

Will Quality of Peers Doom Those Left in the Public Schools?

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Much is uncertain about the total effects of a broad voucher program on education. The United States has relatively limited experience with choice in general and vouchers in particular, and that experience has occurred in rather narrowly prescribed experiments. It is therefore difficult to project the results of a broader voucher program by simply expanding on past experience with such a program. On the other hand, considerable experience relates to various aspects of schools that have been highlighted as potentially important. This chapter concentrates on one such area—the role of school peers—and describes what related research has to say about this potential avenue of voucher effects.

THE CONTEXT FOR DISCUSSION

Of the many arguments that are made about the impacts of public schools, the one that generally lingers is “Vouchers will ruin the public schools.” This argument frequently refers mainly to fiscal effects: vouchers would send funds that previously went to public schools to private schools. If funding were not increased, the overall budget for the public schools would decline, leading to the commonly hypothesized adverse

fiscal impacts on existing public schools.¹ These arguments go beyond the scope of this chapter, but they are not the only aspects of potential impact on the public schools. A central concern revolves around how changes in the composition of students affects the students remaining in the public schools. The pejorative version of this concern is that the public schools would become the “dumping ground” for unmotivated and unprepared students; that is, that any good students would necessarily opt out of the public schools, leaving just the poorest students.

The important dimension of this issue is how other students in a school affect each individual’s ability to learn. If there were no important interactions among students that affected individual learning, the fact that the public schools took on a population more difficult to educate would not necessarily be a damning statement. Since there will always be unmotivated and unprepared students, and they must be served someplace, the public school system is a natural place.² But to the extent that peers directly influence the quality of education, further attention is needed.

There are many dimensions of peer effects that deserve consideration. The most obvious one—the possibility of

¹Of course, the number of students would decline with the fiscal support. Therefore, the real issue is whether any decline in funding is more or less than the costs of educating the departing students. The funding of any vouchers and its impact on public schools depends on the precise characteristics of any voucher, but the general issue is whether the marginal cost of the students departing schools is greater than the lost revenue. Any lost revenues, it should be noted, would be determined not only by the funding formula but also by political economy forces that determine overall support for public schools.

²Part of this discussion really considers issues that are simply a distraction. If, for example, all the best students left the public schools for private schools, the average achievement in the private schools would necessarily exceed that in the public schools. But this would have nothing to say about the value-added of either public or private schools; that is, it would not indicate which schools were contributing the most to student learning. As is well known, the movement of students from one school to another can affect the absolute and relative levels of average achievement in each, depending on where in the distribution moving students start and end up. All this can happen without changes in achievement of any individual student.

intensified racial concentration—has received significant attention. Indeed, the long history of racial separation in schools has been a subject of policy attention and concern since well before the 1954 U.S. Supreme Court decision in *Brown v. Board of Education*. The half-century of judicial and policy interventions aimed at eliminating disparities in racial composition and in other related characteristics of schools have their underpinnings in presumptions about the impacts of peers on student outcomes.³

But the racial dimension of peers is not the only dimension of potential importance. Although race has special impact because of history and legal status, similar peer concerns have been raised about the possibilities of divisions according to the socioeconomic status of students and their families. The current system, largely based on neighborhood attendance boundaries for schools, leads to substantial separation of students along the lines of income. Historically, segregation by income has been less pervasive than that by race, although it has been substantial. Further, recent attention has focused on the potential adverse effects of high concentrations of poverty.

The influence of student peers can naturally extend beyond these areas of attention. Although not usually linked to voluntary choices and vouchers, the potential impact of achievement and ability of peers offers another avenue of effects. Much of this discussion has previously centered on ability grouping in classrooms, but it could be relevant in a system of choice if schools tended to separate according to achievement levels.

