

Summary of Floor Discussion

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The discussion following the session on educational resources and outcomes focused on three issues: the measurement of educational inputs and outputs, changes in the educational incentive structures, and the role of the classroom environment.

Frank Levy introduced the topic of educational input and output measurement by observing that maximizing student achievement has not always been teachers' primary objective. For example, teachers have also sought to provide drug education and to prevent students from dropping out. Chris Meyer proposed using housing prices as an alternative measure of educational output. According to Meyer's research on the effects of tax limitation legislation in Massachusetts, parents do value educational expenditures, because a district's ability to spend money is factored into housing prices. Introducing a related point, Derek Neal asked how much the cost of hiring and employing teachers has changed over the past thirty years. The consensus was that less than half the rise in per pupil expenditures since 1970 has come from a rise in teacher costs.

Participants then turned to the subject of changes in educational incentive structures. Raquel Fernandez wondered why students' and schools' incentives to achieve are weaker now than in the past; she also asked why the educational incentive structure is weaker in the United States than in many other countries. Alan Krueger expressed a contrary view, asserting that the incentives for

students to achieve are in fact stronger than in the past. Julian Betts noted that the real wages of high school dropouts have plummeted. Betts' general outlook was positive—the incentive structure within schools is moving in the right direction. Krueger also argued that schools themselves are given incentives to produce positive student outputs such as good citizenship and preparation for work.

Caroline Hoxby observed that incentive issues complicated the interpretation of an experiment in Tennessee with class size. Studies of the Tennessee Student-Teacher Achievement Ratio (STAR) experiment have concluded that reductions in class size do increase achievement. The Tennessee teachers, however, knew that they were being observed and that the experimental outcomes would inform future policy. Arguably, the teachers in the experiment thus had an incentive to improve student achievement. Krueger, however, pointed out that each individual teacher still had the opportunity to "free ride." In other words, even if one teacher worked harder, overall achievement averages would not change. The nonexperimental Tennessee data also show that class size affects achievement.

Turning to international comparisons of incentives, Eric Hanushek emphasized that in some countries the goal of students in the primary and secondary grades is to gain admission to a university. For many of these countries, it is difficult to disentangle the effects of public school education, private school education, and family background on student outcomes. Nonetheless,

Krueger believes that a relationship between resources and student achievement exists across countries. Betts stressed the importance of high school graduation exams as a motivating factor for students outside the United States.

In the final part of the discussion, Bill Andrews asked whether the speakers had considered classroom environment. Hanushek stated that the classroom environment mattered to achievement because of the large skill differences among teachers. Although showering money on schools might cause some change in the classroom environment, he argued that it would not bring about a big improvement in student performance. Krueger reminded

participants that the experimental Tennessee data show that class size affects student performance. In addition, peer groups matter: high-achieving students benefit from high-achieving classmates. For weaker students, the quality of classmates did not affect performance; for these same students, however, smaller classes did influence performance.

Krueger concluded the discussion, stating that both class size and expenditures affect student performance. Acknowledging that not all researchers have come to this conclusion, he suggested that many of the studies with results to the contrary suffer from misspecified models.

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