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The Correlates of Tracking Policy: Opportunity Hoarding, Status Competition, or a Technical-Functional Explanation?

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In this analysis, the authors explore the relationship between the social context of high schools and school-to-school variation in tracking policies. The authors consider three explanations for the implementation of highly elaborated tracking systems: opportunity hoarding, status competition, and a technical-functional explanation. Building on the research methodology developed by Kelly, they conducted a content analysis of curriculum guides in a sample of 128 high schools to identify school tracking policies. They find that compositional variables related to technical-functional concerns, and to a lesser extent, status competition, are associated with highly elaborated school tracking policies.

KEYWORDS: tracking, educational policy, social context, sociology, high schools

Recent studies suggest that many tracking systems can be characterized as forms of within-school segregation (Clotfelter, 2004; Kelly, 2009; Mickelson, 2001), with students of low socioeconomic status (SES) and minority students segregated in low-track classrooms. Yet, while we know much about the average effects of tracking and its contribution to educational inequality from large-scale survey research, educational researchers have seldom studied how or why tracking systems are implemented differently from school to school. Lucas and Berends (2002) found higher levels of "de facto tracking" in schools with more heterogeneous student populations.

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That is, Lucas and Berends found that students were more likely to enroll exclusively in high- or low-track classrooms in socioeconomically diverse schools, despite achievement levels that would suggest discrepant course taking should occur (e.g., taking a high-track class in the student's strong subject and regular-track classes in weaker subjects). Lucas and Berends's study was innovative in treating tracking as a school-level system that is *responsive* to the composition of the study body.

In this analysis, we investigate school-to-school differences in course-taking policies and explore the compositional factors that might explain why some schools have highly elaborated tracking systems while other schools track students to a lesser extent. We pose three research questions. First, how do tracking policies differ among diverse high schools? For example, what policies do schools use to limit access to high-track courses, and how does this vary across schools? Existing research on tracking suffers from a shortcoming endemic to research in social stratification more broadly (Reskin, 2003): While stratified outcomes are routinely observed, we lack an understanding of what school-level *policies* generate different types of tracking systems. Second, can core theories of social stratification, including theories of opportunity hoarding, status competition, and technical-functional mechanisms, explain the observed variation in tracking policies? Third, how have tracking policies changed in recent years? Has the decline of overarching tracking systems observed by researchers as early as the 1980s continued?

Research on tracking in secondary schools consistently finds that tracked learning environments exacerbate educational inequality (Gamoran & Mare, 1989). The official rationale behind the practice of tracking is that by placing students of similar achievement together in classrooms, instruction will be more appropriately tailored to students' needs, and both high- and low-track students will experience rapid achievement growth. In practice, high-track students experience considerably faster achievement growth than low-track students (Gamoran, 1987; Van Houte, 2004). Moreover, low-track students receive lower grades (Farkas et al., 2005), have lower educational aspirations (Broaded, 1997), lower self-esteem (Oakes, 1985), and a reduced likelihood of attending college (Lucas, 1999). Thus, tracking in secondary schools tends to magnify initial differences in achievement, including initial disparities in achievement among students from different sociodemographic backgrounds. Yet, while most of the studies on the effects of tracking assume tracking systems are similar across schools, research in the United States and elsewhere finds substantial variation in school tracking systems.

School-to-School Differences in Tracking Systems

In many industrialized nations (e.g., Germany, Japan, Taiwan, the Netherlands), between-school tracking constitutes the most important form

of curriculum differentiation (Broaded, 1997; LeTendre, Hofer, & Shimizu, 2003; Van Houtte, 2004). In the United States, curriculum differentiation primarily occurs within comprehensive secondary schools. Within-school tracking systems represent, at least in theory, a potentially more fluid form of tracking than between-school systems. Within-school tracking systems offer the possibility of lower levels of curricular differentiation and specialization and may present greater opportunities for mobility across tracks (LeTendre et al., 2003). Yet, the U.S. system is also less opaque, with great variability in criteria for placement. Students may not always understand the process or consequences of track placements in the United States (Rosenbaum, 1976).

Indeed, tracking systems in the United States are often so complex and varied that it can be difficult to describe a student's track location in terms of discrete categories, such as "vocational" or "college preparatory." Researchers using large longitudinal databases have often done just that, investigating student reports of overall track placements. Yet, recent research shows that such definitions of track placement do not correspond very closely with actual patterns of course taking among students, and they completely ignore school-to-school differences in tracking systems (Kelly, 2004b, 2009; Lucas, 1999; Stevenson, Schiller, & Schneider, 1994).

In 1970, Aage Sorensen argued that tracking is not a uniform phenomenon across schools. Instead, tracking systems are likely to vary on several dimensions, including electivity, selectivity, inclusiveness, and scope. When applied to course-taking policies, Sorensen's original typology is not ideal; it fails to emphasize important dimensions of tracking systems, such as the level of mobility, and the concepts are not always mutually exclusive—many policies are likely to affect several of Sorensen's dimensions at once. Yet, the organizational dimensions he identified generally remain relevant to understanding school-to-school differences in tracking systems. Schools differ in the number of distinct tracks present in each subject (the most important element of selectivity), the proportion of students enrolled in the highest tracks (inclusiveness), the extent to which students can choose courses of different track levels (electivity), and the likelihood that students take all of their subject matter courses in the same track level (scope). Subsequent research has shown that inclusiveness is a particularly salient aspect of tracking that varies substantially across schools. Garet and DeLany's (1988) study of differences in inclusiveness across four schools showed just how disparate schools' approaches to tracking can be. In the most inclusive school they studied, high-achieving math students (those who were at the 75th percentile in the state as a whole) had a 56% chance of enrolling in a high-track math class. In the least inclusive school, less than 5% of the high-achieving math students were enrolled in the same courses. Other research found that high-SES students attend schools that are more inclusive than low-SES students (Kelly, 2004b; Spade, Columba, &

Vanfossen, 1997), contributing to the SES effect on course taking. Other studies have gone beyond Sorensen's original typology by, for example, focusing explicitly on mobility between tracks. In a study of achievement growth among high- and low-track students, Gamoran (1992) found the largest gaps in schools with high levels of track immobility, where track placements were highly consistent from sophomore to senior year.

