THE ACADEMIC ADAPTATION OF CHILDREN OF IMMIGRANTS IN NEW AND TRADITIONAL SETTLEMENT COMMUNITIES: THE ROLE OF FAMILY, SCHOOLS, NEIGHBORHOODS, AND STATE-LEVEL POLICIES

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ABSTRACT

STEPHANIE R. POTOCHNICK: The Academic Adaptation of Children of Immigrants in New and Traditional Settlement Communities: The Role of Family, Schools, Neighborhoods, and State Level-Policies
(Under the direction of Krista M. Perreira)

This dissertation evaluates how the different contexts of reception in new and traditional immigrant settlement states shape the educational achievement of immigrants' children. The first essay examines how individual, family, school, and neighborhood academic resources differ between new and traditional settlement states and whether these differences contribute to diverging achievement patterns. The second essay examines how the relationship between settlement location and student achievement changed over time as more immigrants arrived and dispersed throughout the 1990s. This essay examines how socio-demographic, family, school, and neighborhood characteristics contributed to differing cohort achievement patterns for each settlement location. The third essay assesses how variation in immigration policies across these states contributes to the unequal academic achievement of immigrant youth. Specifically, the essay investigates whether traditional and new settlement states can reduce the dropout rate for their undocumented immigrant population by adopting in-state resident tuition policies that provide in-state tuition to undocumented students. In combination, this three essay dissertation provides policymakers and educators with critical information on how state-level policies and the characteristics of settlement communities influence the academic achievement of a growing and geographically dispersed immigrant population.

To my Dad, Dick J. Potochnick

Now I can finally get that gas station job . . . Maverick here I come!

I miss you every day.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 4.

CHAPTER 1: EXECUTIVE SUMMARY

How does the geographic dispersion of immigrants across the US affect the education of immigrants' children? This question takes on increasing importance given the dramatic growth and dispersion of immigrant families. Children of immigrants made up over 10% of the total child population in 29 states by 2006, compared to only 16 states in 1990 (Fortuny et al. 2009). The dispersion of immigrants has challenged educators in new settlement communities (e.g., Atlanta and Salt Lake City) to adapt to the needs of their first cohorts of children of immigrants.

In this dissertation, I evaluate how the different contexts of reception in new and traditional settlement states shape the educational achievement of immigrants' children. The first essay examines how individual, family, school, and neighborhood academic resources differ between new and traditional settlement states and whether these differences contribute to diverging achievement patterns. The second essay examines how the relationship between settlement location and student achievement changed over time as more immigrants arrived and dispersed throughout the 1990s. This essay examines how socio-demographic, family, school, and neighborhood characteristics contributed to differing cohort achievement patterns for each settlement location. In the third essay, I assess how variation in immigration policies across these states contributes to the unequal academic achievement of immigrant youth. Specifically, I investigate whether traditional and new settlement states can reduce the

dropout rate for their undocumented immigrant population by adopting in-state resident tuition policies that provide in-state tuition to undocumented students.

In combination, this three essay dissertation provides policymakers and educators with critical information on how state-level policies and the characteristics of settlement communities influence the academic achievement of a growing and geographically dispersed immigrant population. The first two essays identify risk- and protective factors shaping the academic achievement of immigrant youth in traditional and new settlement states. The results of these two analyses allow educators to better target the specific academic needs of their immigrant population. The third essay informs current state- and federal-level policy debates on facilitating college access for undocumented immigrants.

I. Essay One

The dramatic growth and geographic dispersion of immigrants during the 1990s has changed the face of public education and challenged educators in new immigrant communities to adapt to the needs of their first cohorts of children of immigrants. This paper provides an essential evaluation of how families, schools, and neighborhoods shape the academic adaptation of immigrants' children in new and traditional immigrant states. Using the Educational Longitudinal Study (ELS) from 2002, the paper examines how settlement location affects math and reading test scores for all 10^{th} grade youth living in three different settlement locations: traditional, new, and other immigrant states. The paper uses two-way and three-way interactions to assess whether the effect of settlement location differs for each immigrant generation and for racial/ethnic sub-groups of each immigrant generation. Overall, achievement was highest in new immigrant states but achievement differences varied by immigrant generation and racial/ethnic groups. While demographic differences between

settlement locations largely explained differences in student achievement, schools in new immigrant states also strongly influenced academic achievement. This paper extends segmented assimilation theory by examining how key differences in academic resources contribute to diverging achievement patterns across settlement locations.

II. Essay Two

Beginning in the 1990s the dramatic growth and dispersion of immigrants changed the face of public education and challenged educators in all states to adapt to the needs of children of immigrants. This study examines how the combination of immigrant growth and immigrant dispersion during the 1990s affected the education of children of immigrants. Using the National Educational Longitudinal Study (NELS:88) and the Educational Longitudinal Study (ELS:2002), the paper examines the effect immigrant cohort (1990 and 2002) had on reading and math achievement for a national sample of 10^{th} grade youth residing in new, traditional, and other settlement states. The paper also assesses how changes in socio-demographic, family, school, and neighborhood characteristics contributed to cohort achievement patterns for each settlement location. Overall, I found cohort achievement differences varied more between immigrant and non-immigrant youth than between youth residing in different settlement locations. Test scores decreased for immigrant youth but increased or remained stagnant for non-immigrant youth. These variations in achievement partially reflected increases in familial and school risk factors among immigrant youth and increases in familial SES for non-immigrant youth. The paper assesses whether these cohort effects differed for white, black, Latino and Asian youth.

III. Essay Three

As of May 2011, 11 states have adopted an in-state resident tuition policy that provides in-state tuition to undocumented immigrants and several other states are considering similar legislation. While research has examined how these policies effect the educational attainment of undocumented young adults (ages 17-28), no study has thoroughly examined how these policies affect the educational attainment of undocumented high school-aged youth (ages 16-19). Unlike young adults, many of whom migrate to the US with the intention to work, high school aged youth are more likely to enroll in the US educational system and to respond to educational policies. Using the Current Population Survey (CPS), this paper employs a difference-in-difference model to examine whether in-state resident tuition policies targeting undocumented immigrants reduce the likelihood of dropping out of high school for Mexican foreign-born non-citizens (FBNC), a proxy for undocumented youth. The paper develops an integrated framework that combines human capital theory with segmented assimilation theory to provide insight into how in-state resident tuition policies influence student motivation and educational attainment at the high school level. Additionally, the paper considers whether the impact of these policies differ by state migration histories.

CHAPTER 2. THE EDUCATIONAL RESOURCES AND EXPERIENCES OF CHILDREN OF IMMIGRANTS IN NEW AND TRADITIONAL SETTLEMENT STATES

I. Introduction

Changing the geography of immigration, immigrant families have increasingly started to settle in new metropolitan areas and rural locations throughout the West, Southeast, and Midwest (Crowley, Lichter and Qian 2006; Fortuny et al. 2009; Kandel and Cromartie 2004; Lichter and Johnson 2006, 2009; Massey 2008; McConnell 2008; Singer 2004; Suro and Singer 2002). No longer concentrated in traditional areas, children of immigrants made up over 10% of the total child population in 29 states by 2006, compared to only 16 in 1990 (Fortuny et al. 2009). This dispersion has changed the face of public education and presented significant challenges for new immigrant states and communities, many of which are learning to educate the children of immigrants for the first time.

As a consequence of this rapid growth, many educational and social services in new immigrant communities lack the infrastructure, social resources, and institutional support systems that promote the adaptation of immigrant youth (Gozdziak and Martin 2005; Massey 2008; Perreira, Chapman and Levis-Stein 2006; Wainer 2006). Case studies of immigrant growth in new immigrant communities, particularly in the South, indicate that public schools have been overwhelmed by the dramatic influx of a minority population with limited English fluency, low economic resources, and varying educational backgrounds (Bohon, MacPherson and Atiles 2005; Wainer 2006; Wortham, Murillo and Hamann 2002). Schools in these

communities lack the resources and infrastructure to train teachers in bilingual and ESL education or to recruit bilingual staff that could minimize the cultural and linguistic divisions that alienate immigrant parents (Wainer 2006). Consequently, educators in these communities have grown increasingly concerned with the high dropout rate and low achievement of their immigrant newcomers (Wainer 2006; Wortham, Murillo and Hamann 2002).

Recent studies of immigrant adults find that settlement location affects immigrant adaptation. Classifying new immigrant communities across a variety of geographic levels (e.g., states, counties, cities, and zip-codes), these studies find that immigrant adults in new immigrant communities, compared to their counterparts in traditional immigrant communities, are faring better as evidenced by their higher rates of employment, higher earnings, and lower poverty rates (Crowley, Lichter and Qian 2006; Hall 2009; Kandel and Cromartie 2004). This economic advantage, however, may reflect differences in the characteristics of migrants settling in these communities (i.e. migrant selectivity) rather than social context differences (Stamps and Bohon 2006).

Less studied are the children of immigrants and how settlement location affects their academic adaptation. One study found that Latino youth in North Carolina, a new immigrant community, had stronger academic motivations than Latino youth in Los Angeles, a traditional immigrant community (Perreira, Fuligni and Potochnick 2010). This difference, however, partially reflected demographic differences between the states where North Carolina's Latino youth were more likely to be foreign-born. In a national-level study of youth aged 15-17, Fischer (2010) found that immigrant children in new immigrant communities compared to those in traditional immigrant communities were more likely to

drop-out of high school after controlling for demographic, household, and community characteristics.

The differing results by settlement location in part reflect differences in the samples examined. Since studies that use the US Census or Current Population Survey (e.g., Fischer 2010) are unable to determine whether immigrant youth ever enrolled in a US school, results from these studies may reflect differences between labor migrants and non-labor migrants rather than differences in social context. That is because some immigrant youth (including those as young as 14), choose to migrate to the US with the sole intention to work and never enroll in the US educational system (Fry 2003; Oropesa and Landale 2009). In fact, research suggests that migrants in new destination communities tend to be younger, more undocumented, more recently arrived, and more Mexican—characteristics typical of labor migrants (Crowley, Lichter and Qian 2006; Donato et al. 2008; Parrado and Kandel 2008).

This study advances previous research on the link between immigrant settlement location and student achievement. By focusing on immigrant youth enrolled in the US educational system, this study minimizes migrant selection concerns and provides a stronger assessment of the social context of reception. To further decouple migrant selection from social context, the study assesses how socio-demographic, family, school, and neighborhood characteristics affect the relationship between settlement location and achievement for a national sample of 10^{th} grade youth. Thus, the results reflect the educational experiences of immigrant youth enrolled in the US secondary school system.

Using the Educational Longitudinal Study (ELS) from 2002, I examine how settlement location affects math and reading test scores for all 10^{th} grade youth living in three different settlement locations: traditional, new, and other immigrant states. I use two-way and

three-way interactions to assess whether the effect of settlement location differs for each immigrant generation (first, second, and third) and for racial/ethnic sub-groups of each immigrant generation (e.g., first generation Latinos or second generation Asians). I follow the settlement classification outlined by Massey and Capoferro (2008) and define new, traditional, and other immigrant communities at the state level.

II. Background

A. Social Context of Reception

According to the theory of segmented assimilation, today's immigrant youth are incorporated into one of three segments of society: the white middle-class majority, the inner city underclass, or a consciously preserved immigrant community (Portes and Rumbaut 2001). The path each immigrant group follows is determined in large part by not only the human capital an immigrant possesses but also by the multitude of factors that comprise the social context of reception. These include the receptiveness of government, the congruence in the pace of acculturation among families, economic barriers, such as joblessness and concentrated poverty, and social barriers, such as racial discrimination (Portes and Rumbaut 2006) or the social isolation of minority groups (Massey 1990).

Complimenting the segmented assimilation literature, the new assimilation theory proposed by Alba and Nee (2003) emphasizes the active and influential role immigrants have in the assimilation process. The theory argues that institutions, cultural beliefs and social networks combined with the pragmatic actions of immigrants shapes the context of reception. To explain how these multiple factors influence assimilation trajectories, Alba and Nee classify them into two broad categories: distal causes and proximate causes. Often deeper and more embedded in broader social structures, distal causes include the institutional structure

of the state, firm and labor markets. The state, for instance, determines the rules for competition and cooperation under which immigrants and natives interact, while economic growth and national values of diversity affect tolerance levels and social acceptance between immigrants and natives. Proximate causes, on the other hand, operate at the individual and social network level and are shaped by the capital levels (i.e. social, human, and cultural) of both the individual immigrant and his/her co-ethnic group. For example, while highly educated parents can promote their child's academic success by investing time and financial resources in his/her education (Coleman 1988), the benefits of this investment are greater if the child is part of a community with strong adult role models and co-ethnic monitoring (Pong and Hao 2007). Variations in both the distal and proximate causes across and within ethnic and racial groups create the segmented assimilation paths immigrants follow.

The classification of distal and proximate causes of assimilation provides a useful framework for understanding how settlement in new and traditional immigrant states may affect the academic adaptation of immigrant youth. Similar to the distal level, state-level differences in migration histories, structural resources, economic vitality, and public reception of newcomers suggest that the social context in new immigrant states is distinct from that in traditional immigrant states. At the proximate-level, variations in the resources and characteristics of immigrant families, schools, and neighborhoods between new and traditional immigrant states may also lead to distinct social contexts.

B. Context of Reception of New Immigrant Communities

Emerging research on new destinations provides insight into how the characteristics of both the community and its newcomers may influence the context of reception. While dispersed across the US, all new immigrant communities tend to be places with well-

developed and growing economic opportunities in the low-skill service sectors (Leach and Bean 2008). Construction and service jobs in urban areas and manufacturing jobs, particularly in the meat processing industry, in rural areas have provided immigrant workers with new economic opportunities and job stability that is decreasingly available in traditional immigrant communities (Crowley, Lichter and Qian 2006; Donato et al. 2008; Hirschman and Massey 2008; Leach and Bean 2008; Parrado and Kandel 2008). The lower cost of living and tranquil pace of life in new immigrant communities has also attracted immigrants, many of whom desire better quality schools and safer neighborhoods for their children (Hernández-León and Zuñiga 2003).

Less homogenous are the characteristics and traits of the immigrants moving to these new immigrant communities. Historically, migration streams have been headed by the more ambitious, risk-taking immigrant pioneers, typically single males, who establish ethnic neighborhoods and economic niches for family, friends, and less advantaged co-ethnic peers (Waldinger and Lichter 2003). For new immigrant communities, however, there appears to be a diversity of migration streams including second destination migrants (Hall 2009; Lichter and Johnson 2009; Stamps and Bohon 2006), recent arrivals (Kandel and Cromartie 2004; Singer 2004), and dual-worker families (Crowley, Lichter and Qian 2006).

Equally diverse are the economic and educational characteristics of immigrants in these new immigrant communities. Research on Asian, South American, and second destination migrants finds that immigrants in new immigrant communities have higher incomes, levels of education, and employment rates than their counterparts in traditional immigrant areas (Hall 2009; Kuk 2010; Winders 2008). In contrast, other new destination migrants, mostly those in rural areas, tend to be younger, less educated, more undocumented,

more recently arrived, more Mexican, and from larger families than migrants in traditional areas (Crowley, Lichter and Qian 2006; Donato et al. 2008; Parrado and Kandel 2008).

Several positive and negative factors shape the context of reception in new immigrant communities and can influence the academic adaptation of immigrant youth. Between 1990 and 2000, the rate of growth for children of immigrants grew rapidly in new immigrant states, exceeding 50% for most states and reaching as high as 223% in Nevada (Capps et al. 2005). Among Latino populations, the rate of growth was even higher reaching 394% in North Carolina (Perreira, Chapman, and Livas-Stein, 2006). This rapid growth can both promote and hinder the successful adaptation of immigrants. On the one hand, given the newness of the immigrant population, these immigrants most likely will not experience (at least not fully) the detrimental effects of white-flight, which have resulted in high levels of economic, racial, and linguistic segregation in traditional immigrant communities and their schools (Orfield and Lee 2005). On the other, they must learn to adapt in communities where there is not a strong co-ethnic presence and where many public institutions lack the resources to provide linguistically and culturally appropriate services (Perreira, Chapman, Livas-Stein, 2006; Wortham, Murillo, and Hamann 2002).

At the same time, public reception of immigrant newcomers to new immigrant communities has varied from open hostility to enthusiastic support. Job competition concerns, xenophobia, and a lack of cross-cultural experiences have led to negative attitudes among the native majority (Hirschman and Massey 2008), many of whom complain that immigrants bring crime to their communities, burden the tax system, and threaten traditional American values (Fennelly 2008; Shutika 2008). Not all natives, however, hold these negative views and many actively welcome immigrants. For instance Fennelly (2008) found

that working class Minnesotans liked having Hispanic and Somalis newcomers as co-workers, friends, and neighbors and that community leaders praised immigrants for stimulating the economy and diversifying the community. Other research indicates that some schools and school leaders have gone above and beyond to make sure that school programs adapt to the needs of immigrant families, even if such efforts require cutting resources for the most powerful constituent group—the white middle-class (Griffith 2008; Jones-Correa 2008; Wainer 2006).

C. Context of Reception of Traditional Immigrant Communities

Similar to new immigrant communities, several positive and negative factors shape the context of reception in traditional immigrant communities. Because these communities have had a long history of building relationships with and providing services to immigrants, some immigrants are highly integrated into their communities, have well-established co-ethnic networks, and weld substantial political influence (Saito 1998). Additionally, as service providers—many of whom are second and third generation immigrants themselves—continue to aid immigrant newcomers, they can rely on the structural resources (e.g., multilingual specialists, translated documents, and bilingual education) and knowledge base about immigrant needs that have developed over time (Massey 2008).

At times, however, the structural advantages of traditional immigrant communities can become a disadvantage due to the long held stereotypes and racial inequalities ingrained in them. For instance, ethnographic studies of high schools in traditional immigrant communities have identified a subtractive schooling process that devalues minority culture by sorting, selecting, and rewarding students based on their adherence to white middle-class values (Flores-Gonzalez 2005; Valenzuela 1999). Furthermore, while ethnic communities

may be larger in traditional immigrant communities many of them are socially isolated and replete with poverty and unemployment, neighborhood factors typically associated with poor educational outcomes (Crowder and South 2003). Lastly, the economic decline of traditional immigrant communities, which in large part sparked the out-migration during the 1990s, may also hinder immigrant adaptation by decreasing economic opportunities and creating racial divisions (Massey and Capoferro 2008).

In sum, like new immigrant communities, traditional immigrant communities still face challenges in meeting the needs of their immigrant population, but unlike new immigrant communities, traditional immigrant communities have stronger infrastructure and more social and political resources to help them meet these challenges. These resources, however, may be strained by the economic troubles of these communities and at times may be more of a disadvantage due to the social and racial inequalities they promote. Given that both new and traditional immigrant communities have positive and negative factors that shape the context of reception for immigrant youth, I expect that the academic well-being of children of immigrants will differ by location of residence but have no *apriori* expectations for the direction of this difference.

D. Background Characteristics of Children of Immigrants

Differences in the racial composition and generational status of immigrants in new and traditional immigrant states may account for observed differences in academic achievement. Extant research has found significant variation in achievement patterns across racial/ethnic groups and immigrant generations. Of all ethnic groups, Asian American immigrants (except for Cambodians and Laotians) perform the best academically on multiple educational outcomes (e.g., grades, test scores, high school completion rates, college

enrollment levels, and post-secondary achievement) while Latino immigrants, especially Mexicans and Puerto Ricans, perform the worst (Glick and White 2004; Kao and Thompson 2003; Kao and Tienda 1998; Keller and Tillman 2010; Perreira, Harris and Lee 2006; Rumbaut 1999) and white and black immigrant youth fall somewhere in between (Kao and Tienda 1998; Keller and Tillman 2010; Perreira, Harris and Lee 2006). No matter the ethnic group, however, almost all children of immigrants often (but not always) perform better academically than their co-ethnic later generation peers once models account for variation in family economic resources (Fuligni 1997; Glick and White 2003, 2004; Kao and Tienda 1995; Perreira, Harris and Lee 2006; Pong, Hao and Gardner 2005; Valenzuela 1999).

In terms of racial composition, evidence indicates that the settlement locations of immigrant families vary significantly across ethnic/racial groups. In analyzing migration trends in five of the six traditional immigrant states,[i] Massey and Capoferro (2008) found that between 1990 and 2000 the percent of immigrants living in traditional immigrant states declined by 86% to 61% for Mexicans, 72% to 42% for other Latin Americans, 60% to 52% for Asians, and 56% to 47% for all other immigrants (e.g., white and black immigrants). Thus, while Mexican immigrants dominated the dispersion to new immigrant areas during the 1990s, they were also the group most likely to still live in a traditional immigrant community in 2000. Moreover, Asian immigrants and the other non-Latino immigrants were already more dispersed in 1990 than Mexican immigrants were in 2000.

These racial/ethnic differences in geographic dispersion levels and growth rates are likely to affect settlement location achievement patterns in two ways. First, achievement patterns are likely to reflect variation in the racial/ethnic demographics of the settlement locations. Second, given the greater dispersion of Asian and non-Latino immigrants in the

1990s, the new immigrant communities may have more structural resources and stronger co-ethnic communities for these immigrant groups than Latino immigrants.

Evidence also suggests that the settlement locations of immigrant families vary by generational status. Immigrant settlement in new immigrant communities has been dominated by new arrivals rather than by redistributed internal migrants, and Latinos (the largest immigrant group) in new immigrant states are more likely to be foreign-born while those in traditional states are more likely to be US-born (Bump, Lowell and Pettersen 2005).

Sometimes referred to as the "immigrant paradox," studies on academic achievement have found that children in immigrant families, especially Asian families, perform as well if not better than their U.S.-born peers and are at lower risk of dropping out of high school despite the fact that these children experience higher levels of economic and social risk (Fuligni 1997; Glick and White 2004; Kao and Tienda 1995; Perreira, Harris and Lee 2006; Pong, Hao and Gardner 2005; Valenzuela 1999; White and Kaufman 1997). Extant research indicates that the strong academic motivations and achievement of immigrants' children stem from their optimistic views and their parents' encouragement to overcome adversity and succeed (Perreira, Chapman and Livas-Stein 2006). Thus, I hypothesize that differences in achievement between settlement locations will partially reflect variation in the generational status of immigrants living in these communities.

E. Family Context

In addition to socio-demographic characteristics, differences in familial characteristics may also contribute to diverging achievement patterns in new and traditional immigrant states. Students do not enter a school system as empty vessels waiting to be filled with knowledge but instead bring with them a set of resources and skills that they acquire

from their parents and home life (Coleman 1988). Consequently, researchers have identified a number of family characteristics that influence academic aspirations and achievement, including parental education, family income, family structure, household English language usage, and parental involvement (Goyette and Xie 1999; Glick and White 2003; Kao and Tienda 1995; Fuligni 1997; Fuligni and Fuligni 2007; Perreira, Harris and Lee 2006; Rumbaut 1999).

Of all the familial characteristics, research suggests that parental socio-economic status (SES), which incorporates elements of both financial and human capital, is the strongest predictor of student achievement (Glick and White 2003; Sirin 2005). Parents with higher levels of education and family income generally have higher educational expectations (Davis-Kean 2005), invest more time and resources in their students school-work (Roscigno and Ainsworth-Darnell 1999; White and Kaufman 1997), enroll their students in more resource rich schools (Sirin 2005), form stronger relationships with teachers and schools (Lareau 2003), and use more concerted cultivation child-rearing practices (Lareau 2003). For immigrant families, English language usage is another important human capital resource. Research indicates that English language ability of both the parent and child as well as the usage of English in the home can have a positive impact on student achievement (Glick and White 2003; Fuligni and Fuligni 2007; Perreira, Harris, and Lee 2006).

F. School Context

Schools play a pivotal role in determining the assimilation trajectories of immigrants' children. For many children of immigrants, school attendance marks the beginning of their assimilation process by introducing them to mainstream American cultures and other ethnic backgrounds for the first time. Several studies have shown how teacher-student relationships

(Alfaro et al. 2006; Faircloth and Hamm 2005; Katz 1999; Wong, Eccles & Sameroff, 2003), peer influences (Faircloth and Hamm 2005; Kao 2000; Wong, Eccles & Sameroff, 2003), and perceptions of school quality and climate (Stone and Han 2005; Suarez-Orozco, Rhodes and Milburn 2009) contribute greatly to adolescents' beliefs about their academic abilities and prospects as well as their academic performance.

In an era of both record high immigration flows and school re-segregation levels, there is significant concern that schools will be able to successfully foster the academic adaptation of immigrant's children. Creating a triple disadvantage for many children of immigrants, re-segregation of U.S. schools has occurred across racial/ethnic, linguistic, and economic divisions (Orfield and Lee 2005; Ruiz-de-Velasco and Fix 2000; Schmid 2001). Segregation literature indicates that the lower school quality—measured by minority representation, poverty rates, school resources, and teacher characteristics—at segregated schools and their concentration of disadvantaged students and prevalence of negative teacher perceptions detracts from students aspirations and achievement (Hanushek, Kain and Rivkin 2009; Mickleson 2006; Orfield and Lee 2005). Some research suggests, however that children of immigrants, particularly Latinos, may benefit from the targeted resources and supportive environment that segregated schools provide (Garcia-Coll and Szalacha 2004; Goldsmith 2003; Murray, Batalova and Fix 2007). To the extent that school resources and segregation levels differ between traditional and new immigrant communities, I would expect variation in student achievement by settlement location.

G. Neighborhood Context

Lastly, differences in the neighborhood contexts in new and traditional immigrant communities may also contribute to diverging achievement patterns. Neighborhood

conditions define adolescents' opportunity structures and social norms by providing models for socially acceptable adult behavior, connections to the wider society, and supervision over adolescent conduct (Ainsworth 2002; Crowder and South 2003; Pong and Hao 2007; Wilson 1987). Adolescents residing in neighborhoods in which many residents have low levels of education, experience persistent poverty and joblessness, and live in unstable families are likely to have few positive adult role models to show them how a good education, hard work, and delayed child-bearing pays off (Crowder and South 2003). Moreover, the increasing racial and economic segregation of the urban underclass raises concerns that poor immigrant families will be able to combat their own deficiencies in human, financial, and social capital within a neighborhood context that is completely devoid of these resources as well (Wilson 1987).

Several studies have examined how neighborhood characteristics, particularly socioeconomic characteristics, affect various aspects of youth's academic performance. While results are not uniform, evidence suggests that compared to adolescents living in more advantaged neighborhoods (i.e., wealthier, racially integrated, and more educated), adolescents residing in disadvantaged neighborhoods are more likely to drop out of high school (Crowder and South 2003; Perreira, Harris and Lee 2006), have lower grades and test scores (Ainsworth 2002; Pong and Hao 2007), and complete fewer years of schooling (Mayer 2002). While some of the neighborhood effects decrease when omitted familial- and school-level attributes are accounted for (Ginther, Haveman and Wolfe 2000; Pong and Hao 2007), research suggests that their effects are especially pronounced for black youth and children of immigrants as well as youth from low-income families and single-parent households (Crowder and South 2003; Pong and Hao 2007).

III. Methods

A. Data and Sample

This analysis utilizes data from the base year of the Educational Longitudinal study of 2002 (ELS:2002), which is sponsored by the National Center for Education Statistics (NCES). Data were collected on a cohort of approximately 16,200 10th graders from a sample of 750 schools beginning in the spring of 2002 with follow-ups conducted in 2004 and 2006. Providing rich contextual information, NCES collected information from students, parents, teachers, and school administrators, and the restricted datasets (for which I have licensed access) can be connected to zip-code level 2000 census data to identify neighborhood characteristics. As with most national-level data, the ELS study does not contain information on neighborhood boundaries. Instead, I follow the work of other researchers and use the smallest ecological unit available (i.e. zip-codes) in order to reduce measurement error (Ainsworth 2002; Goldsmith 2003). Lastly, the large sample size and the over-sampling of minority students in ELS:2002, makes it possible to adequately assess the influences of ethnic and generational differences among immigrant youth living in new, traditional, and other immigrant states.

I include all self-identified white, black, Asian, and Hispanic students in the sample (N=14,380)[ii] but eliminate other racial/ethnic groups since the sample sizes were too small. No students had missing values on the dependent variable, and I minimized the loss of data due to missing values on independent variables. First, I imputed school-level information from the 12th grade if the student attended the same school in 10th and 12th grade. This is reasonable because school-level variables were strongly correlated across school years ($r \geq .80$). Second, for variables that were missing information from at least 3% of the sample, I

followed Goldsmith's (2003) suggestion and substituted the mean value and created a dummy variable to flag mean-substituted cases. I then used list wise deletion for the remaining variables missing fewer than 3 percent of the cases. The final sample (rounded to the nearest ten as required) was 13,780.

B. Measures

Academic Achievement. I use reading and math test scores as my indicator for student achievement for two reasons. First, states have increasingly relied on standardized tests in both math and reading to measure school performance and to serve as requirements for high school graduation (Hanushek and Raymond 2005). Second, math and reading ability have been shown to affect future labor market outcomes (Farkas 2003). I used the standardized math and reading test scores created by NCES, which provide an indicator of achievement relative to the spring 2002 10^{th} grade population and have a mean value of 50 and standard deviation of 10.

Settlement Location Type: Research on immigration to new destinations has classified new immigrant gateways across a variety of geographic levels: regions (Crowley, Lichter and Qian 2006), states (Hall 2009; Leach and Bean 2008; Massey and Capoferro 2008), metropolitan and non-metropolitan areas (Kandel and Parrado 2005; Parrado and Kandel 2008; Stamps and Bohon 2006), counties (Donato et al. 2008; Kuk 2010), cities (Singer 2004), and suburban areas (Singer 2004). By measuring the influence of a geographical level lower than the state, I could identify new immigrant communities within traditional immigrant states (e.g., Jacksonville, Florida or Albany, New York) or traditional immigrant communities within new immigrant states (e.g. Albuquerque, New Mexico or Denver, Colorado; Suro and Singer 2002). With ELS:2002, however, the data cannot be reliably

disaggregated any lower than the state level. ELS:2002 provides residential zip-codes, but the boundaries of zip-codes change frequently making it difficult to determine rates of growth in the foreign-born population over time—an essential component for classifying new immigrant communities.

Previous research indicates that the state-level classification still captures overall trends between new and traditional immigrant communities (Hall 2009; Leach and Bean 2008; Massey and Capoferro 2008). Moreover, the state level classification builds on Alba and Nee's (2003) discussion of distal and proximate causes. By classifying settlement communities at the state-level, I am able to identify the educational effects of broader social structures (i.e. distal causes) and how the characteristics of immigrant families, schools, and neighborhoods (i.e. proximate causes) within states also influence achievement.

I use a variation of Massey and Capoferro's (2008) typology to identify new, traditional, and other immigrant states. In their classification of traditional immigrant states, Massey and Capoferro include 10 states: 1) the "big five" (California, Texas, Illinois, New York, and Florida) immigrant-receiving states where the majority of immigrants settled between 1965 and 1990, and 2) five "second tier" states (New Jersey, Massachusetts, Washington, Virginia, and Maryland), which received a significant (though considerably lower) number of immigrants during the same time period. They then classify 20 states as new immigrant states because these states accounted for more than one percent of the inflow of any recently arrived (in US less than five years) immigrant group between 1980 and 2005. They classify the remaining states as other.

Following this typology, I classified the "big five" states as traditional immigrant states. Because the "second tier" states were at a "considerable distance behind the 'big five'

states" I classified them and the 20 new states as new immigrant states. I included Washington DC in the new immigrant state classification because the area has experienced considerable growth in its immigrant population (Wilson and Singer 2011). All remaining states (n=20) were classified as other immigrant states (see Appendix 2A for a complete list). As a sensitivity check, I ran the results using both my modified classification scheme and the scheme outlined by Massey and Capoferro (i.e. combining the "big five" and "second tier" states). While the results were similar, they were more robust in the modified classification scheme.

Student Background: Research has shown that educational outcomes vary across a variety of demographic characteristics, including age, gender, ethnic/racial group, and generational status (Kao and Thompson 2003). To control for these differences, I included a dummy female gender variable to determine the influence of gender on student test score performance and use a month-based age variable to control for the influence of age. To control for variations in achievement among different ethnic groups, I created four mutually exclusive race/ethnic categories: white (reference category), black, Asian, and Latino. I used a three-category classification of generational status: first generation (both child and parents were foreign-born), second generation (child was US-born and at least one parent was foreign-born) and third generation and higher (child and both parents were US born). Due to the small sample size, I was not able to identify the 1.5 generation, which refers to youth who arrived before the age of 6 (Perreira, Harris, and Lee 2006).

Family Context. Levels of human capital in immigrant families depend on the economic, educational, and linguistic resources of parents as well as the structure of the family. To measure the family's economic and educational well-being, I used the

standardized scale of socioeconomic status (SES; range: -3.29 to 2.76) created by NCES, which is a composite measure combining information on the mother's and father's education, income, and occupation.

To measure the linguistic resources of immigrant families, I created measures of both the student's English language ability and the family's home language background. Because these two linguistic indicators were strongly correlated (r=.95), I only included the student's English language ability variable. I measured the student's English language ability by averaging the self-reported scores students gave about their reading, writing, listening, and/or speaking ability on a scale from 1="very well" to 4="not very well." I reverse coded the scale so a higher score indicated stronger English language ability and coded native English language speakers as 6 (Goldsmith 2003).

To control for differences in family structure, I followed the work of Glick and White (2003) and created five dummy variables: 1) respondent lived with both biological parents, 2) respondent lived with one biological parent and that parent's partner, 3) respondent lived with a single mother, 4) respondent lived with a single father, and 5) respondent lived with neither parent (typically lives with grandparents or another relative). Because the sample sizes were small in the latter three categories, I collapsed them into one dummy category—single/other family. Thus, I have three dummy indicators for family structure: biological parent family (reference group), stepparent family, and single/other family.

