

Institute for
Fiscal Studies

The distribution of school funding and inputs in England: 1993-2013

Using school resources effectively: what is the evidence base?

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Motivation

- **Spending on schools is 2nd largest element of public service spending and increased rapidly over 2000s**
 - Schools Spending in England at £57bn in 2012-13 or 23% of public service spending
 - School spending per pupil grew by more than 5% per year in real-terms between 1999-00 and 2009-10 and protected in real-terms under coalition
- **Important to understand how this increase in funding was used**
 - How shape of the state education system is changing
 - How public sector organisations make financial decisions
- **Previous work and related literature**
 - Previous UK studies find evidence of funds targeted at deprivation (West et al (2001); West (2009); Chowdry et al, 2011)
 - International trend towards greater redistribution (De Haan (2014); Leuven et al, (2007))
 - Little on how schools make their input choices
 - Lack of strong evidence for resource effects (Hanushek 2003, 2006).

Main Findings

Main results:

- School funding became more variable and more targeted at deprivation since 1999
- Largely accounted for by increase in employment of teaching assistants and other staff, as well as non-staff expenditures

What drove this and what we can learn from these trends?

- Partly intended by policymakers, but scale of increase likely to reflect rigidities on school staffing decisions and uncertainty over future funding allocations

Institutional Background

- **School Funding System in England**
 - Central government allocates funds to local authorities, who in turn allocate funds to schools in their areas using their own funding formulae
 - Introduction of pupil premium for disadvantaged pupils in 2010-11
- **School Financial Autonomy**
 - Since early 1990s schools have had significant financial autonomy
 - Freedom to make decisions on who to hire and other budgetary decisions
 - Can hire non-teaching staff on relatively flexible/temporary contracts
- **Some significant constraints and rigidities**
 - National pay and conditions for teachers
 - Significant costs to making teachers redundant – legal and financial
 - Capital allocations made by central/local government restricts ability to expand physical capacity
- **Rapid pace of conversion to academy status from 2010 onwards**
 - Even more freedom of pay and conditions of staff

Data Sources

- **Funding**

- Section 251 Returns 1999-00 onwards for all maintained schools in England
- Academy financial returns from 2011-12

- **Link to inputs and school characteristics**

- LEASIS data for all schools in England from 1993 onwards (various key characteristics of intake and school governance; staffing inputs up to 2009-10)
- School Workforce Census data for 2010 onwards
- Annual Survey of Hours and Earnings (1999, 2012) for pay per head figures

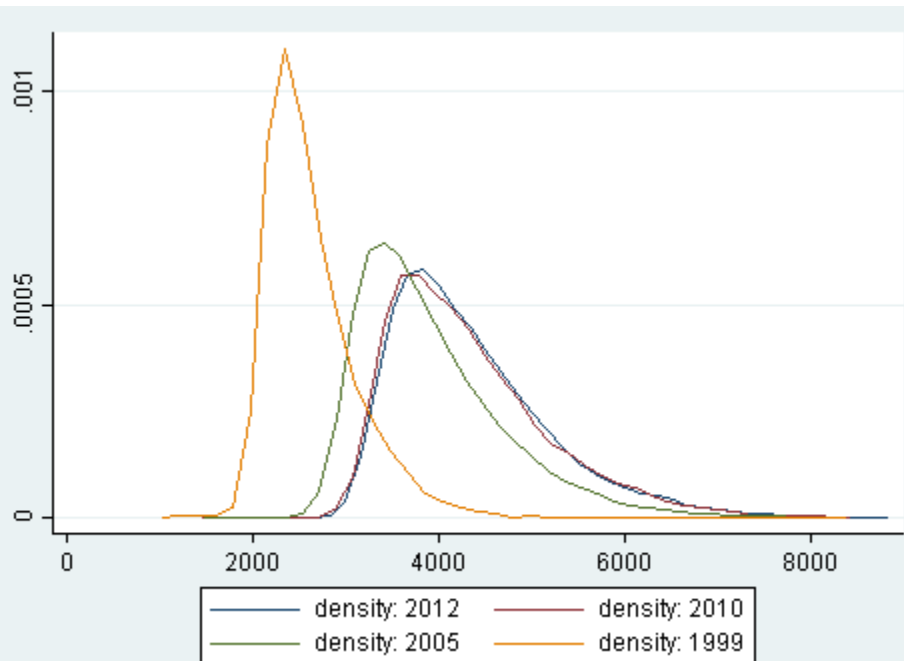
- **Sample selection**

- Exclude fee-paying independent and special schools
- Examine primary and secondary schools separately
- Excludes newly opening schools or schools with very low pupil numbers