Following Sorensen's (1970) early articulation of various organizational dimensions of tracking, Lucas and Berends (2002) were the first to explicitly link dimensions of tracking to school context. Whereas others sought to understand how differences in tracking across schools might affect opportunities to learn within schools or otherwise affect outcomes for students, Lucas and Berends' study treated tracking as a school-level system that developed in response to the composition of the student body. The implication of their findings concerning de facto tracking, where students' track placement is consistent across subjects despite substantial variation in their ability levels across those subjects—called "scope" in Sorensen's terminology—is that in some schools, tracking systems appear to be tailored to serve the interests of the high-status social group. This finding from a nationally representative database recalls Labaree's (1988) characterization of the historical development of tracking in Philadelphia's Central High.

From Organizational Dimensions to Specific School Policies

In the late 1990s, Kelly (2007) conducted a content analysis of curriculum guides from a sample of 92 North Carolina high schools. By examining the official school documents, he was able to provide a map of the policies and guidance procedures put in place by schools to create tracking systems (Kelly, 2007). Kelly found that a host of specific requirements exist that affect inclusiveness, scope, the amount of student electivity or choice in course taking, and mobility across tracks. In general, course-taking policies in North Carolina result in highly elaborated tracking systems. However, there is substantial variation in course-taking policies across schools. For example, schools vary dramatically in the selectivity of their tracking system or the number of track levels in each subject (Kelly, 2007, Table 1). Similarly, the use of particular course assignment criteria, from teacher recommendations to grades and test scores, varies widely across schools (see also Gamoran, 1992; Spade et al., 1997). The present study first updates Kelly's (2007) descriptive portrait of tracking policies using an improved coding system, a larger sample of schools, and more recent data. Next, we go beyond previous research by investigating the correlates of tracking policies. What can explain school-to-school variation in tracking policies?[1] Finally, because we collected new data from the schools in Kelly's original study, we are able to examine changes in course taking over a 10-year period.

Table 1
Descriptive Statistics

Tracking Dimension	*N*	Mean	Standard Deviation	Coefficient of Variation[a]	Min	Max	Cronbach's Alpha
Overall tracking[b]	128	3.97	1.11	27.88	0	10	.2666
Scope restrictions	128	2.74	1.65	60.02	0	10	.6902
Selectivity	128	5.28	1.47	27.91	0	10	.4321
Electivity	128	3.79	1.97	52.03	0	10	.5186

[a]Coefficient of variation: CV = $(\sigma / \bar{X}) \times 100$.
[b]Strong tracking systems are characterized by high scope, selectivity, and electivity restrictions.

Three Theories of Tracking: Opportunity Hoarding, Status Competition, and the Technical-Functional Explanation

Technical-functional theories of tracking. According to functionalist theories of educational systems (Davis & Moore, 1945), positions in the labor market are allocated on the basis of educational merit. Those with the most talent and skill obtain the most highly valued social positions. Stratification within schools is seen as logically corresponding to demands in the occupational realm. Moreover, functionalists view education systems as rational and efficient; high-status positions within the educational system are filled with students who exhibit the most talent and effort. At the level of individual students, studies of course taking strongly support a functionalist depiction of track assignments; achievement (grades and test scores) are by far the strongest predictors of course taking (Alexander & Cook, 1982; Kelly, 2009).

Within the overall context of an educational system designed to meet the needs of the labor market, there is also a strong technical rationale for tracking. Many educators strongly believe that tracking allows teachers to better match material and methods to students' ability level (Gamoran, 2004; Oakes, 1992). Consistent with the technical rationale for tracking, researchers do find important differences in instruction across tracked classrooms: While basic differences in classroom time use between high- and low-track classrooms are not very pronounced, the content, pace, and amount of academic material often differ dramatically in high- and low-track classrooms (Nystrand & Gamoran, 1997). Moreover, mixed-ability classrooms often lead to concerns among teachers that instructional practices are ill suited to students' needs (Rosenbaum, 1999).

Across schools, a technical-functional theory of tracking would suggest that tracking systems are highly responsive to the achievement distributions of their students. Lucas and Berends's (2002) findings are partially consistent with this perspective: Across schools, the scope of the tracking system is

related to the actual correlation in student achievement levels in disparate subjects. In this analysis, we hypothesize that consistent with a technical-functional rationale for tracking, school-to-school variation in tracking policies will be explained in part by both variability in student achievement and school size. We investigate school size as a contextual variable possibly related to a technical-functional explanation for tracking policies because the overall size of the student body may interact with technical-functional scripts of school organization to affect course-taking policies. For example, if a school embraces the underlying technical-functional script that in general, "it is good to differentiate instruction as much as possible," then it follows that instruction will be more highly differentiated in larger schools, because it would be possible to create a greater number of relatively homogenous track levels. In other words, it is not the variability in achievement alone that predicts the elaboration of a school's tracking policies, but that variation coupled with school size.

Opportunity hoarding. Socioeconomic diversity in schools also correlates with an increased scope of tracking systems in the Lucas and Berends's (2002) findings. This finding is consistent with, if not necessarily indicative of, a tracking system that differentially benefits high-SES students. The uneven allocation of students to tracked classes on the basis of SES might be conceptualized as a form of *opportunity hoarding* (Tilly, 1999, p. 72). The local benefit for high-SES students hoarding access to upper track classes within a school reinforces inequality in society at large through the differential accumulation of educational skills and credentials.

In tracked schools, high-SES parents are often conscientious managers of their children's access to opportunity, pushing them into high-track classes and arguing with school professionals when necessary to assure a high-track placement (Baker & Stevenson, 1986; Useem, 1991). In a study of schools undergoing detracking, Wells and Oakes (1996) found that parents of high-achieving students resisted efforts to provide a rigorous curriculum to all students and advocated for greater differentiation of the curriculum. Some researchers have even argued that historically, the practice of tracking itself can be traced to a White, middle-class response to inclusionary schooling policies, such as school desegregation and the mainstreaming of disabled students (Graham, 2005; Orfield, Eaton, & Harvard Project on School Desegregation, 1996).

High-SES and otherwise advantaged students, who have better chances of being enrolled in high-track classes (Kelly, 2004b), would presumably benefit from well-elaborated tracking systems that distinguish more completely between high- and low-track students. If school tracking systems are reinforced by a process of opportunity hoarding, then we would expect to find more highly elaborated tracking systems in schools with socioeconomically diverse populations.