School Context. To measure the social context in schools, I include information about the student body and school resources. I teased out the unique influence of class, racial, and linguistic segregation in schools. First, I included an indicator for the proportion of students on free and reduced lunch in the school as a measure of the school's poverty level

(Orfield and Lee 2005). Second, I included an indicator of the proportion of minority students in the school to assess the influence of racial segregation. Lastly, I accounted for the proportion of students who were limited English proficient (LEP) to measure linguistic segregation. Since proportion LEP was highly skewed, I classified proportion LEP into three dummy variables: low (prop. LEP=0), mid (prop LEP is >0 and ≤0.10), and high (prop. LEP> 0.10). All school indicators are based on the principal survey and supplemented with information from external school-level data (e.g., Common Core Data) provided in ELS:2002.

Since students are found to perform better in schools with a smaller student-teacher ratio (Ferguson 1998), and since the student teacher-ratio is a commonly used school resource indicator (Ainsworth 2002; Ferguson 1998; Goldsmith 2003; Krueger 2003), I created a control for the number of students per teacher. Additionally, I controlled for whether the student was attending a public or private school given the varying resources associated with school type. I also controlled for differences in urbanicity—urban, rural, and suburban—given that school resources and the characteristics of migrants settling in these areas vary (Parrado and Kandel 2008).

Neighborhood Context. I measured the social context of neighborhoods by including information on the economic and ethnic/racial make-up of the zip-code in which the student lived and by assessing the neighborhood's experience with immigrant populations.[iii] To measure the neighborhood's economic well-being, I included an indicator of the proportion of households living below the poverty level. To measure the influence of ethnic/racial composition, I included an indicator of the proportion of minorities residing in the zip-code by subtracting the proportion of non-Latino white from one. To capture the effect of living

near other immigrant groups, I included a measure of the proportion of zip-code residents that were foreign-born (Pong and Hao 2007).

C. Analytical Approach

To understand immigrant youth's academic adaptation in new immigrant states and how this adaptation compares to those of immigrant youth in traditional and other immigrant states, I estimated chi-square tests and T-tests to evaluate proportion and mean differences in academic achievement as well as key socio-demographic, family, school and neighborhood characteristics by settlement type (new, traditional, and other). I also assessed mean differences in achievement by settlement type for each immigrant generation and ethnic racial group.

In order to examine the effect that settlement type has on student achievement, I estimated OLS regression models and included a dummy variable indicating whether the individual resided in a traditional (reference group), new, or other immigrant state. A baseline model that includes only the settlement location dummy variables indicates the total difference in achievement between youth in traditional, new, and other immigrant states. I then subsequently added blocks of variables representing each of the theoretical constructs (i.e. individual, family, school, and neighborhood characteristics) to assess how differences in each of these constructs contributed to the differing achievement patterns by settlement location. Lastly, I assessed how settlement location affected each immigrant generation and each immigrant generation racial/ethnic sub-group by adding two-way (immigrant generation*settlement location) and three-way interactions (immigrant generation*race/ethnicity*settlement location) to the models. All models corrected for design effects by using sample weights, robust standard errors, and a correction for the clustering of

students in schools.[iv]

IV. Results

A. Characteristics of Settlement Locations

High school aged youth residing in new immigrant states scored higher in both math and reading than their peers residing in both traditional immigrant states and other immigrant states (Table 2.1). These differences in high school achievement may partially reflect key demographic differences between settlement locations. In terms of racial/ethnic differences, new and other immigrant states had smaller minority populations than traditional immigrant states. I found that the vast majority of youth in new immigrant states (73%) but less than half of youth (46%) in traditional immigrant states were white. As would be expected, I also found that the size of the immigrant population varied by settlement location. The population of children immigrants (i.e. first and second generation) was largest in traditional immigrant states (32%) and smallest in other immigrant states (6%).

There were notable differences in family characteristics between 10th grade students in new immigrant states and students in traditional and other immigrant states. As measured by familial SES, youth in new immigrant states had more financial and human capital resources (M=0.08; SD=0.02) than their peers in both traditional (M=-0.10; SD=0.03) and other immigrant states (M=-0.03; SD=0.04). Additionally, compared to youth in traditional immigrant states, youth in new immigrant states were more likely to live with both their biological parents (60% vs. 56%), which suggests a greater degree of family support. Lastly, I found that student's English language ability was highest in other immigrant states (M=5.90; SD=0.01) and lowest in traditional immigrant states (M=5.44; SD=0.03)—a likely reflection of the differing sizes of the immigrant population across settlement locations.

As hypothesized by previous research (Hernández-León and Zuñiga 2003), schools in new immigrant states had more resources and were less segregated economically, racially, and linguistically than schools in traditional immigrant states. The proportion of students on free and reduced lunch in a school (an indicator of poverty) was lower in new immigrant states (0.17) than in traditional (0.27) and other immigrant (0.24) states, and the proportion of minority students in a school was lower in new immigrant states (0.26) than in traditional immigrant states (0.48). Mirroring settlement location differences in the size of the immigrant population, I also found that the proportion of LEP students in a school was highest in traditional immigrant states and lowest in other immigrant states. By concentrating disadvantaged students in schools, traditional immigrant states may be detracting from the overall quality of schools. I found that teacher-student ratios were higher in traditional immigrant states (M=18.62; SD=0.29) than in new (M=16.61; SD=0.22) and other immigrant states (M=15.44; SD=0.33). Lastly, I found that schools in traditional immigrant states were more likely to be urban (38%) than schools in both new (26%) and other (26%) immigrant states.

Similar to schools, I found that neighborhoods in traditional immigrant states had higher rates of economic and racial segregation than neighborhoods in new immigrant states, and higher rates of racial segregation than neighborhoods in other immigrant states. The proportion of zip-code residents living in poverty in traditional states was 0.14 compared to 0.10 in new immigrant states, and the proportion of zip-code residents who were minority was 0.43 and 0.23, respectively. Youth in traditional immigrant states were also more likely to live in neighborhoods with a larger immigrant population. The proportion of zip-code residents who were foreign-born was highest in traditional immigrant states (0.17) and lowest

in other immigrant states (0.03).

B. Settlement Location Achievement by Racial/Ethnic Group and Immigrant Generation

Given the observed variation in the demographic composition of the different settlement locations, I assessed how achievement rates between settlement locations varied for each ethnic/racial group and immigrant generation (Table 2.2). I found few differences in achievement rates between peers of the same racial/ethnic group living in different settlement locations. There were no differences in math test scores between youth of any racial/ethnic group in new and traditional immigrant states, and only Whites in new immigrant states (M=53.35; SD=.25) had higher reading scores than their racial/ethnic counterparts in traditional immigrant states (M=52.36; SD=.32). Comparing all settlement locations, I found that black and white students in other immigrant states achieved less in math and reading than their respective peers in new and traditional immigrant states.

I found some differences in achievement rates between peers of the same immigrant generation living in different settlement locations. In terms of reading, achievement rates were higher for second and third generation youth living in new immigrant states than their respective peers living in traditional immigrant states, but there were no difference in reading test scores between first generation youth. Moreover, I found no differences in math achievement for any immigrant generation in these two settlement locations. In comparing all settlement locations, I found that third generation youth in other immigrant states had lower overall (math and reading) achievement than their respective peers in new and traditional immigrant states, while first generation youth in other immigrant states had higher reading scores than their first generation peers in traditional immigrant states.

C. Effect of Settlement Location on Student Achievement

I used multiple regression to assess the extent to which differences in demographic, family, school, and neighborhood characteristics between youth living in each settlement location contributed to the observed differences in student achievement. Additionally, these regressions assessed whether variations in these characteristics masked achievement differences that existed between settlement locations.

In the unadjusted models, I found that reading (Table 2.3; Model 1) and math (Table 2.4; Model 1) test scores were higher in new immigrant states than traditional immigrant states, but there were no achievement differences between youth living in traditional and other immigrant states. Demographic differences between settlement locations largely accounted for these observed and unobserved settlement location differences. Once I controlled for the higher percent of blacks and Latinos (both of whom had lower achievement than their white peers) and the smaller percent of first generation immigrants (who had lower achievement than their third generation peers) in new and other immigrant states, the academic advantage of residing in a new immigrant state compared to a traditional immigrant state decreased from 2.53 to 0.72 in reading (Table 2.3; Model 2) and became non-significant in math (Table 2.4; Model 2). Additionally, youth living in other immigrant states now had lower reading (-1.18) and math scores (-1.72) than their peers in traditional immigrant states.

I also found that the more advantageous family characteristics (i.e. higher familial SES, percent of youth residing with both biological parents, and English language ability) detected among youth living in new immigrant states compared to youth in traditional immigrant states further contributed to their achievement advantage in reading (Table 2.3; Model 3). The coefficient on new immigrant states decreased from 0.72 to 0.56 and became

marginally significant once I controlled for family characteristics.

Differences in school characteristics and resources further contributed to differences in achievement by settlement location. Once I controlled for the lower economic, racial, and linguistic segregation and lower student-teacher ratios found in schools in new immigrant states compared to schools in traditional immigrant states, I found no difference in reading test scores between youth living in new and traditional immigrant states (Table 2.3; Model 4). For math, I found that once I controlled for the more advantageous school characteristics associated with new states achievement was actually lower. The coefficient on new immigrant states was negative and significant (Table 2.4; Model 4).

This achievement disadvantage, however, weakened once I controlled for differences in neighborhood characteristics across each settlement location. The marginal significance and the attenuation of the coefficient (from -.61 to -.55) on new immigrant states indicate that neighborhood characteristics were detracting from student achievement in math. Having more foreign-born neighbors increased math test scores (as seen by the positive and significant coefficient on Proportion zipcode is foreign-born —3 .18), but youth in new immigrant states were less likely to have foreign-born neighbors. Lastly, youth in other immigrant states had lower math and reading scores than youth in traditional immigrant states, once I controlled for key demographic differences between these settlement locations.

D. Effect of Settlement Location on Student Achievement for Each Immigrant Generation

Given that recent arrival immigrants have led the dispersal to new immigrant states (Bump, Lowell and Pettersen 2005) and that many aspects of family, school and neighborhood contexts may differentially affect each immigrant generation, I added two-way

interactions between each immigrant generation and each settlement location to the models. These models allow me to compare how first generation immigrant youth in traditional immigrant states compare to first generation immigrant youth in both new immigrant states and other immigrant states, and so forth for the other generations. In table 2.5, I present the total marginal effect of living in a new or other immigrant state compared to a traditional immigrant state for each immigrant generation by adding the main effect of residing in a new (other) immigrant state and the interactive effect between new (other) immigrant location and immigrant generation (see Appendix 2B for an explanation of the calculations and Appendix 2C for the full model results).

I found that compared to their respective generational peers in traditional immigrant states, first, second, and third generation immigrant youth in new immigrant states were protected by the lower economic segregation and higher school quality of the school systems in new immigrant states. In both reading and math, first generation youth in new and traditional immigrant states had similar achievement rates (i.e. the total marginal effects were not statistically different), until I controlled for school characteristics (Table 2.5, Model 4). Once I accounted for the lower free and reduced lunch proportions ($M_{NewGen1}$=0.22; $SD_{NewGen1}$=.03; $M_{TradGen1}$=0.38; $SD_{TradGen1}$=.03; $p<.05$) and student-teacher ratios ($M_{NewGen1}$=17.42; $SD_{NewGen1}$=.56; $M_{TradGen1}$=20.48; $SD_{TradGen1}$=.37; $p<.05$) in schools attended by first generation youth in new immigrant states, I found that first generation youth actually had lower math (ME=-2.34) and reading (ME=-1.53) test scores than their first generation peers in traditional immigrant states.

Math scores for second generation youth and reading scores for third generation youth suggest a similar school protection effect in new immigrant states. Math scores among

second generation immigrant youth did not differ between youth residing in new and traditional immigrant states (Models 1-3), until I controlled for school characteristics (Model 4). Once I controlled for the protective factors associated with schools in new immigrant states, I found that second generation youth in new immigrant states had lower math scores (ME=-1.78) than their second generation peers in traditional states. In contrast, I found that third generation youth in new immigrant states had higher reading scores than their third generation peers in traditional immigrant states until I controlled for school characteristics. Once I controlled for differences in school economic segregation levels and teacher student-ratios, I found no difference in reading test scores between third generation youth in new and traditional immigrant locations.

Comparing youth in other and traditional immigrant states, I found that first and second generation youth in other immigrant states benefited from their family's higher socioeconomic status ($M_{OthGen1}$=-.20; $SD_{OthGen1}$=.18; $M_{TradGen1}$=-.57; $SD_{TradGen1}$=.05; $p<.10$ and $M_{OthGen2}$=.11; $SD_{OthGen2}$=.07; $M_{TradGen2}$=-.30; $SD_{TradGen2}$=.05; $p<.05$). Once I accounted for the educational benefits associated with higher SES (Model 3), I found that first generation youth in other immigrant states no longer had higher reading test scores than their first generation peers in traditional immigrant states and that second generation youth in other immigrant states actually had lower reading test scores (ME=-3.64) than their peers in traditional immigrant states. For third generation youth (and second generation youth in math) residing in an other immigrant state compared to a traditional immigrant state was associated with lower achievement, even after controlling for differences in demographic, family, school and neighborhood characteristics.

E. Effect of Settlement Location on Student Achievement for Each Immigrant

Generation by Racial/Ethnic Group

Given that achievement patterns differ across racial/ethnic groups (Kao and Thompson 2003) and that racial/ethnic groups have differed in their rates of dispersion to new immigrant states (Massey, and Capoferro 2008), achievement among each immigrant generation may also vary across racial/ethnic groups. To assess how each immigrant generation of whites, blacks, Latinos, and Asians are fairing in new and traditional immigrant states, I added modified three-way interaction terms to the models. First, I created a dummy indicator for the different racial/ethnic groups among each immigrant generation (i.e. the two-way interactions: first-generation black, first-generation white, first generation Latino, first generation Asian and so forth for the other immigrant generations). I then interacted these dummy indicators with the new immigrant state dummy indicator (i.e. the three-way interaction) to compare each immigrant generation for each racial/ethnic group in new and traditional immigrant states (e.g., first generation Latino youth in new immigrant states vs. first generation Latino youth in traditional immigrant states). Due to the small sample sizes in other immigrant states, I did not include interactions with other immigrant states but instead included other immigrant states as a control variable. For ease of interpretation, I present the total marginal effects and only present the racial/ethnic groups for which the modified three-way interactions were significant (Table 2.6; see Appendix 2D for the full model results).

Results indicate that first generation Latinos and Asians and second generation blacks in new immigrant states benefited from stronger family resources and protective school characteristics. Compared to their respective peers in traditional states, first generation Latinos and Asians and second generation blacks in new immigrant states attended schools

with a lower proportion of students on free and reduced lunch and lower teacher-student ratios, while first generation Asians also reported higher levels of English language ability (results available upon request). Once I controlled for these protective familial (Model 3) and school (Model 4) characteristics, I found that in new states first generation Latinos had lower reading test scores, first generation Asians had lower math test scores, and second generation blacks had lower reading and math test scores than their respective peers in traditional immigrant states. These results remained robust once I controlled for differences in neighborhood characteristics.

Lastly, I found that second generation Latinos in new immigrant states had higher levels of achievement in reading than their second generation Latino peers in traditional immigrant states. This reading advantage decreased slightly as I controlled for differences in demographic, family, school, and neighborhood characteristics but remained statistically significant (though only marginally significant in the school model). Thus, unlike their first generation ethnic peers, the academic advantage of second generation Latino youth in new immigrant states extended beyond the protective familial and school characteristics associated with residing in new immigrant states.

F. Sensitivity Analysis

Given that researchers have used a variety of different classification schemes to identify new and traditional immigrant communities, I ran several sensitivity checks to assess the robustness of my results. I re-classified settlement locations following a variety of different classification schemes at both the state and zip-code level and re-ran the analyses. At the state level, I modified Massey's classification by re-classifying the 5 "second tier" states as traditional immigrant states instead of new immigrant states. I also ran the analyses

utilizing the state classification scheme outlined by Fortuny and her colleagues (2009) at the Urban Institute, which classifies 12 states as traditional, 22 states as new, and 16 as other.

For the zip-code level analysis, I ran three checks relying on the two main demographic characteristics typically used for geographic areas lower than the state-level: the percent change in the foreign-born population between the 1990 and 2000 US Censuses, and the initial percent of foreign-born residents in the 1990 US Census (Fischer 2010; Stamps and Bohon 2006). While the zip-code level classifications have measurement error due to boundary changes in zip-codes over time, this only attenuate the results. For the first two checks, I classified settlement locations using the definition outlined by Lichter and colleagues (2010)[v] and a modification of the definition outlined by Fischer (2010).[vi] For the third check, ran analyses using an indicator of the percent growth in the foreign-born population rather than the three category classification scheme (Fischer 2010).

While the results from these different classification schemes varied (in part due to differences in cell sizes and power), there were some consistent themes. Youth in new immigrant states had higher levels of achievement until I controlled for demographic characteristics, and achievement was lower in new immigrant states (especially for Asians and Latinos) once I controlled for school characteristics. These results suggest that the results of this study are not contingent on the classification scheme I used but instead reflect the educational experiences of immigrant youth residing in different settlement locations.

V. Discussion

This paper provides a first assessment of how the geographic dispersion of immigrant families to new immigrant states, which have limited experience with immigrant populations, affects the academic adaptation of immigrant youth. I examined how settlement location in

new, traditional, and other immigrant states affected academic achievement in math and reading for a national sample of 10th grade youth and whether these effects differed for each immigrant generation and for each racial/ethnic sub-group of the immigrant generations. I also assessed how socio-demographic, family, school, and neighborhood characteristics affected the relationship between settlement location and achievement.

I found that overall achievement in math and reading was higher in new immigrant states than in traditional and other immigrant states, but that these achievement differences varied by immigrant generation and racial/ethnic groups. First generation youth had similar achievement rates in math and reading no matter whether they resided in a new or traditional immigrant state; whereas, second and third generation immigrant youth residing in new immigrant states had higher achievement in reading than their generational peers in traditional immigrant states. When comparing ethnic/racial groups, I found few differences in academic achievement by settlement location. Only white youth in new immigrant states outperformed (in reading) their racial peers in traditional immigrant states, while black and white youth in other immigrant states had lower achievement in math and reading than their respective racial peers in new and traditional immigrant states.

Demographic differences between settlement locations largely explained overall differences in student achievement. Proportionally more minority youth and first generation immigrants resided in traditional immigrant states, and these youth generally had lower levels of achievement in math and reading than their respective white and third generation peers. Once I accounted for these demographic differences between settlement locations, the benefit of residing in a new immigrant state decreased substantially but remained positive and significant in reading. These demographic differences highlight the unique challenges

new and traditional immigrant states face. While new immigrant states are challenged with meeting the needs of a growing immigrant and minority population, traditional immigrant states are still responsible for educating the majority of the US's immigrant youth population (Fortuny et al. 2009).

The remainder of the advantage in reading associated with residing in a new vs. traditional immigrant state was explained by differences in familial resources. Compared to youth living in traditional immigrant states, youth in new immigrant states came from families with higher levels of human capital as measured by socioeconomic status, family structure (i.e. living with both biological parents), and English language ability. These higher levels of human capital persisted when comparing across immigrant generations with first and second generation immigrant youth in new receiving states reporting higher levels of familial SES than their generational peers in traditional immigrant states (results not shown). These results fit with previous research that suggests more advantaged immigrant groups are migrating to new immigrant communities (Kuk 2010; Lichter and Johnson 2009; Stamps and Bohon 2006). While other research suggests the opposite (i.e. more disadvantaged immigrants are migrating to new immigrant communities) these studies do not make specific comparisons within immigrant generations (Donato et al. 2008; Parrado and Kandel 2008).

Most importantly, I found that youth in new immigrant states were protected by the lower economic segregation and higher resources (as measured by teacher-student ratios) associated with schools in new immigrant states. Once I accounted for variation in school characteristics between settlement locations, I found that achievement in new immigrant states was often lower than in traditional immigrant states. This was especially true for first and second generation immigrants and for first generation Asians and Latinos and second

generation blacks in particular. These results fit with Fischer's (2010) study that finds high school dropouts were higher in new immigrant communities once she controlled for individual, school, and community characteristics.

Because their growth in new immigrant states is relatively new, immigrant youth in new immigrant states may be more likely to be dispersed across schools rather than concentrated in disadvantaged urban centers, characteristics typical of schools in traditional immigrant states (Hernández-León and Zuñiga 2003; Orfield and Lee 2005). This dispersion can both promote and hinder student achievement. On the one hand, dispersion promotes achievement by increasing overall school quality and exposing immigrant youth to the positive peer effects generated by white middle-class peers (Ryabov and Van Hook 2006). On the other, dispersion decreases economies of scale and reduces the school's ability and willingness to target their resources towards meeting the unique educational needs of immigrant youth (Potochnick and Handa, Forthcoming). The loss in economies of scale likely explains why I found that school achievement was lower in new immigrant states, once I controlled for the beneficial effects of economic integration and school quality. As suggested by previous studies, schools in new immigrant states may lack the infrastructure and resources to promote the adaptation of immigrant youth (Gozdiak and Martin 2005; Massey 2008; Perreira, Chapman, and Livas-Stein 2006; Wainer 2006).

Lastly, I found that while youth in new immigrant states tended to live in more economically and racially integrated neighborhoods than their peers in traditional immigrant states, these neighborhood characteristics explained little variation in achievement patterns by settlement location. Instead, as suggested by previous research, these neighborhood characteristics reinforced the familial and school influences associated with each settlement

community (Ginther, Haveman and Wolfe 2000; Pong and Hao 2007).

I did find evidence that living in neighborhoods with a larger immigrant population had a positive effect on student achievement, once I accounted for the higher poverty rates associated with living in an immigrant enclave. I also found that once I controlled for these neighborhood effects, the negative effect associated with residing in a new immigrant state (controlling for school characteristics) was slightly weakened. These results suggest that neighborhood characteristics in new immigrant states—particularly the low levels of co-immigrant neighbors—negatively affected student achievement. As with dispersion in schools, dispersion across neighborhoods may be both beneficial and detrimental. Because immigrant youth in new immigrant states live in more economically integrated neighborhoods they may have more social opportunities and greater connections to the wider society (Ainsworth 2002; Crowder and South 2003; Wilson 1987), but they may also benefit less from co-ethnic monitoring and immigrant support systems (Pong and Hao 2007).

A. Strengths and Limitations

Though this study has many strengths—the sample is national and the data have more detail on family, school, and neighborhood characteristics than the US Census or Current Population Survey—the results of this study should be read with some caveats in mind. First, the analysis uses a cross-section of the panel data available in ELS. Thus, I identify important associations that need to be further evaluated using longitudinal data. Second, while I minimize migrant selection concerns by eliminating labor migrants (i.e. youth who never enroll in US schools) and controlling for individual and family characteristics, migrant selection remains an issue. Because families choose their settlement location, neighborhoods, and schools, it is possible that the effects I detect reflect these choices rather than the effects

of social context. This paper, however, provides insight into the social context vs. migrant selection debate by providing a first assessment of how the characteristics of immigrant families, schools and neighborhoods differ across settlement locations. Third, because the sample of ELS is drawn from youth enrolled in 10th grade, I exclude youth who have dropped out of high school before the 10th grade. This important subpopulation of youth may have a different schooling experience than youth who remain in school. Lastly, while I am able to examine broad ethnic/racial differences among each immigrant generation the sample sizes were not large enough to examine within ethnic/racial differences. Given that extant research finds significant pan-ethnic variation in student achievement for Asians and Latinos (Kao and Thompson 2003), future research should examine how settlement location affects the academic achievement of the different subgroups of Asians (e.g., Chinese, Filipino, etc.) and Latinos (e.g., Mexican, Cuban, etc.).

B. Policy Implications

For educators and policymakers, this study demonstrates that schools in new and traditional immigrant communities face unique and similar educational challenges. Traditional immigrant states are challenged with educating a large immigrant population with relatively lower levels of human capital than their immigrant generational peers in new immigrant states. New immigrant states, on the other hand, are challenged with developing a stronger infrastructure that responds to the needs of a small but rapidly growing immigrant population. To be successful, both settlement locations must resolve the potential tradeoff between dispersing immigrant youth across schools (i.e. promoting school integration) and economies of scale. By concentrating immigrant youth in schools, educators can more effectively target their resources to meet the unique needs (e.g., learning English, connecting

with immigrant parents, and familiarizing immigrant families with the US educational system) of immigrant youth. The benefit of these resources, however, does not compensate for the lower school quality and economic segregation found in segregated schools.

One potential solution is to adopt dual-immersion programs that attract non-immigrant parents who want their child to learn a second language. To be effective, however, these programs must not privilege the curricular needs of English speakers over those of foreign-language speakers (Gàndara and Contreras 2009). Another policy option is to make economically and racially integrated schools more responsive to the immigrant youth's needs by providing targeted grants based on the size and growth of the immigrant population. Set up as part of the No Child Left Behind Act, these grants are currently based on the LEP population but should be extended to include all immigrant youth. To be effective, new immigrant states should use these grants to develop more resources to support their growing immigrant population, while traditional immigrant states should use the grants to promote greater economic and racial school integration.

C. Conclusion

Overall, this research strongly supports the segmented assimilation model and new assimilation theory by demonstrating that the social contexts of reception influence the adaptation of children of immigrants (Alba and Nee 2003; Portes and Rumbaut 2006). Because the size of their immigrant population is smaller, new immigrant states have not developed the same structural disadvantages found in traditional immigrant states that segregate immigrant youth into low-income schools and neighborhoods. This greater economic integration promotes the academic adaptation of immigrant youth but is constrained by the limited immigrant related resources, infrastructure, and support systems

available in new immigrant states. Thus, the path of assimilation that immigrant youth in new immigrant states follow will largely depend on whether new immigrant states are able to respond to their unique educational needs while still maintaining economic integration.

VI. Notes

[i] New Jersey was classified as a second tier state because the flow of immigrants to this state was significantly lower than the other traditional states.

[ii] All sample sizes I report are rounded to the nearest 10 as required by NCES.

[iii] I also created indicators for the educational and occupational make-up of neighborhoods, which have been shown to affect student achievement (Foster and McLanahan 1996; Goldsmith 2003). I measured the proportion of residents 25 years or older who had not completed high school or the general education equivalent and the proportion of residents who were unemployed. Because both of these measures were strongly correlated with the poverty measure (r=.79 and r=.78, respectively), I excluded them from the analyses.

[iv] Because the within-school sample size was sufficiently small (over 75% of observations came from high schools with fewer than 25 students) and the intraclass correlations were low ($ICC_{Reading}$=.23; ICC_{Math}=.23) hierarchical linear models were not appropriate (Maas and Hox 2004). Instead, I used robust standard errors, which provide more consistent and more conservative estimates of the covariances of the regression coefficients (Maas and Hox 2004).

[v] Traditional destinations included zip-codes where the base percent of the foreign-born population was more than double the national average; new destinations included zip-codes where the foreign-born population was less than the national average in the base period but growth exceeded 200 and the national average by one standard deviation; and other destinations included all remaining zip-codes.

[vi] Traditional destinations included zip-codes in the top 25% of the base population; new included zip-codes where the base population was in the bottom 25th percentile but growth was in the top 50th percentile; and other included all remaining zip-codes.

Table 2.1: Weighted Characteristics of High School Sophomores in 2002 for Full Sample and by State Settlement Type

	Full Sample		Traditional State		New State		Other State		
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Diff.[1]
Achievement									
Reading test score	50.20	(.21)	48.85	(.34)	51.38	(.29)	49.41	(.43)	a,b
Math test score	50.26	(.21)	49.46	(.35)	51.13	(.30)	49.22	(.43)	a,b
Demographics									
Female	0.50	--	0.49	--	0.50	--	0.50	--	
Age	16.17	(.01)	16.14	(.02)	16.17	(.01)	16.22	(.02)	c
Race									
White (ref.)	0.64	--	0.46	--	0.73	--	0.74	--	a,c
Black	0.15	--	0.14	--	0.14	--	0.18	--	
Asian	0.04	--	0.07	--	0.04	--	0.01	--	a,b,c
Latino	0.17	--	0.33	--	0.09	--	0.07	--	a,c
Immigrant generation									
1st generation	0.07	--	0.11	--	0.05	--	0.02	--	a,b,c
2nd generation	0.12	--	0.21	--	0.08	--	0.04	--	a,b,c
3rd generation (ref.)	0.69	--	0.54	--	0.75	--	0.84	--	a,b,c
Gen missing	0.13	--	0.14	--	0.12	--	0.11	--	c
Family Characteristics									
SES	0.00	(.02)	-0.10	(.03)	0.08	(.02)	-0.03	(.04)	a,b
Family Structure									
Biological parent family (ref.)	0.58	--	0.56	--	0.60	--	0.55	--	a,b
Stepparent family	0.16	--	0.16	--	0.16	--	0.18	--	b,c
Single parent/other family	0.26	--	0.27	--	0.25	--	0.27	--	a
English language ability (range: 1-6)	5.68	(.02)	5.44	(.03)	5.78	(.02)	5.90	(.01)	a,b,c
School Characterstics									
Prop. free and reduced lunch	0.21	(.01)	0.27	(.02)	0.17	(.01)	0.24	(.02)	a,b
Prop. minority	0.34	(.01)	0.48	(.02)	0.26	(.02)	0.26	(.02)	a,c
Prop. LEP population--low (ref.)	0.34	--	0.24	--	0.35	--	0.51	--	a,b,c
Prop. LEP population--mid	0.50	--	0.43	--	0.57	--	0.45	--	a
Prop. LEP population--high	0.16	--	0.34	--	0.08	--	0.04	--	a,c
Student-teacher ratio	17.12	(.16)	18.62	(.29)	16.61	(.22)	15.44	(.33)	a,b,c
Urbanicity									
Urban (ref.)	0.30	--	0.38	--	0.26	--	0.26	--	a,c
Rural	0.20	--	0.13	--	0.21	--	0.29	--	a,c
Suburban	0.50	--	0.48	--	0.53	--	0.45	--	
Public (vs. private)	0.92	--	0.92	--	0.91	--	0.95	--	
Neighborhood Characteristics									
Prop. zipcode in poverty	0.12	(.00)	0.14	(.01)	0.10	(.00)	0.14	(.01)	a,b
Prop. zipcode is minority	0.30	(.01)	0.43	(.02)	0.23	(.01)	0.22	(.02)	a,c
Prop. zipcode is foreign-born	0.10	(.00)	0.17	(.01)	0.07	(.00)	0.03	(.00)	a,b,c
Zip-code data missing	0.04	--	0.04	--	0.03	--	0.06	--	b
N[2]=	13780		4720		7040		2020		

[1]Indicate stastical differences (p<.05) between the samples using chi-square tests for proportions and T-tests with satterwaite adjustment for means: a=traditional vs. new, b=new vs. non-immigrant, and c=traditional vs. non-immigrant.

[2]N's are rounded to the nearest 10 as required by NCES.

Table 2.2: 2002 High School Sophomores' Reading and Math Achievement by Race/Ethnicity and Generational Status for Each State Settlement Type (Data Weighted)

	Traditional State			New State			Other State			
	Mean	(SD)	N[1]	Mean	(SD)	N[1]	Mean	(SD)	N[1]	Diff.[2]
A. Reading										
Race/Ethnicity										
Black	45.77	(.56)	550	45.08	(.46)	1010	42.89	(.53)	340	b,c
White	52.36	(.32)	2070	53.34	(.25)	4810	51.29	(.45)	1510	a,b
Asian	50.40	(.75)	730	50.81	(.71)	640	51.80	(1.65)	50	
Latino	44.87	(.39)	1380	45.34	(.69)	590	45.97	(1.10)	120	
Generational status										
1st gen	44.55	(.56)	610	46.01	(.84)	410	48.23	(1.62)	50	c
2nd gen	47.52	(.56)	1120	51.07	(.58)	620	48.01	(1.55)	80	a
3rd gen	51.14	(.37)	2350	52.34	(.27)	5030	49.94	(.47)	1670	a,b,c
B. Math										
Race/Ethnicity										
Black	44.84	(.54)	550	43.88	(.52)	1010	42.26	(.58)	340	b,c
White	53.18	(.31)	2070	53.16	(.25)	4810	51.28	(.41)	1510	b,c
Asian	54.51	(.86)	730	53.10	(.83)	640	52.54	(2.67)	50	
Latino	45.09	(.39)	1380	45.02	(.58)	590	44.99	(.97)	120	
Generational status										
1st gen	46.22	(.71)	610	47.46	(.75)	410	48.44	(1.60)	50	
2nd gen	48.59	(.60)	1120	50.28	(.64)	620	48.79	(1.36)	80	
3rd gen	51.27	(.36)	2350	52.05	(.29)	5030	49.68	(.48)	1670	b,c

[1]N's are rounded to the nearest 10 as required by NCES.

[2]Indicate stastical differences ($p<.05$) between the samples using chi-square tests for proportions and T-tests with satterwaite adjustment for means: a=traditional vs. new, b=new vs. non-immigrant, and c=traditional vs. non-immigrant.