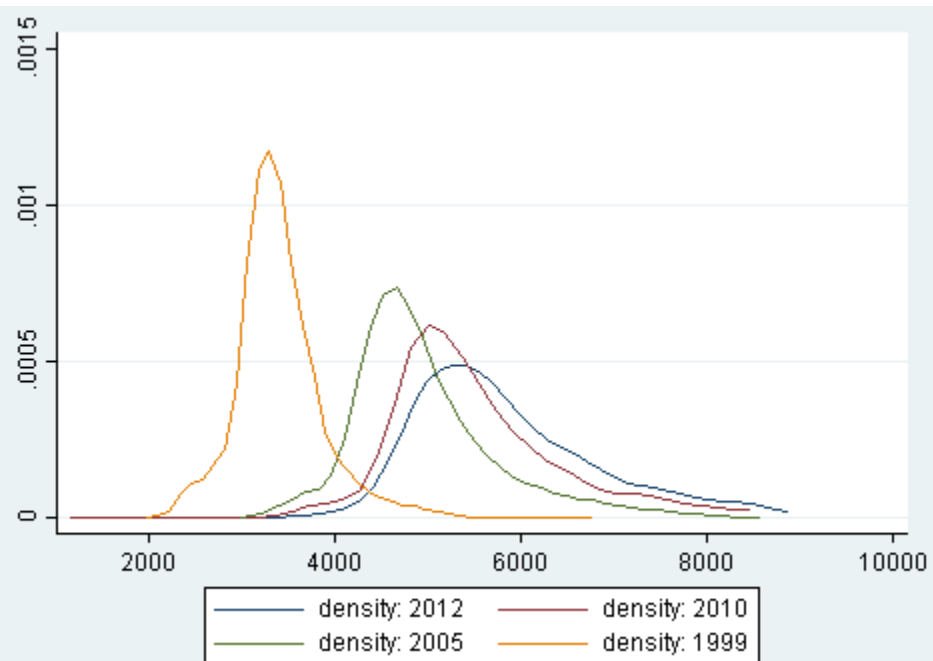
Distribution of funding per pupil

Increase in funding per pupil and increased variation over time

Primary Schools



Secondary Schools

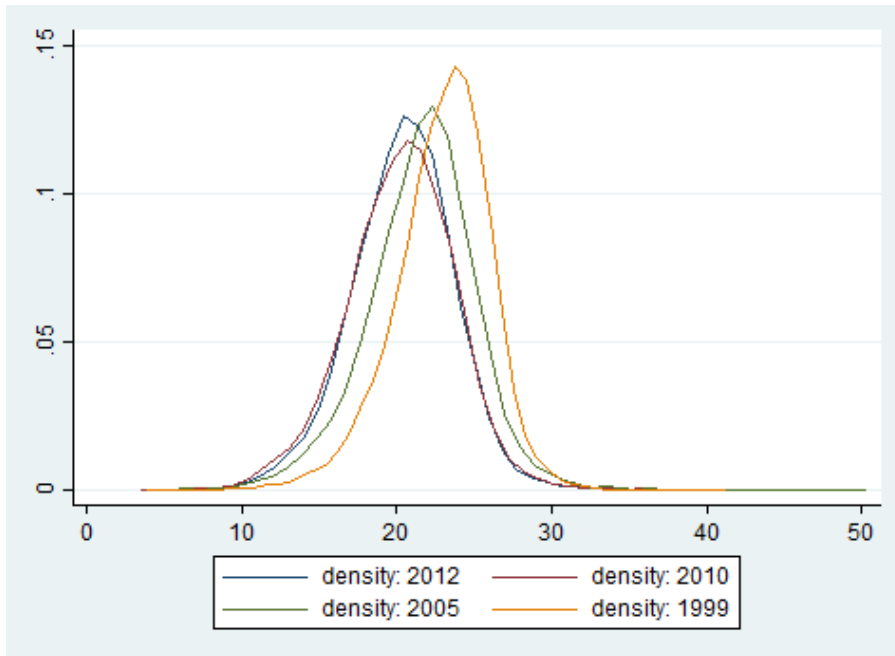


Sources: LEASIS (1999-2012), Section 251 Returns (1999-00 to 2012-13); Academies Funding Data (2012-13). Figures are presented in 2012-13 prices using GDP deflator.