Status competition. The term *opportunity hoarding* implies an element of intergroup conflict. From this perspective, high-SES parents have both a political interest in the existence of a robust tracking system and beliefs about tracking that reflect their identity as in-group members of the educational elite; that is, high-track classes are for smart students from middle- and professional-class families who support education. This in-group identity is sharpened by contrasting beliefs about the out-group—stereotyped assumptions about the low academic talents and proclivities of out-group members of the poor and working class. Opportunity hoarding, then, is conceptualized as the response of a minority elite to socioeconomic heterogeneity within a school. What can account, then, for the strong tracking systems found in elite suburban and private high schools, which consist almost entirely of college-bound students (Attewell, 2001)?

The ubiquitous nature of tracking even in the most elite academic secondary schools suggests that tracking systems are driven by a process of *status competition* (Boudon, 1974; Collins, 1979). Due to the strong link between educational attainment and labor market success, middle-class parents and students fiercely pursue access to the best colleges, which entails high-track courses enrollment in high school. Ehrenreich (1989) argues that the middle class has a pervasive "fear of falling" and, particularly, that middle-class child rearing is imbued with the anxiety that one's children might not attain the same middle-class status and lifestyle. An elite education and subsequent access to a professional occupation offer economic security, but they can be obtained only with a successful effort in a competitive educational system. Not surprisingly, high-SES parents are much more actively involved in the track placement process than low-SES parents (Baker & Stevenson, 1986; Useem, 1991). But does a process of status competition influence the nature of school tracking systems themselves or just differences in how students negotiate tracked schools? In their study of six schools, Spade et al. (1997) found the most highly differentiated tracking systems with the most elaborate course placement policies in the most affluent schools. Likewise, studies of detracking find strong resistance among middle-class parents (Wells & Oakes, 1996). If status competition has a generative effect on tracking systems, we expect to find more highly elaborated tracking policies in schools with higher average test scores and higher proportions of nonpoor and White students.

Overview of Analysis

Our results consist of three sets of findings: (a) a descriptive portrait of tracking policies, (b) an analysis of the correlates of high school tracking policies, and (c) an analysis of change in tracking policies over a 10-year period. Using a revised version of Sorensen's (1970) typology of the organizational dimensions of tracking, we measured schools' use of policies relating to

selectivity (differentiation), scope, and electivity. Within the dimension of electivity, we further analyzed specific policies governing upward mobility and the use of objective skill requirements as opposed to subjective requirements. In the first part of the Results section, we present basic descriptive statistics on the use of policies across schools. In the second half of the Results section, we use regression models to parse out the impact of school composition variables related to opportunity hoarding, status competition, and the technical-functional paradigm on the overall elaboration of school tracking policies. In the final section, we consider changes in tracking policies between 1997–1998 and 2007–2008. Empirical studies of data from the 1980s on student course taking reveal nontrivial rates of upward mobility as well as high levels of discrepant course taking, a pattern revealing the reduced scope of modern tracking systems (Lucas, 1999). Moreover, we know that at least in some areas, the dismantling of overarching tracking systems has been a major educational policy initiative (Loveless, 1999). We expect to find evidence of a continued trend away from highly elaborated tracking systems represented by a gradual decline in selectivity, scope, and requirements governing electivity.

Data and Method

Data Sample, Collection, and Content Coding

In this study, we collected curriculum guides from a sample of North Carolina high schools. The curriculum (course) guides provide information on policies pertaining to each of the organizational dimensions of the school's tracking system. In order to assess changes in course-taking policies over time, we collected new data from the list of 92 schools originally studied by Kelly in 1997–1998. These schools represent a stratified, nonprobability sample of low-, middle-, and high-performing schools, which was designed to maximize variability in schools' academic context. In addition, in order to improve statistical power in our analysis of the correlates of tracking policies, and to give all current schools a chance to be sampled, we freshened the sample with a simple random sample of 40 of the remaining nonchartered, public high schools in North Carolina. At our request, 128 schools in all, 91 of the original 92 schools and 37 of the 40 freshened schools, provided curriculum guides (a 97% response rate). To provide some assessment of the representativeness of our sample, we compared the sociodemographic composition of our sample to the population of North Carolina high schools and to the U.S. population of high schools using the Common Core of Data. The average school proportion free or reduced lunch in our analytic sample is .405, as compared to .387 for all North Carolina high schools and .350 for all U.S. high schools. The average school

proportion White is .583 for our sample, .572 for all North Carolina high schools, and .601 for all U.S. schools.[2]

Our data collection efforts took place around the end of the first semester for North Carolina high schools in 2007–2008. While we requested course guides for the 2007–2008 school year when available, due to the timing of collection, we received 32 course guides for the upcoming 2008–2009 school year, for which schools were currently enrolling students. We received two types of curriculum guides. Over half of the guides were individual school guides, while 43% were county-based guides. Many North Carolina schools now standardize their curriculum guides countywide in an effort to equalize course access across schools within a district, but not all courses are offered at every high school. The county guides provided data on policies pertaining to electivity and scope, while the course lists were used to properly code selectivity at the sampled school. For electivity and scope, we coded each policy twice in order to improve reliability (DeVillis, 2003), one pertaining specifically to sophomore year and one pertaining to the most restrictive policy in any other year of schooling (with the exception of the schedule design policies, which pertain to course enrollments in every year and subject). For example, we created two variables measuring whether test score requirements were present in English, one for sophomore year and one indicating whether test scores were used in any other year. It is possible that policies differed across grade levels; for example, a policy might be used to restrict enrollment in Honors English IV to students who received an A in regular English III but only a B in Honors English III, while enrollment in other grade levels required the same grade prerequisite for all students.

