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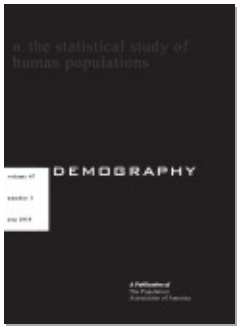

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THE ACADEMIC TRAJECTORIES OF IMMIGRANT YOUTHS: ANALYSIS WITHIN AND ACROSS COHORTS*

JENNIFER E. GLICK AND MICHAEL J. WHITE

Two nationally representative cohorts—from the National Educational Longitudinal Study (NELS) and High School and Beyond (HSB)—were used to examine the effects of generation and duration of residence on students' performance on standardized tests over a two-year period. In multivariate models, generational status predicts variation in students' performance on baseline (sophomore) tests, with effects stronger for the later age cohort (NELS) than for the earlier age cohort (HSB). With regard to the trajectory of achievement, generational status has a greatly reduced role for both cohorts. The best predictors of the trajectory of achievement are not those that are based on nativity per se, but those that reflect the social environment experienced in the United States (i.e., ethnicity and family's socioeconomic status).

As it did approximately 100 years ago, immigration is reshaping the composition of the American population. As of 2000, about one tenth of Americans (10.4%) were born abroad, and about another tenth were in the second generation, having one or both parents who were born abroad (U.S. Census Bureau 2001). This evolution in demographic composition once again places into relief issues of the adaptation of immigrants and their immediate descendants. Just as debates arose a century ago, questions now arise as to the rate of adjustment and the pattern of accommodation of the immigrants and the host society (Alba and Nee 1997). Given that the population of foreign stock (the first plus the second generation) has been rising for several decades and promises to continue to do so as current immigrants have children, issues surrounding adjustment become all the more pertinent to discussions of immigration policy.

Recent cross-sectional comparisons have pointed to immigrants' inferior socioeconomic positions. For instance, compared with natives, immigrants (on average) exhibit lower levels of school attainment, lower personal income, higher levels of poverty, and so on. It has also been argued that immigrants of more recent vintage are even more disadvantaged (or are falling further behind natives) than were earlier arrivals (Borjas 1999; Camarota 2001). Yet another complication is the extraordinary internal diversity of the flow of immigrants. While the foreign born may be less educated, on average, than U.S. natives, recent flows of immigrants have been distributed more toward the extremes than has the native population. Whereas 13.4% of natives (aged 25 and older) lack a high school education, 33.0% of recent immigrants (who immigrated within the past 10 years) have not completed high school. By contrast, about one quarter of both the native and foreign-born populations have bachelor's degrees or higher (U.S. Census Bureau 2001). It is important, then, that demographic analyses sort out the role that composition plays in these comparisons, which is all the more difficult because some traits (e.g., ethnicity and language) are closely intertwined with immigration. It is also important that cross-sectional analyses be

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supplemented with longitudinal analyses so that the portrait of adjustment within and across generations can be adequately painted. School is the first major formal organization that children encounter on their own and, of course, is a major conduit in the U.S. stratification system. Therefore, one of the most revealing settings in which to view the relative success or failure of newcomers and their children is school. Approximately 20% of all school-age children in the United States have at least one foreign-born parent (Jamieson, Curry, and Martinez 2001). In this article, we exploit the richness of contemporary data on school achievement to provide insights into the adaptation of immigrant children, the second generation, and their peers from the third and higher-order generations. Our approach to immigrants' educational attainment is guided by contemporary discussions of policies on immigration and immigrants in the United States. Our goal is to provide a greater understanding of how immigrant and second-generation youths progress through this key institution.

To shed light on attainment throughout the life cycle, our study took into account both the timing of exposure to U.S. schools and the subsequent trajectories that students trace within school. In other words, we not only examined the relative position of immigrants and U.S.-born youths on an academic outcome but also sought to gain a greater understanding of how generational status may influence the direction of academic progress. Toward this end, we relied on an overarching conceptual framework that distinguishes strongly between "baseline" and "trajectory." By baseline, we mean the relative position of persons in cross-sectional analyses: both adjusted and unadjusted portraits of the relative position of students according to their socioeconomic backgrounds, immigrant status, ethnicity, and the like. Our first task was to determine if generational status has a consistent effect on high school students' performance on a standardized academic test once other characteristics are controlled. This task may be viewed as identifying a baseline effect of timing of arrival in the United States and generational status on academic performance in the United States. However, our concern was to compare not only the academic skills of immigrants and their U.S.-born counterparts at one point in time but the achievement trajectories of these groups as well.

A substantial amount of information has accumulated to demonstrate that immigrants differ in broad cross section. According to a straight-line assimilation perspective, these differences may attenuate monotonically with time, both within and across generations (Neidert and Farley 1985). Thus, we expected the greatest differences from those in the higher-order generations to be seen among recent immigrants, lesser differences among more experienced immigrants, smaller differences among the second generation, and so on. Furthermore, we anticipated gains in achievement among immigrants over time that pull them closer to the next generation. Such a monotonic process is attributed to the migration-adaptation process itself and, therefore, is not expected to be different for cohorts of immigrants, regardless of changes in the conditions in the receiving society.

Other scholars have suggested that paths may diverge for some immigrant groups (Bean and Stevens 2003; Portes and Rumbaut 2001; Zhou 1997). This orientation suggests that adaptation in the host society varies such that there is a net disadvantage for some immigrants or a net advantage for others that is not accounted for by compositional characteristics (Kao, Tienda, and Schneider 1996). In this perspective, the host society fails to support the adaptation of immigrants, particularly those from historically disadvantaged ethnic subgroups, a failure that continues to the second generation (Zhou 1997). Thus, we expected some immigrants to progress less well than their native counterparts, possibly falling further behind over time. This situation would be especially likely if immigrant youths encountered less-favorable structural conditions in the United States. Selective empirical support for this perspective exists. Among some groups in some places, the first and, particularly, the second generations are less successful than are the third and higher-order generations, even in the presence of controls for differences in the stock of

human capital (Portes and Rumbaut 2001). Thus, one may indeed expect to find differences in the effect of generational status on the trajectories of academic performance among students from different backgrounds. Our analysis of such trajectories enabled us to examine how well individuals do over time net of an earlier "baseline" starting point (Portes and Rumbaut 2001). Thus, we could test directly whether immigrants are falling behind, catching up, or pulling ahead, net of family background, age for grade, and scores on earlier standardized tests.

In addition to our focus on individual trajectories, we addressed whether the effects of generational status may be different *across* two different age cohorts. According to a "segmented" assimilation perspective, one may expect differences in the effect of generational status for different birth cohorts, whereas the classic "straight-line" assimilation theory would not forecast differences in the impact of generational status across different cohorts of youths. Our analyses used two panel data sets to trace the path of youngsters from their sophomore to their senior year of high school and beyond. We built our analyses around work with two age cohorts of high school students, spaced about 10 years apart. The elder cohort was in the sophomore year in 1980, and the younger cohort was in the sophomore year in 1990. Both cohorts were objects of large, nationally representative panel surveys that were conducted in a comparative way. We analyzed the two data sources in tandem to determine whether there is evidence—cross sectional or longitudinal—of a shift in the starting point or trajectory of immigrants and the second generation. Although both longitudinal data sets have been used in previous analyses of academic achievement, ours is the first study to focus specifically on generational status and to exploit the comparable data across the two age cohorts.[1] In addition, because recent research has emphasized the potential for different outcomes for youths from various groups, we also conducted analyses separately for the largest ethnic groups (Zhou 1997).

Finally, we used methods that are particularly appropriate for analyzing such detailed longitudinal data. Our school-based sample had many advantages, as well as a couple of disadvantages that we address. The sample-population universe did an excellent job of focusing on youths during an important interval in their lives. The sample was followed through school, and, notably, achievement tests were re-administered. At the same time, the school-based sample had missing data and loss to follow-up. As we describe in more detail later, we corrected for selection on the availability of information on standardized tests and loss to follow-up. In the end, these various efforts give us considerable confidence that our analyses recovered accurate measurement of the effects of several individual traits, family background factors, and immigrant status on the starting point and trajectory of these students.