Vouchers and choice also have potential interactions with special education. Considerable attention has been focused on special education because of its growing importance and expense. The Individuals with Disabilities Education Act, or IDEA, translated concerns about the education of children with both physical and mental disabilities into federal law

³See, e.g., David J. Armor, *Forced Justice: School Desegregation and the Law* (New York: Oxford University Press, 1995).

with its enactment in 1975.⁴ This Act prescribed a series of diagnostics, counseling activities, and services for disabled students. From its inception when some 8 percent of public school students were placed in special education, the program has grown to 13 percent of the public school population. Identified students were given legal rights to an education appropriate for them.⁵ The general thrust has been to provide regular classroom instruction where possible (“mainstreaming”) along with specialized instruction to deal with specific needs. This aspect of school policy and law enters the discussions here for two reasons. First, one concern about voucher schools and other competitive schools is that they will generally exclude special needs students, thereby increasing the concentrations of special education in the public schools.⁶ Second, if special education students are generally placed in regular classrooms, they could potentially disrupt the learning activities and adversely affect the regular education students.

The prior discussion of peer effects highlights how classmates directly affect the learning environment. Through their interactions in the classroom and school, students can alter the pace and character of learning. Yet there are still

⁴This Act, P.L. 94-142, was originally the Education for All Handicapped Children Act and was retitled IDEA in 1990. It is commonly identified as having direct and significant effects on the cost and methods of delivery of local education. See the discussions and evaluations in: William T. Hartman, “Policy Effects of Special Education Funding Formulas,” *Journal of Education Finance* 6 (fall 1980): 135-59; Judith D. Singer and John A. Butler, “The Education for All Handicapped Children Act: Schools as Agents of Social Reform,” *Harvard Educational Review* 57, no. 2 (1987): 125-52; David H. Monk, *Educational Finance: An Economic Approach* (New York: McGraw-Hill, 1990); Hamilton Lankford and James Wyckoff, “Where Has All the Money Gone? An Analysis of School District Spending in New York,” *Educational Evaluation and Policy Analysis* 17, no. 2 (1995): 195-218.

⁵See Singer and Butler.

⁶The primary manifestation of this concern has been fiscal, with the public schools worried that their expenses will rise without adequate revenues flowing in. The best estimates of the cost of service provision place it at 2.3 times that for regular education; see Stephen Chalkind, Louis C. Danielson, and Marcus Brauen, “What Do We Know About the Costs of Special Education? A Selected Review,” *Journal of Special Education* 26, no. 4 (1993): 344-70.

other avenues that might lead to attributes of peers affecting public school outcomes. Most important, teachers and schools might react to the composition of the student body in their own decisions. Of course, this could go either way, because officials may devote energy and resources in a compensatory manner or in a manner that reinforces student background deficits. The relevant dimensions here include both the actions of administrators and the private actions of teachers in their choices of schools.

One final aspect of voucher influences on peer composition deserves attention. A lot depends on how the expanded voucher program affects the equilibrium patterns of school choice and movements, but the overall impact on the amount of school mobility can itself be relevant for learning. Specifically, if there is more or less movement between schools, the stability of the learning process could be affected.

The goal of this chapter is to sort through what is known about these various aspects of peers. The focus is entirely on what evidence exists about interactions between various aspects of peers and student outcomes. In particular, the discussion does not consider whether increased choice would alter each aspect of peers. Instead, it asks the simple question, "If the identified aspects of peers do change, what impact should we expect?"

WHY THIS IS A DIFFICULT QUESTION

A central issue in the analysis of peer influences on student performance is the difficulty of such investigations. The typical structure of studies into peer effects would relate some measure of school outcomes to individually relevant factors and to characteristics of peers. From statistical analyses, the studies attempt to infer the impact of peers. The difficulty in this is making sure that the observed relationship really reflects the causal impact of peers—and not just other factors that tend to coincide with differences in peers. Three general and significant issues arise in such an analysis.

First, most studies of the effects of peers rely on data about student outcomes and peer groups that are naturally generated by schools. But our observations of schooling circumstances are the result of the choices of schools (and implicitly peers) that are made by individual families and, to some extent, by school administrators. Thinking initially of the choices of families, which most often result from choices of residential location, we can be quite certain that they are not random. These choices, although frequently motivated by a number of factors beyond schools such as incomes or job locations, will reflect the preferences and opportunities facing individual families. This simple fact—that there is a purposeful element in the individual choices of families—implies that some of the outcomes for student performance may result from characteristics of families that, although entering into their decisions, are not obvious or easily measured. For example, the parents most concerned about the schooling of their children may provide the best family environment for learning and also pay particular attention to their choice of school location. That being so, it can be difficult to sort out the separate influences on student performance and to identify the impact of peers per se, particularly when parents at a school tend to make similar choices.

