, persistence, and graduation for Cohort 1. Additionally, tuition regulation in Texas, which was implemented in 2003, may have had a negative impact on enrollment, persistence, and graduation. Flores and Shepherd (2014) found that Latina/o students, at four-year in particular, are negatively impacted in enrolling. Other policies, internal and external to institutions and the state, may impact student behavior.

Multicollinearity. Agresti & Finlay (2009) identify multicollinearity as “explanatory variables that ‘overlap’ considerably.... Each variable may be nearly redundant, in the sense that it can be predicted well using” other variables. In other words, multicollinearity occurs when two or more covariates in a multivariate regression are highly correlated. Additionally, multicollinearity inflates standard errors (Agresti & Finlay, 2009), which makes it important to identify highly correlated covariates to reduce the issue of multicollinearity and thus minimize standard error, and create a more accurate model.

Data limitations. Several key variables that could aid in predicting persistence and success are unavailable due to the reporting structure of the TEA and the THECB. The TEA, the state agency for public education, does not gather course grades and grade point averages. It collects only test scores as educational performance markers. A fuller discussion regarding TEA variables is outlined in the “Variables” section. Data regarding students’ higher educational experience in higher education is also unavailable. This data could include information regarding hours-per-week studying, hours-a-week participating in co-curricular activities, hours-per-week working, living in a residence hall, access to or participation in tutoring, etc. These factors would bring both more clarity in the effect of financial aid in the persistence and graduation rates of undocumented students, as well as add a level of richness to the narrative of undocumented students. Currently these data are unavailable in a format that could integrate with the financial aid, enrollment, and graduation data used in this study. Creating both a limitation to the study and also an area for future inquiry. The lack of this data may lead to omitted-data bias. Financial aid, student characteristics, and academic preparation variables may be correlated with unavailable data (e.g., college academic experiences, other measures of academic preparation, etc.) that has been excluded from the model potentially resulting in biased coefficient estimates. Finally, missing data points may bias the results overestimating or underestimating the significance of financial aid in persistence and graduation

In Chapter IV, I present my findings, which are described by research question, by cohort, and by disaggregated financial aid (i.e., aid that is divided by type: gift, loan,

other, and work-study aid) and then by aggregated financial aid (i.e., total aid). Statistical tables are provided as visual representations of the findings. I also discuss differences in the findings of Latina/o and undocumented students.

Chapter IV: Findings

Texas is one of five states that allow undocumented students to receive state financial aid. In 2001, Texas passed H.B. 1403 allowing for undocumented students to pay in-state resident tuition (ISRT) and have access to comprehensive financial aid, making it the oldest ISRT policy in the nation. Due to the current long life of the policy and broad financial aid, Texas is a prime location to analyze the impact of financial aid on the persistence and degree completion of undocumented students.

In this chapter I review my results regarding the study of persistence and degree attainment of undocumented students in Texas, specifically the impact of financial aid on these success markers, using logistic regression. I first review the results of my research regarding persistence and then graduation within six years, which is how I define success in this analysis. In this examination I reviewed the outcomes of two cohorts, which I explain below.

Cohorts

This analysis reviewed the effect of financial aid on two cohorts of undocumented students to identify the impact of the policy over time. Cohort 1 is composed of first-year students who began their college career in FY 2003. Year-to-year persistence for Cohort 1 was Fall FY 2003 to Fall FY 2004. Six-year graduation for Cohort 1 was from FY 2003 to FY 2008. Cohort 2 is composed of first-year students who began their college career in FY 2007. Year-to-year persistence for Cohort 2 was Fall FY 2007 to Fall FY 2008. Six-year graduation for Cohort 2 was from FY 2007 to FY 2012.

As stated in Chapter 3, I had recoded the financial aid variable from a continuous variable to a categorical variable. See Table 3.6. When reviewing means in the logistic regression tables, please note that they are based on the categories below.

Table 3.6 Independent Variables: Financial Aid

Items	
Grants & Scholarships	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest
Loans	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest
Other	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest
Work-Study	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest
Total Aid	0: No Aid; 1: \$1-1,000; 2: \$1,001-2,000; 3: \$2,001-3,000; 4: \$3,001-4,000; 5: \$4,001-5,000; 6: \$5,001-highest

Note: These variables are constructed variables from data gathered from the THECB via individual institutions.

LOGISTIC REGRESSION

I used logistic regression analysis to estimate whether undocumented students in light of their financial packages and its components are more likely than Texas residents to persist or graduate. I describe the results of the analysis using a stepwise model. For persistence, I began first with only financial aid variables. The second model included demographic variables along with financial aid variables. The third model included academic preparation along with the two former blocks of variables. See Figure 4.1.

Figure 4.1: Persistence Models

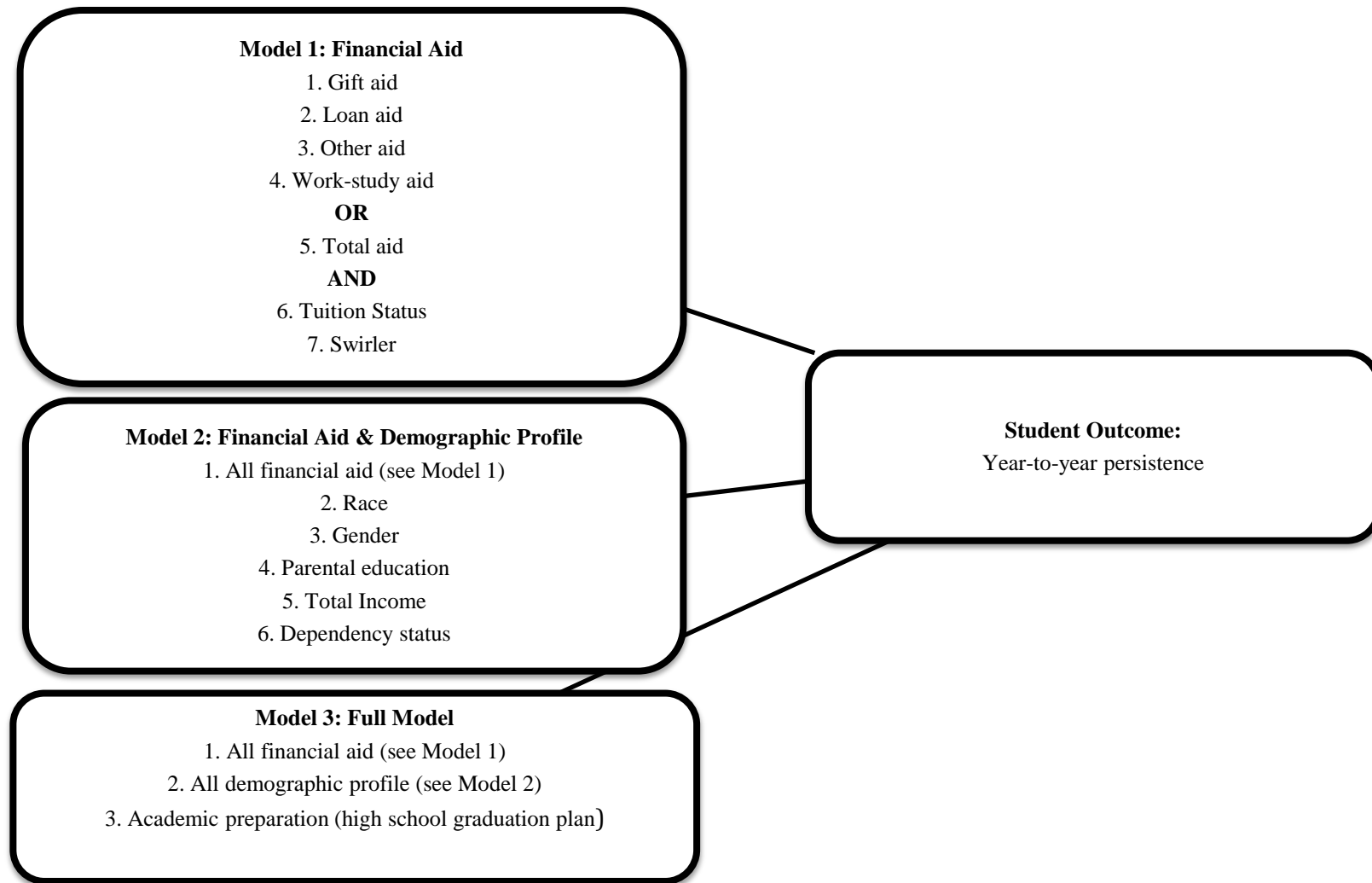
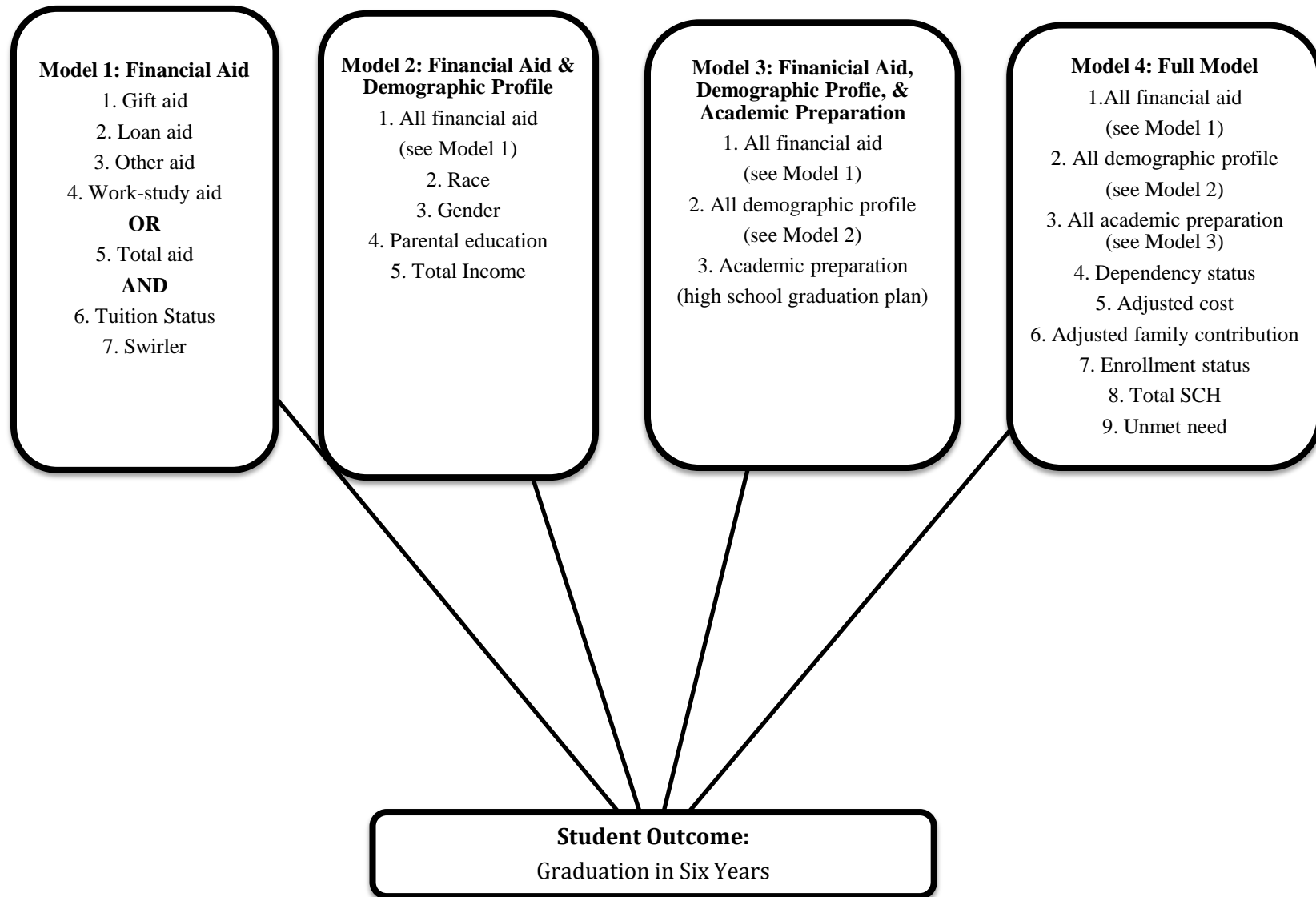


Figure 4.2: Graduation Models



For graduation, I begin first with financial aid only, second with financial aid that also includes demographic variables; and third with a model that includes academic preparation along with the two former blocks of variables; and finally, with a model that includes other personal and academic variables, along with the former three blocks of variables. See Figure 4.2. I begin with FY 2003 and then FY 2007. The results follow the research questions.

PERSISTENCE MODELS AND FINDINGS

This section describes the persistence findings of both Cohort 1 and Cohort 2. A description of the cohorts can be found above. Both Research Question 1.1 and Research Question 1.2 are answered in this section. Both research questions are reviewed by cohort; beginning with Cohort 1 followed by Cohort 2.

For clarification, levels of aid are defined as Type of Aid Fiscal Year dot Level of aid. As an example Gift03.4 is gift aid for fiscal year 2003 at the fourth level. Please refer to Table 3.6 for a breakdown of the levels.

Also note the following definition of variables. As stated in Chapter 3, a swirler is defined as a student who is attending more than one four-year institution at the same time during their first year in college. Students who attended a four-year institution and community college were not identified as swirlers, as community college data was not integrated into the data set. Tuition status coded as a 0 is a Texas resident, and a 1 is a resident immigrant (i.e., an undocumented student). See Table 3.5 for a breakdown of coding of tuition status. Also academic preparation or the Texas high school graduation plan is coded as 0 for Recommended High School Plan (RHSP) and 1 for Distinguished

Achievement Plan (DAP). Special Education and MHSP were removed from the analysis due to low numbers.

Research Question 1.1. How does the amount of financial aid affect the persistence of undocumented students? Does the type of aid (i.e., gift, loan, other, and work-study aid) affect persistence?

Research Question 1.2. How does financial aid affect undocumented college students' persistence compared to those of other ethnic groups (e.g., native-born Latina/os, African Americans, Asian American/Pacific Islanders, etc.)?

Partial Model, Student Year-to-Year Persistence for Cohort 1: financial aid (disaggregated). This section reviews a partial model of year-to-year persistence for Cohort 1. This model disaggregated aid by type of aid (i.e., gift, loan, work-study, and other). This model also included tuition status (i.e., being a resident or a resident immigrant) and swirler status (i.e., attending one four-year institution or attending more than one four-year institution). An additional model looking at total aid is discussed below. The overall model was significant at $p=0.000$.

Gift aid. For one unit of change in Gift03.1 the odds of year-to-year persistence decreased by 0.314. The odds of persisting also decreased for Gift03.2 and Gift03.3 by 0.208 and 0.248, respectively, for every unit change. Gift03.4, Gift03.5, and Gift03.6 also saw decreases in the odds that a student would persist. For every unit change in Gift03.4, the odds of persisting increased by 0.221. This decrease was 0.285 and 0.182 for Gift03.5 and Gift03.6, respectively. All FY 2003 gift variables were significant at $p=0.000$.

Table 4.1 Logistic regression of year-to-year persistence based on FY 2003 & FY 2004 (aid disaggregated)

Variables Levels	Observations n=87411 p=0.000			Observations n=87411 p=0.000			Observations n=30663 p=0.000		
	Model 1			Model 2			Model 3		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
<i>Financial Aid</i>									
FY 2003 Gift									
1	0.314	0.018	0.000	0.754	0.119	0.074	0.756	0.119	0.076
2	0.208	0.010	0.000	0.769	0.112	0.072	0.772	0.112	0.075
3	0.248	0.012	0.000	0.692	0.099	0.010	0.695	0.099	0.011
4	0.221	0.010	0.000	0.735	0.101	0.025	0.738	0.102	0.027
5	0.285	0.017	0.000	0.772	0.119	0.092	0.778	0.120	0.103
6	0.182	0.007	0.000	0.556	0.076	0.000	0.565	0.078	0.000
FY 2004 Gift									
1	3.818	0.327	0.000	1.676	0.208	0.000	1.673	0.207	0.000
2	3.967	0.279	0.000	1.793	0.209	0.000	1.795	0.210	0.000
3	4.921	0.333	0.000	2.640	0.311	0.000	2.644	0.312	0.000
4	15.314	1.249	0.000	6.652	0.864	0.000	6.689	0.871	0.000
5	26.123	2.504	0.000	13.291	1.875	0.000	13.319	1.879	0.000
6	264.636	42.042	0.000	147.757	29.561	0.000	149.415	29.982	0.000
FY 2003 Loan									
1	0.492	0.057	0.000	0.653	0.148	0.060	0.651	0.147	0.058
2	0.228	0.012	0.000	0.539	0.068	0.000	0.539	0.068	0.000
3	0.559	0.020	0.000	0.890	0.088	0.239	0.890	0.088	0.239
4	0.270	0.020	0.000	0.549	0.083	0.000	0.544	0.083	0.000
5	0.301	0.036	0.000	0.787	0.178	0.291	0.784	0.178	0.283
6	0.385	0.017	0.000	0.607	0.071	0.000	0.607	0.071	0.000
FY 2004 Loan									
1	3.782	0.749	0.000	1.240	0.265	0.313	1.239	0.265	0.316
2	6.752	0.574	0.000	2.011	0.233	0.000	2.014	0.234	0.000
3	6.473	0.481	0.000	1.465	0.160	0.000	1.471	0.161	0.000
4	16.701	1.251	0.000	3.522	0.400	0.000	3.501	0.399	0.000
5	6.010	0.830	0.000	1.599	0.265	0.005	1.588	0.264	0.005
6	33.512	2.620	0.000	7.160	0.922	0.000	7.116	0.918	0.000

Table 4.1 Logistic regression of year-to-year persistence based on FY 2003 & FY 2004 (aid disaggregated)

Variables		Model 1			Model 2			Model 3		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	
FY 2003 Other										
1	1.260	0.084	0.001	1.488	0.228	0.010	1.508	0.233	0.008	
2	1.385	0.161	0.005	1.600	0.447	0.092	1.625	0.455	0.083	
3	1.784	0.303	0.001	1.143	0.391	0.696	1.157	0.396	0.670	
4	2.716	0.643	0.000	5.363	5.489	0.101	5.498	5.632	0.096	
5	4.409	1.224	0.000	1.101	0.850	0.900	1.119	0.864	0.884	
6	1.834	0.397	0.005	1.210	0.688	0.737	1.233	0.701	0.712	
FY 2004 Other										
1	3.142	0.945	0.000	1.978	0.634	0.033	1.965	0.630	0.035	
2	3.376	1.439	0.004	2.090	0.930	0.097	2.074	0.922	0.101	
3	2.999	1.426	0.021	2.518	1.575	0.140	2.498	1.563	0.143	
4	5.367	5.467	0.099	3.793	4.004	0.207	3.764	3.974	0.209	
5	Empty			Empty			Empty			
6	2.590	1.230	0.045	4.782	3.332	0.025	4.766	3.317	0.025	
FY 2003 Work-study										
1	0.773	0.090	0.027	0.833	0.153	0.318	0.836	0.154	0.329	
2	0.693	0.090	0.005	0.821	0.166	0.329	0.822	0.167	0.334	
3	0.855	0.156	0.391	0.856	0.240	0.577	0.850	0.238	0.577	
4	1.440	0.512	0.305	0.816	0.416	0.690	0.811	0.414	0.682	
5	2.460	1.747	0.207	Empty			Empty			
6	1.072	1.857	0.968	Empty			Empty			
FY 2004 Work-study										
1	1.929	0.548	0.021	1.485	0.432	0.175	1.483	0.432	0.177	
2	3.107	1.065	0.001	3.437	1.388	0.002	3.424	1.383	0.002	
3	10.132	7.288	0.001	8.854	6.417	0.003	8.858	6.423	0.003	
4	8.936	6.455	0.002	15.270	15.503	0.007	15.185	15.417	0.007	
5	Empty			Empty			Empty			
6	Empty			Empty			Empty			
Tuition Status	1.450	0.289	0.062	Omitted			Omitted			
Swirler	0.497	0.123	0.005	1.736	1.335	0.473	1.715	1.319	0.483	

Table 4.1 Logistic regression of year-to-year persistence based on FY 2003 & FY 2004 (aid disaggregated)

Variables		Model 1			Model 2			Model 3		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	
<i>Demographics</i>										
African American				0.753	0.065	0.001	0.752	0.064	0.001	
Asian/Pacific Islander				1.873	0.363	0.001	1.866	0.361	0.001	
International				Omitted			Omitted			
Latina/o				0.707	0.058	0.000	0.705	0.058	0.000	
Native American				0.533	0.190	0.078	0.530	0.190	0.076	
Unknown				2.425	2.504	0.391	2.415	2.494	0.393	
(Ref: White)										
FY 2003 Dependency Status				1.674	0.233	0.000	1.661	0.232	0.000	
FY 2004 Dependency Status				0.880	0.117	0.337	0.877	0.117	0.324	
Gender				1.125	0.069	0.053	1.126	0.069	0.052	
Mother's Ed Level										
1				1.207	0.133	0.089	1.207	0.133	0.088	
2				1.383	0.169	0.008	1.383	0.169	0.008	
3				1.258	0.170	0.089	1.258	0.170	0.089	
Father's Ed Level										
1				1.044	0.117	0.701	1.045	0.117	0.696	
2				1.056	0.132	0.663	1.056	0.132	0.664	
3				1.002	0.129	0.985	1.004	0.130	0.975	
FY 2003 Total Income										
1				Empty			Empty			
2				0.897	0.075	0.196	0.898	0.075	0.198	
3				1.125	0.130	0.308	1.131	0.131	0.287	
4				1.081	0.172	0.627	1.091	0.175	0.585	
5				1.429	0.371	0.170	1.444	0.376	0.158	
FY 2004 Total Income										
1				Empty			Empty			
2				2.113	0.182	0.000	2.117	0.182	0.000	
3				4.838	0.545	0.000	4.868	0.549	0.000	
4				8.012	1.220	0.000	8.095	1.237	0.000	
5				9.474	2.198	0.000	9.584	2.228	0.000	
<i>Academic Preparation</i>										
HS Graduation Plan							0.983	0.023	0.459	
Constant	2.315	0.025	0.000	1.001	0.196	0.997	1.012	0.199	0.951	

Note. "Omitted" data indicates that the variable perfectly predicted persistence.

