0086

Children's educational progress: partitioning family, school and area effects

Jon Rasbash[1], George Leckie[1], Rebecca Pillinger[1], Jennifer Jenkins[2]
[1]University of Bristol, Bristol, United Kingdom, [2]University of Toronto, Toronto, Canada

Background

School effectiveness studies partition children's educational progress into school and pupil effects. These studies typically attribute approximately 20% of the variance in progress to schools and the remaining 80% to pupils. However, it is easy to think of many other potential sources of variation, for example the effects of schools attended in an earlier phase of education and the effects of children's areas of residence, but there has been little research into these. It also seems particularly likely that family effects will be an especially important source of variation but the lack of family data in traditional school effectiveness studies and the complex quantitative methods required to explore this has meant that until now this has not been investigated.

Research Questions

We ask how much of the variation in children's educational progress during secondary schooling can be attributed to their local educational authorities, how much to their secondary schools, how much to the schools they attend during primary schooling, how much to their families, and how much to child-specific variation not attributable to any of these sources. Having established the relative importance of each source of variation, we then seek to explain this in terms of a full set of child background characteristics.

Methods

We analyse a single cohort of data from the National Pupil Database provided to us by the Department for Children, Schools and Families. This dataset does not contain information about which children belong to the same family, but we are able to identify twin pairs by matching pupils together when they share the exact same dates of birth and postcodes of residence. We estimate a series of multilevel models to this data to partition the variance in children's educational progress into the separate sources of variation described above.

Frame

We start by fitting the standard school effectiveness model, which splits the total variance in progress into a secondary school and a pupil component. We then compare the results of this model to our full model, which partitions the total variance into the Local Education Authority, secondary school, primary school, neighbourhood, family and pupil level components. Finally, we add our set of child level explanatory variables to this model to examine how much of each component of variance they can explain.

Research findings

We find that of the 20% of variation in progress that school effectiveness studies typically attribute to schools, the majority is still attributed to school effects, but now with primary and secondary schools appearing equally important. Thus, primary schools have persisting effects which carry over and influence the progress children make during secondary schooling. Local Education Authority and neighbourhood effects are small in comparison. For the approximately 80% of variation in progress that is typically attributed to pupils, we find that half is better described as family level effects. This has potentially important implications for educational policy as it suggests that policies targeted at the family level may provide an effective means of improving pupils' progress.