Similarly, school administrators often make decisions about resources and classroom composition with some underlying purpose in mind. They may try to place their best teachers with students most in need or to group students according to an estimate of their entering abilities. These decisions can again confuse the effects of peers and the effects of school inputs—that is, misidentify the causal impact of peers on achievement as opposed to other family or school differences that are the real causes.

Second, the ability to distinguish the separate effects of individual and school factors from those of peers depends crucially on observing and measuring the significant inputs into student performance. The typical analysis, however,

does not have perfect measures of either family background or school inputs. For example, from the perspective of family inputs into achievement, researchers typically have available only a few crude measures of background, often lacking even basic characteristics such as the education level of parents. The details of school quality and school inputs, too, may be known only imperfectly. On the other hand, the consistency of choice of schools across families implies that there is a strong tendency for parents who have similar backgrounds and aspirations to select a common school, and there is an additional likelihood that school quality will have a similar effect on not just the individual student but on the student's peers. As a result, measures of peer backgrounds and performance may provide reasonably accurate surrogates for the individual's characteristics (which are measured with error). In other words, the characteristics of others in the classroom and school may act as a partial measure of the individual's characteristics. The importance of this is that imperfect measurement will push common statistical analyses toward overstating the impacts of peers. Even when peers have no true impact, for example, they may appear significant just because the peer measurements effectively provide additional information about the individual student.

Finally, one must sort out causal influences. It is not sufficient to know that, say, peer characteristics are associated with individual characteristics and performance. One needs to know whether this association results from peer attributes and interactions causing the observed differences in student performance. The reason for this is also straightforward: if one is to ascertain the impacts of peers, and of possible alterations in the composition of peers, the analysis must capture the amount of difference that the peers cause as opposed simply to selecting peers with certain characteristics or to residing together because of common decision-making processes. This issue of causation pervades most analyses of student performance but is most

acute when analyzing peers.⁷ The inherent tendency for peers with similar attributes and motivations to cluster together makes associations of performance across peers very likely and builds in difficulties in inferring the causal aspects of the various associations.⁸

These issues are introduced to underscore the uncertainty that surrounds much of the discussion of peer influences. Although a variety of statistical and analytical techniques have been employed to sort out the various factors, they prove to be difficult to deal with completely. The discussion below will note where the uncertainty is particularly large. But one significant implication is that much of the prior work fails to provide much of a sound basis for understanding the impacts of peers on achievement.

INDIVIDUAL PEER INTERACTIONS

The discussion in this section concentrates on how characteristics of peers—characteristics that might change with expanded choice—affect the classroom and student learning. Subsequent discussions broaden the topic to include other ways in which peers can influence results.

⁷For example, it is common to employ income measures to proxy differences in family background that might be important for student learning or other outcomes, but there are serious questions about whether the relevant causal factor is income per se or some other attributes that are related to income; see Susan E. Mayer, *What Money Can't Buy: Family Income and Children's Life Chances* (Cambridge, Mass.: Harvard University Press, 1997).

⁸An additional problem, which we do not dwell upon here, is the reciprocal relationship between the individual student and peers. The underlying idea behind peer influences is that the others in a classroom and school affect the character of learning. But if that is true, then it is natural to believe that the individual student also affects all his or her classmates—implying that the direction of causation for any observed association is unclear. This problem, crucial in some kinds of analyses, is difficult to deal with in many studies. This issue, sometimes referred to as the “reflection problem,” is described technically in Charles F. Manski, “Identification of Endogenous Social Effects: The Reflection Problem,” *Review of Economic Studies* 60 (July 1993): 531–42; and Robert A. Moffitt, “Policy Interventions, Low-level Equilibria, and Social Interactions,” in S. Durlauf and H. P. Young, eds., *Social Dynamics* (Cambridge, Mass.: MIT Press, 2001).