FY 2004 gift aid, overall, increased the odds that a student would persist. For every unit change in Gift04.1, a student's odds of persistence increased by 3.818. Similarly, the odds for year-to-year persistence increased by 3.967 for Gift04.2. The remaining four gift aid categories (Gift04.3, Gift04.4, Gift04.5, and Gift04.6) also increased the odds of persistence for each unit change, at 4.921, 15.314, 26.123, and 264.636, respectively. All FY 2004 gift variables were significant at $p=0.000$.

Loan aid. Like the results for gift aid above, loan aid for FY 2003 decreased the odds of year-to-year persistence while all FY 2004 loan aid increased the odds of year-to-year persistence. For every unit change in Loan03.1 aid, the odds of persisting from Fall FY 2003 to Spring FY 2003 decreased by 0.492. There was also a decrease of 0.228 in the odds of persisting for every unit change for Loan03.2. Loan03.3 showed decrease of 0.559 in the odds of persisting from Fall FY 2003 to Spring FY 2003. There was a decrease of 0.270 in the odds of persisting for every unit change for Loan03.4. Loan03.5 and Loan03.6 had a decrease in the odds of persisting by 0.301 and 0.385, respectively. All FY 2003 loan variables were significant at $p=0.000$.

FY 2004 loan aid, overall, increased the odds that a student would persist. For every unit change in Loan04.1, a student's odds of persistence increased by 3.782. Similarly, the odds for year-to-year persistence would increase by 6.752 for Loan04.2. The remaining four loan aid categories (Loan04.3, Loan04.4, Loan04.5, and Loan04.6) also increased the odds to persist for each unit change at 6.473, 16.701, 6.010, and 33.512, respectively. All FY 2004 loan variables were significant at $p=0.000$.

Other aid. All levels of FY Fall 2003 other aid for every unit of change increased the odds of persisting from Fall FY 2003 to Fall FY 2004. For every unit change in Other03.1 there was an increase in the odds of persisting by 1.260, significant at $p=0.001$. Other03.2 increased the odds of persisting by 1.385 for every unit change and was significant at $p=0.005$. Other03.3 increased the odds of persisting by 1.784 for every unit change and was significant at $p=0.001$. Other03.4 increased the odds of persisting by 2.716 for every unit change and was significant at $p=0.000$. Other03.5 and Other03.6 also increased the odds of year-to-year persistence at 4.409 and 1.834 and was significant at $p=0.000$ and $p=0.005$, respectively.

FY 2004 other aid, overall, increased the odds that a student would persist. For every unit change in Other04.1, a student's odds of persistence increased by 3.142 and was significant at $p=0.000$. Other04.2 for every unit change increased the odds of persistence by 3.376 and was significant at $p=0.004$. Other04.3 and Other04.6 also increased the odds of persistence, for each unit change at 2.999 and 2.590 and were significant at $p=0.021$ and $p=0.045$, respectively. Other04.4 was not significant. Other04.5 was not included in the model as it perfectly predicted success. 146 observations were dropped.

Work-study aid. Low levels of work-study aid decreased the odds of year-to-year persisting in FY 2003 and FY 2004 while higher levels increased the odds. Higher levels of work-study aid were not significant. For every unit change in WorkStudy03.1, the odds of persisting decreased by 0.773 and was significant at $p=0.027$. WorkStudy03.2 also decreased the odds of persisting by 0.693 for every unit change and was significant

at $p=0.005$. WorkStudy03.3, WorkStudy03.4, WorkStudy03.5, and WorkStudy03.6 were not significant.

In contrast to FY 2003 work-study aid, FY 2004 generally increased the odds of year-to-year persisting. For every unit change in WorkStudy04.1, the odds of persisting increased by 1.929, and was significant at $p=0.021$. WorkStudy04.2 and WorkStudy04.3 also increased the odds of persisting by 3.107 and 10.132, respectively, for every unit change. Both were significant at $p=0.001$. For every unit change in WorkStudy04.4, the odds of persisting increased by 8.936, and was significant at $p=0.002$. WorkStudy04.5 and WorkStudy04.6 were not included in the model as they perfectly predicted success. 85 and 38 observations were dropped, respectively.

Tuition status and swirler status. Non-financial aid variables included in the model were tuition status and swirler status. One unit increase in tuition status increased the odds of persisting by 1.450 and but was not significant. One unit increase in swirlers decreased the odds of persisting by 0.497. The swirler variable was significant at $p=0.005$. See Table 4.1.

Partial Model, Student Year-to-Year Persistence for Cohort 1: financial aid (aggregated). A partial model using total aid (i.e., aggregated aid) was also reviewed for Cohort 1 year-to-year persistence. The model also included tuition and swirler statuses. The model was significant at $p=0.000$.

Total aid. For every unit change, all total aid categories for FY 2003 (Total03.1, Total03.2, Total03.3, Total03.4, Total03.5, and Total03.6) decreased the odds of persistence by 0.158, 0.109, 0.227, 0.154, 0.149, and 0.150 respectively. All were

significant at $p=0.000$. In contrast, total aid categories for FY 2004 increased the odds of year-to-year persistence. For every unit increase, Total04.1 increased the odds of persistence by 7.359. The increase in odds, for every unit increase, for Total04.2 was 9.337. For Total04.3, the increase in odds of persisting was 13.186 for every unit change. For every unit change, the odds in persisting increased by 28.801 for Total04.4. For Total04.5, the increase in odds of persisting was 24.265 for every unit change. Finally, for Total04.6 increased the odds of persistence by 136.780. All total categories for FY 2004 were significant at $p=0.000$.

Tuition status and swirler status. Non-financial aid variables included in the model were tuition status and swirler status. One unit increase in tuition status increased the odds of persisting by 1.477 but was not significant. One unit increase in swirlers decreased the odds of persisting by 0.469. The swirler variable was significant at $p=0.002$. See Table 4.2.

Table 4.2 Logistic regression of year-to-year persistence based on FY 2003 & FY 2004 (aid aggregated)

Variables Levels	Observations n=87680 p=0.000			Observations n=30931 p=0.000			Observations n=30931 p=0.000		
	OR	Model 1 Std. Error	p	OR	Model 2 Std. Error	p	OR	Model 3 Std. Error	p
<i>Financial Aid</i>									
FY 2003 Total									
1	0.158	0.015	0.000	Empty			Empty		
2	0.109	0.006	0.000	0.860	0.248	0.602	0.848	0.224	0.568
3	0.227	0.010	0.000	1.098	0.299	0.731	1.081	0.294	0.776
4	0.154	0.007	0.000	1.060	0.286	0.829	1.033	0.279	0.905
5	0.149	0.008	0.000	1.092	0.301	0.750	1.055	0.291	0.847
6	0.150	0.004	0.000	0.920	0.240	0.748	0.858	0.224	0.556
FY 2004 Total									
1	7.359	0.886	0.000	0.050	0.008	0.000	0.051	0.008	0.000
2	9.337	0.715	0.000	0.050	0.005	0.000	0.050	0.005	0.000
3	13.186	0.896	0.000	0.077	0.007	0.000	0.076	0.007	0.000
4	28.801	1.892	0.000	0.149	0.014	0.000	0.150	0.014	0.000
5	24.265	1.690	0.000	0.144	0.013	0.000	0.144	0.013	0.000
6	136.780	7.165	0.000	Omitted			Omitted		
Tuition Status	1.477	0.302	0.057	Omitted			Omitted		
Swirler	0.469	0.117	0.002	1.214	0.926	0.799	1.307	0.997	0.725
<i>Demographics</i>									
African American				0.700	0.059	0.000	0.704	0.059	0.000
Asian/Pacific Islander				2.191	0.415	0.000	2.205	0.419	0.000
International				Omitted			Omitted		
Latina/o				0.830	0.066	0.018	0.828	0.066	0.017
Native American				0.515	0.181	0.059	0.522	0.183	0.064
Unknown (Ref: White)				2.317	2.375	0.412	2.368	2.428	0.400

Table 4.2 Logistic regression of year-to-year persistence based on FY 2003 & FY 2004 (aid aggregated)

Variables Levels	Model 1			Model 2			Model 3		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
FY 2003 Dep. Status				1.572	0.217	0.001	1.647	0.228	0.000
FY 2004 Dep. Status				0.671	0.088	0.002	0.688	0.090	0.004
Gender				1.194	0.071	0.003	1.187	0.071	0.004
Mother's Ed Level									
1				1.186	0.126	0.109	1.186	0.126	0.110
2				1.327	0.157	0.017	1.328	0.157	0.016
3				1.155	0.149	0.263	1.158	0.149	0.254
Father's Ed Level									
1				1.011	0.110	0.917	1.008	0.109	0.939
2				1.051	0.127	0.684	1.054	0.128	0.667
3				1.035	0.128	0.780	1.027	0.127	0.828
FY 2003 Total Income									
1				Empty			Empty		
2				0.888	0.071	0.141	0.883	0.071	0.122
3				1.090	0.121	0.440	1.068	0.119	0.553
4				0.896	0.136	0.472	0.874	0.133	0.374
5				1.008	0.258	0.974	0.989	0.253	0.966
FY 2004 Total Income									
1				Empty			Empty		
2				1.724	0.142	0.000	1.709	0.141	0.000
3				3.135	0.337	0.000	3.079	0.332	0.000
4				4.594	0.677	0.000	4.475	0.659	0.000
5				5.439	1.264	0.000	5.281	1.226	0.000
Academic Preparation									
HS Graduation Plan							1.085	0.022	0.000
Constant	2.383	0.027	0.000	30.785	9.047	0.000	29.090	8.562	0.000

Note. "Omitted" data indicates that the variable perfectly predicted persistence.

Partial Model, Student Year-to-Year Persistence for Cohort 1: financial aid (disaggregated) and demographic profile. This section reviews a partial model of year-to-year persistence for Cohort 1. This model includes disaggregated aid, tuition and swirler statuses, and demographic variables. The demographic variables included are: racial categories, gender, dependency status, parental education, and total income. The overall model was significant at $p=0.000$.

Racial categories, gender, and dependency status. The odds of a student's persisting increased if the student was Asian American/Pacific Islander American by 1.873, and was significant at $p=0.001$. The odds of a student persisting decreased if the student was African American and Latina/o by 0.753 and 0.707, respectively. Both were significant at $p=0.001$ and $p=0.000$, respectively. Native American and Unknown racial groups were not significant. International students were not included in the model as they perfectly predicted year-to-year persistence. Six observations were dropped from the model. Gender was not significant. One unit increase in dependency status in FY 2003 increased the odds of persisting by 1.674 and was significant at $p=0.000$. Dependency status in FY 2004 was not significant.

Parental education. No level of father's education was significant, and college education was significant only for mother's education at $p=0.008$ and increased the odds of persisting by 1.383.

Total income. The total income variable levels were significant in FY 2004 but not in FY 2003. TotalIncome04.2 increased the odds of year-to-year persistence by 2.113. The three other levels (TotalIncome04.3, TotalIncome04.4, and TotalIncome04.5)

also increased 4.838, 8.012, and 9.474, respectively. All levels of FY 2004 total income were significant at $p=0.000$. TotalIncome03.1 and TotalIncome04.1 had no cases. See Table 4.1.

Partial Model, Student Year-to-Year Persistence for Cohort 1: financial aid (aggregated). A partial model using total aid (i.e., aggregated aid), tuition and swirler statuses, and demographic variables was also reviewed for Cohort 1 year-to-year persistence. Demographic variables included race/ethnicity, gender, and dependency status. The model was significant at $p=0.000$.

Racial categories, gender, and dependency status. The odds of a student's persisting increased if the student was Asian American/Pacific Islander American by 2.191, and was significant at $p=0.000$. The odds of a student persisting decreased if the student was African American or Latina/o by 0.700 and 0.830, respectively. They were significant at $p=0.000$ and $p=0.018$, respectively. Native American and Unknown racial groups were not significant. International students were not included in the model as the variable perfectly predicted success, and six observations were dropped. For every unit change, from male to female, there was an increase in the odds to persist of 1.194. Gender was significant at $p=0.003$. One unit increase in dependency status in FY 2003 increased the odds of persisting by 1.572 and was significant at $p=0.001$. In contrast, one unit increase in dependency status in FY 2004 decreased the odds of persisting by 0.671, and was significant at $p=0.002$.

Parental education. No level of father's education was significant, and college education was significant only for mother's education at $p=0.017$, which increased the odds of persisting by 1.327.

Total income. The total income variable levels in FY 2003 were not significant. In contrast, all total income variable levels in FY 2004 were significant as well as increasing the odds of year-to-year persistence. TotalIncome04.2 increased the odds of year-to-year persistence by 1.724. The three other levels (TotalIncome04.3, TotalIncome04.4, and TotalIncome04.5) also increased 3.135, 4.594, and 5.439, respectively. All were significant at $p=0.000$. TotalIncome03.1 and TotalIncome04.1 had no cases. See Table 4.2.

Full Model to Predict Student Year-to-Year Persistence Cohort 1, (financial aid disaggregated). A full model using disaggregated financial aid and tuition status, along with demographic and academic preparation variables was studied to predict student year-to-year persistence for Cohort 1. Texas high school graduation plan type acts as a proxy for academic preparation. The full model is significant at $p=0.000$.

Academic preparation. The high school graduation plan was not significant. See Table 4.1.

Full Model to Predict Student year-to-year Persistence Cohort 1, (financial aid aggregated). A full model using total aid (aggregated aid) and tuition and swirler status, along with demographic and academic preparation variables, was studied to predict student year-to-year persistence for Cohort 1. The model was significant at $p=0.000$.

Academic preparation. One unit change in the high school graduation plan (from the RHSP to DAP) increased the odds of year-to-year persistence by 1.085. Academic preparation was significant at $p=0.000$. See Table 4.2.

The next section reviews Cohort 2 year-to-year persistence.

Partial Model, Student Year-to-Year Persistence for Cohort 2: Financial aid (disaggregated). This section reviews a partial model of year-to-year persistence for Cohort 2. This model disaggregated aid by type of aid (i.e., gift, loan, work-study, and other). This model also included tuition status (i.e., being a resident or a resident immigrant) and swirler status (i.e., attending one four-year institution or attending more than one four-year institution). An additional model examining total aid is discussed below. The overall model was significant at $p=0.000$.

Gift aid. FY 2007 gift aid decreased the odds of year-to-year persisting while FY 2008 gift aid generally increased the odds of persistence. For one unit of change in Gift07.1 the odds of year-to-year persisting decreased by 0.540. The odds of persisting also decreased for Gift07.2 and Gift07.3 by 0.414 and 0.280 respectively for every unit change. Gift07.4, Gift07.5, and Gift07.6 also saw decreases in the odds that a student would persist. For every unit change in Gift07.4, the odds of persisting decreased by 0.268. This decrease was 0.203 and 0.231 for Gift07.5 and Gift07.6, respectively. All FY 2007 gift variables were significant at $p=0.000$.

For every unit change in Gift08.1, a student's odds of persistence increased by 4.524. Similarly, the odds for year-to-year persistence increased by 5.967 for Gift08.2. The remaining four gift aid categories (Gift08.3, Gift08.4, Gift08.5, and Gift08.6) also

increased the odds of persistence, for each unit change at 5.660, 13.455, 34.440, and 139.068, respectively. All FY 2008 gift variables were significant at $p=0.000$.

Loan aid. Like the results for gift aid above, loan aid for FY 2007 decreased the odds of year-to-year persistence while all FY 2008 loan aid increased the odds of year-to-year persistence. For every unit change in Loan07.1 aid, the odds of persisting from Fall FY 2007 to Fall FY 2008 decreased by 0.181. There was also a decrease of 0.134 in the odds of persisting for every unit change for Loan07.2. For Loan07.3 there was a decrease of 0.620 in the odds of persisting from Fall FY 2007 to Fall FY 2008. There was a decrease of 0.121 in the odds of persisting for every unit change for Loan07.4. Loan07.5 and Loan07.6 had a decrease in the odds of persisting by 0.329 and 0.321, respectively. All FY 2007 loan variables were significant at $p=0.000$.

FY 2008 loan aid increased the odds that a student would persist. For every unit change in Loan08.1, a student's odds of persistence increased by 5.334. Similarly, the odds for year-to-year persistence increased by 7.687 for Loan08.2. The remaining four loan aid categories (Loan08.3, Loan08.4, Loan08.5, and Loan08.6) also increased the odds of persistence, for each unit change, at 5.879, 11.856, 18.448, and 42.537, respectively. All FY 2007 loan variables were significant at $p=0.000$.

Other aid. All levels of FY Fall 2007 other aid, for every unit of change, increased the odds of persisting from Fall FY 2007 to Fall FY 2008. For every unit change in Other07.1, there was an increase in the odds of persisting by 1.429. Other07.2 increased the odds of persisting by 1.579 for every unit change. Other07.3 increased the odds of persisting by 1.533 for every unit change. Other07.6 also increased the odds of

year-to-year persistence at 1.910. All other financial aid levels were significant at $p=0.000$, except Other07.4 and Other07.5. Other07.4 and Other07.5 were not significant.

FY 2008 other aid increased the odds that a student would persist. For every unit change in Other08.1, a student's odds of persistence increased by 5.584 and was significant at $p=0.000$. For Other08.2, every unit change, increased the odds of persistence by 3.500 and was significant at $p=0.001$. Other08.3, Other08.4, Other08.5 and Other08.6 also increased the odds of persistence, for each unit change, at 3.681, 6.651, 9.275, and 6.531 and were significant at $p=0.000$, $p=0.002$, $p=0.000$, and $p=0.000$, respectively.

Work-study aid. Overall, work-study aid in FY 2007 was not significant. Only WorkStudy07.1, which decreased the odds of persisting by 0.591 for every unit change, was significant at $p=0.000$. WorkStudy07.2, WorkStudy07.3, WorkStudy07.4, WorkStudy07.5, and WorkStudy07.6 were not significant.

For every unit change in WorkStudy08.1 the odds of persisting increased by 6.238 and was significant at $p=0.000$. WorkStudy08.3 also increased the odds of persisting by 11.290 for every unit change and was significant at $p=0.001$. WorkStudy08.2 was not significant. WorkStudy08.4, WorkStudy08.5 and WorkStudy08.6 were not included in the model as they perfectly predicted success. 510, 156, and 85 observations were dropped, respectively.

Tuition status and swirler status. Non-financial aid variables included in the model were tuition status and swirler status. One unit increase in tuition status (from resident to undocumented student) decreased the odds of persisting by 0.511 and was

significant at $p=0.000$. One unit increase in swirlers decreased the odds of persisting by 0.606. The swirler variable was significant at $p=0.010$. See Table 4.3.

Partial Model, Student Year-to-Year Persistence for Cohort 2: Financial Aid (aggregated). A partial model using total aid (i.e., aggregated aid) was also reviewed for Cohort 2 year-to-year persistence. The model also included tuition and swirler statuses. The model was significant at $p=0.000$.

Total aid. For every unit change, all total aid categories for FY 2007 (Total07.1, Total07.2, Total07.3, Total07.4, Total07.5, and Total07.6) decreased the odds of persistence by 0.483, 0.198, 0.307, 0.179, 0.165, and 0.160 respectively. All were significant at $p=0.000$. In contrast, total aid categories for FY 2008 increased the odds of year-to-year persistence. For every unit increase, Total08.1 increased the odds of persistence by 13.463. For every unit increase for Total08.2 was 21.808. For Total08.3, the increase in odds of persisting was 18.489 for every unit change. For every unit change, the odds in persisting increased by 31.417 for Total08.4. For Total08.5, the increase in odds of persisting was 42.950 for every unit change. Finally, for Total08.6, the odds of increase in persistence was 125.882. All total aid categories for FY 2008 were significant at $p=0.000$.

