



Department  
for Education

# School funding

## Research priorities and questions

March 2014

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# General approach to research needs and priorities

This paper is one of a series of 15 which aims to:

- promote the importance of robust quantitative evidence, in combination with other methods, to increase understanding of ‘what works’ in education and children’s services;
- identify evidence gaps and promote discussion of them with the research community, practitioners and other stakeholders;
- initiate collaboration with the research community, practitioners and other stakeholders to research these issues; and,
- support work that helps understand and tackle the barriers to evidence based practice, including how to make evidence accessible to practitioners.

The principles behind the department’s research strategy are inspired by Ben Goldacre’s vision<sup>1</sup> in the Department for Education Analytical Review<sup>2</sup>. In future, the development and use of evidence should be increasingly driven and owned by the research community, sector bodies and practitioners.

The published suite of priority and question papers between them cover the department’s key areas of work and provides a coherent strategic context for the research community, sector bodies and practitioners as well as the department, to plan and prioritise research. The department will continue to commission research, informed by the published priority questions

Views about the research questions and priority papers, recent findings, on-going research or evidence gaps are warmly welcomed. We will also be arranging a series of discussions throughout 2014 with practitioners, the research community and other stakeholders to discuss views and help shape departmental plans to filling evidence gaps. If you want to be involved please email us at: [Research.PRIORITIES@education.gsi.gov.uk](mailto:Research.PRIORITIES@education.gsi.gov.uk), follow us on Twitter (@educationgovuk) or like us on Facebook ([www.facebook.com/educationgovuk](http://www.facebook.com/educationgovuk)).

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<sup>1</sup> Goldacre, B.(2013), [Building Evidence into Education](#)

<sup>2</sup> The Department for Education (2013), [Analytical Review: The Department](#)

## School Funding: the policy context

The Government is reforming the school funding system in two stages. From 2013-14 there has been a simplification of local funding arrangements so that they are more transparent and consistent across the country and funding is more targeted towards the needs of schools. The Government has now announced its intention of implementing a new national funding formula from 2015-16, so that pupils in similar circumstances would receive the same funding regardless of where they live.

Funding for high needs pupils is also being reformed, in order to create a level playing field among different types of providers and thereby provide more choice for parents and young people.

The Government also wants to improve the efficiency with which schools use their resources to deliver education and improve outcomes. Schools spend a lot of public money every year, and how they spend it impacts on pupils' achievement and future prospects. On 26 June 2013, the department published a report on its review of school efficiency. The review gathered a wide range of evidence on barriers that inhibit greater efficiency and on what the most efficient schools do to ensure they are making the most of their resources. The Government is implementing various measures to address some of the identified barriers and to help schools improve their own levels of efficiency, based around five themes: benchmarking, procurement, governance, school business managers and workforce. These measures include developing an indicator of school efficiency alongside a school benchmarking report.

## Research summary and gaps

There is a substantial evidence base around school funding, but there is a long-established academic debate on the causal effect of increasing expenditure on schools on pupil attainment. It is hard to establish a robust link between resources and attainment because of the need to control for a wide range of other influences and because expenditure is often allocated to schools partly on the basis of need (which is itself related to attainment). Interpretations of the available evidence differ amongst leading international researchers in the field. For example, Hanushek (2008) argues that research shows no clear relationship between resources and pupil outcomes<sup>3</sup>. However, there are studies which do demonstrate effects such as studies on the effect of class sizes by Angrist and Levy (1999)<sup>4</sup> and Krueger and Whitmore (2001)<sup>5</sup>. In England, there are a few studies that do establish a link through complex statistical techniques,<sup>6</sup> but they suggest that the level of funding in itself is not as important as how the funding is used. Nicoletti and Rabe (2012)<sup>7</sup> found a positive but small effect of school expenditure on pupil test scores at age 16 using sibling estimates to control for family characteristics.

Over the longer term, the introduction of a national funding formula will change the allocation of resources across schools, and this change should aid in better determining and understanding the causal link between the level of resources and attainment.