If recent immigrants still demonstrated lower academic achievement than did respondents from other generational status groups after factors that are known to influence academic achievement were controlled, we might conclude that foreign birth itself hinders the acquisition of skills because either the migration experience or the social environment encountered by immigrants impedes academic achievement. On the other hand, if we found that there are no differences in academic outcomes by generational status, we might conclude that immigration itself does not lower the academic achievement of individuals. If we found that academic trajectories (i.e., improvement or declines in scores after repeated testing) are not significantly different by generational status, it would bolster the conclusion that progress through U.S. schools may be linked more to other factors than to generational status per se. Finally, replication of the results among adolescents from two different birth cohorts, one from the early 1980s and one from the early 1990s, would

1. There is some overlap in the period of arrival for immigrants in the data sets. For our earlier sample, immigrant children arrived between the mid-1960s and the late 1970s. For the more-recent sample, immigrant children arrived between the mid-1970s and the late 1980s.

suggest that the changing composition of the immigrant population does not alter the pattern of academic achievement across generational status groups.

GENERATIONAL STATUS, BACKGROUND TRAITS, AND ACHIEVEMENT

Immigrants (and the second generation) are often observed to differ on some social indicator, particularly in cross-sectional data, and these simple comparisons make their way into public debates about immigration. It is not clear, however, whether such differences would persist in the presence of statistical controls for compositional characteristics. A further difficulty arises in deciding which factors are intrinsic to the immigration process. Traits such as English-language proficiency, family composition, and, to some degree, ethnicity, are closely tied to immigrant status. In our conceptualization, we were particularly interested in distinguishing these various influences. Moreover, we wanted to disentangle these effects both for the first cross-sectional wave of observation and for the subsequent trajectory.

In our analysis of the academic achievement of high school students, we took into account the potentially competing influences of nativity, language background, and ethnicity, as well as factors that have repeatedly been shown to influence academic performance, such as family structure and family socioeconomic status (SES) (Bankston, Caldas, and Zhou 1997; Mare and Winship 1988; Portes and MacLeod 1996). In the following paragraphs, we review a range of traits that have been identified as having an impact on outcomes. We emphasize findings that yield insights into the effect of primary (nativity, generation, length of residence) and secondary (language proficiency, ethnicity) traits on schooling and the achievement of youths. The traits that are the most difficult to separate fully are those that are linked to the context of reception, particularly differential reception that is based on ethnic (including physiognomic) differences. We make an initial attempt to examine differences in reception by comparing two different cohorts.

There is some evidence that immigrant-specific resources, particularly in the form of "social capital" within families, are instrumental to success in school (Hao and Bonstead-Bruns 1998; Portes 2000; Stanton-Salazar 1997; Vernez and Abrahamse 1996; White and Kaufman 1996; Zhou 1997). By extension, then, deficits suffered by immigrants in the form of poor English-language proficiency or a lack of familiarity with the host community could be mitigated by higher levels of parental support and strong family ties (Hagen, MacMillan, and Wheaton 1996; Sanders and Nee 1996; Valenzuela and Dornbusch 1994). We concentrated on family traits that may transmit parental expectations for behavior and academic performance to children (Lareau 1989; McNeal 1999; Muller 1998). In our analyses, we included measures of family structure and size to account for the potential availability of support. We further expected that measures of language background would mediate some of the nativity differences in academic achievement for both cohorts under examination.

English-language background and ability are factors that are closely linked to both generational status and achievement in school (Grenier 1984; White 1997), yet the relationship between language background and achievement is not simple or automatic (Rumbaut 1995). Rumbaut (1997) suggested that knowledge of English is positively related to test scores when ethnicity, SES, and family structure are controlled. Another study of immigrants' progress in school, however, found that English spoken at home is not a significant predictor of the completion of school in the face of other controls (Vernez and Abrahamse 1996).

Many students come from bilingual backgrounds in which they retain the language of their parents' or grandparents' country of origin and speak English. This bilingual background may be positively associated with school performance, although recent analyses have found that this effect may be temporary when parents are not fluent in English (Mouw

and Xie 1999; Rumbaut 1998; Stanton-Salazar and Dornbusch 1996). This finding is consistent with the view that bilingualism is a resource that gives immigrant and second-generation youths access to their parents' communities and helps them negotiate the U.S. school system. Thus, our analyses included a measure of home language environment that captures not only the mere presence of another language but also the degree to which English is used. What is more, English deficiency (real or apparent) may land students in lower grades for their age or previous educational experience (Bean and Tienda 1987; Suarez-Orozco 1991; Zsembik and Llanes 1996). We examined baseline outcomes and trajectories for students in our sample who were older than the average age found in their current grade level to account for those who were placed in lower grades initially and an indicator of grade retention itself.

Finally, both historical and contemporary studies have pointed to ethnic differences in schooling even in the presence of statistical controls (Coleman and Hoffer 1987; Coleman, Hoffer, and Kilgore 1982; Glenn 1990; Sassler 1995). Such studies have identified ethnic variations in cultural and behavioral orientations toward education (Bankston et al. 1997; Kao and Tienda 1995). These findings have led some researchers to suggest that immigrant status and ethnicity may serve as proxies for group-level social capital (Hao and Bonstead-Bruns 1998). However, measures of race and ethnicity may also reflect discrimination in the wider society (Alexander, Entwisle, and Thompson 1987; Roscigno 1998; Smith and Welch 1986; Trueba 1988). Immigrants' adaptation may vary according to immigrants' perceived position in the ethnic hierarchy of the United States (Fernandez-Kelly and Schauffler 1994; Portes and Zhou 1993).[2]

Immigrant and second-generation adolescents' identificational assimilation appears to depend largely on the social context that these youths encounter in the United States, including their perceptions of discrimination (Portes and McLeod 1996; Rumbaut 1994; Waters 1997). Thus, the academic-performance trajectories of those in the second generation may be more aligned with those of third-generation adolescents from the same racial or ethnic group. If race and ethnicity serve as the consequential barriers to academic achievement, we would expect generational status differences in academic achievement to decrease when ethnicity was controlled. Replication of the findings across cohorts would buttress the case that it is ethnicity per se that drives outcomes.

DATA AND METHODS

Data for Two Cohorts

Our sample consisted of those who were enrolled in high school in 1980 and in 1990. In this way, we concentrated on the achievement of those with exposure to U.S. schools. Data for our older (1980) cohort came from the first two waves of High School and Beyond (HSB), a representative survey of students who were in high school in 1980 that included a large number of immigrant children and children of immigrants. HSB made special efforts to follow high school dropouts and to oversample Hispanic public and private schools.[3] The survey also contained many measures that are not available in other sources, including measures of personal attitudes, performance on standardized tests, parental background, family composition, and school context. For each student, the data

2. Research with some of the same data we used has tested the hypothesis that some groups harbor attitudes of opposition to the mainstream society. The results did not find support for the pervasiveness of a negative orientation toward academic achievement among black Americans (Ainsworth-Darnell and Downey 1998).

3. Foreign-born black students are reported to have lower dropout rates than U.S.-born black students. The opposite is the case for Hispanics (National Center for Education Statistics, NCES, 1997). These results, however, are somewhat misleading because many Hispanic immigrants never enroll in school in the United States and yet are captured in statistics on educational attainment.

included information on place of birth, length of U.S. residence, and parents' birthplace. Thus, one can identify the first and second generation. A rough measure of duration is available for the first generation, which allowed us to distinguish students who arrived in the United States before they reached school age.[4] We followed the same procedure outlined by the NCES for comparing the HSB sophomore cohort with the sophomores in the National Educational Longitudinal Study of 1988 (NELS). In this procedure, all base-year (1980) participants from HSB who also participated in the first follow-up survey (1982) were selected, yielding an initial sample of 14,102 cases (NCES 1996a).[5] However, because we were interested in the change in test scores from the base year to the first follow-up (1982), we were restricted to the 13,152 cases with suitable information. We also omitted Native American respondents (n = 342) because of the lack of variation by generational status. Our final HSB sample was 12,810.