Table 2.3: Effect of Settlement Location on Reading Test Scores for High School Sophomores in 2002 (Data Weighted)

	Model 1 Baseline			Model 2 Demog.			Model 3 Family			Model 4 School			Model 5 Nghbd		
	b	(SE)		b	(SE)		b	(SE)		b	(SE)		b	(SE)	
Settlement Type															
New state vs. traditional state	2.53	(.45)	***	0.72	(.35)	*	0.56	(.29)	†	0.21	(.29)		0.32	(.29)	
Other state vs. traditional state	0.56	(.57)		-1.18	(.45)	**	-0.90	(.38)	*	-1.11	(.40)	***	-0.90	(.41)	*
Demographics															
Female				0.93	(.20)	***	1.12	(.18)	***	1.09	(.18)	***	1.08	(.18)	***
Age				-2.95	(.17)	***	-2.08	(.17)	***	-2.09	(.17)	***	-2.07	(.16)	***
Black vs. White				-7.01	(.33)	***	-5.03	(.31)	***	-4.72	(.33)	***	-4.48	(.35)	***
Asian vs. White				-0.89	(.52)	†	0.37	(.45)		0.39	(.46)		0.35	(.45)	
Latino vs. White				-6.43	(.40)	***	-2.85	(.34)	***	-2.43	(.34)	***	-2.37	(.34)	***
1st generation vs. 3rd generation				-3.34	(.44)	***	0.41	(.43)		0.49	(.44)		0.26	(.44)	
2nd generation vs. 3rd generation				-0.52	(.36)		0.58	(.35)	†	0.64	(.35)	†	0.46	(.34)	
Family Characteristics															
SES							4.02	(.15)	***	3.69	(.15)	***	3.67	(.15)	***
Stepparent family vs. biological family							-1.23	(.25)	***	-1.16	(.25)	***	-1.14	(.25)	***
Single parent/other family vs. biological family							-0.94	(.22)	***	-0.91	(.22)	***	-0.92	(.22)	***
English language ability (range: 1-6)							1.53	(.15)	***	1.42	(.16)	***	1.45	(.16)	***
School Characteristics															
Prop. free and reduced lunch										-3.11	(.93)	**	-3.05	(1.03)	**
Prop. minority										0.50	(.68)		0.59	(.89)	
Prop. LEP population--mid vs. low										0.10	(.29)		0.05	(.30)	
Prop. LEP population--high vs. low										-0.94	(.47)		-1.28	(.48)	**
Student-teacher ratio										-0.08	(.03)		-0.08	(.03)	*
Rural vs. urban										-0.60	(.39)		-0.61	(.40)	
Suburban vs. urban										-0.51	(.31)		-0.54	(.32)	†
public										-0.91	(.44)		-0.84	(.46)	†
Neighborhood Characteristics															
Prop. zipcode in poverty													0.51	(2.06)	
Prop. zipcode is minority													-1.22	(.90)	
Prop. zipcode is foreign-born													4.15	(1.51)	**
Constant	48.85	(.35)	***	100.09	(2.84)	***	76.51	(2.93)	***	80.48	(3.00)	***	79.97	2.96	***

† p<.10, * p<.05, **p<.01, ***p<.001

N=13780 (rounded to the nearest 10 as required by NCES)

Note: Models include dummy variable indicators for missing data for generational status, English language abilty, and zip-code data.

Table 2.4: Effect of Settlement Location on Math Test Scores for High School Sophomores in 2002 (Data Weighted)

	Model 1 Baseline			Model 2 Demog.			Model 3 Family			Model 4 School			Model 5 Nghbd		
	b	(SE)		b	(SE)		b	(SE)		b	(SE)		b	(SE)	
Settlement Type															
New state vs. traditional state	1.67	(.47)	*	-0.09	(.33)		-0.23	(.28)		-0.61	(.29)	*	-0.55	(.29)	†
Other state vs. traditional state	-0.23	(.58)		-1.72	(.43)	***	-1.41	(.36)	***	-1.50	(.38)	***	-1.35	(.38)	***
Demographics															
Female				-1.55	(.19)	***	-1.35	(.17)	***	-1.37	(.17)	***	-1.38	(.17)	***
Age				-3.49	(.16)	***	-2.67	(.16)	***	-2.63	(.16)	***	-2.62	(.16)	***
Black vs. White				-8.17	(.35)	***	-6.19	(.34)	***	-5.39	(.35)	***	-5.17	(.36)	***
Asian vs. White				1.43	(.61)	*	2.24	(.55)	***	2.40	(.55)	***	2.38	(.54)	***
Latino vs. White				-7.08	(.36)	***	-3.95	(.32)	***	-3.33	(.34)	***	-3.26	(.34)	***
1st generation vs. 3rd generation				-2.00	(.41)	***	0.74	(.42)	†	0.77	(.42)	†	0.59	(.42)	
2nd generation vs. 3rd generation				-0.39	(.36)		0.37	(.35)		0.40	(.35)		0.26	(.34)	
Family Characteristics															
SES							3.99	(.15)	***	3.65	(.15)	***	3.63	(.15)	***
Stepparent family vs. biological family							-1.33	(.25)	***	-1.26	(.25)	***	-1.25	(.25)	***
Single parent/other family vs. biological family							-1.14	(.21)	***	-1.06	(.21)	***	-1.06	(.21)	***
English language ability (range: 1-6)							0.90	(.15)	***	0.79	(.15)	***	0.80	(.15)	***
School Characteristics															
Prop. free and reduced lunch										-4.51	(.95)	***	-4.51	(1.05)	***
Prop. minority										-0.07	(.70)		0.32	(.90)	
Prop. LEP population--mid vs. low										0.27	(.29)		0.23	(.29)	
Prop. LEP population--high vs. low										-0.04	(.50)		-0.30	(.53)	
Student-teacher ratio										-0.07	(.03)	*	-0.07	(.03)	*
Rural vs. urban										-0.27	(.40)		-0.28	(.41)	
Suburban vs. urban										-0.03	(.32)		-0.04	(.33)	
public										-0.29	(.43)		-0.28	(.45)	
Neighborhood Characteristics															
Prop. zipcode in poverty													0.41	(1.92)	
Prop. zipcode is minority													-1.41	(.84)	†
Prop. zipcode is foreign-born													3.18	(1.51)	*
Constant	49.46	(.35)	***	110.62	(2.67)	***	91.62	(2.85)	***	94.07	(3.01)	***	93.79	(2.98)	***

† p<.10, * p<.05, **p<.01, ***p<.001

N=13780 (rounded to the nearest 10 as required by NCES)

Note: Models include dummy variable indicators for missing data for generational status, English language abilty, and zip-code data.

Table 2.5: Marginal Effect of Settlement Location on Reading and Math Test Scores for Each Immigrant Generation of High School Sophomores in 2002 (Data Weighted)

	Model 1 Baseline				Model 2 Demog.				Model 3 Family				Model 4 School				Model 5 Nghbd			
	ME	(95% CI)		Diff[1]	ME	(95% CI)		Diff	ME	(95% CI)		Diff	ME	(95% CI)		Diff	ME	(95% CI)		Diff
	A. Reading																			
1st generation																				
New vs. trad.	1.46	(-.51	3.43)		0.19	(-1.52	1.90)		-0.88	(-2.25	.48)		-1.53	(-2.94	-.13)	*	-1.26	(-2.66	.13)	†
Other vs. trad.	3.69	(.37	6.99)	*	2.77	(.36	5.18)	*	0.84	(-1.48	3.15)		-0.07	(-2.54	2.40)		0.52	(-1.96	3.00)	
2nd generation																				
New vs. trad.	3.55	(1.97	5.13)	***	1.78	(.48	3.08)	**	0.81	(-.37	2.00)		0.25	(-.97	1.47)		0.42	(-.79	1.64)	
Other vs. trad.	0.49	(-2.72	3.71)		-2.15	(-4.89	.60)		-3.64	(-6.43	-.85)	*	-4.17	(-6.98	-1.37)	**	-3.82	(-6.61	-1.03)	**
3rd generation																				
New vs. trad.	1.21	(.31	2.10)	**	0.53	(-.23	1.29)		0.66	(.01	1.31)	*	0.41	(-.23	1.05)		0.46	(-.19	1.10)	
Other vs. trad.	-1.20	(-2.35	-.04)	*	-1.39	(-2.34	-.44)	**	-0.76	(-1.58	.07)	†	-0.87	(-1.73	-.01)	*	-0.73	(-1.60	.13)	†
	B. Math																			
1st generation																				
New vs. trad.	1.25	(-.77	3.27)		-0.48	(-2.09	1.13)		-1.49	(-2.99	.01)	†	-2.34	(-3.99	-.68)	**	-2.19	(-3.82	-.57)	**
Other vs. trad.	2.22	(-1.16	5.61)		0.99	(-1.43	3.41)		-0.76	(-3.20	1.67)		-1.89	(-4.32	.53)		-1.48	(-3.87	.91)	
2nd generation																				
New vs. trad.	1.69	(-.04	3.41)	†	-0.23	(-1.55	1.09)		-1.06	(-2.26	.15)	†	-1.78	(-3.05	-.50)	**	-1.70	(-2.99	-.41)	*
Other vs. trad.	0.20	(-2.70	3.09)		-2.65	(-.32	-4.98)	*	-3.87	(-6.18	-1.57)	**	-4.38	(-6.74	-2.02)	***	-4.16	(-6.51	-1.80)	***
3rd generation																				
New vs. trad.	0.79	(-.13	1.70)	†	0.03	(-.69	.75)		0.12	(-.49	.74)		-0.14	(-.75	.48)		-0.12	(-.75	.50)	
Other vs. trad.	-1.59	(-2.76	-.42)	**	-1.74	(-2.64	-.84)	***	-1.14	(-1.90	-.38)	**	-1.11	(-1.89	-.33)	**	-1.02	(-1.81	-.23)	*

N=13780 (rounded to the nearest 10 as required by NCES)

Notes: [1] Indicates statistical significance of F-test assessesing whether the total marginal effect is different from the total marginal effect in traditional immigrant states: † p<.10, * p<.05, **p<.01, ***p<.001

Each model includes the same controls as the corresponding model in table 4 and the interaction effects for the dummy variable indicating missing generational status.

Table 2.6: Marginal Effects Containing Significant Interaction Terms between Immigrant Destination, Race, and Generation (Data Weighted)

	Model 1 Baseline				Model 2 Demog.				Model 3 Family				Model 4 School				Model 5 Nghbd			
	ME	(95% CI)		Diff[1]	ME	(95% CI)		Diff	ME	(95% CI)		Diff	ME	(95% CI)		Diff	ME	(95% CI)		Diff
	A. Reading																			
New vs. Traditional																				
Black																				
1st gen	0.81	(-4.12	5.73)		1.44	(-2.62	5.50)		1.59	(-1.77	4.96)		1.43	(-1.81	4.67)		1.69	(-1.49	4.86)	
2nd gen	-1.78	(-5.71	2.14)		-2.14	(-5.73	1.44)		-3.09	(-6.84	.66)		-3.79	(-7.55	-.03)	*	-3.57	(-7.38	.24)	†
3rd gen	0.09	(-1.26	1.43)		-0.01	(-1.33	1.31)		-0.34	(-1.61	.92)		-0.96	(2.24	.32)		-0.82	(-2.12	.47)	
Latino																				
1st gen	-1.29	(-3.62	1.05)		-1.39	(-3.66	.88)		-1.98	(-3.96	-.01)	*	-2.57	(-4.58	-.57)	*	-2.38	(-4.40	-.37)	**
2nd gen	3.26	(1.19	5.33)	**	3.71	(1.77	5.65)	***	2.44	(.66	4.22)	**	1.80	(-.07	3.68)	†	1.92	(.09	3.76)	*
3rd gen	-0.77	(-2.88	1.35)		-0.59	(-2.63	1.45)		-0.93	(-2.77	.91)		-1.15	(-3.01	.71)		-1.16	(-3.05	.73)	
	B. Math																			
New vs. Traditional																				
Black																				
1st gen	-1.01	(-6.37	4.36)		-0.13	(-4.66	4.40)		-0.17	(-4.19	3.85)		-0.50	(-4.22	3.22)		-0.30	(-3.99	3.40)	
2nd gen	-5.63	(-11.06	-.21)	*	-5.80	(-10.83	-.75)	*	-6.68	(-11.96	-1.41)	*	-7.58	(-12.88	-2.28)	**	-7.43	(-12.81	-2.05)	**
3rd gen	-0.18	(-1.56	1.21)		-0.28	(-1.65	1.10)		-0.62	(-1.94	.70)		-1.18	(-2.48	.13)	†	-1.08	(-2.40	.25)	
Asian																				
1st gen	-1.91	(-4.61	.80)		-1.67	(-4.36	1.02)		-2.63	(-5.16	-.10)	*	-3.37	(-5.83	.90)	**	-3.22	(-5.66	-.77)	*
2nd gen	-1.48	(-4.71	1.75)		-1.02	(-4.29	2.25)		-0.11	(-2.75	2.53)		-0.82	(-3.41	1.77)		-0.70	(-3.25	1.85)	
3rd gen	5.63	(-.65	11.91)	†	5.34	(-1.00	11.68)	†	4.60	(-2.01	11.20)		3.85	(-2.61	10.30)		4.08	(-2.44	10.60)	

N=13780 (rounded to the nearest 10 as required by NCES)

Notes: [1] Indicates statistical significance of F-test assessesing whether the total marginal effect is different from the total marginal effect in traditional immigrant states: † p<.10, * p<.05, **p<.01, ***p<.001

Each model includes all three-way interactions between each race, immigrant generation, and the new immigrant destination dummy. Due to the small sample in the other destination category, I did not interact other destination but instead include it as a control. Each model also includes the same controls as the corresponding model in table 4 and the interaction effects for the dummy variable indicating missing generational status.

CHAPTER 3. THE DECADE OF IMMIGRANT DISPERSION AND GROWTH: A COHORT ANALYSIS OF CHILDREN OF IMMIGRANTS' EDUCATIONAL EXPERIENCES IN NEW AND TRADITIONAL SETTLEMENT STATES

I. Introduction

Beginning in the 1990s US immigration trends changed dramatically both in terms of size and geographic dispersion. Approximately 16 million immigrants entered the US during the 1990s, a significant increase from the previous two decades (10 million in 1980 and 7 million in 1970) and the highest in the nation's history (Capps et al. 2005). Changing the geography of immigration, many of these immigrants and their families settled in new metropolitan areas and rural locations throughout the West, Southeast, and Midwest (Crowley, Lichter and Qian 2006; Kandel and Cromartie 2004; Fortuny et al. 2009; Lichter and Johnson 2006, 2009; Massey 2008; McConnell 2008; Singer 2004; Suro and Singer 2002). This geographic dispersion occurred among all major ethnic immigrant groups (Massey and Capoferro 2008) to the extent that by 2000 nearly one-third of US immigrants lived outside the six traditional settlement states (e.g., Texas, Florida, California, New York, New Jersey, and Illinois; Singer 2004).

This growth and dispersion has changed the face of public education and challenged educators in all states to adapt to the needs of children of immigrants. By 2000 six percent of the nation's school-age population was foreign-born and an additional 14 percent were the children of immigrant parents (Capps et al. 2005; Fry 2007). While still heavily concentrated

in traditional areas (two-thirds of all immigrant children resided in six states in 2000), children of immigrants made up over 10% of the total child population in 29 states in 2006, compared to only 16 in 1990 (Fortuny et al. 2009). As a consequence of this rapid growth and dispersion, many educational and social services, particularly those in new settlement states (e.g., North Carolina, Oklahoma, and Utah), lack the infrastructure, social resources, and institutional support systems that promote the adaptation of immigrant youth (Capps et al. 2005; Consentino de Cohen, Deterding, and Clewell 2005; Gozdziak and Martin 2005; Massey 2008; Perreira, Chapman and Levis-Stein 2006).

Recent studies of children of immigrants find that both the dispersion and growth of immigrants in the 1990s have affected immigrant adaptation. Classifying new immigrant communities across a variety of geographic levels (e.g., states, counties, cities, and zip-codes), studies on settlement location (i.e. immigrant dispersion) find mixed evidence on the adaptation of immigrant youth in new and traditional settlement communities. Some studies find that immigrant youth in new settlement communities, compared to their counterparts in traditional settlement communities, are faring better as evidenced by higher academic motivations and lower poverty rates (Crowley, Lichter and Qian 2006; Perreira, Fuligni and Potochnick 2010). A national-level study of youth aged 15-17, however, found that immigrant children in new settlement communities compared to those in traditional settlement communities were more likely to drop out of high school after controlling for demographic, household, and community characteristics (Fischer 2010).

Assessing the effects of immigrant growth, several cohort studies have examined how the adaptation of immigrant youth changed during the 1990s. Evidence indicates that immigrant youth in 2000 had lower high school dropout rates, experienced lower rates of

poverty, and had stronger English speaking abilities than immigrant youth in 1990 (Fry 2007; Van Hook, Brown, and Kwenda 2004). This increase in academic and economic well-being is attributed to a more robust economy, higher parental work effort, and beneficial family characteristics, including higher levels of parental education[vii] and smaller family sizes. These advances in well-being persisted despite the fact that immigrant youth in 2000 were more likely to be unauthorized or come from a mixed status family, live in a single-parent or no-parent home, and be of minority status than immigrant youth in 1990 (Fry 2007; Passel 2011; Van Hook, Brown, and Kwenda 2004).

No studies have examined how the combination of immigrant growth and immigrant dispersion during the 1990s affected the education of children of immigrants. Extant research indicates that social context differences in settlement states are likely to change over time as the characteristics of migrant streams change and settlement communities adapt (Massey 2008), but research has yet to examine how the educational context and resources of immigrant youth changed as a result of the immigrant influx and dispersion of the 1990s. This study advances previous research by examining how the relationship between settlement location and student achievement changed over time as more immigrants arrived and dispersed throughout the 1990s.

Taking advantage of the coincidental timing of data collection for the National Educational Longitudinal Study conducted in 1988 (NELS:88) and the Educational Longitudinal Study conducted in 2002 (ELS:2002), I address the following research questions: 1) How did academic achievement of children of immigrants living in new, traditional, and other immigrant settlement states change during the 1990s? 2) How did changes in socio-demographic, family, school, and neighborhood characteristics contribute to

differing cohort achievement patterns for each settlement location? To answer these questions, I examine math and reading test scores of 10th grade youth because early high school performance is a strong determinant of high school completion (Driscoll 1999).

II. Background

A. Social Context of Reception

The segmented assimilation literature (Portes and Zhou 1993) and new assimilation theory (Alba and Nee 2003) help explain how cohort changes before and after the great immigration influx and dispersion of the 1990s may affect the academic adaptation of children of immigrants in new and traditional settlement communities. According to segmented assimilation theory, today's immigrant youth are incorporated into one of three segments of society: the white middle-class majority, the inner city underclass, or a consciously preserved immigrant community (Portes and Rumbaut 2001). The path each immigrant group follows is determined by the multitude of factors that comprise the social context of reception, including the receptiveness of government, the congruence in the pace of acculturation within families, and economic and social barriers (Portes and Rumbaut 2006). According to new assimilation theory, however, immigrants can actively influence the assimilation process and context of reception through their cultural beliefs, social networks, and pragmatic actions (Alba and Nee 2003). Thus, the context of reception of immigrants is affected by both broader social structures and by the characteristics of immigrants and their communities.

At the state level, differences in migration histories, structural resources, economic vitality, and public reception of newcomers suggest that the social context in new settlement states should be distinct from that in traditional settlement states and could lead to diverging

achievement patterns (Massey 2008). Moreover, given the diversity of migration streams, the compositional changes of immigrant families, and the robust economic climate of the 1990s, the social context of each settlement location and related academic achievement patterns may have changed over time as more immigrants arrived (Fry 2007; Passel 2011; Passel and Suro 2005).

B. Growth and Dispersion: The Changing Social Context of New and Traditional Settlement States

B1. Changing Economic Context

Mirroring the economic and job expansion of the 1990s, immigration flows to the US grew slowly in the early to mid 1990s but increased rapidly by the late 1990s and reached peak levels between 1999 and 2000 when more than 1.5 million immigrants—a 35% increase from the early 1990s—entered the US (Passel and Suro, 2005). A possible consequence of the economic recession of 2001, this growth was not sustained but instead declined substantially after 2001 and returned to pre-growth levels by 2003 (Passel and Suro, 2005). Similar to immigrant growth, the dispersion of immigrants to new settlement areas also began to increase dramatically in the mid to late 1990s, but unlike immigrant growth there was no distinct end period (Massey and Capoferro, 2008). Instead, immigrants continued to disperse to new settlement areas throughout the 2000s (Passel and Suro 2005).

The dispersion of immigrants and natives to new states was in part fueled by the re-structuring of the US economy that occurred during the economic expansion of the 1990s. Facing international competition, American industries (particularly food-processing industries) cut costs by decentralizing jobs to new areas where wages were lower and unions were weaker (Massey 2008). This economic restructuring created a new geographic pattern

of job growth where employment opportunities grew at a more rapid pace in states in the South, Midwest, and Mountain region—all of which became new destinations for immigrants (Massey and Capoferro 2008). In contrast, states that had traditionally attracted immigrants (California in particular) were slower to recover from the economic recession of the early 1990s and experienced higher levels of unemployment, factors which sparked high levels of out-migration (Massey and Capoferro 2008).

Given the unequal economic expansion of the 1990s, I expect that the economic well-being of immigrant families residing in new settlement states increased more during the 1990s than the economic well-being of immigrant families in traditional settlement states. Moreover, I expect that these differences in economic well-being will lead to diverging achievement patterns. One caveat is that the economic recession of 2001 may have limited these economic and educational gains.

B2. Changing Characteristics of Immigrants and Migration Streams

Given that the characteristics of immigrants and migrant streams strongly influences the overall social context (Alba and Nee 2003), it is important to understand how the composition of immigrants as a whole changed throughout the 1990s and specifically for new and traditional settlement states. Research indicates that while the rise and fall pattern of immigrant growth occurred for both legal and unauthorized immigrants and for immigrants from all regions of the world (Passel and Suro 2005), the composition of immigrant youth and their families changed during the 1990s.

The most notable change was a rise in the share of immigrants who were unauthorized. By the end of the growth period, more unauthorized migrants entered the US each year than legal immigrants, which resulted in a larger share of unauthorized immigrant

youth and youth living in mixed status families (Passel 2011; Passel and Suro 2005). Another notable change during the 1990s was the continued growth of the minority population, which in large part was driven by immigrant youth who were more likely to be of minority status than non-immigrant youth (Passel 2011). Lastly, following national changes in family structure, immigrant youth were more likely to live in single-parent families in 2000 than in 1990 (Fry 2007; Landale, Thomas, and Van Hook 2011; Van Hook, Brown, and Kwenda 2004).

Less is known about how these compositional changes of immigrant families varied between new and traditional settlement states and how migrant streams to new states may have changed over time. According to cumulative causation theories and historical patterns of migration, migration streams are headed by the more ambitious, risk-taking immigrant pioneers who establish ethnic neighborhoods and economic niches that attract family, friends, and less advantaged co-ethnic peers (Waldinger and Lichter 2003). Once a critical mass of immigrants develops and social networks expand, the flow of migrants increases and the selectivity of migrants decreases. According to this migration pattern, the earlier cohort of immigrants who settled in new destination states should have been more advantaged than immigrants who settled later.

Research suggests, however, that new settlement states have attracted a diversity of migration streams including second destination migrants (Hall 2009; Lichter and Johnson 2009; Stamps and Bohon 2006), recent arrivals (Kandel and Cromartie 2004; Singer 2004), and dual-worker families (Crowley, Lichter and Qian 2006). Equally diverse are the economic and educational characteristics of immigrants in these new immigrant communities. Some immigrant groups (e.g., Asian, South American, and second destination

migrants) in new destination states have high levels of income, education, and employment (Hall 2009; Kuk 2010; Winders 2008), while other immigrant groups (e.g., rural and Mexican migrants) tend to be younger, less educated, and more likely to be undocumented (Crowley, Lichter and Qian 2006; Donato et al. 2008; Parrado and Kandel 2008).

Given that the compositional changes of immigrants as a whole were less favorable for academic success in 2000 than in 1990, I hypothesize that achievement will be lower for the 2002 cohort. Additionally, though new settlement states have attracted a diversity of migrants, those heading each stream of migrants are likely to be immigrant pioneers. Thus, as migration increased over time in new settlement states, I would expect the selectivity of migrants to decrease and academic achievement to be lower. Lastly, these compositional and migrant stream changes are likely to offset the economic gains made in the 1990s. Thus, whether achievement is higher or lower in the 2002 cohort will depend on the extent to which economic gains were able to protect a growing at-risk population.

C. Background Characteristics of Children of Immigrants

Cohort differences in the racial composition and generational status of immigrants in new and traditional immigrant states before and after the great immigration influx and dispersion of the 1990s may account for observed differences in academic achievement. Extant research has found significant variation in achievement patterns across racial/ethnic groups and immigrant generations. Of all ethnic groups, Asian American immigrants (except for Cambodians and Laotians) perform the best academically on multiple educational outcomes (e.g., grades, test scores, high school completion rates, college enrollment levels, and post-secondary achievement) while Latino immigrants, especially Mexicans and Puerto Ricans, perform the worst (Glick and White 2004; Kao and Thompson 2003; Kao and Tienda

1998; Keller and Tillman 2010; Perreira, Harris and Lee 2006; Rumbaut 1999) and white and black immigrant youth fall somewhere in between (Kao and Tienda 1998; Keller and Tillman 2010; Perreira, Harris and Lee 2006). No matter the ethnic group, however, almost all children of immigrants often (but not always) perform better academically than their co-ethnic later generation peers once models account for variation in family economic resources (Fuligni 1997; Glick and White 2003, 2004; Kao and Tienda 1995; Perreira, Harris and Lee 2006; Pong, Hao and Gardner 2005; Valenzuela 1999).

In terms of racial composition, evidence indicates that the settlement locations of immigrant families vary significantly across ethnic/racial groups and cohorts. In analyzing migration trends in five of the six traditional immigrant states,[viii] Massey and Capoferro (2008) found that between 1990 and 2000 the percent of immigrants living in traditional immigrant states declined by 86% to 61% for Mexicans, 72% to 42% for other Latin Americans, 60% to 52% for Asians, and 56% to 47% for all other immigrants (e.g., white and black immigrants). Thus, while Mexican immigrants dominated the dispersion to new immigrant areas during the 1990s, they were also the group most likely to still live in a traditional immigrant community in 2000. Moreover, Asian immigrants and the other non-Latino immigrants were already more dispersed in 1990 than Mexican immigrants were in 2000.

These racial/ethnic differences in geographic dispersion levels and growth rates are likely to affect settlement location achievement patterns in two ways. First, achievement patterns are likely to reflect variation in the racial/ethnic demographics of the settlement locations. Second, given the greater dispersion of Asian and non-Latino immigrants in the 1990s, the new immigrant communities may have more structural resources and stronger co-

ethnic communities for these immigrant groups than Latino immigrants.

Evidence also suggests that the settlement locations of immigrant families vary by generational status. Immigrant settlement in new immigrant communities has been dominated by new arrivals rather than by redistributed internal migrants, and Latinos (the largest immigrant group) in new immigrant states are more likely to be foreign-born while those in traditional states are more likely to be US-born (Bump, Lowell and Pettersen 2005).

Sometimes referred to as the "immigrant paradox," studies on academic achievement have found that children in immigrant families, especially Asian families, perform as well if not better than their non-immigrant peers (i.e. US born children to US born parents) and are at lower risk of dropping out of high school despite the fact that these children experience higher levels of economic and social risk (Fuligni 1997; Glick and White 2004; Kao and Tienda 1995; Perreira, Harris and Lee 2006; Pong, Hao and Gardner 2005; Valenzuela 1999; White and Kaufman 1997). Extant research indicates that the strong academic motivations and achievement of immigrants' children stem from their optimistic views and their parents' encouragement to overcome adversity and succeed (Perreira, Chapman and Livas-Stein 2006). Thus, I hypothesize that differences in achievement between settlement location cohorts will partially reflect variation in the generational status of immigrants living in these communities before and after the great immigration influx and dispersion of the 1990s.

D. Family Context

In addition to socio-demographic characteristics, differences in familial characteristics may also contribute to diverging achievement patterns across cohorts in new and traditional immigrant states. Students do not enter a school system as empty vessels waiting to be filled with knowledge but instead bring with them a set of resources and skills

that they acquire from their parents and home life (Coleman 1988). Consequently, researchers have identified a number of family characteristics that influence academic aspirations and achievement, including parental education, family income, family structure, household English language usage, and parental involvement (Goyette and Xie 1999; Glick and White 2003; Kao and Tienda 1995; Fuligni 1997; Fuligni and Fuligni 2007; Perreira, Harris and Lee 2006; Rumbaut 1999).

Of all the familial characteristics, research suggests that parental socio-economic status (SES), which incorporates elements of both financial and human capital, is the strongest predictor of student achievement (Glick and White 2003; Sirin 2005). Parents with higher levels of education and family income generally have higher educational expectations (Davis-Kean 2005), invest more time and resources in their students school-work (Roscigno and Ainsworth-Darnell 1999; White and Kaufman 1997), enroll their students in more resource rich schools (Sirin 2005), form stronger relationships with teachers and schools (Lareau 2003), and use more concerted cultivation child-rearing practices (Lareau 2003). For immigrant families, English language usage is another important human capital resource. Research indicates that English language ability of both the parent and child as well as the usage of English in the home can have a positive impact on student achievement (Glick and White 2003; Fuligni and Fuligni 2007; Perreira, Harris, and Lee 2006).

E. School Context

Schools play a pivotal role in determining the assimilation trajectories of immigrants' children. For many children of immigrants, school attendance marks the beginning of their assimilation process by introducing them to mainstream American cultures and other ethnic backgrounds for the first time. Several studies have shown how teacher-student relationships

(Alfaro et al. 2006; Faircloth and Hamm 2005; Katz 1999; Wong, Eccles & Sameroff, 2003), peer influences (Faircloth and Hamm 2005; Kao 2000; Wong, Eccles & Sameroff, 2003), and perceptions of school quality and climate (Stone and Han 2005; Suarez-Orozco, Rhodes and Milburn 2009) contribute greatly to adolescents' beliefs about their academic abilities and prospects as well as their academic performance.

In an era of both record high immigration flows and school re-segregation levels, there is significant concern that schools will be able to successfully foster the academic adaptation of immigrant's children. Creating a triple disadvantage for many children of immigrants, re-segregation of U.S. schools has occurred across racial/ethnic, linguistic, and economic divisions (Orfield and Lee 2005; Ruiz-de-Velasco and Fix 2000; Schmid 2001). Segregation literature indicates that the lower school quality—measured by minority representation, poverty rates, school resources, and teacher characteristics—at segregated schools and their concentration of disadvantaged students and prevalence of negative teacher perceptions detracts from students aspirations and achievement (Hanushek, Kain and Rivkin 2009; Mickleson 2006; Orfield and Lee 2005). To the extent that school quality and segregation levels differ between cohorts in traditional and new immigrant communities, I would expect variation in student achievement.

F. Neighborhood Context

Lastly, differences in the neighborhood contexts between cohorts residing in new and traditional immigrant communities may also contribute to diverging achievement patterns. Neighborhood conditions define adolescents' opportunity structures and social norms by providing models for socially acceptable adult behavior, connections to the wider society, and supervision over adolescent conduct (Ainsworth 2002; Crowder and South 2003; Pong

and Hao 2007; Wilson 1987). Adolescents residing in neighborhoods in which many residents have low levels of education, experience persistent poverty and joblessness, and live in unstable families are likely to have few positive adult role models to show them how a good education, hard work, and delayed child-bearing pays off (Crowder and South 2003). Moreover, the increasing racial and economic segregation of the urban underclass raises concerns that poor immigrant families will be able to combat their own deficiencies in human, financial, and social capital within a neighborhood context that is completely devoid of these resources as well (Wilson 1987).

Several studies have examined how neighborhood characteristics, particularly socioeconomic characteristics, affect various aspects of youth's academic performance. While results are not uniform, evidence suggests that compared to adolescents living in more advantaged neighborhoods (i.e., wealthier, racially integrated, and more educated), adolescents residing in disadvantaged neighborhoods are more likely to drop out of high school (Crowder and South 2003; Perreira, Harris and Lee 2006), have lower grades and test scores (Ainsworth 2002; Pong and Hao 2007), and complete fewer years of schooling (Mayer 2002). While some of the neighborhood effects decrease when omitted familial- and school-level attributes are accounted for (Ginther, Haveman and Wolfe 2000; Pong and Hao 2007), research suggests that their effects are especially pronounced for black youth and children of immigrants as well as youth from low-income families and single-parent households (Crowder and South 2003; Pong and Hao 2007).

III. Methods

A. Data and Sample

This analysis utilizes data from the first follow-up of the National Educational

Longitudinal Study of 1988 (NELS:88) and from the base year of the Educational Longitudinal study of 2002 (ELS:2002) both of which are sponsored by the National Center for Education Statistics (NCES) of the US Department of Education. For the NELS:88 survey, data were collected on a cohort of approximately 25,000 eighth graders from a sample of 1,052 schools beginning in the spring of 1988 with follow-ups conducted in 1990, 1992, 1994, and 2000 (NCES 2002). In the 1990 follow-up, NCES freshened the sample by adding new respondents to ensure that the sample was nationally representative of all 10th graders. To compare the sophomore cohorts of NELS:88 and ELS:2002, I follow the practice of other researchers by using the freshened sample of NELS:88 and eliminating base-year respondents who were no longer in school or were not in 10th grade in 1990 (N=18,220[ix]; Glick and White 2003; Goyette 2008).

For ELS:2002, which was designed to allow cross-cohort comparisons with NELS:88 (and other NCES datasets), data were collected on a cohort of over 15,000 tenth graders from a sample of 750 schools beginning in the spring of 2002 with follow-ups conducted in 2004 and 2006. Though there are differences across the two studies, NCES and other researchers have concluded that the similarities in the question wording and sampling strategies allow the two studies to be used for cross-cohort comparisons (Dumais 2009; Goyette 2008; NCES 2005). A main difference between the two datasets is that missing data have been statistically imputed in ELS:2002 for key variables but not in NELS:88.