RACE/ETHNICITY

As mentioned, the first issue generally raised about added choice is the worry that the amount of racial isolation may increase and that this will adversely affect performance, particularly by black students left behind. Is there evidence that peer racial composition affects achievement for blacks as well as for Hispanics and other minorities? The decision in *Brown v. Board of Education* asserted this to be the case, ruling that separate but equal was unconstitutional in the case of education because separate could not be equal.

In addition to legal controversy about the underlying research leading to the Supreme Court decision, considerable immediate attention was given to understanding the educational implications of school segregation and desegregation.⁹ Much of the analysis was conducted during the early periods of school desegregation. The analyses of effects of desegregation have considered a wide variety of outcomes, ranging from measures of racial interactions to achievement. This discussion concentrates on achievement aspects, although some attention is given below to other aspects.

The landmark legislatively mandated civil rights report on the *Equality of Educational Opportunity* and its offshoot provide empirical evidence that racial isolation harms academic achievement.¹⁰ Subsequent work by Crain and Mahard; Boozer, Krueger, and Wolkon; and Grogger also find that school racial composition affected academic, social, and

⁹The Supreme Court decision included one reference to the evidence on harmful results of segregation. The famous footnote 11 documented the findings of doll studies by Kenneth and Mamie Clark that showed low self-esteem of black children in the segregated South; see Kenneth Clark and Mamie Clark, "The Development of Consciousness of Self and the Emergence of Racial Identity in Negro Children," *Journal of Social Psychology* 10 (1939): 591-99.

¹⁰See James S. Coleman et al., *Equality of Educational Opportunity* (Washington, D.C.: U.S. Government Printing Office, 1966), and U.S. Commission on Civil Rights, *Racial Isolation in the Public Schools* (Washington, D.C.: U.S. Government Printing Office, 1967).

economic outcomes.¹¹ In contrast, Cook and Evans conclude that the available evidence found that desegregation has little if any effect on mathematics and reading achievement in elementary school, and Rivkin finds no evidence that exposure to whites increased academic attainment or earnings for black men or women in the high school class of 1982.¹² Overall, there remains considerable disagreement about the nature and magnitude of benefits of desegregation efforts, let alone about their costs.¹³

The contrasting findings and lack of consensus concerning the importance of school racial composition emanate in large part from the difficulty of isolating the causal impact of peer characteristics. For example, if families with greater resources or a greater commitment to schooling tend to choose schools with lower concentrations of minorities, the racial composition effects are easily confounded with other factors.¹⁴ In the studies of school racial composition effects, for example, neither Crain and Mahard (1978) nor Boozer, Krueger, and Wolkon (1992) provide many statistical controls for differences in socioeconomic background or prior

¹¹See: Robert L. Crain and Rita E. Mahard, "Desegregation and Black Achievement: A Review of the Research," *Law and Contemporary Problems* 42, no. 3 (1978): 17–53; Michael A. Boozer, Alan B. Krueger, and Shari Wolkon, "Race and School Quality Since *Brown v. Board of Education*," *Brookings Papers: Microeconomics*, 1972, pp. 269–338; Jeffrey T. Grogger, "Does School Quality Explain the Recent Black/White Wage Trend?" *Journal of Labor Economics* 14, no. 2 (1996): 231–53.

¹²See: Michael D. Cook and William N. Evans, "Families or Schools? Explaining the Convergence in White and Black Academic Performance," *Journal of Labor Economics* 18, no. 4 (2000): 729–54; Steven G. Rivkin, "School Desegregation, Academic Attainment, and Earnings," *Journal of Human Resources* 35, no. 2 (2000): 333–46.

¹³See, e.g., the reviews in Robert Crain, "School Integration and Occupational Achievement of Negroes," *American Journal of Sociology* 75, no. 4, Part II (January 1970): 593–606; Armor, *Forced Justice*; Janet Ward Schofield, "Review of Research on School Desegregation's Impact on Elementary and Secondary School Students," in J. A. Banks and C. A. M. Banks, eds., *Handbook of Research on Multicultural Education* (New York: Macmillan, 1995).