Table 4.3 Logistic regression of year-to-year persistence based on FY 2007 & FY 2008 (aid disaggregated)

Variables Levels	Observations n=86188 p=0.000			Observations n=86188 p=0.000			Observations n=86188 p=0.000		
	Model 1			Model 2			Model 3		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
<i>Financial Aid</i>									
FY 2007 Gift									
1	0.540	0.025	0.000	1.069	0.059	0.221	0.995	0.055	0.931
2	0.414	0.018	0.000	0.929	0.050	0.171	0.861	0.047	0.006
3	0.280	0.013	0.000	0.834	0.049	0.002	0.759	0.045	0.000
4	0.268	0.014	0.000	0.947	0.063	0.416	0.872	0.058	0.041
5	0.203	0.011	0.000	0.825	0.055	0.004	0.749	0.050	0.000
6	0.231	0.009	0.000	0.827	0.044	0.000	0.712	0.038	0.000
FY 2008 Gift									
1	4.524	0.405	0.000	1.518	0.148	0.000	1.516	0.148	0.000
2	5.967	0.498	0.000	2.478	0.235	0.000	2.493	0.238	0.000
3	5.660	0.438	0.000	3.150	0.292	0.000	3.190	0.297	0.000
4	13.455	1.535	0.000	5.989	0.736	0.000	5.990	0.737	0.000
5	34.440	4.785	0.000	18.763	2.789	0.000	18.460	2.747	0.000
6	139.068	15.890	0.000	53.760	6.804	0.000	50.043	6.335	0.000
FY 2007 Loan									
1	0.181	0.026	0.000	0.236	0.036	0.000	0.245	0.038	0.000
2	0.134	0.008	0.000	0.183	0.013	0.000	0.194	0.013	0.000
3	0.620	0.023	0.000	0.658	0.029	0.000	0.671	0.030	0.000
4	0.121	0.009	0.000	0.199	0.016	0.000	0.217	0.017	0.000
5	0.329	0.032	0.000	0.357	0.039	0.000	0.353	0.038	0.000
6	0.321	0.010	0.000	0.355	0.014	0.000	0.356	0.014	0.000
FY 2008 Loan									
1	5.334	1.552	0.000	1.533	0.441	0.138	1.495	0.429	0.162
2	7.687	0.959	0.000	2.488	0.327	0.000	2.397	0.317	0.000
3	5.879	0.622	0.000	1.373	0.155	0.005	1.455	0.165	0.001
4	11.856	0.950	0.000	3.154	0.290	0.000	3.098	0.286	0.000
5	18.448	1.511	0.000	3.555	0.331	0.000	3.994	0.373	0.000
6	42.537	2.763	0.000	7.680	0.614	0.000	7.998	0.640	0.000

Table 4.3 Logistic regression of year-to-year persistence based on FY 2007 & FY 2008 (aid disaggregated)

Variables	Model 1			Model 2			Model 3		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
FY 2007 Other									
1	1.429	0.078	0.000	1.446	0.087	0.000	1.240	0.075	0.000
2	1.579	0.141	0.000	1.534	0.146	0.000	1.301	0.125	0.006
3	1.533	0.174	0.000	1.580	0.193	0.000	1.394	0.171	0.007
4	1.222	0.199	0.218	1.160	0.200	0.389	1.016	0.176	0.982
5	1.257	0.220	0.191	1.362	0.256	0.100	1.226	0.232	0.282
6	1.910	0.240	0.000	2.422	0.325	0.000	2.194	0.297	0.000
FY 2008 Other									
1	5.584	1.470	0.000	2.019	0.522	0.007	1.962	0.506	0.009
2	3.500	1.270	0.001	1.223	0.433	0.571	1.278	0.454	0.491
3	3.681	1.266	0.000	1.249	0.419	0.507	1.320	0.444	0.409
4	6.651	4.114	0.002	1.870	1.129	0.300	1.955	1.179	0.266
5	9.275	5.848	0.000	2.135	1.310	0.217	2.173	1.329	0.204
6	6.531	3.028	0.000	2.607	1.198	0.037	2.714	1.236	0.028
FY 2007 Work-study									
1	0.591	0.083	0.000	0.629	0.094	0.002	0.614	0.093	0.001
2	0.858	0.135	0.329	0.863	0.143	0.375	0.833	0.139	0.276
3	0.941	0.179	0.751	0.967	0.197	0.869	0.921	0.187	0.684
4	0.685	0.239	0.277	0.734	0.266	0.393	0.743	0.269	0.411
5	0.504	0.428	0.419	0.542	0.447	0.458	0.650	0.546	0.608
6	2.467	3.016	0.460	1.552	2.080	0.743	1.871	2.440	0.631
FY 2008 Work-study									
1	6.238	2.845	0.000	4.013	1.680	0.001	4.033	1.695	0.001
2	1.457	0.400	0.170	1.364	0.366	0.247	1.324	0.356	0.297
3	11.290	8.216	0.001	7.523	5.376	0.005	7.276	5.200	0.005
4	Empty			Empty			Empty		
5	Empty			Empty			Empty		
6	Empty			Empty			Empty		
Tuition Status	0.511	0.044	0.000	0.642	0.061	0.000	0.797	0.076	0.018
Swirler	0.606	0.119	0.010	0.724	0.153	0.128	0.878	0.187	0.540

Table 4.3 Logistic regression of year-to-year persistence based on FY 2007 & FY 2008 (aid disaggregated)

Variables	Model 1			Model 2			Model 3		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
<i>Demographics</i>									
African American				0.356	0.013	0.000	0.394	0.014	0.000
Asian/Pacific Islander				1.246	0.056	0.000	1.290	0.058	0.000
International				0.286	0.045	0.000	0.330	0.053	0.000
Latina/o				0.486	0.012	0.000	0.522	0.013	0.000
Native American				0.581	0.071	0.000	0.606	0.075	0.000
Unknown				0.886	0.117	0.359	0.989	0.131	0.932
(Ref: White)									
FY 2007 Dependency Status				0.628	0.044	0.000	0.788	0.056	0.001
FY 2008 Dependency Status				0.990	0.097	0.922	0.998	0.097	0.982
Gender				1.129	0.023	0.000	1.095	0.022	0.000
Mother's Ed Level									
1				0.914	0.061	0.175	0.916	0.061	0.186
2				1.121	0.077	0.098	1.123	0.078	0.092
3				1.984	0.161	0.000	1.984	0.161	0.000
Father's Ed Level									
1				1.043	0.068	0.518	1.037	0.068	0.585
2				1.438	0.099	0.000	1.440	0.994	0.000
3				1.305	0.099	0.000	1.291	0.098	0.001
FY 2007 Total Income									
1				0.171	0.015	0.000	0.171	0.015	0.000
2				0.126	0.011	0.000	0.125	0.011	0.000
3				0.236	0.020	0.000	0.224	0.019	0.000
4				0.450	0.037	0.000	0.412	0.034	0.000
5				0.695	0.059	0.000	0.621	0.053	0.000
FY 2008 Total Income									
1				5.575	0.463	0.000	5.847	0.487	0.000
2				10.621	0.866	0.000	11.088	0.907	0.000
3				15.602	1.290	0.000	16.213	1.346	0.000
4				13.190	1.061	0.000	13.185	1.064	0.000
5				10.201	0.984	0.000	10.126	0.979	0.000
<i>Academic Preparation</i>									
HS Graduation Plan							1.210	0.008	0.000
Constant	2.160	0.026	0.000	2.745	0.050	0.000	2.061	0.043	0.000

Table 4.4 Logistic regression of year-to-year persistence based on FY 2007 & FY 2008 (aid aggregated)

Variables Levels	Observations n=86939 p=0.000			Observations n=86939 p=0.000			Observations n=86939 p=0.000		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
<i>Financial Aid</i>									
FY 2007 Total									
1	0.483	0.028	0.000	1.031	0.075	0.678	0.928	0.069	0.318
2	0.198	0.010	0.000	0.417	0.028	0.000	0.398	0.027	0.000
3	0.307	0.013	0.000	0.616	0.035	0.000	0.582	0.034	0.000
4	0.179	0.009	0.000	0.468	0.030	0.000	0.442	0.029	0.000
5	0.165	0.009	0.000	0.495	0.034	0.000	0.451	0.031	0.000
6	0.160	0.004	0.000	0.405	0.018	0.000	0.363	0.016	0.000
FY 2008 Total									
1	13.463	1.831	0.000	2.809	0.423	0.000	2.716	0.411	0.000
2	21.808	2.610	0.000	4.557	0.606	0.000	4.609	0.617	0.000
3	18.489	1.778	0.000	3.896	0.434	0.000	3.921	0.439	0.000
4	31.417	2.809	0.000	6.241	0.650	0.000	6.160	0.644	0.000
5	42.950	3.599	0.000	8.579	0.846	0.000	8.983	0.889	0.000
6	125.882	5.780	0.000	33.857	2.341	0.000	33.896	2.353	0.000
Tuition Status	0.515	0.045	0.000	0.689	0.066	0.000	0.870	0.083	0.145
Swirler	0.582	0.114	0.006	0.702	0.149	0.096	0.868	0.185	0.508
<i>Demographics</i>									
African American				0.326	0.011	0.000	0.369	0.013	0.000
Asian/Pacific Islander				1.287	0.057	0.000	1.332	0.060	0.000
International				0.277	0.044	0.000	0.325	0.052	0.000
Latina/o				0.503	0.012	0.000	0.543	0.013	0.000
Native American				0.585	0.071	0.000	0.612	0.075	0.000
Unknown				0.892	0.116	0.380	1.004	0.132	0.979
(Ref: White)									

Table 4.4 Logistic regression of year-to-year persistence based on FY 2007 & FY 2008 (aid aggregated)

Variables	Model 1			Model 2			Model 3		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
FY 2007 Dep. Status				0.519	0.035	0.000	0.696	0.048	0.000
FY 2008 Dep. Status				0.712	0.065	0.000	0.732	0.067	0.001
Gender				1.139	0.023	0.000	1.099	0.022	0.000
Mother's Ed Level									
1				0.816	0.055	0.019	0.870	0.055	0.029
2				1.063	0.070	0.357	1.072	0.071	0.297
3				1.972	0.154	0.000	1.981	0.156	0.000
Father's Ed Level									
1				1.004	0.063	0.950	1.004	0.063	0.951
2				1.436	0.095	0.000	1.449	0.096	0.000
3				1.281	0.093	0.001	1.269	0.093	0.001
FY 2007 Total Income									
1				0.229	0.019	0.000	0.219	0.018	0.000
2				0.165	0.014	0.000	0.159	0.013	0.000
3				0.263	0.022	0.000	0.245	0.021	0.000
4				0.489	0.041	0.000	0.446	0.037	0.000
5				0.765	0.066	0.002	0.687	0.060	0.000
FY 2008 Total Income									
1				7.370	0.570	0.000	7.546	0.586	0.000
2				10.214	0.816	0.000	10.552	0.846	0.000
3				10.775	0.898	0.000	11.327	0.950	0.000
4				7.421	0.598	0.000	7.554	0.613	0.000
5				5.571	0.532	0.000	5.730	0.551	0.000
<i>Academic Preparation</i>									
HS Graduation Plan							1.238	0.008	0.000
Constant	2.210	0.027	0.000	2.721	0.050	0.000	1.982	0.041	0.000

Tuition status and swirler status. Non-financial aid variables included in the model were tuition status and swirler status. One unit increase in tuition status decreased the odds of persisting by 0.515 and was significant at $p=0.000$. The tuition status variable was significant at $p=0.000$. One unit increase in swirlers decreased the odds of persisting by 0.582. The swirler variable was significant at $p=0.006$. See Table 4.4.

Partial Model, Student Year-to-Year Persistence for Cohort 2: financial aid (disaggregated) and demographic profile. A partial model using disaggregated financial aid and demographic profile variables was reviewed for Cohort 2 year-to-year persistence. This model included all the financial aid variables from the previous model, along with race/ethnicity, gender, dependency status, parental education, and total income variables. The overall model was significant at $p=0.000$.

Racial groups, gender, and dependency status. The only racial group variable that increased the odds of year-to-year persistence was Asian American/Pacific Islander American by 1.246. Asian American/Pacific Islander American was significant at $p=0.000$. The odds of student persistence decreased if the student was African American and Latina/o by 0.356 and 0.486, respectively. Both were significant at $p=0.000$. For every unit change, the odds that Native American and International would persist decreased by 0.581 and 0.286, respectively. Both were significant at $p=0.000$. The unknown racial group was not significant. An increase in unit of gender (i.e., male to female) increased the odds to persist by 1.129. Gender is significant at $p=0.000$. One unit increase in dependency status (from dependent to independent status) in FY 2007,

which decreased the odds of persisting by 0.628, was significant at $p=0.000$.

Dependency status in FY 2008 was not significant.

Parental education. Parental education was also reviewed. The “unknown mother’s education level” was significant at $p=0.000$. It increased the odds of persistence by 1.984. The other two levels were not significant. Father’s college level increased the odds of persisting by 1.438 and was significant at $p=0.000$. Unknown education level also increased the odds of persisting by 1.305 and was significant at $p=0.000$. High school father’s education was not significant.

Total income. The total income variable levels of FY 2007 and FY 2008 were also significant. Total income in FY 2007 decreased the odds of persistence while total income in FY 2008 increased the odds of persistence. TotalIncome07.1 decreased the odds of year-to-year persistence by 0.171. Three other levels (TotalIncome07.2, TotalIncome07.3, and TotalIncome07.4) also decreased the odds of persistence by 0.126, 0.236, and 0.450, respectively. One unit increase in TotalIncome07.5 decreased the odds of persistence by 0.695. All total income levels for FY 2007 were significant at $p=0.000$.

TotalIncome08.1 increased the odds of year-to-year persistence by 5.575. Three other levels (TotalIncome08.2, TotalIncome08.3, and TotalIncome08.4) also increased the odds of persistence by 10.621, 15.602, and 13.190, respectively. One unit increase in TotalIncome08.5 increased the odds of persisting by 10.201. All total income levels for FY 2008 were significant at $p=0.000$. See Table 4.3.

Partial Model, Student Year-to-Year Persistence for Cohort 2: Financial Aid (aggregated) and Demographic Profile. A partial model using aggregated financial aid

(i.e., total aid) and demographic profile variables was reviewed for Cohort 2 year-to-year persistence. This model included all the financial aid and race/ethnicity, gender, dependency status, parental education, and total income variables from the previous model. The overall model was significant at $p=0.000$.

Racial groups, gender, and dependency status. The odds of students persisting increased if the student was Asian American/Pacific Islander American by 1.287 and was significant at $p=0.000$. The odds of students persisting decreased if the student was African American or Latina/o by 0.326 and 0.503, respectively. Both were significant at $p=0.000$. The odds of students persisting also decreased if the student was International or Native American by 0.277 and 0.585, respectively. Both were also significant at $p=0.000$. The odds of students persisting decreased if the student was Latina/o by 0.592 and was significant at $p=0.000$. The Unknown racial group was not significant. For every unit change, from male to female, there was an increase in the odds to persistence of 1.139. Gender was significant at $p=0.000$. One unit increase in dependency status (from status of a dependent to independent) in FY 2007, which decreased the odds of persisting by 0.519, was significant at $p=0.000$. Dependency status in FY 2008 also decreased the odds of persistence by 0.712, and was significant at $p=0.000$.

Parental education. Several levels of parental education were also found to be significant. The level of high school of mother's education decreased the odds of year-to-year persistence by 0.861 and was significant at $p=0.019$. The unknown mother's education level was significant at $p=0.000$ and increased the odds of persistence by 1.972. Mother's education level of college education was not significant. For every unit

change, father's education level of college increased the odds of persistence by 1.436 and was significant at $p=0.000$. Unknown father's education level also increased the odds of persistence by 1.281 and was significant at $p=0.001$. Father's education level of high school was not significant.

Total income. All total income variable levels of FY 2007 were significant and also decreased year-to-year persistence. TotalIncome07.1 decreased the odds of year-to-year persistence by 0.229 and was significant at $p=0.00$. The three other levels (TotalIncome07.2, TotalIncome07.3, and TotalIncome07.4) also decreased by 0.165, 0.263, and 0.489, respectively. The three were significant at $p=0.000$. One unit increase in TotalIncome07.5 decreased the odds of persisting by 0.765, and was significant at $p=0.002$. See Table 4.4.

Full Model to Predict Student Year-to-Year Persistence Cohort 2

(disaggregated). A full model using disaggregated financial aid along with demographic and academic preparation variables was studied to predict student year-to-year persistence for Cohort 2. The type of Texas high school graduation plan type acts as a proxy for academic preparation. The full model is significant at $p=0.000$.

Academic preparation. Every unit increase in the high school graduation plan (i.e., from RHSP to DAP) increased the odds of persisting by 1.210 and was significant at $p=0.000$. See Table 4.3.

Full Model to Predict Student year-to-year Persistence Cohort 2

(aggregated). A full model using aggregated financial aid (i.e., total aid) along with

demographic and academic preparation variables was studied to predict student year-to-year persistence for Cohort 2. The full model is significant at $p=0.000$.

Academic preparation. Every unit increase in the high school graduation plan (i.e., from RHSP to DAP) increased the odds of persisting by 1.238 and was significant at $p=0.000$. See Table 4.4.

GRADUATION MODELS AND FINDINGS

This section describes the graduation findings of both Cohort 1 and Cohort 2. A description of the cohorts can be found at the beginning of the chapter on page 1. Both Research Question 2.1 and Research Question 2.2 are answered in this section. Both research questions are reviewed by cohort; beginning with Cohort 1 followed by Cohort 2.

Research Question 2.1. How does the amount of financial aid affect the degree attainment of undocumented students? Does the type of aid (i.e., gift, loan, other, and work-study aid) affect degree attainment?

Research Question 2.2. How does financial aid affect undocumented college students' degree attainment compared to those of other ethnic groups (i.e., native-born Latina/os, African Americans, Asian American/Pacific Islanders, etc.)?

Partial Model, Student Six-Year Graduation for Cohort 1: financial aid (disaggregated). This section reviews a partial six-year graduation model, beginning in Fall FY 2003, based on financial aid from FY 2003. This model disaggregated aid by type of aid (i.e., gift, loan, work-study, and other). This model also included tuition status (i.e., being a resident or a resident immigrant) and swirler status (i.e., attending one

four-year institution or attending more than one four-year institution). An additional model looking at total aid is discussed below. The overall model was significant at $p=0.000$.

Gift aid. All levels of FY 2003 gift aid decreased the odds for graduating in six years. For one unit of change in Gift03.1 the odds of graduating in six years decreased by 0.535. The odds of graduating within six years also decreased for Gift03.2 and Gift03.3 by 0.384 and 0.524, respectively for every unit change. Gift03.4, Gift03.5, and Gift03.6 also saw decreases in the odds that a student would graduate in six years. This decrease was 0.504, 0.742, and 0.880, respectively. All FY 2003 gift variables were significant at $p=0.000$.

Loan aid. FY 2003 loan aid had an uneven impact on six-year graduation, and only Loan03.2 and Loan03.6 were significant. For every unit change in Loan03.2 aid, the odds of graduating in six years decreased by 0.529 and was significant at $p=0.000$. For every unit change in Loan03.6 aid, the odds of graduating in six years increased by 1.143 and was significant at $p=0.000$. Loan03.1, Loan03.3, Loan03.4, and Loan03.5 were not significant.

Other aid. All levels of FY 2003 other aid, for every unit of change, increased the odds of graduating in six years. For every unit change in Other03.1, there was an increase in the odds of graduating in six years by 1.409. Other03.2 increased the odds of graduating in six years by 1.984 for every unit change. Other03.3 increased the odds of six-year graduation by 2.508 for every unit change. Other03.4 also increased the odds of graduating in six years at 2.748. For every unit change in Other03.5 and Other03.6 there

was an increase in the odds of graduating in six years by 3.154 and 2.763, respectively. All levels of FY 2003 other aid were significant at $p=0.000$.

Work-study aid. Except for the lowest level of work-study aid, all levels of aid increased the odds of graduating in six years. However, only four levels were significant. WorkStudy03.2 and WorkStudy03.3 increased the odds of graduating in six years, for every unit change, by 1.342 and 1.717, respectively. Both were significant at $p=0.000$. WorkStudy03.4 increased the odds of six-year graduation by 1.367 for every unit change and was significant at $p=0.015$. WorkStudy03.6 also increased the odds of graduating in six years at 3.846 and was significant at $p=0.045$. WorkStudy03.1 and WorkStudy03.5 were not significant.

Tuition status and swirler status. Non-financial aid variables included in the model were tuition status and swirler status. One unit increase in tuition status (from resident to undocumented student) decreased the odds of graduating in six years by 0.471 and was significant at $p=0.000$. One unit increase in swirlers increased the odds of graduating in six-years by 3.581. The swirler variable was significant at $p=0.010$. See Table 4.5.

Partial Model, Student Six-Year Graduation for Cohort 1: financial aid (aggregated). A partial model using aggregated financial aid (i.e., total aid) and tuition and swirler statuses was reviewed for Cohort 1 six-year graduation. The model was significant at $p=0.000$.

Total aid. For every unit change, all total aid categories for FY 2003 (Total03.1, Total03.2, Total03.3, Total03.4, Total03.5, and Total03.6) decreased the odds of

graduating in six years by 0.298, 0.256, 0.578, 0.489, 0.561, and 0.840 respectively. All were significant at $p=0.000$.

Non-financial aid variables included in the model were tuition status and swirler status. One unit increase in tuition status decreased the odds of graduating in six years by 0.484 and was significant at $p=0.000$. One unit increase in swirlers increased the odds of graduating in six years by 3.395 and was significant at $p=0.000$. See Table 4.6.

Partial Model, Student Six-Year Graduation for Cohort 1: financial aid (disaggregated) and demographic profile. This section reviews a partial six-year graduation model using disaggregated financial aid and demographic profile variables for Cohort 1. The partial model included the disaggregated financial aid variables and tuition and swirler statuses from above, along with race/ethnicity, gender, parental education, and total income. An additional model looking at total aid is discussed below. The overall model was significant at $p=0.000$.