Providing rich contextual information, both datasets collected information from students, parents, teachers, and school administrators, and the restricted datasets (for which I have licensed access) can be connected to zip-code level census data (1990 for NELS:88 and 2000 for ELS:2002) to identify neighborhood characteristics. As with most national-level

data, the NELS:88 and ELS:2002 studies do not contain information on neighborhood boundaries. Instead, I follow the work of other researchers and use the smallest ecological unit available (i.e. zip-codes) in order to reduce measurement error (Ainsworth 2002; Goldsmith 2003). Lastly, the large sample sizes and the over-sampling of minority students in both datasets, makes it possible to adequately assess the influences of ethnic/racial differences and immigrant status among youth living in new, traditional, and other settlement states for the 1990 and 2002 cohorts.

I include all self-identified white, black, Asian, and Hispanic students in the sample (N=17,850 in NELS:88; N=14,380 in ELS:2002) but eliminate other racial/ethnic groups since the sample sizes were too small. No students had missing values on the dependent variables in ELS:2002 but approximately 1,370 students had missing values on one or more of the dependent variables in NELS:88. To minimize the loss of data due to missing values on independent variables, I first imputed school-level information from the 12th grade if the student attended the same school in 10th and 12th grade. This is reasonable because school-level variables were strongly correlated across school years ($r \geq .79$). Second, for variables that were missing information from at least 3% of the sample, I followed Goldsmith's (2003) suggestion and substituted the mean value and created a dummy variable to flag mean-substituted cases. I then used list wise deletion for the remaining variables missing fewer than 3 percent of the cases. The final sample (rounded to the nearest ten as required) was 15,200 in NELS:88 and 13,870 in ELS:2002.

B. Measures

Academic Achievement. I used reading and math test scores as my indicator for student achievement for two reasons. First, states have increasingly relied on standardized

tests in both math and reading to measure school performance and to serve as requirements for high school graduation (Hanushek and Raymond 2005). Second, math and reading ability have been shown to affect future labor market outcomes (Farkas 2003). To allow for cross-cohort comparisons, I used the standardized math and reading test scores (mean value of 50 and standard deviation of 10) created by NCES, which provide an indicator of relative achievement to the 10th grade population as whole for each respective cohort. Thus, the cross-cohort comparison of test scores should be interpreted as a change in relative position for a particular sub-group. For example, a lower mean test score for Latinos in 2002 compared to Latinos in 1990 indicates that achievement of Latino youth compared to all youth was lower in 2002 than in 1990.[x]

Settlement Location Type: Research on immigration to new destinations has classified new immigrant gateways across a variety of geographic levels: regions (Crowley, Lichter and Qian 2006), states (Hall 2009; Leach and Bean 2008; Massey and Capoferro 2008), metropolitan and non-metropolitan areas (Kandel and Parrado 2005; Parrado and Kandel 2008; Stamps and Bohon 2006), counties (Donato et al. 2008; Kuk 2010), cities (Singer 2004), and suburban areas (Singer 2004). By measuring the influence of a geographical level lower than the state, I could identify new immigrant communities within traditional immigrant states (e.g., Jacksonville, Florida or Albany, New York) or traditional immigrant communities within new immigrant states (e.g. Albuquerque, New Mexico or Denver, Colorado; Suro and Singer 2002). With ELS:2002 and NELS:88, however, the data cannot be reliably disaggregated any lower than the state level. Both studies provide residential zip-codes, but the boundaries of zip-codes change frequently making it difficult to determine rates of growth in the foreign-born population over time—an essential component for

classifying new immigrant communities. Previous research indicates that the state-level classification still captures overall trends between new and traditional immigrant communities (Hall 2009; Leach and Bean 2008; Massey and Capoferro 2008).

I use a variation of Massey and Capoferro's (2008) typology to identify new, traditional, and other immigrant states. In their classification of traditional immigrant states, Massey and Capoferro include 10 states: 1) the "big five" (California, Texas, Illinois, New York, and Florida) immigrant-receiving states where the majority of immigrants settled between 1965 and 1990, and 2) five "second tier" states (New Jersey, Massachusetts, Washington, Virginia, and Maryland), which received a significant (though considerably lower) number of immigrants during the same time period. They then classify 20 states as new immigrant states because these states accounted for more than one percent of the inflow of any recently arrived (in US less than five years) immigrant group between 1980 and 2005. They classify the remaining states as other.

Following this typology, I classified the "big five" states as traditional immigrant states. Because the "second tier" states were at a "considerable distance behind the 'big five' states" I classified them and the 20 new states as new immigrant states. I included Washington DC in the new immigrant state classification because the area has experienced considerable growth in its immigrant population (Wilson and Singer 2011). All remaining states (n=20) were classified as other immigrant states (see Appendix 3A for a complete list). As a sensitivity check, I ran the results using both my modified classification scheme and the scheme outlined by Massey and Capoferro (i.e. combining the "big five" and "second tier" states) and found similar results.

Student Background: Research has shown that educational outcomes vary across a

variety of demographic characteristics, including age, gender, ethnic/racial group, and generational status (Kao and Thompson 2003). To control for these differences, I included a dummy female gender variable to determine the influence of gender on student test score performance and use a month-based age variable to control for the influence of age. To control for variations in achievement among different ethnic groups, I created four mutually exclusive race/ethnic categories: white (reference category), black, Asian, and Latino. Orignially, I used a three-category classification of generational status: first generation (both child and parents were foreign-born), second generation (child was US-born and at least one parent was foreign-born) and third generation and higher (child and both parents were US born).[xi] Because results did not differ between first and second generation youth and because first and second generation youth share similar experiences related to living in an immigrant family (Pong and Hao 2007), I combined these categories together to make a two category classification: children of immigrants (first and second generation youth) and non-immigrants (third generation and greater).

Family Context. Levels of human capital in immigrant families depend on the economic, educational, and linguistic resources of parents as well as the structure of the family. To measure the family's economic and educational well-being, I used the standardized scale of socioeconomic states (SES; range: -3.29 to 2.76) created by NCES, which is a composite measure combining information on the mother's and father's education, income, and occupation.

To measure the linguistic resources of immigrant families, I created measures of both the student's English language ability and the family's home language background. Because these two linguistic indicators were strongly correlated (r=.95), I only included the student's

English language ability variable. I measured the student's English language ability by averaging the self-reported scores students gave about their reading, writing, listening, and/or speaking ability on a scale from 1="very well" to 4="not very well." I reverse coded the scale so a higher score indicated stronger English language ability and coded native English language speakers as 6 (Goldsmith 2003).

To control for differences in family structure, I followed the work of Glick and White (2003) and created five dummy variables: 1) respondent lived with both biological parents, 2) respondent lived with one biological parent and that parent's partner, 3) respondent lived with a single mother, 4) respondent lived with a single father, and 5) respondent lived with neither parent (typically lives with grandparents or another relative). Because the sample sizes were small in the latter three categories, I collapsed them into one dummy category—single/other parent family. Thus, I have three dummy indicators for family structure: biological parent family (reference group), stepparent family, and single/other family.

School Context. To measure the social context in schools, I included information about the student body and school resources. I teased out the unique influence of class, racial, and linguistic segregation in schools. First, I included an indicator for the proportion of students on free and reduced lunch in the school as a measure of the school's poverty level (Orfield and Lee 2005). Second, I included an indicator of the proportion of minority students in the school to assess the influence of racial segregation. Lastly, I accounted for the proportion of students who were limited English proficient (LEP) to measure linguistic segregation. Since proportion LEP was highly skewed, I classified proportion LEP into three dummy variables: low (prop. LEP=0), mid (prop LEP is >0 and ≤0.10), and high (prop. LEP> 0.10). All school indicators are based on the principal survey and supplemented with

information from external school-level data (e.g., Common Core Data) provided by NCES.

Since students are found to perform better in schools with a smaller student-teacher ratio (Ferguson 1998), and since the student teacher-ratio is a commonly used school quality indicator (Ainsworth 2002; Ferguson 1998; Goldsmith 2003; Krueger 2003), I created a control for the number of students per teacher. Additionally, I controlled for whether the student was attending a public or private school given the varying resources associated with school type. Lastly, I controlled for differences in urbanicity—urban, rural, and suburban—given that school resources and the characteristics of migrants settling in these areas vary (Parrado and Kandel 2008).

Neighborhood Context. I measured the social context of neighborhoods by including information on the economic and ethnic/racial make-up of the zip-code in which the student lived and by assessing the neighborhood's experience with immigrant populations.[xii] To measure the neighborhood's economic well-being, I included an indicator of the proportion of households living below the poverty level. To measure the influence of ethnic/racial composition, I included an indicator of the proportion of minorities residing in the zip-code by subtracting the proportion of non-Latino white from one. To capture the effect of living near other immigrant groups, I included a measure of the proportion of zip-code residents that were foreign-born (Pong and Hao 2007).

C. Analytical Approach

To understand how immigrant growth and dispersion during the 1990s affected the academic adaptation of immigrant youth, I first estimated growth and dispersion rates of immigrant and non-immigrant youth for each settlement location (new, traditional, and other). I then estimated chi-square tests and T-tests to evaluate proportion and mean

differences in academic achievement as well as key socio-demographic, family, school and neighborhood characteristics between the 1990 and 2000 cohorts for each settlement type. I assessed these mean and proportion differences separately for immigrant and non-immigrant youth.

In order to examine the effect that cohort had on immigrant student achievement for each settlement type, I estimated OLS regression models and included three-way interactions between three sets of dummy variables: immigrant status (immigrant and non-immigrant), settlement location (traditional, new, and other), and cohort (1990 and 2002). These three-way interactions allow me to compare how the achievement of immigrant (and non-immigrant) youth residing in a settlement location (e.g., traditional states) differed between 1990 and 2000. A baseline model that includes only the main effects and interaction variables of the three-way interaction terms indicates the total difference in cohort achievement for youth living in traditional, new, and other immigrant states. I then subsequently added blocks of variables representing each of the theoretical constructs (i.e. individual, family, school, and neighborhood characteristics) to assess how differences in each of these constructs contributed to the differing cohort achievement patterns for each settlement location. Lastly, I assessed how cohort achievement patterns for each settlement location affected different racial/ethnic groups by running the analysis separately for a sub-sample of each ethnic/racial group. All models corrected for design effects by using sample weights, robust standard errors, and a correction for the clustering of students in schools.[xiii]

IV. Results

A. Growth and Dispersion of Immigrant and Non-Immigrant Youth

Between the 1990 and 2002 cohorts the children of immigrant population increased

from 10.9% to 18.5% (a 70% increase) and affected both new and traditional settlement states (Table 3.1). Growth rates were highest in new immigrant states, which experienced an increase of more than 63% (8.1% to 13.2%) in the size of their immigrant population, but were also substantial in traditional immigrant states, which experienced a 59% (20.2% to 32.2%) increase in their immigrant population. The size of the immigrant population in other settlement states did not change significantly between the 1990 and 2002 cohorts.

While both new and traditional settlement states experienced growth in their immigrant populations, I found no evidence that immigrant youth changed their patterns of settlement (Table 3.2). Overall, the percent of youth—both immigrant and non-immigrant—residing in new (or traditional) settlement states did not change between the 1990 and 2002 cohorts. Thus, the growth of the immigrant population in new states is due to their overall growth in the population as a whole and not so much a reflection of an increase in the proportion of immigrants moving to new states. These results support prior research that suggests recent arrivals are driving immigrant growth in new settlement states (Kandel and Cromartie 2004; Singer 2004).

B. Cohort Achievement of Immigrant and Non-Immigrant Youth by Settlement Location

Changes in academic achievement between the 1990 and 2002 cohorts differed for immigrant and non-immigrant youth. Overall, immigrant youth in 2002 had lower achievement in reading and math than their immigrant peers in 1990 (Table 3.3). This decrease in achievement occurred for both immigrant youth residing in new (M_{Read02}=49.14 vs. M_{Read90}=53.06; M_{Math02}=49.21 vs. M_{Math90}=53.42) and traditional immigrant states (M_{Read02}=46.40 vs. M_{Read90}=49.55; M_{Math02}=47.66 vs. M_{Math90}=50.92). In contrast,

achievement of non-immigrant youth remained largely stagnant between the 1990 and 2002 cohorts, and for non-immigrants residing in new immigrant states reading achievement actually increased (M_{02}=52.30 vs. M_{90}=51.57). There were no changes in reading and math achievement for immigrant or non-immigrant youth residing in other settlement states.

C. Cohort Changes in the Characteristics of Immigrant and Non-Immigrant Youth by Settlement Location

C1. Children of Immigrants

To understand the differing achievement trends of immigrant and non-immigrant youth, I examined how the educational resources (socio-demographic, family, school, and neighborhood characteristics) of each group changed over time. The lower achievement or immigrant youth may be explained by some of the compositional changes of the immigrant population between the 1990 and 2002 cohorts (Table 3.4).

Compared to immigrant youth in 1990, immigrant youth residing in both new and traditional states in 2002 were more likely to live in a step-parent (New: 14% vs. 6%; Traditional: 14% vs. 7%) or single-parent/other family (New: 26% vs. 13%; Traditional: 24% vs. 13%), familial structures that are negatively associated with achievement (Landale, Thomas, and Van Hook 2011). Moreover, both new and traditional states experienced an increase in the share of their immigrant population who was of minority status. This increase, however, reflected different demographic changes. For new settlement states this increase was due to a proportional rise in the black population (10% vs. 5%), and for traditional states it was due to a proportional rise in the Latino population (64% vs. 51%). New and traditional states also differed in terms of changes in their economic composition. Immigrant youth residing in traditional settlement states experienced a statistically significant decline in

familial SES (M_{02}=-0.40 vs. M_{90}=-0.26) between 1990 and 2002, while the decline in familial SES (M_{02}=.11 vs. M_{90}=-0.10) in new states was only marginally significant. Lastly, the English ability of immigrant youth increased in both traditional (M_{02}=4.60 vs. M_{90}=4.32) and new immigrant states (M_{02}=4.82 vs. M_{90}=4.55).

Cohort changes in school and neighborhood characteristics differed for new and traditional settlement states. Between 1990 and 2002, the schools immigrant youth attended in traditional states had become more economically and racially segregated, but no similar trend occurred for schools in new or other immigrant states. For traditional states, the proportion of students on free and reduced lunch increased from 0.27 to 0.35 and the proportion of minority students increased from 0.58 to 0.66. Moreover, I found that teacher-student ratios, a common school quality indicator (Ainsworth 2002), only increased in traditional settlement states (M_{02}=20.19 vs. M_{90}=18.26). In terms of neighborhood characteristics, only immigrant youth residing in traditional settlement states experienced any changes in their neighborhood of residence. Compared to 1990, immigrant youth residing in traditional states in 2002 lived in neighborhoods with a higher proportion of minorities (0.60 vs. 0.49), and a (marginally significant) higher proportion of foreign-born residents (0.27 vs. 0.24).

C2. Non-Immigrant Youth

Similar to the immigrant population, non-immigrants residing in new and traditional settlement states in 2002, compared their 1990 peers, were more likely to live in single-parent families, and had higher levels of English (Table 3.5). Non-immigrant youth were also more likely to be of minority status in new and traditional states, but the increase was driven by both a proportional rise in the black (New: 0.14 vs. 0.11; Traditional 0.16 vs. 0.10) and

Latino (New: 0.04 vs. 0.02; Traditional 0.14 vs. 0.10) populations. Contrasting the experience of immigrant youth living in new and traditional settlement states, non-immigrants' familial SES increased in new states (M_{02}=0.13 vs. M_{90}=0.07) and remained stagnant in traditional states.

Cohort changes in school and neighborhood characteristics for each settlement location also differed slightly for non-immigrant youth than immigrant youth. Similar to their immigrant peers in traditional states, non-immigrant youth residing in traditional states attended schools with a higher proportion of students on free and reduced lunch (0.21 vs. 0.17), a higher proportion of minority students (0.36 vs. 0.30), and a higher teacher-student ratio (M_{02}=17.58 vs. M_{90}=16.35) in 2002 than 1990. They were more likely, however, to attend schools with a low proportion of LEP students (0.31 vs. 0.21). Lastly, as with immigrant youth in traditional states, non-immigrant youth in these same states experienced similar neighborhood cohort changes (i.e. an increase in the proportion minority and foreign-born residents).

Unlike their immigrant peers in new settlement states, non-immigrant youth residing in new settlement states experienced more demographic changes in their schools and neighborhoods. In addition to dispersing to more suburban schools (0.54 vs. 0.45), non-immigrant youth in 2002, compared to 1990, attended schools with a higher proportion of minority students (0.23 vs. 0.18) and a higher teacher-student ratio (M_{02}=16.50 vs. M_{90}=15.66). They also lived in neighborhoods with lower poverty rates (.10 vs. .11) but a higher proportion of minorities (0.21 vs. 0.14) and foreign-born residents (0.06 vs. 0.03).

D. Effect of Cohort for Each Settlement Location on Immigrant and Non-Immigrant Student Achievement

I used multiple regression and three-way interactions to assess the extent to which differences in demographic, family, school and neighborhood characteristics accounted for observed differences in achievement between the 1990 and 2002 cohorts of immigrant and non-immigrant youth residing in each settlement location. For ease of interpretation, I present the total marginal effects calculated by adding the relevant main and interactive effects (see Appendix 3B for calculations and Appendices 3C and 3D for the three-way interaction models). Because the results for reading and math were similar, I only discuss the reading results but provide the math results for reference (Table 3.7).

In the unadjusted model (Table 3.6, Model 1), I found that standardized reading test scores were lower for immigrant youth residing in both traditional (-3.15) and new settlement (-3.92) states in 2002 compared to their respective immigrant peers in 1990. In contrast, non-immigrant youth residing in new settlement states in 2002 had higher standardized reading test scores (0.73) than their 1990 peers. This variation in achievement between cohorts partly reflected demographic changes that occurred in each settlement location during the 1990s. Once I controlled for the higher proportion of Latino and black youth (both of whom had lower achievement than their white peers) residing in new and traditional settlement states in 2002, test score differences between immigrant cohorts decreased from -3.92 to -2.69 in traditional states and from -3.15 to -2.18 in new states. For non-immigrant youth residing in new settlement states test scores increased from 0.73 to 1.34.

Changes in family characteristics between 1990 and 2002 had a small impact on cohort achievement differences for immigrant and non-immigrant youth living in new states but no effect on youth living in traditional states. After I controlled for the higher familial risk factors associated with the 2002 immigrant cohort living in new states compared to the

1990 cohort (i.e. more single parent/other families and marginally lower familial SES), test score differences between the cohorts decreased from -2.69 to -2.48. In contrast, cohort changes in family characteristics of non-immigrant youth residing in new states had a positive effect on student achievement. Once I controlled for the higher levels of familial SES and English language ability found among non-immigrant youth residing in new states in 2002 compared to 1990 the marginal effect decreased from 1.34 to .91. A similar protective familial effect occurred for immigrant youth living in other settlement states as seen by the increase in the marginal effect (from -1.08 to -2.61), which also became marginally significant.

I found that changes in school characteristics between 1990 and 2002 contributed to reading achievement differences between cohorts of immigrant youth residing in traditional and other settlement states but had little to no effect on cohorts of immigrant and non-immigrant youth residing in new settlement states. The increase in the economic segregation of schools (i.e. the higher proportion of students on free lunch) attended by immigrant youth in traditional states in 2002 compared to 1990 contributed to their lower reading achievement. Once I controlled for this increase in economic segregation, the marginal effect for this group decreased from -2.18 to -1.99. In contrast, changes in the characteristics of schools attended by immigrant youth in other immigrant states (i.e. increased suburbanization and lower proportion of LEP students) had a positive effect on reading achievement. Once I controlled for school characteristics, the marginal effect for this group increased from -2.61 to -3.00 and became significant at the .05 level.

Lastly, while I had found cohort differences in neighborhood characteristics for immigrant youth in traditional states and non-immigrant youth in each of the settlement

locations, these changes had little to no effect on reading achievement. The one exception was for immigrant youth residing in other settlement states. These youth benefited from positive changes in their neighborhood characteristics.

E. Effect of Cohort for Each Settlement Location on Immigrant and Non-Immigrant Student Achievement for Each Ethnic/Racial Group

Given that achievement patterns differ across racial/ethnic groups (Kao and Thompson 2003) and that racial/ethnic groups have differed in their rates of dispersion to new settlement states (Massey and Capoferro 2008), cohort achievement patterns may differ across racial/ethnic groups. To assess how achievement of immigrant and non-immigrant white, black, Asian and Latino youth living in each settlement location changed between 1990 and 2002, I ran the same analysis for each ethnic/racial sub-sample. I only present the three-way interaction marginal effects that were significant, and as before, I only discuss the reading results (Table 3.8) but provide the math results (which were similar) as a reference (Table 3.9). Lastly, for ease of interpretation I calculated the change in the marginal effect that resulted as I added each conceptual model block (Table 3.10). A positive marginal effect change indicates that the conceptual model block served as a protective factor (i.e. had a positive effect on achievement). A negative marginal effect change indicates that the conceptual block served as a risk factor (i.e. had a negative effect on achievement). Small marginal effect changes indicate that the conceptual block had little to no effect on student achievement.

E1. Assessing Positive Achievement Changes between 2002 and 1990

The ethnic/racial analysis indicates that white and Asian non-immigrant youth were driving the higher reading test scores found among non-immigrant youth residing in new

settlement states in 2002 compared to 1990. The unadjusted marginal effects for non-immigrant whites and Asians residing in new settlement states in 2002 compared to 1990 were 1.37 and 4.93, respectively (Table 3.10, Baseline Model). For white youth, this positive effect was largely driven by protective familial influences (higher SES and English ability) as seen by the positive change in the marginal effect when moving from the demographic to the family model (.48). For Asian youth, this positive effect was driven in part by positive family influences (higher English ability; ME change=0.15) but was also driven by protective influences of schools (lower proportion free lunch and LEP; ME change=0.81) and neighborhoods (higher proportion foreign-born residents; marginal effect change=0.17).

E2. Assessing Negative Achievement Changes between 2002 and 1990

The results indicate that black, Latino, and Asian youth were driving the lower reading test scores found between the 2002 and 1990 cohorts of immigrant youth residing in new and traditional states. For new settlement states, black, Latino, and Asian youth accounted for this negative effect as seen by the negative unadjusted marginal effects (-9.88, -2.42, and -2.52, respectively). For traditional states, Latino and Asian youth accounted for the negative effect (unadjusted marginal effects: -2.90 and -3.22, respectively).

The extent to which differences in family, school and neighborhood characteristics accounted for these observed differences in achievement, however, differed between ethnic/racial groups. Family characteristics (higher SES and English ability) had a protective influence on the reading achievement of black youth in new states and Latino youth in both new and traditional states as seen by the positive change in the marginal effects (ME change=0.39 for blacks in new states; ME change=0.12 for Latinos in new states; ME change=0.33 for Latinos in traditional states). In contrast, family characteristics (lower SES

and more single-parent/other family homes) for Asian immigrant youth in both new and traditional states increased their risk for school failure as seen by the negative change on the marginal effects (ME change=-1.01 in new states; ME change=-1.11 in traditional states).

School and neighborhood characteristics also had an opposite effect on the achievement of Asian immigrant youth compared to their black and Latino immigrant peers. The schools (lower proportion free lunch and LEP) and neighborhoods (higher proportion foreign-born residents) Asian immigrant youth attended and lived in 2002 compared to 1990 had a positive effect on achievement as seen by the positive marginal effect changes in the school and neighborhood models for both new and traditional settlement states. For black immigrant youth in new states and Latino immigrant youth in new and traditional states the schools (more suburban, higher proportion free lunch) and neighborhoods (higher proportion minority) they attended and lived in typically had a negative effect on achievement (as seen by the negative marginal effect changes in the school and neighborhood models).

Lastly, the results indicate that reading achievement between 1990 and 2002 also declined for some sub-groups of non-immigrant youth, particularly black youth living in other states and Latino youth living in traditional states. The reading achievement for both of these groups benefited from protective familial influences but was hindered by school and neighborhood characteristics.

V. Discussion

This paper provides a first assessment of how the unprecedented levels of immigrant growth and immigrant dispersion that occurred simultaneously during1990s affected the academic adaptation of immigrant youth. I examined the effect immigrant cohort (1990 and 2002) had on reading and math achievement for a national sample of 10th grade youth

residing in each settlement location (new, traditional, and other settlement states). I also assessed whether these cohort effects differed for immigrant (i.e. children of immigrants) and non-immigrant youth and for each racial/ethnic sub-group (i.e. Whites, Blacks, Latinos and Asians). Lastly, I assessed how socio-demographic, family, school, and neighborhood characteristics contributed to cohort achievement patterns for each settlement location.

I found that cohort achievement differences varied more between immigrant and non-immigrant youth than between youth residing in different settlement locations. Immigrant youth residing in new and traditional settlement states had lower test scores in reading in 2002 than their respective immigrant peers in 1990. This decrease in achievement occurred for Asian and Latino immigrant youth residing in new and traditional states and for black immigrant youth residing in new states. In contrast, achievement for non-immigrant youth remained largely stagnant between 2002 and 1990 and actually increased for non-immigrant youth residing in new settlement states. This increase in achievement occurred for both white and Asian non-immigrant youth residing in new settlement states. These results add to the immigrant paradox debate, which finds that immigrant youth often, but not always, academically out-perform their non-immigrant counterparts (Fuligni 1997; Glick and White 2003, 2004; Kao and Tienda 1995; Perreira, Harris and Lee 2006; Pong, Hao and Gardner 2005; Valenzuela 1999). While these results do not compare achievement levels between immigrant and non-immigrant youth, they show that changes in cohort achievement were less positive for immigrant than non-immigrant youth.

Racial/ethnic demographic differences between cohorts contributed to overall differences in achievement for both immigrant and non-immigrant youth. The minority population, which tended to have lower achievement rates, grew significantly in both new

and traditional states and among immigrant and non-immigrant youth. The source of the growth of the minority population among immigrant youth differed between new and traditional states. For traditional states the rise in the minority population resulted from an increase in the share of the Latino population and for new states the growth resulted from an increase in the share of the black population. Nevertheless, for both states this growth partially accounted for the lower reading test scores found between the 1990 and 2002 cohorts of immigrant youth living in new and traditional states, and suppressed the cohort achievement gains of non-immigrant youth residing in new settlement states.

The influence of compositional changes in families, schools, and neighborhoods had differing impacts on youth residing in new and traditional settlement states. For both immigrant and non-immigrant youth living in new settlement states, compositional changes in familial resources and structure had the largest effect on cohort achievement differences. In contrast, changes in familial characteristics explained little of the cohort achievement differences among immigrant youth living in traditional states. For these youth, the changing characteristics of the schools had the largest effect on cohort achievement differences. Lastly, I found that changes in neighborhood characteristics explained little variation in achievement patterns for immigrant and non-immigrant youth. Instead, as suggested by previous research, these cohort changes in neighborhood characteristics reinforced the familial and school influences associated with each settlement community (Ginther, Haveman and Wolfe 2000; Pong and Hao 2007).

Aligning with prior research, I found that immigrant youth experienced an increase in familial risk factors between 1990 and 2002, while non-immigrant youth benefited from positive compositional changes in their families (Fry 2007; Van Hook, Brown, and Kwenda

2004). I found that a significantly larger proportion of youth—both immigrant and non-immigrant—lived in single parent/other families in 2002 than in 1990 (Fry 2007; Van Hook, Brown, and Kwenda 2004) and that these changes in familial structure were negatively associated with achievement (Landale, Thomas, and Van Hook 2011). For non-immigrant youth, however, this negative effect was counteracted by their families' positive gains in familial socioeconomic status. Non-immigrant youth residing in new settlement states had higher levels of familial SES in 2002 than 1990, while familial SES for immigrant youth in new settlement states decreased (marginally significant). Consequently, the cohort achievement gains experienced by non-immigrant youth residing in new states partially reflected positive changes in their family characteristics, while the cohort achievement losses experienced by immigrant youth in new states partially reflected increases in familial risk factors.

While immigrant youth residing in traditional states also experienced more familial risk factors in 2002 than 1990, changes in their school characteristics rather than their familial characteristics contributed to their lower levels of achievement in 2002 than 1990. The schools immigrant youth attended in traditional states were more segregated economically and racially and were of lower quality (as indicated by a higher teacher student-ratio) in 2002 than in 1990. No similar changes occurred for immigrant youth residing in new settlement states. These results fit with prior research that indicates immigrant youth in traditional states have become concentrated in disadvantaged urban centers and schools due to the long-held stereotypes and racial inequalities ingrained in traditional immigrant states (Hernández-León and Zuñiga 2003; Orfield and Lee 2005; Valenzuela 1999).

The influence of families, schools and neighborhoods also differed among ethnic/racial sub-groups. For black immigrant youth in new states and Latino immigrant youth in new and traditional states positive changes in family composition (i.e. improved English ability and SES) between 1990 and 2002 actually improved achievement, but the suburbanization and increasing economic and racial segregation of the schools and neighborhoods these youth attended and lived in hindered their achievement gains.

In contrast, the achievement of Asian immigrant youth was hindered by increases in familial risk factors (i.e. lower SES and more single parent families), but protected by more favorable school and neighborhood characteristics. The academic gains of non-immigrant White and Asian youth residing in new states partially reflected positive changes in family composition (i.e. improved English ability and SES) but Asian non-immigrant youth also benefited from positive changes in their school and neighborhood characteristics. These results reinforce the segmented assimilation model by demonstrating that variation in the characteristics of immigrants and their communities leads to diverging assimilation paths for each racial/ethnic group (Portes and Rumbaut 2006).

Lastly, I found that cohort achievement differences persisted even after controlling for changes in demographic, family, school and neighborhood characteristics. Immigrant youth living in both new and traditional states still had lower achievement and non-immigrant youth living in new states still had higher achievement in 2002 than in 1990. One possible explanation for these achievement differences is the economy. I had hypothesized that the economic gains of the 1990s would benefit all youth, particularly youth living in new settlement states which had experienced more economic gains. The economic recession of 2001, however, may have limited this positive effect. If the economic recession impacted

immigrant youth more than non-immigrant youth it could explain the cohort achievement patterns.

Another possible explanation is that the characteristics of immigrants changed between 1990 and 2002. Relying on cumulative causation theory and historical patterns of immigration (Waldinger and Lichter 2003), I had hypothesized that achievement would decrease over time, particularly in new settlement states, as migration streams changed from selective immigrant pioneers to less advantaged co-ethnic peers. I did find that familial risk factors were greater for immigrant youth in 2002 than 1990, but these changes did not fully explain lower achievement levels in 2002.

An important compositional factor that I could not control for was the dramatic rise in the share of unauthorized immigrant population during the 1990s (Passel 2011; Passel and Suro 2005). This increase in the share of the unauthorized population fundamentally changes researchers' ability to assess immigrant assimilation trends given that legal and unauthorized immigrants face different opportunity structures (Massey and Bartley 2005). Thus, given that academic attainment is lower among unauthorized immigrants than legal immigrants (Passel and Cohn 2009), the negative cohort achievement changes I found may reflect a proportional rise in the unauthorized population. This change, however, appears to have affected both traditional and new settlement states meaning that schools in both these settlement locations must adapt to the changing needs of today's immigrant youth population.

A. Strengths and Limitations

Though this study has many strengths—the sample is national and the data have more detail on family, school, and neighborhood characteristics than the US Census or Current Population Survey—the results of this study should be read with some caveats in mind. First,

the analysis uses a cross-section of the panel data available in ELS:2002 and NELS:88. Thus, I identify important associations that need to be further evaluated using longitudinal data. Second, because families choose their settlement location, neighborhoods, and schools, it is possible that the effects I detect reflect these choices rather than the effects of social context. This paper, however, provides insight into the social context vs. migrant selection debate by providing a first assessment of how the characteristics of immigrant families, schools and neighborhoods differ across settlement locations and for different cohorts. Third, because the sample of ELS:2002 and the freshened sample from NELS:88 are drawn from youth enrolled in 10^{th} grade, I exclude youth who have dropped out of high school before the 10^{th} grade. This important subpopulation of youth may have a different schooling experience than youth who remain in school. Lastly, while I am able to examine broad ethnic/racial differences among each immigrant generation the sample sizes were not large enough to examine within ethnic/racial differences. Given that extant research finds significant pan-ethnic variation in student achievement for Asians and Latinos (Kao and Thompson 2003), future research should examine how the growth and dispersion of immigrant youth in the 1990s affected the academic achievement of the different subgroups of Asians (e.g., Chinese, Filipino, etc.) and Latinos (e.g., Mexican, Cuban, etc.).

B. Policy Implications and Conclusion

For policymakers and educators, this study demonstrates that schools in new and traditional settlement states face unique and similar educational challenges. As seen by the growth in the immigrant youth population (noted in Table 3.1), both new and traditional immigrant states experienced a significant increase in the proportional size of their immigrant youth population. Research comparing new and traditional settlement states, however, has

mainly focused on the effect this growth has had on new settlement states with little discussion of its effect on traditional states (Goździak and Martin 2005; Massey 2008; Perreira, Chapman, and Livas-Stein 2006; Wainer 2006). While these settlement comparisons highlight important challenges new settlement states face (i.e. lack of infrastructure, social resources, and institutional support systems to promote the adaptation immigrant youth), researchers must also recognize that the educational resources of traditional settlement states have been strained by a growing immigrant population as well (Consentino de Cohen, Deterding, and Clewell 2005). Moreover, traditional immigrant states are still responsible for educating the majority of the US's immigrant youth population (Fortuny et al. 2009).

