

POLICY EXCHANGE

EDUCATION MANIFESTO

JONATHAN SIMONS
NATASHA PORTER
ANNALIESE BRIGGS

Policy
Exchange 

#EDUCATIONMANIFESTO

“ There are moments in education that remind you that all things are possible. We can only offer children and ourselves two things – truth, and hope. Hope without truth is just a fantasy. But truth without hope just sets us up for failure. It is only through equal parts truth and hope that you see what is possible.... It is only in those moments, where you’re able to confront truth at its harshest, and hope at its most powerful, that you believe that dramatic change is possible.”

State Senator Mike Johnston, former education adviser to Barack Obama, speaking at Policy Exchange 7th June 2014

“ All of us will learn.”

Banner on the wall of KIPP New York City
College Prep High School

**“ He who opens a school door,
closes a prison.”**

Victor Hugo

**“ I believe that education is
the civil rights issue of our
generation. And if you care
about promoting opportunity,
the classroom is the place to
start. Great teaching is about so
much more than education; it is
a daily fight for social justice.”**

US Secretary of State for Education Arne Duncan

**“ Smart is not something you are,
smart is something you get.”**

Stephanie Harvey, Special Needs and Literacy Teacher

ABOUT THE EDUCATION UNIT

Policy Exchange believes in the liberation of learning – improving education outcomes by freeing up institutions and individuals to maximise opportunities to support children, young people and adults in the system. We love working in education because it is profoundly optimistic – it speaks to a better tomorrow.

For more information about our work visit: <http://www.policyexchange.org.uk/education-and-arts> or contact one of the team:

Jonathan Simons, Head of Unit: [jonathan.simons@policyexchange.org.uk/](mailto:jonathan.simons@policyexchange.org.uk)
[@PXEducation](https://twitter.com/PXEducation)

Natasha Porter, Deputy Head of Education: [natasha.porter@policyexchange.org.uk/](mailto:natasha.porter@policyexchange.org.uk)
[@NPorterPX](https://twitter.com/NPorterPX)

Annaliese Briggs, Research Fellow: [annaliese.briggs@policyexchange.org.uk/](mailto:annaliese.briggs@policyexchange.org.uk)
[@annaliesebriggs](https://twitter.com/annaliesebriggs)

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officials, advisers, Ministers and education staff from across the country who have hosted us, discussed our ideas, spoken at our events and roundtables and told us where we were wrong and where we were right. All errors, as they say, remain our own.

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INTRODUCTION

We are delighted to present the Policy Exchange education manifesto for the 2015 General Election.

This is not a manifesto in its traditional sense. What is published here is a collection of short ideas around particular areas which are more localised than those in our main reports. It is our hope and our belief that any or all of them could be taken up by any main political party in May 2015, and they complement the broader policy recommendations we have put forward in our published reports.

What joins all of our ideas together – and indeed, acts as a golden thread throughout all of Policy Exchange’s work on education – is a belief in what we call the liberation of learning, and of the power of education to improve lives. Our overall thesis is that education has power to improve the life of anyone, regardless of their background or starting point. Clearly, education is not alone in this respect, nor does it represent the entire answer to this question. Work must and is being done on areas of health, of welfare, of housing, of taxation, of transport, and many more, to fully address this challenge. But where we part company from some is that we believe

that, on its own, education can be transformative and we should strive for it to be so. This can be done and crucially, has been done. Our intention is to promote an agenda that builds on this, rather than to start anew.

The education sector has, we believe, reached a point of no return when it comes to debates about autonomy from government – both in belief and in practice. In structural terms, the vast majority of education institutions – nurseries, schools, FE colleges, and universities – have an arm’s length relationship with government, who funds them and regulates them, but who delegates the day to day operations to the individuals within them. There is cross party agreement in word and deed that this agenda should continue. And the profession is responding. If asked to identify the drivers of the next stage of reform; the change makers, the individuals and organisations that will lead the ongoing development of the education system in England, it is neither politicians nor arms of government which would be listed.

The acceleration of this trend has been perhaps the dominant feature of the education system at all phases – particularly in

schools – since 2010. The focus to date has, rightly, been on freedom: freedom from unsuccessful service and systems; freedom to change the curriculum; freedom for students and employers to choose their post 18 education and customise it to their needs; freedom for parents to choose an education that best suits their child. Yet whilst freedom is a necessary component of an autonomous system, it is not sufficient to sustain it. The fight for freedom – waged successfully over successive governments and especially since 2010 – must now give way to the next stage, to *empower* leaders in education to make use of their freedoms as they see fit. This means addressing big questions: what should the total quantum of education spending look like and how is it best distributed both across ages and also between institutions? What should an accountability system look like that holds to minimum standards, drives continuous improvement, but facilitates rather than hampers innovation? What role if any does government have around the education workforce in terms of recruitment, deployment, training, remunerating and ongoing development? How can an empowered system look to improve not simply through greater stratification, or a narrowing of the focus to the purely academic, but through the lifting up and development of all organisations and individuals regardless of their size, circumstances,

or needs? These are the major questions which all parties will need to grapple with throughout the next Parliament and beyond.