¹⁴For a discussion of the link between family preferences and neighborhood location, see Charles M. Tiebout, "A Pure Theory of Local Expenditures," *Journal of Political Economy* 64 (October 1956): 416–24.

academic preparation, but still leave open questions about the adequacy of background measures. Grogger (1996) does use a longitudinal data set that contains information on family background and achievement measures, although it is unlikely that this small number of variables would account for all factors that are related to both outcomes and the choice of schools. The inclusion of private school students in the analysis further increases the likelihood that the school racial composition coefficients are biased upward. Rivkin (2000) uses school district aggregate measures of exposure to whites in order to overcome the nonrandomness of both neighborhood location within districts and attendance in non-neighborhood schools; nevertheless, unobserved differences among districts may contaminate the estimates.

In a recent paper, Hoxby uses differences in school racial composition for adjacent cohorts to identify the causal effect of peer group composition.¹⁵ The estimates from this procedure imply that school racial composition is generally important for blacks. For example, they suggest that differences between blacks and whites in school racial composition can explain perhaps one-fifth of the elementary school black/white reading differential.

Another investigation of school racial composition by Hanushek, Kain, and Rivkin, although not completely independent, pursues a related methodology to isolate the effects of racial composition on the growth in achievement.¹⁶ Their analysis considers patterns of the racial composition across grades and across different school years. They find that

¹⁵Caroline Minter Hoxby, "Peer Effects in the Classroom: Learning from Gender and Race Variation," Working paper no. 7867, National Bureau of Economic Research, August 2000. Hoxby's estimates pertain to scores at different grade levels. The largest effects appear in the third grade, with smaller effects of performance at later grades.

¹⁶Eric A. Hanushek, John F. Kain, and Steve G. Rivkin, "New Evidence About *Brown v. Board of Education*: The Complex Effects of School Racial Composition on Achievement," National Bureau of Economic Research, December 2001. Both Hoxby (2000) and this paper by Hanushek, Kain, and Rivkin use data from Texas schools, although the years and methodology for the analyses differ.

racial composition effects are centered on the performance of black students. The fact that racial composition does not have nearly as strong an effect on either white or Hispanic students indicates that it is not simply a result of different school resources. Moreover, the effects of racial composition are borne largely by high-ability black students who suffer most significantly from increased proportions of black students in their schools.

When these results are translated into potential national effects (as measured by the national gaps on the National Assessment of Educational Progress, or NAEP), it is estimated that past changes in racial composition of U.S. schools could account for a substantial portion—if not all—of the closing of the racial-achievement gap that occurred in the 1980s.¹⁷

The findings in areas other than achievement are more difficult to characterize, in part because the quality of the underlying research is quite mixed. In examining reviews of desegregation effects on nonachievement outcomes, Schofield concludes that “desegregation has no clear-cut consistent impact” on African American self-concept or self-esteem (p. 607), and that “the evidence taken as a whole suggests that desegregation has no clearly predictable impact on student intergroup attitudes” (p. 609).¹⁸ Although each of these conclusions is heavily qualified, the research makes it clear that the currently available evidence does not indicate that these wider outcomes are places of systematic impact.¹⁹

¹⁷Eric A. Hanushek, “Black-White Achievement Differences and Governmental Interventions,” *American Economic Review* 91, no. 2 (2001): 24–28. For a general discussion of changes in the black-white achievement gap and the potential causes of this narrowing, see Christopher Jencks and Meredith Phillips, eds., *The Black-White Test Score Gap* (Washington, D.C.: Brookings Institution Press, 1998).

¹⁸Schofield, “Review of Research on School Desegregation’s Impact on Elementary and Secondary School Students” (1995).

¹⁹Note, however, that this summary of evidence concentrates mainly on specific desegregation effects and not just the racial composition of schools.

Socioeconomic Status (SES)

Much of the attention given to socioeconomic status has concentrated on issues of neighborhood poverty and, particularly, how concentrations of poverty affect individual outcomes. This discussion of neighborhood poverty emphasizes employment and crime outcomes, along with reference to schooling.²⁰ For example, Mayer finds that SES (and racial composition) of the school affects high school completion of both whites and blacks—but measures of characteristics of schools other than student body composition are missing.²¹

In a forthcoming study, Hanushek et al. find that the direct analysis of achievement effects of low-income peers does not indicate that poverty concentrations have a significant negative effect on student performance.²² The income measure is, however, relatively imprecise.