This study highlights that both new and traditional settlement states are faced with the challenge of educating a growing minority immigrant population that faces more familial (i.e. growth in single parent families) and economic (i.e. lower SES) stressors today than in decades past. Moreover, for immigrant youth in traditional states these familial stressors are compounded by the growing economic and racial segregation of the schools these youth attend. In order to develop effective educational policies for immigrant youth, policymakers need to recognize that not only are immigrant youth dispersing to new areas but that the characteristics of immigrant youth are changing as well. The past policy lessons and experiences from traditional immigrant states may be less applicable to new settlement states not because the social contexts between these two settlements differ but because the social context of immigrant reception in the US as a whole differs today than in years past.

VI. Notes

[vii] There is actually mixed evidence on whether parent education of immigrant youth was higher or lower in 2000 compared to 1990. Using IPUMS data and examining children of immigrants (i.e. first and second generation youth combined), Van Hook and her colleagues (2004) found that slightly fewer parents (1 percentage point) had graduated from high school. In contrast, Fry (2007), who used census data and examined only foreign-born youth, found that more immigrant parents (about 2 percentage points) had a high school degree in 2000 than in 1990.

[viii] New Jersey was classified as a second tier state because the flow of immigrants to this state was significantly lower than the other traditional states.

[ix]All sample sizes I report are rounded to the nearest 10 as required by NCES.

[x] I also ran the analyses using the Item Response Theory (IRT)—estimated parameter right—version of the math and reading test scores. NCES created test linkage versions of these IRT tests that allow for direct cross-cohort comparisons between ELS:2002 and NELS:88. Results using the IRT test variables and the standardized test variables were similar. I used the standardized test variables because the sample size was larger. NCES was not able to link IRT test scores for all students.

[xi] Due to the small sample size, I was not able to identify the 1.5 generation, which refers to youth who arrived before the age of 6 (Perreira, Harris, and Lee 2006).

[xii] I also created indicators for the educational and occupational make-up of neighborhoods, which have been shown to affect student achievement (Foster and McLanahan 1996; Goldsmith 2003). I measured the proportion of residents 25 years or older who had not completed high school or the general education equivalent and the proportion of residents who were unemployed. Because both of these measures were strongly correlated with the poverty measure (r=.79 and r=.78, respectively), I excluded them from the analyses.

[xiii] Because the within-school sample size was sufficiently small (approximately 75% of observations came from high schools with fewer than 25 students) and the intraclass correlations were low ($ICC_{Reading}$=.20; ICC_{Math}=.23) hierarchical linear models were not appropriate (Maas and Hox 2004). Instead, I used robust standard errors, which provide more consistent and more conservative estimates of the covariances of the regression coefficients (Maas and Hox 2004).

Table 3.1: Percent of High School Sophomores who are Children of Immigrants for Each State Settlement Type in 1990 and 2002 (Data Weighted)

	Full Sample			Traditional			New			Other		
	1990	2002	Diff[1]	1990	2002	Diff	1990	2002	Diff	1990	2002	Diff
Immigrant status												
Children of immigrants	10.9%	18.5%	***	20.2%	32.2%	***	8.1%	13.2%	***	3.6%	5.1%	
Non-immigrants	77.8%	68.9%	***	63.3%	53.9%	***	82.2%	74.4%	***	89.3%	83.8%	***
Immigrant status missing	11.3%	12.7%	*	16.5%	13.8%	*	9.7%	12.3%	*	7.1%	11.0%	**
N[2]=	15200	13870		6600	4740		6100	7100		2500	2030	

[1] Chi-square tests for proportions were used to calculate statistical significance of cohort differences: † p<.10, * p<.05, **p<.01, ***p<.001

[2]N's are rounded to the nearest 10 as required by NCES.

Table 3.2: Percent of High School Sophomores by Immigrant Status who Lived in Each State Settlement Type in 1990 and 2002 (Data Weighted)

	Full Sample			Children of Immigrants			Non-Immigrants		
	1990	2002	Diff[1]	1990	2002	Diff	1990	2002	Diff
State Settlement Type									
Traditional settlement	29.8%	34.2%	†	55.2%	59.6%		24.2%	26.8%	
New settlement	52.6%	50.3%		39.1%	36.1%		55.6%	54.4%	
Other settlement	17.6%	15.4%		5.7%	4.3%		20.1%	18.8%	
N[2]=	15200	13870		2130	3060		11310	9090	

[1] Chi-square tests for proportions were used to calculate statistical significance of cohort differences: † p<.10, * p<.05, **p<.01, ***p<.001

[2]N's are rounded to the nearest 10 as required by NCES.

Table 3.3: 1990 and 2002 High School Sophomores' Reading and Math Achievement by Immigrant Status for Each State Settlement Type (Data Weighted)

	Full Sample			Traditional			New			Other		
	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]
A. Reading												
Immigrant Status												
Children of immigrants	50.89	47.46	***	49.55	46.40	***	53.06	49.14	**	49.08	48.01	
	(.51)	(.35)		(.50)	(.46)		(1.02)	(.55)		(1.72)	(1.22)	
Non-immigrants	51.38	51.53		51.65	51.12		51.57	52.30	*	50.53	49.90	
	(.16)	(.20)		(.33)	(.37)		(.22)	(.28)		(.32)	(.47)	
B. Math												
Immigrant Status												
Children of immigrants	51.86	48.26	***	50.92	47.66	***	53.42	49.21	***	50.19	48.63	
	(.51)	(.38)		(.55)	(.52)		(.98)	(.57)		(1.74)	(1.11)	
Non-immigrants	51.55	51.36		51.91	51.25		51.81	52.01		50.43	49.64	
	(.17)	(.21)		(.34)	(.36)		(.23)	(.29)		(.38)	(.49)	

[1] Chi-square tests for proportions and T-tests with satterwaite adjustment for means were used to calculate statistical significance of cohort differences: † p<.10, * p<.05, **p<.01, ***p<.001

Table 3.4: Weighted Characteristics of High School Sophomore Children of Immigrants (i.e. 1st and 2nd Generation) in 1990 and 2002 by State Settlement Type

	Full Sample			Traditional			New			Other		
	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]
Demographics	0.06	0.04										
Female	0.51	0.50		0.49	0.50		0.53	0.51		0.51	0.48	
Age	16.08	16.16	*	16.09	16.16		16.07	16.16	*	16.12	16.12	
Race/Ethnicity												
White (ref.)	0.32	0.21	***	0.22	0.12	***	0.46	0.33	†	0.45	0.47	
Black	0.06	0.08	†	0.07	0.07		0.05	0.10	*	0.03	0.08	
Asian	0.22	0.18	†	0.21	0.17		0.25	0.21		0.15	0.15	
Latino	0.40	0.52	**	0.51	0.64	**	0.24	0.35		0.37	0.31	
Family Characteristics												
SES	-0.11	-0.27	*	-0.26	-0.40	*	0.11	-0.10	†	-0.23	0.01	
Family Structure												
Biological parent family (ref.)	0.77	0.61	***	0.77	0.60	***	0.79	0.62	***	0.62	0.61	
Stepparent family	0.07	0.14	***	0.06	0.14	***	0.07	0.14	***	0.13	0.18	
Single parent/other family	0.13	0.25	***	0.13	0.26	***	0.13	0.24	***	0.19	0.21	
Missing family data	0.03	0.00		0.04	0.00	***	0.02	0.00		0.07	0.00	
English language ability (range: 1-6)	4.42	4.70	***	4.32	4.60	***	4.55	4.82	*	4.62	5.08	†
School Characteristics												
Prop. free and reduced lunch	0.23	0.29	*	0.27	0.35	*	0.16	0.20		0.32	0.20	
Prop. minority	0.47	0.55	*	0.58	0.66	*	0.33	0.40		0.38	0.28	
Prop. LEP population--low (ref.)	0.11	0.14		0.07	0.11		0.14	0.17		0.20	0.36	
Prop. LEP population--mid	0.46	0.44		0.36	0.35		0.58	0.57		0.56	0.54	
Prop. LEP population--high	0.44	0.42		0.57	0.54		0.28	0.26		0.24	0.10	
Student-teacher ratio	17.75	18.83	†	18.26	20.19	***	17.12	16.98		17.22	15.52	

Table 3.4: Continued

	Full Sample			Traditional			New			Other		
	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]
School Characteristics (continued)												
Urbanicity												
Urban (ref.)	0.44	0.43		0.52	0.50		0.37	0.34		0.18	0.31	
Rural	0.15	0.08		0.06	0.06		0.19	0.11		0.61	0.26	**
Suburban	0.41	0.48		0.42	0.44		0.44	0.56		0.21	0.44	*
Public (vs. private)	0.87	0.94	**	0.87	0.95	**	0.85	0.93	*	0.94	0.95	
Neighborhood Characteristics												
Prop. zipcode in poverty	0.15	0.15		0.17	0.17		0.12	0.11		0.14	0.12	
Prop. zipcode is minority	0.40	0.49	**	0.49	0.60	***	0.28	0.34		0.22	0.24	
Prop. zipcode is foreign-born	0.18	0.22	*	0.24	0.27	†	0.11	0.14		0.06	0.05	
N[2]=	2130	3060		1540	1740		470	1190		120	130	

[1] Chi-square tests for proportions and T-tests with satterwaite adjustment for means were used to calculate statistical significance of cohort differences: † p<.10, * p<.05, **p<.01, ***p<.001

[2]N's are rounded to the nearest 10 as required by NCES.

Table 3.5: Weighted Characteristics of High School Sophomore Non-Immigrants (i.e. 3rd generation+) in 1990 and 2002 by State Settlement Type

	Full Sample			Traditional			New			Other		
	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]
Demographics												
Female	0.50	0.50		0.48	0.50		0.51	0.49		0.53	0.51	
Age	16.08	16.16	***	16.06	16.11	*	16.08	16.16	***	16.12	16.21	***
Race/Ethnicity												
White (ref.)	0.84	0.77	***	0.80	0.69	***	0.87	0.81	**	0.81	0.76	
Black	0.11	0.16	***	0.10	0.16	**	0.11	0.14	*	0.14	0.18	
Asian	0.01	0.01	†	0.01	0.01		0.01	0.01		0.01	0.00	**
Latino	0.04	0.07	***	0.10	0.14	***	0.02	0.04	**	0.05	0.05	
Family Characteristics												
SES	0.06	0.10	†	0.15	0.10		0.07	0.13	*	-0.07	-0.01	
Family Structure												
Biological parent family (ref.)	0.67	0.58	***	0.64	0.55	***	0.70	0.60	***	0.65	0.56	***
Stepparent family	0.14	0.17	**	0.17	0.17		0.13	0.16	**	0.15	0.18	†
Single parent/other family	0.17	0.26	***	0.17	0.28	***	0.16	0.24	***	0.18	0.26	***
Missing family data	0.02	0.00		0.02	0.00		0.01	0.00		0.02	0.00	
English language ability (range: 1-6)	5.86	5.94	***	5.78	5.94	***	5.91	5.95	***	5.84	5.94	***
School Characteristics												
Prop. free and reduced lunch	0.18	0.19		0.17	0.21	*	0.16	0.16		0.25	0.24	
Prop. minority	0.22	0.27	***	0.30	0.36	*	0.18	0.23	**	0.25	0.26	
Prop. LEP population--low (ref.)	0.38	0.39		0.21	0.31	*	0.40	0.39		0.52	0.52	
Prop. LEP population--mid	0.53	0.51		0.52	0.48		0.56	0.56		0.45	0.44	
Prop. LEP population--high	0.10	0.09		0.27	0.21		0.04	0.05		0.04	0.03	
Student-teacher ratio	15.88	16.58	**	16.35	17.58	**	15.66	16.50	**	15.93	15.41	

Table 3.5: Continued

	Full Sample			Traditional			New			Other		
	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]	1990	2002	Diff[1]
School Characteristics (continued)												
Urbanicity												
Urban (ref.)	0.23	0.25		0.27	0.29		0.23	0.23		0.17	0.25	
Rural	0.36	0.23	***	0.23	0.19		0.33	0.23	**	0.61	0.30	***
Suburban	0.41	0.51	***	0.49	0.51		0.45	0.54	*	0.22	0.45	***
Public (vs. private)	0.91	0.92		0.92	0.91		0.89	0.91		0.94	0.94	
Neighborhood Characteristics												
Prop. zipcode in poverty	0.13	0.11	***	0.12	0.12		0.11	0.10	**	0.16	0.14	**
Prop. zipcode is minority	0.18	0.24	***	0.25	0.33	**	0.14	0.21	***	0.19	0.22	
Prop. zipcode is foreign-born	0.05	0.07	***	0.10	0.11	†	0.03	0.06	***	0.02	0.03	***
N[2]=	11310	9090		4000	2350		5110	5070		2210	1670	

[1] Chi-square tests for proportions and T-tests with satterwaite adjustment for means were used to calculate statistical significance of cohort differences: † p<.10, * p<.05, **p<.01, ***p<.001

[2]N's are rounded to the nearest 10 as required by NCES.

Table 3.6: Total Marginal Effect of Settlement Location on Reading Test Scores for Each Cohort of High School Sophomores (Data Weighted)

	Model 1 Baseline				Model 2 Demog.				Model 3 Family			
	ME	(95% CI)		Diff[1]	ME	(95% CI)		Diff	ME	(95% CI)		Diff
3-Way Interactions												
Children of immigrants												
Trad. 2002 vs. 1990	-3.15	(-4.47	-1.82)	***	-2.18	(-3.32	-1.03)	***	-2.18	(-3.18	-1.19)	***
New 2002 vs. 1990	-3.92	(-6.20	-1.64)	**	-2.69	(-4.31	-1.08)	**	-2.48	(-3.67	-1.30)	***
Other 2002 vs. 1990	-1.08	(-5.18	3.03)		-1.08	(-4.15	1.98)		-2.61	(-5.31	.10)	†
Non-Immigrants												
Trad. 2002 vs. 1990	0.53	(-.44	1.50)		-0.30	(-1.17	.58)		-0.03	(-.81	.75)	
New 2002 vs. 1990	0.73	(.04	1.41)	*	1.34	(.74	1.94)	***	0.91	(.40	1.42)	***
Other 2002 vs. 1990	-0.63	(-1.74	.49)		-0.06	(-1.00	.89)		-0.44	(-1.25	.33)	
Demographics												
Female					1.14	(.86	1.42)	***	1.38	(1.64	1.12)	***
Age					-3.64	(-3.90	-3.37)	***	-2.64	(-2.39	-2.90)	***
Black vs. white					-6.26	(-6.77	-5.75)	***	-4.37	(-3.88	-4.86)	***
Asian vs. white					-1.29	(-2.08	-.51)	**	-0.08	(.62	-.78)	
Latino vs. white					-6.08	(-6.67	-5.50)	***	-2.44	(-1.91	-2.97)	***
Family Charact.												
SES									4.06	(4.26	3.86)	***
Stepparent vs. biolog. parent									-0.93	(-.52	-1.33)	***
Single/other vs. biolog. parent									-0.67	(-.32	-1.02)	***
English language ability									1.20	(1.43	.98)	***
School Charact.												
Prop. free lunch												
Prop. minority												
Prop. LEP--mid vs. low												
Prop. LEP--high vs. low												
Student-teacher ratio												
Rural vs. urban												
Suburban vs. urban												
Public vs. private												
Neighbor. Charact.												
Prop. zip poverty												
Prop. zip minority												
Prop. zip foreign-born												
Constant	51.72	(51.18	52.26)	***	110.75	(106.37	115.13)	***	86.82	(82.38	91.26)	***

N=29050 **(**rounded to the nearest 10 as required by NCES)

[1] For interaction terms indicates statistical significance of F-test assessing whether the total marginal effect is different from the total marginal effect of the comparison group. For non-interactive terms indicates statitical significance of the t-test: † p<.10, * p<.05, **p<.01, ***p<.001

Notes: Models include dummy variable indicators for missing data for age, immigrant status, family structure, English language abilty, student-teacher ratio, and zip-code data. Models also include 3-way interaction effects for the dummy variable indicating missing immigration status.

Table 3.6: Continued

	Model 4 School				Model 5 Nghbd			
	ME	(95% CI)		Diff	ME	(95% CI)		Diff
3-Way Interactions								
Children of immigrants								
Trad. 2002 vs. 1990	-1.99	(-2.97	-1.01)	***	-1.97	(-2.93	-1.00)	***
New 2002 vs. 1990	-2.48	(-3.70	-1.26)	***	-2.50	(-3.70	-1.30)	***
Other 2002 vs. 1990	-3.00	(-5.70	.31)	*	-3.11	(-5.82	-.41)	*
Non-Immigrants								
Trad. 2002 vs. 1990	-0.02	(-.79	.75)		-0.06	(-.83	.71)	
New 2002 vs. 1990	0.91	(.40	1.42)	***	0.95	(.43	1.46)	***
Other 2002 vs. 1990	-0.50	(-1.33	.33)		-0.43	(-1.26	.40)	
Demographics								
Female	1.37	(1.63	1.11)	***	1.36	(1.62	1.10)	***
Age	-2.62	(-2.37	-2.88)	***	-2.61	(-2.36	-2.86)	***
Black vs. white	-4.29	(-3.79	-4.78)	***	-4.10	(-3.58	-4.61)	***
Asian vs. white	-0.11	(.59	-.80)		-0.09	(.60	-.77)	
Latino vs. white	-2.17	(-1.64	-2.70)	***	-2.11	(-1.57	-2.65)	***
Family Charact.								
SES	3.81	(4.02	3.61)	***	3.82	(4.03	3.61)	***
Stepparent vs. biolog. parent	-0.88	(-.48	-1.29)	***	-0.89	(-.48	-1.29)	***
Single/other vs. biolog. parent	-0.66	(-.31	-1.00)	***	-0.66	(-.32	-1.01)	***
English language ability	1.13	(1.36	.90)	***	1.14	(1.37	.92)	***
School Charact.								
Prop. free lunch	-2.48	(-1.38	-3.58)	***	-2.72	(-1.55	-3.90)	***
Prop. minority	0.65	(1.53	-.22)		1.01	(2.07	-.05)	†
Prop. LEP--mid vs. low	-0.12	(.28	-.51)		-0.12	(.27	-.52)	
Prop. LEP--high vs. low	-0.91	(-.25	-1.58)	**	-1.11	(-.42	-1.79)	**
Student-teacher ratio	-0.05	(.00	-.09)	†	-0.05	(.00	-.10)	†
Rural vs. urban	-0.42	(.09	-.94)		-0.42	(.09	-.94)	
Suburban vs. urban	-0.53	(-.07	-.98)	*	-0.50	(-.04	-.96)	*
Public vs. private	-0.81	(-.21	-1.41)	**	-0.78	(-.16	-1.40)	*
Neighbor. Charact.								
Prop. zip poverty					1.94	(4.66	-.78)	
Prop. zip minority					-1.39	(-.07	-2.72)	*
Prop. zip foreign-born					2.96	(5.24	.67)	*
Constant	89.33	(84.85	93.81)	***	88.84	(84.37	93.32)	***

N=29050 **(**rounded to the nearest 10 as required by NCES)

[1] For interaction terms indicates statistical significance of F-test assessing whether the total marginal effect is different from the total marginal effect of the comparison group. For non-interactive terms indicates statitical significance of the t-test: † p<.10, * p<.05, **p<.01, ***p<.001

Notes: Models include dummy variable indicators for missing data for age, immigrant status, family structure, English language abilty, student-teacher ratio, and zip-code data. Models also includes 3-way interaction effects for the dummy variable indicating missing immigration status.

Table 3.7: Total Marginal Effect of Settlement Location on Math Test Scores for Each Cohort of High School Sophomores (Data Weighted)

	Model 1 Baseline				Model 2 Demog.				Model 3 Family			
	ME	(95% CI)		Diff[1]	ME	(95% CI)		Diff	ME	(95% CI)		Diff
3-Way Interactions												
Children of immigrants												
Trad. 2002 vs. 1990	-3.27	(-4.74	-1.79)	***	-2.04	(-3.22	.86)	**	-1.78	(-2.79	-.76)	**
New 2002 vs. 1990	-4.20	(-6.43	-1.98)	***	-2.72	(-4.38	-1.07)	**	-2.30	(-3.64	-.95)	**
Other 2002 vs. 1990	-1.56	(-5.59	2.46)		-1.64	(-4.31	1.03)		-2.89	(-5.21	-.57)	*
Non-Immigrants												
Trad. 2002 vs. 1990	0.66	(-.31	1.62)		-0.38	(-1.19	.42)		-0.25	(-.96	.45)	
New 2002 vs. 1990	0.20	(-.53	.93)		0.89	(.27	1.52)	**	0.51	(-.00	1.03)	†
Other 2002 vs. 1990	-0.74	(-1.96	.47)		-0.09	(-1.08	.90)		-0.39	(-1.21	.44)	
Demographics												
Female					-1.28	(-1.55	-1.00)	***	-1.03	(-1.28	-.78)	***
Age					-4.14	(-4.39	-3.89)	***	-3.16	(-3.41	-2.92)	***
Black vs. white					-7.53	(-8.06	-7.01)	***	-5.58	(-6.07	-5.08)	***
Asian vs. white					1.01	(.11	1.91)	*	1.72	(.90	2.53)	***
Latino vs. white					-6.89	(-7.41	-6.36)	***	-3.65	(-4.15	-3.15)	***
Family Charact.												
SES									4.15	(3.95	4.36)	***
Stepparent vs. biolog. parent									-1.34	(-1.72	-.96)	***
Single/other vs. biolog. parent									-0.89	(-1.22	-.55)	***
English language ability									0.68	(.47	.89)	***
School Charact.												
Prop. free lunch												
Prop. minority												
Prop. LEP--mid vs. low												
Prop. LEP--high vs. low												
Student-teacher ratio												
Rural vs. urban												
Suburban vs. urban												
Public vs. private												
Neighbor. Charact.												
Prop. zip poverty												
Prop. zip minority												
Prop. zip foreign-born												
Constant	52.1	(51.48	52.61)		120.5	(116.40	124.53)		100.0	(95.84	104.17)	

N=29030 **(**rounded to the nearest 10 as required by NCES)

[1]For interaction terms indicates statistical significance of F-test assessing whether the total marginal effect is different from the total marginal effect of the comparison group. For non-interactive terms indicates statitical significance of the t-test: † p<.10, * p<.05, **p<.01, ***p<.001

Notes: Models include dummy variable indicators for missing data for age, immigrant status, family structure, English language abilty, student-teacher ratio, and zip-code data. Models also includes 3-way interaction effects for the dummy variable indicating missing immigration status.

Table 3.7: Continued

	Model 4 School				Model 5 Nghbd			
	ME	(95% CI)		Diff	ME	(95% CI)		Diff
3-Way Interactions								
Children of immigrants								
Trad. 2002 vs. 1990	-1.43	(2.42	-.43)	**	-1.42	(-2.42	-.42)	**
New 2002 vs. 1990	-2.34	(-3.71	-.97)	**	-2.38	(-3.73	-1.02)	**
Other 2002 vs. 1990	-3.40	(5.74	-1.06)	**	-3.51	(-5.91	-1.12)	**
Non-Immigrants								
Trad. 2002 vs. 1990	-0.39	(-1.09	3.10)		-0.41	(-1.11	.29)	
New 2002 vs. 1990	0.52	(-.01	1.03)	*	0.54	(-.02	1.05)	*
Other 2002 vs. 1990	-0.49	(-1.33	.34)		-0.46	(-1.29	.36)	
Demographics								
Female	-1.04	(-1.29	-.79)	***	-1.04	(-1.29	-.79)	***
Age	-3.13	(-3.37	-2.89)	***	-3.12	(-3.36	-2.87)	***
Black vs. white	-4.99	(-5.49	-4.49)	***	-4.83	(-5.35	-4.32)	***
Asian vs. white	1.90	(1.11	2.69)	***	1.90	(1.12	2.68)	***
Latino vs. white	-3.11	(-3.64	-2.59)	***	-3.06	(-3.59	-2.53)	***
Family Charact.								
SES	3.88	(3.66	4.09)	***	3.87	(3.66	4.08)	***
Stepparent vs. biolog. parent	-1.30	(-1.69	-.92)	***	-1.30	(-1.68	-.92)	***
Single/other vs. biolog. parent	-0.84	(-1.17	-.51)	***	-0.84	(-1.17	-.52)	***
English language ability	0.58	(.37	.80)	***	0.59	(.38	.80)	***
School Charact.								
Prop. free lunch	-3.63	(-4.79	-2.46)	***	-3.59	(-4.84	-2.34)	***
Prop. minority	0.08	(-.81	.96)		0.32	(-.72	1.36)	
Prop. LEP--mid vs. low	0.30	(-.09	.69)		0.28	(-.11	.68)	
Prop. LEP--high vs. low	0.04	(-.62	.71)		-0.11	(-.81	.59)	
Student-teacher ratio	-0.09	(-.13	-.05)	***	-0.09	(-.13	-.05)	***
Rural vs. urban	-0.02	(-.54	.51)		-0.01	(-.54	.52)	
Suburban vs. urban	-0.05	(-.52	.41)		-0.05	(-.52	.42)	
Public vs. private	-0.39	(-.97	.20)		-0.39	(-.99	.22)	
Neighbor. Charact.								
Prop. zip poverty					0.38	(-2.15	2.91)	
Prop. zip minority					-0.94	(-2.18	.29)	
Prop. zip foreign-born					2.21	(-.07	4.49)	†
Constant	102.2	(97.87	106.47)		101.9	(97.62	106.19)	

N=29030 **(**rounded to the nearest 10 as required by NCES)

[1] For interaction terms indicates statistical significance of F-test assessing whether the total marginal effect is different from the total marginal effect of the comparison group. For non-interactive terms indicates statitical significance of the t-test: † p<.10, * p<.05, **p<.01, ***p<.001

Notes: Models include dummy variable indicators for missing data for age, immigrant status, family structure, English language abilty, student-teacher ratio, and zip-code data. Models also includes 3-way interaction effects for the dummy variable indicating missing immigration status.

Table 3.8: Significant Total Marginal Effects of Settlement Location on Reading Test Scores for Each Racial/Ethnic Cohort of High School Sophomores (Data Weighted)

	Model 1 Baseline				Model 2 Demog.				Model 3 Family				Model 4 School				Model 5 Nghbd			
	ME	(95% CI)		Diff[1]	ME	(95% CI)		Diff	ME	(95% CI)		Diff	ME	(95% CI)		Diff	ME	(95% CI)		Diff
White Sample (N=19430)																				
Non-Immigrants																				
New 2002 vs. 1990	1.37	(.71	2.02)	***	1.68	(1.04	2.32)	***	1.20	(.65	1.74)	***	1.22	(.68	1.76)	***	1.27	(.73	1.81)	***
Black Sample (N=3350)																				
Children of immigrants																				
New 2002 vs. 1990	-9.88	(-15.26	4.51)	***	-8.89	(-13.48	4.31)	***	-9.28	(-14.26	-4.30)	***	-8.67	(-13.74	-3.61)	**	-8.83	(-13.91	-3.75)	**
Other 2002 vs. 1990	-3.90	(-8.63	.82)		-5.12	(-9.96	-.28)	*	-6.33	(-12.40	-.27)	*	-6.26	(-12.24	-.29)	*	-6.04	(-12.15	.06)	†
Non-Immigrants																				
Other 2002 vs. 1990	-2.86	(-4.61	-1.10)	**	-2.09	(-3.81	-.37)	*	-2.27	(-3.93	-.62)	**	-1.77	(-3.48	-.05)	*	-1.88	(-3.59	-.16)	*
Latino Sample (N=3880)																				
Children of immigrants																				
Trad. 2002 vs. 1990	-2.90	(-4.31	-1.49)	***	-2.85	(-4.30	-1.41)	***	-3.18	(-4.49	-1.88)	***	-2.55	(-3.82	-1.29)	***	-2.48	(-3.73	-1.23)	***
New 2002 vs. 1990	-2.42	(-4.48	-.36)	*	-2.18	(-4.32	-.05)	*	-2.30	(-4.02	-.59)	**	-2.15	(-3.99	-.30)	*	-2.09	(-3.92	-.27)	*
Non-Immigrants																				
Trad. 2002 vs. 1990	-0.83	(-2.68	1.03)		-0.86	(-2.65	.93)		-2.11	(-3.82	-.40)	*	-1.96	(-3.65	-.27)	*	-1.88	(-3.60	-.16)	*
Asian Sample (N=2390)																				
Children of immigrants																				
New 2002 vs. 1990	-2.52	(-5.04	.01)	†	-2.44	(-4.84	-.04)	*	-1.43	(-3.26	.41)		-1.52	(-3.27	.23)	†	-1.72	(-3.43	.00)	†
Trad. 2002 vs. 1990	-3.22	(-5.68	-.76)	*	-3.23	(-5.35	-1.12)	**	-2.12	(-3.97	-.26)	*	-2.47	(-4.12	-.81)	**	-2.47	(-4.03	-.90)	**
Non-Immigrants																				
New 2002 vs. 1990	4.93	(1.22	8.64)	**	5.22	(1.53	8.91)	**	5.07	(1.67	8.46)	**	4.26	(.65	7.88)	*	4.09	(.54	7.64)	*

[1] For interaction terms indicates statistical significance of the F-test assessing whether the total marginal effect is different from the total marginal effect of the comparison group. For non-interactive terms indicates statitical significance of the t-test: † p<.10, * p<.05, **p<.01, ***p<.001

Notes: Models include the same controls as the corresponding model in table 6 and dummy variable indicators for missing data for the following: age, immigrant status, family structure, English language abilty, student-teacher ratio, and zip-code data. Each model also includes 3-way interaction effects for the dummy variable indicating missing immigration status.

Table 3.9: Significant Total Marginal Effects of Settlement Location on Math Test Scores for Each Racial/Ethnic Cohort of High School Sophomores (Data Weighted)

	Model 1 Baseline				Model 2 Demog.				Model 3 Family				Model 4 School				Model 5 Nghbd			
	ME	(95% CI)		Diff[1]	ME	(95% CI)		Diff	ME	(95% CI)		Diff	ME	(95% CI)		Diff	ME	(95% CI)		Diff
White Sample (N=19420)																				
Children of immigrants																				
New 2002 vs. 1990	-2.60	(5.77	.57)		-2.68	(5.74	.37)	†	-2.47	(4.74	-.21)	*	-2.38	(4.57	-.19)	*	-2.41	(4.61	-.21)	*
Other 2002 vs. 1990	-3.16	(-7.54	1.22)		-3.26	(-7.22	.71)		-4.34	(-8.00	-.64)	*	-4.31	(-8.02	-.61)	*	-4.26	(-7.98	-.55)	*
Non-Immigrants																				
New 2002 vs. 1990	0.82	(.14	1.50)	*	1.18	(.52	1.84)	***	0.71	(.18	1.25)	**	0.74	(.21	1.28)	**	0.77	(.24	1.29)	**
Black Sample (N=3350)																				
Children of immigrants																				
New 2002 vs. 1990	-9.32	(-15.68	-2.96)	**	-8.72	(-14.46	-2.99)	**	-8.88	(-14.60	-3.16)	**	-8.49	(-14.36	-2.62)	**	-8.44	(-14.11	-2.77)	
Other 2002 vs. 1990	-5.71	(-10.72	-.69)	*	-6.41	(-11.57	-1.25)	*	-7.15	(-12.07	-2.22)	**	-6.49	(-11.45	-1.53)	*	-6.29	(-11.40	-1.19)	*
Non-Immigrants																				
Other 2002 vs. 1990	-2.71	(-4.46	-.97)	**	-2.03	(-3.74	-.32)	*	-1.94	(-3.48	-.40)	*	-1.55	(-3.12	.02)	†	-1.50	(-3.09	.10)	†
Latino Sample (N=3870)																				
Children of immigrants																				
Trad. 2002 vs. 1990	-3.17	(-4.67	-1.68)	***	-3.12	(-4.64	-1.61)	***	-3.29	(-4.64	-1.95)	***	-2.71	(-4.00	-1.41)	***	-2.65	(-3.92	-1.38)	***
New 2002 vs. 1990	-2.90	(-4.88	-.92)	**	-2.48	(-4.42	-.54)	*	-2.48	(-4.29	-.68)	**	-2.32	(-4.55	-.08)	*	-2.21	(-4.37	.05)	*
Asian Sample (N=2390)																				
Children of immigrants																				
Trad. 2002 vs. 1990	-2.98	(-5.26	-.69)	*	-2.97	(-5.22	-.73)	*	-1.11	(-3.13	.91)		-1.21	(-3.16	.73)		-1.41	(-3.42	.60)	
Non-Immigrants																				
New 2002 vs. 1990	4.54	(.02	9.06)	*	4.46	(.62	8.30)	*	4.88	(1.08	8.68)	*	3.89	(.15	7.63)	*	3.78	(.03	7.53)	*

[1] For interaction terms indicates statistical significance of the F-test assessing whether the total marginal effect is different from the total marginal effect of the comparison group. For non-interactive terms indicates statitical significance of the t-test: † p<.10, * p<.05, **p<.01, ***p<.001

Notes: Models include the same controls as the corresponding model in table 6 and dummy variable indicators for missing data for the following: age, immigrant status, family structure, English language abilty, student-teacher ratio, and zip-code data. Each model also includes 3-way interaction effects for the dummy variable indicating missing immigration status.

