New Destinations, New Trajectories?
The Educational Progress of Hispanic Youth in North Carolina

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March 10, 2011

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Abstract

Since 1990, Latin American immigrants to the United States have dispersed beyond traditional gateway regions to a number of "new destinations." Both theory and past empirical evidence provide mixed guidance as to whether the children of these immigrants are adversely affected by residing in a non-traditional destination. We use administrative public school data to study Hispanic youth in one new destination, North Carolina. Conditional on third grade socioeconomic indicators, we find that Hispanic youth who arrive by age 9 and remain enrolled in North Carolina public schools close achievement gaps with socioeconomically similar white students by sixth grade and exhibit a significantly lower high school dropout rate. Their performance closely resembles that of first-generation youth in more established immigration gateways.

New Destinations, New Trajectories?
The Educational Attainment and Persistence of Hispanic Youth in North Carolina

Between 1990 and 2008, a period in which the number of Latin American immigrants

residing in the United States doubled, the geographical distribution of immigrants within the

country shifted dramatically. According to the 1990 Census, 77% of all Mexican immigrants

who had arrived within the previous five years settled in one of two states – California and

Texas. A decade later, this proportion had fallen to 48% (Massey & Capoferro, 2008). Over the

same decade, the proportion of newly arrived Mexicans who settled in Maryland, Virginia, North

Carolina, Tennessee or Georgia increased more than sixfold, from 1.6% to 10.7%. Comparable

increases accrued to a central tier of states from Utah to Missouri, and in a northern tier from

Minnesota to Ohio. How have the children of these "new destination" migrants fared in school,

relative to natives in the same regions? Have their experiences mirrored those of immigrant

children in more traditional destinations? We address these questions by drawing on a

population dataset covering public school students in North Carolina.

The movement of Latin American immigrants toward "new destinations" such as North

Carolina has spawned a considerable literature, much of which focuses on the underlying causes

of the shift in migration patterns, the experiences of migrants, and the reactions of the native

population (Massey, 2008a; Zuniga & Hernandez-Leon, 2005). Analyses of the prospects facing

children of immigrants in these new destinations, rooted in a long-standing literature

documenting educational disparities between Hispanics and native-born whites, have reached

varying conclusions. Some studies raise concerns that discrimination and a lack of institutional

infrastructure will harm Hispanic students in new destinations (Hamann, 2003; Wainer, 2004;

Hamann, Wortham, & Murillo, 2002). Others have noted high educational aspirations and low

self-reported incidents of discrimination among youth in these areas (Valencia & Johnson, 2006; Perreira, Fuligni, & Potochnick, 2010). Our study contributes to the literature by reporting the results of a longitudinal analysis of the entire population of Hispanic students enrolled in 3rd grade in North Carolina during the 1998/99 school year. We examine their progress through school as measured by standardized test scores in reading and math, and as measured by persistence in school beyond the legal dropout age of 16.

Results show that Hispanic students who begin attending public school in North Carolina between prekindergarten and 3rd grade and remain through 8th grade post substantial gains in test scores and eliminate test score gaps with non-Hispanic whites conditional on basic indicators of socioeconomic status. Students arriving in 4th grade or later start further behind and do not fully converge to the non-Hispanic white mean; those who leave before 8th grade early also exhibit poor performance. The presence of these late arrivers and early exiters accounts for the difference in the positive finding we report here and the patterns that emerges from simpler cross-sectional analyses.

Among those students who enter North Carolina public schools between prekindergarten and 3rd grade, the risk of dropout for 16-year-olds, conditional on persisting in North Carolina schools until that age, is 54% higher for Latinos than for non-Hispanic whites. This disparity disappears and in fact favors Latinos once we control statistically for two student characteristics observed in third grade: participation in the Federal free and reduced price lunch program and a teacher-reported indicator of parent education.

Our results suggest that the performance of immigrant children in North Carolina is on par with, if not somewhat better than, that of immigrant youth in more traditional destinations. Moreover, the results are generally consistent with earlier findings that Hispanics, particularly

foreign-born or second-generation Hispanics, have educational outcomes equivalent to socioeconomically similar native-born whites. They also suggest that immigrant youth have the capacity to compensate for the lack of institutional resources in schools unaccustomed to their presence. We discuss these potential implications below.

Background and Framework

This section provides some basic background information on the shift in migration patterns toward new destinations in the 1990s. It then uses a basic developmental conceptual framework to introduce hypotheses regarding the impact of destination characteristics on the educational progress of immigrant youth, and places our North Carolina analysis in the context of previous studies of both Hispanic youth in the United States and foreign-born or second-generation youth more generally.

Migration to New Destinations, 1990-Present

Between 1970 and 2009, the number of foreign-born residents of the United States increased by a factor of four, from 9.6 million to 38.5 million, with immigration from Mexico and elsewhere in Latin America driving much of the increase. The number of Mexican-born residents of the United States tripled during the 1970s, then nearly doubled during the 1980s, and nearly doubled again during the 1990s. The annual growth rate of the Mexican-born population moderated during the most recent decade; at the pre-recession peak in 2007, 11.7 million Mexican-born individuals resided in the United States. They were joined by an additional 9.5 million immigrants born elsewhere in the Americas. Census statistics may actually understate the magnitude of this migration wave, to the extent that they undercount undocumented migrants.

As noted above, Latin American immigration to the United States has traditionally centered on a handful of states, with the vast majority settling in either California or Texas, and the remainder clustered largely in traditional destination states including Florida, New York, New Jersey and Illinois (Portes & Rumbout, 1996; Hirschman & Massey, 2008) . The post-1990 shift to "new destinations" reflects a variety of phenomena. Strong demand for low-wage, unskilled or semi-skilled labor across a number of industries, including agriculture, food processing, manufacturing, construction and the service sector, certainly plays a dominant role (Leach & Bean, 2008). In some cases, employers actively recruited immigrants to work in non-traditional destinations (Johnson-Webb, 2003). This demand, in turn, often reflected restructuring in underlying industries, particularly as firms relocated away from high-wage, high-unionization areas (Kandel & Parrado, 2005).   Beyond economic factors, changes in border enforcement policy may have disproportionately imposed barriers on pathways to traditional destinations (Massey & Capoferro, 2008). Finally, the establishment of immigrant social networks in new destinations enables the mobility of new waves of migrants, even if they are not directly employed by the industries that sparked the initial demand.

These broad forces resulted in profound demographic changes in the new destinations. The Hispanic share of North Carolina's population increased from 1% in 1990 to 4.7% in 2000, and then to 8.4% in the 2010 Census. In this most recent census, the 307,790 enumerated Hispanic children age 17 or younger comprised 13.5% of the entire age group statewide.

Hispanic immigrant youth in new destinations belong to more disadvantaged families than their counterparts in traditional destinations (Bauer et al., 2005; Durand et al., 2005). Table 1 provides basic summary statistics drawn from the American Community Survey, which provides a 3% sample of the U.S. population surveyed between 2006 and 2008. These statistics

employ sampling weights intended to address undercount concerns. To motivate our study of school-age children growing up in immigrant families, we report statistics for the subsample of households with at least one child between the ages of 6 and 17. For sake of brevity, we refer these units of observation as "families." Statistics are reported for the US as a whole, for "old" and "new" destination states, and specifically for North Carolina.

Even for non-Hispanic white and black families, educational attainment and earnings tend to be low in new destinations. Thus, the lower education levels and earnings reported by Hispanics in new destinations, and particularly by foreign-born Hispanics, are to some extent unsurprising. In fact, the low incomes they report exceed those of other racial or ethnic groups. Hispanic and black families, for example, have roughly comparable incomes in old destination states, but in new destinations Hispanic median family income is more than 20% higher than that of black families. In terms of educational attainment and linguistic isolation, the differences between Hispanic families in new and old destinations are slight.

Notably, Hispanic families in North Carolina appear significantly disadvantaged relative to those in either old destinations or the other new destination states. Statistics indicate that just over half these families have a high school-educated parent, that their median income falls short of the national median for Hispanic families by more than $7,000, and that more than one-third of them have no English-speaking adult at home. Some portion of this income difference may be offset by a cost of living difference; the median monthly rent for Hispanic families in North Carolina is $261 lower than the comparable national statistic. These rent savings are not sufficient to completely offset median income differences, and might also reflect differences in housing unit size or quality.

North Carolina's Hispanic families appear worse off than those in the rest of the nation in part because most of them are headed by foreign-born adults, as shown in Panel D of Table 1. Nationwide, Hispanic families with foreign-born parents are more disadvantaged by all measures considered here. In North Carolina, 79% of all Hispanic families include at least one parent born abroad. This is significantly higher than the 64.5% rate in old destination states, as well as the 60% rate in new destination states as a whole. There are relatively few native-born Hispanic adults in the state as a whole.

