The Limits and Possibilities of Tracking: Some Evidence from Taiwan

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Drawing on theoretical and methodological suggestions of Oakes, Gamoran, and Page and Meyer, the author uses a survey of educational attainment in urban Taiwan to explore the effects of ability grouping. Because of the nature of educational institutionalization in Taiwan (universal basic education, a national curriculum, and entrance examinations governing access to postcompulsory schooling), he argues that tracking reduces, rather than accentuates, the influence of family background characteristics on the distribution of junior high graduates to stratified senior secondary opportunities. Gender differences in educational aspirations and enrollments in senior secondary schools remain, however, even when track assignments and grades are held constant. Both cultural and institutional factors help explain these differences.

In the United States, debates about the effects of tracking or ability grouping in schools—whether the outcome of interest is cognitive achievement, students’ self-concept and self-esteem, the formation of educational aspirations, or persistence in school through high school graduation or entry to postsecondary schooling—often restrict their scope to the contemporary United States (see, for example, the exchange between Hallinan 1994a, 1994b and Oakes 1994a, 1994b). This situation is understandable, since many of the analysts and their presumed audiences are based in the United States and because they often wish to contribute to the formation of policies at the national, state, and local levels. However, the focus on a single national context limits general theory building because important elements of the societal context are “held constant” and therefore may not be subject to even implicit consideration (Campbell 1983; Meyer 1987; Oakes, Gamoran, and Page 1992). These factors include level of economic development and structural position in the world system; occupational structure; income distribution; racial, ethnic, and linguistic distribution of the population; the extent and nature of educational institutionalization; generalized patterns of school organization; degree of curriculum standardization; the educational opportunity structure and its advancement mechanisms; and cultural value orientations.

By introducing variation in some of these societal-level factors, comparative research, such as that reported here on tracking and educational attainment in urban Taiwan, can help clarify the conditions under which tracking does or does not have particular effects. Does tracking serve to reinforce inequalities in students’ social origins, or does it enhance the educational opportunities of talented students from less advantaged backgrounds? Much of the literature on tracking in the United States would lead one to assume that ability grouping necessarily reflects and reinforces social-class inequalities (see, among many others, Bowles and Gintis 1976; Hallinan 1994a, 1994b; Oakes 1985, 1994a, 1994b; Rist 1970). But as Oakes et al. (1992) argued, the actual effects of ability grouping on equality of educational opportunity may depend not only on the schooling environment but on aspects of the larger societal
context and the nature of educational institutionalization.

In my study, I used data from a survey in Taiwan on the transition from junior high school (the end of compulsory schooling) to the distinctly stratified range of opportunities at the senior secondary level to explore two related questions. First, what is the relative strength of family background characteristics, gender, and school-achievement factors (ability-group placement and grades) in the formation of students' educational aspirations? Second, what is the relative strength of family background, gender, aspirations, and school-achievement variables in the senior secondary attainments of the students in the sample? Before turning to these specific questions, I first sketch the major features of Taiwan's educational system and its general societal context.

EDUCATION IN TAIWAN

Taiwan offers a useful comparison with U.S. patterns of educational stratification. One of Asia's "four tigers," Taiwan has experienced rapid economic growth and societal development in the past four decades (Gold 1986; Rubenstein 1994; Vogel 1991). Levels of income inequality remain modest by international standards, despite a rise in inequality during the 1980s (Chu 1989; Thornton and Lin 1994). In addition, ethnic tensions and inequalities exist among people of Taiwanese and "mainlander" backgrounds, but they are much less extreme than are the tensions and inequalities among ethnic groups in the United States.

Furthermore, although people of mainland backgrounds have been advantaged over native Taiwanese groups in educational attainment since the 1950s, studies in the early 1990s found some narrowing of the gap (Ts'ai and Chiu 1991, 1993). Steady educational expansion has occurred; the compulsory phase of schooling was formally extended to nine years (six years of elementary and three years of junior high school) in 1968. Enrollment rates in junior high school have been above 95 percent since the late 1970s, and attendance at senior high schools has risen steadily (Educational Statistics Bureau 1994b; Lin 1989). In 1992-93, for example, about two-thirds of the relevant age cohort were enrolled in some form of schooling at the postcompulsory senior secondary level (see Table 1).

In comparison with the United States, the provision of basic education in Taiwan is remarkably equal. It is characterized by a national standardized curriculum and relatively small variation across individual schools in levels of finance, facilities, and teachers' training and experience (Mao and Bourgeault 1991). In addition, students are required to wear uniforms to school, which helps to promote a sense of collective identity and minimizes opportunities to display evidence of economi-

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<th>Table 1. Enrollment and Graduation Rates in Taiwan, based on Students Starting Elementary School (First Grade) in Fall 1983 (percentages)</th>
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<tr>
<td><strong>Entrants to First Grade, Fall 1983</strong></td>
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<tr>
<td><strong>(n = 167,979)</strong></td>
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<tr>
<td>Graduates from Elementary School, mid-1989</td>
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<td>Entrants to Junior High School, Fall 1989</td>
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<td>Entrants to academic senior high schools</td>
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<td>Entrants to vocational senior high schools</td>
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<td>Private</td>
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*Source: Department of Education, Taiwan Provincial Government (1993).*

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cally advantaged or disadvantaged family backgrounds.

