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What can educational policies achieve? An introduction

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Education policy has been of fundamental policy concern for decades, and for good reasons. Education is a crucial determinant of individual earnings and the distribution of education thus becomes crucial for earnings inequality. The correlation between earnings and education reflects, at least in large part, a causal relationship between education and productivity so that improved overall education should translate into higher aggregate output. Indeed, by now, there is a wealth of evidence suggesting that education matters for the growth of nations.

The human capital revolution that took place in economics some 40 years ago has firmly established the economic analysis of education as a distinct research field. An enormous amount of research has been preoccupied with estimations of the returns to education. Recent years have seen a substantial broadening of the research agenda. One strand of recent work has focused on educational production with the aim of uncovering the links between resources put into education and outcomes, such as test results or labor market achievements. For example, does class size matter for educational outcomes? What is the impact of teachers and peers? This research has made substantial progress thanks to randomized experiments where some students are "treated" by more resources than others.

Another strand of research has addressed the "industrial organization" of educational production. How does competition among schools affect educational outcomes? Does competition contribute to increased segregation of pupils by parental social background? In the United States, various experiments with school vouchers have taken place over the past decade or so; experiments that have been crucial for much of the US research in this area. In Sweden, a far-reaching reform in the early 1990s opened up for competition among schools

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across the whole country. The new Swedish system is effectively a nation-wide voucher scheme where money follows the student and public funding is provided by the local governments.

A third (and smaller) area of research has dealt with the labor market for teachers. Competition among schools should presumably also affect competition in the labor market for teachers. Issues of interest include how teachers are sorted across schools, how competition affects teacher pay, and how efficient pay systems for teachers should be designed.

The purpose of this issue of *Swedish Economic Policy Review* is to present results from recent research on the effects of educational policy. The issue includes five papers presented at a one-day conference on March 17, 2003, in Stockholm.[1] The contributions include two extensive surveys of the current state of knowledge regarding the effects of school competition and educational production as well as empirical studies pertaining to Sweden and Norway. The final paper deals with teacher compensation in theory and practice.

In the first paper, *Caroline Hoxby* discusses evidence from the United States regarding effects of school choice and school competition. The three main questions are (i) whether competition and school choice increase school productivity, (ii) if students' achievement improve when they attend voucher schools, and (iii) if voucher schools disproportionately end up selecting better students ("cream-skimming"). In short, Hoxby's answers to the three questions are yes, yes and no. She argues that the first question is much more important than the second because school choice may raise the productivity of *public* schools when those are forced to compete with voucher schools. School choice and competition could therefore potentially lead to a general increase in school productivity, an effect not captured by studies of students' achievements in voucher schools. The evidence from US choice programs suggests that there are indeed positive productivity responses to competition from voucher schools. In Hoxby's words, school choice could be a rising tide that lifts all boats.

In her discussion of Hoxby's paper, *Helen Ladd* offers a much more skeptical view of the benefits of school competition. She interprets the empirical evidence somewhat differently than Hoxby, argu-

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ing that "the jury is still out" regarding the productivity consequences of school competition. She also emphasizes that results from small means-tested programs in the US need not extend to universal voucher programs.

The second paper, written by *Jan-Eric Gustafsson*, contains a detailed survey of recent research on the effects of school resources on student achievement. The paper begins by discussing first-generation studies of educational production functions where researchers exploit cross-section data on educational results and resources used to achieve those results. A surprising finding in some of those studies was that class size or per pupil expenditure did not seem to matter much for outcomes. As Gustafsson notices, these studies are open to methodological criticism. For example, it is possible that the allocation of resources reflects characteristics of students that are unobserved to the researcher, hence making casual inferences difficult. However, if the allocation of resources is random, the possibility of identifying causal effects should be substantially enhanced. Fortunately, results from such studies are now available. Gustafsson discusses the so-called STAR experiment in the United States, where pupils were randomly allocated to different "treatments" with respect to class size. Studies based on STAR have reported significant class size effects on educational performance, especially for lower grades and disadvantaged groups. However, class size is not all that matters; teacher quality may be equally or more important according to recent research. Gustafsson also discusses this research and concludes that teacher competence is the single most important factor in influencing achievement.

