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## What works in primary schools?

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Policies to improve primary education can involve increasing the resources available to schools, modifying teaching methods or introducing elements of accountability, choice and competition into education 'markets'. **Olmo Silva** reviews the latest evidence on the effectiveness of these three broad areas of intervention.

# What works in primary schools?

**P** rimary education is central to people's lifelong learning and the economic development of their societies. Recent microeconomic evidence shows that core skills, such as literacy and numeracy, are best learned during the primary stage of education, and that there are very high returns in the labour market to these basic forms of expertise (Machin and McNally, 2004; Marcenaro et al, 2007).

Related research shows that early educational attainments are crucial determinants of future educational outcomes (Dearden et al, 2004). What's more, interventions that target the earliest stages of education are better able to counterbalance the adverse effects of poor

family background on young people's learning (Heckman, 2000).

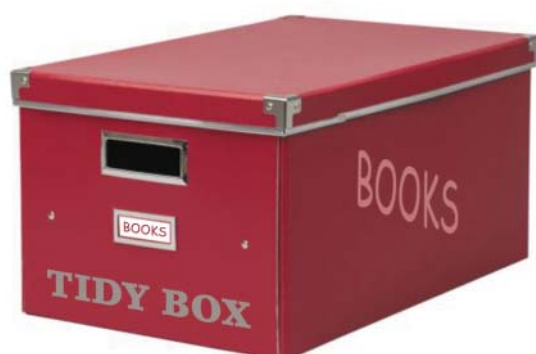
There is also macroeconomic evidence suggesting that the interaction between higher levels of education and basic skills, crystallised at the earliest stages of education, plays a prominent role in improving a country's economic prospects (Hanushek and Woessmann, 2007).

So is there room for significant improvement in primary education? OECD research (2005) indicates that while growing numbers of young people in OECD countries stay on beyond compulsory education, many still lack basic skills. The UK, for example, is still cursed by a 'long tail' of poor learners with inadequate skills: in 1995, roughly a fifth of 16-25 year olds had failed to achieve

the level of numerical and literacy skills considered necessary to 'function' in the labour market (Machin and Vignoles, 2006).

While the situation has certainly improved over the last decade, the UK still ranks in the bottom half of recent international assessments of proficiency in maths, reading, science and problem solving. This suggests that there are opportunities to enhance people's core skills by improving the quality of primary schooling, and that this will be beneficial both to individuals, by boosting their future learning and labour market prospects, and to countries, by raising the 'speed-limit' on economic growth.

The big question is how to accomplish these goals. Interventions aimed at



Improving attainment at primary level can have long lasting effects on pupils' later learning



improving primary education fall into three broad categories: those that change resources available to schools; those that modify pedagogy and teaching methods; and those that introduce elements of accountability, choice and competition into education 'markets'.

## Resources

What is the evidence that 'money' works in schools? There is heated debate among economists about the effectiveness of resource-based interventions, epitomised in the *Economic Journal* of February 2003, in which two eminent experts in the field present their contrasting views (Hanushek, 2003; and Krueger, 2003).

CEP research on primary schools in England shows that the recent large increases in expenditure (40% up in real terms between 2000 and 2007) has contributed significantly to raising attainments in English, maths and science at Key Stage 2 (Holmlund et al, 2009). There is some evidence that the effects have been bigger for pupils from a disadvantaged family background (those eligible for free school meals).

Another study has examined the impact of 'Excellence in Cities Primary Extension', a resource-based intervention targeting schools in disadvantaged areas and allocating additional funds mainly on the basis of pupil numbers and level of disadvantage in the local education authority (Emmerson et al, 2004). The policy seems to have had small but positive effects on test scores at the end of primary school. Once more, these are mainly concentrated among pupils in the most disadvantaged schools.

Finally, a growing amount of resources is being devoted to promoting the use of information and communications technology (ICT) in schools. The UK government has championed ICT as a way

of modernising schools and teaching methods.

The international evidence on the effectiveness of ICT as a teaching and learning device is ambiguous, tending to find few benefits. One exception is a CEP study of the experience of primary schools in England between 1999 and 2003 (Machin et al, 2007). The findings point to a positive and sizeable impact of ICT expenditure on primary school performance in English and science, though not in maths.

The authors suggest that, for English and science, it was the joint effect of large increases in ICT funding (a more than doubling of ICT funding in some areas) with targeted investments in, for example, software improvements and teacher ICT training, that led to positive effects of ICT expenditure on educational performance.

Overall, this discussion provides some important lessons on the effectiveness of resource-based interventions:

- First, although international evidence suggests that marginal changes of resources in schools might not generally matter, the experience of England shows that substantial investments (like those analysed by Holmlund et al, 2009, and Machin et al, 2007) can produce sizeable effects.
- Second, there is evidence that resource-based interventions might produce their best outcomes if they are targeted towards the most needy, for example, towards schools in disadvantaged areas or pupils from poor family backgrounds.