Data for our companion younger (1990) cohort came from NELS. The overall sample design and questionnaires used in NELS are similar to those used in HSB. With some attention to the differences in the design of the samples and the content of questions, the two surveys may be compared for analyses of cohorts. "Both studies measure how much was learned over the last two years of high school, and provide a wealth of individual-level explanatory variables" (Ingels and Baldridge 1994:16).

NELS began with a cohort of students who were in the 8th grade in 1988. Follow-up interviews were conducted in 1990, 1992, 1994, and 2000. Unlike HSB, the NELS sample was freshened by adding new respondents in the follow-up interviews. To create a representative sophomore cohort for comparison with the 1980 HSB sophomores, we needed to include the freshened respondents for the first follow-up who were sophomores in high school in 1990 and to eliminate the respondents from the base-year sample who were no longer in school or were not in the 10th grade in 1990 (NCES 1996a, 1996b).[6] Taking the NELS respondents who were sophomores in 1990 who were also respondents in 1992 yielded an initial sample of 16,749 participants. We were further restricted because some cases were deemed to be base-year ineligible by NCES and were therefore unavailable or did not have school-identification information that we needed to adjust for design effects. We also removed the 172 Native Americans. These procedures yielded a final sample of 16,376 respondents who participated in both the 1990 and 1992 waves of NELS. Other sample-design considerations included the oversample differences between HSB and NELS. Whereas HSB oversampled black and Hispanic students, it did not oversample Asian students as NELS did.

Despite these differences in the sampling strategies of HSB and NELS, we remain confident in our ability to estimate meaningful models for each time point and to compare students across decades. Even though the composition of the school-age population shifts over time, because of changes in sampling procedure and shifts in the underlying U.S. demographic structure, the associated multivariate models should still retrieve estimates of the parameters that govern the process that connects covariates with outcomes.

We are most concerned with estimates of the parameters for generational status. For instance, in the cross-sectional models of test score in sophomore year, we would estimate

4. This information was provided by the respondents in HSB and the parents of the respondents in NELS.

5. Although HSB originally contained nearly 30,000 sophomores in 1980, only half the original sample was followed up in later waves of the data. The sample we used is the same as that used by NCES in its reports that compared the HSB and NELS respondents (personal correspondence with NCES staff).

6. We do not know the generational status of the freshened students or those added in 1990 who were deemed to be ineligible in the base year in NELS. There is reason to expect that these students may have been different from other respondents whose generational statuses were missing since freshened, so we kept these groups separated in our full models. We ran models that excluded students whose generational statuses were missing in HSB or NELS, as well as models without the selection procedure; overall, the results did not vary substantively from those we present here.

for immigrants the respective parameters β1980 and β1990. These parameters accurately reflect the deviation in performance by immigrant students as long as the other covariates in the equation generate a properly specified model. To the extent that samples differ because of the relative increase in a certain subgroup of immigrants—say lower-SES Asian-origin students in NELS—the univariate and bivariate descriptive statistics would be affected. It is much less likely that the associated β values would be affected as long as SES was controlled in the model.

Longitudinal models that regress the senior-year test score on the sophomore-year test score should be less affected still. There is, of course, room for inaccuracy to creep into these estimates. Such would be the case if covariates in the multivariate models did not adequately capture the traits (SES, family structure) that were being modeled. Because the sampling revisions were drawn along the lines of ethnicity, we would expect some influence on composition by both generation and ethnicity. In cross-sectional models, for us to get a misestimate of the effect of being an immigrant child, the compositional shifts would have to lead to a different predicted test outcome for such children net of race/ethnicity and other variables controlled in the model. In longitudinal models, such students would need to deviate further from their academic trajectory (i.e., beyond what is predicted by family background demographic traits and earlier performance). Our efforts to model educational outcomes broadly with these rich data and, moreover, our examination across ethnic subsamples give us confidence in the results we present in the tables that follow.

Measures of Academic Performance and Trajectory

We relied on test scores as our primary indicators of academic performance for several reasons. First, standardized test scores are often used to place students in special education or accelerated school environments, as well as to assess the progress of students in school over time (Gonzalez, Brusca-Vega, and Yawkey 1997). The emphasis on testing is growing as an increasing number of U.S. states develop standardized tests to measure school performance and to serve as requirements for graduation from high school (Cahir 2001). Second, the use of tests administered across schools allows for the comparison of the academic achievement of students from diverse social and educational settings in a way that grades do not (Bankston and Caldas 1996). Finally, mathematics and reading ability translate into subsequent labor market outcomes (Farkas 1996). Thus, performance on academic tests has real consequences for subsequent academic opportunities and educational attainment. By relying on tests administered at two points in time, we could estimate not only differential performance by generation status at the first point in time but also whether there were any additional effects of generational status on academic achievement over time. The sophomore test outcome we took to be, within the context of the overall model, a statement of our baseline conditions. For example, we used performance on the test administered in 1982 as an indicator of change in academic achievement conditioned on the values of covariates in 1980.

The tests administered by the HSB research staff closely paralleled achievement tests of a variety of sorts given to students over the school years. The HSB test was composed of four parts: reading comprehension, vocabulary, and two mathematics sections. The questions administered to the NELS respondents were different from those administered to the HSB respondents, although both HSB and NELS were designed to tap parallel abilities. In addition to differences in the items contained in the cognitive tests, there were different rates of nonresponse to the surveys, in general, as well as to the cognitive tests, in particular.[7] For this reason, as well as the sample-design differences we discussed

7. Cognitive tests were administered to dropouts in HSB and NELS. Test data are missing disproportionately for dropouts versus those who remain in school throughout (NCES 1996a).

previously, we chose not to combine the surveys in our analyses, although it was possible to do so (e.g., Morgan 1996); rather, to further the comparison between cohorts, we standardized the test results across the two surveys.[8]

We relied on the IRT mathematics and reading scores available in HSB for 1980 and 1982 and for NELS in 1990 and 1992. There is some variation in the availability of test data in the HSB and NELS surveys. The Appendix presents the pattern of missing test data in both the baseline year (1980 and 1990) and the follow-up (1982 and 1992). We used a Heckman two-step regression technique to estimate the multivariate models for both the starting point (test80 for HSB and test90 for NELS) and the trajectory (test82 gain from 1980 for HSB and test92 gain from 1990 for NELS). We chose these methods to adjust for the differential likelihood of taking each test. The Heckman selection approach is designed to help adjust for this nonrandom exclusion from the sample (Johnston and DiNardo 1997; Stolzenberg and Relles 1997; Winship and Mare 1992). The two-step approach began with a probit model predicting the probability that respondents completed the test. Variables that were used to predict participation in the tests included an indicator for missing generational status, nonparental living arrangements, previous retention in grade, and language background.[9] The inverse Mills ratios are significant, suggesting that the selection approach is appropriate and should be included in the ordinary-least squares (OLS) regression predicting test scores. Our data are weighted, and we adjusted for design effects in all the models we present.[10]

Because we were particularly interested in the academic trajectories by generational status, in addition to exploring the test scores, we compared the patterns of high school dropout between the sophomore and senior years for the HSB and NELS cohorts to determine whether immigrant or second-generation youths were disproportionately likely to withdraw from school in the two-year period. Because much attrition from high school occurs before the 10th grade, ours is not an analysis of the probability of dropping out of high school for all students (Driscoll 1999). Rather, the conceptual distinction we used was enrollment status at the time of the follow-up test because this status may influence students' performance on tests. Our measure of dropout was based on enrollment status as of 1982 or 1992. If the respondents were not enrolled in school and had not completed high school as of 1982 or 1992, they were coded as having dropped out. We recognize that some of these respondents may have returned to school later and that our measure may differ from the operationalization used in studies that have focused on the completion of high school.

