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Class size and student outcomes in Europe

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Class-size reductions are popular with parents, teachers and politicians. In recent years, however, various contributors to the public debate have increasingly expressed the opinion that class size does not matter. For example, in his book David and Goliath, popular science author Malcolm Gladwell refers to class-size reduction as an example of a "thing we are convinced is such a big advantage [but] might not be such an advantage at all" (as quoted in Schanzenbach, 2014). Likewise, in a recent report the OECD (2016, p.349) concludes that "overall, evidence of the effect of differences in class size on student performance is weak". These strong statements are made without (in the case of the OECD) or with very selective (Gladwell) reference to evidence, let alone a careful assessment of the evidence. The same can often be said of advocates of class-size reductions.

This polarisation of opinions calls for a systematic review of available empirical studies on the effects of class size on student outcomes. In our analytical report "Class size and student outcomes in Europe", we provide such a review focusing on studies that use data from European countries and apply a research design that makes it credible that the estimated effects can be given a causal interpretation. Figure 1 plots the results from these studies together with the intervals that contain the true effect with 95% probability. The estimated effects are expressed as the change of students' academic achievement, measured in standard deviation (SD) units caused by a change in class size of one student. An estimate of −0.01 thus means that student achievement goes up by 1 percent of a standard deviation (of the overall achievement distribution) when class size goes down by one student.

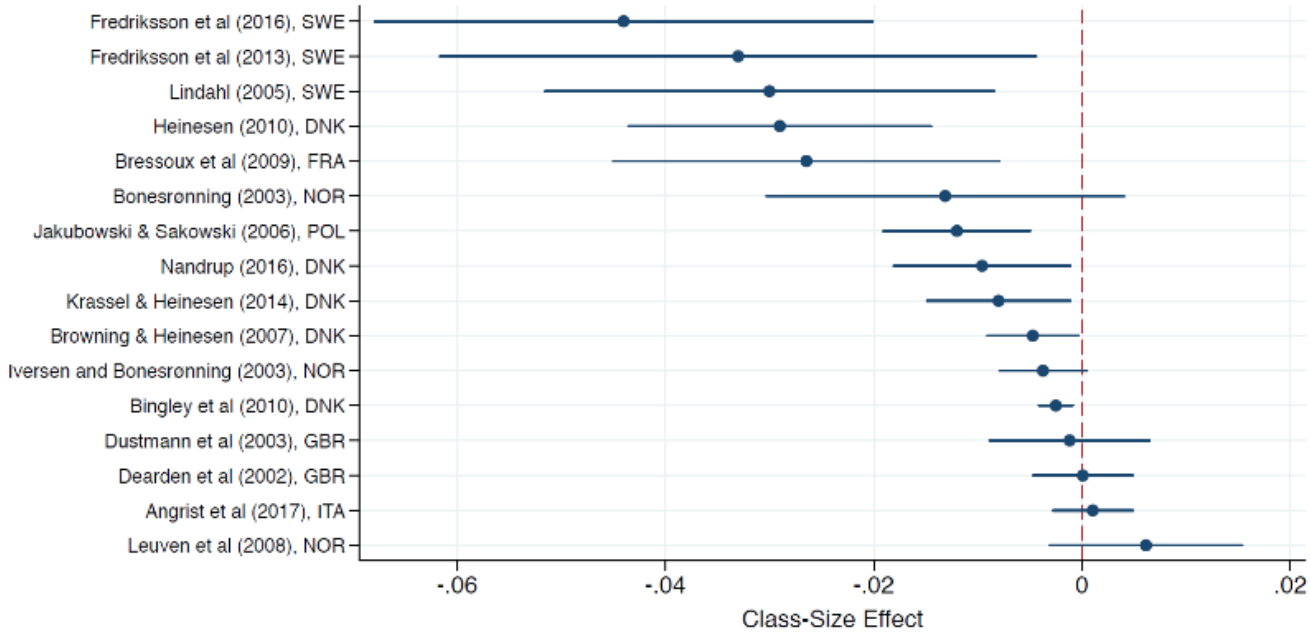

Figure 1 Estimates of class size effects

In the graph we have restricted the studies to those whose intervals are not wider than 0.08 SD.

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The figure shows that the evidence is mixed. There are credible studies that report substantial beneficial effects of smaller class sizes, but there are also other equally credible studies that find effects that are rather small or not significantly different from zero. Although some studies show that smaller classes did indeed offer sustained benefits, using this evidence for prescriptive policy purposes typically requires an extrapolation to a different population. Such extrapolations require a solid understanding of how population characteristics, incentives and constraints enter the production function and mediate class-size effects. While there are studies that investigate mediating factors, such as changes in parents' involvement, the evidence falls short in providing definitive answers. Based on the current evidence, it is therefore hard to give an unqualified recommendation about how and when to use class-size policies to improve student outcomes.

We therefore recommend that new initiatives to change class size involve an ex-ante design element that allows for an ex-post evaluation of the causal impact of these class-size changes. Such research is necessary to provide better answers to the questions whether, why, when and for whom class size matters. This research could also be informative about the effects of class size on the attractiveness of the teaching profession. Does class-size reduction make it easier to recruit and retain teachers? And does it influence sick leave among teachers? Randomised controlled trials (RCTs) are typically considered to be the 'gold standard' design for such research. While the single large-scale randomised experiment regarding class size (Project STAR) has produced many insights, RCTs have their own threats to internal and external validity (Heckman and Smith, 1995). We therefore believe it is important to collect evidence from a variety of causal designs. These can be non-experimental designs derived from maximum class-size rules, or alternative experimental designs (Rockoff, 2009).

It is worth pointing out that the notion of a class-size effect depends on traditional modes of teaching and learning where we can think of class size as a well-defined and policy-relevant proxy for inputs in schools' production function. While today's schools are remarkably similar to the schools of our grandparents, technology and pedagogical innovations may change the nature of classrooms and thereby the relationship between class size and inputs. Estimates of class-size effects are likely to have expiration dates when the production function changes.

For more details see:

Heckman, J. J. and Smith, J. A. (1995). Assessing the case for social experiments. The Journal of Economic Perspectives, 9(2):85–110.

OECD (2016). Education at a Glance 2016: OECD Indicators. OECD Publishing, Paris.

Rockoff, J. (2009). Field experiments in class size from the early twentieth century. Journal of Economic Perspectives, 23:211–230.

Schanzenbach, D. W. (2014). Does class size matter? National Education Policy Center.

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