Furthermore, formal schooling opportunities at the senior secondary level, described more fully later, are sharply differentiated and hierarchically ranked. Junior high school graduates are admitted to senior high schools strictly according to their scores on citywide or regional entrance examinations and their stated preferences. Taiwan's educational attainment process (conceptualized here as including both the objective educational opportunity structure and the mechanisms through which individual students are allocated to different types of opportunities) is, in the Weberian sense, transparent. Students, parents, educators, and employers are all fully aware of the major distinctions among and within types of schools and understand well what is required for success. The examination system is widely regarded as meritocratic; despite frequent complaints about the inordinate pressures it places on students, it enjoys widespread public support as the fairest method yet devised for allocating scarce educational opportunities (Chyu and Smith 1991; Hsieh 1992).

The association between parental education and children's early achievement in school is likely to be weaker in Taiwan than in the United States because of Taiwan's much more equal provision of basic education. Nevertheless, some formal and informal features of the educational system have a potentially egalitarian thrust. Since children are usually expected to attend neighborhood schools at both the elementary and junior high school levels, patterns of residential segregation by income, social class, or ethnicity are reflected in the composition of the student body of the schools. Junior high schools are informally ranked in the public consciousness according to the proportion of their graduates who gain admission to prestigious academic senior high schools. Some parents seek to enroll their children in schools outside their own neighborhoods, in the hope that attending a better school will enhance their chances on the high school entrance examinations. The practice of "skipping" from one's neighborhood school to another (yuequ) is fairly common, with lesser schools experiencing a net outflow and better schools experiencing a net inflow of students from outside their normal catchment areas. The existence of private junior high schools introduces an even larger disparity in advancement rates.

Two basic organizational features of junior high schools in Taiwan are particularly important. First, as is common elsewhere in East Asia, students in Taiwan's junior high schools are organized into "class-groups" (banji) of 40 to 55 students who remain together in the same classroom all day and throughout the school year and are visited by teachers of different subjects in succession during the school day. This arrangement is clearly different from the usual pattern in the United States, where students are reshuffled among different classrooms each period of the day.

Second, by their second year of junior high school, public school students are assigned to class-groups according to assessments by teachers and other school staff of their overall academic ability (nengli fenban). Students whom school personnel have identified as the most academically able are clustered into an upper tier of "advancement" class-groups (shengxue ban), while students who have been identified as having middling or lower levels of academic ability are clustered in lower tiers of "ordinary" (putong) or "vocational" class-groups (jiuye ban or, less politely, fangniu ban, which literally means "to put cattle or oxen out to graze").

These organizational conditions are favorable for the development of distinctive climates or subcultures in class-groups at different levels of the ability ranking, and they have clear implications for instruction. Although the nationally standardized curriculum is the basis for instruction at all levels, students in the higher-ability class-groups are expected to be more rigorously prepared for the entrance examinations for academic senior high schools, and teachers are expected to move at a faster pace and cover the curriculum more completely and with greater depth in
these groups. In the lower-ability class-
groups, where students are seen as
having little chance of performing suc-
cessfully on these examinations, teach-
ers tend to adopt a more relaxed attitude
about covering the standardized curricu-

These instructional differences across
ability groups are similar to patterns
observed in U.S. schools, where lower-
track students receive less interesting
and demanding instruction and teach-
ers' expectations for these students are
low (Ayon 1980; Oakes 1985; Schwartz
1981). In Taiwan, however, the system
of entrance examinations through which
junior high school graduates are allo-
cated to stratified opportunities at the
senior high school level also exerts a
strong influence on instruction. There
are three different examinations, which
govern admission to academic high
schools, five-year technical specialized
programs, and vocational senior high
schools, respectively. Within each of
these three types, individual schools are
ranked according to their selectivity,
which is, in turn, related to public
perceptions of the desirability of the
educational and occupational futures to
which they may lead.

Taiwanese school personnel operate
in a context of powerful sociocultural
values in which the reputations of schools
and their personnel are based on the
success of students on these entrance
examinations (K. Yang and Yeh 1984).
My interviews with school personnel
made it clear that it is essential for them
to optimize the performance of their
students—relative to the composition of
the school's student body—on the
entrance examinations.

This form of educational institutional-
ization, whatever its other effects, cre-
ates an incentive structure in which it is
in the interest of school personnel to
channel students with the greatest apti-
tude for taking standardized tests into
the high-ability class-groups, with little
or no regard for their social-class back-
grounds. At the same time, students of
modest ability, who are unlikely pros-
spects for admission to academic high
schools, nevertheless have something
important riding on their performance
on the entrance examinations. A better
or worse score on the examination for
five-year specialized schools or for voca-
tional high schools can make a differ-
ence that students and their parents
regard as highly consequential.