Independent Variables

Generational status. Our key independent variable was generational status. That is, we imbedded the study of immigrants' achievement into a framework that incorporated changes *within* generational status groups. Doing so required data that identify the generational status of students; in our case, we identified respondents as recent immigrants who arrived in the United States at an age several years after primary schooling was well under way in the United States. We separated "recent immigrants" from "preschool" immigrants (i.e., those who arrived either before school age or in the early elementary school years) who would have spent the majority of their school years in the United States in comparison to the second and higher-order generations.[11] Specifically, we defined the

8. Test scores for HSB and NELS were standardized with a mean of 0 and standard deviation of 1 to allow for a comparison of coefficients from one model to the next. This standardization allowed us to compare the relative initial performance and trajectories of groups but did not measure absolute cognitive gain.

9. Full models are available from the authors on request.

10. We used the "fu1wt" from HSB and the "f2f1pnwt" from NELS.

11. For ease of exposition, we used the term *preschool immigrants*, despite the possibility that some of these arrivals would have entered once schooling began. In 2000, over 60% of the foreign-born individuals who

preschool immigrants as those who arrived in the United States six or more years before 1980 (or 1990 in NELS) and recent immigrants as those who arrived in the United States within the six-year interval before their sophomore year and hence arrived while schooling was well under way (i.e., arrivals from roughly 1974–1980 in HSB and 1984–1990 in NELS). There are two distinct "age cohorts" in our data, although they do not necessarily represent different eras of arrival in the United States. For example, one could imagine an older recent immigrant being selected into HSB with a much younger sibling in NELS.

We identified second-generation youths as those who were born in the United States to at least one foreign-born parent. We were unable to identify the precise generational status of U.S. respondents born to U.S.-born parents, often called natives of native parentage. Therefore, our reference group was necessarily those in the third or higher-order generation.

Other covariates. The other measures we included in our analyses represent a student's demographic characteristics, access to human capital, family environment, ethnicity, and language background. Our measures of human capital came from a standardized scale of the SES of the respondent's family. The composite measure included mother's and father's education, family income, father's occupation, and household possessions.[12] In addition, we expected that recent immigrants who were older than average may have been held back from progressing to the next grade for different reasons than their U.S.-born counterparts (limited English proficiency upon entrance into U.S. schools versus prior poor school performance). Therefore, we included a dummy variable indicating whether the respondent was 17 years or older in his or her sophomore year.

We included measures of ethnicity in our models to control for the possibility that ethnic identification, not migration status per se, results in differential academic achievement. To avoid the apparent confusion brought about by combining ethnic groups into large panethnic categories, we identified respondents as members of one of several racial/ethnic groups that were common to both surveys: non-Hispanic white (reference group), non-Hispanic black, Mexican, Puerto Rican, other Hispanic, and Asian. Unfortunately, the 1980 sophomore cohort of HSB did not include a sufficient sample of Asians to separate them by ethnicity in the full models. However, recognizing the diversity of this group (see, e.g., Blair and Qian 1998), we did include indicators of Chinese, Filipino, and other Asian ethnicity in group-specific models that are not presented here. Our substantive conclusions remain the same.

We constructed a series of dummy variables to represent the family structure of the respondent. These dummy variables included (1) respondent lives with both parents (reference group), (2) respondent lives with one parent and that parent's partner (may include a cohabiting partner or stepparent), (3) respondent lives with a single mother, (4) respondent lives with a single father, and (5) respondent lives with neither parent (most students in this category lived with other relatives, predominantly grandparents). Number of siblings was also represented by a series of dummy variables: (1) no siblings, (2) one or two siblings (reference group), and (3) three or more siblings (e.g., Vernez and Abrahamse 1996).[13]

Our measure of the home-language background of the respondent included four categories: (1) English is the sole language (reference); (2) more than one language is spoken, but English predominates; (3) more than one language is spoken, but a non-English

were in the United States by age 15 entered the United States before age 6, and another 15% entered before age 8. An additional 8% entered after age 12, a group we identified as "recent immigrants" in our data (authors' tabulations from the 2000 Current Population Survey).

12. The SES scale was also standardized across the two surveys to further the comparison of the coefficients.

13. The results with a continuous measure for the number of siblings suggest that the primary distinction is between students with one or two siblings and those with three or more siblings.

Table 1. Characteristics of the Sample for 1980 High School Sophomores, by Generational Status

Variable	Recent Immigrants	Preschool Immigrants	Second Generation	Third or Later Generation
Sex (%)				
Male	48.0	48.4	44.7	49.4
Female	52.0	51.6	55.3	50.6
Age 17 and Over (%)	19.1	7.4	5.4	4.9
Previous Retention in Grade (%)	20.6	18.8	16.4	14.1
SES	–0.41	0.04	–0.01	0.05
Race/Ethnicity (%)				
Black	5.1	12.8	15.4	11.1
Mexican	10.8	8.0	7.4	3.0
Puerto Rican	3.6	4.7	3.2	0.4
Other Hispanic	8.5	4.8	2.2	1.7
Asian	32.3	7.4	4.0	0.8
Non-Hispanic whites and others	29.1	60.4	66.4	81.8
Family Structure (%)				
Both parents	65.2	68.1	65.2	70.6
Parent and partner	4.7	8.4	9.8	8.6
Single mother	20.9	14.3	16.7	13.9
Single father	2.7	3.1	3.0	2.9
Neither parent	6.5	6.1	5.4	4.0
Family Size (%)				
No siblings	2.2	3.9	5.9	4.5
1–2 siblings	47.5	54.1	49.0	49.6
3 or more siblings	50.4	42.0	45.2	45.9
Language Background (%)				
Non-English	21.9	7.3	4.6	0.3
Bilingual, non-English dominant	29.7	18.0	7.1	0.8
Bilingual, English dominant	9.0	21.1	21.2	7.0
English only	39.4	53.6	67.1	91.9
Number of Cases	256	811	1,723	10,020

Source: HSB sophomore cohort (weighted).

Notes: The sample includes those without complete test data for 1980 or 1992. It does not include Native Americans.

language predominates; and (4) a non-English language is the sole or virtually only language spoken.

Tables 1 and 2 present the distribution of all measures for each sample. Within each sample, the characteristics of the respondents by generational status are fairly consistent. For example, recent immigrants came from family backgrounds with SES levels that were more than four-tenths of a standard deviation below those of the third- and higher-generation reference group in both the NELS and the HSB samples. This finding

Table 2. Characteristics of the Sample for 1990 High School Sophomores, by Generational Status

Variable	Recent Immigrants	Preschool Immigrants	Second Generation	Third or Later Generation
Sex (%)				
Male	59.0[a]	49.2	46.5	49.8
Female	41.0[a]	50.8	53.5	50.2
Age 17 and Over (%)	28.6	14.2[a]	5.5[a]	7.6[a]
Previous Retention in Grade (%)	19.3	20.4	12.7	15.3
SES	–0.50	–0.28[a]	–0.22	–0.02[a]
Race/Ethnicity (%)				
Black	8.0[a]	3.9[a]	6.0[a]	12.1
Mexican	15.7	21.6[a]	24.8[a]	2.8
Puerto Rican	0.7[a]	2.8	7.1[a]	0.2[a]
Other Hispanic	18.7[a]	8.0[a]	7.8[a]	1.2[a]
Asian	38.2	36.0[a]	12.4[a]	0.9
Non-Hispanic whites and others	18.7[a]	27.7[a]	42.0[a]	82.9[a]
Family Structure (%)				
Both parents	61.6	68.7	70.3[a]	63.2[a]
Parent and partner	13.0[a]	16.1[a]	12.3[a]	17.5[a]
Single mother	8.4[a]	9.6[a]	12.8[a]	13.6
Single father	2.5	2.7	2.1	3.0
Neither parent	14.4[a]	3.0[a]	2.4[a]	3.6
Family Size (%)				
No siblings	20.6[a]	10.4[a]	14.4[a]	10.0[a]
1–2 siblings	36.7[a]	44.0[a]	49.8	53.4[a]
3 or more siblings	42.7	45.6	35.7[a]	36.6[a]
Language Background (%)				
Non-English	18.8	15.2[a]	13.2[a]	1.1[a]
Bilingual, non-English dominant	55.1[a]	39.2[a]	30.3[a]	1.2[a]
Bilingual, English dominant	9.7	20.9	25.7[a]	4.9[a]
English only	16.5[a]	24.5[a]	30.8[a]	92.8[a]
Number of Cases	175	743	1,474	11,799

Source: NELS first and second follow-ups (weighted).