Even when we restrict attention to families with foreign-born adults, though, North Carolina's Hispanic families appear relatively disadvantaged. Relative to the national average for the group, adults in North Carolina's first-generation Hispanic families are 4.5 percentage points less likely to have completed high school, have a median income more than $5,000 lower, and are 13.4 percentage points less likely to count an English-speaker among their number.

Overall, then, the statistics reported in Table 1 suggest that children of Hispanic families in North Carolina are at elevated risk for low educational attainment. A number of contextual factors might also influence that risk, as discussed in the next section.

Theoretical Links between Destination and Development

The Garcia Coll et al. (1996) model of developmental outcomes in minority populations provides a useful starting point for thinking about the relationship between destination characteristics and the educational competency of immigrant youth. Its explicit accounting of ethnicity and attendant social stratification yields a distinct advantage over the Bronfenbrenner (1979) ecological model. As will become apparent, however, this basic framework supports a substantial range of predictions regarding the relative performance of immigrant youth in new destinations.

Figure 1 presents a stylized version of the Garcia Coll et al. (1996) model. The set of factors influencing the attainment of key developmental competencies can be roughly divided into two sets. The first set, represented in the uppermost box in the diagram, consist of child- and family-specific factors that do not vary across geographic space within a host country. These would include factors such as child race and gender, plus family background factors such as parent educational attainment and attitudes toward education, country of origin, and timing of migration to the host country. While most of these factors are pre-determined at the time of migration, the net impact of these factors on development might vary across location because these factors might moderate the impact of location-specific factors through processes of adaptation described below.

The second set of influential factors varies across locations. A child's developmental trajectory might vary across geographic space for many reasons. At the level of the family, adults' experiences differ across space. Labor market opportunities may be superior in some areas relative to others, whether measured by wages, working conditions, or flexibility. Proximity to relatives or co-ethnic neighbors may assist immigrant adults in managing their roles as employee and parent, which might reduce stress and improve parenting. Residence in a larger ethnic community also offers advantages related to economies of scale: large ethnic groups can support a wider array of specialized stores, services, and local publications (Waldfogel, 2003; George & Waldfogel, 2003).

Schools differ considerably across locations. Basic school characteristics such as funding per pupil, teacher qualifications, and peer background may affect the developmental trajectories of all students, regardless of ethnicity or nativity (Clotfelter, Ladd & Vigdor, 2005; in press). School practices such as tracking and grade retention have disproportionate adverse impacts on

Latino students (Fernandez. Paulsen, & Hirano-Nakanishi, 1989; National Center for Education Statistics [NCES], 1995). For children of immigrant families, particularly linguistically isolated ones, schools also differ in their capacity for and experience with providing education to culturally and linguistically distinct students. Students benefit from placement in classrooms with same-ethnicity teachers, and such pairings are unlikely in new destination settings (Dee 2004; Clotfelter, Ladd & Vigdor, 2010). Similarly, neighborhood-specific factors, ranging from exposure to crime and other stressors to the availability of health care, might affect developmental trajectories.

Finally, members of minority groups may encounter pervasive prejudice or discrimination in any of their interactions with the majority. The frequency and severity of these problematic encounters almost certainly varies across space. It is unclear whether prejudice should be more prevalent in old or new destinations (Massey, 2008b). The frequency of exposure to prejudice or discrimination may be reduced by de facto segregation in neighborhoods or schools, though this segregation could bring problems of its own.

The effects of these location-specific attributes on developmental outcomes may be moderated by adaptive behaviors on the part of the child or family. Parents may react to poor school quality by changing schools, or devoting more of their own time to their child's education. Adults may react to poor labor market experiences by switching jobs, or by moving to an entirely different city. These adaptations might mask causal relationships between location-specific characteristics and outcomes in some cases, and might create the illusion of such relationships in others. In either case, these adaptive processes threaten the internal validity of observed correlations between contextual variables and developmental outcomes.

The most basic adaptive process, represented by the arrow linking background characteristics to location-varying characteristics, is the migration decision itself. When selecting among potential destinations, adults have the capacity to gather information regarding the suitability of each destination for their own children's development (Sjaastad, 1962; Carrington et al., 1996). It is reasonable to think that parents will, other things equal, avoid choosing locations with great potential to harm their child's development. Those parents observed selecting potentially harmful destinations might systematically be those who can afford no better alternative, who lack information about potential harm, or who attach little value to their children's developmental outcomes (Vigdor, 2002; Edin et al., 2003; Damm, 2009a). Alternatively, parents who select potentially harmful destinations might systematically be those who are confidence of their own ability to adapt to or compensate for localized problems.

This framework suggests several keys to understanding the trajectories of Hispanic children in new destination states. First, new destinations may systematically attract migrants with different background characteristics compared to old destinations. Our analysis of American Community Survey data above suggests that selection patterns are subtle overall, but that migrants to North Carolina in particular appear disadvantaged along several dimensions. Second, many destination characteristics might affect development, and new and old destinations differ along a number of these dimensions. It is therefore difficult to predict the net effect of residence in a new destination. Third, families and children may adapt to new destinations in ways that could either augment or diminish their effects. To the extent that immigrant youth in new destinations are better or worse off than their peers in old destinations, it is difficult if not impossible to ascribe the difference to a "treatment" effect of destination given these adaptive processes. In sum, theory provides little guidance for predicting whether immigrant children in

new destinations will enjoy more or less academic success than their counterparts in older destinations.

A Brief Survey of Previous Empirical Literature

Hispanic achievement and attainment across generations

Numerous studies have documented significant test score gaps between Hispanic and non-Hispanic white students through the elementary and middle grades. Measured in terms of test score standard deviations, reported effect sizes range from 0.5 to 0.7 for math test scores and from 0.375 to 0.7 for reading test scores, using tests administered in the late elementary grades (Phillips & Chin, 2004; Reardon & Galindo, 2009). In line with this basic test score evidence, survey data shows that non-Hispanic whites perceive individuals of Hispanic ethnicity to comprise a low-intelligence group (Smith, 2001).

As already indicated in Table 1, Hispanic families are disadvantaged relative to non-Hispanic white families. One might hypothesize, then, that Hispanic youth begin their formal education in a position of relative disadvantage and might potentially improve their standing over time. Empirical evidence offers little support for this hypothesis. Although Reardon and Galindo (2009) provide evidence of a shrinking Hispanic-white gap between kindergarten and first grade, their own study and others provide little reason to believe the gap narrows after that. Phillips and Chin (2004), using cross-sectional NAEP data, calculate a gap in 8th grade that is about as large as it is for 4th graders. Similarly, Tienda and Mitchell (2006) report that the gap remains constant through elementary school, as Hispanic students suffer from disadvantageous home environments, teacher biases, and low motivation. They write (p. 85), "Weak relations with teachers diminish students' motivation to pursue academic work, and in turn lower teachers' expectations in a self-perpetuating cycle of academic disengagement and under-achievement.

One study tracking Latino students from age 9 to 14 found a dominant trajectory of declining relative performance (Suarez-Orosco, Bang, & Onaga, 2010). As Hispanic students progress through high school, they are less likely to live up to their previously stated educational aspirations (Kao & Tienda, 1998).

Despite little evidence of convergence in the mean educational trajectory of Hispanic and non-Hispanic white students as they progress from the elementary grades through high school, several studies have shown that Hispanic students' performance is similar to that of non-Hispanic white students with comparable background characteristics. After controlling for basic measures of a student's socioeconomic status, differences in achievement test scores of Hispanic and non-Hispanic white students are negligible (Kao & Thompson, 2003; Reardon & Galindo, 2009). Several studies document that Hispanic-white disparities in educational attainment disappear after conditioning on a small set of covariates (Cameron & Heckman, 2001; Perreira, Harris, & Lee, 2006; Lofstrom, 2007). Many of these covariates, however, are measured at age 14 or later, raising concerns that these results are tautological: in effect, they explain educational disparities in young adulthood as a function of educational disparities observed in adolescence.

This criticism of earlier longitudinal studies provides some motivation for the present study. Studies based on the National Longitudinal Survey of Youth (NLSY79 and NLSY97), the National Educational Longitudinal Survey (NELS:88) or the National Longitudinal Survey of Adolescent Health (AddHealth) are limited to observing educational outcomes measured at or after the first survey wave, which occurs between age 12 and 21 depending on the survey. Studies beginning at earlier ages, such as the ECLS-K, will require more survey waves before they can be used to study educational attainment. Our longitudinal data, described in greater

detail below, offer an opportunity to follow students from the age of 8 or 9 through their

expected year of high school graduation.