Under this constellation of advance-
ment mechanisms for stratified opportu-
nities at the high school level, pressures
on teachers to prepare students well for
the examinations and teachers' expecta-
tions that students will work hard at
their studies extend further down in the
ranking of ability groups than one would
expect on the basis of studies conducted
in the United States. Although the influ-
ence is difficult to quantify, it also seems
likely that because of the cultural legacy
of Confucianism, with its great stress on
the moral authority of teachers, self-
cultivation, and mobility through educa-
tional attainment, educational achieve-
ment values are more diffused into the
lower reaches of Taiwan's class struc-
ture than is the case in the United States.

POSTCOMPULSORY EDUCATION

Three main types of schooling are
available to the graduates of Taiwan's
junior high schools: academic senior
high schools, five-year specialized tech-
nical-vocational programs, and voca-
tional high schools. The academic
schools, which train young people to sit
for the unified college entrance examina-
tions, are the most prestigious and rep-
resent the option of first choice for most
junior high school graduates. Among
the students in my sample, 70 percent gave
the name of an academic senior high
school when asked their first preference
for high school enrollment. Even among
students in the lower-ability class-
groups, whose odds of actually testing
into an academic high school are ex-
tremely low, 42 percent listed an aca-
demic high school as their first choice.
The five-year specialized schools are
generally regarded as the second best
option, since their graduates are in
relatively high demand in the skilled
white- and blue-collar levels of the labor
market. Least preferred are the three-
year vocational schools, in which the
academically weaker students tend to enroll.

The institutionalization of this ranking can be readily seen in the order in which the citywide entrance examinations are given. Each summer, the examination for academic high schools is given at the end of June or the beginning of July; after an interval of several weeks, the examination for five-year schools is held; and finally, after another interval of several weeks, the examination for vocational high schools is held. This arrangement makes good logistical sense. Students who test well enough to gain admission to one of their preferred academic high schools will simply accept admission to that school and will not participate in the later examinations. Those with low or marginal test scores, along with the minority of students whose first preference is for a five-year specialized school, will take the examination for five-year programs. Again, those who test well enough will simply accept admission to one of their preferred schools, while those with low or marginal scores will sit for the vocational-schools examination.

In Taiwan, the high level of social or familial demand for schooling, combined with the fact that the state does not operate enough schools to enroll all young people of high school age, has created favorable conditions for the development of a private sector for all three types of schools. Table 1 indicates the island-wide proportions of students in the cohort who began elementary school in the fall of 1983—the cohort from which my sample was drawn—who were enrolled in public and private institutions of each type.

Throughout Taiwan, about 17 percent of the cohort who began elementary school in 1983 had, by 1992, enrolled in academic senior high schools. Most academic high schools are in the public sector, which generally enjoys higher prestige, but a few private schools have achieved "star" status (mingxing xue-xiao) because of their high transition rates to colleges and universities (Epstein and Kuo 1991; C. Yang 1983). Island wide, about 2 percent more boys than girls are enrolled in academic high schools. The gender imbalance in available seats is more pronounced in Taichung City, the site of my research, than the national average would suggest. For example, Taichung's most selective all-boys high school (Yi-Zhong) enrolled 1,436 new students in the fall of 1992. In contrast, the city's most selective all-girls high school (Nu-Zhong) enrolled 1,020 new students. Most of the coeducational academic high schools allocated more seats to boys than to girls, so the citywide male-female ratio for first-year high school students in the fall of 1992 was 1.4:1 (Educational Statistics Bureau 1994a).

About 9 percent of students in the same educational cohort entered five-year specialized schools, which combine the three years of senior high school with an additional two years of specialized technical or vocational training. There is a wide range of such schools, including those for industrial and manufacturing skills, agriculture, nursing, design, accounting, and other business skills. Graduates of these schools are roughly equivalent to the graduates of U.S. community colleges. As Table 1 makes clear, private schools of this type enroll about 10 times as many students as do public schools. Most of these schools are highly gender segregated, with boys predominating in schools for industrial and manufacturing skills and girls predominating in schools for nursing, home economics, and commercial or other business skills.

Almost 43 percent of the students in this educational cohort entered three-year vocational high schools, which prepare students for semiskilled jobs in the manual and routine clerical labor force. Many of these schools are also highly gender segregated. The private sector provides considerably more seats in vocational high schools than does the public sector. In sum, about 69 percent of the age cohort continued into some kind of postcompulsory schooling, while most of the remainder entered the lowest tiers of the unskilled labor market.  

**RESEARCH DESIGN AND SAMPLING**

In my survey of third-year junior high school students in Taichung on the
Limits and Possibilities of Tracking

transition from junior to senior high school. I used a two-stage, stratified procedure to select my sample. In the first stage, four public junior high schools (hereafter called Public School 1, Public School 2, Public School 3, and Public School 4) were selected with the assistance of the Municipal Education Bureau in Taichung to reflect variation in the schools' rates of advancement into academic senior high schools. In recent years, their advancement rates have averaged about 25 percent, 20 percent, 16 percent, and 14 percent, respectively. My sample does not include the public school in Taichung with the highest advancement rate or the schools with the lowest rates. Therefore, Public School 1 represents an upper-middle point in the range of advancement rates, while Public School 4 represents a lower-middle point.

