Does the early bird catch the worm?

Instrumental variable estimates of early educational effects of age of school entry in Germany

Patrick A. Puhani · Andrea M. Weber

Abstract We estimate the effect of age of school entry on educational outcomes using two different data sets for Germany, sampling pupils at the end of primary school and in the middle of secondary school. Results are obtained based on instrumental variable estimation exploiting the exogenous variation in month of birth. We find robust and significant positive effects on educational outcomes for pupils who enter school at 7 instead of 6 years of age: test scores at the end of primary school increase by about 0.40 standard deviations and the probability to attend the highest secondary schooling track (Gymnasium) increases by about 12% points.

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1 Introduction


In Germany, as in most other European countries, children are traditionally supposed to start school when they are about 6 years old. A look back in history reveals that starting education at the ages 6 or 7 is not just a feature of the industrialised time. Already in Germany’s mediaeval predecessor, the Holy Roman Empire, the track to knighthood began at age 7 as a footboy (Page). In post-war Germany, the changing attitude towards school entry age has been driven by debates among educationalists. In the beginning of the 1950s, Kern (1951) hypothesised that a higher school entry age could prevent children from failing in school. Subsequently, the school entry age was increased by a total of 5 months in 1955 and in 1964. Since that time, there has also been a trend to have children with learning problems enter school 1 year later than recommended by the official school entry rule. In recent years, however, debates on the long duration of the German education system have taken early school entry back on the agenda. Policy makers in Germany’s decentralised education system have subsequently implemented measures to reduce the average age of school entry (see Sect 2). Therefore, it seems reasonable to ask whether such policies can be expected to improve educational attainment.

In this article, we estimate the causal effect of varying the age of school entry in Germany between 6 and 7 years by an instrumental variable strategy using the exogenous variation of month of birth as an instrument for the age of school entry. The variation between ages 6 and 7 is both a major variation observed internationally for the school starting age and a major issue of discussion in the national German debates. Using two different data sets, we measure the effect of age of school entry at the end of primary school and in the middle of secondary school. Our outcome measures are a test score for primary school pupils and the school track attended, respectively. To the best of our knowledge, ours is the second study investigating the effect of age of school entry by instrumental variable estimation for Germany. We do not show results based on the same data as used in the previous study by Fertig and Kluve (2005) since we cast doubt on the quality of this data for our purposes (cf. the discussion paper version, Puhani and Weber 2005).