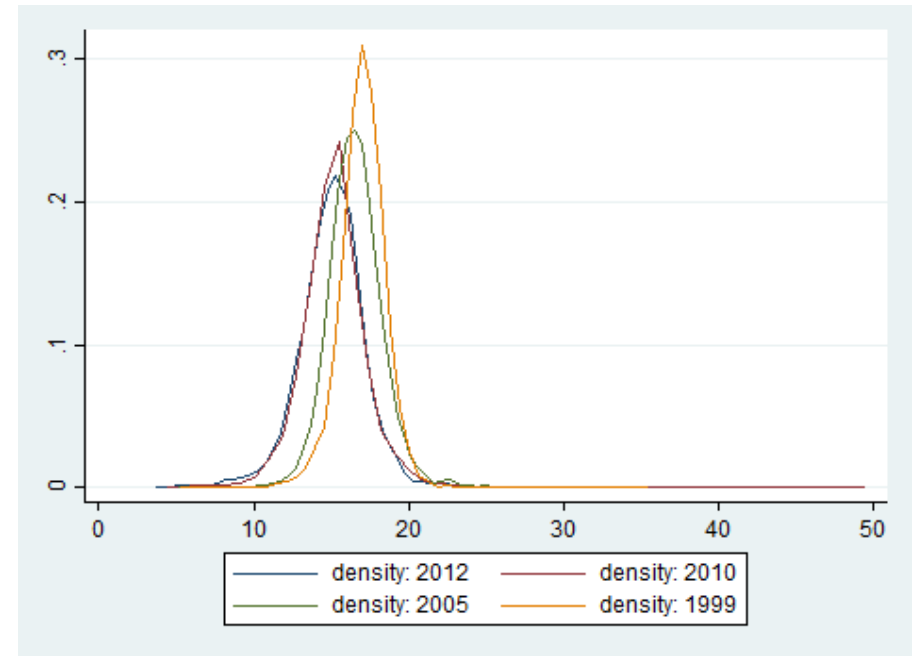
Less in variation in pupil: teacher ratios

Slight decline in pupil: teacher ratios, but no large increase in variation as was seen for funding per pupil

Primary Schools



Secondary Schools

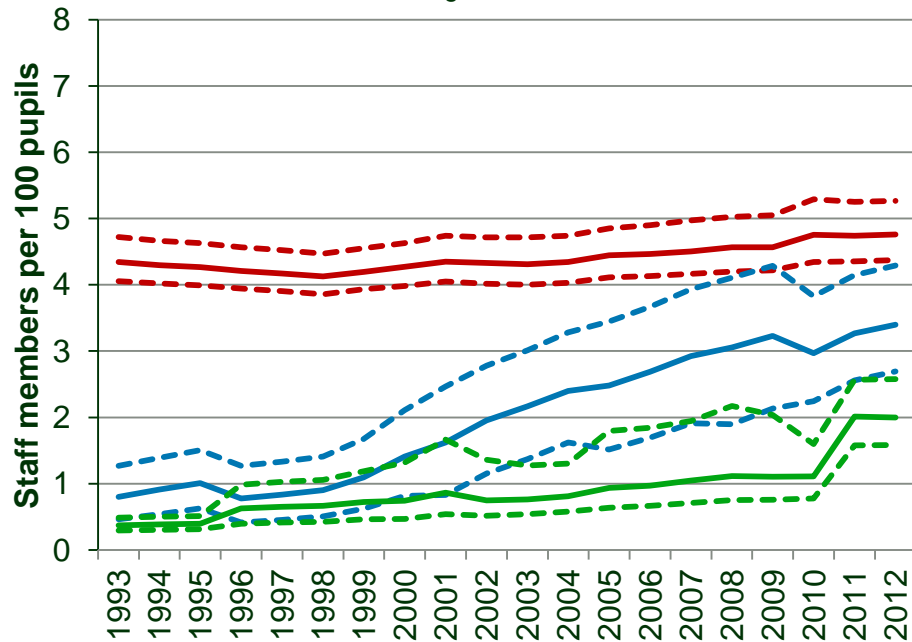


Sources: LEASIS (1999-2012) School Workforce Census School-Level Data (2010, 2012).