²⁰For discussions of a wide range of issues related to neighborhood poverty concentrations, see: Christopher Jencks and Paul E. Peterson, eds., *The Urban Underclass* (Washington, D.C.: Brookings Institution Press, 1991); Paul A. Jargowsky, *Poverty and Place: Ghettos, Barrios, and the American City* (New York: Russell Sage Foundation, 1997); and Katherine M. O'Regan and John M. Quigley, "Accessibility and Economic Opportunity," in C. Winston, J. A. Gomez-Ibanez, and W. Tye, eds., *Essays in Transportation Economics* (Washington, D.C.: Brookings Institution Press, 1999). For more recent investigations relying on randomization of people who leave bad neighborhoods, see: James E. Rosenbaum and Susan J. Popkin, "Employment and Earnings of Low-Income Blacks Who Move to Middle-Class Suburbs," in Jencks and Peterson, eds., *The Urban Underclass* (1991); James E. Rosenbaum, "Changing the Geography of Opportunity by Expanding Residential Choice: Lessons from the Gautreaux Program," *Housing Policy Debate* 6, no. 1 (1995): 231–69; Lawrence F. Katz, Jeffrey R. Kling, and Jeffrey B. Liebman, "Moving to Opportunity in Boston: Early Results of a Randomized Mobility Experiment," *Quarterly Journal of Economics* 116, no. 2 (2001): 607–54; and Jens Ludwig, Greg J. Duncan, and Paul Hirschfield, "Urban Poverty and Juvenile Crime: Evidence from a Randomized Housing-Mobility Experiment," *Quarterly Journal of Economics* 116, no. 2 (2001): 655–69.

²¹Susan E. Mayer, "How Much Does a High School's Racial and Socioeconomic Mix Affect Graduation and Teenage Fertility Rates?" in Jencks and Peterson, eds., *The Urban Underclass* (1991).

²²Eric A. Hanushek, John F. Kain, Jacob M. Markman, and Steven G. Rivkin, "Does Peer Ability Affect Student Achievement?" *Journal of Applied Econometrics* (forthcoming).

Peer Ability

The analysis of peer ability and achievement has been particularly problematic from a statistical viewpoint.²³ Students in a common classroom have many shared educational experiences, so that the quality of questions or the amount of disruption affects all the students. From an analytical viewpoint, each student contributes to the classroom experience and is simultaneously affected by those same experiences. Moreover, common factors such as the impact of a particularly good teacher will heighten the common experiences and, if teacher quality is not well measured, lead to biases in understanding peer influences. These situations make it virtually impossible to separate out the effects of current classroom behavior on individual achievement. The import of this is largest when considering the influence of other students' ability and achievement on learning.

By distinguishing between the ability of peers and their current behavior, we can, however, gain some insights. Specifically, measuring peer ability by their prior achievement levels tends to break any direct relationship of current interactions, teacher quality, and the like, making possible some insights into how the level of achievement of other students influences individual performance.

Attempts to estimate peer effects on educational achievement in this way have been relatively limited. Hanushek (1972, 1992) finds no peer achievement effects when looking at achievement growth in individual classrooms.²⁴ On

²³The chief problem has revolved around the simultaneous determination of achievements by all students in the classroom. Formal statements of the problem can be found in Manski, "Identification of Endogenous Social Effects" (1993); Moffitt, "Policy Interventions, Low-level Equilibria, and Social Interactions" (2001); and William A. Brock and Steven N. Durlauf, "Interactions-Based Models," in *Handbook of Econometrics* (forthcoming).

²⁴See two studies by Eric A. Hanushek: *Education and Race: An Analysis of the Educational Production Process* (Cambridge, Mass.: Heath-Lexington, 1972), and "The Trade-off Between Child Quantity and Quality," *Journal of Political Economy* 100, no. 1 (1992): 84–117.

the other hand, Henderson, Mieszkowski, and Sauvageau (1976); Summers and Wolfe (1977); and Zimmer and Toma (2000) report positive influences of higher-achieving peers at least for some students; importantly, Summers and Wolfe find stronger effects of peers for low-income students.²⁵

Consideration of ability tracking in schools likewise has yielded mixed results.²⁶ A common policy thread has been that low-achieving students benefit from being in classes with high-achieving students but that high-achieving students are unaffected by classroom composition. If this were the case, heterogeneous classroom groupings would seem the most desirable in that they would maximize performance of low achievers at no cost. However, this presumption has been challenged on the grounds that detracking or tracking is a zero-sum game in which losers balance winners.²⁷ Nonetheless, these studies have faced a number of the statistical problems, in part because measures of the school inputs have not been particularly reliable.