Racial categories and gender. All racial groups were significant. The only racial group variable that increased the odds of graduating was Asian American/Pacific Islander American by 1.097 and was significant at $p=0.002$. The odds of a student graduating in six years decreased if the student was African American or Latina/o by 0.412 and 0.519, respectively. Both were significant at $p=0.000$. For every unit change, the odds that Native American and International would graduate in six years decreased by 0.565 and 0.223, respectively. Both were significant at $p=0.000$ and $p=0.004$, respectively. The unknown racial group also decreased the odds of graduating in six year by 0.458, and was

Table 4.5 Logistic regression of graduation based on FY 2003 (aid disaggregated)

Variables Levels	Observations n=86188 p=0.000			Observations n=86188 p=0.000			Observations n=86188 p=0.000			Observations n=45562 p=0.000		
	Model 1			Model 2			Model 3			Model 4		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
<i>Financial Aid</i>												
FY 2003 Gift												
1	0.535	0.023	0.000	0.962	0.500	0.459	0.940	0.049	0.230	1.097	0.059	0.086
2	0.384	0.014	0.000	0.896	0.043	0.023	0.865	0.042	0.003	0.950	0.048	0.315
3	0.524	0.018	0.000	1.267	0.058	0.000	1.181	0.055	0.000	1.176	0.057	0.001
4	0.504	0.014	0.000	1.461	0.062	0.000	1.367	0.058	0.000	1.204	0.055	0.000
5	0.742	0.025	0.000	2.014	0.095	0.000	1.830	0.086	0.000	1.466	0.075	0.000
6	0.880	0.018	0.000	3.052	0.123	0.000	2.542	0.104	0.000	1.695	0.082	0.000
FY 2003 Loan												
1	1.028	0.073	0.699	1.048	0.078	0.524	1.056	0.079	0.466	0.899	0.068	0.162
2	0.529	0.020	0.000	0.602	0.025	0.000	0.609	0.025	0.000	0.519	0.022	0.000
3	0.970	0.021	0.162	1.020	0.028	0.466	1.039	0.029	0.169	0.740	0.023	0.000
4	1.029	0.043	0.500	1.205	0.056	0.000	1.332	0.062	0.000	0.798	0.040	0.000
5	1.011	0.064	0.857	1.153	0.078	0.036	1.212	0.082	0.005	0.747	0.054	0.000
6	1.143	0.027	0.000	1.200	0.038	0.000	1.254	0.039	0.000	0.645	0.027	0.000
FY 2003 Other												
1	1.409	0.053	0.000	1.268	0.050	0.000	1.151	0.046	0.000	1.143	0.046	0.001
2	1.984	0.122	0.000	1.882	1.200	0.000	1.715	0.110	0.000	1.463	0.095	0.000
3	2.508	0.206	0.000	2.299	0.196	0.000	2.121	0.182	0.000	1.563	0.135	0.000
4	2.748	0.299	0.000	2.688	0.305	0.000	2.447	0.278	0.000	1.640	0.188	0.000
5	3.154	0.441	0.000	3.185	0.461	0.000	2.905	0.422	0.000	1.810	0.263	0.000
6	2.763	0.320	0.000	3.581	0.435	0.000	3.317	0.404	0.000	1.586	0.199	0.000

Table 4.5 Logistic regression of graduation based on FY 2003 (aid disaggregated)

Variables	Model 1			Model 2			Model 3			Model 4		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
FY 2003 Work-study												
1	0.967	0.060	0.587	1.117	0.073	0.088	1.107	0.072	0.118	1.047	0.069	0.484
2	1.342	0.079	0.000	1.452	0.089	0.000	1.445	0.089	0.000	1.165	0.072	0.014
3	1.717	0.130	0.000	1.913	0.150	0.000	1.929	0.152	0.000	1.340	0.106	0.000
4	1.367	0.176	0.015	1.532	0.203	0.001	1.579	0.210	0.001	0.987	0.132	0.921
5	1.422	0.516	0.332	2.175	0.824	0.040	2.378	0.896	0.022	1.381	0.532	0.402
6	3.846	2.590	0.045	5.814	3.976	0.010	6.582	4.510	0.006	3.050	2.109	0.107
Tuition Status	0.471	0.073	0.000	0.627	0.100	0.004	0.696	0.112	0.024	0.694	0.180	0.158
Swirler	3.581	0.787	0.000	4.171	0.947	0.000	4.589	1.038	0.000	7.707	2.268	0.000
<i>Demographics</i>												
African American				0.412	0.010	0.000	0.436	0.010	0.000	0.577	0.017	0.000
Asian/Pacific Islander				1.097	0.034	0.002	1.115	0.034	0.000	1.350	0.064	0.000
International				0.223	0.116	0.004	0.269	0.139	0.011	1.574	1.069	0.504
Latina/o				0.519	0.010	0.000	0.538	0.010	0.000	0.735	0.020	0.000
Native American				0.565	0.058	0.000	0.584	0.060	0.000	0.544	0.080	0.000
Unknown				0.458	0.060	0.000	0.511	0.067	0.000	0.668	0.150	0.073
(Ref: White)												
Gender				1.540	0.022	0.000	1.522	0.022	0.000	1.553	0.033	0.000
Mother's Ed Level												
1				0.965	0.040	0.391	0.960	0.040	0.320	0.978	0.041	0.590
2				1.107	0.049	0.021	1.092	0.048	0.047	1.087	0.049	0.065
3				1.187	0.060	0.001	1.161	0.059	0.003	1.136	0.058	0.013
Father's Ed Level												
1				0.964	0.039	0.370	0.966	0.039	0.394	0.951	0.040	0.225
2				1.315	0.057	0.000	1.331	0.058	0.000	1.241	0.056	0.000
3				1.016	0.048	0.728	1.007	0.047	0.876	0.961	0.046	0.404

Table 4.5 Logistic regression of graduation based on FY 2003 (aid disaggregated)

Variables	Model 1			Model 2			Model 3			Model 4		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
FY 2003 Total Income												
1				0.262	0.015	0.000	0.292	0.017	0.000	Empty		
2				0.319	0.019	0.000	0.348	0.021	0.000	1.167	0.033	0.000
3				0.512	0.031	0.000	0.524	0.032	0.000	1.358	0.048	0.000
4				0.764	0.045	0.000	0.737	0.043	0.000	1.494	0.072	0.000
5				0.917	0.061	0.192	0.875	0.059	0.046	1.623	0.118	0.000
<i>Academic Preparation</i>												
HS Graduation Plan							1.139	0.006	0.000	0.932	0.007	0.000
<i>Other</i>												
<i>Personal/Academic</i>												
FY 2003 Dep. Status										0.630	0.022	0.000
Adj. Fam. Cont. FY 2003										1.000	2.08E-06	0.724
Adj. Cost FY 2003										1.000	4.81E-06	0.000
Enroll. Status FY 2003										0.671	0.022	0.000
Total SCH FY 2003										1.068	0.006	0.000
Unmet Need FY 2003												
1										1.243	0.078	0.001
2										0.811	0.036	0.000
3										0.704	0.032	0.000
4										0.651	0.031	0.000
5										0.575	0.029	0.000
6										0.511	0.027	0.000
7										0.387	0.020	0.000
Constant	1.118	0.010	0.000	1.116	0.015	0.000	0.918	0.014	0.000	0.079	0.008	0.000

Table 4.6 Logistic regression of graduation based on FY 2003 (aid aggregated)

Variables Levels	Observations n=87680 p=0.000			Observations n=87680 p=0.000			Observations n=87680 p=0.000			Observations n=45562 p=0.000		
	Model 1			Model 2			Model 3			Model 4		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
<i>Financial Aid</i>												
FY 2003 Total												
1	0.298	0.027	0.000	0.312	0.029	0.000	0.362	0.034	0.000	0.643	0.073	0.000
2	0.256	0.013	0.000	0.249	0.014	0.000	0.279	0.015	0.000	0.954	0.101	0.653
3	0.578	0.018	0.000	0.487	0.017	0.000	0.529	0.019	0.000	1.017	0.107	0.873
4	0.489	0.016	0.000	0.511	0.018	0.000	0.554	0.020	0.000	1.126	0.121	0.268
5	0.561	0.021	0.000	0.612	0.024	0.000	0.644	0.026	0.000	1.229	0.126	0.045
6	0.840	0.013	0.000	Omitted			Omitted			Omitted		
Tuition Status	0.484	0.075	0.000	0.644	0.103	0.006	0.726	0.116	0.045	0.887	0.227	0.639
Swirler	3.395	0.743	0.000	3.683	0.831	0.000	4.265	0.960	0.000	7.128	2.103	0.000
<i>Demographics</i>												
African American				0.401	0.009	0.000	0.433	0.010	0.000	0.565	0.017	0.000
Asian/Pacific Islander				1.160	0.035	0.000	1.166	0.036	0.000	1.488	0.070	0.000
International				0.243	0.125	0.006	0.293	0.150	0.016	2.043	1.360	0.283
Latina/o				0.553	0.010	0.000	0.568	0.010	0.000	0.808	0.021	0.000
Native American				0.569	0.058	0.000	0.592	0.061	0.000	0.562	0.083	0.000
Unknown				0.451	0.059	0.000	0.513	0.067	0.000	0.687	0.154	0.094
(Ref: White)												
Gender				1.556	0.022	0.000	1.532	0.022	0.000	1.576	0.033	0.000
Mother's Ed Level												
1				0.934	0.038	0.092	0.938	0.038	0.118	0.952	0.040	0.237
2				1.075	0.047	0.097	1.070	0.047	0.123	1.058	0.047	0.205
3				1.135	0.056	0.010	1.122	0.056	0.020	1.079	0.055	0.134

Table 4.6 Logistic regression of graduation based on FY 2003 (aid aggregated)

Variables	Model 1			Model 2			Model 3			Model 4		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
Father's Ed Level												
1				0.947	0.038	0.176	0.953	0.038	0.235	0.933	0.039	0.095
2				1.283	0.055	0.000	1.308	0.056	0.000	1.213	0.054	0.000
3				1.016	0.047	0.736	1.006	0.047	0.900	0.946	0.045	0.248
FY 2003 Total Income												
1				0.745	0.033	0.000	0.717	0.032	0.000	Empty		
2				0.913	0.041	0.045	0.854	0.039	0.001	1.168	0.032	0.000
3				1.238	0.060	0.000	1.114	0.055	0.028	1.235	0.041	0.000
4				1.523	0.080	0.000	1.352	0.071	0.000	1.274	0.058	0.000
5				1.676	0.107	0.000	1.517	0.098	0.000	1.402	0.100	0.000
<i>Academic Preparation</i>												
HS Graduation Plan							1.164	0.005	0.000	0.975	0.007	0.000
<i>Other</i>												
<i>Personal/Academic</i>												
FY 2003 Dep. Status										0.569	0.020	0.000
Adj. Fam. Cont. FY 2003										1.000	1.94E-06	0.190
Adj. Cost FY 2003										1.000	4.13E-06	0.000
Enroll. Status FY 2003										0.665	0.021	0.000
Total SCH FY 2003										1.072	0.006	0.000
Unmet Need FY 2003												
1										1.736	0.103	0.000
2										1.012	0.042	0.780
3										0.890	0.038	0.006
4										0.817	0.037	0.000
5										0.747	0.034	0.000
6										0.665	0.032	0.000
7										0.490	0.022	0.000
Constant	1.160	0.011	0.000	1.096	0.014	0.000	0.877	0.013	0.000	0.064	0.009	0.000

significant at $p=0.000$. An increase in unit of gender (i.e., male to female) increased the odds to persist by 1.540. Gender is significant at $p=0.000$.

Parental education. Parental education was also reviewed. Mother's education college level increased the odds of graduation in six years by 1.107, and was significant at $p=0.021$. The unknown mother's education level was significant at $p=0.001$. It increased the odds of graduation in six years by 1.187. Mother's education high school level was not significant. Father's college level increased the odds of persisting by 1.315 and was significant at $p=0.000$. High school and unknown levels of father's education were not significant.

Total income. All levels of total income in FY 2003 decreased the odds of graduating in six years. TotalIncome03.1 decreased the odds of graduation in six years by 0.262. One unit increase in TotalIncome03.2, TotalIncome03.3, and TotalIncome03.4 also decreased the odds of graduating in six years by 0.319, 0.512, and 0.764, respectively. Except for TotalIncome03.5, all total income levels for FY 2003 were significant at $p=0.000$. TotalIncome03.5 was not significant. See Table 4.5.

Partial Model, Student Six-Year Graduation for Cohort 1: financial aid (aggregated) and demographic profile. A partial model using aggregated financial aid (i.e., total aid), tuition and swirler statuses, along with demographic variables used above, was also studied for Cohort 1 six-year graduation. The model was significant at $p=0.000$.

Racial categories and gender. Demographic variables (race/ethnicity; gender; parental education level; and total income) were also included in the model. The odds of a student graduating in six years increased if the student was Asian American/Pacific

Islander American by 1.160 and was significant at $p=0.000$. The odds of students graduating in six years decreased if the student was African American or Latina/o by 0.401 and 0.553. Both were significant at $p=0.000$. The odds of a student graduating in six years also decreased if the student was International or Native American by 0.243 and 0.569, respectively. Both were also significant at $p=0.006$ and $p=0.000$, respectively. The odds of a student graduating in six years decreased if the student was Unknown by 0.451, and was significant at $p=0.000$. For every unit change in gender, there was an increase in the odds of persistence by 1.556. Gender was significant at $p=0.000$.

Parental education. Several levels of parental education were also found to be significant. The unknown mother's education level was significant at $p=0.010$ and it increased the odds of graduating in six years by 1.135. The other two levels of mother's education were not significant. For every unit change, father's education level of college increased the odds of graduating in six years by 1.283, and was significant at $p=0.000$. The other two levels of father's education were not significant.

Total income. All total income variable levels of FY 2003 were significant in graduating in six years. TotalIncome03.1 and TotalIncome03.2 decreased the odds of graduating in six years by 0.745 and 0.913, respectively. The three other levels (TotalIncome03.3, TotalIncome03.4, and TotalIncome03.5) increased the odds of graduating in six years at 1.238, 1.523, and 1.676, respectively. All levels of FY 2003 total income levels were significant at $p=0.000$, except TotalIncome03.2, which was significant at $p=0.045$. See Table 4.6.

Partial Model, Student Six-Year Graduation for Cohort 1: financial aid (disaggregated), demographic profile, and academic preparation. This section reviews a partial six-year graduation model using disaggregated financial aid, tuition and swirler statuses, demographic profile, and academic preparation variables for Cohort 1. The partial model included all the financial aid variables from above, along with race/ethnicity, gender, parental education, total income, and academic preparation. The Texas high school graduation plan is a proxy for academic preparation. An additional model looking at total aid is discussed below. The overall model was significant at $p=0.000$.

Academic preparation. Every unit increase in the high school graduation plan (i.e., from RHSP to DAP) increased the odds of persisting by 1.139 and was significant at $p=0.000$. See Table 4.5.

Partial Model, Student Six-Year Graduation for Cohort 1: financial aid (aggregated), demographic profile, and academic preparation. This section reviews a partial model six-year graduation model using aggregated financial aid, tuition and swirler statuses, demographic profile, and academic preparation variables for Cohort 1. The overall model was significant at $p=0.000$.

Academic preparation. Every unit increase in the high school graduation plan (i.e., from RHSP to DAP) increased the odds of persisting by 1.164 and was significant at $p=0.000$. See Table 4.6.

Full Model to Predict Student Six-Year Graduation for Cohort 1 (financial aid aggregated). This section reviews the full model to predict student six-year

graduation for Cohort 1. The full model included all the financial aid variables, tuition and swirler statues, race/ethnicity, parental education, total income, and academic preparation from previous models, as well as personal financial and academic factors such as unmet need, total semester credit hours, adjusted family contribution, adjusted cost, dependency status, and enrollment status. The full model is significant at $p=0.000$. An additional full model that reviewed total aid is discussed below.

Adjusted family contribution, adjusted cost of education, and unmet need.

Adjusted family contribution is the estimated family contribution adjusted for level of enrollment (i.e., full-time, three-quarters time, half-time, less than half-time). Adjusted family contribution was not significant. Adjusted cost is the cost of tuition fees adjusted for level of enrollment. For every unit change, adjusted cost increased the odds of graduating in six years by 1.000. Adjusted cost was significant at $p=0.000$. Unmet need is adjusted cost minus the sum of adjusted family contribution and financial aid.

$Unmet\ need = adjusted\ cost - (adjusted\ family + financial\ aid)$. For every unit change, Unmet03.1 increased the odds of graduating in six years by 1.243 and was significant at $p=0.001$. For every unit change, Unmet03.2, Unmet03.3, and Unmet03.4 decreased the odds of graduating in six years by 0.811, 0.704, and 0.651. For every unit change, Unmet03.5, Unmet03.6, and Unmet03.7 decreased the odds of graduating in six years by 0.575, 0.511, and 0.387. Except for Unmet03.1, all unmet need variable levels were significant at $p=0.000$.

Dependency status. One unit increase in dependency status (from status of a dependent to independent) in FY 2003 decreased the odds of graduating in six years by 0.630, and was significant at $p=0.000$.

Enrollment status and total semester credit hours. Enrollment variables included enrollment status and total semester credit hours (SCH). One unit change in enrollment status (from full-time to part-time) decreased the odds of graduating in six years by 0.671 and was significant 0.000. For every unit change in Total SCH, the odds of graduating in six years increased by 1.068. Total SCH was significant at $p=0.000$. See Table 4.5.

Full Model to Predict Student Six-Year Graduation for Cohort 1 (financial aid aggregated). This section reviews the full model with financial aid aggregated to predict student six-year graduation for Cohort 1. The full model included total aid, tuition and swirler statuses, and all the race/ethnicity, parental education, total income, and academic preparation from previous models, as well as personal financial and academic factors such as unmet need, total semester credit hours, adjusted family contribution, adjusted cost, dependency status, and enrollment status. The full model is significant at $p=0.000$.

Adjusted family contribution, adjusted cost of education, and unmet need. Adjusted family contribution was not significant. For every unit change, adjusted cost increased the odds of graduating in six years by 1.000. Adjusted cost was significant at $p=0.000$. For every unit change, Unmet03.1 increased the odds of graduating in six years by 1.736 and was significant at $p=0.000$. For every unit change, Unmet03.3 and

Unmet03.4 decreased the odds of graduating in six years by 0.890 and 0.817, respectively. For every unit change, Unmet03.5, Unmet03.6, and Unmet03.7 also decreased the odds of graduating in six years by 0.747, 0.665, and 0.490, respectively. Except for Unmet03.2 and Unmet03.3, all unmet need variable levels were significant at $p=0.000$. Unmet03.3 was significant at $p=0.006$. Unmet03.2 was not significant.

Dependency status. One unit increase in dependency status (from status of a dependent to independent) in FY 2003 decreased the odds of persisting by 0.569 and was significant at $p=0.000$.

Enrollment status and total semester credit hours. One unit change in enrollment status decreased the odds of graduating in six years by 0.665 and was significant $p=0.000$. For every unit change in Total SCH, the odds of graduating in six years increased by 1.072. Total SCH was significant at $p=0.000$. See Table 4.6.

This next section reviews Cohort 2 six-year graduation.

Partial Model, Student Six-Year Graduation for Cohort 2: financial aid (disaggregated). This section reviews a partial six-year graduation model for Cohort 2. This model disaggregated aid by type of aid (i.e., gift, loan, work-study, and other). This model also included tuition status (i.e., being a resident or a resident immigrant) and swirler status (i.e., attending one four-year institution or attending more than one four-year institution). An additional model looking at total aid is discussed below. The overall model was significant at $p=0.000$.

Gift aid. For all levels of FY 2007 gift aid, except Gift07.6, decreased the odds for graduating in six years. For one unit of change in Gift07.1 and Gift07.2, the odds of

graduating in six years decreased by 0.749 and 0.778. The odds of graduating within six years also decreased for Gift07.3, Gift07.4, and Gift07.5 by 0.591, 0.568, and 0.496, respectively, for every unit change. All FY 2007 gift variables levels, except Gift07.6, were significant at $p=0.000$. Gift07.6 was not significant.

Loan aid. FY 2007 loan aid's impact on six-year graduation was also studied. For every unit change in Loan07.1 aid and Loan07.2 aid, the odds of graduating in six years decreased by 0.515 and 0.369, respectively. Both were significant at $p=0.000$. For every unit change in Loan07.3 aid and Loan07.4 aid, the odds of graduating in six years decreased by 0.947 and 0.596, respectively. Both were significant at $p=0.017$ and $p=0.000$, respectively. Finally, for every unit change in Loan07.6 aid, the odds of graduating in six years increased by 1.050, and was significant at $p=0.008$. Loan07.5 was not significant.

Other aid. For all levels of FY 2007 other aid, every unit of change increased the odds of graduating in six years. For every unit change in Other07.1 and Other07.2 there was an increase in the odds of graduating in six years by 1.499 and 1.663, respectively. For every unit change in Other07.3 and Other07.4, the odds of graduating in six years increased by 1.732 and 2.774, respectively. For every unit change in Other07.5 and Other07.6 there was an increase in the odds of graduating in six years by 2.252 and 2.835. All FY 2007 other aid levels were significant at $p=0.000$.