Increased use of and variation in teaching assistants and other staff across primary schools

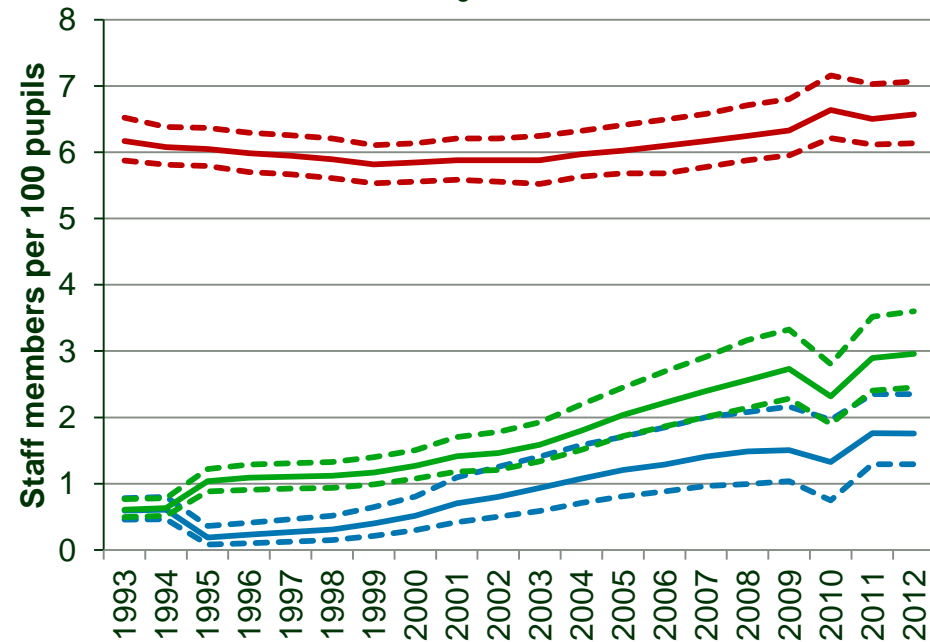
(a) Primary Schools

— Teachers - median
— Teaching Assistants - median



(b) Secondary Schools

— Teachers - median
— Teaching Assistants - median



Sources: LEASIS (1999-2012) School Workforce Census School-Level Data (2010, 2012). Significant number of schools with missing workforce data in 2010-11