Our own attempt to investigate peer ability suggests that the level of achievement of others in the classroom has a small but significant influence on performance.²⁸ It also suggests that the effect is relatively constant across achievement levels. Thus, any movement toward more homogeneous schools and classrooms in terms of ability would imply both

²⁵See: Vernon Henderson, Peter Mieszkowski, and Yvon Sauvageau, *Peer Group Effects and Educational Production Functions* (Ottawa: Economic Council of Canada, 1976); Anita Summers and Barbara Wolfe, "Do Schools Make a Difference?" *American Economic Review* 67, no. 4 (1977): 639–52; Ron W. Zimmer and Eugenia F. Tuma, "Peer Effects in Private and Public Schools Across Countries," *Journal of Policy Analysis and Management* 19, no. 1 (2000): 75–92.

²⁶See, e.g.: Jeannie Oakes, "Can Tracking Research Inform Practice? Technical, Normative, and Political Considerations," *Educational Researcher* 21, no. 4 (1992): 12–21; Laura M. Argys, Daniel I. Rees, and Dominic J. Brewer, "Detracking America's Schools: Equity at Zero Cost?" *Journal of Policy Analysis and Management* 15, no. 4 (1996): 623–45.

²⁷See Argys, Rees, and Brewer.

²⁸Hanushek, Kain, Markman, and Rivkin (forthcoming).

winner and loser—with the high-achieving students being the biggest winners and low-achieving students the losers.

Whether more homogeneous classrooms is appropriate policy of course remains a hotly debated issue. If the primary objective is raising the achievement of those on the bottom, ensuring more heterogeneous classrooms would further that objective. On the other hand, the higher-achieving students in the U.S. have not performed particularly well compared with higher-achieving students in other countries, implying that performance at the top should not be ignored.

Special Education

The final attribute of individual peers is the impact of special education. Although special education has occupied school policy considerations at all levels, including legislatures and courts, the discussions have virtually never involved any evidence about student outcomes. Nor have there been extensive investigations of the fiscal impacts, although the existing investigations suggest that current funding has left regular education worse off when there is a larger special education population.²⁹

The one analysis of how special education affects the learning of regular education children does not suggest any adverse effect.³⁰ Moreover, although difficult to do with certainty, it does not appear that more extensive mainstreaming of special education students has a more detrimental effect.³¹

²⁹See Hamilton Lankford and James Wyckoff, "Where Has the Money Gone?" (1995), and by the same authors, "The Allocation of Resources to Special Education and Regular Instruction," in H. F. Ladd, ed., *Holding Schools Accountable: Performance-based Reform in Education* (Washington, D.C.: Brookings Institution Press, 1996); also, Julie Berry Cullen, "Essays on Special Education Finance and Intergovernmental Relations," dissertation, Massachusetts Institute of Technology, 1997.

³⁰Eric A. Hanushek, John F. Kain, and Steve G. Rivkin, "Inferring Program Effects for Specialized Populations: Does Special Education Raise Achievement for Students with Disabilities?" *Review of Economics and Statistics* (forthcoming).

³¹The uncertainty in this analysis is due to the lack of detailed information about the decision to place students in mainstreamed or other programs.

DECISIONS OF SCHOOLS AND TEACHERS

School personnel and programs are not simply set in the abstract without consideration of the students they will serve. On the contrary, the allocation of school resources is a very complicated process, involving politics, individual choices, legal rulings, and more. For example, current fiscal legislation in a variety of states determines the funding going to a district in part based on the income of the community (and implicitly of the students), and federal funding for compensatory programs (Title 1) goes to disadvantaged students. Some of these allocations are required or reinforced by court orders in a variety of state funding cases. Furthermore, individual families make choices of communities that undoubtedly reflect to some extent the characteristics of students. Once having chosen a community, they will also tend to participate in the determination of local funding and of local programs.