Work-study aid. All levels of work-study aid in FY 2007 increased the odds of graduating in six years. However, only four levels were significant. WorkStudy07.2, WorkStudy07.3, and WorkStudy07.4 increased the odds of graduating in six year, for

Table 4.7 Logistic regression of graduation based on FY 2007 (aid disaggregated)

Variables Levels	Observations n=86939 p=0.000			Observations n=86939 p=0.000			Observations n=86939 p=0.000			Observations n=86939 p=0.000		
	Model 1			Model 2			Model 3			Model 4		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
<i>Financial Aid</i>												
FY 2007 Gift												
1	0.749	0.025	0.000	1.150	0.044	0.000	1.108	0.042	0.007	1.176	0.046	0.000
2	0.778	0.024	0.000	1.360	0.048	0.000	1.307	0.047	0.000	1.339	0.049	0.000
3	0.591	0.019	0.000	1.353	0.052	0.000	1.281	0.049	0.000	1.292	0.051	0.000
4	0.568	0.020	0.000	1.510	0.063	0.000	1.434	0.060	0.000	1.444	0.063	0.000
5	0.496	0.016	0.000	1.669	0.068	0.000	1.579	0.064	0.000	1.527	0.065	0.000
6	1.016	0.020	0.409	3.325	0.103	0.000	2.965	0.093	0.000	2.338	0.081	0.000
FY 2007 Loan												
1	0.515	0.046	0.000	0.598	0.056	0.000	0.604	0.056	0.000	0.587	0.056	0.000
2	0.369	0.016	0.000	0.431	0.020	0.000	0.444	0.020	0.000	0.431	0.020	0.000
3	0.947	0.021	0.017	0.972	0.026	0.279	0.992	0.026	0.772	0.927	0.025	0.005
4	0.596	0.025	0.000	0.751	0.034	0.000	0.810	0.037	0.000	0.758	0.036	0.000
5	1.059	0.057	0.284	1.039	0.059	0.498	1.043	0.060	0.464	0.912	0.053	0.116
6	1.050	0.019	0.008	1.073	0.025	0.003	1.102	0.026	0.000	0.878	0.024	0.000
FY 2007 Other												
1	1.449	0.049	0.000	1.379	0.049	0.000	1.243	0.045	0.000	1.225	0.045	0.000
2	1.663	0.090	0.000	1.551	0.087	0.000	1.399	0.079	0.000	1.326	0.076	0.000
3	1.732	0.110	0.000	1.604	0.106	0.000	1.471	0.097	0.000	1.342	0.089	0.000
4	2.774	0.259	0.000	2.579	0.249	0.000	2.360	0.228	0.000	2.110	0.205	0.000
5	2.252	0.216	0.000	2.139	0.211	0.000	1.956	0.194	0.000	1.670	0.167	0.000
6	2.835	0.196	0.000	3.011	0.217	0.000	2.836	0.206	0.000	2.123	0.157	0.000

Table 4.7 Logistic regression of graduation based on FY 2007 (aid disaggregated)

Variables Levels	Model 1			Model 2			Model 3			Model 4		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
FY 2007 Work-study												
1	1.136	0.078	0.061	1.240	0.088	0.002	1.219	0.087	0.005	1.182	0.084	0.019
2	1.855	0.123	0.000	1.897	0.129	0.000	1.848	0.126	0.000	1.712	0.118	0.000
3	1.873	0.138	0.000	2.025	0.153	0.000	2.006	0.152	0.000	1.750	0.134	0.000
4	1.577	0.192	0.000	1.720	0.213	0.000	1.768	0.220	0.000	1.528	0.190	0.001
5	1.194	0.314	0.500	1.411	0.377	0.197	1.528	0.410	0.114	1.224	0.329	0.453
6	1.941	0.747	0.085	2.078	0.819	0.064	2.242	0.884	0.041	1.907	0.757	0.104
Tuition Status	0.376	0.030	0.000	0.448	0.038	0.000	0.526	0.044	0.000	0.469	0.040	0.000
Swirler	1.945	0.305	0.000	2.124	0.348	0.000	2.486	0.406	0.000	4.111	0.706	0.000
<i>Demographics</i>												
African American				0.380	0.009	0.000	0.402	0.009	0.000	0.422	0.010	0.000
Asian/Pacific Islander				1.134	0.035	0.000	1.148	0.035	0.000	1.177	0.037	0.000
International				0.530	0.072	0.000	0.577	0.078	0.000	0.614	0.085	0.000
Latina/o				0.535	0.010	0.000	0.552	0.010	0.000	0.635	0.012	0.000
Native American				0.567	0.052	0.000	0.584	0.054	0.000	0.608	0.057	0.000
Unknown				0.600	0.058	0.000	0.637	0.062	0.000	0.643	0.063	0.000
(Ref: White)												
Gender				1.479	0.021	0.000	1.46	0.021	0.000	1.508	0.022	0.000
Mother's Ed Level												
1				1.001	0.038	0.977	1.004	0.039	0.921	0.988	0.038	0.759
2				1.146	0.046	0.001	1.148	0.046	0.001	1.125	0.046	0.004
3				1.363	0.065	0.000	1.356	0.065	0.000	1.295	0.063	0.000
Father's Ed Level												
1				1.003	0.038	0.944	0.994	0.038	0.879	1.000	0.038	0.993
2				1.338	0.053	0.000	1.332	0.054	0.000	1.320	0.053	0.000
3				1.106	0.048	0.021	1.094	0.048	0.041	1.081	0.048	0.080

Table 4.7 Logistic regression of graduation based on FY 2007 (aid disaggregated)

Variables Levels	Model 1			Model 2			Model 3			Model 4		
	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
FY 2007 Total Income												
1				0.241	0.012	0.000	0.258	0.013	0.000	0.290	0.019	0.000
2				0.295	0.015	0.000	0.305	0.016	0.000	0.324	0.021	0.000
3				0.474	0.024	0.000	0.469	0.024	0.000	0.423	0.027	0.000
4				0.719	0.036	0.000	0.686	0.035	0.000	0.479	0.030	0.000
5				0.888	0.047	0.024	0.833	0.044	0.001	0.502	0.035	0.000
<i>Academic Preparation</i>												
HS Graduation Plan							1.127	0.005	0.000	1.067	0.005	0.000
<i>Other Personal/Academic</i>												
FY 2007 Depend. Status										0.801	0.032	0.000
Adj. Fam. Cont. FY 2007										1.000	1.19E-06	0.069
Adj. Cost FY 2007										1.000	2.20E-06	0.000
Enroll. Status FY 2007										1.018	0.035	0.618
Total SCH FY 2007										1.126	0.003	0.000
Unmet Need FY 2007												
1										1.609	0.103	0.000
2										0.879	0.039	0.004
3										0.794	0.037	0.000
4										0.746	0.035	0.000
5										0.698	0.031	0.000
6										0.693	0.033	0.000
7										0.575	0.021	0.000
Constant	1.161	0.012	0.000	0.448	0.038	0.000	1.039	2.330	0.020	0.24	0.01	0.000

Table 4.8 Logistic regression of graduation based on FY 2007 (aid aggregated)

Variables Levels	Observations n=86939 p=0.000			Observations n=86939 p=0.000			Observations n=86939 p=0.000			Observations n=45562 p=0.000		
	OR	Model 1 Std. Error	p	OR	Model 2 Std. Error	p	OR	Model 3 Std. Error	p	OR	Model 4 Std. Error	p
<i>Financial Aid</i>												
FY 2007 Total												
1	0.642	0.035	0.000	1.082	0.069	0.212	1.013	0.065	0.841	1.155	0.078	0.034
2	0.434	0.020	0.000	0.738	0.042	0.000	0.724	0.041	0.000	0.799	0.048	0.000
3	0.671	0.021	0.000	1.056	0.047	0.223	1.035	0.047	0.445	1.049	0.051	0.325
4	0.520	0.020	0.000	0.999	0.050	0.986	0.983	0.049	0.728	1.006	0.054	0.915
5	0.605	0.023	0.000	1.310	0.065	0.000	1.266	0.063	0.000	1.300	0.070	0.000
6	0.933	0.014	0.000	2.076	0.071	0.000	1.941	0.067	0.000	1.536	0.062	0.000
Tuition Status	0.404	0.032	0.000	0.490	0.041	0.000	0.588	0.049	0.000	0.518	0.044	0.000
Swirler	1.839	0.286	0.000	1.856	0.298	0.000	2.299	0.016	0.000	4.117	0.697	0.000
<i>Demographics</i>												
African American				0.377	0.008	0.000	0.407	0.009	0.000	0.417	0.010	0.000
Asian/Pacific Islander				1.228	0.037	0.000	1.234	0.038	0.000	1.248	0.039	0.000
International				0.534	0.072	0.000	0.595	0.080	0.000	0.633	0.087	0.001
Latina/o				0.566	0.010	0.000	0.583	0.011	0.000	0.664	0.012	0.000
Native American				0.568	0.052	0.000	0.590	0.054	0.000	0.612	0.057	0.000
Unknown				0.635	0.061	0.000	0.681	0.065	0.000	0.680	0.066	0.000
(Ref: White)												
Gender				1.501	0.021	0.000	1.474	0.021	0.000	1.523	0.022	0.000
Mother's Ed Level												
1				0.964	0.036	0.330	0.975	0.037	0.496	0.954	0.036	0.219
2				1.115	0.044	0.006	1.126	0.044	0.003	1.097	0.044	0.022
3				1.304	0.061	0.000	1.306	0.062	0.000	1.269	0.061	0.000
Father's Ed Level												
1				0.963	0.035	0.299	0.959	0.035	0.255	0.970	0.036	0.417
2				1.287	0.050	0.000	1.288	0.050	0.000	1.292	0.052	0.000
3				1.083	0.046	0.062	1.073	0.046	0.100	1.068	0.047	0.132

Table 4.8 Logistic regression of graduation based on FY 2007 (aid aggregated)

Variables	Model 1			Model 2			Model 3			Model 4		
Levels	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p	OR	Std. Error	p
FY 2007 Total Income												
1				0.333	0.018	0.000	0.344	0.019	0.000	0.332	0.023	0.000
2				0.399	0.022	0.000	0.395	0.022	0.000	0.350	0.250	0.000
3				0.517	0.028	0.000	0.501	0.028	0.000	0.387	0.027	0.000
4				0.642	0.036	0.000	0.611	0.034	0.000	0.385	0.026	0.000
5				0.756	0.043	0.000	0.713	0.041	0.000	0.406	0.031	0.000
<i>Academic Preparation</i>												
HS Graduation Plan							1.161	0.005	0.000	1.089	0.005	0.000
<i>Other</i>												
<i>Personal/Academic</i>												
FY 2007 Depend. Status										0.680	0.027	0.000
Adj. Fam. Cont. FY										1.000	1.16E-06	0.820
2007										1.000	2.08E-06	0.000
Adj. Cost FY 2007										0.990	0.035	0.775
Enroll. Status FY 2007										1.130	0.003	0.000
Total SCH FY 2007												
Unmet Need FY 2007												
1										1.798	0.119	0.000
2										1.028	0.045	0.519
3										0.947	0.043	0.230
4										0.867	0.039	0.001
5										0.814	0.035	0.000
6										0.758	0.035	0.000
7										0.596	0.020	0.000
Constant	1.190	0.013	0.000	1.227	0.018	0.000	0.971	0.016	0.069	0.219	0.009	0.000

every unit change, by 1.855, 1.873 and 1.577, respectively. All were significant at $p=0.000$. WorkStudy07.1, WorkStudy07.5, and WorkStudy07.6 were not significant.

Tuition status and swirler status. Non-financial aid variables included in the model were tuition status and swirler status. One unit increase in tuition status decreased the odds of graduating in six years by 0.376 and was significant at $p=0.000$. One unit increase in swirlers increased the odds of graduating in six years by 1.945. The swirler variable was significant at $p=0.000$. See Table 4.7.

Partial Model, Student Six-Year Graduation for Cohort 2: financial aid (aggregated). This section reviews a partial model using aggregated financial aid (i.e., total aid) and tuition status and swirler status for Cohort 2 six-year graduation. The model was significant at $p=0.000$.

Total aid. Every unit change, all total aid categories for FY 2007 (Total07.1, Total07.2, Total07.3, Total07.4, Total07.5, and Total07.6) decreased the odds of graduating in six years by 0.642, 0.434, 0.671, 0.520, 0.605, and 0.933, respectively. All were significant at $p=0.000$.

Tuition status and swirler status. Non-financial aid variables included in the model were tuition status and swirler status. One unit increase in tuition status decreased the odds of graduating in six years by 0.404 and was significant at $p=0.000$. One unit increase in swirlers increased the odds of graduating in six years by 1.839. The swirler variable was significant at $p=0.000$. See Table 4.8.

Partial Model, Student Six-Year Graduation for Cohort 2: financial aid (disaggregated) and demographic profile. This section reviews a partial model six-

year graduation model using disaggregated financial aid, tuition and swirler statuses, and demographic profile variables for Cohort 2. The partial model included all the financial aid variables from above, along with race/ethnicity, gender, parental education, and total income. An additional model looking at total aid is discussed below. The overall model was significant at $p=0.000$.

Racial categories and gender. All racial groups were significant at $p=0.000$. The only racial group variable that increased the odds of graduating was Asian American/Pacific Islander American by 1.134. The odds that a student would graduate in six years decreased if the student were African American and Latina/o by 0.380 and 0.535, respectively. For every unit change, the odds that Native American and International would graduate in six years decreased by 0.567 and 0.530, respectively. The unknown racial group also decreased the odds of graduating in six year by 0.600. An increase in unit of gender (i.e., male to female) increased the odds of persistence by 1.479. Gender is significant at $p=0.000$.

Parental education. Mother's education college level increased the odds of graduation in six years by 1.146 and was significant at $p=0.001$. The unknown mother's education level was significant at $p=0.000$, and increased the odds of graduating in six years by 1.363. Mother's education high school level was not significant. Father's college level increased the odds of graduating in six years by 1.338 and was significant at $p=0.000$. The unknown father's education level increased the odds of graduating in six years by 1.106 and was significant at $p=0.021$. High school level of father's education was not significant.

Total income. All levels of total income in FY 2007 decreased the odds of graduating in six years. For every unit change, TotalIncome07.1 decreased the odds of graduation in six years by 0.241. One unit increase in TotalIncome07.2, TotalIncome07.3, and TotalIncome07.4 also decreased the odds of graduating in six years by 0.295, 0.474, and 0.719, respectively. For every unit change, TotalIncome07.5 decreased the odds of graduation in six years by 0.888 and was significant at $p=0.024$. Except for TotalIncome07.5, all total income levels for FY 2007 were significant at $p=0.000$. See Table 4.7.

Partial Model, Student Six-Year Graduation for Cohort 2: financial aid (aggregated) and demographic profile. This section reviews a partial model using aggregated financial aid (i.e., total aid) and tuition and swirler statuses along with demographic variables of race/ethnicity, gender, parental education, and total income for Cohort 2 six-year graduation. The model was significant at $p=0.000$.

Racial categories and gender. All racial groups were significant at $p=0.000$. For every unit change, the odds of a student graduating in six years increased if the student was Asian American/Pacific Islander American by 1.228. The odds of a student graduating in six years decreased if the student was African American or Latina/o by 0.377 and 0.566. The odds of a student graduating in six years also decreased if the student was International or Native American by 0.534 and 0.568, respectively. The odds of a student graduating in six years decreased if the student was Unknown by 0.635. For every unit change, from male to female, there was an increase in the odds of persistence of 1.501. Gender was significant at $p=0.000$.

Parental education. Several levels of parental education were also found to be significant. For every unit change, in mother's education college level increased the odds of graduating in six years by 1.115. It was significant at $p=0.006$. The unknown mother's education level was significant at $p=0.000$, and increased the odds of graduating in six years by 1.304. Mother education level of high school was not significant. For every unit change, father's education level of college increased the odds of graduating in six years 1.287 and was significant at $p=0.000$. The other two levels of father's education were not significant.

Total income. All total income variable levels of FY 2007 were significant in graduating in six years at $p=0.000$. TotalIncome07.1 and TotalIncome07.2 decreased the odds of graduating in six years by 0.333 and 0.399, respectively. The three other levels (TotalIncome07.3, TotalIncome07.4, and TotalIncome07.5) also decreased 0.517, 0.642, and 0.756, respectively. See Table 4.8.

Partial Model, Student Six-Year Graduation for Cohort 1: financial aid (disaggregated), demographic profile, and academic preparation. This section reviews a partial model six-year graduation model using disaggregated financial aid, demographic profile and academic preparation variables for Cohort 1. The partial model included all the financial aid variables from above, along with race/ethnicity, gender parental education, total income, and academic preparation variable. The Texas high school graduation plan is a proxy for academic preparation. An additional model looking at total aid is discussed below. The overall model was significant at $p=0.000$.

Academic preparation. Every unit increase in the high school graduation plan (i.e., from RHSP to DAP) increased the odds of persisting by 1.127 and was significant at $p=0.000$. An additional model examining at total aid is discussed below. See Table 4.7.

Partial Model, Student Six-Year Graduation for Cohort 2: financial aid (aggregated), demographic profile, and academic preparation. This section reviews a partial model six-year graduation model using aggregated financial aid, demographic profile, and academic preparation variables for Cohort 2. The partial model included total aid, along with race/ethnicity, gender parental education, total income, and academic preparation. The overall model was significant at $p=0.000$.

Academic preparation. Every unit increase in the high school graduation plan (i.e., from RHSP to DAP) increased the odds of persisting by 1.161 and was significant at $p=0.000$. See Table 4.8.

Full Model to Predict Student Six-Year Graduation for Cohort 2 (financial aid aggregated). This section reviews the full model to predict student six-year graduation for Cohort 2. The full model included all the financial aid variables, tuition and swirler statuses, race/ethnicity, gender, parental education, total income, and academic preparation variables from previous models, as well as personal financial and academic factors such as unmet need, total semester credit hours, adjusted family contribution, adjusted cost, dependency status, and enrollment status. The full model is significant at $p=0.000$. An additional full model that reviewed total aid is discussed below.

Adjusted family contribution, adjusted cost of education, and unmet need.

Adjusted family contribution is the estimated family contribution adjusted for level of enrollment (i.e., full-time, three-quarters time, half-time, less than half-time). Adjusted family contribution was not significant. Adjusted cost is the cost of tuition fees adjusted for level of enrollment. For every unit change, adjusted cost increased the odds of graduating in six years by 1.000. Adjusted cost was significant at $p=0.000$.

Unmet need. Unmet need is adjusted cost minus the sum of financial aid and adjusted family contribution. $Unmet\ need = Adjusted\ cost - (adjusted\ family + financial\ aid)$. For every unit change, Unmet07.1 increased the odds of graduating in six years by 1.609. For every unit change, Unmet07.2, Unmet07.3, and Unmet07.4 decreased the odds of graduating in six years by 0.879, 0.794, and 0.746, respectively. For every unit change, Unmet07.5, Unmet07.6, and Unmet07.7 decreased the odds of graduating in six years by 0.698, 0.693, and 0.575, respectively. Except for Unmet07.2, all unmet need variable levels were significant at $p=0.000$. Unmet07.2 was significant at $p=0.004$.

Dependency status. One unit increase in dependency status (from status of a dependent to independent) in FY 2007 decreased the odds of persisting by 0.801 and was significant at $p=0.000$.

Enrollment status and total semester credit hours. Enrollment variables included enrollment status and total semester credit hours (SCH). One unit change in enrollment status (from full-time to part-time), enrollment status was not significant. For

every unit change in Total SCH, the odds in graduating in six years increased by 1.126. Total SCH was significant at $p=0.000$. See Table 4.7.

Full Model to Predict Student Six-Year Graduation for Cohort 2 (financial aid aggregated). This section reviews the full model with financial aid aggregated to predict student six-year graduation for Cohort 2. The full model included total aid, tuition and swirler statuses, and all the race/ethnicity, gender, parental education, total income, and academic preparation variables from previous models, as well as personal financial and academic factors such as unmet need, total semester credit hours, adjusted family contribution, adjusted cost, dependency status, and enrollment status. The full model is significant at $p=0.000$.

Adjusted family contribution, adjusted cost of education, and unmet need.

Adjusted family contribution was not significant. For every unit change, adjusted cost increased the odds of graduating in six years by 1.000. Adjusted cost was significant at $p=0.000$. For every unit change, Unmet07.1 increased the odds of graduating in six years by 1.798 and was significant at $p=0.000$. For every unit change, Unmet07.4 decreased the odds of graduating in six years by 0.867 and was significant at $p=0.001$. For every unit change, Unmet07.5, Unmet07.6, and Unmet07.7 also decreased the odds of graduating in six years by 0.814, 0.758, and 0.596, respectively. The three were significant at $p=0.000$. Unmet07.2 and Unmet07.3 were not significant.

Dependency status. One unit increase in dependency status (from status of a dependent to independent) in FY 2007 decreased the odds of persisting by 0.680 and was significant at $p=0.000$.

Enrollment status and total semester credit hours. Enrollment variables included enrollment status and total semester credit hours (SCH). Enrollment status was not significant. For every unit change in Total SCH, the odds in graduating in six years increased by 1.130. Total SCH was significant at $p=0.000$. See Table 4.8.

In Chapter 5, I summarize Chapters 1, 2, and 3. I then discuss the results of the findings outlined in Chapter 4. I provide recommendations of future research regarding undocumented students and financial aid. Finally, I provide recommendations for policy and practice.

Chapter V: Summary, Discussion, Implications, and Recommendations

In Chapter IV, I outlined the findings of a logistic regression analysis with student outcomes: year-to-year persistence and six-year graduation. This analysis reviewed two cohorts (entering students who began their college career in FY 2003 and in FY 2007) and used a variety of variables including financial aid, demographic profile, and academic preparation. In this chapter, first I summarize the first three chapters of the dissertation. Second, I discuss the results of the logistic regression analysis. Third, I propose future research recommendations regarding undocumented students and financial aid. Finally, I provide policy and practice recommendations in view of the results of the analysis.