Greater amounts of funding targeted at deprivation

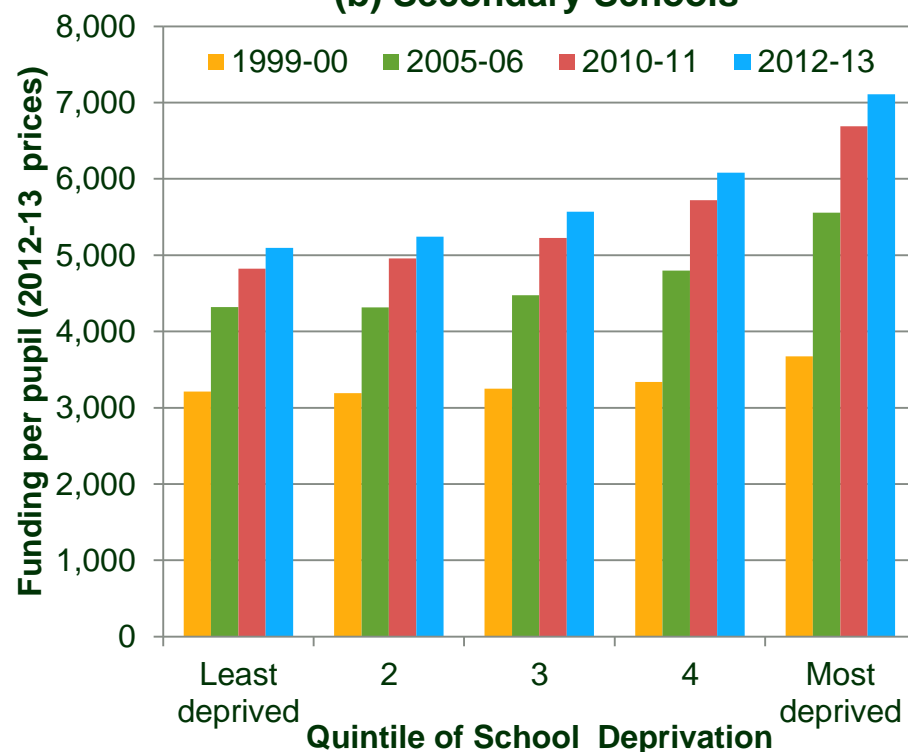
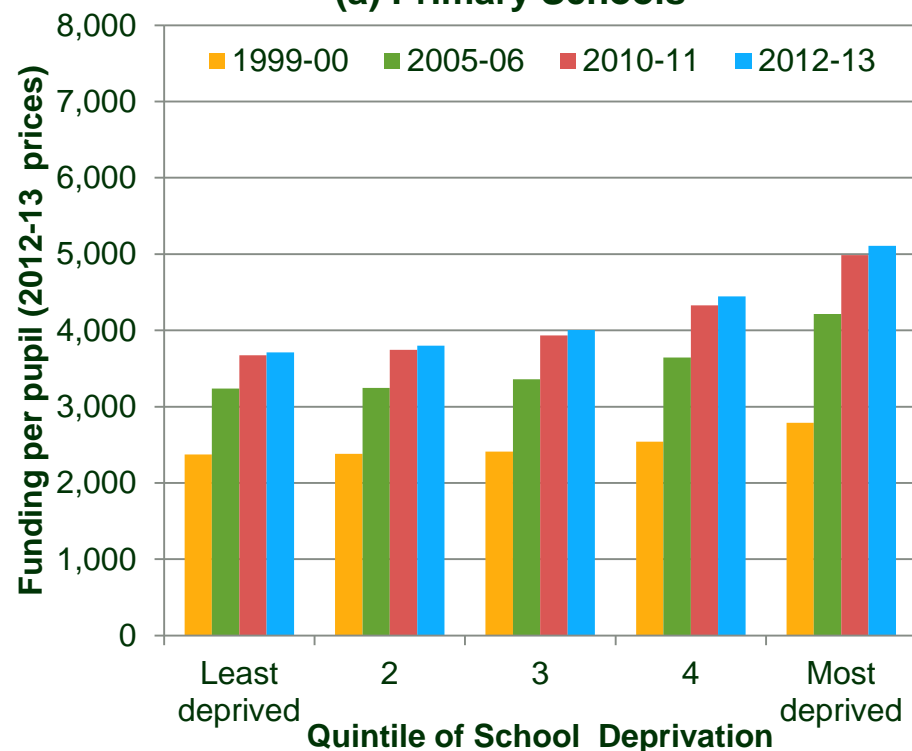
Most deprived schools saw **83%/93%** (primary/secondary) real-terms increase funding per pupil, compared with **56%/59%** for least deprived schools between 1999-00 and 2012-13.

Primary Schools

Secondary Schools

(a) Primary Schools

(b) Secondary Schools



Note: Quintile of school deprivation calculated using percentage of pupils eligible for free school meals; quintiles are calculated separately for primary and secondary schools; funding includes all grant funding from central and local government; real-terms values calculated using GDP deflator.