Table 3.10: Assessing Protective and Risk Factors on Reading Achievement (Change in Marginal Effect from Table 3.8 as Add Each Conceptual Model)

	Baseline Model	Change from Baseline to Demog. Model	Change from Demographic to Family Model	Change from Family Model to School Model	Change from School Model to Nghbd Model
	Marginal Effect	Marginal Effect Change	Marginal Effect Change	Marginal Effect Change	Marginal Effect Change
White Sample (N=19430)					
Non-Immigrants					
New 2002 vs. 1990	1.37	-0.31	0.48	-0.02	-0.05
Black Sample (N=3350)					
Children of immigrants					
New 2002 vs. 1990	-9.88	-0.99	0.39	-0.61	0.16
Other 2002 vs. 1990	-3.90	1.22	1.21	-0.07	-0.22
Non-Immigrants					
Other 2002 vs. 1990	-2.86	-0.77	0.18	-0.50	0.11
Latino Sample (N=3880)					
Children of immigrants					
Trad. 2002 vs. 1990	-2.90	-0.05	0.33	-0.63	-0.07
New 2002 vs. 1990	-2.42	-0.24	0.12	-0.16	-0.06
Non-Immigrants					
Trad. 2002 vs. 1990	-0.83	0.03	1.25	-0.15	-0.08
Asian Sample (N=2390)					
Children of immigrants					
New 2002 vs. 1990	-2.52	-0.08	-1.01	0.09	0.20
Trad. 2002 vs. 1990	-3.22	0.01	-1.11	0.35	0.00
Non-Immigrants					
New 2002 vs. 1990	4.93	-0.29	0.15	0.81	0.17

Notes: A positive marginal effect change indicates that the conceptual model block served as a protective factor (i.e. had a positive effect on achievement). A negative marginal effect change indicates that the conceptual block served as a risk factor (i.e. had a negative effect on achievement). Small marginal effect changes indicate that the conceptual block had little to no effect on student achievement.

CHAPTER 4. HOW STATES CAN REDUCE THE DROPOUT RATE FOR UNDOCUMENTED IMMIGRANT YOUTH: THE EFFECTS OF IN-STATE RESIDENT TUITION POLICIES

I. Introduction

Current literature on US immigration has recognized the need to "bring the nation-state back" into the discussion of immigration politics and emphasized the pivotal role the federal government plays in shaping and controlling immigration flows (Hollifield 2008; Massey, Durand and Malone 2002; Tichenor 2002). Many scholars have also recognized that the federal government is made up of state and local governments, which create the social, political, and cultural environments that affect the process of immigrant incorporation (Fix 2007; Perreira 2011; Singer 2009).

Responding to the lack of comprehensive immigration policies at the federal level, states have increasingly sought to protect their own interests by adopting state and local level immigration related policies (Gonzales 2009; Goździak and Martin 2005; Laglagaron et al. 2008; Olivas 2008). In 2009, for instance, approximately 1,500 immigration related pieces of legislation and resolutions were introduced in 50 state legislatures (of which 353 were approved) —a dramatic increase from 2005 where only 300 such bills were introduced (of which 38 were approved; NCSL 2009). Some of these state proposals (e.g., English only laws, punishments for landlords renting to "illegals," and banning undocumented immigrants from attending community colleges) aim to create a more hostile environment that deters

immigrants from settling in the state. Other proposals (e.g., providing dual language schools, translating government documents, and increasing social services to immigrant communities), however, seek to create a more welcoming environment that supports the state's immigrant citizenry. In combination, these differing state and local policies shape the economic and social opportunities of immigrant groups, which in turn, influence their likelihood of adapting successfully to life in the US (Portes and Rumbaut 2006).

A particular policy area that has captured significant state attention is determining college access for undocumented immigrants. In 1996, the federal Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA) prohibited states from providing in-state resident tuition benefits to undocumented immigrants unless all US citizens and nationals were eligible for the same benefits. Within the guidelines of the IIRIRA, however, several states have challenged this decision and reduced access barriers to higher education for undocumented immigrants residing in their state (Flores and Chapa 2009). As of May 1st 2011, 11 states have adopted an in-state resident tuition (IRT) policy that provides in-state tuition to undocumented immigrants and at least 20 others have considered similar legislation (IHELG 2008; NCSL 2010; NILC 2011; Olivas 2010). Given that out of state tuition often exceeds 140% of resident tuition, the size of these tuition discounts is substantial (Gonzales 2009). For the undocumented population, which is ineligible for federal and most state financial aid (Frum 2008; Szelenyi and Chang 2002) and which experiences high rates of poverty (Borjas 2011; Gonzales 2009; Passel 2005a), this tuition discount can significantly reduce the financial burden a family faces when trying to send their children to college.

Though there is significant heated political discussion surrounding IRT policies for undocumented immigrants, little is actually known about the educational implications of such

policies, particularly in K-12. In her assessment of Mexican foreign-born non-citizen (FBNC; a proxy for undocumented) young adults (ages 17-28), Kaushal (2008) found that IRT policies were associated with increases in college enrollment, proportion of students with some college education, and proportion of students with at least an associate's degree. Using FBNC Latinos as a proxy for undocumented, Flores and Chapa (Flores 2007; Flores and Chapa 2009) also found that IRT policies were associated with higher college enrollment rates but the effect was stronger for males and for states with long migration histories, which presumably had more resources to help students take advantage of the policy. Overall, the impact of IRT policies remains relatively small—college enrollment and attainment rates increased by only a few percentage points—in large part because a low percent of undocumented youth graduate from high school (Flores and Chapa 2009; Kaushal 2008).

While previous research focuses on how IRT policies affect college entry, this study examines the effect these policies have on high school completion. One of the main pro-policy arguments is that an IRT policy would reduce the high school dropout rate of undocumented immigrant youth by providing a strong incentive for high school completion (Fuligni and Perreira 2009; Gonzales 2009; Murray, Batalova and Fix, 2007; NILC 2005; Reich and Barth 2010; Russell 2007). Policy advocates argue that barriers to higher education decrease student motivations and contribute to the high dropout rate for undocumented youth—many of whom are discouraged by their lack of educational opportunities and see little reason to continue their education (Abrego 2006; Horwedel 2006; Mead 2004; Menjìvar 2008). Moreover, advocates argue that by reducing barriers to higher education, IRT policies encourage undocumented youth to stay in high school and be successful. For instance, in defending Nebraska's IRT policy and addressing state concerns

about the high dropout rate of undocumented youth (estimated at approximately 50%), the University of Nebraska's President J.B. Milliken (2010) argued that:

> "[S]ince many of these students drop out of high school when they realize that they will not be able to attend college, offering them the opportunity to attain a more affordable college education may also encourage more of them to perform well and graduate from high school (p.1)."

Other educators and advocates point to anecdotal evidence that IRT policies have drawn high school dropouts back to school because they now "see opportunities they didn't have before" (Marklein 2003). One high school in Utah, for instance, claimed that in its first year Utah's IRT policy had drawn eight dropouts back to their school—two of whom have since graduated (Marklein 2003).

Previous work has not thoroughly examined how IRT policies affect the high school dropout rate of undocumented youth. While Kaushal (2008) found that IRT policies had no effect on high school completion once she controlled for state specific linear trends, her results should be interpreted cautiously. Her assessment focused on young adults ages 17-22, but prior research suggests that many immigrant young adults migrate to the US with the intention to work and never enroll in the US educational system (Fry 2003; Oropesa and Landale 2009). Consequently, by including youth older than 19, Kaushal's estimates are likely to be downwardly biased (i.e. find too little of an effect), since many of these young adults do not respond to educational policies. By focusing on high school aged youth rather than young adults, this analysis yields more relevant results because it only includes the individuals most likely to be immediately affected by the policy. The dropout problem is most prevalent among youth aged 16-19 with approximately 17% of all dropouts occurring

between the ages of 15-16 and another 73% between the ages of 17-19 (Kaufman, Alt and Chapman 2001).

Overall, this paper advances previous research by examining how IRT policies affect the schooling decisions of high school aged youth (ages 16-19) specifically and whether the impact of these policies differ by state migration histories. Additionally, by expanding the policy time frame to 2008 (compared to 2005 in Kaushal's work), this paper includes 3 additional states that have passed an IRT policy and provides a longer post period assessment.[xiv] As a result, the paper provides a stronger assessment of the effects of IRT policies.

Given the growth and dispersal of the undocumented population that has occurred during a time of increased school accountability pressure, states have a vested interest in determining whether providing in-state-tuition to undocumented immigrants can improve educational attainment. By 2005 the undocumented population had grown to 11 million—17% of whom were under the age of 18—and had dispersed across the entire US settling in states in the Midwest, Rocky Mountains, Southeast, and Southwest that had relatively small foreign-born populations (Passel 2005b). Schools have had to adjust to these demographic shifts within the context of No Child Left Behind (NCLB), which holds states and schools accountable for the educational achievement and attainment of all students including several struggling sub-groups to which undocumented youth are likely to belong (e.g., LEP status, the Latino racial/ethnic group, and low economic status; Ruiz-de-Velasco & Fix, 2000). Particularly concerning is the educational attainment of undocumented Mexican-American immigrants. While the majority of Mexican-American youth are documented, Mexican-Americans make up the majority (59%) of the undocumented population (Gonzales 2009;

Passel 2008) and have the highest dropout rate of any immigrant group (Fry 2003; NCES 2009; Perreira et al. 2006).

Using the Current Population Survey (CPS), this paper employs a difference-in-difference model (DD) to examine whether IRT policies targeting undocumented immigrants reduce the likelihood of dropping out of high school for Mexican foreign-born non-citizens (FBNCs), one of the strongest proxies available for undocumented youth. The paper develops an integrated framework that combines human capital theory (Becker 1964) with segmented assimilation theory (Portes and Rumbaut 2006) to provide insight into how IRT policies influence high school completion. To address this research question the paper first provides background information on IRT policies by discussing the historical context and current progress of these policies as well as state-specific criteria. The paper then lays out the theoretical and empirical arguments for the main research hypothesis—IRT policies reduce the likelihood of dropping out of high school for undocumented students.

II. Background

A. In-State Tuition Policy History and Policy Criteria

Since the U.S. Supreme Court's ruling in *Plyler v. Doe* in 1982, the federal government has protected the primary and secondary educational rights of all undocumented children by ensuring that they have access to free public K-12 education (Drachman 2006; Rhymer 2005). The ruling, however, did not address federal or state action regarding the post-secondary educational rights of undocumented children. Consequently, nearly 30 years later, federal and state governments are still debating whether the educational rights of undocumented immigrants should also include access to post-secondary opportunities. In 1996, Congress voted against expanding the educational rights of undocumented immigrants

by passing the IIRIRA, which prohibited states from providing in-state college tuition benefits to undocumented students unless all US citizens were extended the same right (Drachman 2006; Rhymer 2005). Since 1996, several state initiated IRT policies targeting undocumented immigrants and the proposed federal DREAM Act, which seeks to eliminate the federal penalty imposed on states for providing in-state tuition to undocumented immigrants and provide a pathway to citizenship for undocumented immigrant children, have challenged this congressional decision.

In 2001, Texas adopted the first IRT policy that allowed undocumented students who meet specific residency criteria to qualify for in-state tuition. Since then 10 other states—California in 2001; Utah and New York in 2002; Washington, Oklahoma[xv] and Illinois in 2003; Kansas in 2004; New Mexico in 2005; Nebraska in 2006; and Wisconsin in 2009—have adopted similar policies. Several other states have also considered similar legislation but had not yet enacted it as of date (Flores 2007; Olivas 2010; Rhymer 2005). To adhere with the IIRIRA regulations, states have adopted conditions for eligibility to ensure that US citizens and legal permanent residents who meet the policy requirements but no longer live in the state also qualify for the in-state tuition rate. While the specific conditions vary from state to state, each state policy includes three general requirements (NILC 2009a): 1) attend a school in the state for a certain number of years; 2) graduate from high school in the state or receive a state issued GED; and 3) sign an affidavit stating that they have either applied to legalize their status or will do so as soon as eligible.

The specific details of the policy conditions vary according to length of residency required, GED qualifications, and eligibility for financial aid (Flores 2007; NILC 2003, 2009a; Rhymer 2005; see Appendix 4A). The general length of residency required is three

years, but some states require only two-years and New Mexico only requires one-year. While all states will accept GED recipients, states vary in terms of the granting institution from which they will accept a GED (e.g., California does not accept GEDs from "adult schools"). Lastly, only a few states—Texas and New Mexico—allow undocumented students full access to state financial aid.

The adoption of these IRT policies remains controversial. Several legal challenges have been made against these policies and other states have adopted or considered counter legislation. For instance, in 2005, the same group of lawyers challenged both the Kansas and California statutes. The Kansas court ruled that the plaintiffs had no legal standing since only the Department of Homeland Security (DHS), not private citizens, has the right to enforce IIRIRA (IHELG 2008). The California Supreme Court upheld the IRT law by overturning a 2008 appellate court decision that had repealed the law (Lara 2011). Additionally, Oklahoma refined its law in 2007 by prohibiting undocumented immigrants from receiving in-state tuition but still allowing the State Board of Regents to award in-state tuition based on the same criteria (IHELG 2008). Four other states—Arizona, Colorado, Georgia, and South Carolina—have barred undocumented immigrants from receiving in-state tuition benefits (NCSL 2010). South Carolina and Alabama have gone a step further and banned undocumented students from attending any of it public colleges, while for a short time North Carolina banned undocumented students from attending community colleges (Gonzales 2009; NILC 2011).

The map in Figure 1 provides a geographic description of the states that have adopted or considered IRT policy legislation. The states labeled in solid dark grey have adopted an IRT policy, while the states labeled with cross-hatches (i.e. crisscross diagonal lines) have

adopted an IRT ban, which excludes undocumented immigrants from receiving in-state tuition (though not shown in this map, most of these policy adoption states have also considered counter legislation). States in white with dots have considered both an IRT policy and an IRT ban, while states in grey with dots and states with diagonal lines (respectively) have only considered one of these policies. Lastly, the states in solid white have considered no legislative action. Overall, the figure reveals no strong regional trend or political state leanings (e.g., both heavily conservative states like Utah and liberal states like California have passed the law) driving state IRT policy legislation and indicates that the majority of US states have at least considered IRT policy legislation (typically a pro IRT policy).

The factors influencing state adoption of either pro or anti undocumented student tuition policies remains largely unpredictable and no clear trends in state demographics have been detected (Flores 2007; Flores and Chapa 2009; Sponsler 2009). The only exception is that no southeastern state with high Latino growth has adopted an IRT policy, though Arkansas currently has a policy under consideration (Flores and Chapa 2009). Instead, case studies on the adoption of IRT policies suggests that the adoption of these policies is largely determined by idiosyncratic political processes related to policy framing (e.g., education vs. immigration), the social construction of the policy targets (e.g., children vs. criminals), and perceptions of jurisdictional authority (state vs. federal; ; Reich and Barth 2010; Reich and Mendoza 2008). Moreover, in a quantitative assessment of states' adoption of IRT policies, Vargas (2011) found no systematic differences in the fiscal health, political ideology, educational spending, or the size of the Latino population between states that had: 1) adopted an IRT policy, 2) adopted an IRT ban, and 3) not adopted any IRT policy.

In partial response to the inconsistent in-state tuition policies and the lack of clarity IIRIRA provides to states, Sen. Orrin Hatch (R-UT) and Congressman Chris Cannon (R-UT) proposed the Student Adjustment Act in 2001 (Janosik and Johnson 2007). Later becoming the DREAM Act (Development, Relief, and Education for Alien Minors Act) in 2006, this bipartisan legislation would enact two major changes to current federal law: 1) provide a pathway to citizenship for students who came to the US at or before age 15,[xvi] and 2) eliminate the federal provision that penalizes states for providing in-state tuition without regard to immigration status (Janosik and Johnson 2007; NILC 2009b). However, if adopted, the DREAM Act[xvii] will not resolve the debate over whether undocumented immigrants should qualify for in-state tuition because the bill does not require states to provide in-state tuition to undocumented immigrants. Instead, the current version under consideration only affirms each states right to decide their own tuition policy (NILC 2009a).

B. An Integrated Theoretical Framework: Human Capital and Segmented Assimilation

Within the human capital framework, the logic for how IRT policies affect student achievement is twofold. First, states that adopt IRT policies increase the post-secondary educational opportunities for undocumented immigrants by reducing the cost of tuition. Second, this future price reduction alters the cost-benefit calculation for human capital investment at the high school level. According to segmented assimilation theory, this cost-benefit calculation is also altered by the change in the social context of reception that the IRT policy creates. Policies of receiving governments define the economic and social opportunities afforded to immigrant populations, and in turn, shape the benefits and costs associated with the high school investment decision (Portes and Rumbaut 2006). In combination, these theories suggest that the human capital investment decision of

undocumented immigrant youth is constrained by the low economic resources and high social barriers these youth face and that IRT policies can reduce these constraints.

B1. Human Capital

Developed by Becker (1964), the human capital perspective assumes that individuals decide to invest in their education, medical care, and other training by weighing the expected benefits and costs—both monetary and non-monetary—of that decision. Through this calculation, individuals choose the optimal level of investment (i.e. maximize utility) that best aligns with their preferences. Similar to workers who must choose between labor and leisure, high school students must choose between hours of continued schooling and leisure by balancing the costs (e.g., time, income, and psychological stress) and benefits (e.g., future earnings and social prestige) of additional years of education. If higher grades in high school results in future higher earnings and/or educational opportunities, students may be willing to forego an hour of leisure, such as watching TV or playing video games, in order to invest that time in studying (Henry and Rubenstein 2002). Students make this decision, however, within economic and social environments that determine the availability of opportunities, and, thus, add to or detract from their costs and benefits (Becker 1993). Low-income minority and immigrant youth who work to support their families may have fewer hours of leisure to trade for studying (Perreira et al. 2007).

B2. Segmented Assimilation

The human capital investment decision of undocumented immigrant youth can be constrained by the social and economic challenges they encounter during the process of assimilation (Becker 1993). According to the theory of segmented assimilation (Portes and Rumbaut 2006), the success of an immigrant's adaptation depends on a multitude of factors

that comprise the social context of reception. These include congruence in the pace of acculturation within a family, economic barriers such as joblessness and concentrated poverty and social barriers such as racial discrimination (Portes and Rumbaut 2006) or the social isolation of minority groups (Massey 1990). A consequence of their social context of reception, today's immigrant youth are incorporated into one of three segments of society: the white middle-class majority, the inner city underclass, or a consciously preserved immigrant community (Portes and Rumbaut 2001).

For undocumented immigrant children, the severe financial hardships many immigrant families face can significantly constrain their educational investment decision and force youth to choose between work obligations at school and work obligations at home. With 40% of undocumented children living below the poverty line (compared to 17% of US-born children; Gonzales 2009), many immigrant youth (documented and undocumented) must support their families by working part-time (and sometimes full-time) jobs and/or by helping parents run the household (e.g., cooking, cleaning, and caring for younger children; Fuligni 2001; Perreira et al. 2007). For them, allocating additional time to schoolwork may require a greater sacrifice than simply missing their favorite TV show. It may mean that their family has less money for basic necessities or that a younger sibling has no one to care for them. Extant research has shown that these economic hardships (i.e. lower socioeconomic status, higher percentage of parents without a high school degree, and higher rates of poverty) account for the majority of the educational attainment and achievement gap between foreign-born and US-born Latino youth and that once these economic hardships are accounted for foreign-born youth often outperform their US-born peers (Fuligni 1997; Hirschman 2001; Kao and Tienda 1995; Perreira et al. 2006).

Many immigrant families make the financial and familial sacrifices needed to invest in their youths' schooling because, in part, it means obtaining a better paying job that will enable youth to support their parents in the future (Fuligni 2001). However, if high school completion does not result in future higher earnings or advanced educational opportunities, undocumented youth may see little reason to forgo current income and the opportunity to economically support their families. Consequently, they may choose to enter the labor force at an earlier age and forgo additional years of education.

In addition to economic hardships, undocumented immigrant youth must often overcome barriers due to social discrimination that can reduce the expected gains from their human capital investment. Policies of receiving governments as well as attitudes of natives can shape the non-monetary psychological cost and benefits of education. The varying immigration policies in the US, which actively encourage and support some immigrant groups while excluding others, contribute to the unequal incorporation of different immigrant groups. A form of structural discrimination, these bipolar policies create inequitable structural opportunities that marginalize immigrant groups and detract from their social and economic advancement (Perreira, Kiang and Potochnick, In Press). Consequently, as economically rational individuals, many undocumented immigrant youth may be discouraged by their lower expected gain from school investment and, instead, choose to enter the work-force earlier.

C. IRT Policy Mechanisms

By reducing the costs associated with higher education, IRT policies should increase early school investment because attending college becomes more feasible. If undocumented students believe that post-secondary education (even if it is only some college) can increase

their future earnings and job satisfaction (Gonzales 2009), they may be more willing and able to make the familial and personal sacrifices required of them today. If undocumented students, however, still face uncertain job opportunities no matter their level of education and/or are still unable to afford college this cost reduction may have little to no effect on high school completion.

Additionally, by overriding the federal government's more exclusionary tuition policy, IRT policies are actively welcoming undocumented youth into their higher educational system and potentially reducing the psychological costs associated with social marginalization. Extant research has shown that perceived discrimination detracts from immigrant youth's self-esteem (Rumbaut 1999), lowers their overall educational expectations and academic motivations (Rumbaut 1999; Schmader, Major and Gramzow 2001; Perreira et al. 2010), hinders their academic performance (Degarmo and Martinez 2006; Stone & Han, 2005), and increases their likelihood of dropping out of high school (Degarmo and Martinez 2006). By creating inequitable structural opportunities, states that exclude undocumented immigrants from receiving in-state tuition marginalize this group and reduce their opportunities for socio-economic advancement. In contrast, states with in-state tuition options for undocumented immigrants ensure equal opportunity and increase the likelihood that undocumented immigrants achieve their educational goals and aspirations.

Preliminary evidence from California's IRT policy, known as AB 540, indicates that the policy has served as a welcoming symbol to the state's undocumented youth and increased undocumented youth's sense of social belonging. Conducting interviews with undocumented youth before, shortly after, and 4-years after the passage of AB 540, Abrego (2008) found that the policy reduced students' fear and stigma associated with being

undocumented (e.g., they no longer feared telling school counselors or friends that they did not have documents), provided students with a new positive identity ("AB 540 student" rather than "undocumented"), and increased their sense of legitimacy to claim their new right and to mobilize for new rights. These positive psychological effects strengthened over time as more students became familiar with the AB 540 policy and became confident that their new right would be upheld.

D. Lessons from Merit-Based Financial Aid Programs

While no studies have thoroughly examined how IRT policies affect high school achievement of undocumented immigrant youth, evidence from merit-based financial aid programs indicate that students respond to changes in the economic incentives for investing in human capital. Several studies have found that both post-secondary and secondary educational outcomes improved in states that have adopted merit-based scholarship programs (e.g., Georgia's HOPE Scholarship or the Tennessee Education Lottery Scholarship) meant to reward high school achievement with college financial aid. Adoption of these programs was associated with increases in college matriculation rates (Dynarski 2004), college retention and grades (Henry, Rubenstein, and Bugler, 2004), ACT scores (Pallais 2009), and high school grades (Henry and Rubenstein 2002). Though the intent and benefits of merit-based financial aid programs and IRT policies differ—the former rewards students for achievement by paying part of their tuition, while the latter ensures more equitable treatment by charging the tuition rate other residents pay—the underlying policy mechanism is the same, a reduction in price.

III. Methods

A. Data

This paper uses the Merged Outgoing Rotation Group (MORG) file from the Current Population Survey (CPS), a nationally representative sample sponsored by the U.S. Census Bureau and U.S. Bureau of Labor Statistics, for the years 1998 to 2008 (Feenberg and Rothl, 2007). Using a multistage stratified sample, the CPS collects monthly demographic and employment information from about 60,000 housing units across the United States for the civilian population age sixteen and older. Using a rotating interview system, each housing unit in the CPS is interviewed for four consecutive months, then ignored for the next eight months, and then interviewed again for four more months. The household unit and not the occupants are the sample, so if individuals or families move from a household unit they are not followed. Instead the new occupants are interviewed. The MORG file is a sub-set of the CPS, which combines survey information from months four and eight into one file for each housing unit surveyed, which means that individuals appear only once in any file year but may reappear in the next year. The MORG files have information on approximately 30,000 individuals for each monthly extract.

The MORG data have several strengths for assessing how high school dropout rates have changed as states have adopted IRT policies. A major advantage is that the data provide monthly, repeated cross-sections of a national sample of individuals that span the pre and post periods surrounding the adoption of IRT policies. Since the data are large and identify the state location of individuals, I can construct treatment and control groups of sufficient size needed for a difference-in-difference analysis.

Another major advantage is that the MORG file includes undocumented immigrants in the survey[xviii] and has a strong proxy—Mexican foreign-born non-citizen (FBNC)—for their identification.[xix] For ethical reasons, no governmental agency in the U.S. and few

research surveys collect or indicate information on documentation status (Passel 2005b). Instead, researchers must rely on proxies for undocumented status. Treated separately or in combination Mexican ethnic identity, foreign-born status, and non-citizenship do not equate to undocumented status. However, given that 59% of undocumented immigrants are of Mexican origin and that more than half (56%) of foreign-born Mexicans are undocumented (compared to approximately 26% for non-Mexican foreign-born Latinos; Passel and Cohn 2008), FBNC Mexican is one of the strongest proxies available (Kaushal 2008). Among recent arrivals, the FBNC Mexican proxy is even stronger; approximately 80% to 85% of foreign-born Mexicans who have been in the US for less than ten years are undocumented (Passel and Cohn 2008). Nevertheless, reliance on a proxy measure for undocumented immigrants remains a limitation of this study. Lastly, while CPS and the MORG files focus on labor market outcomes, the data have information on educational attainment, from which I can determine whether the individual has dropped out of high school.

B. Sample

The primary sample (N=5,242) includes all self-identifying Mexican FBNCs aged 16-19 in the MORG files between the years 1998 and 2008. This sample consists of legal permanent resident and foreign-born non-citizen Mexicans. For comparative purposes, I also include samples of non-Latino white, non-Latino black, and Latino youth and examine the merits of the opponents' claim that IRT policies reduce the achievement rates of US citizens and legal residents by depriving them of educational resources (Voices for Utah Children 2009; Gonzales 2009). According to IRT policy opponents, the addition of undocumented students to the college systems creates more competition for other students, which, in turn, may adversely affect their academic motivation and achievement (Reich and Mendoza 2008).

To evaluate this concern, I assess whether the IRT policies have any unintended consequence on the achievement rates of US-born non-Latino whites, US-born non-Latino blacks, non-Mexican Latino citizens, and Mexican citizens.

C. Outcome Measure

Dropout Status. I create a dropout status indicator (1=dropout; 0=else) for each individual using the National Center for Education Statistics' (NCES 2009) definition for the status dropout rate, which is defined as the percentage of 16-24 year-olds who are not enrolled in school and have not earned a high school diploma or GED.[xx] For Latino youth, however, the 16-24 year old age range can lead to an overestimate of the dropout rate since many young Latino immigrants come to the United States to work and never enter the U.S. school system (Fry 2003; Oropesa and Landale 2009). Since CPS data do not indicate whether immigrant youth attended school in the U.S., I minimize the potential overestimate bias by following Fry's (2003) recommendation to use a narrower age range—16-19 years old—for calculating the dropout status of individual youth. I classify youth as high school dropouts if they were not enrolled in school and did not have a high school diploma or GED.

D. Analytical Approach

This paper employs an extension of the difference-in-difference (DD) model that capitalizes on the exogenous variation created by each state's IRT policy adoption (Abadie 2005; Besley and Case 2000). The traditional DD estimate essentially compares an individual's likelihood of dropping out of high school after the adoption of an IRT policy to the likelihood of dropping out of high school for two groups: 1) a cross-section of Mexican FBNCs living in the same state but before the IRT policy was adopted (i.e. a pre and post comparison), and 2) a cross-section of Mexican FBNCs of high school age at the same time

but residing in similar states that have not adopted the policy (i.e. a treatment and control comparison). In order to calculate an unbiased policy estimate, the DD estimate makes two assumptions. First, the treatment and control group are exposed to and respond similarly to other policy changes and general shocks (e.g., the adoption of No Child Left Behind or national immigration reforms). Second, the treatment and control group experience common linear trends (e.g., similar increases or decreases in high school dropout rates and/or growth in the immigrant population).

This paper makes several improvements to the traditional DD estimate. First, by using state fixed effects instead of a simple treatment dummy variable I allow for different intercepts for each state rather than just for the treatment and control group. These state fixed effects recognize that time invariant characteristics may be unique for each state within the treatment and control groups. Secondly, by using year fixed effects instead of a simple post dummy variable I allow for general shocks or time trends to differ across each year rather than just the pre-post period. Lastly, by interacting the state and year fixed effects I control for each state's unique linear trends. An extension of the difference-in-differences (DDD) estimation, this approach allows for linear trends to differ across each state, and thus, only requires the assumption that the treatment and control group are exposed to the same policy changes and general shocks (Francesconi and van der Klaauw 2006). Policy effects are identified off of differences in trends between states in the DD model and differences in the rate of change between trends in the DDD model.

To answer whether state resident tuition policies decreased the dropout rate among FBNC Mexican students I estimate the following linear probability[xxi] regression model:

$$DROPOUT_{ijtm} = \beta_0 + \beta_1(POLICYSTATE_{jt-1}) + \beta_2\ (INDIVIDUAL\ CHARACTERISTICS_{ijtm}) + \beta_3\ (STATE\ CONDITIONS_{jtm}) + \beta_4\ (STATEDUMMIES_j) + \beta_5(YEARDUMMIES_t) + \beta_6(MONTHDUMMIES_m) + \beta_7(STATEDUMMIES_j * YEARDUMMIES_t) + \varepsilon_i$$

$$i = 1, \ldots . N\ (individuals)$$
$$j = 1, \ldots ., 51\ (states)$$
$$t = 1998, \ldots . .2008\ (years)$$
$$m = 1, \ldots . .12\ (months)$$

where $DROPOUT_{ijtm}$ is a binary indicator equal to 1 if the individual is a high school dropout. $POLICYSTATE_{jt-1}$ is a binary indicator equal to 1 if a state provided in-state tuition to undocumented immigrants in t-1.[xxii] This coefficient β_1 is the DD estimate, which indicates the effect of the policy for all Mexican FBNCs residing in a policy state a year after the policy was adopted.[xxiii] The policy states include TX, CA, UT, NY, WA, OK, IL, KS, NM, and NB.[xxiv] β_2 represents the coefficients from a vector of individual and state demographic controls that have been shown to affect an individual's likelihood of dropping out, including age, gender, living in an MSA, and average years in the US (Carter 2005; Fry 2005; Perreira et al. 2006; Roscigno et al. 2005). β_3 represents the coefficients from a vector of time varying state-characteristics, including: the monthly unemployment rate (from the Bureau of Labor Statistics) to control for state specific economic shocks; the proportion of non-Latino white adults (ages 30-54) with a high school diploma and the proportion with some college to control for state-specific trends in education; the proportion of Mexican adults (ages 30-54) with at least a high school diploma to control for state trends in Mexican educational aspirations (Foster and McLanahan 1996);[xxv] and the percent of Mexican FBNCs in the population to control for state-specific migration trends. B_4 represents the coefficients from state fixed effects that control for both time invariant unobserved and observed state

characteristics (e.g., state-specific educational policies or stagnant demographic composition). B_5 represents the coefficients from year fixed effects that control for general shocks or time trends presumed to affect both policy and non-policy states equally, such as national educational policies (e.g., NCLB) and trends (e.g., nationwide decrease in dropout rate). B_6 indicates month fixed effects and controls for monthly variation in the likelihood of dropping out of high school (e.g., the lower likelihood of dropping out during the summer months). B_7 represents the coefficients from the remaining unobserved state-specific linear time trends that influence the likelihood of dropping out. Lastly, ε_i represents individual random error. All data are weighted and robust standard errors are clustered by state-year to correct for heteroskedasticity.

E. Sensitivity Analysis

As indicated by Flores and Chapa (2009), state differences in migration patterns and histories may influence the extent to which undocumented youth are able to take advantage of the policy. To address this issue, I run separate analyses for two sub-state classifications: traditional states and new settlement states. The traditional state classification compares states that have had historical experiences with immigrant populations and/or Hispanic populations and currently share similar demographic characteristics (e.g., % Hispanic), while the new settlement classification compares states that have little historical context with immigrants or Latinos but have experienced dramatic growth in both.

Building on the classifications outlined by Flores and Chapa (2009) and the Urban Institute (Fortuny et al. 2009), I classify states as traditional if they meet one of the following criteria: 1) are one of the 6 traditional receiving states[xxvi] (CA, NY, NJ, FL, IL or TX), 2) were once partially owned by Mexico and the percent Hispanic in the state was at least 15%

in 2000 (AZ, CO, NM, NV), and 3) have a long history with immigrants[xxvii] and the percent Hispanic in the state was at least 5% in 2000 (MA, CT). I classify states as new settlement states if they are not already classified as a traditional state and the state ranked in the top 25 for growth in the foreign-born population between 1990 and 2000. This category includes 20 states (see Appendix 4B for a complete list) with growth rates ranging between 274% in North Carolina and 83% in Virginia. Since no new settlement state in the South[xxviii] has adopted an IRT policy and regional differences may bias my results, I also run the analyses excluding all southern states from the new settlement classification (Flores and Chapa 2009).