Two further empirical regularities bear mention in this brief review. Cross-sectional

studies typically demonstrate important differences across immigrant generations. Foreign-born

students, as well as students born to foreign-born parents, tend to perform better than native

students of the same ethnicity (Schwartz & Stiefel, 2006; Conger, Schwartz & Stiefel, 2007; Kao

& Tienda, 1995). Moreover, among foreign-born students of a given age, those who entered the

United States at an earlier point in time tend to perform better on standardized tests and are more

likely to graduate from high school (Perreira et al., 2006; Cortes, 2006; Stiefel, Schwartz, &

Conger, 2010). Both sets of findings are potentially important in the study of educational

outcomes among Hispanic youth in North Carolina. As shown in Table 1 above, these students

are considerably more likely to be foreign-born than the Hispanic population as a whole.

Experiences in new destinations

A number of studies have examined the experiences of immigrants in new destinations,

and of residents in their host communities. The subset of studies examining immigrants' children

and their experiences in host schools has identified a number of potential causes for concern.

Ethnographic studies have revealed social and economic barriers to Hispanic progress and school

administrators unprepared to address them (Hamann, Wortham, & Murillo, 2002; Hamann,

2003; Wainer, 2004). Segregation of Hispanic students within schools, in some cases

attributable to policy decisions and in others to social behaviors, are of particular concern (Crane,

2004; Wainer, 2004).

Although some studies provide more promising indicators, important caveats are

associated with each. Previous correlational studies have documented a negative association

between the Hispanic share of high school students and the Hispanic dropout rate (Rumberger 1995; Rumberger & Thomas 2000). These studies may confound student self-selection with concentration effects, and might not apply to comparisons of new and old destinations. Valencia and Johnson (2006) report high educational aspirations and infrequent self-reports of discrimination among 275 Hispanic secondary school students in North Carolina. Because subjects in the study were recruited to attend a day-long summit meeting, however, the sample may not be representative of the population.

Two studies of the integration of adults into new destination communities offer a fairly rosy perspective. Studstill and Neito-Studstill (2001) comment that the integration of immigrants into two Georgia counties was "almost too easy and too good to be true" (p.79). Marrow (2009), who conducted semi-structured interviews and ethnographic observation in eastern North Carolina, found that Hispanics considered barriers between themselves and the native white population to be relatively permeable, and reported occupying a social and economic rung higher than that occupied by native blacks. Both these studies refer to the adult population, however, and there is no guarantee that the integration of students in school will parallel that of adults in social and workplace settings.

Finally, Perreira, Fuligni, and Potochnick (2010) compare 9th grade Latino students in North Carolina and Los Angeles, to specifically address differences between youth in old and new destinations. Their study indicates a more complex picture. North Carolina youth report greater frequencies of negative ethnic treatment and express greater concerns regarding discrimination. At the same time, the North Carolina youth give higher ratings for the usefulness and intrinsic value of education. These differences are eliminated, and in some cases reversed, however, after the authors control for a small set of covariates. In particular, the North

Carolinian students' positive attitudes toward school are explained in large part by the higher prevalence of positive attitudes among first generation youth.

While the qualitative and quantitative evidence on immigrant children in new destinations highlights the negative potential impacts, a second more international strand of literature suggests that locating outside an established immigrant community can have beneficial impacts. Perhaps the most compelling evidence along these lines comes from Sweden, where the government for a period of several years adopted a refugee settlement policy that closely approximated random assignment. Immigrant children performed better in Swedish schools when initially assigned to locations with a lower proportion of immigrants in the population (Aslund, Edin, Fredriksson & Gronqvist, 2009). This result echoes a number of prior studies of adults, which document a negative association between immigrant density in a local area and labor market performance of immigrants – particularly among less-educated immigrants (Edin, Fredriksson, & Aslund, 2003; Cutler, Glaser & Vigdor, 2005; Cutler, Glaeser, & Vigdor, 2008; Damm, 2009b).

In summary, both theory and prior empirical evidence leave some degree of doubt regarding the expected differences in educational trajectories between youth in old and new destinations. We contribute to this literature with our empirical work below.

Methods

Study Population

Our study takes advantage of population-level data covering public school students in North Carolina, which one author has described as "the premier new destination state in the 1990s" (Marrow, 2009, p.6). North Carolina is a racially and socioeconomically heterogeneous state that had little prior history of receiving immigrants before 1990. As shown in Table 1

above, it is not representative of all new destination states, but does provide a useful test case in

the following sense. By most characteristics, Hispanic families in North Carolina are more

disadvantaged than those elsewhere in the United States. Evidence that children in these families

exhibit positive educational trajectories thus suggests that the potential for such trajectories to

take root in other new destination states is strong.

Using these administrative data, provided by the North Carolina Department of Public

Instruction, we are able to track the progress of hundreds of thousands of students belonging to

seven age cohorts from third grade through middle school. The earliest cohort attended third

grade in 1994/95, the latest in 2001/2002. For one cohort in particular – students who began

third grade in the 1999/2000 school year – we take advantage of additional data that permit

analysis of high school enrollment patterns. Because of the rapid growth of the state's Hispanic

population, we are able to observe in these data thousands of Hispanic students, 80% whom are

either foreign-born or children of immigrant parents, according to ACS data. Table 2 presents

summary statistics for this sample of 85,196 students, of whom 2,861 are Hispanic.

As noted above, our data span a range of ages – from 8 to 18 – that cannot be matched in

many other sources. We also benefit from a large sample size, and owing to the administrative

nature of the database concerns about selective attrition or non-response are minimal. At the

same time, there are important limitations to working with these data. First, the data are not of

our own design and we cannot observe certain important covariates, such as birthplace. Second,

there is attrition from the database owing to student departures from North Carolina public

schools. Student mobility is a significant risk factor for poor educational outcomes (Hanushek,

Kain, & Rivkin, 2004; Stiefel, Schwartz, & Conger, 2010), thus the absence of cross-state

movers from our analysis may lead us to overstate the positive slope of educational trajectories over time. We discuss limitations of the analysis in greater detail below.

Analyzing Test Score Trajectories

Our analysis of test scores through middle school seeks to determine the magnitude of test score gaps between Hispanics and non-Hispanic whites, and to trace the evolution of these gaps as students progress through school. We use scores from math and reading achievement tests designed and administered by the state of North Carolina to virtually all students at the end of every grade between 3 and 8. Following common practice, we normalize test scores so that each student's score is expressed as the number of standard deviation units above or below the state mean for non-Hispanic students. As the state's assessments are scored on a developmental scale, we measure individual students against others in their cohort even if they repeat a grade. Test score distributions are relatively symmetric and do not exhibit any truncation associated with ceiling or floor effects (Clotfelter et al., 2009).

We grouped students into cohorts based on the year we first observe them 3rd grade. For example, we selected all students who were in a public school in third grade and who remained in the state's public schools for six consecutive years. Using successive cohorts of students who took tests in 3rd grade and stayed in the public schools for the next five years (whether or not they were held back in any year), we calculated covariate-adjusted achievement gaps for four groups of nonwhite students, including Hispanics. These estimated gaps control for age, gender, free lunch status, parental education, urbanicity, and region in the state. Our parental education variable is teacher-reported and thus may be subject to measurement error. If teachers systematically underestimate parental education for Hispanic youth, we will over-correct for

educational differences between Hispanics and whites. If teachers make more random errors, the resulting attenuation bias will cause use to under-correct for educational differences.

In addition to studying students consistently observed for six years beginning in third grade, we present some results below that incorporate information on students first observed in fourth grade or later. These late-arriving students may have just entered the United States, may have moved to North Carolina from a different state, may have switched into public school at a late date, or may simply have not been tested in their third grade year. We are unable to distinguish the precise reason for late arrival. For these analyses, late-arrivers are included only if they continue to be observed consistently through what would ordinarily be their eighth grade year.

Analyzing Persistence Past the Legal Dropout Age

Our analysis of persistence in high school seeks to describe the behavior of Hispanic youth in North Carolina as they reach the dropout age of 16, and determine specifically how the risk of school departure among these adolescents compares to that of non-Hispanic white students with comparable initial characteristics.