The second stage of sampling occurred in each of the four schools. School staff were asked to identify two class-groups that were among the best: two class-groups that were regarded as good, but not among the best; and two class-groups that were regarded as average or somewhat below average. When boys and girls were placed in separate class-groups, I asked for one boys' class-group and one girls' class-group from each ability level. In March 1992, every student in each of the 24 sampled class-groups (N = 1,098) filled out a lengthy questionnaire about his or her family background, schooling experiences, and educational and occupational aspirations. Starting in late June, students sat for one or more of the entrance examinations. In late fall of 1992, each participating junior high school provided information on its graduates' examination scores and actual high school enrollments (if any).

Independent Variables

Parents' education. Parents' educational attainments are grouped into three levels: junior high school or less, senior high school (including both academic and vocational senior high schools), and college and above (including the community college equivalents of five-year specialized schools and two- and three-year postsecondary vocational schools, er-zhuan and san-zhuan).

Parents' occupation. Father's and mother's occupations were grouped into seven categories: owners of large businesses, professionals (including physicians, lawyers, engineers, professors, and high-level governmental officials), managerial personnel in private businesses or the public sector, semiprostessionals (such as nurses, schoolteachers, and accountants), routine white-collar workers, self-employed owners of small family businesses, and blue-collar and low-level workers in the service sector. Because there were few owners of large businesses, professionals, and managerial personnel among the mothers, these mothers were grouped with semiprostessionals. A significant number of mothers did not participate in the paid labor force; they are called "not employed" or "homemakers" in the following analyses.

Household income. Father's and mother's monthly incomes were reported in a nine-level range from "none" through "greater than 150,000 NT" (Taiwan dollars). To calculate household income, father's and mother's separate incomes were summed, and the resulting distribution was divided into a 10-point scale.

Ability-group level. Class-groups were assigned to higher, middle, or lower tiers according to information provided by school staff. These rankings in each school coincided exactly with the subsequent rankings of class-groups according to their mean scores on the entrance examinations.

Grade average. Students' grade-point averages during their third year of junior high school were computed from their self-reported grades in mathematics, sciences, Chinese language, English, history, and geography; the resulting distribution was divided into an eight-point scale.

High school aspirations. On the March 1992 questionnaire, students were asked to list the schools they most wanted to attend after graduation from junior high school and could provide as many as five responses. Those who listed only academic high schools among their top
three preferences were categorized as “strongly academic” in aspiration, while those who listed one or more five-year specialized technical schools or vocational high schools were categorized as “mixed or vocational.”

**Entrance examination scores.** The junior high schools that participated in the study provided the exact scores on the academic high school entrance examination for all their students who sat for the examination. For ease of presentation, the distribution was divided into a 10-point scale.

**RESULTS**

Overall, 32 percent of the students in my sample were admitted to academic senior high schools, about 20 percent entered five-year specialized programs, 40 percent entered vocational high schools, and about 7 percent intended to engage in a year of review study and to retake the entrance examinations the following year. This distribution, with transition rates higher than the national averages for academic high schools and five-year programs, reflects my oversampling among students in high- and middle-ability class-groups and the fact that the lowest-ability class-groups (many of whose students would have entered the unskilled labor force) were not included in the sample.

The ability grouping of junior high school students represents a powerful institutional prediction about the students’ likely performance on the entrance examinations and their placements in senior high schools. It also creates an organizational context in which instruction oriented to entrance examinations can be intensified for students in the higher-ability groups, who are expected (by teachers, parents, and themselves) to score well and to be placed primarily in academic high schools—what Chinese critics refer to as the *tianya* (force-feeding of ducks) style of instruction. Students in the lowest-ability tier are expected to do poorly on the examinations and to gain admission mostly to the least selective, lowest-prestige vocational schools or to leave the school system altogether. Expectations are more mixed, of course, for students in middle-ranking class-groups.

Just how accurate are these institutional predictions? Figure 1 displays the distribution of the respondents across the main kinds of opportunities available to them. I divided the 24 class-groups in the sample into three tiers, representing higher, middle, and lower levels of academic ability. Figure 1 shows the percentage of boys and girls within each tier who gained admission to academic high schools, five-year specialized schools, or three-year vocational high schools, as well as those who indicated that they would engage in review study for an additional year and then retake the examinations.

Each ability tier shows a distinctive pattern. As expected, a high proportion of students in the higher-ability class-groups (about 68 percent) gained admission to academic high schools, and most of the others (about 21 percent) entered five-year specialized schools. Boys’ and girls’ enrollment patterns were somewhat different: About 20 percent more boys than girls enrolled in academic high schools, and about 18 percent more girls than boys enrolled in five-year specialized programs. Among the students in the middle-ability class-groups, only 8 percent of the boys and 12 percent of the girls gained admission to academic high schools, 28 percent of the boys and 34 percent of the girls entered five-year specialized schools, and 58 percent of the boys and 45 percent of the girls entered vocational high schools.