## Pedagogy

The 'literacy hour', which has been implemented in primary schools in England since 1996, provides a unique

example of how changes in teaching methods can improve learning. The main rationale for this policy is to try to alleviate the very low levels of reading and writing skills of children in many primary schools in England, particularly in inner cities, through more focused instruction and effective classroom management.

An evaluation of the pilot implementation of the programme carried out in 1996-98 finds larger increases in attainment in reading and writing during primary education for pupils exposed to the literacy hour than for pupils not exposed to it (Machin and McNally, 2004). The research also finds evidence that at the age of 11, boys received a greater benefit than girls, and that there are small positive effects from this 'treatment' that persist up to the age of 16. This suggests that improving primary education attainments can have long lasting effects on pupil learning.

## Choice and competition

As a means of improving standards in schools, governments in many countries have recently started pursuing market-oriented policies based on accountability, incentives and increased choice and competition among schools. But what are the theoretical underpinnings of this idea?

Consider a model of school provision based on parental choice, in which schools admit pupils regardless of where they live and parental preference is the deciding factor. Advocates of this approach tend to base their claims on two standard efficiency arguments from economic theory.

According to the first argument, alternative community-based models, with local schools serving single neighbourhoods, are 'monopolistic' and the incentives for improvement or adoption of new teaching technologies



Resource-based interventions seem to produce their best outcomes when targeted towards pupils and schools in real need



may be weak. The alternative is to give parents freedom of choice, to link school finance, management incentives and teacher pay to school popularity, and so create a market incentive mechanism. Under this system, schools must adapt to meet parental demands – presumably including high educational standards – or fail and close.

The second argument is that gains arise through the reallocation of pupils to schools according to personal tastes and pedagogical needs. If every pupil can find and choose a school offering a teaching technology that educates them at least as effectively as under the community-based system, then academic achievement should improve.

What is the evidence for the effectiveness of choice and competition based policies? There is a substantial volume of quantitative evidence on this question, particularly in the US context. A survey of the international literature suggests that ‘the gains from competition are modest in scope with respect to realistic changes in levels of competition’, with many results statistically insignificant (Belfield and Levin, 2003).

CEP researchers have conducted the first pupil-level analysis of the effects of choice and competition on academic achievement in primary schools. The empirical findings reveal no significant causal association between measures of school choice and competition, and pupil achievement across the board (Gibbons et al, 2008).

Nevertheless, the authors find that state schools with more autonomous governance and admission procedures (predominantly faith voluntary-aided schools) respond positively to a greater degree of competition with other local schools. Their pupils’ ‘value-added’ attainment score improved by about 1.6

point for each additional competitor, which corresponds to 16-19 weeks of progress in English or maths.

To explain their findings, the authors argue that the institutional arrangements in autonomous voluntary-aided schools are more conducive to a focused, competitive ethos, in which the setting of targets and monitoring of performance are seen as a way to attract pupils through the promise of excellence.

Related CEP research looks at the average effect of attending a faith voluntary-aided school on educational progress during primary education in England (Gibbons and Silva, 2006a). The results suggest that although these schools tend to admit pupils with educationally advantageous backgrounds, there are no performance benefits that cannot be attributed to the sorting of pupils likely to show the fastest progress into these schools.

The findings of these two studies suggest that in England, autonomous schools tend to respond to market-type incentives by improving the performance of their pupils, although on average they do not perform better than other schools. In fact, there is potentially a tail of faith voluntary-aided schools in areas protected from competition, which behave like monopolists and have on average worse performance than other types of school.

An analysis of school choice and competition would not be complete without a brief discussion of some of the drawbacks, mainly the possibility that even if market-oriented interventions have the potential to boost pupil achievements, the gains may not be equally distributed and may come at the cost of increased segregation of pupils across schools.

Indeed, CEP analysis of this issue for primary schools in England finds that school competition tends to exacerbate

polarisation of primary schools by pupil attainment (Gibbons and Silva, 2006b). The estimates hint at a fairly large effect of school market competitiveness on stratification. So although there can be performance benefits from policies that promote competition in primary schools, they may come at the cost of increased polarisation of pupils along the lines of ability and attainment.

Finally, it is worth concluding with a cautionary remark. Analysis of school census data for several cohorts in England shows that at most 14% of the variation in pupil achievement at the end of primary education is ‘between’ schools. At the same time, differences in residential neighbourhoods can account for up to 60% of the variation in pupil attainment at the end of primary education.

Given the strong link between family resources and residential sorting, these differences mainly pick up disparities in family background. In other words, this evidence suggests that families still play a dominant role in determining young people’s educational attainments.

Overall, it seems that the most promising education interventions should try to identify the most ‘hard-to-reach’ pupils and address not only what goes on when they are at school, but more broadly tackle the disadvantages that these children carry with them when they come to school.



Families still play a dominant role in determining young people’s educational attainments



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The most promising interventions should seek to address the disadvantages that 'hard-to-reach' children bring to school