Our data do not permit direct observation of dropout behavior. They indicate only whether an individual student has ceased to be enrolled in North Carolina's public school system, and thus do not distinguish dropouts from students who move out of state or switch to private schools. Rather than directly observing dropout rates, we infer them by taking advantage of the fact that all exit options aside from dropout are available to students of all ages, whereas legal dropout is permissible only after a student's sixteenth birthday. We thus attribute any increment to school departure rates associated with being older than 16 to dropout behavior. Figure 2, which uses data from our analysis cohort to plot the ratio of students exiting at the end

of a given school year to the total number of students observed in that year, shows a clear

increase in the likelihood of departure associated with progression from age 15 to age 16.

Our method for analyzing dropout behavior is derived from the epidemiological study of

survival time. Survival-time models, also referred to as hazard models, identify factors that

hasten or delay a terminal event. In their original context, the terminal event is death, which

explains the terminology used to describe them. In our context, the terminal event is exit from

our dataset. Our analysis examines whether student-specific factors, most importantly Hispanic

ethnicity, hasten or delay exit from the dataset, and whether the influence of these factors on

"survival" changes once students reach the age of legal dropout.

Hazard models begin with the specification of a "baseline hazard," or in our context the

average likelihood that an individual who has persisted to grade t continues to be enrolled in

grade $t+1$. Traditional hazard models force the baseline hazard to follow one of several basic

functional forms, which resemble density functions for common probability distributions.

Because our baseline hazard – which is effectively plotted in Figure 2 – is a somewhat unusual

shape, we adopt the Cox proportional hazard model, which imposes no restriction on the shape

of the baseline hazard but does require us to interpret the results of the model in a specific way.

We experimented with alternative estimation strategies that do impose restrictions and found no

fundamental change in our results or conclusions. Our model is estimated using discrete, rather

than continuous, time. Discrete-time hazard models must arbitrarily assign a rank order to events

observed to occur at the same time (e.g., two students dropping out after 10th grade). We use the

Efron method for tie-breaking.

The Cox proportional hazard model is a variation on a basic logit analysis of a

dichotomous dependent variable. The estimated equation is of the form:

$$\lambda \, (t_j) = \, \lambda_0 \, (t_j) \, e^{(X \beta \, + \, \mu)} \, ,$$

where $\lambda \, (t_j)$ is a dichotomous variable indicating whether a student observed at time t_j "survives"

through the next time period, conditional on having survived to time t_j in the first place. The

probability of surviving is modeled as the product of two factors: $\lambda_0 \, (t_j)$, the baseline hazard, akin

to a time-varying intercept term which is independent of all student covariates, and an expression

encompassing the impact of these covariates. In this expression, X is a matrix of variables

applying to the student, μ is an error term, and β is a vector of coefficients. A one-unit

increment to any student covariate augments or decrements the baseline hazard by an amount

determined by its corresponding coefficient. The effect of any covariate is therefore not constant

over time, but rather proportional to the baseline hazard at any given point in time. For example,

at age 15, when the baseline departure rate from our dataset is around 2%, a factor associated

with a doubling of the baseline hazard implies an increase to 4%. The same factor applied to

students at age 17, when the baseline departure rate is closer to 6%, implies an increase to 12%.

To test the hypothesis that racial or ethnic differences in departure rates change at the

legal dropout age we add interaction terms between ethnicity and a dichotomous indicator for

whether a student is age 16 or older.

Results

Reading and Math Performance

Figure 3 presents regression-adjusted mean test score gaps relative to whites, by race and

ethnicity, for students in any of six age cohorts observed continuously for six years beginning in

third grade. The regression adjustment ensures that we are comparing test scores for students

with identical free or reduced price lunch participation and parent education as of grade 3 but

different race or ethnicity. Hispanic students exhibit substantial test score gaps in the early

grades, but these gaps shrink, disappear, and reverse themselves after fifth grade. By contrast, in both reading and math, the covariate-adjusted black-white test score gap remains at about half a standard deviation through all the observed grades. This perspective reveals that conditional on remaining enrolled in school in North Carolina, the average Hispanic student makes steady progress grade by grade relative to white students with identical background characteristics. The covariate-adjusted reading performance of Hispanic students in North Carolina closely tracks that of Asians, the highest-performing group on both sets of exams.

These results contrast with those of earlier studies, which report steady or increasing Hispanic-white test score gaps across similar age ranges. While some of the contrast may reflect differential trends in North Carolina schools relative to nationally representative samples, three other factors also play a role. First, adjusting for student socioeconomic status makes an important difference. Figure 4 presents estimated test score gaps that are not adjusted. The top line in each panel represents the same set of Hispanic students depicted in Figure 3. In Figure 3, which compares these students to socioeconomically similar white students, the Hispanic-white gap improves by roughly 0.2 standard deviations between 3rd and 8th grade. In Figure 4, which compares the same group to all whites, the improvement is less dramatic – closer to 0.1 standard deviations.

The second and third factors relate to our sample selection criteria. Students who appear in our dataset for the first time after third grade post significantly lower reading and math test scores. Figure 4 presents mean test scores for Hispanic students arriving in years after 3rd grade, so long as they persist through 8th grade. Just as earlier studies have reported lower performance among later-arriving immigrants, Hispanic students entering our dataset in later grades post lower test scores at any given point in time. Moreover, the test scores of the students who first

appear in North Carolina schools after third grade improve over time, but show no signs of converging to the mean for the students who arrived in third grade or before.

To be fair, late-arriving students of other races and ethnicities also exhibit lower test scores. The observed disadvantage for late-arriving white students, however, is less than half that shown here for Hispanics. It is reasonable to conclude that the poor performance of late-arriving students reflects the difficulties newly arrived immigrant children face in adapting to host country schools. Although the administrative data do not provide information on previous residence for newly arrived students, 2006-2008 American Community Survey data indicate that about one-third of 6-17 year-old Hispanic children moving to North Carolina in a typical year are newly arrived immigrants.

The other element of sample selection, which is not directly visible in Figure 4, is the systematic exclusion of early-departing children. Students destined to exit the dataset before their sixth year of observation perform poorly on standardized tests: relative to 3rd graders observed for sixth consecutive years, 3rd grade Hispanics who depart early score just over 0.1 standard deviations lower on their standardized math tests. Moreover, early-departing Hispanic children observed in both 3rd and 4th grade exhibit a decline in average test scores, losing nearly 0.2 standard deviations in math. By comparison, Hispanic students who persist in North Carolina schools post small gains between 3rd and 4th grade. Early departing Hispanic students typically comprise about one-quarter of the cohort first observed in third grade, so factoring in their performance noticeably changes both the initial placement and slope of the test score trend.

The dashed trend lines in Figure 4 present the net effect of incorporating early departing and late arriving students into the longitudinal sample so that it includes all students. The gradual positive trends exhibited in our analysis sample contrast with the gradual negative trends

in the overall sample. Overall, then, our analysis both supports general conclusions in existing literature and offers some important new insights. The Hispanic-white test score gap, measured using all available students, is slightly wider among North Carolina 8th graders than it is among 3rd graders. Restricting attention to the three-quarters of the Hispanic population who persist in the state's public schools for six years, however, we observe steady progress and complete convergence with, followed by overtaking of, socioeconomically similar whites. By this analysis, persistent residence in a new destination state does not appear to have a negative effect on student performance and progress through middle school.

Persistence in High School Past the Legal Dropout Age

Table 5 presents hazard ratios derived from Cox proportional hazard models of student persistence, estimated using the cohort of students observed as third graders in the 1999/2000 school year. Hazard ratios are interpreted analogously to odds ratios; values greater than one associate with factors that accelerate departure, while values less than one associate with factors that reduce the likelihood of exit from the sample.

Each model presented here incorporates interaction terms between baseline student characteristics and an indicator for whether a student is at least sixteen years old in a given time period. Hazard ratios on the non-interacted terms indicate the association between student characteristics and departure rate prior to age sixteen. To determine differential departure rates after age 16, it is necessary to multiply the hazard ratio for the interaction term by the ratio for the associated characteristic.

The first estimated model illustrates that prior to age 16, female and black students have lower departure rates than male or white students, respectively. Hispanic students are significantly more likely to depart at an early age, a pattern clearly visible in Figure 2 above.

Bearing in mind that the Cox proportional hazard model identifies factors that explain departure rates at a common point in time, students who reach the age of 16 are nearly twice as likely to exit the sample as students observed in the same calendar year who have not yet turned 16. The interaction terms reveal that the age 16 effect is slightly smaller for females relative to males, about 30% larger for blacks relative to whites, and almost identical for Hispanics and whites. The product of the "Hispanic" and "Sixteen times Hispanic" hazard ratios is about 1.5, indicating that the Hispanic dropout rate is 50 percent higher than that of white students.