Our content analysis coded policies pertaining to the selectivity, scope, and electivity of school tracking systems. Collectively, these dimensions differentiate highly elaborated tracking systems from minimal tracking systems. To capture selectivity, or the extent of differentiation in the tracking system, we coded guides according to the number of tracks offered in each subject. In math, researchers typically code track levels using the concept of "sequences" (Kelly, 2004b; Stevenson et al., 1994), which identifies the number of possible track levels based on the courses it is possible to complete in freshman and sophomore year. In addition, math classes can be differentiated *within* sequences, so we coded the number of levels of geometry as an additional indicator of selectivity in math. In other subjects, differentiation either (a) is almost completely within sequences (e.g., in English, all students take the same sequence of four required English classes, although they may take electives as well, and are primarily differentiated by level at each grade, which we found to be consistent across grades) or (b) can be coded only freshman or sophomore year because thereafter, differentiation among courses (e.g., levels of physics classes) is coupled with differences in the number of science courses taken in a given year. We coded the number of tracks sophomore year in English and social studies, freshman year for

science, and the maximum number of tracks available at any grade level for foreign languages.

To capture scope, we coded policies that promote or require students to take courses of similar track level in disparate subject matter areas. The most frequent policies used to increase scope are course-taking corequisites (e.g., Honors English enrollment as a corequisite for Honors U.S. History) and blocked course enrollment, where students must enroll in both courses simultaneously. We also coded prerequisites that require or recommend student enrollment in a gifted and talented program or a specific North Carolina "program of study," such as "Tech" or "College Prep," which increases scope by limiting enrollment in high-track courses to only students of a particular course of study. Schools high in scope approach the overarching systems of tracking common in earlier eras of comprehensive schooling.

Several types of policies pertain to electivity, the extent to which requirements restrict access to high-track courses. We coded three sets of electivity-related policies: policies restricting upward mobility based on prior course taking, policies restricting access to high-track courses based on assessments of student's prior performance, and scheduling policies that affect electivity. Access to high-track courses, particularly, the opportunity for upward mobility into a higher-track course, is frequently limited by course prerequisites that stipulate that only students who are currently already enrolled in a high-track course (e.g., Honors English III) may enroll in a high-track course the following year (e.g., Advanced Placement [AP] English IV). Schools varied in their use of prior course taking policies, reducing opportunities for upward mobility as early as ninth grade (e.g., only students already in the high-track course in ninth grade could enroll in that track level the following year), or later, or not at all. Thus, for each subject, we identified the students' final opportunity to switch to the highest track. Assessments of students' prior performance also reduce electivity and include policies pertaining to grades, standardized test scores, and a variety of subjective requirements, such as teacher recommendations or writing samples. Occasionally, electivity policies included not only the more common grade or teacher recommendation requirements but a variety of vague policies (e.g., a rule that students be "highly motivated" or "interested in a science career"). Moreover, it is common for schools to require higher minimums for students who are trying to switch academic tracks (e.g., enrollment in honors Algebra II requires a grade of B or better in Honors Geometry or an A in regular Geometry), which affects opportunities for upward mobility. Finally, schedule design policies, which pertain to course enrollment across all subjects, discourage or encourage upward mobility and access to high-track courses. We coded two schedule design policies: those that deny students the ability to change their schedules once the school year begins and those that allow students to "double up" enrollment in a subject,

such as enrolling in Algebra II and Geometry in the same school year, which increases the possibility for upward mobility.

In order to capture the overall nature of scope, electivity, and selectivity in a school, we combined the relevant variables into scales by counting the number of relevant policies. Similar to the 1997–1998 data, the current curriculum guides varied somewhat in the manner in which tracking policies are presented to students, occasionally qualifying a policy as being a recommendation as opposed to a strict requirement. For each scale, the individual variables were given equal weight, with recommended polices given half weight (0.5 instead of 1). In the electivity scale, because upward mobility is such a critical aspect of the electivity of school tracking systems (Lucas, 1999; Rosenbaum, 1976), policies specifically reducing upward mobility were given double weight. An important aspect of our coding scheme is that each of the three dimensions of tracking is conceptually orthogonal to each other. That is, each course-taking policy is included in one, and only one, of the three scales. How the dimensions combine to form tracking systems in these data (if they are correlated) is an empirical question we investigate in this study. To create each scale, we began by generating a summative scale score (using the "gen" option with STATA's "alpha" command), which is the best available subset of nonmissing data with items reverse scored as needed. We then transformed each scale score to range from 0 to 10 (multiplying by 10, the upper-bound value). High scores on the electivity scale refer to more rules and restrictions or less electivity.

Finally, we combined the measures of selectivity, scope, and electivity into a summary measure of the overall elaboration of a school's tracking policies. Tracking systems are generally conceptualized as being relatively "strong" versus "weak," on precisely the dimensions investigated here. A strong tracking system is one that is highly selective, high in scope, and low in electivity (Gamoran, 1992; Sorensen, 1970; Spade et al., 1997). Strong, or as we say, highly elaborated, tracking systems have been linked with greater levels of educational inequality (Gamoran, 1992). The overall tracking measure is the equally weighted sum of the scales measuring each dimension, scaled 0 to 10. It is approximately normally distributed with a mean of 3.969, standard deviation of 1.107, skewness of 0.330, standardized kurtosis of 3.840, and Cronbach's alpha of .27.[3]

Measures of School Context

We hypothesize that the overall elaboration of school tracking policies is influenced by opportunity hoarding, status competition, and technical-functional concerns, a set of social processes that appear frequently in studies of students' track placement. In this analysis, we do not measure these social processes directly but instead include measures of social context that are consistent with each explanation. For example, following Lucas

and Berends (2002), we investigate whether tracking policies of a school are associated with sociodemographic diversity, independent of other contextual variables. Two measures of social context that may be related to opportunity hoarding are included: poverty variation and racial-ethnic heterogeneity. To measure poverty variation, we use the traditional formula for the variance in dichotomous variables [$\sigma^2 = p(1 - p)$], where p is the school proportion free or reduced lunch. To measure racial-ethnic heterogeneity, we use the index of diversity, D.

$$D = 1 - p_1^2 - p_2^2 - \ldots p_k^2 = 1 - \sum_k p_k^2$$

where p is the proportion of students in group k for each racial-ethnic group. This index shows the degree to which students are concentrated in a few or single large categories (Weisberg, 1992).

We include two measures of social context potentially related to status competition. We expect that school mean test scores, which is an average of scores on North Carolina End of Course (EOC) tests in English, math, biology, and U.S. history, and the school proportion of students who are White, non-Hispanic, and not receiving free or reduced lunch would lead to increased status competition. The EOC tests are statewide mandatory tests administered to students enrolled in EOC courses, regardless of grade level, during the last 2 weeks of the instructional period (North Carolina Department of Education, 2010).