Note: The sample includes those with missing test data and excludes Native Americans.

[a]HSB-NELS significantly different ($p < .05$) in the t test between this percentage and the corresponding percentage for the same generational status in the HSB sample in Table 1.

suggests that SES-nativity compositional shifts across the samples were modest for recent immigrants, despite both the changing underlying U.S. demographic structure by nativity and changes in the NELS sampling procedure. On the other hand, preschool immigrants and second-generation students exhibited lower SES levels in NELS than in HSB. Such a result is consistent with a shift downward in the SES compositions of

immigrants who build families in the United States. In both the HSB and the NELS cohorts, the likelihood of coming from an English-only home was the lowest for recent immigrants and the highest for those in the third and higher generations.[14]

There are other compositional differences across the two cohorts. One key difference is the racial and ethnic composition of the two samples. The sample design for HSB and NELS resulted in a different representation of racial and ethnic groups.[15] There are small differences in the proportion of the samples composed of blacks (more in HSB) and greater differences in the proportion of the samples composed of Asian and Mexican-origin respondents (more in NELS). Likewise, there are differences in the racial/ethnic composition of the generational status groups in both cohorts, but these differences are more significant for preschool immigrants and second-generation respondents than for recent immigrants. In particular, the second generation consisted of more Mexican, other Hispanic, and Asian respondents in NELS than in HSB. The greater representation of Mexican-origin individuals may also be linked to the lower second generation SES in the NELS, given the lower status of the Mexican-origin population in the United States in general.

RELATIVE ACADEMIC PERFORMANCE BY GENERATIONAL STATUS

Baseline Test Scores

How does the initial performance on academic tests vary by generational status, and do these patterns persist across cohorts? Table 3 presents regression results predicting the respondents' scores on the mathematics test in their sophomore year. These models correct for the selectivity of test taking itself. The first model includes generational status as the sole variable. The results indicate that preschool and second-generation respondents in the 1980 cohort performed less well than did their third- and higher-generation counterparts. The situation was reversed for the 1990 cohort, in which preschool immigrants (those who arrived in the United States as young children) had higher scores than did their third- and higher-generation peers.

While the differences by generational status across cohorts are striking, what makes them even more so is the remarkable consistency we observed in the effects of the other variables. Model 2 adds the basic demographic measures and SES to the analysis. Respondents from more-advantaged SES backgrounds scored higher on the mathematics test in 1980 and 1990 than did those from less-advantaged SES backgrounds. SES is the variable responsible for increasing the significance of generational status among the 1990 cohort. In other words, recent and preschool immigrants, along with those from the second generation, scored even higher than did the third or subsequent generation when SES was controlled. Likewise, students who were considerably older than their grade-mates scored consistently lower on the tests, as did those with a history of being retained in grade. Family structure matters as well. For both cohorts, coming from a home with both parents present was associated with higher sophomore-year test scores than was coming from other family forms.

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14. Whether because of measurement differences or actual differences in language background, the respondents in the 1990 (NELS) cohort were significantly more likely to come from non-English backgrounds than were those in the 1980 (HSB) sample. There may be some selectivity issues with our sample, because, at least among Hispanics, those who came from a non-English environment were less likely to enroll in school in the United States. However, dropout rates for those who did enroll appear to have been fairly similar to the rates for other Hispanic students (NCES 1997). For this reason, among others, we controlled for language background in our models.

15. An examination of the average weights by generational status within racial/ethnic groups (not shown) did not support the concern that such sampling differences resulted in highly skewed representations within any one group.

Table 3. Heckman Selection Models Predicting the 1980 and 1990 Mathematics Test Scores

	Mathematics Test Scores, 1980				Mathematics Test Scores, 1990			
Variable	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Generational Status (vs. third or later generation)								
Recent immigrants	–0.06	–0.05	–0.05	–0.02	0.08	0.26**	0.27***	0.30***
Preschool immigrants	–0.13*	–0.15**	–0.12*	–0.12*	0.14**	0.26***	0.29***	0.30***
Second generation	–0.10**	–0.09**	–0.07*	–0.07*	0.08	0.11**	0.20***	0.20***
SES		0.27***	0.26***	0.26***		0.32***	0.28***	0.28***
Male		0.01	0.01	0.02		0.08***	0.08***	0.08***
Age 17 or older		–0.47***	–0.44***	–0.43***		–0.35***	–0.26***	–0.33***
Previous Retention in Grade		–0.45***	–0.42***	–0.42***		–0.58***	–0.59***	–0.56***
Family Structure (vs. both parents)								
Parent and partner		–0.02	0.00	0.00		–0.08**	–0.08**	–0.08**
Single mother		–0.10***	0.01	0.02		–0.07*	0.00	0.00
Single father		–0.16**	–0.13*	–0.14**		–0.22**	–0.21*	–0.21**
Neither parent		–0.53***	–0.40***	–0.39***		–0.17**	–0.10	–0.11
Family Size (vs. 1–2 siblings)								
No siblings		0.02	0.00	0.00		–0.19***	–0.14***	–0.14***
3 or more siblings		–0.01	0.00	–0.01		–0.09***	–0.06**	–0.06**
Race/Ethnicity (vs. non-Hispanic whites)								
Black			–0.53***	–0.51***			–0.45***	–0.45***
Mexican			–0.33***	–0.34***			–0.39***	–0.38***
Puerto Rican			–0.40***	–0.38***			–0.50***	–0.49***
Other Hispanic			–0.37***	–0.38***			–0.33***	–0.32***
Asian			0.09*	0.09*			0.07	0.07
Language Background (vs. English only)								
Non-English				–0.33**				0.00
Bilingual, non-English dominant				0.01				–0.08
Bilingual, English dominant				0.15**				0.11**
Constant	0.15***	–0.04***	0.02	0.00***	0.07***	0.22***	0.25***	0.25***
rho	–0.65	0.95	0.93	0.93	–0.98	–0.85	–0.87	–0.88
lambda	–0.77***	0.98***	0.93***	0.93***	–1.06***	–0.78***	–0.79***	–0.79***

Source: HSB sophomore cohort (n = 12,810) and NELS sophomore cohort (n = 16,376).

Notes: The models estimated included correction for selectivity of test taking using the Heckman procedure. The selection model is available from the authors. The model includes dummy variables for missing generational status, SES, and language background. The models were weighted and adjusted for design effects.

*p < .05; **p < .01; ***p < .001

The pattern of academic performance by race/ethnicity is also remarkably consistent for both cohorts, as seen in Model 3. The most notable of these differences is the deficit in scores seen in the performance of black students who scored a half standard deviation lower than did non-Hispanic white students in both 1980 and 1990, net of SES and the other controls in the model. For students of Mexican, Puerto Rican, and other-Hispanic origin, the deficit is also significantly negative.

Our last model adds our measure of home-language background. The results suggest that a non-English background was associated with lower test scores, particularly for the 1980 cohort. For both cohorts, coming from a bilingual home in which English is dominant is associated with higher test scores. Despite all these controls, however, the independent effect of generational status persists and behaves differently for respondents from the 1980 and 1990 cohorts, suggesting that other unobserved characteristics associated with generational status, beyond the background traits included here, are responsible for the differences observed in the students' baseline performance by generation.