SUMMARY OF LITERATURE AND ARGUMENT

In FY 2013, 24,760 undocumented students paid in-state tuition in Texas. This number is expected to grow. The majority of these students, almost three-quarters of them attend community colleges (Ura & McCullough, 2015). With the passage of H.B. 1403 (2001) and the subsequent clarification of the statute via S.B. 1528 (2005), undocumented students have not only a pathway to higher education, but also access to state- and institutionally-funded financial aid. Texas financial aid and its impact on student persistence and success are the crux of this research. This research provides information to support that the policy is a worthy investment of public funds, and that ISRT and financial aid for undocumented students should continue. Taking the findings into account, I provide policy and practice recommendations to support undocumented students who pursue higher education.

Undocumented student background. Issues and arguments regarding undocumented students and higher education generally revolve around three issues: their status, access to public funds, and statutes that protect or deny them access and entrance into American society.

Undocumented students must contend with their irregular citizenship/resident status and the perceptions that others have of them. Pérez Huber (2009) challenged a racial nativist discourse that identifies undocumented students as the “other.” She argued that viewing immigration through a community cultural wealth framework reframes the discourse to one of human rights, where immigrant communities, regardless of status, are “places rich in resources, skills, and abilities” (Pérez Huber, 2009, p. 725). Gleeson and Gonzales also argued for reframing the immigration debate in terms of human rights rather than illegality or meritocracy. Gleeson and Gonzales (2010) highlighted that when advocates for DREAMers or migrant workers base their arguments on ideals of meritocracy and reward (e.g., work ethic, talent, etc.), rather than on human rights, they are complicit in building hierarchies of worthiness, in essence, separating undocumented students (those who did nothing wrong) from their parents (those who did). Perry (2004, 2006) challenged the notion that membership a nation state should only rely on country of birth. The author posited that other forms of membership, such as connection to community and civic engagement, matter more than place of birth in regards to citizenship (Perry, 2004, 2006).

In contrast to the authors above, arguments against undocumented students participating in higher education include a belief that their status disqualifies them from

using this public benefit, as well as raising concerns regarding accessing public benefits and resources. Kobach (Kobach, 2006a, 2006b) argued that Illegal Immigration Reform and Immigration Responsibility Act (IIRIRA) and the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) exclude undocumented immigrants from accessing state or local public benefits such as in-state tuition. In contrast, Olivas (2008) argued that IIRIRA actually allows states to have in-state tuition because the statute allows states to confer or not confer “residency status upon the undocumented in their public postsecondary institutions” (p. 122).

There are also fiscal arguments against in-state tuition. Von Spakovsky and Stimson (2011) argued that in-state tuition laws are illegal and negatively impact the country because they “encourage illegal immigration; are fundamentally unfair to students from out-of-state who are U.S. citizens; and force taxpayers to subsidize the education of illegal aliens.” Martin (2014) extended this argument by stating that undocumented immigrants, in general, pose a financial burden on Texas. The Texas Comptroller (Keeton Strayhorn, 2006), in contrast, found that undocumented immigrants positively impacted the state’s economy and budget.

The last issue that frames the in-state tuition debate is statutes and laws that provide or deny student access to education, in particular *Plyler v. Doe*. Several authors, notably Olivas (2003, 2004, 2005, 2008, 2009, 2010, 2012) argued that *Plyler v. Doe* (1982) should be extended to higher education. In *Plyler*, the Supreme Court of the United States struck down a Texas law that denied funding to schools for undocumented children and struck down an attempt by the Tyler Independent School District to collect

tuition to offset the cost of educating undocumented children. The Court found that undocumented immigrant children could not be denied a public education (*Plyler v. Doe*, (1982), Olivas, (2005)). This decision did not extend to higher education although proposed “DREAMer” legislation would provide undocumented immigrants who meet residency and academic criteria to access higher education, pay in-state tuition, and provide a pathway to citizenship (The White House, n.d.). Some states, including Texas, California, New York, etc., provide in-state tuition for undocumented immigrants, while others, such as Arizona, Alabama, and Georgia, restricts access to higher education. Another level of complexity exists as higher education systems: the University of Hawai’i and the University of Michigan provide ISRT while other systems, such as Georgia’s, restrict ISRT.

Olivas, Pérez Huber, Gonzales, Gleeson, Perry, and others challenge how society views undocumented immigrants. This study is aligned with these scholars’ premise, that undocumented immigrants are valuable, that they are worthy, and that they matter. I believe that undocumented immigrants, as residents of the state of Texas (in this instance) or whichever state they reside, have the right to participate in public higher education and benefit from state and institutional aid. Recently the Arizona Board of Regents allowed undocumented students who have work visas under DACA to pay in-state tuition rates to attend Arizona public higher institutions. Although they now can access this benefit, they are still barred legislatively from accessing financial aid (ARIZ. REV. STAT. ANN. § 15-1825). This has proven a barrier to students (Winer, 2015). In contrast, the findings of this study have shown that financial aid has aided in reducing barriers to success.

The Texas “Dreamer” policy, which had bi-partisan support when enacted, has since been challenged. In particular, Lt. Governor Dan Patrick made it a legislative priority in the 84th Texas Legislature to do away with the statute (Aguilar, 2015b). Due to the work of many parties, including educators and business interests, the statute withstood the challenge, but it will continue to be controversial (Aguilar, 2015a; McCrimmon, 2015). Without the use of data, policy discussions regarding undocumented students can devolve into ideological arguments. This research study is intended to inform policy using publicly available data while also supporting the value that undocumented immigrants bring to higher education.

SUMMARY OF METHODOLOGY AND LIMITATIONS

To study the impact of financial aid on the persistence and graduation of undocumented students, I employed logistic regression to identify the odds ratio of variables on the dependent variable (i.e., the student outcome). For this study, the target population was entering undocumented students at public four-year institutions in Texas. The control population was entering Latina/o students at public four-year institutions in Texas.

Research questions. The research questions that directed the analysis were:

1. How does financial aid affect undocumented college student persistence?
 - 1.1. How does the amount of financial aid affect the persistence of undocumented students? Does the type of aid (i.e., gift, loan, other, and work-study aid) affect persistence?

- 1.2. How does financial aid affect undocumented college students' persistence compared to those of other ethnic groups (e.g., native-born Latina/os, African Americans, Asian American/Pacific Islanders, etc.)?
2. How does financial aid affect undocumented college student success?
 - 2.1. How does the amount of financial aid affect the degree attainment of undocumented students? Does the type of aid (i.e., gift, loan, other, and work-study aid) affect degree attainment?
 - 2.2. How does financial aid affect undocumented college students' degree attainment compared to those of other ethnic groups (e.g., native-born Latina/os, African Americans, Asian American/Pacific Islanders, etc.)?

Variables. Variables included in the analysis are financial aid variables, demographic variables, an academic preparation variable, a swirler status variable (i.e., students who were attending more than one institution during their first year in higher education), and a tuition status variable. This last variable was used to identify whether students were residents or non-resident immigrants (i.e., undocumented residents). Other tuition statuses, including permanent legal resident, out-of-state/foreign, etc., were not included in the analysis (See Table 3.5 for a full review of tuition statuses). The focus of the analysis was to compare two forms of Texas residents. Financial aid variables included gift aid (i.e., grants and scholarships), loan aid, other aid (i.e., aid that was identified as “other” via the THECB financial aid databases or did not fit in another category), and work-study aid. Demographic variables included race/ethnicity categories, gender, dependency status, total income, enrollment status, adjusted cost, adjusted family

contribution, and unmet need. The Texas high school graduation plan (e.g., recommended high school plan [RHSP] and distinguished achievement plan [DAP]) was the variable used for academic preparation.

Several variables available in the identified databases were not used, including school code (CIP), major, etc. I chose to focus on financial aid variables and variables that were less mutable (such as race/ethnicity, total income, etc.) for my analysis.

Descriptive analysis. Prior to the logistic analysis, I ran descriptive analyses, frequencies, crosstabs, and t-tests, to better understand the population I was to research. The t-test analysis was used to identify differences in financial aid by type and total aid between the target and control group.

Data. For all analyses, I used public data via the Texas ERC. This data included financial aid, enrollment, and graduation data from the THECB and graduation data from the TEA. After cleaning and conditioning the data, I employed logistic regression to identify the impact of the stated variables on the year-to-year persistence and six-year graduation odds.

Logistic regression. For the logistic regression I used a step-wise analysis of blocks of variables. For year-to-year persistence, I used three blocks of variables. The first analysis (Step 1) used financial aid variables and tuition and swirler statuses. This analysis was run twice, first for financial aid, which was disaggregated by type (i.e., gift aid, loan aid, other aid, and work-study aid) and second for financial aid, which was aggregated (i.e., total aid). I employed this same analysis, running an analysis for disaggregated aid and then one for aggregated aid, for the second two blocks of variables

as well. The second analysis (Step 2) used two blocks of variables, the first block from above and then a block of demographic profile variables. The third analysis (Step 3) included the academic preparation variable. See Graph 4.1 for a visual representation.

The multivariate logistic regression model for year-to-year persistence is:

$$\text{logit } [P(y = 1)] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3$$

$$\text{logit } [P(y = 1)] = \alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3$$

where $\text{logit } [P(y = 1)]$ is the predicted value, or logit; α is the intercept; β_i is the regression coefficient for the blocked covariates; R^2 (strengthen of association) is used to identify variables that explain the variance in the model.

A similar analysis was used for six-year graduation. In addition to the three blocks, an additional block (Step 4) of other demographic and financial variables was included. See Graph 4.2. As with persistence, two analyses were run with each step, the first with aid disaggregated and the second with the aid aggregated. The multivariate logistic regression model for year-to-year persistence is:

$$\text{logit } [P(y = 1)] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4$$

$$\text{logit } [P(y = 1)] = \alpha + \beta_1(\text{financial aid})_1 + \beta_2(\text{demographic profile})_2 + \beta_3(\text{academic preparation})_3 + \beta_4(\text{additional demographic and academic variables})_4$$

where $\text{logit } [P(y = 1)]$ is the predicted value, or logit; α is the intercept; β_i is the regression coefficient for the blocked covariates; R^2 (strengthen of association) is used to identify variables that explain the variance in the model.

Limitations. Several limitations exist in this analysis. First, not all undocumented students may be captured in the analysis. This could be for a number of reasons including: the undocumented student did not complete a TASFA, did not meet the residency requirements, or was coded incorrectly. Second, as stated in Chapters 3 and 4, was my transformation of financial aid from a continuous variable to a categorical variable. It would have been better for the analysis if financial aid had been a continuous variable, as it would have allowed for more precision. But, by having it as a categorical variable, I was able to see differences by level of aid within the types of aid and total aid. Often low levels of aid, in all types as well as overall, had little impact, but as the level increased so did the impact. At some point the impact of aid leveled out. Third, the high school graduation plan, due to its implementation date, did not provide useful information for the first cohort. Delaying a year or two may have provided a better picture of academic preparation for Cohort 1. Fourth, external policies, such as the Reauthorization of the Higher Education Act of 1965, which infused additional financial aid into the states, and Texas tuition deregulation in 2003 could have also impacted enrollment, but were not examined in this study. Finally, missing data and data could have been incorrectly entered or coded.

SUMMARY AND DISCUSSION OF FINDINGS: PERSISTENCE

In the two following sections I discuss the results of logistic regression analysis for two student outcomes: persistence and graduation. Persistence was reviewed as year-to-year persistence (Fall Year 1 to Fall Year 2). Graduation was reviewed as graduating within six years. I discuss the results by cohorts. Cohort 1 is comprised of first-year

students in FY 2003. Cohort 2 is comprised of first-year students in FY 2007. For both analyses, I reviewed the variables in the models and then discussed the findings overall.

Financial aid. When viewed alone, financial aid was a positive element in increasing the odds of year-to-year persistence.

Gift aid. For gift aid, both Cohort 1 and Cohort 2, only high levels of gift aid increased the odds of year-to-year persistence. In general, the higher the level of gift aid, the better the odds of graduating. This increase in odds is a benefit for Latina/os and undocumented student, as they were more likely receive high levels of gift aid in relation to other groups.

Loan aid. Loan aid had a divided impact. For both cohorts, lower levels of loan aid did not increase the odds of year-to-year persistence. In contrast, higher levels of loan aid did increase the odds of persisting year-to-year for both cohorts. For Latina/os and undocumented students this is problematic since both groups tend to have lower levels of loan aid than all other racial groups. Even with issues regarding loan debt, loans have become and will continue to be a necessity in financing higher education. A descriptive analysis of loan aid has shown increases in the amount of loan aid for both groups over time. This is most likely because of two issues: (1) a decrease in gift aid, other aid, and work-study aid, and (2) the fact that both groups are becoming more comfortable with securing loans. As loan aid continues to increase in both amount and percentage of the financial aid package, higher education institutions will need to continue to provide more counseling and outreach to Latina/os and undocumented

students and their families to aid them in their decision-making regarding loans and to prepare them for loan management (Burdman, 2005).

Other aid. Other aid (e.g., H.B. 3015 Other aid) also aided in persistence for both cohorts, particularly high levels of other aid. This had been a benefit for Latina/os and undocumented students, as they were more likely than other racial groups to have higher levels of other aid in relation to other groups, especially in the first two years reviewed (FY 2003 and FY 2004). This may become problematic in the future as other aid appears to be declining.

Table 5.1 Change in financial aid in Texas by type

<i>Type of Aid Year</i>	<i>Gift Aid</i>	<i>Loan Aid</i>	<i>Work-study Aid</i>
FY 2005	\$1.800	\$2.600	\$0.062
FY 2006	\$1.820	\$2.883	\$0.062
FY 2007	\$2.107	\$3.185	\$0.060
FY 2008	\$2.406	\$3.372	\$0.060
FY 2009	\$2.618	\$3.745	\$0.064
FY 2010	\$3.823	\$4.291	\$0.069
FY 2011	\$4.280	\$4.740	\$0.070
FY 2012	\$4.240	\$4.920	\$0.070
FY 2013	\$4.310	\$4.870	\$0.070

Note. Totals are in the billions

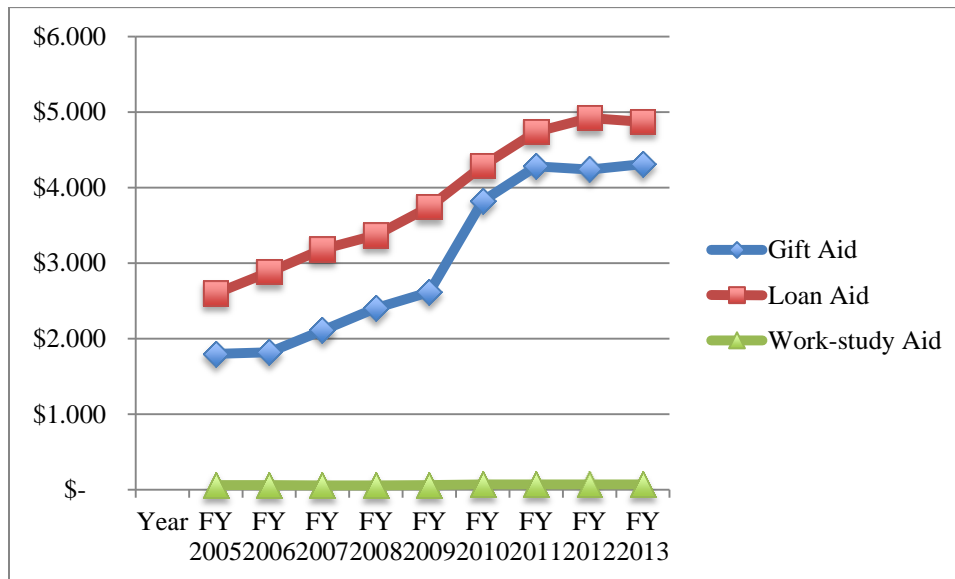
Source: Texas Higher Education Coordinating Board

Work-study aid. Work-study aid also impacted student persistence. High levels of work-study aid increased the odds of persisting year-to-year for both Cohort 1 and Cohort 2. Also, like gift, loan, and other aid, higher levels of work-study aid increased the odds of persisting while lower levels either were not significant or decreased the odds

of persisting. Work-study aid has long been shown to help students succeed (Velez, 1985), yet in Texas there has been little to no growth in the amount of work-study aid versus gift and loan aid, which have both seen growth. See Table 5.1 and Graph 5.1.

As an example, in FY 2005 total work-study aid in Texas was \$0.062 billion and by FY 2013 work-study aid in Texas had grown to \$0.070, or an increase of 16.667%. For loans during that same time period, there was an increase of 139.444%. With increases in the student population, this has translated into lower levels of work-study aid for students. Latina/os had benefited from work-study, particularly high levels of work-study aid. Undocumented students did not benefit similarly because they did not have access to work-study funds, except for those allocated by H.B. 3015 work-study.

Graph 5.1 Change in financial aid in Texas by type



Note. Totals are in the billions.

Source: Texas Higher Education Coordinating Board

Total aid. The final aid category reviewed was total aid, which is the total amount of the aid package. For both Cohort 1 (FY 2003) and Cohort 2 (FY 2007) only high levels of total aid increased the odds in year-to-year persistence. In isolation (i.e., without demographic and academic preparation variables) total aid did increase the odds of year-to-year persistence in Cohort 1.

In this analysis, total aid was demonstrated to benefit students' persistence. Unfortunately, Latina/o students tend to have less total aid than other racial groups. This is even more of a concern for undocumented students, who have less overall total aid than all groups. Work will need to be done to provide additional aid to undocumented students, most likely in the form of loan aid, to help close the gap.

The extensive literature regarding persistence and financial aid has reviewed financial aid overall, by type, in relation to community college students and students at four-year institutions, and in relation to historically under-represented groups. Jensen (1981) concluded that financial aid provided a slight increase in the persistence of entering first-year students at a public four-year institution. Crisp and Nora (2010) found that higher levels of total aid increased the odds of persisting for Latina/os at community colleges who intended to transfer to a four-year institution. Cabrera et al. (1992) found that financial aid helped integrate students into the social and academic spheres of college, as well as influencing their decision to persist. Bettinger (2004) suggested that Pell grants reduce drop-out behavior, supporting the need for more need-based financial aid. Perna (1998) found that receiving financial aid did not increase persistence for entering-students at a four-year institution, but rather the type of aid mattered. She found

that financial aid packages with work-study and those that were grant-only had positive direct effects on persistence, that grants were more effective in increasing persistence than loans, and that loans negatively effected persistence (Perna, 1998).

Edward P. St. John has written extensively on the subject of financial aid and persistence. He (1989) found that both loans and grants positively impacted year-to-year persistence for traditional-age students at a public four-year institution. St. John et al. (1991) also found that loans and grants positively impacted persistence for traditional-age students at a public four-year institution. In another study, St. John et al. (2001) again found that grants and loans, especially in combination, positively impacted persistence at public four-year institutions in Indiana. In a study that reviewed the impact of financial aid on persistence at an urban four-year institution, St. John et al. (2000) found that students who had work-study aid in their financial aid packages were more likely to persist. The authors also found that students with only grant and loan aid persisted at the same rate as students without financial aid. In another work, St. John et al. (1994) found that financial aid packages that included grants, loans, and work-study were positively associated with persistence for traditional-age students at four-year institutions. Additionally, financial aid packages with only loan aid were negatively associated with persistence. Finally, there is no literature regarding other aid, aside from Crisp and Nora (2010) identifying it as part of the financial aid package as it is unique to Texas financial aid.

This study is consistent with the literature, which has shown that financial aid overall has aided in students persisting in higher education. This includes loans, which had traditionally been seen as hindering persistence (Astin, 1975).

Racial categories. Racial groups were reviewed in relation to White students. In relation to White students, only Asian American/Pacific Islander students had better odds of persisting for both cohorts. For all other groups, and in both cohorts, the different racial groups reduced the odds of year-to-year persisting. Specifically, being Latina/o reduced the odds of year-to-year persistence for both cohorts. This finding is consistent with the literature. Fry (2004) posited that Latina/os are less likely to graduate because they attend less selective institutions than their White peers. Choy (2001) also found that students whose parents did not attend college are less likely to graduate. As parents of Latina/os students are less likely to have participated higher education, this may also contribute to Latina/os persisting at lower rates than White students. Additional factors such as low high school rigor (Adelman, 2006, 2008), influence of peers (Arbona & Nora, 2007) and racial climate (Hurtado & Carter, 1997) could also have impacted Latina/o student persistence, in addition to the factors studied in this analysis.

Gender. Being female increased the odds of year-to-year persistence for both cohorts. Previous research has shown that female students are more likely to persist than male students (Conger & Long, 2010; Hu & St. John, 2001; King, 2000). Conger and Long (2010) identify several factors, such as high school GPA, college major, and types of college courses that can contribute to differences in persistence and other student success measures, such as college GPA. Sáenz and Ponjuan (2009) have also identified

that Latino students are less likely to persist than their Latina counterparts. Factors influencing this difference could be Latina students' higher motivation and better coping strategies (Gloria, Castellanos, & Orozco, 2005) as well as a more positive self-image and strong identification of their ethnic identity as compared to Latino students (Barajas & Pierce, 2001). Additionally, push and pull factors, such as working, needing to support one's family, and lower degree aspirations for Latinos compared to Latinas (Sáenz & Ponjuan, 2009) may impact persistence.