Likewise, we include two measures of social context that may be associated with a technical-functional rationale for tracking, school size and test score variability. Test score variability is simply the weighted average of the coefficient of variation (CV) on each test.

$$\text{Test score variability} = \sum_{i=1}^{N} \frac{n_j}{N} \left(\sigma_i^2 / \bar{X} \right) \Big/ N$$

where i indexes the test subjects (Algebra I, geometry, U.S. history, etc.).

Results

Descriptive Portrait of Tracking Policies

Table 1 reports measures of central tendency and variability for the three dimensions of tracking in our sample of North Carolina high schools. Since each dimension of tracking is based on different items and has its own measurement scale (the mean and standard deviations are nonequivalent), we report the CV, which divides the standard deviation by the mean, to provide a better sense of the relative variation of each dimension (see Weisberg, 1992). While all schools have at least some policies governing course taking,

Table 2
Selectivity of Tracking System by Subject Matter in 10th Grade

	Number of Track Levels									
Subject Matter	0	1	2	3	4	5	6	7	8	Total
English	—	7	79	31	11	—	—	—	—	128
Levels of geometry[a]	—	10	96	19	3	—	—	—	—	128
Mathematics sequences[b]	—	3	—	1	—	18	80	20	6	128
Science (freshman year)	—	8	28	45	32	14	1	—	—	128
Social studies	—	15	93	15	5	—	—	—	—	128
Foreign language	2	49	44	19	7	6	—	—	—	127

[a]For example, regular, honors, etc.
[b]Combination of math classes offered freshman and sophomore year (e.g., Algebra I, Geometry; Geometry, Algebra II; etc.). See Kelly (2004b) for further details.

there is substantial variability; some schools have a highly elaborated set of tracking policies, while other schools have fewer requirements governing course taking. Of the three dimensions, policies related to scope vary the most across schools (CV = 60.02). Among the various electivity policies, rules restricting upward mobility are the most common.

Selectivity

Table 2 shows variation in the number of curricular tracks available to students. North Carolina does not mandate the amount of selectivity per subject for schools. Yet, these results show that the normative approach to tracking is to provide a highly differentiated curriculum. The modal school has six mathematics sequences that students may follow during high school (e.g., Introduction to Mathematics [pre-algebra], Fundamentals of Math [remedial algebra], Algebra I, Geometry, Honors Geometry, and Technical Math [math for Tech Prep students]). An alternative measure of selectivity in mathematics is simply the number of geometry levels offered, which is three or more in some schools. In science, over 35% of schools offer four or more levels of courses (e.g., Earth Science, College Tech Prep Physical Science, College/University Prep Physical Science, and Honors Physical Science). Selectivity tends to be lower in social studies and English, but it is not uncommon for schools to have three or more levels of courses available in these subjects (e.g., in English, College Tech Prep English II, College/University Prep English II, and Honors English II). With the exception of three small, "early college" schools that send students to community colleges for upper-level courses, all schools in this sample differentiate students into tracks in at least some subjects.

Scope

In a school where the tracking system is high in scope, students are more likely to be enrolled consistently in high- or low-track courses across all subjects. The overarching tracking systems detailed in studies of tracked schools in the 1960s and 1970s exemplify high scope. In the present study, only a handful of schools explicitly increase scope by linking course taking to the North Carolina programs of study, which would result in something like an overarching system. About 25% of schools recommend that a student be affiliated with a particular course of study for certain course enrollments (e.g., Saddleback High—all school names are pseudonyms—recommends that Tech Prep students take the Technical Math course).

In schools where the North Carolina programs of study are not mentioned explicitly, corequisite requirements are the most frequently used and basic policies affecting the scope of a schools' tracking system. Corequisites are most common in science (106 of 128 schools) and, to a lesser extent, social studies (31 of 128), with science courses corequiring mathematics course work and social studies courses corequiring English. In addition, about 20% of schools block-schedule two courses together, which greatly increases scope in those schools; when courses are literally blocked together, discrepant course taking is not possible. For example, in several schools, it is impossible for students to enroll in AP English junior year unless they also enroll in AP U.S. History. A few schools explicitly encourage gifted-and-talented students to take high-track courses in all subjects.

Electivity

Nearly all schools have some policies restricting enrollment in high-track courses. For each subject matter area, we counted the number of schools that utilized skill requirements (test score and grade minimums) and subjective requirements (teacher recommendations or vague requirements). Importantly, the intentions behind the use of subjective requirements in the curriculum guides were ambiguous. Teacher recommendations, for example, might serve to block enrollment in a course, dissuading students or parents from seeking academic placement in challenging, "reach" courses. But subjective requirements could also be used by departments to signal more leeway for teachers, parents, and students to "bend the rules" and enroll in a more challenging course than would be allowed under more objective requirements.

We also examined policies pertaining to upward mobility, in particular, whether the policies were stricter for students switching tracks. For example, an Honors English II course might require or recommend a grade of C or better for a student from Honors English I to enroll, but a student from the regular English I track would need a B+ or better for enrollment. As

a summary measure of upward mobility policies, we determined whether course prerequisites allow students who started in the lowest track to move into the highest track by senior year and at what point it became impossible to switch to the highest track in each subject. In general, we found that policies limiting electivity were used with similar frequency across subjects, with the exception of upward mobility in mathematics, which was highly restricted.

Both skill and subjective requirements are common. Averaging across subjects, 53.7% of schools use minimum grade requirements, while 31.6% use minimum test score requirements. Among subjective requirements, 42.8% of schools use teacher recommendations, while 43.6% use a host of different vague requirements (e.g., writing samples, parent wavers, requirements to be "a motivated learner," etc.).

To govern the process of upward mobility, schools use course prerequisites and made skill requirements more restrictive for students switching tracks. Across all subjects on average, 37.1% of schools use prerequisite requirements that make it impossible for a student who started in the lowest track freshman year to switch to the highest track by senior year. However, such policies were much more common in mathematics (121 of 128 schools) than in other subjects (e.g., 23, 29, and 17 schools in science, English, and social studies, respectively). For example, it is not possible for students at Sugarloaf High School to enroll in AP Calculus their senior year unless they began ninth grade in Honors Geometry.[4] In other instances, it was possible to move upward into the highest track but not after the junior or sophomore year; on average, 38.5% of schools restricted access to the highest track class in a given subject after sophomore year. It was relatively common to have more rigorous grade requirements for students moving up a track (13.6% of schools), but only a handful of schools had stricter test score, teacher recommendations, or other requirements for upwardly mobile students.