The destinations of students in the lower-ability class-groups were overwhelmingly vocational: More than 70 percent of the boys and almost 90 percent of the girls entered vocational senior high schools. Also noteworthy is the much higher percentage of boys than girls from lower-ability class-groups (15 percent versus 3 percent) who intended to retake the entrance examinations the following year. This finding may reflect the greater willingness of parents of academically marginal children to invest in continued education for their sons than for their daughters.

This distribution suggests that ability-group assignments in junior high school
are indeed strong predictors of senior high school attainments (see also Hsieh 1987). Students who are assessed to have high academic ability are channeled into the upper tier of class-groups and then are given more intensive preparation for the high school entrance examinations than are students in middle- or lower-ability class-groups. The proportions of boys and girls who enroll in academic senior high schools are markedly different, reflecting, in part, the objective, but, of course, still socially constructed, constraint of the number of seats available to them.

**Formation of Educational Aspirations**

The assignment of junior high school graduates to senior secondary schools relies fundamentally on students’ stated preferences, which are allowed to operate within the specific constraint of their actual scores on the entrance examinations and the systemic constraint of the number of seats that are available in different types of schools. Boys and girls with comparable examination scores may enroll in different types of institutions because they have a genuine preference for one type over another or because of differences in the availability of seats. These two factors, of course, can have a feedback effect: To the extent that students are aware of gender differences in the availability of seats, they may adjust their educational aspirations accordingly.

Table 2 presents the results of logistic regression analyses of educational aspirations, dichotomized as “strongly academic” versus “mixed or vocational.” The independent variables are family background characteristics; gender; and school-achievement variables, including grade point average (GPA) and ability-group placement. Because of multicollinearity among parental characteristics, I
used father’s education, mother’s occupation, and household income as the indicators of family social location.

I present four models to assess the relative strength of gender and family background characteristics, on the one hand, and school-achievement variables, on the other, in the formation of students’ educational aspirations. Model 1 includes only gender and family background variables. Model 2 includes only school-achievement variables (GPAs and ability-group placement), Model 3 combines all the background and achievement variables, and Model 4 is the result of a backward stepwise procedure that successively removes variables that do not make a statistically significant contribution to Model 3. The Exp (B) coefficients are odds ratios representing the likelihood that students with a particular background characteristic will have strong academic aspirations, compared with students in a “reference category” of the same variable, and with the influence of the other variables in the model statistically held constant.

When only gender and parental characteristics are considered (Model 1), both father’s education and mother’s occupation are seen to exert a modest influence on the formation of educational aspirations. In comparison with students whose fathers attained only a junior high school or lower level of schooling (which is the omitted, or reference, category for this variable), the children of fathers who graduated from senior high school or college are significantly more likely to have academic aspirations.9 For mother’s occupation, the omitted category is blue-collar and
lower-level service workers. In comparison with them, students whose mothers work in semiprofessional, professional, or managerial positions are almost four times as likely to have academic aspirations. Children whose mothers are routine white-collar workers, who are self-employed in small family enterprises, or who are homemakers are all significantly more likely to have academic aspirations than are the children of mothers who are blue-collar workers. The differences between these three occupational categories are not statistically significant, however. It is notable that with the effects of father's education and mother's occupation held constant, household income exerts no influence on the formation of educational aspirations. Gender, on the other hand, exerts a significant independent influence, with boys 1.4 times more likely than girls to have strongly academic aspirations.

When only school-achievement variables are considered in Model 2, they prove to be much stronger predictors of educational aspirations. The model chi-squares are 49.25 (with 8 degrees of freedom) for Model 1 and 201.93 (with 3 degrees of freedom) for Model 2. Both ability-group level and GPA are strongly associated with aspirations. In comparison with students in lower-ability class-groups (the omitted category), students in middle-ability class-groups are 2.78 times more likely, and students in higher-ability class-groups are 4.75 times more likely, to have strongly academic aspirations. Grades are also important. Students' likelihood of having academic aspirations increases by 1.36 times at each level of the 8-point range I used in my analysis, and this difference is significant at better than the .001 level.

When gender and family background characteristics, as well as school-achievement factors, are included in Model 3, one sees a modest but statistically significant improvement over Model 2 in the model chi-square (to 235.55, with 11 degrees of freedom). As in Model 1, household income exerts no independent influence on students' aspirations. The influence of father's education is greatly reduced; in fact, when school-achievement factors are included in the model, none of the differences in students' aspirations by father's educational level attains statistical significance.

The influence of mother's occupation is also somewhat weaker in Model 3 than in Model 1. With school-achievement factors held constant, children whose mothers work in semiprofessional, professional, or managerial jobs are significantly more likely to have academic aspirations than are children whose mothers work in blue-collar jobs or are self-employed. But the differences between most of the other pairs of mother's occupational categories do not attain statistical significance. While the influence of parental characteristics is substantially reduced when school-achievement factors are introduced into the model, the same cannot be said for gender. With achievement and background factors held constant, boys are about twice as likely as girls to have strongly academic aspirations, and this difference is highly statistically significant.