We next examine whether Hispanic-white disparities in dropout rates persist when comparisons are restricted to students with similar third grade characteristics. Equation (2) adds two measures of third-grade social and economic status that we expect to be associated with dropout and educational attainment: eligibility for free or reduced price lunch and parental education. Our measure of parental education is a dichotomous variable indicating whether the student's most educated parent was a high school graduate. Separate indicators are included to identify the relatively small number of students, between 1 and 10% of the sample conditional on ethnicity, for whom information on either measure was missing. Interactions between all these variables and age 16+ are also included, to capture the elevated dropout risk associated with either third grade indicator.

Controlling for these two SES measures reverses the sign of the Hispanic-white dropout gap. The hazard ratios now indicate that the risk of dropout for Hispanic youth is 28% lower than for whites with equivalent parental education and free or reduced price lunch participation as reported in third grade. A similar reversal of the black-white dropout gap occurs in this model. Controls for SES, which reveal that lower-income families of all races and ethnicities exhibit greater mobility, also reduce the magnitude of the elevated Hispanic departure rate at

ages younger than 16. Additional unreported models introducing controls for 3rd grade test

scores, age at initial observation, and whether a student experiences grade retention at any point,

along with interactions of these factors with the age sixteen indicator, reveal results consistent

with obvious predictions. Students are more likely to drop out at age 16 if their initial test scores

are low, if they were old-for-grade at first observation, or if they are ever retained. Introducing

these controls has only a slight impact on the interaction between Hispanic and age sixteen

indicators; Hispanics continue to exhibit a lower rate of dropout relative to observationally

similar whites.

Discussion and Conclusion

The children of Hispanic immigrants to "new destinations" may be at elevated risk for

poor educational outcomes because of their poor family background, because they attend schools

poorly equipped to teach them, or because other aspects of their settings negatively affect their

development. Consistent with earlier literature, we have documented that immigrant families

who select new destinations are disadvantaged relative to those who select old destinations. This

disadvantage does indeed predispose them to poorer test score performance and higher high

school dropout rates.

Yet, our analysis of the population of public school students in North Carolina also shows

that Hispanic students in this "new destination" state are performing well relative to peers of

comparable socioeconomic status, so long as they remain in the state for a significant length of

time. To a first approximation, then, Hispanic youth in North Carolina appear to follow old

trajectories, exhibiting patterns found in earlier studies of first- and second-generation Hispanic

immigrants in more traditional destinations or nationally representative samples. Referring to

our conceptual framework in Figure 1, we have found evidence of a link between background

characteristics and destination choice, and observe consequences of this selective migration pattern in educational outcomes. We have not, however, uncovered convincing evidence that characteristics of the new destination itself, net of any adaptive processes, significantly harm Hispanic students.

Hispanic students who remain in the state for a period of six years starting in grade 3 close and reverse the achievement gap with socioeconomically similar whites, and conditional on remaining through age 16 are significantly less likely to drop out. This latter finding is consistent with other studies of the dropout behavior of Hispanics in nationally representative samples or in studies of traditional immigrant gateways.

In fact, our study provides even more compelling evidence of the relative success of Hispanics in high school because we measure baseline characteristics at an earlier age: 8 or 9 rather than between 12 and 21. Studies using longitudinal samples beginning at later ages can explain differences in outcomes as a function of baseline characteristics in adolescence, but cannot rule out the possibility that those baseline characteristics are themselves the product of processes that widen educational gaps between early childhood and early adolescence. Coupled with previous evidence documenting stable Hispanic-white test score gaps in the early elementary years, our study bolsters the case against this possibility.

As in prior studies, we find that mobility is a significant risk factor for students; indeed the worst-performing Hispanic students in North Carolina public schools are those who have spent the least time in the state's school system.

Two important caveats apply to this study. The apparent success of Hispanic students relative to similarly disadvantaged white students as they progress through North Carolina schools may be an artifact of their generational status: approximately 80% of school-age

Hispanic children in North Carolina were either born abroad or born in the U.S. to foreign-born parents. The tendency for first- and second-generation students to outperform those in the third generation, and to exceed the performance of socioeconomically similar native whites, is well-established in cross-sectional data (Schwartz and Stiefel, 2006; Conger 2010; Perreira et al. 2006). Because our administrative data lack nativity information, however, we cannot test for generational differences. It therefore remains possible that later generations of Hispanic children in new destination states including North Carolina could exhibit more problematic educational trajectories than those we have found here. We have no option here but to leave this analysis to future research.

A second important caveat associated with our analysis concerns sample selection. By necessity, we focus our attention on students who remain in North Carolina public schools for an extended period of time. Because students who enter the state's public schools at an advanced age, or depart while young, are clearly at high risk for poor educational outcomes, we cannot generalize our findings to all Hispanics.

Thus, our study demonstrates that the Hispanic immigrant population of greatest developmental concern is not best described as the group found in new destination states. Rather, the group at greatest risk consists of those youth who experience high rates of mobility during their years of primary and secondary schooling. It is not clear whether this risk stems from mobility behavior itself or self-selection of families into the high-mobility group, but the needs and problems of this group certainly warrant further study.

References

Aslund, O., Edin, P.A., Fredrikkson,P. & Gronqvist, H. (2009). Peers, neighborhoods and

    immigrant student achievement: Evidence from a placement policy. Unpublished

    manuscript. IZA Discussion Paper #4521.

Bauer, T.K., Epstein, G.S., & Gang, I.N. (2005). Enclaves, language, and the location choice of

    migrants. *Journal of Population Economics, 18*, 649-662.

Bronfenbrenner, U. (1979). Toward an experimental ecology of human development. *American

    Psychologist, 32,* 513-531.

Cameron, S.V. & Heckman, J.J. (2001). The dynamics of educational attainment for black,

    Hispanic, and white males." *Journal of Political Economy, 109,* 455-499.

Carrington, W.J., Detragiache, E., & Vishwanath,T. (2006). Migration with endogenous moving

    costs. *American Economic Review, 86,* 909-930.

Clotfelter, C.T., Ladd, H.F., & Vigdor, J.L. (in press). Teacher mobility, school segregation, and

    pay-based policies to level the playing field. *Education Finance and Policy.*

Clotfelter, C.T., Ladd, H.F., & Vigdor, J.L. (2010). Teacher credentials and student achievement

    in high school: A cross-subject analysis with student fixed effects. *Journal of Human

    Resources, 45,* 655-68.

Clotfelter, C.T., Ladd, H.F., & Vigdor, J.L. (2009). The academic achievement gap in grades 3 to

    8. *Review of Economics and Statistics, 91,* 420-431.

Clotfelter, C.T., Ladd, H.F., and Vigdor, J.L. (2005). Who teaches whom? Race and the

    distribution of novice teachers. *Economics of Education Review, 24,* 377-392.

Conger, D. (2010). Immigrant peers in school and human capital development. Unpublished

    manuscript.

Conger, D., Schwartz, A.E., & Stiefel, L. (2007). Immigrant and native-born differences in

      school stability and special education: Evidence from New York City. *International*

      Migration Review, 41, 402-431.

Cortes, K.E. (2006). The effects of age at arrival and enclave schools on the academic

      performance of immigrant children. *Economics of Education Review, 25,* 121-132.

Crane, K.R. (2004). Mexicans, Americans, and Neither: Students at Wheelerton High. In S.

      Mallard and J. Chapa (Eds.), *Apple Pie and Enchiladas: Latino Newcomers in the Rural*

      Midwest (pp.149-168)*.* University of Texas Press.

Cutler, D.M., Glaeser, E.L. & Vigdor, J.L. (2005). Ghettos and the transmission of ethnic

      capital." In G.C. Loury, T. Modood, & S.M. Teles (Eds.), *Ethnicity, Social Mobility and*

      Public Policy: Comparing the USA and UK (pp.204-221). Cambridge, UK: Cambridge

      University Press.

Cutler, D.M., Glaeser, E.L., and Vigdor, J.L. (2008). When are ghettos bad? Lessons from

      immigrant segregation in the United States. *Journal of Urban Economics, 63,* 759-774.

Damm, A.P. (2009a). Determinants of recent immigrants' location choices: Quasi-experimental

      evidence. *Journal of Population Economics, 22,* 145-174.

Damm, A.P. (2009b). Ethnic enclaves and immigrant labor market outcomes: Quasi-

      experimental evidence. *Journal of Labor Economics, 27,* 281-314.

Dee, T.S. (2004). Teachers, race, and student achievement in a randomized experiment. *Review*

      of Economics and Statistics, 86, 195-210.

Durand, J., Massey, D.S., and Capoferro, C. (2005). The new geography of Mexican

      immigration. In V. Zuniga & R. Hernandez-Leon, (Eds.), *New Destinations: Mexican*

      Immigration in the United States (pp.1-20). New York: Russell Sage Foundation.