IV. Results

A. Geographic Analysis

Before calculating the DD estimate, I first assess the policy exogeneity assumption, which is essential for calculating an unbiased policy effect. Evidence suggests that the adoption of IRT policies is largely unpredictable, resulting from idiosyncratic political processes rather than key state demographics (Flores 2007; Flores and Chapa 2009; Reich and Mendoza 2008; Reich and Barth 2010; Sponsler 2009; Vargas 2011). If the policy is endogenous (i.e. unobservable variables determine both the policy and the outcome of interest), however, the resulting DD estimate will be biased (Besley and Case 2000). Though almost 30 states have considered an IRT policy (several of which came close to passing), the 11 states that adopted the policy may have been successful because they were responding to unique educational problems, changes in immigration, and/or political pressure—all of which are factors that could also affect the high school dropout rate. Thus, I examine how policy and non-policy states compare in terms of their high school dropout rates, the size of their undocumented population, and the size of their Hispanic population (which may create

political pressure to pass an IRT policy; Sponsler 2009). If policy states and non-policy states are dissimilar, the results will suggest that the stronger DDD model is needed to control for unique state time trends.

The results indicate that states that adopted an IRT policy did not systematically experience higher high school dropout rates than non-policy states (i.e. states that have not adopted an IRT policy) in the pre-policy period (M_{plcy}=9.29; SD_{plcy}=1.90; $M_{non\text{-}plcy}$=9.27; $SD_{non\text{-}plcy}$=2.62; p >.15).[xxix] Using US 2000 census data, the map in Figure 2 indicates the percentage of 16-19 year olds who are high school dropouts for each state and highlights the policy states with a dot. States with darker shades represent the highest percentage of high school dropouts, whereas states with the lightest shades represent the lowest percentage. Similar to non-policy states, about half of the policy states had high school dropout rates below the US average, while the other half had high school dropout rates at or above the US average. None of the policy states were in the highest dropout rate category and only one policy state (Wisconsin) was in the lowest category. Thus, it does not appear as if policy states adopted an IRT policy in response to unique educational needs.

There do appear to be some differences between policy states and non-policy states in terms of the size of their Hispanic population (M_{plcy}=15.60; SD_{plcy}=13.43; $M_{non\text{-}plcy}$=5.61; $SD_{non\text{-}plcy}$=5.63; p <.05) and a small difference in the size of their undocumented immigrant population (M_{plcy}=3.71; SD_{plcy}=1.80; $M_{non\text{-}plcy}$=2.69; $SD_{non\text{-}plcy}$=2.05; p <.15). Figure 3 and Figure 4 indicate the percent of each state's population who are undocumented immigrant and Hispanic (respectively). Data on the Hispanic population come from the US 2000 Census, and data on the undocumented population are based on Passel and Cohn's (2009)

estimates. [xxx] As before, policy states are noted with a dot and the darker shade indicates a higher percent of the state's population who is an undocumented immigrant or Hispanic.

The main distinction between policy and non-policy states is that all the policy states (except for Wisconsin) at least have a minimal presence of undocumented immigrants (i.e. ≥ 1.5%) and Hispanics (i.e. ≥ 4.2%). The size of the undocumented immigrant and Hispanic populations, however, varies considerably between the different policy states. Moreover, while all three states with the largest Hispanic population (i.e. CA, TX, and NM) have adopted an IRT policy, only two of the six states (CA and TX vs. NV, AZ, NJ, and FL) with the largest undocumented immigrant population have done so. In combination, these results suggest that policy and non-policy states differ slightly in terms of their demographic characteristics related to immigration. If these differences remain stagnant over time, the DD model will provide an unbiased estimate of the policy effect. However, if these demographics change overtime and are related to both the policy adoption and outcome of interest, then the DDD model is needed to control for state-specific linear trends.

B. Descriptive Analysis

To examine the educational effects of IRT policies, I first estimate T-tests to evaluate mean differences in the likelihood of dropping out, individual characteristics, and state conditions across the pre and post (t-l) policy period for both policy states and non-policy states. For this analysis, I calculate the average of each variable by state-year and then estimate mean differences in these variables for the pre and post years. For the non-policy states, I use the median policy passage date, May 2003, to indicate the pre-post division. By May 2003, seven of the ten policy states assessed had passed their IRT policy.

The results indicate that the high school dropout rate for Mexican FBNCs in policy states decreased by 11 percentage points between the pre-post years, while the dropout rate in non-policy states remained unchanged between the pre-post years (Table 4.1). This result supports the hypothesis that the adoption of IRT policies reduces the likelihood of dropping out of high school. The results, however, also identify several potentially confounding individual characteristics and state conditions that could contribute to this policy effect. For the policy states, Mexican FBNC youth in the post years, compared to those in the pre-years, had lived in the US for more years (7.5 vs. 4.8) and were more likely to reside in a MSA (93% vs. 79%). No similar demographic changes occurred in non-policy states. In terms of state conditions, the percent of Mexican adults with a high school diploma increased in policy states (48% to 53%) but no similar change occurred for non-policy states. Conversely, the unemployment rate increased in non-policy states (4.33 vs. 5.24) but remained stagnant in policy states. A simple mean DD calculation does not control for these uneven variations in individual characteristics, labor market stability, and Mexican educational aspirations.

C. Multivariate Analysis

I use a regression framework to control for these uneven variations and to identify an unbiased policy effect. A baseline model including a policy effect dummy variable and state and year fixed effects estimates the total unadjusted difference in the likelihood of dropping out of high school between Mexican FBNC youth in policy states, post policy and youth in non-policy states and policy states, pre-policy. I then subsequently add time-varying individual characteristics, time-varying state conditions, and state-specific year fixed effects to the regressions and evaluate how differences in each of these constructs contribute to the observed policy effect.

The baseline model indicates that the adoption of IRT policies was not associated with the likelihood of dropping out for Mexican FBNCs (Table 4.2, Model 1). While the coefficient is negative, it is small and not significant. This result does not change once I control for time-varying individual characteristics (Model 2) and state conditions (Model 3). The IRT policy coefficient remains small and non-significant.

These models, however, do not control for state-specific linear trends in migration that may be biasing the results towards zero. As seen in the maps, policy states have a larger undocumented immigrant and Hispanic population, both of whom experience higher dropout rates than non-immigrants and other ethnic/racial groups. If growth trends in these populations differ between policy and non-policy states the traditional DD model will estimate a biased policy effect. Thus, I control for state-specific linear trends by including interactions between the state and year fixed effects (Model 4). After controlling for these trends, I find that IRT policies are effective at reducing the high school dropout rate. The adoption of an IRT policy is associated with a 7 percentage point reduction in the likelihood of dropping out for Mexican FBNCs.

D. Sensitivity Analysis

D1. Race

To further assess the robustness of this policy effect, I ran the final DD regression model for other racial/ethnic groups. This triple difference (DDD) comparison further reduces the threat that IRT policies are endogenous (Bertrand, Duflo and Mullainathan 2004; Shadish, Cook and Campbell 2002) by assessing whether the policy effect exists for non-targeted groups, specifically: US-born non-Latino whites, US-born non-Latino blacks, non-Mexican Latino citizens, and Mexican citizens. If my hypothesis is correct and no other

policy or contextual difference is driving my result, the DD estimate for other racial/ethnic groups should be small to non-existent.

With this assessment, I find further support for my hypothesis and no support for the claim that IRT policies reduce the achievement rates of US citizens and legal permanent residents. As hypothesized, US-born non-Latino white and US-born non-Latino black youth are not affected by the policy as seen by the near zero, non-significant coefficients (Table 4.3). Given the segregation of US schools, it is possible that other Latino youth may be the most adversely affected by the policy if competition for educational resources increases, but I find no support for this hypothesis. Neither non-Mexican Latino citizens nor Mexican citizens are negatively (or positively) affected by the policy. In combination, these results provide strong evidence that the adoption of IRT policies reduce the likelihood of dropping out for youth most likely to be undocumented, Mexican FBNCs.

D2. State Moderating Effects

Not all policy states, however, may have the infrastructure and immigrant support systems to help Mexican FBNCs take advantage of this policy. Thus, I followed Flores and Chapa's (2009) work and assessed whether the effect of IRT policies differed between traditional immigrant settlement states and new immigrant settlement states (including a sub-sample of new non-southern states). Similar to Flores and Chapa, I found that the policy effect was only significant in traditional settlement states, which presumably have stronger immigrant support systems to help immigrant youth succeed academically. The policy effect coefficients were non-significant (though larger) in the new-settlement states. It is important to note, however, that the sample size was significantly smaller in the new settlement state sample, which reduces the likelihood of finding significance. Overall, these results suggest

that IRT policies are necessary but may not be sufficient to reduce the high school dropout rate of undocumented immigrant youth. To be fully effective, IRT policies must be accompanied by the development of infrastructure and support systems that help undocumented immigrant youth succeed in high school, so they can benefit from the IRT policy in the future.

D3. Additional Robustness Checks and Moderating Effects

I ran additional analysis to assess the robustness of the results and to identify moderating effects by gender (results available upon request). As a robustness check, I ran the final model on the Mexican FBNC sample using only the states that had considered an IRT policy (but failed to pass) as the control group, since these states may be more similar to IRT policy states than states that adopted an IRT ban or did not consider IRT legislation. The results were robust providing further evidence of a policy effect. Lastly, I did not find that the policy effect varied by gender. By interacting the policy variable with gender, I found that both males and females were equally affected by the policy as indicated by the non-significant interaction term.

V. Discussion

The dramatic growth and dispersal of the immigrant population, particularly Latinos, across the US creates new challenges for states as they struggle to meet the needs of their new citizenry while at the same time meeting the often competing demands of their more long standing residents. In an effort to create a more welcoming social environment that facilitates immigrant youth's academic adaptation, 11 states have adopted IRT policies that provide tuition discounts to undocumented youth. This paper uses data from the current population survey and difference-in-difference models to assess the extent to which 10 of

these 11 states have been successful in reducing the dropout rate for youth most likely to be undocumented, Mexican FBNCs.

In accordance with prior research on Latinos, I found that Mexican FBNCs are at grave risk of not completing high school. The pre-policy adoption dropout rate for my sample of Mexican FBNCs was 42% in policy states and 48% in non-policy states. These estimates align with prior research, which often cites dropout rates of 30% or more for Latino youth. These studies, however, often include immigrant young adults who have migrated to the US with the intention to work (i.e. work migrants) and are not likely to enroll in US schools (Fry 2003). Estimates of Latino youth who have enrolled in US schools are much lower, approximately 15% (Fry 2003; Perreira et al. 2006). Thus, while dropout rates of undocumented Latino youth (especially Mexican youth) are likely to be higher than Latinos in general and while I exclude individuals most likely to be work migrants (i.e. individuals older than 19), my estimate of the dropout rate for Mexican FBNCs is likely overstated. Consequently, given that my sample includes individuals not directly impacted by the policy, the estimate of my policy effect is likely to be attenuated.[xxxi] Despite this potential negative bias, my results indicate that the high school dropout rate among Mexican FBNCs is a significant problem that must be addressed.

The adoption of IRT policies may be a partial solution to the high dropout rate of Mexican FBNCs. My difference-in-difference calculations indicated that the adoption of IRT policies reduced the likelihood of dropping out of high school for Mexican FBNCs by 7 percentage points. For states that have adopted the policy this reduces the average dropout rate from 42% to 35%--a near 16% reduction in the overall dropout rate for Mexican FBNCs. Further increasing the robustness of this finding, I found no policy effect for other

ethnic/racial groups, including US-born non-Latino whites, US-born non-Latino blacks, Mexican citizens, and non-Latino Mexican citizens. Thus, contrary to policy opponents' claims, it does not appear that IRT policies adversely affect the academic motivations and achievement of US citizens and legal permanent residents.

Lastly, states with long migration histories may have more immigrant support systems to help undocumented immigrant youth take advantage of the policy and succeed in school. I found that IRT policies effectively reduced the dropout rate by 9 percentage points in traditional settlement states but had no significant effect on dropout rates in new settlement states. While this non-significant effect may be a consequence of the smaller sample size in new settlement states, it suggests that IRT policies may be more effective in some states than others. New settlement states, many of which are struggling to adapt to the needs of their first cohorts of immigrant youth, may not have the resources to help undocumented youth be successful (Flores and Chapa 2009). IRT policies are one potential resource states could use, but to be fully effective these policies may need to be accompanied with other academic support systems (possibly language services, family support systems, and newcomer programs). This study shows that state-level education policies, particularly IRT policies, make up an important component of the academic support system for undocumented immigrant youth.

While this study employs two of the strongest quasi-experimental research designs available, the difference-in-difference and triple difference design, it is not able to completely minimize all endogeneity concerns. The reliance on Mexican FBNCs as a proxy for undocumented youth is the main limitation to this study for two reasons. First, my policy effect estimates are likely to be attenuated because my sample includes students who are not

actually in the treatment group. Second and more importantly, if the measurement error in this variable differs systematically between the treatment and control states my results will be biased. For example, if there is an overrepresentation of legal permanent residents (LPRs) in the treatment group, my policy estimate may overestimate the policy effect if LPRs are more likely to graduate from high school. This bias only occurs, however, if the percent of Mexican FBNCs who are LPRs has changed non-linearly over time within treatment states. Given that there is no publicly available, national data that distinguishes undocumented immigrants from legal permanent residents, I cannot evaluate fully evaluate this potential bias.[xxxii] Lastly, I cannot control for within state variation in the treatment effect that stems from individual institutions of higher education adopting their own IRT policy. While the majority of higher education institutions follow their state's policy, some colleges in non-policy states allow undocumented immigrants to pay in-state tuition and some colleges in policy states prohibit undocumented immigrants from paying in-state tuition. This within-state variation increases measurement error and further attenuates the policy effect.

Despite these limitations, this study provides an essential evaluation of how IRT policies influence the schooling decisions of high school aged immigrant youth likely to be undocumented. Informing current state- and federal-level policy debates on facilitating college access for undocumented immigrants, this study provides strong evidence that state educational policies shape the academic adaptation of undocumented immigrant youth. Moreover, the results strongly support the segmented assimilation model by demonstrating that the social contexts of reception influence the adaptation of children of immigrants (Portes and Rumbaut 2006). States that exclude undocumented immigrants from receiving in-state tuition add to both the financial and discrimination constraints undocumented

immigrant youth face and increase their risk for dropping out of high school. In contrast, states with in-state tuition options for undocumented immigrants increase school investment by reducing future educational costs and potentially reducing the psychological costs associated with social marginalization.

VI. Notes

[xiv] Because Kaushal lagged her policy variable by one year, she was only able to assess the states that had passed the policy by 2004 (eight states). Kansas, however, had only passed its policy in May 2004; this short post-period limits Kaushal's ability to fully assess the policy effect in Kansas. Thus, my analysis adds two states that had passed the policy after 2004 and provides a sufficient post-period for Kansas.

[xv] In 2007 Oklahoma adopted a repeal that prohibited undocumented immigrants from receiving in-state tuition benefits. The State Board of Regents, however, can award in-state tuition waivers for undocumented immigrants if they meet same criteria specified in the original IRT policy.

[xvi] The legislation permits undocumented students of "good moral character" who came to the US at age 15 or younger to qualify for temporary legal status upon acceptance to college, graduation from high school, or completing a GED. Students remaining in "good moral character" that have completed at least a 2-year degree (or equivalent) or served in the military for two years can apply for legal permanent residents.

[xvii] The act was passed by the full senate in 2006 as part of the Comprehensive Immigration Reform Act that was never passed. In 2007, the act was introduced as independent legislation but fell 8 votes short of the 60 required for the senate to proceed with debate on the bill. In 2009, the act was reintroduced in both the House and the Senate, and while it passed the House it failed in the Senate (NILC 2009b). Recently reintroduced into the 2011 House and Senate, the fate of the DREAM act is still pending.

[xviii] Research by Passel (2005a) and the Census Bureau estimates that both the CPS and Census undercount the undocumented population by about 10% (Kaushal 2008).

[xix] According to the Census Bureau, Census and CPS data are similarly effective at identifying the non-citizen population. Comparing Citizenship data from the American Community Survey (ACS) and Annual Social and Economic Supplement (ASEC) to the CPS, Menendez (2004) found that the identification of the proportion of non-citizens was higher (3 percentage points) in the ASEC than the ACS.

[xx] There is considerable debate as to whether GED recipients should be counted as high school graduates given that they have lower economic and post-secondary educational outcomes than regular high school graduates (Tyler and Lofstrom 2009). I follow the NCES definition because it is the most widely used indicator for high school dropout rates (Tyler and Lofstrom 2009). Most importantly, though, the NCES definition allows me to identify the full IRT policy effect given that both GED recipients and regular high school graduates are eligible for the policy.

[xxi] While I could estimate the equation as a Chamberlain conditional fixed effects logit model, I follow the suggestion of Liu, Dow, and Norton (2003) and use a linear probability model. Analogous to the logit model, the linear probability model allows for an easier computation of interaction effects. Moreover, the Chamberlain model excludes observations where the outcome does not switch between 0 and 1 at least once across the observed time periods. Thus, with the Chamberlain model state-year –month observations would be included only if both a dropout and non-dropout were observed; all other state-year-month observations would be excluded.

[xxii] I use the lagged policy variable (t-1) to identify the policy effect because evidence suggests it may take time for immigrant communities to become aware of the policy and change their behavior (Abrego 2008). Moreover, given the political tensions surrounding these policies (i.e. the legal challenges and counter legislation) many immigrant youth may have initially doubted the longevity of the adopted policy.

[xxiii] The policy adoption date and enactment date varied for some states by a few months up to a year. I focus on the adoption date because this date marks the first policy signal. I also ran an analysis using the enactment date as a sensitivity check and found similar results.

[xxiv] Because CPS data are not available for 2009, which is when Wisconsin adopted its law, Wisconsin is treated as a control state.

[xxv] As an additional check to ensure that I am not comparing different populations with different academic aspirations, I also used data from the Educational Longitudinal Study (ELS) from 2002 to assess whether pre-policy academic expectations of foreign-born Mexican youth (the strongest proxy for undocumented available in ELS) differed between policy and non-policy states. Academic aspirations did not differ between policy and non-policy states but these results (available upon request) only generalize to 10^{th} graders enrolled in US schools in 2002.

[xxvi] Two-thirds of the immigrant population lives in one of these traditional receiving states (Fortuny et al., 2009).

[xxvii] The following states had at least 200,000 immigrants in the 1920s: Connecticut, Massachusetts, Michigan, Pennsylvania, Ohio, and Wisconsin (Fortuny et al., 2009).

[xxviii] While Texas is part of the South, it is a traditional settlement state, not a new settlement state.

[xxix] I use a more conservative p-value than the standard ($p<.05$) because the sample size is small (n=51; 50 states and DC).

[xxx] Using data from the CPS and Department of Homeland Security, the authors calculate a residual estimation to identify the size of the undocumented population. While the estimates

of the undocumented population are based on 2008 data, they provide a good indication of pre-policy (i.e. pre-2001) trends given that migration patterns have been largely consistent since the late 1990s (Massey 2008).

[xxxi] It is plausible, however, that some work migrants may be motivated by the policy to enroll in US schools, which would reduce this attenuation.

[xxxii] To estimate this potential bias I assessed the extent to which the proxy FBNC—a less precise proxy than Mexican FBNC—compares to estimates of the undocumented population in each state (results not presented). There does appear to be some indication that the proxy overestimates the size of the undocumented population more for the treatment states than the control states. While the Mexican FBNC proxy should have less measurement error, the directional bias of the measurement error should be similar. Thus, my policy effect estimate may be overstated. This overstatement, however, may simply counteract the downward bias that stems from the measurement error problems noted.

Figure 4.1

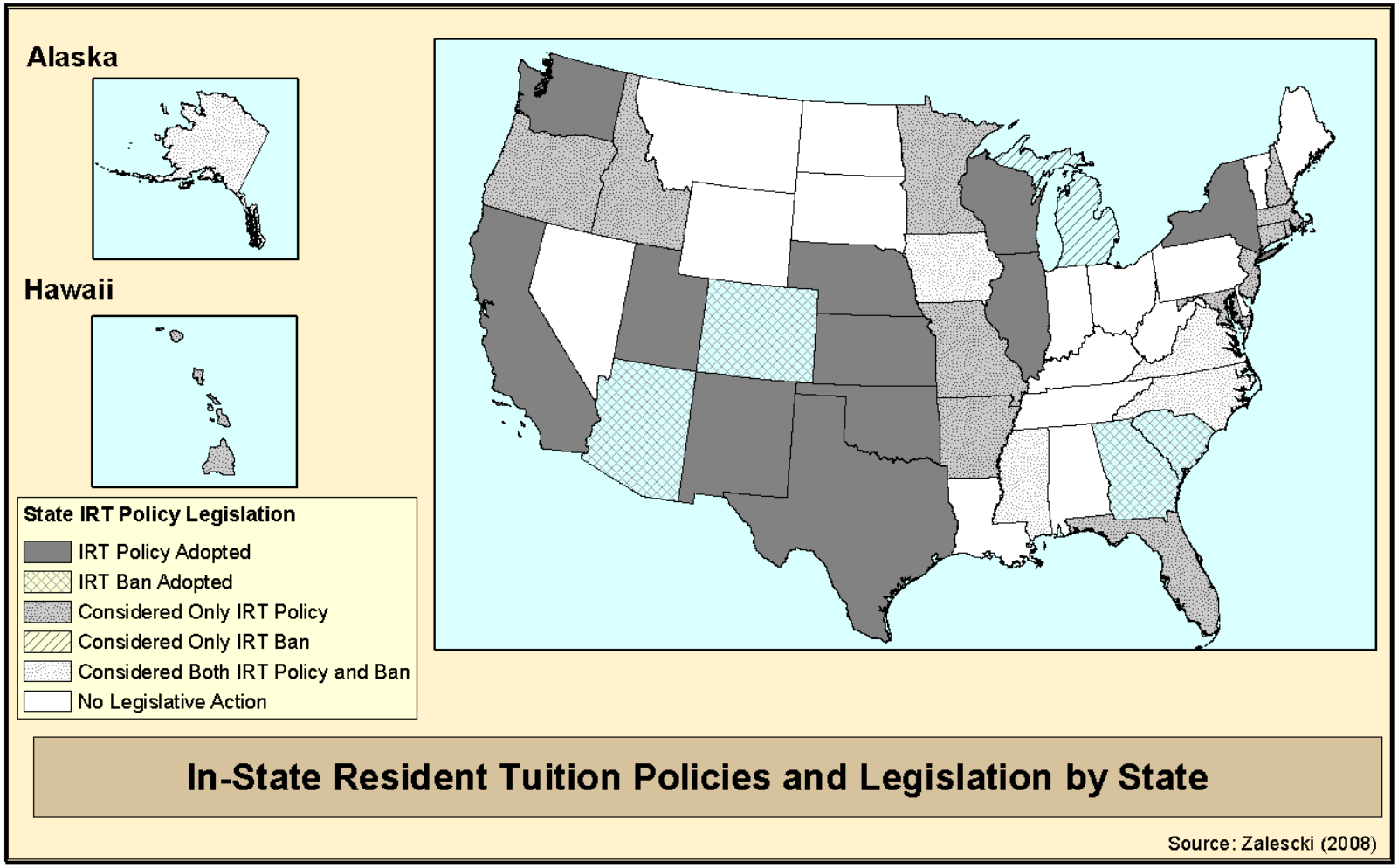
Alaska
Hawaii
State IRT Policy Legislation
IRT Policy Adopted
IRT Ban Adopted
Considered Only IRT Policy
Considered Only IRT Ban
Considered Both IRT Policy and Ban
No Legislative Action
In-State Resident Tuition Policies and Legislation by State
Source: Zalescki (2008)

Figure 4.2

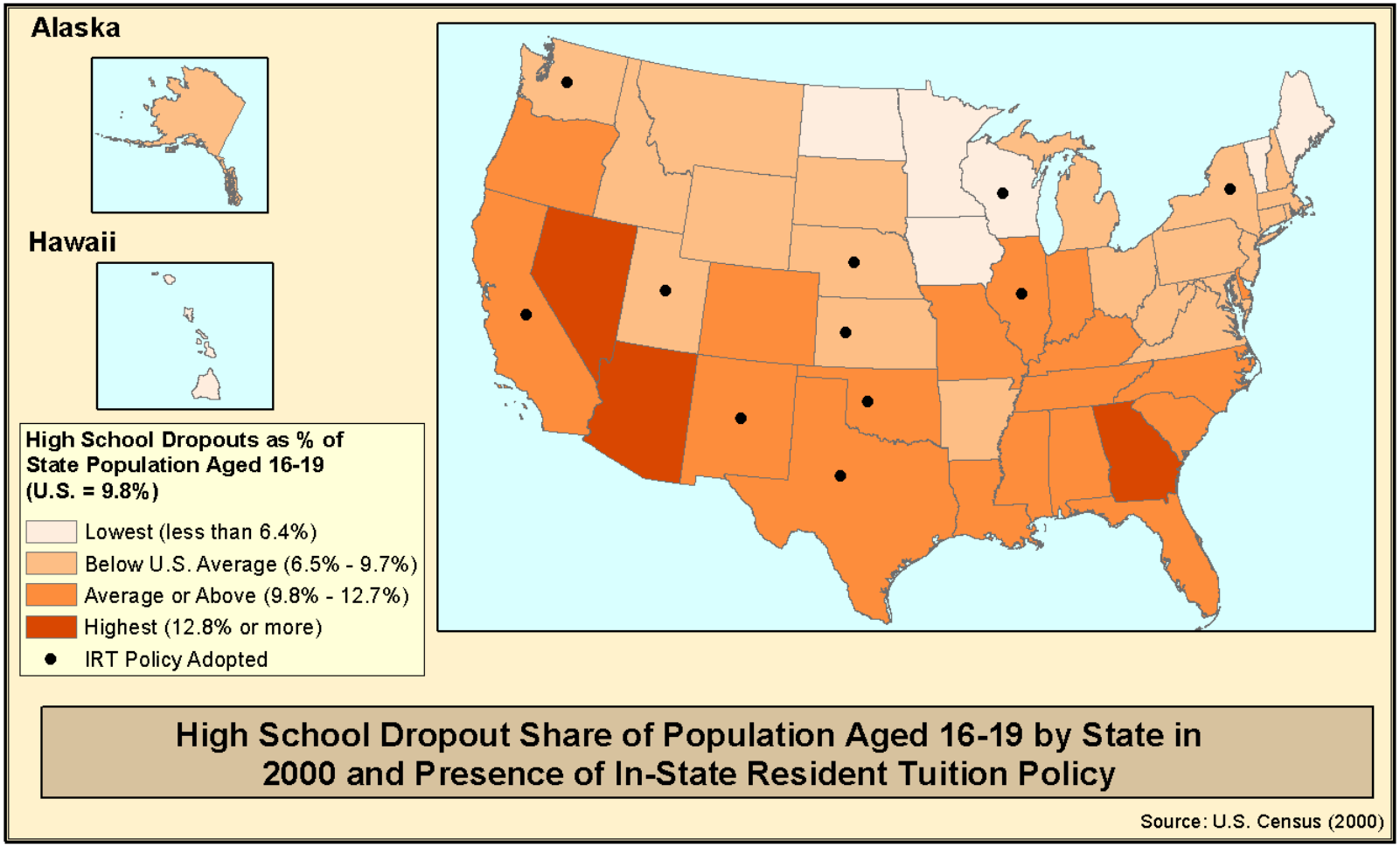
Alaska
Hawaii
High School Dropouts as % of State Population Aged 16-19 (U.S. = 9.8%)
Lowest (less than 6.4%)
Below U.S. Average (6.5% - 9.7%)
Average or Above (9.8% - 12.7%)
Highest (12.8% or more)
IRT Policy Adopted
High School Dropout Share of Population Aged 16-19 by State in 2000 and Presence of In-State Resident Tuition Policy
Source: U.S. Census (2000)

Figure 4.3

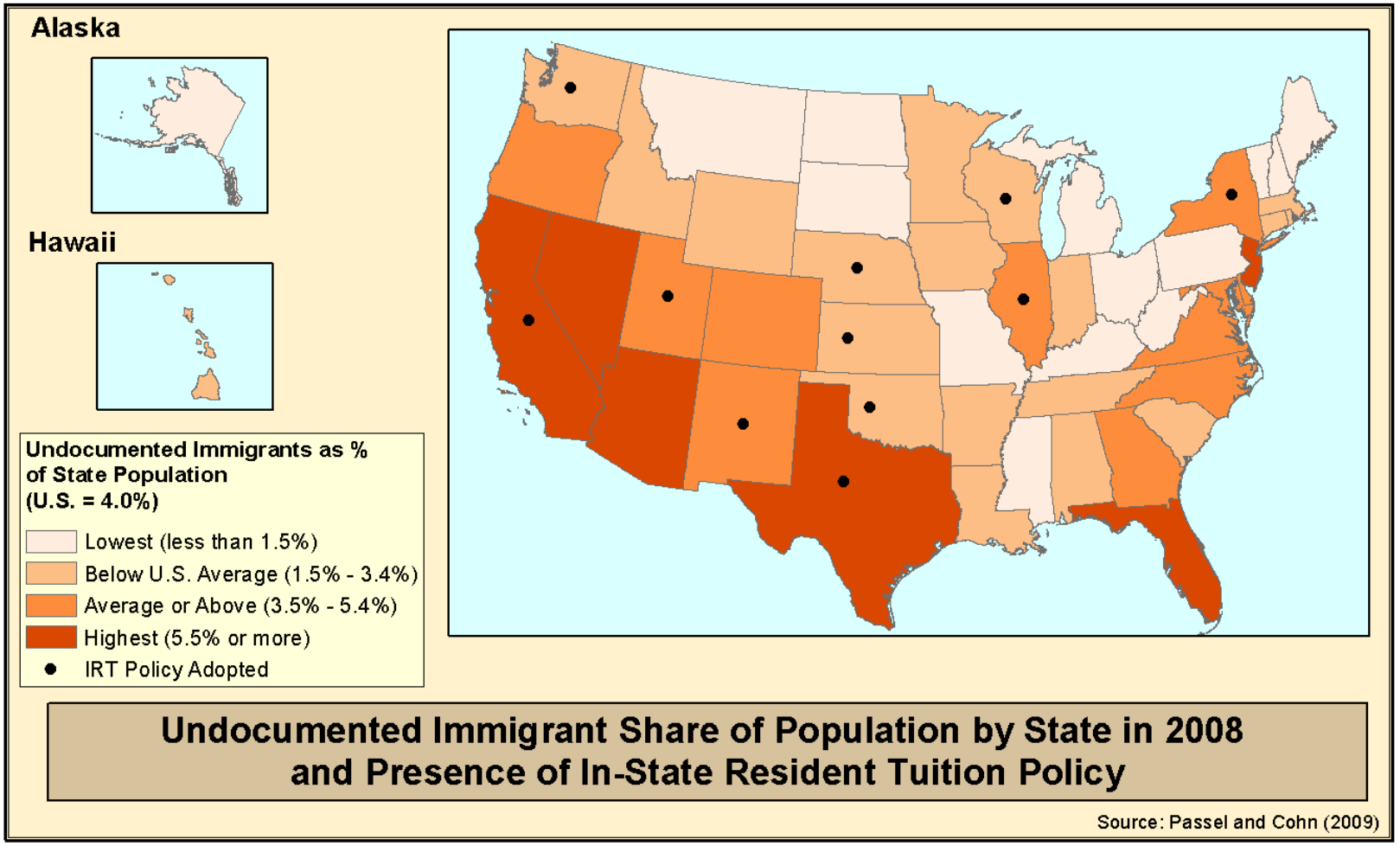
Alaska
Hawaii
Undocumented Immigrants as % of State Population (U.S. = 4.0%)
Lowest (less than 1.5%)
Below U.S. Average (1.5% - 3.4%)
Average or Above (3.5% - 5.4%)
Highest (5.5% or more)
IRT Policy Adopted
Undocumented Immigrant Share of Population by State in 2008 and Presence of In-State Resident Tuition Policy
Source: Passel and Cohn (2009)

Figure 4.4

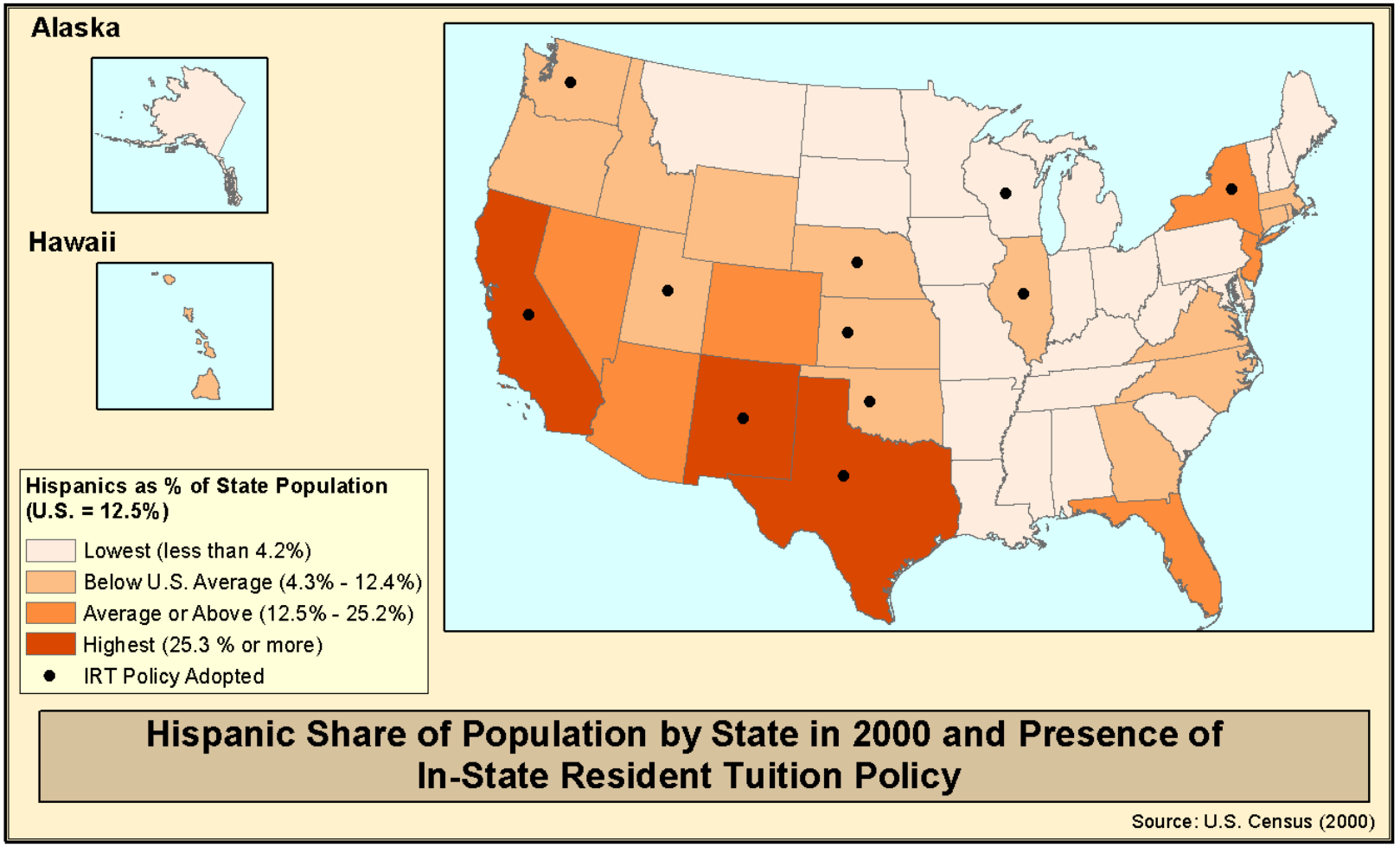
Alaska
Hawaii
Hispanics as % of State Population
(U.S. = 12.5%)
Lowest (less than 4.2%)
Below U.S. Average (4.3% - 12.4%)
Average or Above (12.5% - 25.2%)
Highest (25.3 % or more)
IRT Policy Adopted
Hispanic Share of Population by State in 2000 and Presence of In-State Resident Tuition Policy
Source: U.S. Census (2000)

Table 4.1: Summary Statistics for Mexican FBNC Sample Aggregated at State Level for Ages 16-19, Years 1998-2008 (Data Weighted)

	Policy States					Non-Policy States[2]				
	Pre-Policy[1]		Post-Policy			Pre-Policy		Post-Policy		
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Individual Characteristics										
HS Dropout	0.42	(.04)	0.31	(.02)	*	0.48	(.04)	0.46	(.02)	
Age	17.79	(.10)	17.55	(.04)	*	17.85	(.07)	17.67	(.06)	†
Female	0.40	(.04)	0.47	(.03)		0.40	(.04)	0.40	(.02)	
Avg. yrs in US	4.77	(.27)	7.51	(.27)	***	4.03	(.25)	6.43	(.25)	
MSA	0.79	(.06)	0.93	(.02)	*	0.79	(.03)	0.76	(.03)	
State Characteristics										
State unemp. rate	4.94	(.14)	5.09	(.15)		4.33	(.11)	5.24	(.10)	***
% white adults w/ some college	0.60	(.01)	0.60	(.01)		0.58	(.01)	0.58	(.01)	
% white adults w/ hs diploma	0.89	(.01)	0.87	(.01)		0.90	(.00)	0.90	(.00)	
% Mexican adults w/ hs diploma	0.48	(.02)	0.53	(.01)	*	0.48	(.03)	0.50	(.02)	
% Mexican FBNC	0.04	(.00)	0.06	(.01)	†	0.03	(.00)	0.03	(.00)	
State level N=	57		42			115		174		

[1] Post policy is lagged by 12 months meaning the policy was put into place 12 months previous.

