The efficiency and effectiveness of Hungarian primary schools   RRC IV-070

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Non-technical summary of the results

Do Small Settlements Provide Education of Inferior Quality? The Case of Hungary

Daniel Horn

The question of the study is whether primary schools in small settlements are worse because of the schools' internal unobservable features, or because of external reasons such as the socio-economic status of the parents or the possibility of school choice that allows sorting. The answer to the question can set the path of future development policies: whether schools are of worse quality in rural areas *per se*, or whether unadjusted differences in performance can be modified by policies is a crucial question for policy-makers.

The paper uses individual level multinomial logit regressions with standard errors clustered on institutional level to compare the percentage of students continuing studies in academic, vocational secondary and vocational training schools; vocational secondary schools being the comparison category.

In general, the article concludes that *small settlement schools do not provide education of inferior quality*, they are not worse than their larger city peers after adjusting for socio-economic status and exogenous constraints, measured by distance from closest academic schools, yet the major gaps in unadjusted performances still call for major changes. Nevertheless proponents of primary school consolidation should not argue with quality differences.

Additional results show that

- small settlements, towns under 10000 inhabitants with academic schools can assist their students better in entering academic schools, maybe by utilizing smallness and low constraints
- smallness most likely has its purported advantages, since small settlement schools can provide the same educational quality, even if we do not control for school-level features.
- the availability of school choice options, measured by the distance from the nearest academic school, increases the performance of schools.

Finally, it is suggested either that larger, 6 or 8 year long academic schools with more qualified teachers perform better compared to "normal" 8 year long primary schools, an advantage that is counterbalanced by the smallness of the small settlements, or more probably that the school level features proxy unobserved selection among schools, and larger settlements benefit more from this process than smaller ones.

keywords: education production functions, urban-rural differences in education, effectiveness of education

Demographic change and the efficiency of primary schools in Hungary

Zoltán Hermann

The paper analyses the effect of demographic change on the provision of primary education in Hungary. The effect of demographic change on the quality and efficiency of education is analyzed by estimating simple production functions of school quality and cost frontier functions for teacher employment relative to the number of students, respectively.

Production function estimates suggest that demographic change has no detectable impact on school quality via school inputs.

On the other hand, cost frontier estimates reveal substantial technical inefficiency, in part related to demographic change. This finding confirms the hypothesis of rising inefficiency due to the declining school age population at the local level. However, demographic change can account for only a minor part of estimated technical inefficiencies.

At the same time, the estimated costs of low technical efficiency well exceed those related to economies of scale, the other leading candidate of policy discussions for being the main source of efficiency problems. Though per capita costs are substantial in case of the smallest schools, due to the modest number of students in these potential school closures or school district consolidation could yield only minor cost savings for the education sector.

The calculations of technical inefficiency suggest that many local governments could find significant room to improve technical efficiency of schools, independent of the given level of demographic change and school size.

Estimating primary school effectiveness from secondary schooling data: the case of Hungary

Zoltán Hermann

The paper provides a method for estimating primary school effectiveness using secondary schooling data and an application of this approach to Hungarian data. It compares the results of an ordered logit and two separate simple logit regressions the later assuming nested decisions of students at secondary schools choice.

Conclusions drawn from a preliminary analysis of the data are:

- school effects have a larger impact on the general versus vocational secondary school decision than on the technical v secondary school decision. This distinction is clearly disguised by the logit estimates, while the ordered logit model somewhat covers it.

- the contextual effects seem to matter more for the technical versus secondary school decision

- regarding the technical versus secondary school measures, primary schools in towns show the largest heterogeneity

- the correlation is virtually missing between the logit estimates of the technical versus secondary and general versus vocational secondary school effects. This suggests that two relatively independent elements of school effectiveness are exhibited here. Again, the ordered logit model in part levels the difference, with medium size correlation with both types of logit estimates.

The most important conclusion however is, that the *estimation method and the technique of generating interpretable measures matter a lot*. The estimated variants of the school effects are sometimes produce rather different results. Both distinct definitions of the outcome to be analyzed and dealing with contextual effects are crucial. Since the estimated model is essentially nonlinear in nature, the interpretation of the results requires carefully designed comparisons. Measures based on decisions on different subsets of the secondary schooling options seem to represent distinct dimensions of the school effects in the Hungarian case. Nevertheless, when standardized test results are not available, the analysis of school continuation data can provide sensible results, though for interpretation of these special caution is needed.

keywords: school effectiveness, multilevel models, contextual effects in education, schooling decisions