Model 4 presents the results of a backward stepwise elimination of statistically nonsignificant variables—household income and father's education—from Model 3. The difference in the model chi-square between Model 3 and Model 4 is small and not statistically significant. The strong influence of school-achievement variables in these models is what one would expect: Students who do well in school develop higher educational aspirations than do students who do poorly. Surely, one of the effects of tracking as practiced in Taiwan is to encourage the development of strong academic aspirations among students who are assigned to high-ability class-groups and to "cool out" (Clark 1960) or lower the aspirations of those assigned to low-ability class-groups. The strong influence of gender suggests that boys and girls are subjected to substantially different climates of expectations even when they occupy the same structural position in the hierarchy of ability groups and get the same grades. Mother's occupation also remains in Model 4, indicating that with school performance and gender held
constant, having a mother who works in a semiprofessional, professional, or managerial position or who chooses to be a homemaker, rather than to participate in the paid labor force, encourages the formation of strong academic aspirations.

**Determinants of Senior High School Placements**

The most proximate determinants of placements in senior high schools are each student’s scores on the entrance examinations and his or her hierarchy of preferences for further schooling. When students sit for the examinations, they fill out forms indicating which schools they wish to enter, and in what order (*tian zhiyuan*). Once the examination scores are known in midsummer, educational officials engage in an elaborate process of matching students to available slots. Other factors may also play a role in enrollment patterns. Since private schools charge higher tuition and fees than do public schools, family income may enter into students’ decisions. Gender, as I noted earlier, plays a significant role in the formation of educational aspirations and can be expected to have an influence on enrollments as well.

Table 3 presents the results of logistic regression analyses of senior high school placements, dichotomized as academic high schools versus all others. I present five models designed to show the relative influence of various background characteristics and achievement factors. When family background characteristics and gender are the only factors considered (Model 1), they have a statistically significant but modest influence on high school placements; the model chi-square is only 31.77 with 8 degrees of freedom. Children of college-educated fathers enjoy an advantage over children whose fathers did not attend school beyond junior high school.\textsuperscript{14} Similarly, children whose mothers work in semiprofessional, professional, or managerial jobs or who are homemakers are advantaged in comparison with children whose mothers work in blue-collar jobs.\textsuperscript{15} The gender difference is statistically signifi-

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These variables attain statistical significance. As in Model 1, household income has virtually no effect on high school placements. Gender differences, however, are substantial. With the effects of parental characteristics and achievement factors held constant, boys are about twice as likely as girls to enroll in academic high schools. The model chi-square for Model 3 is 375.71, with 12 degrees of freedom, which is not a statistically significant improvement over Model 2.

The overwhelming influence of scores on entrance examinations in the high school attainment process is clearly shown in Model 4, which focuses on achievement factors, and Model 5, which adds gender and parental characteristics. Once examination scores are included in these models, the direct effects of ability-group level and GPA are dramatically reduced. The influence of students' aspirations remains statistically significant in Model 4, but it is weaker than in Model 2. The model chi-square for Model 4 is 450.50, with 5 degrees of freedom, which is a statistically significant improvement over Model 2. In Model 5, the effects of father's education, mother's occupation, household income, and student's aspirations are also insignificant. Gender differences are pronounced, however; with the effects of other variables in the model held constant, boys are about 2.7 times more
likely than girls to enroll in academic high schools.

**DISCUSSION**

In the formation of educational aspirations, school-achievement variables, such as GPA and ability-group level, have a much stronger direct influence than do the family background variables included in my analysis. The only parental characteristic that makes a statistically significant contribution to the formation of educational aspirations, when the influence of other variables in the model is held constant, is having a mother who works in a semiprofessional, professional, or managerial occupation or who chooses to be a homemaker. Although the direct effect of parental characteristics is modest, the influence of gender remains significant, both statistically and substantively. When GPA and ability-group level are held constant, a higher proportion of boys than girls develops strong academic aspirations.

The direct influence of family background characteristics on enrollments in senior high schools is insignificant when achievement-related variables and aspirations are included in the analysis. Considered by themselves, ability-group level, GPA, and aspirations are powerful predictors of high school placements. Yet, when scores on entrance examinations are also included in the model, these other achievement factors are rendered statistically insignificant. Gender, however, makes a significant independent contribution to patterns of high school enrollment, even beyond its influence on the formation of educational aspirations.

These results suggest both some of the possibilities and some of the limitations of ability grouping, as practiced in Taiwan's junior high schools. Ability-ranked class-groups are powerful organizational contexts for channeling students' aspirations. Placement in identifiable "advancement" classes helps to promote higher educational aspirations among students of all social-class backgrounds, with only a modest continuing advantage for children from higher-status households. On the other hand, gender differences remain pronounced, suggesting the mutually reinforcing influences of cultural ideas about appropriate roles for men and women (Farris 1994) and gender-differentiated structures of opportunity for higher education and work (Chou 1994).

In the calculus of deciding which high schools to enroll in, students must take into account the kinds of futures to which different types of schooling may lead. As Collins (1977) argued, people will weigh the potential returns to educational credentials in the labor market against the direct costs of obtaining them and the potential returns to other kinds of activities available to them. The decision to enroll in an academic high school means that a student has opted to prepare for the unified college entrance examinations, whereas the decision to enter a five-year specialized program usually means that a student has chosen to enter the skilled blue-collar or white-collar labor force on graduation. Given gender segregation in the labor market and the corresponding gender segregation in many senior secondary schools and colleges, it is not surprising that boys and girls arrive at somewhat different patterns of high school enrollment.