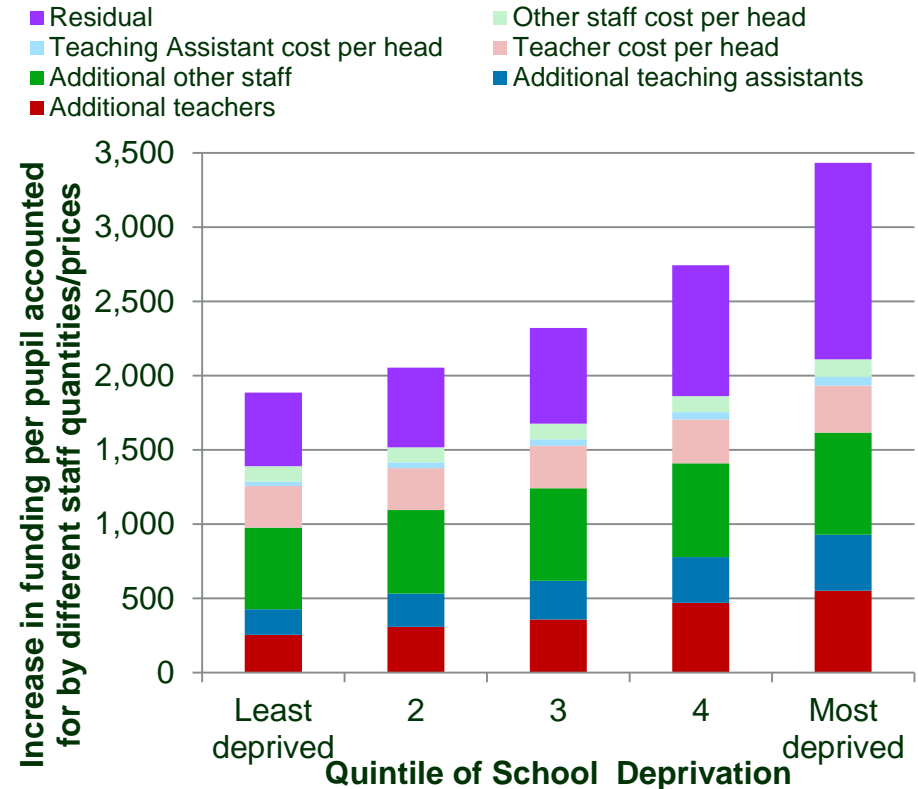
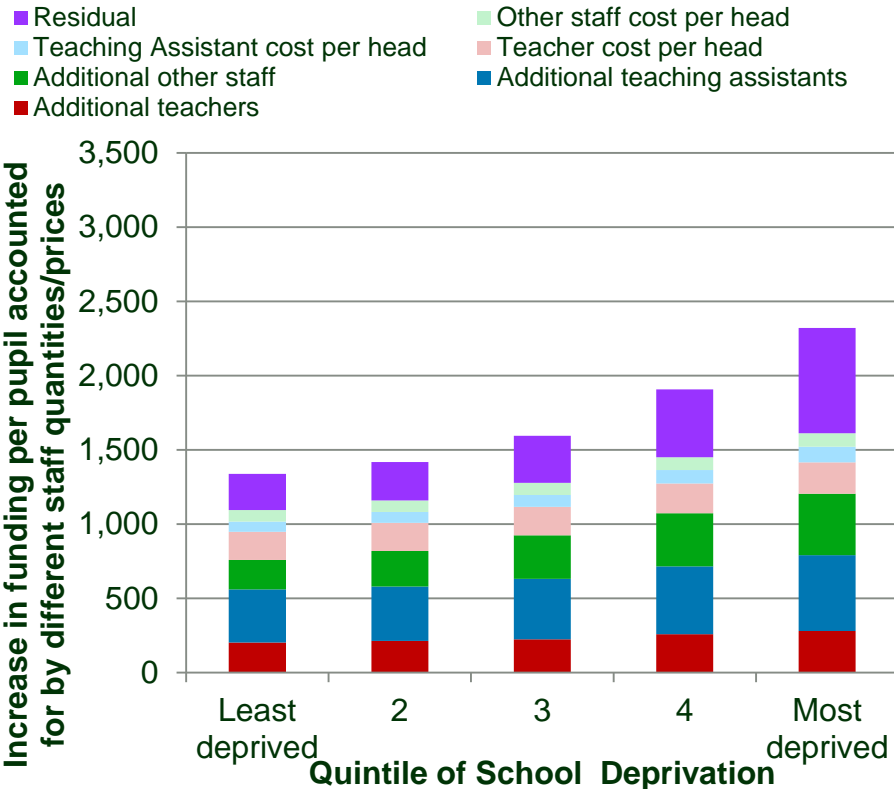
Decomposing increase in funding by quintile of school deprivation

- **Change in average funding per pupil between time (t-1) and (t) for schools in each quintile can be decomposed into the following components:**
 - Increased numbers of staff per pupil
 - Increased real-terms cost of different types of staff
 - Residual reflecting non-staff costs (and estimation error)
- **Assumptions**
 - Three types of staff: teachers; teaching assistants; other staff
 - No variation in level of pay per head across quintiles – national pay and conditions
 - Account for employer social security and employer pension contributions
 - All funding spent on resources in given year (i.e. no savings)

Decomposition results – largest role played by non-teaching staff and non-staff costs

Primary Schools

Secondary Schools



Note: Quintile of school deprivation calculated using percentage of pupils eligible for free school meals; quintiles are calculated separately for primary and secondary schools; funding includes all grant funding from central and local government; real-terms values calculated using GDP deflator.