Total income. Total income, which is a composite variable of student, spouse, and family income, was also reviewed. As total income increased, so did the odds of year-to-year persistence for both Cohort 1 and Cohort 2. Total income acted as a barrier for Latina/os and undocumented students because, compared to their White peers, Latina/os have lower total income, and undocumented students have even lower total income. This finding is consistent with the literature. Low socioeconomic status (SES) has been shown to be a barrier for persistence (Cabrera & Nasa, 2001; Cabrera et al., 1992; DesJardins, Ahlburg, & McCall, 2006; St. John et al., 1991; Titus, 2006). Walpole (2003) identified that students who are low SES often display different behavior than their higher SES peers. These behaviors, such as needing to work full-time, being less engaged in college, studying less, and having lower GPAs, all can inhibit a student from persisting and graduating. Persistence could be impacted if undocumented students and Latina/os are trading time dedicated to school for time focused on working and other commitments due to their income status. Finally, persistence and success are of particular concern for undocumented immigrants because of their household income.

Passel and Cohn (2009) reported that in 2007 the median household income for undocumented immigrants was “\$36,000, well below the \$50,000 median household income for U.S.-born residents” (iv). Latina/o students in general are negatively impacted because they are more likely to be low-income compared to Whites (Stepler & Brown, 2015).

Dependency status. Dependency status (i.e., being a dependent or independent of one’s parents/guardian) was also reviewed. Being independent increased the odds of year-to-year persistence for Cohort 1. In contrast, for Cohort 2 being independent decreased the odds of year-to-year persistence. This divided finding is consistent with the literature. Dowd & Coury found that being independent of one’s parents/guardians decreased a community college student’s persistence. In contrast, St. John et al. (St. John et al., 2000) found that being independent increased persistence for traditional-aged students at an urban public four-year institution.

Parental education. Parental education is classified as follows: high school, college, and unknown. For Cohort 1, mother’s education level of college increased the odds of year-to-year persistence. Father’s education was not significant in year-to-year persistence for Cohort 1. For Cohort 2, father’s education level of college increased the odds of year-to-year persistence, while mother’s education level of high school reduced the odds of year-to-year persistence. This finding is consistent with the literature. Warburton et al. (2001) found that higher levels of parental education were positively associated with college persistence, even when controlling for academic preparation. Crisp and Nora (2010) found that low parental education negatively impacted a

community college student's persistence and transfer to a four-year institution. This is a concern for both Latina/o students and undocumented students as the general population for both groups tends to have lower educational attainment (Baum & Flores, 2011; Passel & Cohn, 2009; Stepler & Brown, 2015).

Academic preparation. Texas high school graduation plans were used as proxies for academic preparation (See Appendix A for graduation plan descriptions) in analyzing year-to-year persistence. Academic preparation was not significant in year-to-year persistence for Cohort 1. For Cohort 2, graduating with a Distinguished Achievement Program (DAP) from high school instead of the Recommended High School Program (RHSP) increased the odds of year-to-year persistence. It is possible that for Cohort 1, the differences between graduation plans were not as distinct as they were for Cohort 2. The literature has found that a more rigorous high school curriculum leads to higher levels of persistence (Adelman, 2006; Warburton et al., 2001). In particular, Latina/o students who take higher levels of math and more math courses in high school are more likely to persist at community colleges (Crisp & Nora, 2010). I do not have an analysis of the high school graduation plans of Latina/o students but as Latina/o and undocumented students are more likely to attend poorly-funded schools, they may be more likely to have a less rigorous curriculum. That said, participating in a more rigorous curriculum could mitigate other factors, such as being low-income and parental education, which negatively impact persistence (Warburton et al., 2001).

Tuition status. Tuition status was also reviewed. Being undocumented increased the odds of year-to-year persistence behavior for both Cohort 1 and Cohort 2, but only

when viewed with demographic and academic preparation factors. In these two models (partial and full) tuition status perfectly predicted persistence. For the first partial model (with only financial aid and tuition and swirler statuses), being undocumented increased persistence but was not significant. It could be that student financial aid for undocumented students was insufficient (St. John, Paulsen, & Carter, 2005), which is why it was insignificant in the first model. Additionally, undocumented students may be more likely to persist than resident students because the best undocumented students are being groomed to participate in higher education. Undocumented students also have had to persevere in the face of adversity; this learned behavior can lead to higher levels of resiliency. Flores and Horn (2009) found that ISRT recipients at a selective Texas four-year institution persisted at similar rates to their Latina/o peers. Conger and Chellman (2013) found that undocumented students fair well in GPA and course completion, particularly in the first semester. This may be a factor in persistence. They found that the optimism, resiliency, and early academic success does not necessarily lead to higher degree attainment, however (Conger & Chellman, 2013).

Swirler status. Finally, being a swirler, (i.e., attending more than one higher education institution simultaneously) was not significant in year-to-year persistence for Cohort 1 or Cohort 2. I found this surprising as the literature has shown that swirlers are less likely to persist (Adelman, 2006). This literature is evolving as attending more than one institution at the same time, especially a four-year institution and a community college, is increasing as a way to meet course requirements and lower cost (Mullin, 2010).

SUMMARY AND DISCUSSION OF FINDINGS: GRADUATION

Graduation was defined as graduating within six years (i.e., a degree conferred within the sixth fiscal year). As with persistence, I discuss the results by cohorts.

Financial aid. When viewed alone, financial aid was a positive element in increasing the odds of graduating in six years.

Gift aid. For both Cohort 1 and Cohort 2, gift aid increased the odds of graduating in six years. Additionally, the higher the level of gift aid, the better the odds of graduating. Again as with persistence, an increase in the odds of graduating in six years via gift aid was a benefit for Latina/os and undocumented students, as they were more likely to have high levels of gift aid, in general and in relation to other groups.

Loan aid. In contrast to gift aid, loan aid when viewed with all variables, decreased the odds of graduating in six years for both Cohort 1 and Cohort 2. Unlike with persistence, where loan aid increased the odd of persisting, loan aid acted as a barrier to graduating.

Other aid. Other aid increased the odds of graduating in six years for both Cohort 1 and Cohort 2. This is similar to the impact of other aid on persistence. Other aid is a substantial source of aid for undocumented students and may aid in their degree attainment. Unfortunately, the trend for other aid has been one of falling amounts, both overall and specifically for undocumented students.

Work-study aid. As with persistence, work-study aid increased the odds of graduating in six years for both Cohort 1 and Cohort 2. As stated with persistence, work-study has been a great help for Latina/o students, but undocumented students are no

longer able to access work-study aid (except for H.B. 3015 work-study aid).

Additionally, work-study aid has become stagnant and unlikely to increase. In essence, work-study aid has decreased as it has become a smaller portion of a financial aid package. This is a detriment to undocumented and Latina/o students, who had benefited from work-study aid, but must now increase their loan aid (and subsequent loan debt) to achieve success.

Total aid. Finally, total aid was reviewed in regards to graduation in six years. For Cohort 1, total aid was not significant. In contrast, total aid increased the odds of graduating in six years for Cohort 2.

In general, financial aid increased the odds of graduating in six years. The only form of aid that did not increase the odds of graduating in six years was loan aid. This is different than its impact on persistence, where it aided in year-to-year persistence.

Unlike persistence, less is written regarding the relationship between financial aid and degree attainment. Dowd and Coury (2006) found that loans and grants had no significant effect on degree attainment for community college students. Wohlgenuth et al. (2007) found that grants, loans, and work-study aid all increase the likelihood of graduating, with grants having the largest impact on students at a four-year Midwestern university. In an analysis of the impact of financial aid on graduation for African American and Latina/o students at elite institutions, Alon (2007) found that grants positively affected graduation and were an important factor in leveling success for these groups with their White peers. In another work, Alon (2005) suggested that separating need-based gift aid from merit-based gift aid to identify whether there is a difference in

impact. This was not done in this work. Loans and work-study were not significant predictors (Alon, 2005). DesJardines and McCall (2010) found that financial aid has a positive impact on graduation, as well as the “Princeton Strategy,” which favors gift aid over loan aid. This study, which found gift, other, work-study, and other aid to positively impact six-graduation, and loans to negatively impact six-year graduation, was consistent with the literature.

The second block of variables reviewed in regards to graduation were demographic profile, such as race/ethnicity, gender, income, etc.

Racial categories. In relation to White students, only Asian American/Pacific Islander students had better odds of graduating in six years. This was true for both cohorts. All other racial groups, for both cohorts, reduced the odds of graduating in relation to White students. Specifically, identifying as Latina/o reduced the odds of graduating in six years for both cohorts. This is particularly problematic for undocumented students, who are more likely to identify as Latina/o.

A review of the literature has shown that Latina/os lag behind their White peers in graduating. Fry (2002) found that though Latina/os enroll in higher education at rates comparable to Asian Americans and African Americans they do not graduate at similar rates. He argues that Latina/os are more likely to drop out of higher education because they disproportionally enroll at two-year institutions and are more likely to be enrolled part-time (Fry, 2002). Adelman (2006) found that low-socioeconomic status and poor academic preparation were major contributors to Latina/os graduating at lower rates than Whites and Asian Americans. Additionally, Latina/o students were less likely to start

higher education directly after high school graduation (i.e., the Fall semester after high school graduation), and this delay reduced the chance of graduating (Adelman, 2006). DesJardins et al. (2006) found that stopout and dropout behavior ascribed to race was actually the result of other factors including family income, age at college entry, and high school performance.

Gender. Identifying as female increased the odds of graduating in six years for both cohorts. Previous research has shown that female students are more likely to graduate than male students (Conger & Long, 2010; King, 2000). Conger and Long (2010) identified high school GPA in particular, as well as other factors such as college major and types of college courses as predictors to graduation for students at higher education institutions in Texas and Florida. Female students were more likely to have higher high school GPAs and high school ranks, which contributed to their higher college graduation rates (Conger & Long, 2010). As with persistence, Sáenz and Ponjuan (2009) have also argued that Latino male students are less likely to graduate than their Latina peers. Similar to persistence, factors that impact the difference in graduation could be higher motivation and better coping strategies (Gloria et al., 2005), a more positive self-image and strong identification of their ethnic identity (Barajas & Pierce, 2001), and factors such as working, needing to support one's family, and lower degree aspirations for Latino students compared to Latinas students (Sáenz & Ponjuan, 2009).

Total income. Total income was also reviewed for both cohorts. Total income is a composite variable that includes income from parents, student, and spouse. For Cohort 1, total income increased the odds of six-year graduation, with higher levels increasing

the odds at a greater rate. This was similar for the second Cohort. This finding is consistent with the literature. Low socioeconomic status (SES) has been shown to be a barrier for graduation (DesJardins et al., 2006; Terenzini, Bernal, & Cabrera, 2001; Titus, 2006; Walpole, 2003). As stated earlier, Walpole (2003) identified that students who are low SES often need to work full-time and so are less engaged in college, study less, and have lower GPAs, all of which can negatively impact graduation. DesJardins et al. (2006) found that income was a main factor in predicting graduation. Titus (2006) also found that students with low-SES were less likely to graduate than those with higher-SES. He also found that students with low-SES were more likely to enroll in institutions with lower financial resources than students with higher-SES, and that institutions with higher financial resources were more likely to graduate their students than those with low financial resources (Titus, 2006). Finally, Terenzini et al. (2001) found that low-SES students were more likely to delay college enrollment, attend less selective institutions, and have parents who have low college knowledge, low financial aid knowledge, and low college financial planning, all of which contribute to higher levels of attrition. Of all groups undocumented students have the lowest household income, which could contribute to their lower graduation rates.

Parental education. Parental education is categorized as follows: high school, college, and unknown. For Cohort 1, mother's education was not significant in graduating in six years. Only father's education of college education was significant, increasing the odds of graduating in six years. For Cohort 2, both college education and unknown mother's education increased the odds of graduating in six years. For father's

education, the college level increased the odds of graduating. This finding is of particular concern because undocumented immigrants are disproportionately likely to have low levels of education. Forty seven percent of undocumented immigrants between the ages of 25 and 64 have less than a high school education (Passel & Cohn, 2009). Latina/os in general also have lower higher education attainment then Whites (Stepler & Brown, 2015).

The parental education finding was consistent with the literature. Several authors have identified that parental education is an important factor in success (Choy, 2001; Ishitani, 2003; Warburton et al., 2001). Ishitani (2003) found that first-generation students were more likely to drop out of college in their first year than students who had two college-educated parents. Warburton et al. (2001) also found that first-generation students were more likely to stop out or leave their institution in comparison to their peers whose parents had a college degree. In addition, Choy (2001) found that first-generation students who aspired to attain at least a bachelor's degree were less likely to persist and thus attain a degree when compared to peers with parents who had bachelor's or advance degrees.

Swirler status. Being a swirler, in this case a student who attends more than one public Texas higher education institution simultaneously, overwhelmingly increased the odds of graduating in six year for both cohorts. This finding was surprising as the literature has shown that swirlers are less likely to persist (Adelman, 2006). I believe that the flexibility of attending two institutions aided in graduating on time, and possibly

lowering the cost. It is also possible that better articulation agreements between institutions have provided a previously unexplored pathway to graduation.

Tuition status. Tuition status, being a resident or a resident immigrant (i.e., undocumented student), was also reviewed. For both cohorts, being an undocumented immigrant decreased the odds of graduating in six years. These results are troubling, especially since undocumented students were more likely to persist from their first year to their second year of college. It appears that a barrier to undocumented students graduating manifests after their first year. The literature supports this finding. Flores and Horn (2009) found that students at a selective four-year institution in Texas who are beneficiaries of the Texas in-state resident tuition (ISRT) policy (i.e., most likely to be undocumented immigrant) had higher attrition rates than their non-ISRT Latina/o peers. Conger and Chellman (2013) also found that undocumented students are less likely to graduate on-time and are less likely to have a degree conferred even though they have early academic success (e.g., high GPA, persistence, etc.). The authors speculated that undocumented students “experience higher costs to completing their degrees than they had anticipated upon enrollment” (Conger & Chellman, 2013, p. 373). These costs include incorrect information from university staff, stressful interactions with peers, faculty, or staff, and concern regarding after-college work opportunities (Conger & Chellman, 2013). The authors also offered lack of access to financial aid as a cost, which is unlike the undocumented students in this study, who have access, although, less than their citizen peers.

Academic preparation. The third block of variables included academic preparation along with the above variables. Academic preparation is based on the Texas high school graduation plan. For both cohorts, having graduated with a DAP plan from high school instead of a RHSP plan increased the odds of graduating in six years. This finding is consistent with the literature that a more rigorous high school experience, particularly in math, can lead to better higher education outcomes (Adelman, 2006; Choy, 2001; Crisp & Nora, 2010; Warburton et al., 2001). In particular, Crisp and Nora (Crisp & Nora, 2010) found that Latina/o community college students who had higher levels of high school math were more likely to persist and transfer to a four-year institution.

The fourth block of variables also included additional personal and academic factors such as adjusted family contribution, adjusted cost, enrollment status, etc.

Adjusted family contribution. Adjusted family contribution, which is a constructed variable of estimated family contribution adjusted for enrollment status (e.g., full-time, three-quarters time, half-time, etc.) was not significant for both cohorts. This finding is not consistent with the literature, which has found that family contribution positively impacts graduation (Pascarella & Terenzini, 1983, 2005; Tinto, 1997). Family contribution, though, is generally discussed in relation to unmet need and is reviewed in a subsequent section.

Adjusted cost. Adjusted cost is a created variable of cost of attendance adjusted for enrollment status. For both cohorts, adjusted cost increased the odds of graduating. Titus (2006) found that students who attended higher resourced institutions were more likely to graduate than students at lower resourced institutions. Since higher resourced

institutions generally have higher costs, this could help explain the finding. Additionally, this variable was adjusted for enrollment status, so students who were full-time have a higher adjusted cost. I found that enrollment status impacted graduation. See “Enrollment status” section. Finally, cost, like family contribution is often discussed in relation to unmet need.

Unmet need. Unmet need was a composite variable of adjusted cost subtracted from the sum of adjusted family contribution and total aid. This is expressed in the equation below:

$$\text{Unmet need} = \text{adjusted total cost} - (\text{adjusted family contribution} + \text{total aid})$$

For both Cohort 1 and Cohort 2, the higher the unmet need (i.e., the bigger the gap between contribution/financial aid and adjusted cost) the less likely one was to graduate in six years. Low unmet need was not significant in graduating in six years. Unmet need, more than adjusted family contribution, adjusted cost, and total aid had the biggest impact on graduating in six years. This finding is consistent with the literature. Several authors have argued that unmet need is a principle factor in attrition (Long & Riley, 2007; Murdock & Others, 1995; Tinto, 2004; Titus, 2006).

Titus (2006) found that higher unmet need negatively influenced degree completion. Murdock et al. (1995) argued that total financial aid and unmet need are more important factors in graduation than financial aid type (i.e., gift, loan, etc.). Tinto (2004) argued that low-income students have substantial unmet need, which influences students to attend two-year institutions, attend college part-time, live off-campus, and work longer hours. All of these factors can reduce the likelihood of graduating (Advisory Committee

on Student Financial Assistance, 2001). Long and Riley (2007) identified that both low-income students and students of color face substantial unmet need due to an increase in loans, merit-based aid, and education tax breaks. Long and Riley's finding is of particular concern in regards to Latina/o and undocumented immigrants as they rely more than their White counterparts on need-based aid than on loans, merit-based aid, and education tax breaks and may face proportionately higher unmet need (Long & Riley, 2007).

Enrollment status. Enrollment status, in this analysis moving from full-time to part-time, decreased the odds of graduating in six years for Cohort 1 but was not significant for Cohort 2. The literature has shown that attending part-time can negatively impact graduation (Adelman, 2006; Advisory Committee on Student Financial Assistance, 2001; Fry, 2002; Horn, 1996). Adelman (2006) found that being enrolled part-time reduced the probability of college completion. Horn (1996) also found that part-time status reduced the chance for degree attainment. Fry (2002) argued that students who had part-time status had a greater risk of not completing a degree. Finally, Crisp and Nora (2010) found that enrolling part-time negatively impacted success for Latina/o community college students. These findings are troubling as Latina/os and undocumented students are more likely to attend college part-time due to financial constraints.

Dependency status. For both cohorts, being an independent student reduced the chance of graduating in six years. This finding is consistent with Dowd and Coury (2006), who found that independent community college students tend to graduate less

frequently than dependent community college students. In an additional finding, the authors reported that the interaction between loans and dependent status further reduced the chance of community college students graduating (Dowd & Coury, 2006).

Total semester credit hours. The total semester credit hours (SCH) variable was also reviewed. For both Cohort 1 and Cohort 2, higher SCH increased the odds of graduating in six years. This makes sense as it allows for a more timely degree completion. This finding is consistent with the literature. Szafran (2001) found that students who enroll for more credits (i.e., academic intensity) have higher GPAs, higher retention, and higher degree attainment than those who enroll in fewer credits, even when controlling for academic ability, prior academic success, on-campus employment intensity, etc. Adelman (2006) also found that academic intensity led to better retention and degree attainment.

IMPLICATIONS FOR FURTHER RESEARCH

This study reviewed undocumented students in the state of Texas who were designated “non-immigrant residents” due to their residency status. It also looked only at four-year institutions with a focus on the impact of financial aid. Much opportunity exists for further research on this population and focus.

Community colleges. Community colleges continue to be the primary higher education institution type for undocumented immigrants nationwide (Conway, 2009; Perez, 2010) and in Texas (Unmuth, 2010). A similar study looking at undocumented students at community colleges would provide a broad view of barriers to persistence and graduation. Many community college students in Texas lacked financial aid data, thus

posing a problem for reviewing the impacts of financial aid. A review of students who received funding compared to those who did not may be useful. In a study by Diaz-Strong et al. (2011), the authors found that students who were beneficiaries of ISRT policies had their persistence and degree attainment negatively impacted by not having access to financial aid. Unmet need may also be a way to review the impacts of financial aid for community college undocumented students.

Comparisons to other states. Few states provide financial aid for their undocumented students. A comparison to other states with ISRT policies that do and that do not provide financial aid would be useful in identifying how differing policies, financial aid amounts, and other academic and demographic factors either aid or act as barriers to persistence and success. Bozick and Miller (2014) found that Mexican-born non-citizen youth living in states with ISRT are more likely to participate in higher education than those living in non-ISRT states. A similar study of reviewing persistence and graduation of undocumented students attending higher education in non-ISRT states, ISRT states with no financial aid, and ISRT states with financial aid would provide evidence of the impact of financial aid on student outcomes.

Lived experiences. In addition to a quantitative study of persistence and graduation, a qualitative study reviewing the lived experiences of undocumented students in relation to their financial aid and student success outcomes would provide valuable information to inform policy and practice. Diaz-Strong et al. (2011) interviewed students in Illinois who had access to ISRT but not to financial aid. The authors found that students struggled to finance their education, often working long hours and making

difficult choices regarding the number of credits to take and books to buy (Diaz-Strong et al., 2011). A similar study to identify whether financial aid has made a difference in the lived experience could be valuable in providing contrasting narratives of ISRT policies.

Tipping points. Future research should also review tipping points for undocumented students and financial aid. Differing levels of unmet need, gift aid, loan aid, etc. may lead to attrition. Coria and Huffman (2015) identified that students who required higher levels of aid per college unit, and thus higher unmet need, reached a tipping point, where the gap in financial aid began to negatively impact performance. Dr. Lee Holcombe of The University of Texas at Austin is proposing future research to review tipping points in enrollment behavior, persistence, and graduation rates of Texas students (personal communication, July 1, 2015). Research in this area will provide policy makers and financial aid officers with more information regarding targeted aid to boost student outcomes.