The paper by *Anders Björklund*, *Mikael Lindahl* and *Krister Sund* looks at the impact of family background on school performance in Sweden during the 1990s. The point of departure is the "turbulent" 1990s with an unprecedented rise in unemployment, associated declines in tax revenues and induced budget cuts. These changes also affected Swedish schools, for example by increasing pupil-teacher ratios. In addition, the introduction of a voucher system has led to a rise in enrollment in privately run schools. The authors ask how these changes affected the correlation between family background and student performance. The outcome variable of interest is grade averages for each cohort of 16-year olds during the period 1988-2000. Two different approaches are used to measure the relationship between family background and performance, viz. sibling correlations (con-

cerning grade averages) and correlations between grades and parental earnings. Perhaps contrary to what one would have expected, the analysis reveals a remarkable stability over the 1990s in intergenerational correlations. As the authors notice, these results do not rule out that the school reforms and the macroeconomic crisis may have had causal effects on intergenerational linkages. To the extent that these effects have strengthened the correlations, other factors must have worked in the opposite direction. The authors speculate that increased access to public daycare may be one such factor.

The paper by *Oddbjørn Raaum*, *Kjell Salvanes* and *Erik Sørensen* is concerned with the relationships between characteristics of the neighborhoods where children grew up and their educational attainment as adults. Positive neighborhood correlations in educational attainment reflect the composite influence of similar background characteristics, such as schools, parents or peers. Using Norwegian data, the authors find a trend decline in neighborhood correlations over the period 1947 to 1970. An interesting question is whether this pattern can be explained by school reforms, in particular the extension of compulsory schooling from 7 to 9 years. This reform was gradually implemented across municipalities, similar to what happened when the compulsory 9 years of education were introduced in Sweden during the 1950s. The paper finds some evidence that the school reform may have had an impact; the neighborhood correlations are generally higher in before-reform municipalities. All in all, however, the reform appears to have had only a modest impact.

The final paper in this issue, written by *Edward Lazear*, deals with the problem of designing compensation schemes for teachers. Lazear applies economic theory of compensation to the teaching profession and discusses the pros and cons of pay schemes based on input (time worked) versus output (some measure of student performance). Payment based on output should provide better incentives and perhaps also better sorting, i.e., a better selection of applicants to the teaching profession. A fundamental problem, however, is that output is not easily measured. Moreover, there is so far limited evidence on how performance pay affects teacher behavior. Lazear argues that there is a case for some degree of output-based pay but primarily emphasizes other reforms. The relative pay of teachers, in the United States as well as Sweden, should be raised so as to attract higher-quality applicants to the teaching profession. Lazear also emphasizes the importance of turnover as a device to achieve a desirable sorting of teach-

ers; a mechanism weakened by employment protection and tenure institutions. Finally, pay uniformity across fields should be abandoned and salaries should be allowed to reflect prevailing demand and supply patterns.

In summary, there are several lessons to take away from the papers in this issue. There is ample evidence that the design of education policy matters for outcomes. While there is controversy concerning some aspects, in particular about the effects of school competition, there is probably an increasing consensus regarding the importance of teacher competence. There is also solid evidence from randomized experiments suggesting that smaller classes can improve outcomes. The link between education policy and intergenerational mobility seems less clear, however, at least from the papers in this issue.

Education is eminently suitable for randomized experiments, much in the same way as active labor market programs. Regrettably, Swedish education policy has rarely been designed so as to facilitate scientific evaluation. The major exception from this characterization is the gradual introduction of compulsory 9-year schooling during the 1950s. The major voucher reform in the early 1990s was, however, implemented with little attention to evaluation possibilities. Political ideologies, of course, have their proper roles in shaping policies but it is unfortunate that the desirability of learning about the effects of policies is so frequently ignored. The papers in this issue illustrate how education policy can be informed by solid evaluation research.