Summary of decomposition results

- **Primary schools**

- Increase numbers of teachers play small, but notable role (13-15% of increase)
- But more explained by teaching assistants and other non-teaching staff (around 30-40%)
- Large difference in absolute amount explained by non-teaching staff (around £920 per pupil) for most deprived and least deprived schools (£560 per pupil)
- Large amount unexplained: about £900 or 30% of increase for most deprived schools

- **Secondary schools**

- Slightly larger amount explained by teachers (13-17%) and slightly larger amounts for most deprived schools
- Larger amount explained by non-teaching staff (31-38%) and clear difference between most deprived and least deprived schools
- Large amount **unexplained**, particularly for most deprived schools: about £1,700 or 31% of increase for most deprived schools

- **Potential Explanations for ‘unexplained’ element**

- Estimation error
- Higher levels of ‘saving’ by schools
- Genuinely large increase in non-staff costs

Accounting for the unexplained component

- If anything, figures implied by our estimates slightly over-state staffing costs
- Little difference in actual teacher salaries across quintiles
- There is some evidence of higher surpluses for more deprived secondary schools
- Some genuinely large levels and differences in non-staffing costs across quintiles

	Quintile of School Deprivation (primary schools)					Quintile of School Deprivation (secondary schools)				
	1	2	3	4	5	1	2	3	4	5
Staffing costs as share of funding (2012-13)										
Implied by our methodology	86%	86%	85%	82%	77%	82%	81%	80%	77%	72%
Actual national level			79%					78%		
Teacher Salaries (2012-13)										
Actual levels	£38,270	£37,947	£38,013	£38,810	£39,906	£36,269	£36,126	£35,998	£36,254	£36,513
Surplus (2012-13)										
Total income per pupil – total expenditure per pupil	£134	£94	£95	£80	£97	£86	£86	£105	£118	£263
Non-Staff expenditure per pupil (2012-13)										
Learning resources exp per pupil	£167	£164	£167	£185	£214	£291	£276	£262	£300	£367
Energy exp per pupil	£59	£62	£66	£76	£167	£85	£88	£97	£100	£115
ICT exp per pupil	£60	£58	£64	£73	£82	£47	£54	£68	£79	£86
Services exp per pupil	£46	£47	£52	£66	£96	£29	£38	£53	£75	£104
Other exp per pupil	£93	£95	£94	£101	£110	£364	£294	£323	£318	£372

What drove these trends and what we can learn?

- **Increases in non-teaching staff partly encouraged by policymakers during 2000s**
 - Release teacher time and enrich the experience of pupils
 - Could partly reflect increase in educational need (e.g. increase in pupils with EAL)
- **Unclear policymakers ever intended scale of increase**
 - In 2002, DfES said schools were given sufficient funding to employ an extra 50,000 support staff over the course of the parliament
 - In reality, number of non-teaching staff grew from 160k in 2000 to 270k in 2005 and 360k by 2010
 - Schools in England are unusually reliant on non-teaching staff compared with other countries
- **Unlikely to be guided by robust empirical evidence**
 - Little was available at the time
 - Recent evidence highlights role of teachers and suggests teaching assistants have weak impact
- **Flexibility of contracts and rigidities likely to play a larger role in driving decisions**
 - Teachers must be employed on inflexible contracts, difficult to remove if funding declines and not easy for schools to add extra classroom
 - Other staff can be employed on more flexible and temporary contracts
- **Uncertainty over future funding allocations also encourages schools to take on flexible inputs and build up balances**

Conclusions and implications

- **Very large increase in school funding since late 1990s together with an increase in level of school funding targeted at social deprivation**
- **Translated mostly into extra number of teaching assistants, other staff and non-staff inputs**
- **Partly intended by policymakers, but scale of increase likely to reflect rigidities on school staffing decisions and uncertainty over future funding allocations**

- **Are things likely to be different with the pupil premium and now schools in England have more autonomy?**
 - Pupil premium is actually continuation of long-run trend
 - Academies are making relatively use of existing freedoms
 - All schools now have slightly more freedom over teacher pay
 - Are schools making best use of new evidence on teaching assistants and how to deploy them?