Finally, although course prerequisites are the most common way to limit upward mobility, other broad policies can also limit track mobility. About two thirds of schools explicitly deny students the right to change their courses after the semester begins, often citing staffing constraints. This discourages students from enrolling in challenging courses with the assurance that they could move down a track level if necessary. To overcome course prerequisites, a student could also "double up" on courses (e.g., take biology and chemistry in the same year). Yet, 14 schools explicitly forbid students to double up in a subject area.

Creating a Tracking System: Schools' Simultaneous Use of Policies Governing Selectivity, Electivity, and Scope

Table 3 shows the correlations between the three dimensions of tracking as well as the key independent variables used in the subsequent regression

Table 3
Correlation Matrix of Tracking Dimensions and School Context Measures

	1	2	3	4	5	6	7	8	9	10
1. Overall tracking	—									
2. Scope	.74*	—								
3. Selectivity	.45*	.17*	—							
4. Electivity	.70*	.28*	−.12	—						
5. Poverty variation	.06	.02	−.10	.15	—					
6. Racial-ethnic heterogeneity	−.14	−.04	.04	−.23*	.23*	—				
7. White, no free/ reduced lunch	.25*	.09	.04	.31*	−.18*	−.27*	—			
8. School mean test scores	.15	.05	.14	.12	−.23*	.03	−.74*	—		
9. Test score variation	.20*	.06	.32*	.08	.07	.36*	.31*	.41*	—	
10. Size per 100	.21*	.07	.54*	−.11	−.12	.25*	.14	.41*	.59*	—

Note. Correlations of test score variation and average test score limited to 124 schools with data.
*$p < .05$.

analyses. By definition, each scale pertains to policies that affect distinct organizational dimensions of tracking. Theoretically, for example, a school could have a tracking system that is very high in scope, with students taking all of the various subject matter courses in the same track level, but few policies governing electivity (recall that high scores on the electivity variable refer to schools with many rules governing, that is, reducing electivity), where students were free to enroll in the course of their choosing or to switch tracks at any time. Similarly, the amount of selectivity, or differentiation, in a school's tracking system is theoretically distinct from scope and electivity. Empirically, we do find that school policies on each dimension are relatively independent from each other, although selectivity and electivity factors are somewhat more correlated ($r = .28$) than scope and selectivity ($r = .17$) or selectivity and electivity ($r = -.12$). In supplementary calculations, we found that 10% of school tracking systems could be characterized as highly elaborated on all three dimensions (highly selective, high in scope, and low in electivity), while 25% of schools have minimalistic tracking policies in all dimensions, but it is also very common for a school to have highly elaborated tracking policies on only one of the three dimensions (31%).[5]

The Contextual Correlates of High School Tracking Policies

Table 4 shows the relationship between sociodemographic diversity and the overall elaboration of tracking policies. For each theoretical explanation

for tracking policies, we investigate two measures of school context simultaneously. Although the correlations among individual measures of school context are not large (see Table 3; most are less than .50 and none is over .75), with a sample of 128 schools, and two correlated measures of context included for each theoretical explanation for tracking policies, we do not necessarily expect any one individual measure to be statistically significant. Rather, we place emphasis on the joint effect of each set of school context measures, as revealed by the variance explained by each set of school context measures. Moreover, in reaching summary conclusions about how school context affects overall tracking, we rely on both the reduced form effects in Table 3 and the regression results in Table 4.

In contrast to the findings of Lucas and Berends (2002), we find little to no relationship between sociodemographic diversity and tracking policies (Model 2). Instead, of the three sets of measures investigated here, school-to-school variation in tracking policies is explained by school contextual factors related to status competition and technical-functional concerns.

In Model 3, school mean test scores and the proportion of students who are non-White and receive free or reduced lunch jointly explain 9% of the variance in overall tracking policies. Schools with higher average test scores and a greater proportion of White and nonpoor students have more highly elaborated tracking policies. The coefficient for school mean test scores is actually negative in Model 3, but the two status competition measures are highly correlated ($r = -.74$), so the reduced form relationship is positive ($r = .15$ in Table 4). In Model 4, school size and test score variation jointly explain 8% of the school-to-school variation in tracking policies. Larger schools have greater test score variation ($r = .59$), and both variables are positively related to the overall elaboration of school tracking policies.

Model 5 includes all of the school context variables simultaneously. Racial-ethnic heterogeneity, school proportion non-White who receive free or reduced lunch, school mean test scores, and school size all statistically significantly affect overall tracking policies. Yet, not all of the observed relationships were in the expected direction. Model 5 reveals that school racial-ethnic heterogeneity actually decreases the overall elaboration of school tracking policies. However, in considering the total effect of sociodemographic diversity, the negative effect of racial-ethnic heterogeneity is somewhat offset by the positive effect of poverty variation. Likewise, while the proportion of White students who do not receive free or reduced lunch in a school exerts a positive effect on overall tracking, school mean test scores exerts a negative effect on overall tracking in Model 5. Yet, both effects are of approximately the same magnitude (standardized betas = 0.36, −0.33, respectively) and thus offsetting. Among the control variables, there was a statistically significant difference in overall tracking between schools that provided 2007–2008 and 2008–2009 guides.