RECOMMENDATIONS FOR POLICY AND PRACTICE

In light of the findings above, I provide several policy and practice recommendations to aid in increasing persistence and graduation rates for undocumented students.

Continue and expand H.B. 1403 measures. H.B. 1403 and S.B. 1528 have aided capable students in accessing higher education and being successful. In-state resident tuition paired with financial aid has provided a viable pathway to college success. Providing both in-state tuition and financial aid will continue to aid in the economic growth of Texas, and meet our ethical duty to educate our Texas residents. As

gift and work-study continue to decrease as a percentage of a student's financial aid package, legislators will need to create new opportunities to incentivize loans. Loan forgiveness programs have been successful but limited; moreover the interest-free Texas B-On-Time loan is being phased out, as it was not self-sustaining. New, innovative measures such as micro grants and loans, as well as "aid as a paycheck," where loan aid is distributed throughout the term rather than in a lump sum (MDRC, 2013), may also prove to support and incentivize positive student outcomes.

Continue and codify DACA, and other immigration policies. DACA has provided access to employment after college for undocumented students greatly benefiting students and the economy. Increasing the number of educated individuals leads to higher tax resources, reduction in social services (e.g., the use of emergency rooms), higher investment in the community (e.g., spending money in their community, purchasing homes, etc.), more innovation, and an educated workforce, which attracts business. DACA individuals can help in increasing all of these targets. DACA also provides an incentive to undocumented students in higher education to persist and graduate in a timely fashion. The current policy is an agency policy of DHS, which can be withdrawn in the next presidential administration. Federal lawmakers will need to sustain DACA via codification of the policy into law. Additionally, comprehensive immigration reform that expedites regularizing the immigration status of the 11 million undocumented immigrants in the United States and DREAMer legislation to provide in-state tuition and access to federal financial aid are critical.

Additional focus on graduation. Undocumented students have shown that they are doing well in regards to year one to year two persistence. They will continue to need support and resources to maintain and increase their levels of persistence. Unfortunately, undocumented students are not graduating at similar rates as their Latina/o peers. What barriers are they encountering? Academic advisors, student affairs professionals, and faculty will need to identify whether undocumented students are struggling with financial issues, including unmet need, financial aid, family financial issues, finding employment. They will also need to identify whether undocumented students are participating in high impact activities (e.g., research, living on campus, study abroad, etc.), and facilitate their participation (Kuh, 2008). Finally, higher education leaders will need to investigate whether status issues, such as deportation and access to future employment, are impacting the ability of undocumented students to be successful during their college career. These issues will require establishing rapport with undocumented students, actively and intentionally validating their experience and presence in higher education, and providing targeted support (via a dedicated coordinator or training) to better address their concerns.

H.B. 1403 coordinator. Undocumented students in Texas would benefit from having a dedicated staff member or office to help with their transition into higher education and with navigating their new environment. A coordinator, or other position, could support the students, educate other members of the campus and off-campus community, liaise with off-campus resources, support academic and student life, and be an advocate and confidante for undocumented students. Several institutions in California, such as UC Davis, UC Irvine, and San Francisco State University, have an

equivalent A.B. 540 coordinator or other staff member who is dedicated to helping undocumented students. Fresno State University has announced that it will be opening a Dream Outreach Center for undocumented students to access support during their time in college (Aguilera, 2015). Instituting similar services for undocumented students in Texas is important to their success in higher education. If a dedicated individual or center cannot be supported, a staff member who has experience working with historically underrepresented groups and is committed to aiding undocumented students can also act as a support to undocumented students.

Increase training of faculty, staff, administrators, and students. Many campuses have Safe Zone training to provide LGBTQI awareness and ally training. Recently, some institutions have instituted Green Zone training for faculty, staff, and students to learn more about military-affiliated (e.g., active-duty, reserve, retired, spouse, and dependent, etc.) students and their needs. Similar training can be provided to faculty, staff, and students to better understand the issues that undocumented students face, provide resources and language for them to use when working with undocumented students, and understand current federal and state policies that impact undocumented students.

Unmet need. Financial aid has been a boon for undocumented students, but more work needs to be done to narrow the gap of unmet need. Financial aid officers will need continued training to become experts in financial aid for undocumented students so that they can appropriately counsel them. Additionally, the THECB and higher education institutions will need to identify tipping points of stopout and dropout behavior due to

unmet need. These tipping points will allow financial aid officers to identify students who would be more likely to stop out and drop out due to unmet need and target funds to reduce these outcomes. Again, innovative financial aid policies such as micro grants and loans, and aid as a paycheck, could be targeted for students who could be at the tipping point of separating from their institution.

Financial aid counseling and financial literacy regarding loans.

Undocumented immigrants, and college students in general, would benefit from targeted financial aid counseling. FAFSA nights and college nights, common events in Texas higher education, are one form of this education. These programs are held in the community, often at high schools, where university officers can communicate with students and their family. Higher education institutions should continue to work with families to provide a bridge to the institution, educate them on the college experience, and remove barriers (including language, expertise, jargon, transportation, location of events, i.e., on campus instead of within the community, etc.) to their participation. Additional financial aid counseling should also occur prior to matriculation. Counseling after a student has signed a loan promissory note is too late. Financial aid officers should act as financial management counselors, not simply as distributors of funds. Another method of financial aid counseling, especially for loans, is via financial literacy programs. Financial literacy programs run the gamut of creating personal budgets to retirement, and often focus on loan management. Institutions via Go Centers can provide peer-to-peer financial literacy mentoring regarding loan management to high school

seniors, to aid students and their families in making the best decisions regarding financial aid.

Promote increased academic intensity. Academic intensity, i.e., above the 12 minimum SCH requirement for full-time students, has shown to lead to higher academic outcomes, such as persistence, graduation, and GPA. Students who have traits that make them more likely to stop out or drop out also benefit from higher academic intensity. Institutions and policy makers will need to incentivize taking more SCH. The Texas B-On-Time loan attempted to incentivize graduating on time by providing interest free loans for students who fulfilled certain eligibility, academic, and satisfactory progress requirements, but is now being phased out. In FY 2016, only renewals will be accepted. New, sustainable financial aid programs will need to be created. In addition, institutional programs will need to market the idea of taking heavier course loads as a benefit and reach out to student families to advocated taking more SCH. Policy makers should look at how to better leverage state financial aid funds to incentivize academic intensity, especially in the population that is least likely to do so.

Continued partnerships among community colleges, four-year institutions, and other community stakeholders. The overwhelming majority of undocumented students attend community college due to their ability to access the low cost and flexibility that community colleges provide compared to four-year institutions, as well as their need to stay close to home. Four-year institutions will need to continue to broaden their connection to their community college partners via better articulation agreements, research, and student success initiatives. One such initiative, Reverse Transfer, allows

students who transfer from a community college to a four-year institution to transfer their credits back to the community college and earn an associate's degree. The student does not have to pay for or initiate the reverse transfer. An expansion of this measure can help in degree attainment and incentivize students to complete their four-year degree. Also, providing targeted orientation, advising, and outreach to undocumented students at the community college level can aid in their successful transfer to a four-year institution and in their success there.

SUMMARY

Undocumented immigrants in higher education are a small but controversial population. In Texas, they make up approximately 2% of the entire public higher education population (Ura & McCullough, 2015). But their unsettled status impacts their ability to full integrate into college life. Research has demonstrated that they are a successful but not yet fully tapped group of students who could make a positive impact on society and the economy. Opponents of their access to higher education point to issues of fairness and illegality as arguments against their access. Regardless of the argument, undocumented students are part of the higher education student population, and their behavior and needs should be studied.

Texas, with its ISRT and financial aid policies over a decade old, is a prime location for study. Since Texas's ratification, over a dozen states have passed similar ISRT legislation. Though some states and college systems have passed laws and rules that block access to ISRT or even enrollment, the most recent policies have expanded access to undocumented students.

This study's purpose was to review the student impact of Texas's unique financial aid policy in regards to undocumented students. It found that financial aid, in particular gift aid, helps undocumented students persist from year-to-year, but that undocumented students are still not graduating at similar rates as their resident peers. It appears that barriers or costs associated with their status pressure undocumented students in their later college years, hindering their degree attainment. Future research will need to further study the issue of graduation, with a focus on barriers, unmet need, and other financial and status issues, as well as evaluations of similar policies in other states. In addition, continued inquiry regarding the lived experiences of these students will aid in humanizing and legitimizing their experiences.

Policy and practice will also need to change to better meet the needs of undocumented students and a society that welcomes them. The passage of comprehensive immigration legislation would provide the most inclusive change and protection to undocumented students, though targeted DREAMer legislation would also provide access to higher education and a pathway to citizenship. In lieu of these changes, continuing to provide DACA work permits will provide an avenue for undocumented immigrants who pursue higher education to leverage their education for employment while also better integrating into society.

With these students currently part of the college community in Texas, higher education institutions will need to continue to provide and expand resources and services to undocumented students. Staff and faculty trained on issues impacting undocumented students can provide a safe zone for them to "come out," express issues or concerns,

access information, and find support. Connecting with their families will also be key in building trust and aiding students in their degree attainment and integration to society. Financial aid counseling and financial literacy starting in high school will also aid in undocumented students and their families in making better financial decisions and disabuse them of myths regarding tuition, financial aid, loans, loan debt, etc.

Finally, this research has been deeply personal for a number of reasons, mostly because I am the child of immigrants and because I have been deeply blessed in knowing so many undocumented immigrants in my life. I chose this line of inquiry because these students are a highly marginalized population, and it is necessary to legitimize their experience and celebrate their contribution. By researching and exploring the lived experiences and outcomes of undocumented students, researchers are affirming undocumented students' value, worthiness, and existence. Research should be devoted to the pursuit of both truth and justice.

Appendices

APPENDIX A: COMPARISON OF TEXAS HIGH SCHOOL GRADUATION PLANS FOR ACADEMIC YEAR 2014-2015

Discipline	Foundation HSP	MHSP	RHSP	DAP
English Language Arts	Four credits: English I, English II, English III, and an advanced English course	Four credits: English I, English II, English III, and an advanced English course	Four credits: English I, English II, English III, and English IV	Four credits: English I, English II, English III, and English IV
Mathematics	Three credits: Algebra I, Geometry, and an advanced math course	Three credits: Algebra I, Geometry, and SBOE approved math course	Four credits: Algebra I, Algebra II, Geometry, and an additional math credit	Four credits: Algebra I, Algebra II, Geometry, and an additional math credit
Science	Three credits: Biology, IPC or advance science course, and an advanced science course	Two credits: Biology and IPC or Chemistry and Physics (one of the two serves as an academic elective)	Four credits: Biology, Chemistry, Physics, and an additional science credit	Four credits: Biology, Chemistry, Physics, and an additional science credit
Social Studies	Three credits: U.S. History, U.S. Government (one-half credit), Economics (one-half credit), and World History or World Geography	Three credits: U.S. History, U.S. Government (one-half credit), Economics (one-half credit), and World History or World Geography	Four credits: U.S. History, U.S. Government (one-half credit), Economics (one-half credit), World History, and World Geography	Four credits: U.S. History, U.S. Government (one-half credit), Economics (one-half credit), World History, and World Geography
Physical Education	One credit	One credit	One credit	One credit
Languages Other Than English	Two credits in the same language. Two credits from Computer Science I, II, and III (other substitutions)	None	Two credits in the same language	Three credits in the same language
Fine Arts	One credit	One credit	One credit	One credit
Speech	Demonstrated proficiency in speech skills	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)
Electives	Five credits	Seven and one half credits (one must be an academic elective)	Five and one-half credits	Four and one-half credits
Total Credits	22	22	26	26

Source: Texas Education Agency, March 1, 2014

APPENDIX B: COMPARISON OF TEXAS HIGH SCHOOL GRADUATION PLANS FOR ACADEMIC YEARS 2001 TO 2015

Minimum High School Plan				
Discipline	2001-02, 2002-03, and 2003-04	2004-05, 2005-06, and 2006-07	2007-08, 2008-09, 2009-10, 2010-11, 2011-12	2012-2013 and 2013-14
English Language Arts	Four credits: English I, English II, English III, and an advanced English course	Four credits: English I, English II, English III, and an advanced English course	Four credits: English I, English II, English III, and an advanced English course	Four credits: English I, English II, English III, and an advanced English course
Mathematics	Three credits: To include Algebra I and Geometry	Three credits: To include Algebra I and Geometry	Three credits: Algebra I, Geometry, and an advanced math course	Three credits: Algebra I, Geometry, and an advanced math course
Science	Two credits: must include Biology and IPC. Chemistry or Physics can substitute for IPC, but the second of these two courses must be an elective.	Two credits: must include Biology and IPC. Chemistry or Physics can substitute for IPC, but the second of these two courses must be an elective.	Two credits: must include Biology and IPC. Chemistry or Physics can substitute for IPC, but the second of these two courses must be an elective.	Two credits: must include Biology and IPC. Chemistry or Physics can substitute for IPC, but the second of these two courses must be an elective.
Social Studies	Two and one-half credits: U.S. History, U.S. Government (one-half credit), and World History or World Geography	Two and one-half credits: U.S. History, U.S. Government (one-half credit), and World History or World Geography	Two and one-half credits: U.S. History, U.S. Government (one-half credit), and World History or World Geography	Three credits: U.S. History, U.S. Government (one-half credit), Economics (one-half credit), and World History or World Geography
Economics	One-half credit	One-half credit	One-half credit	Included in Social Studies
Physical Education	One and one-half credit	One credit	One credit	One credit
Languages Other Than English	None	None	None	None
Technology applications	One credit	None	None	None
Speech	One-half credit	One-half credit	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)
Health	One-half credit	None	None	None
Fine Arts	None	None	One credit beginning with entering students in 2010-11	One credit
Academic elective	One credit	One credit	One credit	One credit
Electives	Five and one-half credits	Seven and one-half	Seven and one-half; six and one-half for students entering in 2010-11	Six and one-half credits
Total Credits	22	22	22	22

APPENDIX B: COMPARISON OF TEXAS HIGH SCHOOL GRADUATION PLANS FOR ACADEMIC YEARS 2001 TO 2015, CONTINUED

Recommended High School Plan				
Discipline	2001-02, 2002-03, and 2003-04	2004-05, 2005-06, and 2006-07	2007-08, 2008-09, 2009-10, 2010-11, 2011-12	2012-2013 and 2013-14
English Language Arts	Four credits: English I, English II, English III, and English IV	Four credits: English I, English II, English III, and English IV	Four credits: English I, English II, English III, and English IV	Four credits: English I, English II, English III, and English IV
Mathematics	Three credits: Algebra I, Algebra II, and Geometry	Three credits: Algebra I, Algebra II, and Geometry	Four credits: Algebra I, Algebra II, Geometry, and advanced math credit	Four credits: Algebra I, Algebra II, Geometry, and advanced math credit
Science	Three credits: Biology and additional science credits in IPC, Chemistry, and/or Physics	Three credits: Biology and additional science credits in IPC, Chemistry, and/or Physics	Four credits: Biology, Chemistry, Physics, and advanced science credit	Four credits: Biology, Chemistry, Physics, and advanced science credit
Social Studies	Three and one-half credits: U.S. History, U.S. Government (one-half credit), World History, and World Geography	Three and one-half credits: U.S. History, U.S. Government (one-half credit), World History, and World Geography	Three and one-half credits: U.S. History, U.S. Government (one-half credit), World History, and World Geography	Four credits: U.S. History, U.S. Government (one-half credit), Economics (one-half credit), World History, and World Geography
Economics	One-half credit	One-half credit	One-half credit	Included in Social Studies
Physical Education	One and one-half credits	One credit	One credit	One credit
Languages Other Than English	Two credits in the same language	Two credits in the same language	Two credits in the same language	Two credits in the same language
Fine Arts	One credit	One credit	One credit	One credit
Technology applications	One credit	None	None	None
Speech	One-half credit from Communications Applications	One-half credit from Communications Applications	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)
Health	One-half credit	None	None	None
Electives	Three and one-half credits	Five and one-half credits	Five and one-half credits	Five and one-half credits
Total Credits	24	24	24	26

APPENDIX B: COMPARISON OF TEXAS HIGH SCHOOL GRADUATION PLANS FOR ACADEMIC YEARS 2001 TO 2015, CONTINUED

Distinguished Achievement Plan				
Discipline	2001-02, 2002-03, and 2003-04	2004-05, 2005-06, and 2006-07	2007-08, 2008-09, 2009-10, 2010-11, 2011-12	2012-2013 and 2013-14
English Language Arts	Four credits: English I, English II, English III, and English IV	Four credits: English I, English II, English III, and English IV	Four credits: English I, English II, English III, and English IV	Four credits: English I, English II, English III, and English IV
Mathematics	Three credits: Algebra I, Algebra II, and Geometry	Three credits: Algebra I, Algebra II, and Geometry	Four credits: Algebra I, Algebra II, Geometry, and advanced math credit	Four credits: Algebra I, Algebra II, Geometry, and advanced math credit
Science	Three credits: Biology and additional science credits in IPC, Chemistry, and/or Physics	Three credits: Biology and additional science credits in IPC, Chemistry, and/or Physics	Four credits: Biology, Chemistry, Physics, and advanced science credit	Four credits: Biology, Chemistry, Physics, and advanced science credit
Social Studies	Three and one-half credits: U.S. History, U.S. Government (one-half credit), World History, and World Geography	Three and one-half credits: U.S. History, U.S. Government (one-half credit), World History, and World Geography	Three and one-half credits: U.S. History, U.S. Government (one-half credit), World History, and World Geography	Four credits: U.S. History, U.S. Government (one-half credit), Economics (one-half credit), World History, and World Geography
Economics	One-half credit	One-half credit	One-half credit	Included in Social Studies
Physical Education	One and one-half credits	One credit	One credit	One credit
Languages Other Than English	Three credits in the same language	Three credits in the same language	Three credits in the same language	Three credits in the same language
Fine Arts	One credit	One credit	One credit	One credit
Technology applications	One credit	None	None	None
Speech	One-half credit from Communications Applications	One-half credit from Communications Applications	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)	One-half credit from either of the following: Communications Applications or Professional Communications (CTE)
Health	One-half credit	None	None	None
Electives	Two and one-half credits	Four and one-half credits	Four and one-half credits	Four and one-half credits
Advanced Measures	One of the following: original research project; high achievement on standardized test; high achievement in college level courses	One of the following: original research project; high achievement on standardized test; high achievement in college level courses	One of the following: original research project; high achievement on standardized test; high achievement in college level courses	One of the following: original research project; high achievement on standardized test; high achievement in college level courses
Total Credits	24	24	26	26

Source: Texas Education Agency, 2015

APPENDIX C: ENROLLMENT TUITION STATUS

Tuition status	Scale and Range
Resident Tuition	Texas residents; persons who are classified as residents of Texas as described in (TEX. EDUC. CODE ANN. § 54.052 (West 2006)).
Non-Resident Tuition	Out-of-state or Foreign student
Tuition Exemption for Texas Residents	A number of tuition exemptions and waivers (e.g., Hazlewood)
Thesis or Dissertation	Tuition rate for thesis or dissertation
Law (resident)	Law school rate for residents
Law (non-resident)	Law school rate for non-residents
Non-Resident Immigrant	Student classified as a resident based on TEC 54.052(a)(3) who is not a U.S. citizen or permanent resident but is allowed to pay resident tuition
Permanent Legal Resident	An applicant for permanent resident status or holder of a visa that allows a person to domicile in the U.S. who is classified as a resident and is allowed to pay resident tuition
Non-Resident or Foreign Student Tuition Waiver (Good Neighbor)	Tuition waiver that allows non-resident or foreign students to pay the resident rate as well as recipients of Tuition Exemptions through TEC 54.207 (Good Neighbor Scholarship)
Non-Residents Who Live Within 100 Miles of Border Resident Tuition	Tuition waiver that allows Texas universities within 100 miles of the state border to charge a lower rate than the regular out-of-state tuition rate to out-of-state-students
Visiting Student Due to Natural Disaster	Visiting student allowed to enroll due to natural disaster

Source: (Texas Higher Education Coordinating Board, Education Data Center, 2014)

APPENDIX D: ENROLLMENT STUDENT CLASSIFICATION

Items	Scale and Range
Freshman	Institutional guidelines
Sophomore	Institutional guidelines
Junior	Institutional guidelines
Senior	Institutional guidelines
Post-Baccalaureate	A student possessing a baccalaureate degree but who has not been admitted to a graduate program and is not currently enrolled in an undergraduate degree program
Master's Level	A student possessing a baccalaureate degree or the equivalent and admitted to an approved master's degree program at the institution or a student with a baccalaureate degree accepted to a doctoral program who does not have 30 semester credit hours toward a doctoral degree
Doctor's Level- Research/Scholarship	A student admitted to an approved research/scholarship doctoral degree program at the institution. Such students are those who a) have been officially admitted to a doctoral program and b) have completed a master's degree that the institution recognizes as the equivalent of one year's work toward the doctoral degree on which the student is working, or at least 30 semester credit hours of work toward the proposed degree
Doctor's Level- Professional Practice	A student admitted to an approved professional practice program at the institution

Source: (Texas Higher Education Coordinating Board, Education Data Center, 2014)

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Vita

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