Despite these gender disparities, the educational attainment process in urban Taiwan is otherwise substantially informed by meritocratic principles. Students from advantaged households cannot automatically reproduce their parents' status, but must compete successfully on the high school entrance examinations. Conversely, talented students from disadvantaged households face fewer barriers to educational achievement and advancement than do children from similar backgrounds in the United States largely because of Taiwan's much greater equality in the provision of basic education and the regulation of educational advancement through entrance examinations that test students' mastery of a standardized curriculum available to students from all social backgrounds. The use of ability grouping in the final years of compulsory schooling means that intensified preparation for the high school entrance examinations will be provided to children who previously
demonstrated high academic ability, irrespective of their social origins.

These features do not completely erase the advantages and disadvantages of students’ social origins, to be sure. Children from well-educated households, in particular, enjoy definite advantages in school achievement. Higher-income households can afford more and higher-quality supplementary education (in-home tutoring or cram schooling) for their children and can afford to have their children enroll in private high schools. On balance, however, ability grouping, as practiced within the educational context and larger societal context of Taiwan, seems to be contribute to greater equality of educational opportunity.

To understand the effects of tracking as “an organizational practice whose aim is to facilitate instruction and to increase learning” (Hallinan 1994b:79) or as a “segregative mechanism that . . . builds inequalities into schools that both devalue and materially disadvantage those groups who are least able to defend themselves” (Oakes 1994b:91), it is useful to examine societal contexts other than that of the contemporary United States. Patterns of educational stratification in the United States are profoundly intertwined with issues of racial and ethnic stratification and with social-class inequalities (Collins 1979). The combination of residential segregation based on race, ethnicity, and social class with the predominance of local and state financing and control of schooling generates the kinds of “savage inequalities” documented by Kozol (1991) and makes tracking a highly charged issue, both morally and politically.

Taiwan represents a societal context in which tracking should be more able to function according to the ideals of tracking theory, as articulated by Hallinan (1994a, 1994b). Income inequalities are less extreme and racial and ethnic tensions are less severe than in the United States. Taiwan is a more recently industrialized country in which small family businesses provide employment opportunities outside the relatively credentialized public and quasi-public sectors. In addition, the provision of basic education is universal and, by U.S. standards, remarkably uniform in terms of curriculum, finance, and teacher training throughout the country. Educational achievement values, influenced, at least in part, by the Confucian cultural tradition, are more fully diffused into the lower levels of the class structure than in the United States. As in Japan (Rohlen 1983), elementary school students in Taiwan get off to a much more equal start than in the United States. During the later years of junior high school, the compulsory system becomes more stratified (students are assigned to class groups on the basis of academic ability and achievement), in anticipation of the profound sorting of the youth cohort that takes place in the transition to the stratified senior high school.

The entrance examination system for high school (and, later, for college) plays an important part in the educational attainment process in Taiwan. The reputations of junior high schools (and their principals and teachers) depend on the success of their students on the senior high school entrance examinations. Principals and teachers are concerned, of course, with what proportion of their students gain admission to academic schools. But it also matters what proportion of students gain admission to five-year specialized programs and, dropping down yet another level, what proportion gain admission to “better” vocational high schools.

With such a finely stratified system of educational opportunities at the high school level and a series of three entrance examinations to allocate students to different levels of the high school opportunity structure, teachers and counselors in public junior high schools must orient themselves to prepare students efficiently for the examinations. At the same time, many students in middle- and lower-ability class groups retain the belief that working hard in school may make an important difference in their subsequent opportunities.

In the United States, one of the criticisms of tracking is its psychological impact on students who are assigned to middle and lower tracks (Oakes 1994a, 1994b). It is commonly argued that such
students are stigmatized by their track placement, that teachers have low expectations of their performance, and that students' motivation to study is seriously undercut. It could be argued that students who are assigned to the lower-ability class-groups in Taiwan are similarly stigmatized. As I pointed out earlier, the lowest-ability class-groups are often informally referred to as fangniu ban—classes for "putting cattle or oxen out to graze"—which certainly implies low expectations of these students' performance. Nevertheless, one of the accomplishments of Taiwan's educational system seems to be that it keeps a large proportion of junior high school students working hard at their studies, mainly because they and their parents believe that hard work will make a consequential difference in their later opportunities. How much of this belief is due to "cultural" factors (Confucian value orientations, for example) and how much to "institutional" ones (Taiwan's specific educational opportunity structure and mechanisms for advancement) is difficult to say; in any case, institutional structures often reflect deeply held cultural orientations.