Table 4

Overall Tracking as a Function of School Context, Ordinary Least Squares Regressions ($N = 124$)

	Model 1		Model 2		Model 3		Model 4		Model 5	
School Context	Coefficient	Standardized Beta	Coefficient	Standardized Beta	Coefficient	Standardized Beta	Coefficient	Standardized Beta	Coefficient	Standardized Beta
Opportunity hoarding										
Poverty variation			1.880	0.086					2.140	0.098
			(1.983)						(1.911)	
Racial-ethnic heterogeneity			−1.340*	−0.207					−1.398*	−0.215
			(0.593)						(0.627)	
Status competition										
White, no free/reduced lunch					2.204***	0.441			1.796*	0.360
					(0.650)				(0.687)	
School mean test scores					−0.081+	−0.248			−0.108*	−0.329
					(0.043)				(0.045)	
Technical-functional										
Test score variation							0.947	0.075	0.932	0.073
							(1.322)		(1.414)	
Size per 100							0.058*	0.282	0.081**	0.395
Controls							(0.024)		(0.024)	
Rural[a]	−0.183	−0.084	−0.317	−0.146	−0.408	−0.188	−0.146	−0.067	−0.444	−0.204
	(0.294)		(0.297)		(0.289)		(0.284)		(0.280)	
Suburban or urban	0.330	0.143	0.320	0.139	0.262	0.114	0.005	0.002	−0.092	−0.040
	(0.312)		(0.308)		(0.305)		(0.321)		(0.304)	
County guide	−0.296	−0.136	−0.273	−0.125	−0.301	−0.138	−0.340+	−0.156	−0.354+	−0.162
	(0.193)		(0.192)		(0.185)		(0.186)		(0.179)	

(continued)

Table 4 **(continued)**

School Context	Model 1 Coefficient	Model 1 Standardized Beta	Model 2 Coefficient	Model 2 Standardized Beta	Model 3 Coefficient	Model 3 Standardized Beta	Model 4 Coefficient	Model 4 Standardized Beta	Model 5 Coefficient	Model 5 Standardized Beta
2008–2009 guide	−0.641**	−0.259	−0.592**	−0.239	−0.560**	−0.226	−0.812***	−0.328	−0.794***	−0.321
	(0.218)		(0.217)		(0.212)		(0.217)		(0.209)	
Constant	4.247***		4.450***		15.365*		3.308***		18.617**	
	(0.272)		(0.490)		(6.207)		(0.619)		(6.500)	
Model F test	3.54**		3.30**		4.65***		4.42***		5.09***	
SS model	20.105		21.061		28.034		26.882		45.202	
SS residual	125.377		124.421		117.447		118.599		100.279	
R^2	0.106		0.145		0.193		0.185		0.311	
Adjusted R^2	0.076		0.101		0.151		0.143		0.250	
R^2 change from Model 1			0.039		0.087		0.079		0.205	

Note. Standard errors in parentheses. SS = sum of squares.
[a]The reference category for the urbanicity variables is small/medium town or village.
$^{+}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

In our final model, only the measures related to technical-functional concerns exert a consistent positive effect on the overall elaboration of school tracking policies. Yet, given the modest sample size, it is difficult to completely disentangle the relationships among school contextual factors.[6] Thus, given the reduced form relationships in Table 3 and Models 3 and 4 in Table 4, we conclude that school contextual factors related to technical-functional concerns and, to a lesser extent, status competition likely affect the overall elaboration of school tracking policies.

A Decade of Change in Course-Taking Policies

Despite reports of the widespread dismantling of overarching tracking systems, all 128 schools in our sample clearly engage in some form of curriculum tracking. Still, today's schools do not exhibit the explicit tracking systems characterized by extremely high scope as was the norm when the baby boom generation attended high school (see, e.g., Rosenbaum, 1976). Consistent with Lucas's (1999) findings, in these data, we see policies that encourage high scope but that do not completely preclude discrepant course taking in most schools. Yet if today's tracking systems are somewhat less overarching, with lower levels of scope, they are also more complex; many policies layer upon one another to govern and limit course-taking opportunities. Clearly, tracking is *not* solely a de facto function of student, parent, and teacher agency operating in the absence of formal school policies.

Unfortunately, we cannot be more specific in comparing today's tracking systems to those encountered by students in the 1980s, 1970s, or earlier generations, because no data were collected on the actual policies put in place by schools and districts. We can, however, compare the present findings to results from Kelly's (2007) study of tracking policies in the 1997–1998 school year. Since we collected new data on course-taking policies for the same schools for the present study, we present the following comparison to those schools using the newly collected data for 91 of the original 92 schools. Table 5 reports a series of T tests comparing selected policies, which were coded the same, from the 1997–1998 school year to date collected for the same sample of schools 10 years later in the present study. Over the intervening decade, tracking policies have changed primarily on the dimension of electivity. The prevalence of test and grade score requirements has increased in nearly all subjects. The overall level of selectivity has not changed, social studies is more highly differentiated, but English is less differentiated than in 1997–1998. While corequisite requirements affecting the scope of tracking systems have not changed in these data, we speculate that the implementation of the North Carolina programs of study in this state would lead to increased scope compared to the

Table 5
Changes in Tracking Policies 1997–1998 to 2007–2008 (*N* = 91)

Tracking Policy	1997–1998 Proportion	2007–2008 Proportion	Paired *t* Test of Proportions, *t* =
High selectivity			
English (≥3 tracks)	.522	.352	2.2983*
Math (≥6 tracks)	.807	.860	0.9837
Science (≥4 tracks)	.304	.374	1.0454
Social studies (≥3 tracks)	.065	.187	2.5992**
Standardized test minimum requirements and recommendations			
English	.348	.396	0.7111
Math	.228	.527	4.0608***
Science	.098	.275	3.0057***
Social studies	.000	.264	5.3110***
Grade minimum requirements and recommendations			
English	.380	.538	2.0087*
Math	.380	.560	2.4461*
Science	.358	.593	3.1839**
Social studies	.272	.505	3.1913**
Teacher recommendation requirements and recommendations			
English	.565	.626	0.9647
Math	.489	.593	1.2549
Science	.554	.429	0.9647
Social studies	.424	.549	1.2549
Corequisite requirements			
Science (requires math)	.989	.967	1.3480+
Social studies (requires English)	.185	.231	0.9209

$^{+}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

1997–1998 school year, when programs of study were implemented by districts and individual schools rather than the state.

Discussion

In this study, we investigated the prevalence of course-taking policies on three core dimensions of tracking: selectivity, scope, and electivity. In these data from North Carolina, tracking is not a de facto process at all; many students encounter a highly elaborated tracking system in the schools they attend that is created by a host of explicit policies. In the average school, students encounter a highly differentiated (selective) curriculum, with five or more track levels in mathematics and three or more in science. Yet, consistent with Lucas's (1999) findings concerning discrepant course taking, the scope of today's tracking systems differs from previous generations. Instead of linking high-track course enrollments to overall programs

of study or gifted-and-talented designations, schools increase the scope of tracking with corequisites. When corequisite requirements are not in place, regular-track students could possibly access a high-track course in their strong subject. Yet, even then, various electivity policies, including course prerequisites, test and grade minimums, and subjective requirements, control and limit student access to high-track courses.