It is obvious that the changing choices of schools under a voucher program could realign some of the politics and funding decisions currently seen. For example, a shifting school population could make given districts eligible for different amounts of state and federal funding, but it could also alter the political support for a district's schools if more residents shifted to private schools.

The political outcomes that might result from a large-scale voucher program are entirely too speculative to enter into here. Although there are some hints about the effects of past decision-making related to the composition of schools, it is unclear how any of the evidence can be generalized to an altered organizational form for vouchers.³²

³²For example, the original analysis of the effects of racial composition in U.S. Commission on Civil Rights (1967) suggested that schools with more concentrated black populations had lower achievement. However, that analysis did not consider any school factors that might have affected achievement, and subsequent analysis suggested that racial composition had a small effect on student achievement (Hanushek 1972). One interpretation of these contrasting results is that resources were skewed against black students and that the political process reacted to the composition of schools. Nevertheless, without explicit analysis of the politics of resource allocation, it is possible to generalize to other situations.

One area where existing evidence may, however, give insights involves the behavior of teachers. Over a long period of time it has been recognized that teachers tend to exercise choices in deciding where to teach and that these tend to be related to characteristics of the student body. In particular, several analyses suggest that teachers systematically search out schools with a more affluent population.³³ Extensions of this suggest that teachers also want higher-achieving students.³⁴ Further, white teachers (but not black teachers) appear to search out schools with a higher concentration of white students. This behavior of teachers could lead to alterations in the public school teaching force if vouchers alter the characteristics of the student body.

STUDENT MOBILITY

One final consideration relates to potential impacts on the level of student mobility from a move to vouchers. Little is known about how a voucher system would evolve, but it could change the character of the public schools, depending on the population that opted out for the voucher schools. For example, if the families that tended to take up the vouchers were also the more stable families—those that tended not to relocate their students—the average mobility rates of students in the public schools could rise. In other words, by removing part of the stable base population of a school, the remaining population tends to change schools more frequently.

The relevance of this is that schools with higher mobility rates tend to have a less coherent structure of instruction.

³³See David Greenburg and John McCall, "Teacher Mobility and Allocation," *Journal of Human Resources* 9, no. 4 (1974): 480–502; and Richard J. Murnane, "Teacher Mobility Revisited," *ibid.*, 16, no. 1 (1981): 3–19.

³⁴Erik A. Hanushek, John F. Kain, and Steve G. Rivkin, "Why Public Schools Lose Teachers," Working paper no. 8599, National Bureau of Economic Research, November 2001.

A high mobility rate lessens the amount of learning, even for students who themselves do not move.³⁵ The effect may be relatively small for any year, but it becomes more important for students who stay in schools with high mobility rates over substantial portions of their school career.

CONCLUSIONS

Will the public schools left after the introduction of vouchers deteriorate in quality because of the loss of important “high value” peers? Answering this question requires projecting how the peer composition might change along with understanding the impacts of any changes in peers. This chapter concentrates entirely on the latter issue: the impact of peer composition on student achievement.

Inferring the potential impact of the introduction of a widespread voucher program is difficult because we have little relevant experience. Nonetheless, in a variety of instances, existing information can provide insights. To assess the potential impact we divide the analysis into a series of compositional measures of the classroom: racial composition, the socioeconomic status of peers, the ability level of classmates, and the special education status of other students. We also consider more aggregate impacts: changed resource allocations, variations in the supply of teachers, and increased rates of student mobility.

The available evidence suggests that the largest concern would come from changes in the racial composition of public schools. Specifically, black students would appear to be hurt if there were significant increases in the proportion of their classmates who also were black. The evidence further suggests that the effects of racial composition apply only to blacks and not to other minorities or to whites.

³⁵Hanushek, Kain, and Rivkin, “Disruption Versus Tiebout Improvement: The Costs and Benefits of Switching Schools,” Working paper no. 8479, NBER, September 2001.

On a related point, because teachers respond in their choice of schools to the student body composition—including race—significant changes in student body composition might call for efforts to ensure a supply of high-quality teachers. This concern, of course, applies with equal or greater force to current schools.