We also examined the possibility that the influences of generational status, ethnicity, and language background differ when students are tested on reading ability, rather than on mathematics. These results are presented in Table 4. In the HSB cohort, recent and preschool immigrants scored lower than did their third- and higher-order generation peers by Model 4 with all covariates introduced. For the NELS cohort, the beneficial effect of immigrant and second-generation status that was observed for scores on the mathematics test is reduced because recent immigrants did not surpass their third- and higher-order generation peers on the reading tests as they did on the mathematics test. We also observed that the Asian-origin respondents scored lower than non-Hispanic white respondents on the reading tests, particularly in the NELS cohort. The remaining variables operated in a consistent manner whether we examined mathematics or reading scores.[16] Overall, looking only at the 1980 or 1990 starting point, we found that various elements of family background and ethnicity operated in a similar fashion on students' academic performance. Despite the presence of these controls, generational status did *not* operate in a consistent fashion across the two cohorts. The sampling design or the tests themselves could conceivably create such differences, but this seems less likely in the face of the overwhelming consistency of the other controls in the models.

Academic Trajectories

Our next step was to determine whether generational status had an effect on the trajectory of academic performance of the respondents from the 1980 and 1990 sophomore cohorts. Although our sample consisted solely of respondents who were enrolled as high school sophomores in 1980 or 1990, they may no longer have been enrolled in school by the time of the follow-up survey in 1982 or 1992. The respondents were administered the follow-up tests, regardless of their enrollment status in both HSB and NELS. As a first step in analyzing trajectories, we present logistic regression models for enrollment status as of 1982 and 1992, predicting whether immigrant or second-generation youths were disproportionately likely to withdraw from school in the two-year period. The models presented in Table 5 illustrate that for our samples of high school sophomores, generational status did not exert an independent effect on the likelihood of being enrolled in school by the follow-up survey two years after the sophomore year of high school. Once again, SES and family structure exerted similar effects across the cohorts. Race/ethnicity also influenced dropout status, with blacks significantly less likely to drop out in the HSB

16. Although not the focus in this article, we also examined overall grades in high school by 1982 and 1992. The regression results with the same covariates reported in the full models of Tables 3, 4, and 5 suggest that the second-generation respondents in both cohorts received lower grades than did their third- and higher-generation counterparts.

Table 4. Heckman Selection Models Predicting the 1980 and 1990 Reading Test Scores

	Reading Test Scores, 1980				Reading Test Scores, 1990			
Variable	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2[a]	Model 3	Model 4
Generational Status (vs. third or later generation)								
Recent immigrants	–0.56***	–0.45***	–0.42***	–0.34***	–0.10	0.00	0.11	0.17
Preschool immigrants	–0.15*	–0.18***	–0.14**	–0.12**	0.04	0.18***	0.27***	0.31***
Second generation	–0.04	–0.04	–0.01	–0.01	0.04	0.04	0.15**	0.17***
SES		0.24***	0.22***	0.22***		0.27***	0.24***	0.24***
Male		–0.02	–0.02	–0.01		–0.13***	–0.13***	–0.13***
Age 17 or older		–0.43***	–0.40***	–0.38***		–0.35***	–0.33***	–0.32***
Previous Retention in Grade		–0.43***	–0.40***	–0.40***		–0.50***	–0.49***	–0.49***
Family Structure (vs. both parents)								
Parent and partner		–0.01	0.00	0.00		0.00	0.00	0.00
Single mother		–0.05	0.04	0.04		–0.04	0.00	0.00
Single father		–0.12	–0.08	–0.09		–0.30***	–0.31***	–0.31**
Neither parent		–0.39***	–0.28***	–0.28***		–0.10	–0.06	–0.06
Family Size (vs. 1–2 siblings)								
No siblings		0.03	0.03	0.03		–0.16***	–0.13***	–0.13***
3 or more siblings		–0.03	–0.02	–0.02		–0.11***	–0.08**	–0.08**
Race/Ethnicity (vs. non-Hispanic whites)								
Black			–0.42***	–0.42***			–0.34***	–0.35***
Mexican			–0.27***	–0.25***			–0.35***	–0.31***
Puerto Rican			–0.35***	–0.36***			–0.35***	–0.30***
Other Hispanic			–0.35***	–0.35***			–0.26***	–0.24***
Asian			–0.11	–0.07			–0.18***	–0.15**
Language Background (vs. English only)								
Non-English				–0.35***				–0.15
Bilingual, non-English dominant				–0.14				–0.15**
Bilingual, English dominant				0.12*				0.10*
Constant	0.11***	–0.05*	–0.01	–0.02	0.10***	0.34***	0.37***	0.37***
rho	–0.58	0.96	0.94	0.94	–1.00	–0.94	–0.94	–0.94
lambda	–0.60**	1.01***	0.97***	0.97***	–1.09***	–0.91***	–0.90***	–0.90***

Source: HSB sophomore cohort (n = 12,810) and NELS sophomore cohort (n = 16,376).

Notes: The models estimated included a correction for selectivity of test taking using the Heckman procedure. The selection model is available from the authors. The model includes dummy variables for missing generational status, SES, and language background. The models were weighted and adjusted for design effects.

[a]Change in generational-status coefficients results primarily from the addition of SES to the model.

*p < .05; **p < .01; ***p < .001

Table 5. Logistic Regression Predicting High School Dropout Status as of 1982 and 1992 for the 1980 and 1990 Sophomore Cohorts

Variable	1980 Cohort	1990 Cohort
Generational Status (vs. third or later generation)		
Recent immigrants	–0.24	–0.54
Preschool immigrants	–0.03	–0.48
Second generation	0.20	–0.34
SES	–0.35***	–0.49***
Male	0.17*	–0.09
Age 17 or older	1.10***	0.54**
Previous Retention in Grade	0.52***	0.85***
Family Structure (vs. both parents)		
Parent and partner	0.80***	0.48***
Single mother	0.60***	0.36*
Single father	0.73***	0.27
Neither parent	1.14***	0.92***
Family Size (vs. 1–2 siblings)		
No siblings	–0.17	0.29
3 or more siblings	0.19**	0.40***
Race/Ethnicity (vs. non-Hispanic whites)		
Black	–0.56***	–0.24
Mexican	0.18	0.21
Puerto Rican	0.27	0.69*
Other Hispanic	–0.40	–0.14
Asian	–0.01	–0.57
Language Background (vs. English only)		
Non-English	–0.15	0.08
Bilingual, non-English dominant	–0.12	0.10
Bilingual, English dominant	–0.18	0.54*
Constant	–2.72***	–3.17***

Source: HSB sophomore cohort (n = 12,810) and NELS sophomore cohort (n = 16,376).

Notes: The logistic regression was used to predict whether a respondent in 1980 or 1990 had not completed high school and was no longer enrolled in high school by 1992. All the models were adjusted for survey design effects.

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

cohort and Puerto Ricans slightly more likely to drop out in the NELS cohort compared with non-Hispanic whites. It is interesting that language background operated differently across the cohorts, such that those from bilingual, English-dominant backgrounds were more likely to drop out of school by 1992 than were those from English-only backgrounds.