In addition to a descriptive analysis of the prevalence of tracking policies, we conducted an analysis of the correlates of these policies. How do the policies used to track students differ across schools? And can variation in schools' use of tracking policies be explained by compositional variables related to technical-functional, opportunity hoarding, or status competition explanations? While we cannot link the origin of school policies explicitly to the motives of school personnel, students, parents, or others, we did investigate compositional variables consistent with each explanation.

In this analysis, we find that compositional variables related to technical-functional concerns and, to a lesser extent, status competition, as opposed to sociodemographic diversity, principally explain school-to-school variation in the overall elaboration of tracking policies. In larger schools, in schools with greater test score variation, and in schools with fewer minority students and fewer who receive free or reduced lunch, we find that a more highly differentiated (selective) tracking system is in place, with a more elaborated set of policies governing electivity and scope. Although prior research has found a link between patterns of course taking and the sociodemographic diversity of schools (Lucas & Berends, 2002), we found little evidence that poverty variation or racial-ethnic heterogeneity is associated with tracking policies. Tracking policies do appear to be responsive to the school's student body composition but perhaps not as perniciously as would be inferred from prior studies showing persistent course-taking inequality.

Among these overall findings, some questions remain concerning specific findings. First, we have some reservations that the effect of school size represents entirely a technical-functional rationale and not perhaps an aspect of schools that is more "organizational" in nature, for example, some process related to the size of the faculty workforce in a school. Second, the negative influence of racial-ethnic heterogeneity (as distinct from poverty variation) on tracking policies is an interesting finding in light of past research. How can this finding be reconciled with the robust characterization of tracking as a form of within-school segregation (Kelly, 2009; Mickelson, 2001), where minority students, and in particular, African American students, have far lower chances of high-track course taking than White students? Given the recent nature of our data, one explanation for the finding that racial-ethnic heterogeneity is associated with fewer tracking policies is that schools may have attended to the findings of past research regarding the segregated nature of school tracking and worked to ameliorate that inequality. Moreover, we have questions about the relationship between rules governing electivity and racial-ethnic inequality

in course taking to begin with. Much of the observed course-taking patterns of students from diverse backgrounds reflects differences in achievement and academic preparation (Kelly, 2009). Because minority students enter high school with lower levels of achievement, course-taking policies that base enrollment on test scores or grades alone will tend to produce a segregated tracking system. Thus, schools may have moved away from an elaborated set of policies governing electivity in order to provide minority students with greater opportunities for high-track course enrollment. Yet, increased electivity alone will not necessarily lead to a more racially balanced tracking system. If White students and their parents more readily capitalize on electivity (Kelly, 2009), increasing opportunities for electivity might actually lead to less meritocratic course-taking patterns (see, e.g., Broaded, 1997). In other words, rules restricting electivity might actually promote equitable course taking.

Future research using curriculum guides should seek to address several limitations of the present study. First, information from curriculum guides presumably provides information about intended tracking policies and practices but does not necessarily indicate how tracking is actually implemented in a school. Thus, for example, while tracking policies were not linked with school racial-ethnic or poverty diversity in these data, this does not mean that opportunity hoarding never occurs as students negotiate the track placement process (see, e.g., Useem, 1991). Reports from guidance counselors, teachers, parents, and student transcript data could all be used to provide information on the implementation of tracking policies. Second, we analyzed curriculum guides from 2 years, finding differences in the overall elaboration of school-tracking policies. This raises questions about the stability of policies from year to year within schools. Third, some of the schools provided district guides accompanied by school-specific course listings; there may be greater variation between intended and implemented policies in districts with multiple high schools.

Finally, we compared tracking policies in data from 2007–2008 to data from the same schools collected a decade ago. In this sample of schools, we found a nontrivial increase in policies affecting electivity but little change in policies affecting scope or selectivity. Future research is needed to track trends in tracking policies on a national scale. These data from North Carolina provide a nice range of schools that maps well onto the diversity of American schools as a whole, but the analysis is restricted to the policy environment of a single state.

Although many studies have shown that tracking exacerbates educational inequality, it has proven to be a remarkably resilient educational policy. In most instances, we believe, the choice is not whether a school will track students but how it will. And as the present findings reveal, today's tracking systems are produced by an intricate web of school policies that vary greatly from school to school; the "how" of tracking represents a long list of decisions about the multiple organizational dimensions of tracking. Unfortunately,

research has generally ignored the specific policies that create tracking systems. Thus, states, districts, and schools are left with little guidance in constructing tracking policies that might serve their schools the best.

Notes

Data for this research were collected at the Center for Research on Educational Opportunity at the University of Notre Dame.An earlier version of this article was presented at the 2010 annual meeting of the American Educational Research Association (Denver, CO; April).We thank William Carbonaro, Richard Majerus, and the editors and reviewers at *AERJ* for their helpful comments.

[1]In the following section, we discuss theories relating the student body composition of the school to tracking systems. Other factors, such as the teaching workforce, are likely to affect tracking systems (Kelly, 2004a).

[2]U.S. averages taken from the National Center on Education Statistics (2009). North Carolina averages compiled from the Common Core of Data build-a-table utility on April 12, 2010.

[3]Note in interpreting the alpha reliability that the scales are conceptualized as being *formative*, not *reflective* (Jarvis, MacKenzie, & Podsakoff, 2003). In other words, there is no reason to expect the measures are correlated (internal consistency is not implied). Rather, the construct possesses surplus meaning; the three dimensions *add* together to create a strong or weak tracking system.

[4]This example assumes that students do not double up on math courses throughout their high school years.

[5]Highly and minimally elaborated policies refer to schools greater or less than 1 standard deviation about the mean, respectively.

[6]Using STATAs "collin" command, we investigated possible issues with multicollinearity in each of our regression models. All variance inflation factors (VIFs) were well below 10 with tolerances well above 0.1; the maximum VIF, for school mean test scores, was 3.03. We computed outlier-influence statistics (DFBETAs) for each of our school context measures in Model 5, Table 4. No cases exceeded ±1 standard error of influence for any of the variables.

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