A lot of work has been done, using data sets routinely collected by the Department for Education, to examine the general link between resources and attainment in schools, without much variation in results. It appears likely that further work on these data sets will be more productive if it focuses in more detail on the impact on specific groups of pupils, the impact of specific elements of expenditure and the impact on the wider functioning of the schools market. Areas where research could fill evidence gaps may relate to the pupil premium or to special needs funding, as well as to different groups of pupils such as the economically deprived, those with English as an Additional Language and members of different ethnic groups, and to particular elements of expenditure such as on teachers

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<sup>3</sup> Hanushek, E A (2008) [Education production functions](#), in Steven N Durlauf and Lawrence E Blume (eds) The New Palgrave Dictionary of Economics

<sup>4</sup> Angrist, J and Levy, V (1999) [Using Maimonides' rule to estimate the effect of class size on scholastic achievement](#), Quarterly Journal of Economics, 114, p. 555-75.

<sup>5</sup> Krueger, A and Whitmore, D (2001) [The effect of attending a small class in the early grades on college-test taking and middle school test results](#): Evidence from Project STAR, Economic Journal, 111, p1-28.

<sup>6</sup> See, for example: Gibbons et al (2011) Does Additional Spending Help Urban Schools? An Evaluation Using Boundary Discontinuities ([PDF report from London School of Economics website](#));

Levacic et al (2005) Estimating the Relationship Between School Resources and Pupil Attainment at Key Stage 3 ([PDF report from Institute of Education website](#));

Jenkins et al (2006) Estimating the Relationship between School Resources and Pupil Attainment at GCSE ([PDF Report from Institute of Education website](#))

<sup>7</sup> Nicoletti, C and Rabe, B (2012) [The effect of school resources on test scores in England](#). ISER Working Paper Series No. 2012-13, University of Essex.

or support staff. Such work will improve understanding of the system and may point to where further policy action is warranted.

The Review of Efficiency in the Schools System<sup>8</sup> started to look into whether spending *patterns* are important by looking at similar schools with similar funding levels but achieving different levels of educational attainment. It found, especially for secondary schools, that there are some differences in spending patterns between schools in the top and bottom quintiles of performance. However, since the analysis indicated correlations only, there is a key evidence gap in understanding causal relationships between how money is spent and the outcomes achieved. Filling this gap would provide information on the extent to which differences in spending patterns matter, and this could inform how schools can best benchmark themselves against each other.

The way money is allocated to schools plays an important role in the incentives that schools face, which in turn will influence their behaviour in the schools system. A desirable feature of a well-functioning and self-improving system would be that good schools are incentivised to expand to meet demand. However, a recent report from the Centre for Understanding Behaviour Change (CUBeC) found - within the limitations of the data – that schools have little incentive to expand within the current funding system.<sup>9</sup> This research is the first to address this issue and it focused on secondary schools and used attainment to measure school quality.

Some research has also been done on schools' decision making in response to funding changes,<sup>10</sup> but again this is limited as it assesses changes within the current funding framework. There is no good material on what efficient use of resources in schools means or what drives it. Longer term, it will be desirable to establish whether moving towards more pupil-led funding, and ultimately a national funding formula, alters incentives for schools sufficiently to change their behaviour. This could apply to their spending patterns, responsiveness to parental demand and ultimately educational attainment.

International meta-evaluation work on the effect sizes of interventions in schools has been carried out by Hattie<sup>11</sup> and made available as the “Visible Learning” package of materials. The Education Endowment Foundation, established by the Department for Education, is seeking to create an evidence base to inform how schools decide to spend their money, based on robust evaluations of the effectiveness and relative cost of different interventions and approaches within schools aimed at raising attainment (with a

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<sup>8</sup> PDF [Review of Efficiency in the Schools System](#) report available from gov.uk website

<sup>9</sup> Allen and Burgess (2012) How do we encourage good schools to expand? ([PDF report available from the Bristol University website](#))

<sup>10</sup> Allen et al (2012) Understanding school financial decisions DfE RR183 ([PDF report available from gov.uk website](#))

<sup>11</sup> Hattie, J (2008) [Visible Learning: a synthesis of over 800 meta-analyses relating to achievement](#)

particular focus on disadvantaged pupils). The EEF Teaching and Learning Toolkit can be found on the [EEF website](#).

## Future priorities

High level research needs in the area of funding are about assessing how schools could more efficiently allocate their resources according to need, the flexibility and responsiveness of the whole system to funding change and ultimately how financial decisions relate to educational attainment. In addition, it is important to gain a better understanding of the costs of educating particular groups of pupils.

The questions within each section below are set out roughly in the order of what the Department for Education thinks needs to be tackled in that area to help the direction of policy travel. But all of them are important.