Edin, P.A., Fredriksson, P., & Aslund, O. (2003). Ethnic enclaves and the economic success of

immigrants: Evidence from a natural experiment. *Quarterly Journal of Economics, 118,*

329-357.

Fernandez, R.M., Paulsen, R. & Hirano-Nakanishi, M. (1989). Dropping out among Hispanic

youth. *Social Science Research, 18,* 21-52.

Garcia Coll, C.G., Laberty, J., McAdoo, H.P., Crnic, K., Wasik, J., & Gacria, V.H. (1996) An

integrative model for the study of developmental competencies in minority children.

Child Development 67, 1891-1914.

George, L. & Waldfogel, J. (2003). Who affects whom in daily newspaper markets? *Journal of*

Political Economy, 111, 765-784.

Hamann, E.T. (2003). *The Educational Welcome of Latinos in the New South*. Santa Barbara,

CA: Praeger.

Hamann, E.T., Wortham, S., & Murillo, E.G., Jr. (2002). Education and policy in the new Latino

diaspora. In S. Wortham, E.G. Murillo, Jr., & E.T. Hamann (Eds.), *Education in the*

New Latino Diaspora: Policy and the Politics of Identity (pp.1-16).Westport, CT: Ablex

Publishing.

Hanushek, E.A., Kain, J.F., & Rivkin, S.G. (2004). Disruption versus Tiebout improvement: the

costs and benefits of switching schools. *Journal of Public Economics, 88,* 1721-1746.

Hirschman, C. & Massey, D.S. (2008). Places and peoples: The new American mosaic. In D.S.

Massey (Ed.), *New Faces in New Places: The Changing Geography of American*

Immigration (pp.1-22). New York: Russell Sage Foundation.

Johnson-Webb, K. 2003. *Recruiting Hispanic Labor: Immigrants in Non-Traditional Areas*. New

York: LFB Scholarly Publishing.

Kandel, W. and Parrado, E.A. (2005) Restructuring of the US meat processing industry and new

      Hispanic migrant destinations. *Population and Development Review, 31,* 447-472.

Kao, G. and Thompson, J.S. (2003). Racial and ethnic stratification in educational achievement

      and attainment. *Annual Review of Sociology*, *29,* 417-442.

Kao, G. & Tienda, M. (1998). Educational aspirations of minority youth. *American Journal of*

      Education, 106, 349-384.

Leach, M.A. & Bean, F.D. (2008). The structure and dynamics of Mexican migration to new

      destinations in the United States. In D.S. Massey (Ed.), *New Faces in New Places: The*

      Changing Geography of American Immigration (pp.51-74). New York: Russell Sage

      Foundation.

Lofstrom, M. (2007) "Why Are Hispanic and African-American Dropout Rates so High?" *The*

      Williams Review, 2, 91-121.

Marrow, H. (2009). New immigrant destinations and the American colour line. *Ethnic and racial*

      studies, 32(6), 1037-1057

Massey, D.S. (Ed.). (2008a) *New Faces in New Places: The Changing Geography of American*

      Immigration. New York: Russell Sage Foundation.

Massey, D.S. (2008b) Assimilation in a new geography. In D.S. Massey (Ed.), *New Faces in*

      New Places: The Changing Geography of American Immigration (pp.343-354). New

      York: Russell Sage Foundation.

Massey, D.S. and Capoferro,C. (2008) The geographic diversification of American

      immigration." In D.S. Massey (Ed.), *New Faces in New Places: The Changing*

      Geography of American Immigration (pp.25-50). New York: Russell Sage Foundation.

National Center for Education Statistics (1995) *Trends Among High School Seniors, 1972-1992*.

> Washington: U.S. Government Printing Office.

Perreira, K., Fuligni, A., & Potochnick, S. (2010). Fitting in: The Roles of Social Acceptance and

> Discrimination in Shaping the Academic Motivations of Latino Youth in the U.S.

> Southeast. *Journal of Social Issues*, *66,* 131-153.

Perreira, K., Harris, K.M., & Lee, D. (2006). Making it in America: High school completion of

> immigrant and native youth. *Demography, 43,* 511-536.

Phillips, M. & Chin, T. (2004). School inequality: What do we know? in K. Neckerman (Ed.),

> *Social Inequality* (pp.467-520)*.* New York: Russell Sage Foundation.

Portes, A. & Rumbaut, R. (1996). *Immigrant America: A Portrait*. Berkeley: University of

> California Press.

Reardon, S.F. & Galindo, C. (2009) The Hispanic-white achievement gap in math and reading in

> the elementary grades. *American Educational Research Journal, 46,* 853-891.

Rumberger, R.W. (1995) Dropping out of middle school: A multilevel analysis of students and

> schools. *American Educational Research Journal, 32,* 583-625.

Rumberger, R.W. & Thomas, S.L. (2000). The distribution of dropout and turnover rates among

> urban and suburban high schools. *Sociology of Education, 73,* 39-67.

Schwartz, A.E., & Stiefel, L. (2006). Is there a nativity gap? New evidence on the academic

> performance of immigrant students. *Education Finance and Policy, 1,* 17-49.

Sjaastad, L.A. (1962). The costs and returns of human migration. *Journal of Political Economy,*

> *70,* 80-93.

Smith,T.W. (2001). Intergroup relations in a diverse society: Data from the 2000 General Social

> Survey. GSS Topical Report #32.

Stiefel, L., Schwartz, A.E., & Conger, D. (2010). Age of entry and the high school performance

of immigrant youth. *Journal of Urban Economics, 67,* 303-314.

Studstill, J. and Neito-Studstill, L. (2001). Hospitality and hostility: Latin immigrants in southern

Georgia. In A.D. Murphy, C. Blanchard, & J.A. Hill (Eds.), *Latino Workers in the*

Contemporary South (pp.68-81). Athens, GA: The University of Georgia Press.

Suarez-Orosco, C., Bang, H.J. & Onaga, M. (2010). Contributions to variations in academic

trajectories amongst recent immigrant youth." *International Journal of Behavioral*

Development doi:10.1177/0165025409360304

Tienda, M. & Mitchell, F. (Eds.). (2006). *Multiple Origins, Uncertain Destinies.* Washington:

National Research Council.

Valencia, E.Y & Johnson, V. (2006). Latino students in North Carolina: Acculturation,

perceptions of school environment, and academic aspirations. *Hispanic Journal of*

Behavioral Sciences, 28, 350-367.

Vigdor, J.L. (2002). Locations, outcomes, and selective migration. *Review of Economics and*

Statistics, 84, 751-755.

Wainer, A. (2004) *The New Latino South and the Challenge to Public Education: Strategies for*

Educators and Policymakers in Emerging Immigrant Communities. University of

Southern California: Thomás Rivera Policy Institute.

Waldfogel, J. (2003). Preference externalities: An empirical study of who benefits whom in

differentiated product markets. *RAND Journal of Economics, 34,* 557-568.

Zuniga, V. & Hernandez-Leon, R. (Eds.) (2005). *New Destinations: Mexican Immigration in the*

United States. New York: Russell Sage Foundation.

Table 1

Relative Disadvantage of Hispanic Immigrant Families in New Destinations, 2006-2008

Panel	Variable	Group	US	Old Destination States	New Destination States	NC
A	Proportion with at least one high school graduate parent	Non-Hispanic White	92.3%	93.3%	91.5%***	91.0%
		Non-Hispanic Black	78.7%	79.6%	78.0%***	80.1%***
		Hispanic Overall	63.4%	63.4%	63.6%***	52.7%***
		1st Gen Hispanic Parents	57.5%	57.8%	56.4%***	48.3%***
B	Median Household Income[a]	Non-Hispanic White	$75,000 (21)	$85,223 (38)	$69,412 (23)	$68,500 (108)
		Non-Hispanic Black	$38,000 (23)	$43,614 (37)	$33,700 (27)	$35,000 (91)
		Hispanic Overall	$43,783 (22)	$44,652 (25)	$41,537 (47)	$36,137 (171)
		1st Gen Hispanic Parents	$39,512 (21)	$40,152 (24)	$36,308 (45)	$34,268 (151)
C	Proportion with no English-speaking adults in household	Non-Hispanic White	0.7%	1.0%	0.4%***	0.2%
		Non-Hispanic Black	1.1%	1.7%	0.5%***	0.4%**
		Hispanic Overall	20.3%	20.2%	20.7%**	33.9%***
		1st Gen Hispanic Parents	23.9%	23.6%	25.3%***	37.3%***
D	Generational status of Hispanic youth	Foreign born (but not to US citizen parents)	15.1%	14.1%	19.4%***	30.9%***
		Born in the US to foreign born parents	48.4%	50.4%	40.6%***	48.3%***
		Born in the US to US-born parents, or born abroad to US parents	36.5%	35.6%	40.1%***	20.8%***

Note. Calculated by the authors using data from the 2006-2008 moving sample of the American Community Survey. Sample consists of adults residing with own children age 6-17. Significance tests are for two-sample tests of equality comparing a statistic in one column to the statistic reported to its immediate left. Significance tests not reported for two-sample differences in medians.
[a]Standard errors in parentheses.
* $p<.10$. ** $p<..05$. *** $p<.01$.