[2] Median policy passage date (May 2003) indicates pre-post division for non-policy states

† p<.10, * p<.05, **p<.01, ***p<.001 indicate significance level for mean comparisons between pre and post using T-tests.

Table 4.2: Impact of In-State Resident Tuition Policies on Mexican FBNC Youth's Likelihood of Dropping out of High School for Ages 16-19, Years 1998-2008 (Data Weighted)

	Model 1 Baseline Model			Model 2 Individual Characteristics			Model 3 State Conditions			Model 4 State-Specific Linear Trends		
	b	(s.e.)		b	(s.e.)		b	(s.e.)		b	(s.e.)	
Policy effect	-0.02	(.03)		-0.02	(.03)		-0.02	(.03)		-0.07	(.03)	*
Individual Characteristics												
Age	--	--		0.08	(.01)	***	0.08	(.01)	***	0.08	(.01)	***
Female	--	--		-0.06	(.01)	***	-0.07	(.01)	***	-0.06	(.02)	***
Avg. yrs in US	--	--		-0.02	(.00)	***	-0.02	(.00)	***	-0.03	(.00)	***
MSA	--	--		0.01	(.03)		0.00	(.03)		0.02	(.03)	
State Characteristics												
State unemp. rate	--	--					0.00	(.01)		-0.01	(.02)	
% white adults w/ some college							0.13	(.25)		0.14	(.30)	
% white adults w/ hs diploma							-0.08	(.39)		0.16	(.46)	
% Mexican adults w/ hs diploma							-0.09	(.05)		-0.08	(.07)	
% Mexican FBNC							0.53	(.56)		0.49	(.60)	
Month FE	No			No			Yes			Yes		
State & Year FE	Yes			Yes			Yes			Yes		
State*Year FE (interaction)	No			No			No			Yes		
N=5,242												
† p<.10, * p<.05, **p<.01, ***p<.001												
Notes: Standard errors are adjusted for clustering by state-year.												

Table 4.3: Impact of In-State Resident Tuition Policies on Youth's Likelihood of Dropping out of High School Ages 16-19 by Racial/Ethnic Group, Years 1998-2008 (Data Weighted)

	U.S. Born Non-Latino White			U.S. Born Non-Latino Black			Non-Mexican Latino Citizen			Mexican Citizen		
	b	(s.e.)		b	(s.e.)		b	(s.e.)		b	(s.e.)	
Policy effect	0.00	(.02)		0.04	(.03)		0.01	(.06)		-0.05	(.04)	
Individual Characteristics												
Age	-0.01	(.00)	*	0.02	(.00)	**	0.02	(.00)	***	0.03	(.00)	**
Female	-0.01	(.00)	*	-0.02	(.00)	*	-0.01	(.01)		-0.02	(.01)	**
Avg. yrs in US	--	--		--	--		0.00	(.00)		-0.01	(.00)	*
MSA	-0.02	(.00)	*	-0.01	(.01)		0.01	(.02)		0.01	(.01)	
State Characteristics												
State unemp. rate	0.00	(.00)		0.00	(.01)		0.00	(.01)		0.02	(.01)	
% white adults w/ some college	-0.03	(.03)		-0.12	(.07)	†	-0.15	(.16)		-0.49	(.15)	**
% white adults w/ hs diploma	-0.12	(.06)	†	0.00	(.11)		-0.22	(.30)		0.12	(.26)	
% Mexican adults w/ hs diploma	0.00	(.00)		0.01	(.01)		0.00	(.02)		-0.05	(.04)	
% Mexican FBNC	-0.29	(.13)	*	-0.54	(.26)	*	-0.51	(.50)		-0.21	(.43)	
Month FE	Yes			Yes			Yes			Yes		
State & Year FE	Yes			Yes			Yes			Yes		
State*Year FE (interaction)	Yes			Yes			Yes			Yes		
N=	161,015			27,421			9,166			15,948		

† p<.10, * p<.05, **p<.01, ***p<.001

Notes: Standard errors are adjusted for clustering by state-year.

Table 4.4: Impact of In-State Resident Tuition Policies by Settlement Location on Mexican FBNC Youth's Likelihood of Dropping out of High School for Ages 16-19, Years 1998-2008 (Data Weighted)

	Traditional Settlement States			New Settlement States			New Non-South Settlement States		
	b	(s.e.)		b	(s.e.)		b	(s.e.)	
Policy effect	-0.09	(.03)	**	-0.16	(.13)		-0.17	(.14)	
Individual Characteristics									
Age	0.07	(.01)	***	0.11	(.01)	***	0.11	(.02)	***
Female	-0.07	(.02)	***	-0.02	(.04)		-0.02	(.04)	
Avg. yrs in US	-0.03	(.00)	***	-0.02	(.00)	***	-0.02	(.01)	***
MSA	0.05	(.05)		-0.03	(.04)		0.05	(.05)	
State Characteristics									
State unemp. rate	0.00	(.02)		0.00	(.04)		-0.01	(.05)	
% white adults w/ some college	0.09	(.36)		0.19	(.54)		-0.15	(.65)	
% white adults w/ hs diploma	0.02	(.55)		0.34	(1.01)		1.38	(1.01)	
% Mexican adults w/ hs diploma	-0.07	(.10)		-0.11	(.10)		-0.13	(.13)	
% Mexican FBNC	0.13	(.64)		2.44	(1.46)		1.72	(1.26)	
Month FE	Yes			Yes			Yes		
State & Year FE	Yes			Yes			Yes		
State*Year FE (interaction)	Yes			Yes			Yes		
N=	3,816			1,176			784		
† p<.10, * p<.05, **p<.01, ***p<.001									
Notes: Standard errors are adjusted for clustering by state-year.									

APPENDICES

Appendix 2A: List of State Classifications for Traditional, New, and Non-Immigrant State Categories based on Massey and Capoferro's (2008) Classification

Traditional States (5 states)
California
Florida
Illinois
New York
Texas

New Settlement States (25 states and DC)
Arizona
Colorado
Connecticut
District of Columbia
Georgia
Hawaii
Indiana
Kansas
Louisiana
Maryland
Massachusetts
Michigan
Minnesota
Missouri
Nevada
New Jersey
North Carolina
Ohio
Oregon
Pennsylvania
Rhode Island
Tennessee
Utah
Virginia
Washington
Wisconsin

Non-Immigrant States (20 states)
Alaska
Alabama
Arkansas
Delaware
Idaho
Iowa
Kentucky
Maine
Mississippi
Montana
Nebraska
New Hampshire
New Mexico
North Dakota
Oklahoma
South Carolina
South Dakota
Vermont
West Virginia
Wyoming

Appendix 2B
Interpreting Interaction Terms

Calculating the Total Marginal Effect

Below are the mathematical derivations used to calculate the total marginal effect and 95% confidence intervals for the two-way and modified three-way interactions used in Tables 2.5 and 2.6. I use the general equation used for the two-way interaction model but the same calculations were used for the modified three-way interaction model. I present the interpretation for 1st generation (vs. 3rd generation) youth living in a new (vs. traditional) immigrant state, but the same applies for the other interactions.

Two-way interaction equation*:*

$$Y=\alpha + \beta_1 (\text{New state}) + \beta_2 (\text{Other state}) + \beta_3(\text{Gen1}) + \beta_4(\text{Gen2}) + \beta_5(\text{New state*Gen1}) + \beta_6(\text{New state*Gen2}) + \beta_7(\text{Other state*Gen1}) + \beta_8(\text{Other state*Gen2}) + \beta_9(\text{Controls})$$

	New state=1	New state=0 (i.e. Trad state)	1st Diff./Total Marginal Effect
1st Gen=1	$\alpha + \beta_1 + \beta_3 + \beta_5$	$\alpha + \beta_3$	$\beta_1 + \beta_5$
1st Gen=0 (i.e. 3rd gen)	$\alpha + \beta_1$	α	β_1
1st Diff./Total Marginal Effect	$\beta_3 + \beta_5$	β_3	DD= β_5

The first differences indicate two total marginal effects: 1) the total marginal effect of generational status for each settlement location, and 2) the total marginal effect of settlement location for each immigrant generation. The difference-in-difference is the difference between these two.

Calculating the 95% Confidence Interval

To calculate the 95% Confidence Interval, I first calculated the variance of the marginal effect of X on Y, using the equation below (Brambor, Clark and Golder 2006):

For the general equation: $Y = \beta_0 + \beta_1 X + \beta_2 Z + \beta_3 XZ$

Total Marginal Effect= $\beta_1 + \beta_3 Z$

Variance= $\text{var}(\beta_1) + Z^2\text{var}(\beta_3) + 2Z\text{cov}(\beta_1\beta_3)$

Then, I calculated the standard error by taking the square root of the variance. Lastly, I generated the upper and lower bounds of the confidence interval by using the following equation:

$$\text{Confidence Interval}=\hat{y} \pm c_{\alpha/2}\text{se}(\hat{y})$$

Appendix 2C: Effect of Settlement Location on Reading and Math Test Scores for Each Immigrant Generation of High School Sophomores in 2002 (Data Weighted)

	Model 1 Baseline			Model 2 Demog.			Model 3 Family			Model 4 School			Model 5 Nghbd		
	b	(SE)		b	(SE)		b	(SE)		b	(SE)		b	(SE)	
	A. Reading														
Main Effects															
New state	1.21	(.46)	**	0.53	(.39)		0.66	(.33)	*	0.41	(.33)		0.46	(.33)	
Other state	-1.20	(.59)	*	-1.39	(.48)	**	-0.76	(.42)	†	-0.87	(.44)	*	-0.73	(.44)	†
1st gen	-6.59	(.62)	***	-3.45	(.59)	***	1.01	(.56)	†	1.33	(.58)	*	0.98	(.58)	†
2nd gen	-3.62	(.58)	***	-1.01	(.53)	†	0.72	(.50)		0.96	(.49)	†	0.72	(.48)	
Interactions															
1st gen*New	0.25	(1.01)		-0.35	(.89)		-1.55	(.74)	*	-1.94	(.75)	*	-1.72	(.74)	*
1st gen*Other	4.88	(1.73)	**	4.16	(1.26)	**	1.59	(1.20)		0.80	(1.26)		1.25	(1.26)	
2nd gen*New	2.34	(.80)	**	1.25	(.68)	†	0.15	(.63)		-0.16	(.64)		-0.03	(.64)	
2nd gen*Other	1.69	(1.58)		-0.76	(1.37)		-2.88	(1.41)		-3.31	(1.42)	*	-3.09	(1.40)	*
	B. Math														
Main Effects															
New state	0.79	(.47)	†	0.03	(.37)		0.12	(.31)		-0.14	(.32)		-0.12	(.32)	
Other state	-1.59	(.60)	**	-1.74	(.46)	***	-1.14	(.39)	**	-1.11	(.40)	**	-1.02	(.40)	*
1st gen	-5.05	(.74)	***	-1.88	(.54)	**	1.53	(.53)	**	1.91	(.56)	**	1.69	(.55)	**
2nd gen	-2.67	(.63)	***	-0.22	(.53)		1.07	(.50)	*	1.37	(.50)	**	1.20	(.50)	*
Gen missing	-4.96	(.59)	***	-3.03	(.54)	***	-2.03	(.52)	***	-1.74	(.52)	**	-1.74	(.52)	**
Interactions															
1st gen*New	0.46	(1.03)	*	-0.51	(.84)		-1.61	(.79)	*	-2.20	(.83)	**	-2.07	(.82)	*
1st gen*Other	3.81	(1.74)		2.72	(1.22)	*	0.38	(1.19)		-0.79	(1.18)		-0.46	(1.17)	
2nd gen*New	0.90	(.88)		-0.26	(.69)		-1.18	(.65)	†	-1.65	(.66)	*	-1.57	(.66)	*
2nd gen*Other	1.79	(1.44)		-0.91	(1.18)		-2.73	(1.18)	*	-3.27	(1.20)	**	-3.14	(1.19)	**

† p<.10, * p<.05, **p<.01, ***p<.001

N=13780 (rounded to the nearest 10 as required by NCES)

Notes: Each model includes the same controls as the corresponding model in table 4 and the interaction effects for the dummy variable indicating missing generational status.

Appendix 2D: Models Containing Significant Interaction Terms with Immigrant Destination (Data Weighted)

	Model 1 Baseline			Model 2 Demog.			Model 3 Family			Model 4 School			Model 5 Nghbd		
	b	(SE)		b	(SE)		b	(SE)		b	(SE)		b	(SE)	
	A. Reading														
Main Effects															
New destination	0.67	(.41)		0.92	(.41)	*	0.93	(.34)	**	0.70	(.34)	*	0.75	(.34)	*
1st gen Black	-10.04	(1.28)	***	-8.68	(1.36)	***	-4.18	(1.25)	***	-3.93	(1.21)	**	-4.12	(1.23)	**
2nd gen Black	-3.92	(1.54)	*	-3.67	(1.34)	**	-2.10	(1.26)	†	-1.55	(1.21)		-1.65	(1.18)	
3rd gen Black	-7.68	(.50)	***	-7.06	(.48)	***	-4.54	(.50)	***	-4.03	(.51)	***	-3.87	(.51)	***
1st gen Latino	-10.17	(.65)	***	-9.47	(.66)	***	-1.17	(.67)	***	-0.42	(.71)		-0.61	(.72)	
2nd gen Latino	-8.12	(.57)	***	-7.95	(.58)	***	-2.31	(.60)	***	-1.58	(.60)	**	-1.73	(.59)	**
3rd gen Latino	-5.33	(.67)	***	-5.07	(.65)	***	-2.69	(.57)	***	-2.36	(.56)	***	-2.27	(.57)	***
Interactions															
New*1st gen black	0.13	(2.53)		0.52	(2.09)		0.66	(1.75)		0.73	(1.68)		0.94	(1.65)	
New*2nd gen Black	-2.46	(2.04)		-3.06	(1.87)		-4.02	(1.95)	*	-4.50	(1.95)	*	-4.31	(1.97)	*
New*3rd gen Black	-0.59	(.71)		-0.93	(.70)		-1.27	(.66)	†	-1.67	(.68)	*	-1.57	(.68)	*
New*1st gen Latino	-1.96	(1.22)		-2.31	(1.19)	†	-2.92	(1.04)	*	-3.28	(1.04)	**	-3.13	(1.04)	**
New*2nd gen Latino	2.59	(1.07)	*	2.78	(1.01)	**	1.51	(.92)		1.10	(.97)		1.18	(.95)	
New*3rd gen Latino	-1.44	(1.09)		-1.51	(1.05)		-1.86	(.94)	*	-1.85	(.94)	†	-1.91	(.96)	*

† p<.10, * p<.05, **p<.01, ***p<.001

N=13780 (rounded to the nearest 10 as required by NCES)

Notes: Each model includes all three-way interactions between each race, immigrant generation, and the new immigrant destination dummy. Due to the small sample in the other destination category, I did not interact other destination but instead include it as a control. Each model also includes the same controls as the corresponding model in table 4 and the interaction effects for the dummy variable indicating missing generational status.

Appendix 2D: Continued

	Model 1 Baseline			Model 2 Demog.			Model 3 Family			Model 4 School			Model 5 Nghbd		
	b	(SE)		b	(SE)		b	(SE)		b	(SE)		b	(SE)	
	B. Math														
Main Effects															
New destination	-0.07	(.39)		0.19	(.38)		0.21	(.32)		-0.04	(.32)		-0.03	(.32)	
1st gen Black	-9.62	(1.65)	***	-8.07	(1.44)	***	-4.22	(1.38)	***	-3.69	(1.30)	**	-3.80	(1.32)	**
2nd gen Black	-3.81	(1.54)	*	-3.78	(1.42)	**	-2.30	(1.38)	†	-1.24	(1.41)		-1.28	(1.40)	
3rd gen Black	-9.25	(.47)	***	-8.59	(.46)	***	-6.08	(.44)	***	-5.07	(.45)	***	-4.93	(.45)	***
1st gen Asian	0.41	(1.03)		0.68	(1.02)		4.54	(.96)	***	5.01	(.96)	***	4.78	(.95)	***
2nd gen Asian	1.58	(1.15)		1.18	(1.15)		2.69	(.99)	**	3.12	(.98)	**	2.94	(.95)	**
3rd gen Asian	-3.66	(2.94)		-3.91	(2.98)		-3.55	(3.12)		-2.89	(3.03)		-3.03	(3.06)	
Interactions															
New*1st gen black	-0.94	(2.74)		-0.32	(2.32)		-0.39	(2.06)		-0.46	(1.91)		-0.27	(1.90)	
New*2nd gen Black	-5.57	(2.79)	*	-5.98	(2.60)	*	-6.90	(2.72)	*	-7.55	(2.73)	**	-7.41	(2.76)	**
New*3rd gen Black	-0.11	(.72)		-0.47	(.72)		-0.84	(.69)		-1.14	(.67)	†	-1.05	(.67)	
New*1st gen Asian	-1.84	(1.39)		-1.86	(1.39)		-2.85	(1.31)	*	-3.33	(1.27)	**	-3.19	(1.26)	**
New*2nd gen Asian	-1.41	(1.66)		-1.21	(1.67)		-0.33	(1.36)		-0.78	(1.34)		-0.67	(1.32)	
New*3rd gen Asian	5.70	(3.20)	†	5.15	(3.23)		4.38	(3.36)		3.88	(3.28)		4.10	(3.31)	

† p<.10, * p<.05, **p<.01, ***p<.001

N=13780 (rounded to the nearest 10 as required by NCES)

Notes: Each model includes all three-way interactions between each race, immigrant generation, and the new immigrant destination dummy. Due to the small sample in the other destination category, I did not interact other destination but instead include it as a control. Each model also includes the same controls as the corresponding model in table 4 and the interaction effects for the dummy variable indicating missing generational status.

Appendix 3A: List of State Classifications for Traditional, New, and Non-Immigrant State Categories based on Massey and Capoferro's (2008) Classification

Traditional States (5 states)
California
Florida
Illinois
New York
Texas

New Settlement States (25 states and DC)
Arizona
Colorado
Connecticut
District of Columbia
Georgia
Hawaii
Indiana
Kansas
Louisiana
Maryland
Massachusetts
Michigan
Minnesota
Missouri
Nevada
New Jersey
North Carolina
Ohio
Oregon
Pennsylvania
Rhode Island
Tennessee
Utah
Virginia
Washington
Wisconsin

Non-Immigrant States (20 states)
Alaska
Alabama
Arkansas
Delaware
Idaho
Iowa
Kentucky
Maine
Mississippi
Montana
Nebraska
New Hampshire
New Mexico
North Dakota
Oklahoma
South Carolina
South Dakota
Vermont
West Virginia
Wyoming

Appendix 3B
Interpreting Interaction Terms

Calculating the Total Marginal Effect

Below are the mathematical derivations used to calculate the total marginal effect and 95% confidence intervals for the three-way interaction estimates. I present the interpretation for immigrant (compared to non-immigrant) youth living in a new state (compared to a traditional state) in 2002 vs. 1990, but the same applies for the other interactions.

Three-way interaction equation*:*

$Y=\alpha + \beta_1$ (New state) + β_2 (Immigrant) + β_3 (2002) + β_4 (New state*Immigrant) + B_5 (New state*2002) + β_6 (Immigrant*2002) + β_7 (New state*Immigrant*2002) + β_8 (Controls) + ε

		1990	2002	1st Difference (2002-1990)
Immigrant	New state	$\alpha+\beta_1+\beta_2+\beta_4$	$\alpha+\beta_1+\beta_2+\beta_3+\beta_4+\beta_5+\beta_6+\beta_7$	$\beta_3+\beta_5+\beta_6+\beta_7$
	Trad. state	$\alpha+\beta_2$	$\alpha+\beta_2+\beta_3+\beta_6$	$\beta_3+\beta_6$
Difference in Difference: (Immigrant new state) – (Immigrant trad.state)				$\beta_5+\beta_7$
Non-immigrant	New state	$\alpha+\beta_1$	$\alpha+\beta_1+\beta_3+\beta_5$	$\beta_3+\beta_5$
	Trad. state	α	$\alpha+\beta_3$	β_3
Difference in Difference: (Non-immig. new state) – (Non-immig. trad.state)				β_5
Triple Difference: (Difference in Difference) - (Difference in Difference)				β_7

Calculating the 95% Confidence Interval

To calculate the 95% Confidence Interval, I first calculated the variance of the marginal effect of X on Y modified by variables Z and W, using the general equation below (Brambor, Clark, and Golder 2006):

For the general equation:

$$Y = \beta_0 + \beta_1 X + \beta_2 Z + \beta_3 W + \beta_4 XZ + \beta_5 XW + \beta_6 ZW + \beta_7 XZW + \varepsilon$$

Total Marginal Effect of X:

$$= \beta_1 + \beta_4 Z + \beta_5 W + \beta_7 ZW$$

Variance:

$$= \text{var}(\beta_1) + Z^2\text{var}(\beta_4) + W^2\text{var}(\beta_5) + Z^2W^2\text{var}(\beta_7) + 2Z\text{cov}(\beta_1\beta_4) + 2W\text{cov}(\beta_1\beta_5) + 2ZW\text{cov}(\beta_1\beta_7) + 2ZW\text{cov}(\beta_4\beta_5) + 2WZ^2\text{cov}(\beta_4\beta_7) + 2W^2Z\text{cov}(\beta_5\beta_7)$$

Then, I calculated the standard error by taking the square root of the variance. Lastly, I generated the upper and lower bounds of the confidence interval by using the following equation:

$$\text{Confidence Interval} = \hat{y} \pm c_{\alpha/2}\text{se}(\hat{y})$$

Appendix 3C: Effect of Settlement Location on Reading Test Scores for Each Cohort of High School Sophomores (Data Weighted)

	Model 1 Baseline			Model 2 Demog.			Model 3 Family			Model 4 School			Model 5 Nghbd		
	b	(SE)	Diff	b	(SE)	Diff	b	(SE)	Diff	b	(SE)	Diff	b	(SE)	Diff
Main Effects															
2002	-0.53	(0.49)		0.30	(0.45)		0.03	(0.40)		0.02	(0.39)		0.06	(0.39)	
New settlement	-0.08	(0.39)		-0.43	(0.38)		-0.11	(0.33)		-0.29	(0.34)		-0.25	(0.34)	
Other settlement	-1.12	(0.46)	*	-1.00	(0.44)	*	-0.22	(0.38)		-0.24	(0.40)		-0.18	(0.40)	
Children of immigrants	-2.10	(0.54)	***	0.58	(0.51)		2.49	(0.47)	***	2.43	(0.47)	***	2.22	(0.47)	***
2-Way Interactions															
2002*Child of Immig.	-2.62	(0.74)	***	-2.47	(0.67)	***	-2.22	(0.59)	***	-2.01	(0.59)	**	-2.02	(0.59)	**
2002*New	1.26	(0.60)	*	1.04	(0.54)	†	0.87	(0.47)	†	0.89	(0.46)	†	0.89	(0.46)	†
2002*Other	-0.10	(0.75)		-0.33	(0.66)		-0.46	(0.57)		-0.52	(0.58)		-0.49	(0.57)	
New*Child of Immig	3.59	(1.16)	**	2.19	(0.88)	*	0.84	(0.69)		0.88	(0.71)		1.04	(0.70)	
Other*Child of Immig	0.66	(1.80)		-0.58	(1.28)		-1.32	(0.96)		-1.10	(0.93)		-0.69	(0.94)	
3-Way Interactions															
New*Child of Immig*2002	-2.03	(1.36)		-1.56	(1.07)		-1.17	(0.86)		-1.38	(0.87)		-1.42	(0.86)	†
Other*Child of Immig*2002	2.17	(2.20)		1.43	(1.70)		0.04	(1.50)		-0.49	(1.48)		-0.66	(1.48)	
Constant	51.65	(0.33)		110.68	(2.25)		86.81	(2.27)		89.41	(2.30)		88.92	(2.30)	

N=29050 **(**rounded to the nearest 10 as required by NCES)

† p<.10, * p<.05, **p<.01, ***p<.001

Notes: Models include the same controls as the corresponding model in Table 6 and dummy variable indicators for missing data for the following: age, immigrant status, family structure, English language abilty, student-teacher ratio, and zip-code data. Each model also includes 3-way interaction effects for the dummy variable indicating missing immigration status.

Appendix 3D: Effect of Settlement Location on Math Test Scores for Each Cohort of High School Sophomores (Data Weighted)

	Model 1 Baseline			Model 2 Demog.			Model 3 Family			Model 4 School			Model 5 Nghbd		
	b	(SE)	Diff	b	(SE)	Diff	b	(SE)	Diff	b	(SE)	Diff	b	(SE)	Diff
Main Effects															
2002	-0.66	(0.50)		0.38	(0.41)		0.25	(0.36)		0.39	(0.36)		0.41	(0.36)	
New settlement	-0.10	(0.41)		-0.43	(0.37)		-0.07	(0.32)		-0.14	(0.32)		-0.12	(0.32)	
Other settlement	-1.48	(0.51)	***	-1.21	(0.46)	**	-0.40	(0.39)		-0.17	(0.40)		-0.12	(0.40)	
Children of immigrants	-0.99	(0.57)	†	1.60	(0.52)	**	2.93	(0.47)	***	2.97	(0.48)	***	2.82	(0.48)	***
2-Way Interactions															
2002*Child of Immig.	-2.61	(0.79)	**	-2.42	(0.68)	***	-2.04	(0.60)	**	-1.82	(0.59)	**	-1.83	(0.59)	**
2002*New	0.86	(0.62)		0.51	(0.52)		0.26	(0.45)		0.13	(0.44)		0.12	(0.44)	
2002*Other	-0.12	(0.79)		-0.47	(0.65)		-0.66	(0.55)		-0.91	(0.55)	†	-0.90	(0.55)	
New*Child of Immig	2.59	(1.14)	*	0.90	(0.91)		-0.42	(0.75)		-0.57	(0.76)		-0.45	(0.75)	
Other*Child of Immig	0.75	(1.84)		-0.60	(1.18)		-1.22	(0.93)		-1.19	(0.93)		-0.89	(0.96)	
3-Way Interactions															
New*Child of Immig*2002	-1.80	(1.37)		-1.19	(1.09)		-0.77	(0.92)		-1.04	(0.93)		-1.08	(0.93)	
Other*Child of Immig*2002	1.83	(2.19)		0.88	(1.53)		-0.44	(1.34)		-1.06	(1.33)		-1.20	(1.35)	
Constant	51.91	(0.34)		120.34	(2.09)		99.88	(2.14)		102.15	(2.20)		101.93	(2.20)	

N=29050 **(**rounded to the nearest 10 as required by NCES)

† p<.10, * p<.05, **p<.01, ***p<.001

Notes: Models include the same controls as the corresponding model in Table 6 and dummy variable indicators for missing data for the following: age, immigrant status, family structure, English language abilty, student-teacher ratio, and zip-code data. Each model also includes 3-way interaction effects for the dummy variable indicating missing immigration status.

Appendix 4A: Policy Provisions for States that Allow Undocumented Students to Gain Resident Tuition Status as of 2009

State	Date Passed	Date Enacted	State Financial Aid for Undoc.	Residency Requirement
Texas	16-Jun-01	16-Jun-01	Yes	Reside in-state with a parent 3-years prior to graduation and graduate from a TX high school or GED program
California	12-Oct-01	1-Jan-02	No	Attend a CA high school for 3 or more years prior to graduation or GED
Utah	6-Mar-02	1-Jul-02	Partial: 1 state program only	Attend a UT high school for 3 or more years prior to graduation or GED
New York[1]	25-Jun-02	1-Aug-03	No	Two or more years at an approved NY high school, graduate from NY HS or obtain a NY issued GED, and apply within 5 years
Washington	7-May-03	1-Jul-03	No	Complete a full senior year at a WA high school, live in WA at least 3 years immediately prior to diploma or equivalency, and continuously live in WA after receiving high school degree
Oklahoma[2]	12-May-03	12-May-03	Limited	Live in state with a parent or legal guardian for 2 years prior to graduation or GED
Illinois	18-May-03	20-May-03	No	Attend IL high school for 3 years prior to graduation or GED and reside with parent while attending IL high school
Kansas	20-May-04	1-Jul-04	No	Attend KS high school for 3 years prior to graduation or GED
New Mexico	5-Apr-05	5-Apr-05	Yes	Attend NM high school for 1 year prior to graduation or GED
Nebraska	14-Apr-06	13-Jul-06	No	Reside in NB 3-years prior to graduation or GED and live with a parent or guardian while attending high school
Wisconsin	26-Jun-09	29-Jun-09	No	Reside in WI 3 years prior to graduation or GED

[1]Prior to NY's policy, the State University of New York (SUNY) and the City University of New York (CUNY) provided in-state tuition to undocumented immigrants except for during the spring of 2002

[2] In 2007 OK passed another statute prohibiting undocumented immigrants from receiving in-state tuition but allowing the state's Board of Regents (which wrote a guideline memo in 2008) to award in-state tuition to undocumented students who attended an OK HS for at least two years. The legislation also made eligibility financial aid more restrictive.

Sources: Gonzales (2009); Flores (2007); Frum (2008); NILC (2003); Olivas (2010); Rhymer(2005)

Appendix 4B: State Classification for Settlement Location Type

Traditional States	New Settlement States	New Settlement Non-Southern States
Treatment	*Treatment*	*Treatment*
California	Kansas	Kansas
Illinois	Nebraska	Nebraska
New Mexico	Oklahoma	Oklahoma
New York	Utah	Utah
Texas	Washington	Washington
Control	*Control*	*Control*
Arizona	Alabama	DC
Connecticut	Arkansas	Idaho
Colorado	DC	Indiana
Florida	Georgia	Iowa
Massachusetts	Idaho	Kentucky
Nevada	Indiana	Minnesota
New Jersey	Iowa	Oregon
	Kentucky	
	Minnesota	
	Mississippi	
	North Carolina	
	Oregon	
	South Carolina	
	Tennessee	
	Virginia	

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