Up to this point, our analysis has established that generational status does help predict initial standardized test scores, but that it does not predict subsequent high school dropout for students who remained in school as sophomores in 1980 and 1990. Our next

task was to determine whether generational status influences individual students' test trajectories. The models presented in Table 6 examine the test scores of students while controlling for their baseline performance on the same tests administered two years earlier. Although our analysis did not include students who never enrolled in school, we do have data for those who dropped out of school between 1980 and 1982 for the HSB cohort and between 1990 and 1992 for the NELS cohort. We know that the best predictor of achievement in school is prior school performance (Driscoll 1999; Duran and Weffer 1992). Therefore, we included the previous test (1980 or 1990) to predict the follow-up test. Because we estimated selection models that include those without the scores from the test administered in the 10th grade (i.e., some respondents may have had valid follow-up test scores but missing test data for the initial year), we included the predicted 10th-grade test scores on the basis of results from the models predicting initial tests for those cases. In addition, recognizing that the achievement trajectories for dropouts may be different from those who continue in school, we included a variable indicating dropout status by 1982 and 1992. Our findings confirm that the baseline test scores (1980 and 1990) strongly predict the follow-up scores (1982 and 1992, respectively). The high correlation may also be seen as evidence of the reliability of the test.[17] Whatever the standardized test measures, it manages to capture the same skills when it is repeatedly administered.

The question to be asked now is whether the *trajectory* of the student is predicted to shift on the basis of generational status and language background. Positive values on other covariates would indicate that those who were behind the first time they were observed caught up (or those who were ahead pulled away), whereas negative values would indicate that they fell behind the relative position established by the sophomore-year score.

Once we controlled for previous test performance and all the sociodemographic variables included in our baseline models, we found that generational status generally had a minimal influence on the mathematics and reading performance trajectory of the respondents in either cohort. For the NELS respondents, though, preschool immigrants exhibited even *greater* improvements in their mathematics performance than their U.S.-born peers. (This is the only statistically significant generational-status coefficient of the six that were estimated.) Thus, by the second test, none of the immigrants in either cohort fell further behind. Concerns that immigrants or second-generation youths fall behind third-generation peers *from similar backgrounds* do not appear warranted in these pooled models. Any advantage or disadvantage exhibited by generational status appears to be due primarily to background and SES.

Other variables in the models persist to have *independent* effects on the scores on the follow-up tests, and these effects are remarkably consistent across cohorts. For example, even though SES was found to strongly predict baseline test scores, it has additional predictive power beyond that which works through the earlier score. Although this is not a new finding, it reaffirms the long-term importance of family socioeconomic background in later outcomes. Thus, one finds that each unit of the SES index (approximately 1 standard deviation in family SES) is associated with an almost 0.1 unit of change in the 1982 mathematics and reading tests and about 0.05 unit of change in the 1992 tests.

The respondents' ethnicity also appears to have influenced the academic performance trajectory, regardless of which cohort we examined. Black and Mexican students performed less well on the initial tests and exhibited less improvement over the subsequent two years, even after family background was controlled. These differences in test performance over time are consistent with the findings of other studies on the acquisition of basic skills (Farkas 1996).

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17. Sample correlations between the base-year and follow-up tests are .88 for the HSB sample and .91 for the NELS cohort. Reading and mathematics test scores are also correlated. Base-year correlations are .67 in HSB and .74 in NELS. Correlations of the mathematics and reading follow-up tests are .72 in HSB and NELS.

Table 6. Heckman Regression Predicting 1982 and 1992 Test Scores for the 1980 and 1990 Sophomore Cohorts

	Mathematics Test Scores		Reading Test Scores	
Variable	1982	1992	1982	1992
Generational Status (vs. third or later generation)				
Recent immigrants	0.05	0.06	–0.02	0.04
Preschool immigrants	0.01	0.08**	0.00	0.04
Second generation	0.00	–0.01	0.02	0.06
SES	0.09***	0.05***	0.09***	0.04***
Male	0.07***	0.07***	0.04*	–0.06***
Age 17 or older	–0.11***	–0.05*	–0.09*	0.00
Previous Retention in Grade	–0.11***	–0.04	–0.12***	–0.07*
Family Structure (vs. both parents)				
Parent and partner	–0.04	–0.02	0.00	0.02
Single mother	0.01	–0.02	0.03	0.02
Single father	0.03	0.03	0.04	–0.04
Neither parent	–0.05	0.11**	–0.15**	0.06
Family Size (vs. 1–2 siblings)				
No siblings	0.04	–0.03	–0.01	–0.03
3 or more siblings	0.02	0.01	0.00	0.01
Race/Ethnicity (vs. non-Hispanic whites)				
Black	–0.08***	–0.02	–0.19***	–0.15***
Mexican	–0.07*	–0.05**	–0.09*	–0.12***
Puerto Rican	–0.07	0.04	–0.02	–0.09
Other Hispanic	–0.05	–0.02	–0.07	–0.11*
Asian	0.06	0.02	–0.02	0.02
Language Background (vs. English only)				
Non-English	0.09	0.05	0.03	0.06
Bilingual, non-English dominant	0.04	0.05*	0.02	0.03
Bilingual, English dominant	0.01	0.02	0.04	0.02
Test Score in 1980 or 1990[a]	0.78***	0.89***	0.68***	0.75***
High School Dropout by 1982 or 1992	–0.22***	–0.17***	–0.15***	–0.12**
Constant	0.03	0.04***	0.02	0.76***
rho	–0.32	–0.66	0.07	–0.80
lambda	–0.18*	–0.29***	0.04	–0.55***

Source: HSB sophomore cohort (n = 12,810) and NELS sophomore cohort (n = 16,376).

Notes: The model estimated included a correction for selectivity of test taking using the Heckman procedure. The selection model is available from the authors.

[a]The actual test score in 1980 or 1990 for those with available data. Predicted 1980 or 1990 test scores for those with missing test scores were estimated from Model 4.

*p < .05; **p < .01; ***p < .001

The results presented in Table 6 suggest that the academic trajectories of immigrant, second- and higher-order generation youths from both the HSB and NELS cohorts were remarkably similar even though they differed in their initial starting points. We also examined the test-score trajectory for the NELS beginning with an eighth-grade cohort from 1988 to determine if the positive gain observed among preschool immigrants by 1992 was present for a sample back to the eighth grade. Replicating the final model in Table 2 for 1990 test scores and adding a control for 1988 test scores revealed that the positive trajectory among preschool immigrants was consistent throughout school starting in the eighth grade. Thus, our conclusions are not substantively different whether we compared the progress from 1988 to 1990 or from 1990 to 1992.

Our final step in the analysis was to determine the extent to which generational status differences in academic performance vary across racial/ethnic groups. We reestimated the models of the baseline mathematics and reading scores (1980 and 1990) and the follow-up mathematics and reading tests (1982 and 1992) only for the largest groups in our samples: non-Hispanic whites, blacks, and Mexican- and Asian-origin respondents. Because some of the cells became small, we combined recent and preschool immigrants into a single immigrant group for these models. In other words, we ran Model 4 from Tables 3 and 4 and the follow-up models from Table 6 with this smaller sample, adding interaction terms for race/ethnicity and generational status. Demographic and socioeconomic variables operated similarly in these models.[18] Table 7 presents the main effects of generational status and race/ethnicity, as well as the interaction terms from these models.

The results in Table 7 suggest diversity in the starting point, as measured by the baseline tests (1980 and 1990). Asian immigrants and second-generation youths outperformed their third- and higher-generation counterparts. Likewise, Mexican immigrant and second-generation youths appear to have outperformed their third-generation counterparts but only on the initial mathematics tests, not on the reading tests. The trajectories of first- and second-generation youths were less varied by race/ethnicity, but we did find some modest differences, albeit in different directions. The only evidence we observed for a second-generation decline occurred in the HSB cohort for blacks and Mexicans (reading only). We actually observed improvement in the reading scores of second-generation Mexicans and Asians in NELS.

DISCUSSION

The analyses presented here contribute to the ongoing investigation of the importance of generational status in the socioeconomic-attainment process among cohorts of youths and young adults. Concern about the academic achievement of immigrant youths has been framed within a larger debate over the assimilation process. What is sorely needed in this discussion is longitudinal information about educational outcomes by generational status. What is also needed is a nationally representative analysis of educational attainment that incorporates information about family background and earlier school performance. Our analyses provide one more step in the growing understanding of the academic trajectories of immigrants. While some broad studies have compared immigrants to their U.S.-born peers without regard for the actual process of adaptation, our longitudinal examination of starting point and trajectory can represent the effects of generation, alongside those of SES, ethnicity, and earlier school performance.