Table 2

Summary statistics for cohort entering 3rd grade in 1999/2000

Variable	Sample proportion
Female	0.494
Black	0.305
Hispanic	0.029
At least one parent a high school graduate	0.894
Eligible for free or reduced price lunch	0.390
Missing parent education data	0.007
Missing free/reduced lunch data	0.079

Note. N=85,196, except where reduced by missing data

Table 3

Hazard ratios, Cox proportional hazard models of exit from NC public schools

Variable	(1)	(2)
Female	0.869***	0.868***
Black	0.883***	0.749***
Hispanic	1.554***	1.233***
Sixteen	1.869***	2.120***
Sixteen*Female	0.943**	0.932***
Sixteen*Black	1.302***	0.932**
Sixteen*Hispanic	0.989	0.585***
At least one parent graduated from HS (3rd grade)		0.808***
Parent HS graduate*Sixteen		0.630***
Parents Education Data Missing		1.119
Parents Education Data Missing*Sixteen		0.549***
Free/Reduced Lunch Participant (3rd grade)		1.362***
Free/Reduced Lunch Participant*Sixteen		1.848***
Free/Reduced Lunch Data Missing		1.027
Free/Reduced Lunch Data Missing*Sixteen		1.212***
Number of subjects at risk	85,196	85,196
Cumulative time at risk	708,578	708,578

Note. Significance tests are for the null hypothesis that the hazard ratio equals one.
* p<.1. ** p<.05. *** p<.01.

Location-invariant background factors
- Social position/parent education
- Family origin
- Child's birth location, age at entry
- Child's race
- Child's gender

Factors that vary by destination
- Racism/xenophobia
- Formal or informal discrimination
- Residential or economic segregation
- School environments:
  o Peer characteristics
  o Formal resources for language minorities
  o Funding levels
  o Teacher experience in working with immigrant youth
- Neighborhood environments
- Quality of health care

Adaptations and Moderating Factors
- Residential mobility within metropolitan region
- School choice
- Family contributions to formal education
- Reliance on ethnic networks
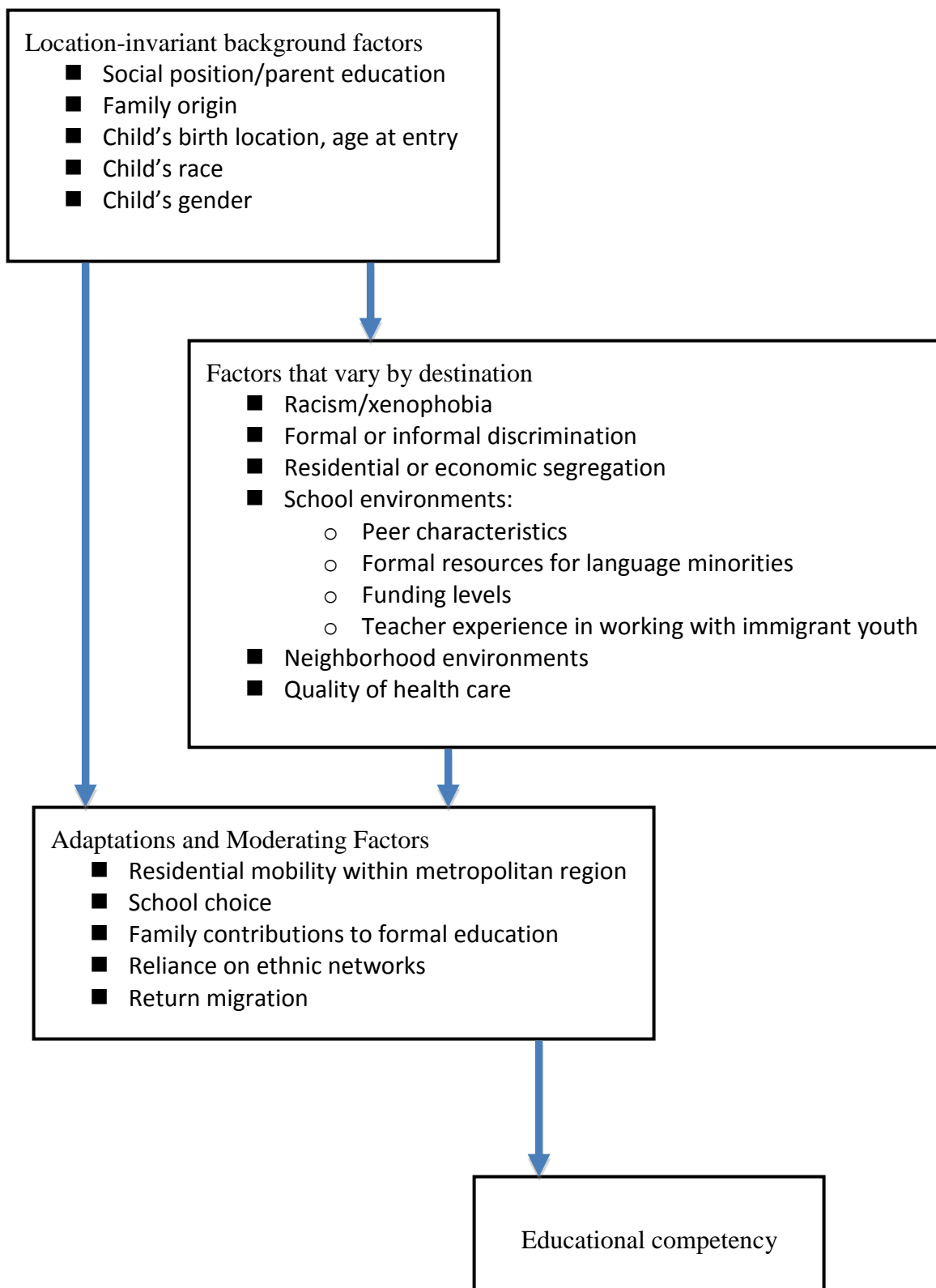- Return migration

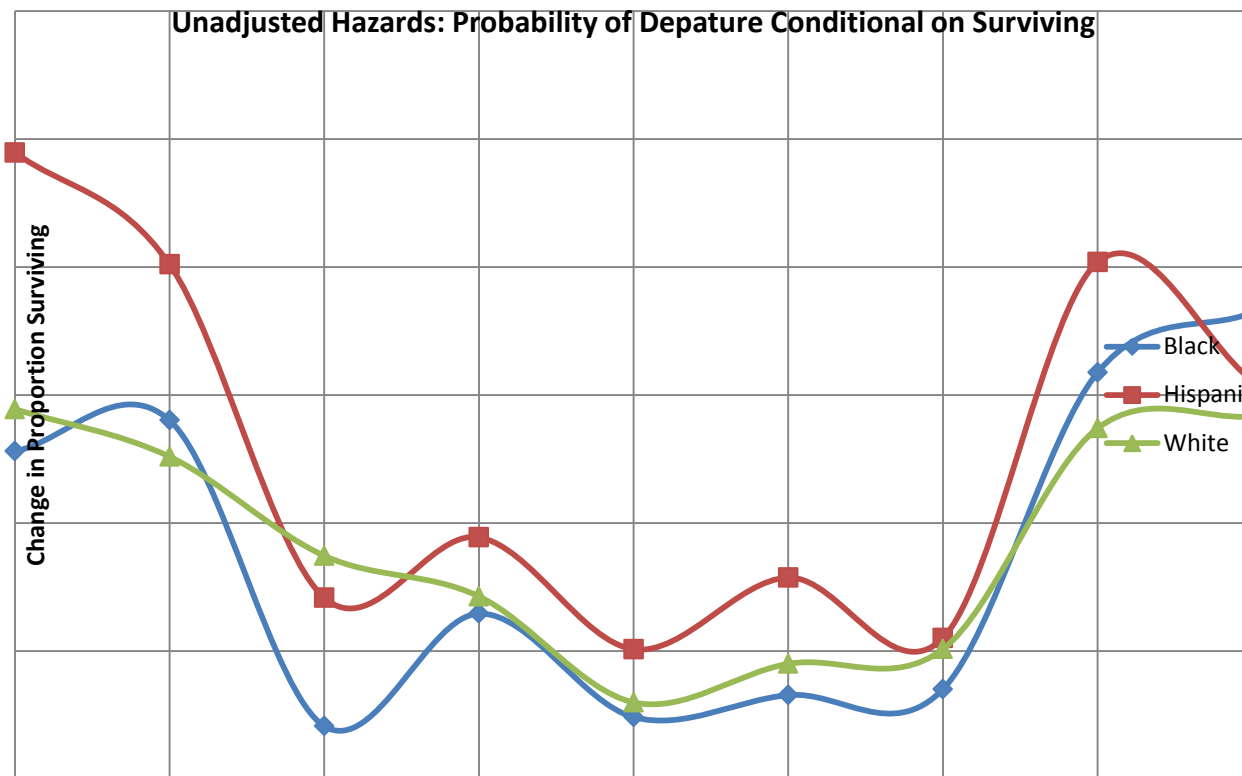Educational competency

Figure 1. Conceptual framework.