While tracking in Taiwan overrides stratification by social class, the same cannot be said for gender stratification. Although boys and girls seem to be assigned to ability groups relatively equally, a higher proportion of boys than girls develops strong academic aspirations (even with GPA and ability-group level held constant), and a higher proportion of boys than girls actually enroll in academic high schools. Part of the difference is structurally determined, since more seats in academic high schools are available to boys than to girls. Yet the public policy decisions involved in establishing the number of seats to be made available to boys and girls in different kinds of schools reflect a cultural understanding of appropriate roles for men and women (Y. Yang 1994b). Processes of macro social change (Thornton and Lin 1994) and the more focused initiatives of the women's movement (Lu 1994) are likely to weaken gradually the current patterns of gender segregation in senior secondary schools, colleges, and the occupational structure. As the objective opportunity structures become more equal, the educational aspirations and enrollment patterns of boys and girls in Taiwan's secondary schools may become more equal as well.

As Oakes et al. (1992) argued, the effects of curriculum differentiation or tracking can be better understood when aspects of both the school environment and the societal context are taken into account. Education has been somewhat differently institutionalized in Taiwan than in the United States. In this article, I have highlighted the importance of several aspects of the organization of schooling, including the degree of equality in the provision of basic education, the "class-group" system of keeping groups of students together throughout the school day and school year, ability grouping in the higher years of junior high school, a nationally standardized curriculum and the use of entrance examinations to govern access to stratified opportunities at the senior secondary level, a reputational system that encourages teachers to make ability-group assignments with little regard for social origins, and the overall transparency of the educational structure and its advancement mechanisms. Societal factors, both institutional and cultural, must also be taken into account. They include Taiwan's stage and trajectory of economic development and the associated occupational structure; a normative climate of "severe meritocracy" (Berger 1988); and the continued influence of patriarchal cultural traditions, as well as contemporary challenges to those traditions.

NOTES

1. Educational researchers in Taiwan (see, for example, Lin 1989; Y. Yang 1994a) point to continuing disparities between urban and rural schools in financing, facilities, and the quality of teachers. My study was limited to urban schools, among which the range of variation is slight.

2. In dozens of lengthy interviews in junior high schools, I never heard a teacher or administrator use this pejorative term. Yet it
Limits and Possibilities of Tracking

is commonly used in casual conversations with people who have passed through Taiwan's schooling system.

Detailed tables provided by the administrator of one of the public schools that participated in the study show that almost all the graduates who gained admission to academic senior high schools during the previous three years had come from only the top two (or during one year, the top three) class-groups in the school. The aim of 1993 governmental regulations has been to moderate this practice by requiring the random assignment of students to class-groups (that is, heterogeneous grouping) during the first two years of junior high school. Ability grouping will be allowed during the third year, when the pressure for efficient preparation for the high school entrance examinations is the most intense. Since teachers and principals are no less subject to the pervasive ideology of “educational advancement” (shengxue zhuyi; see K. Yang and Yeh 1984) than are students and their parents, I suspect that many schools will comply outwardly with the regulations but continue informally to cluster students according to perceived ability levels.

3. Each year some students decide to engage in an additional year of review study and to take the high school entrance examinations again the following year. Since a given year’s high school entrants will include some students from the previous cohort, I assumed that the numbers largely balance out.

4. My overall study also included two private junior high schools in Taichung, the data on which are not included in this article.

5. Nationally, the advancement rate to academic senior high schools was about 18.5 percent during the mid-1980s (Y. Yang 1987: 58). My calculations for 1992 in Table 1 indicate a slightly lower rate.

6. Public School 1 separated boys and girls into different class-groups at all ability levels. The other schools had coeducational class-groups at all levels, with the one exception that Public School 3 had some single-sex vocational classes providing gender-specific training (mechanical repair for the boys and cosmetics and hairdressing for the girls).

7. A copy of the questionnaire in Chinese or English may be obtained from the author.

8. There are other possible outcomes. A minority of junior high school graduates, primarily from the lowest-ability tier, goes directly into the labor force. Another small number is sent abroad—mostly to the United States—to attend senior high school.

9. A separate analysis, not shown here, indicated that the aspirations of children whose fathers are college graduates or graduates of senior high school are not significantly different from each other. The fundamental distinction, therefore, is between fathers who attained anything beyond junior high school and those who did not.

10. The difference between the high- and middle-ability groups is also statistically significant at the .001 level (analysis not presented here).

11. Grades in Taiwan are assigned on a 100-point scale, with 60 points being the minimum passing grade. My analysis uses an 8-point scale: below 60, 60–64, 65–69, 70–74, 75–79, 80–84, 85–89, and 90 and above.

12. The one exception is that children whose mothers are not employed are 1.79 times more likely than are children whose mothers are employed in blue-collar jobs to have academic aspirations (p < .05).

13. Some influence undoubtedly also runs in the other direction, with students who have developed strong academic aspirations being more likely to perform well.

14. However, neither the college-versus-senior high school difference nor the senior high school-versus-junior high school difference attains statistical significance.

15. The differences between other pairs of mothers’ occupational categories are not statistically significant.

16. For an argument that curriculum standardization and entrance examinations promote greater equality of educational opportunity in a different societal context, see Gamoran (1996).

REFERENCES


Rubenstein, Murray A., ed. 1994. The Other
Limits and Possibilities of Tracking


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