In our analysis of sophomore-year (1980 and 1990 starting points) scores on the mathematics and reading tests, we found that controlling for composition does not remove all generational effects. Furthermore, generational status did not operate in a consistent manner for both age cohorts even though almost all the other characteristics did operate in the

18. Models estimated separately for each racial/ethnic group also confirmed that the socioeconomic and demographic characteristics have a similar effect on test scores for youths from all groups (results not shown).

Table 7. Race and Generational Status Interaction Terms From the Heckman Regression Models Predicting Test Scores: Whites, Blacks, and Mexican- and Asian-Origin Adolescents Only

	Mathematics Test Scores				Reading Test Scores			
Variable	1980	1982	1990	1992	1980	1982	1990	1992
Generational Status (vs. third or later generation)								
All immigrants	–0.18**	–0.01	0.22**	0.08*	–0.22**	0.00	0.19*	0.11
Second generation	–0.10**	0.02	0.10	–0.04	–0.01	0.06*	0.04	–0.05
Race/Ethnicity (vs. non-Hispanic whites)								
Black	–0.52***	–0.07***	–0.46***	–0.03	–0.42***	–0.17***	–0.37***	–0.13***
Mexican	–0.40***	–0.06	–0.44***	–0.12**	–0.28***	–0.04	–0.31***	–0.16**
Asian	–0.21*	–0.04	–0.01	0.02	–0.35***	–0.13	–0.24**	–0.21*
Interactions								
Black immigrants	–0.01	0.03	0.12	–0.08	0.11	–0.02	0.15	0.03
Black second generation	0.01	–0.12**	0.09	0.04	–0.14*	–0.15*	0.49**	0.35
Mexican immigrants	0.27*	0.06	0.25	0.12	0.15	–0.07	0.23	0.05
Mexican second generation	0.26**	–0.03	0.23*	0.09	0.14	–0.18*	0.14	0.24*
Asian immigrants	0.64***	0.22*	0.18	–0.03	0.45***	0.10	0.18	0.05
Asian second generation	0.57***	0.13	0.29**	0.06	0.57***	0.19	0.40***	0.36**

Source: HSB sophomore cohort (n = 11,889) and NELS sophomore cohort (n = 15,610).

Notes: The model estimated included a correction for selectivity of test taking using the Heckman procedure. The selection model is available from the authors.

*p < .05; **p < .01; ***p < .001

same manner. Unadjusted data on achievement tests from 1980 show that natives (third and higher generations) outscored the second generation, who outscored preschool immigrants, who outscored recent immigrants. In 1990, preschool immigrants and members of the second generation outscored those in the third and higher generations.

Our cross-cohort, cross-sectional results lead us to concur with other studies that found that not all first- and second-generation youths are in the same position relative to their third-generation peers; indeed, these other studies have argued for the importance of immigrant background and context of reception (Portes and Rumbaut 2001: chap. 3). Similarly, these results reinforce the view of Bean and Stevens (2003:102, referring explicitly to the Mexican-origin case) about the difficulty of a strict application of any competing assimilation theory. The question of how immigrants proceed through key social institutions cannot be measured in the cross section or in absolute terms. We need measures of relative movement over time to determine if immigrant youths fall further behind or surge further ahead. The key innovation of this study is the analysis of the trajectories for both age cohorts.

Although the cross-sectional results suggest different patterns of academic performance by immigrants from different backgrounds, the achievement trajectories of immigrants and those in the second generation do not differ appreciably from their third-generation counterparts. Generational status did not have a large effect on determining gains in scores on achievement tests from the first test (1980 or 1990) to the follow-up

(1982 or 1992) beyond its initial impact on the baseline test. In addition, we found few differences by generational status and language background, once other traits were controlled. For example, the score on the standardized test in 1982 or 1992 (first follow-up survey) is predicted strongly by the score on the earlier test and background SES (the explained variance exceeds 75%). When we examined the factors that influence future gains or losses in test performance two years after the baseline test, we found that generational status has little influence. In other words, immigrant and second-generation youths' trajectories are not determined by their generational status per se, but appear to depend largely on structural measures that may indicate the social context they encounter in the United States, including perceptions of discrimination (Rumbaut 1994).

In addition to the importance of structural conditions, another key finding is that ethnic background, again a trait linked to immigrant origins, is strongly predictive of outcomes. Ethnic effects can mask immigrant and language effects, but it is clear that they do not completely overlap; ethnic effects are distinct and often significant. That ethnic minorities performed less well on academic tests in 1980 and 1990 despite controls for generational status lends support to Waters's (1997) suggestion that school performance declines among immigrant children who face the most severe discrimination. Furthermore, while the effects of generational status did not operate in the same manner across our age cohorts, the influence of ethnicity did. The same ethnic-minority groups who lagged behind in 1980 also lagged behind in 1990. And the academic trajectories of some ethnic-minority students declined over time, indicating that there is a cumulative disadvantage for these groups. Interactions of race/ethnicity and generational status, as well as separate models by ethnicity not presented here, suggest that this cumulative ethnic disadvantage operates across all generational-status groups.

Taken together, our results help us understand the relative influence of several traits on starting point and trajectory. The performance *trajectories* of the students in *both* cohorts were consistently more influenced by SES, ethnicity, age, and family structure than by generational status itself. There is considerable evidence that these processes of educational attainment worked about the same way for the two cohorts spaced a decade apart. There is also no evidence in these data that immigrant and second-generation youths in the later cohort started further behind or achieved any less than did comparable students in the earlier cohort; if anything, the opposite is the case. Conversely, these results raise questions regarding the divergent paths of socioeconomically disadvantaged groups and historically disadvantaged racial/ethnic groups; clearly, ethnic-minority youths relate to social institutions, including schools, from a different perspective than do their majority counterparts (Stanton-Salazar 1997). In addition, socioeconomic disadvantage contributes to an increasing gap in the acquisition of basic skills in childhood and into secondary school (Farkas 1996).

Although it is clear that some immigrant youths start out behind their U.S.-born peers and others begin from a more favorable position, nativity itself appears to play a lesser role in the path of individual performance than do these other factors. The factors that have a continuing effect on test scores, even beyond their impact on the sophomore test, may reflect the social environment experienced in the United States. This is not to say that generational status does not matter; it clearly has an influence, as we observed in the baseline test scores and interactions with race/ethnicity and generational status. Rather, our results suggest that other factors—among them those that are closely linked to the U.S. opportunity structures—figure more prominently in academic achievement. Furthermore, individual paths through schooling are clearly influenced by factors that affect U.S.-born and foreign-born youths alike. Thus, policies whose goals include reducing educational inequality, increasing the retention of students, and improving students' academic performance in the United States may be more appropriately focused on reducing socioeconomic and racial/ethnic inequality than on immigration per se.

Appendix. Pattern of the Availability of Test Scores, 1980 and 1990 Sophomore Cohorts

	1980 Cohort		1990 Cohort	
Pattern of Availability	Percentage	*n*	Percentage	*n*
Mathematics Test				
Both tests missing	1.20	154	2.10	343
Sophomore test available, follow-up test missing	7.30	938	2.44	399
Sophomore test missing, follow-up test available	7.75	993	19.86	3,283
Both tests available	83.70	10,725	75.60	12,381
Total	100.00	12,810	100.00	16,406
Reading Test				
Both tests missing	1.05	134	2.02	330
Sophomore test available, follow-up test missing	7.58	971	2.38	391
Sophomore test missing, follow-up test available	7.30	936	19.97	3,270
Both tests available	84.00	10,769	75.63	12,385
Total	100.00	12,810	100.00	16,376

Source: HSB sophomore Cohort and NELS sophomore cohort.

Note: Frequencies are unweighted.

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