Figure 2. Unadjusted departure rates, white, black and Hispanic students
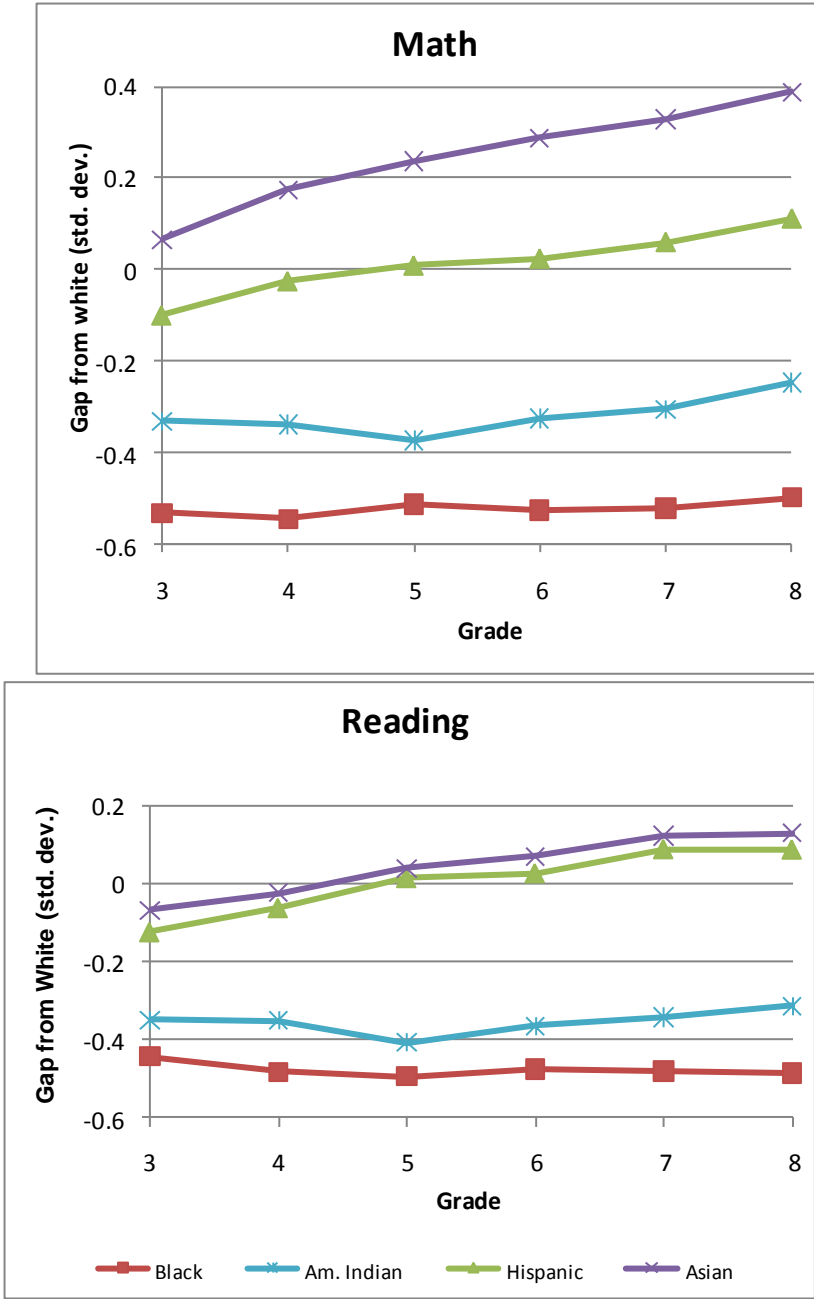
Figure 3. Adjusted racial achievement gaps, math and reading, by grade, 1995-1999
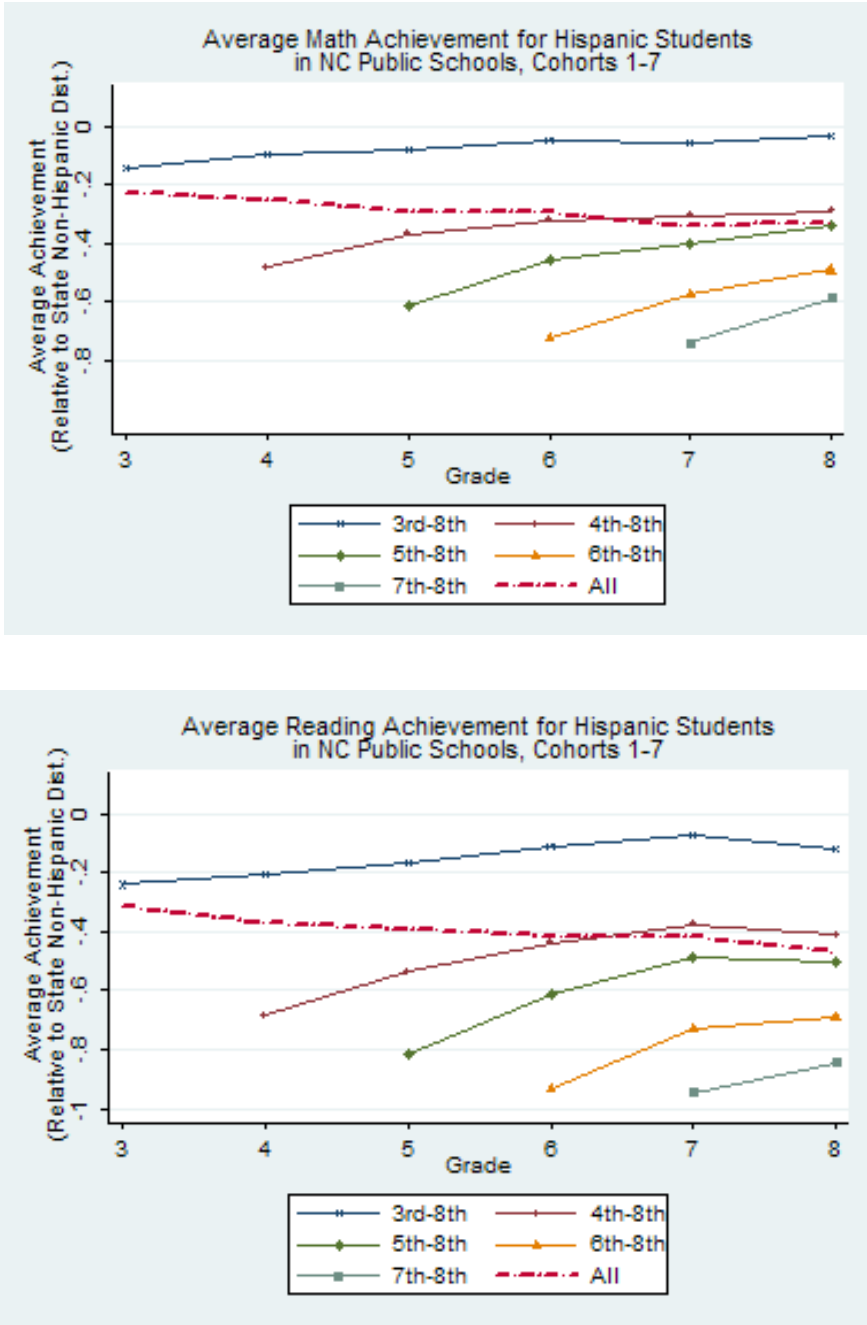
Figure 4. Average Hispanic achievement, math and reading, variously defined intact cohorts.