### Responsiveness of the schools system

- Have the increased transparency and more pupil-led funding system introduced from 2013-14 had any impact, so far, on good schools' willingness to expand to meet parental demand? Has the funding system become more responsive to changing pupil intakes? Has there been any change in the extent to which good schools expand?
- How might different funding mechanisms, including a national funding formula (see Chowdry and Sibieta (2011)<sup>12</sup> for a general discussion of the issues), impact on the effective functioning of an increasingly autonomous, flexible and self-improving school system? For example, how might moving towards a national funding formula affect, and facilitate, the longer term efficiency and functioning of an increasingly autonomous schools system? How do different types of school funding systems internationally work and what is their effect on responsiveness? For example, a number of country case studies are considered in Ross and Levacic (1999)<sup>13</sup> which document benefits of need-based formula funding to different types of school systems. This kind of work could usefully be updated and extended.

### Efficient use of resources

- What can schools do to increase their efficiency? What examples of good practice are there nationally and internationally and how can these examples be applied in the current context? What is the role of information in changing schools' behaviour in respect of efficiency?

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<sup>12</sup> Chowdry, H and Sibieta, L (2011) [School funding reform: an empirical analysis of options for a national funding formula](#), IFS Briefing Note, BN 123.

<sup>13</sup> Ross, K N and Levacic, R (Eds) (1999) [Needs-based resource allocation in education via formula funding of schools](#).

- How do funding changes affect schools' spending patterns? For example, what do schools do with additional resources and how do they respond to budget reductions? Are the targeted areas of spending symmetrical among those who get more or fewer resources? From an analysis of data, Allen et al (2010)<sup>14</sup> have noted substantial variation in financial decisions made by schools in similar operating environments and that schools react very differently to changes in income. More understanding of the underlying decision-making processes would be helpful.
- How do other countries, particularly those with autonomous systems, encourage schools to improve their use of resources and secure efficiencies while raising education standards? For example, what are the most effective incentives, tools or mechanisms for ensuring and improving efficiency in autonomous school systems?

## Educational outcomes

- Is there a causal link between particular types of spending (e.g. on teachers, support staff, premises) or spending patterns and pupils' outcomes? Related questions include: are effects in proportion to the size of funding change; do impacts vary across different types of pupils or schools; do impacts vary over time? For example, Dobbie and Fryer (2011)<sup>15</sup> found commonly-used input measures of resources (such as per pupil expenditure) not to be correlated with the effectiveness of New York charter schools (whereas practices like increased instruction time, teacher feedback, data-driven instruction, and high dosage tutoring explained around half the variation in school effectiveness).

## Increasing the overall efficiency of the school system

- How can the overall efficiency of the school system be measured over time? For example, has it become more efficient overall and how do we know? Can we produce better measures of total inputs and outputs with which to assess change over time?

## Allocating resources according to need

- What are the main elements of additional costs of pupils with high levels of special educational needs, and how do they vary with the needs of the pupils? What are

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<sup>14</sup> Allen, R., Burgess, S., Rasul, I. and McKenna, L (2010) [Understanding school financial decisions](#), DfE Research Report, RR183.

<sup>15</sup> Dobbie W., and Fryer R. (2011) [Getting Beneath the Veil of Effective Schools: Evidence from New York City](#). NBER Working Papers, No. 7632

the most cost-effective ways of providing a high quality education for the pupils with the highest needs, including new and innovative options? <sup>16</sup>

- Does the additional cost of educating disadvantaged children vary with their concentration in the school? If so, what form does the variation in cost take?
- What is driving the gap in attainment between FSM and other pupils, which tends to be largest in LAs with the smallest percentage of FSM pupils and vice versa? For example, is it related to under-claiming of FSM, the differential in income between the FSM group and the rest, or other reasons?<sup>17</sup>

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<sup>16</sup> Further research priorities around provision for pupils with special educational needs can be accessed in the [SEN and Disability research priorities paper](#)

<sup>17</sup> The [Pupil Premium research priorities paper](#) is also relevant to issues concerning disadvantaged pupils

## Engaging with Future priorities

We would like individuals or organisations to respond to this and you can do this in various ways:

- Share with DfE any existing research evidence or current work relevant to questions. Email to [Research.PRIORITIES@education.gsi.gov.uk](mailto:Research.PRIORITIES@education.gsi.gov.uk).
- Prioritise research effort or bids in the light of the evidence questions.
- Debate evidence gaps and priorities with your own associations or other stakeholders. DfE would be interested to hear any views emerging - email as above.
- Follow us and join the discussion on Twitter (@educationgovuk)
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Reference: DFE-00078-2014