Over the last five years, we have written research papers and held events and discussions which start to answer such questions. We have written about boosting the quality of childcare and improving Sure Start and children’s centres; about reforming Ofsted and the inspection process; about rewarding and incentivising teachers via increasing pay on a performance related basis; about technical education at 14–19 and amongst adults; about the growing power of collaborative academy chains; about how to reinvigorate Further Education colleges and universities; about improving provision for those with Special Educational Needs; and about how best to extend the school day. We have also held events in recent months on character education, on vocational education, on the benefits of open data in schools and in universities, on the success of London’s education system at promoting social mobility, on the seismic impact of the inaugural piece of education reform legislation, the Education Reform Act of 1988; and on what the 2015 might hold for the political parties. Over the past two years alone we have hosted the two Secretaries of State, the two Shadow Secretaries of State, junior Ministers covering schools, skills,

universities and early years, and senior political representatives from the US and Australia. And we have spoken at dozens of external conferences and seminars to promote our messages and reforms and help build a coalition for this agenda.

Alongside these big, systematic reforms which our longer reports address, there is also a need to address some more specific issues. This is what we are releasing for the first time here. These seven short papers,

all with specific recommendations, address a range of different areas, but they are all focused on improving the quality of our education system to make sure that everyone gets the best possible education for them, whatever their age or stage.

Together, our work forms a comprehensive analysis of what we think the future for education policy should look like. We look forward to working with all parties after May to continue that discussion.

STUDENT LOANS

Government should commit to paying off the annual repayment of student loans for as many years as all eligible teachers remain in teaching in state schools.

Since September 2012, undergraduates studying in England have been liable for annual tuition fees of up to £9,000 a year. Students commencing courses in that year are predicted to leave with total debt of £53,000 – although the vast majority of that is made up of debt to the Student Loans Company for tuition and maintenance loans which are covered by an income contingent repayment scheme.

Early indications are that the majority of both future students and current students feel university is *satisfying* but there are some indications that those thinking university is *value for money* is dropping – particularly from students from more modern universities and those doing degrees in subjects less directly linked to high paying jobs. Recent data from HEPI/HEA shows declining satisfaction with value for money overall – a third of students

in 2014 considered their course poor value for money against only 18% in 2012 (under the old funding system).

Earlier research in both the UK and especially the US (discussed further below) suggests that when students have greater concern about debt there is some shift in career patterns, and in particular a move away from lower paid public service roles especially in education.

At the same time – though not related to increased tuition fees, given the inaugural cohort have not yet graduated – there has been a decline in the number of graduates entering teacher training, with 93% of places filled for courses started in September 2014, the lowest percentage since 2008.

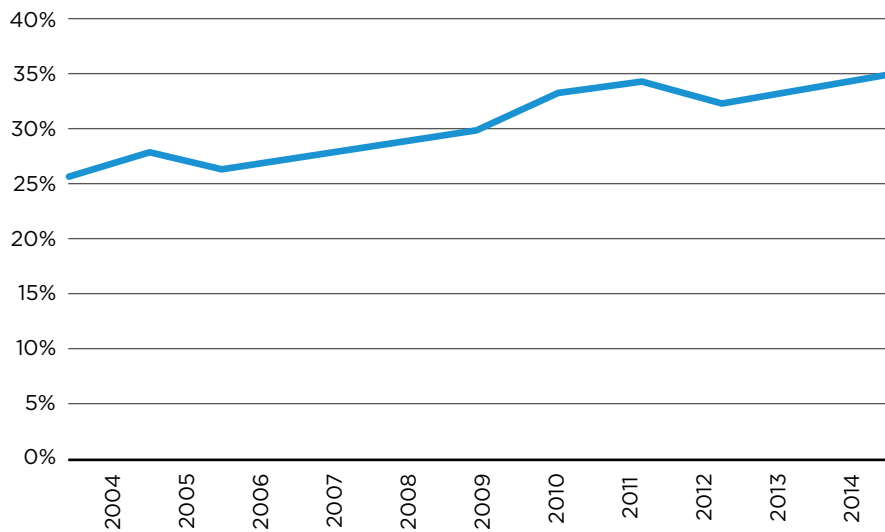


CHART 1
Percentages of 18 year olds going to university in the UK, 2004-2014

Given the twin risks of declining teacher numbers in general as the economy continues to grow (making alternative careers more attractive and prevalent), and a possible knock on effect from September 2015 onwards of more highly indebted students graduating from university and deciding not to undergo further teacher training (and potentially incurring more debt), **Policy Exchange proposes that all parties commit in their manifestos to a scheme of student loan repayments for some or all teachers who begin teaching or teacher training in the state sector from September 2015. Such a scheme would save a typical teacher around £3,800 over the course of the next Parliament, with a cost to government of between £5.5m-£13m in 2015, rising to £33.5m-£83m in 2019, depending on the overall eligibility requirements of the scheme.** Such a scheme would include elements of both a previously run pilot in England and a federal programme for teachers in the US.

Current student views on university

Despite strong warnings and fears from a variety of interest groups, undergraduate application rates in England have increased since 2012 (after a predicted one year dip as the new system kicked in) to record highs when looking at full time 18 year olds¹ – although the picture is far more mixed when looking at part time and mature entrants.

Early indications are that the majority of both future students² and current students³ feel university is *satisfying* but there are some indications that those thinking university is *value for money* is dropping.

Recent data from HEPI/HEA⁴ shows declining satisfaction with value for money overall – a third of students in 2014 considered their course poor value for money against only 18% in 2012 (under the old funding system).

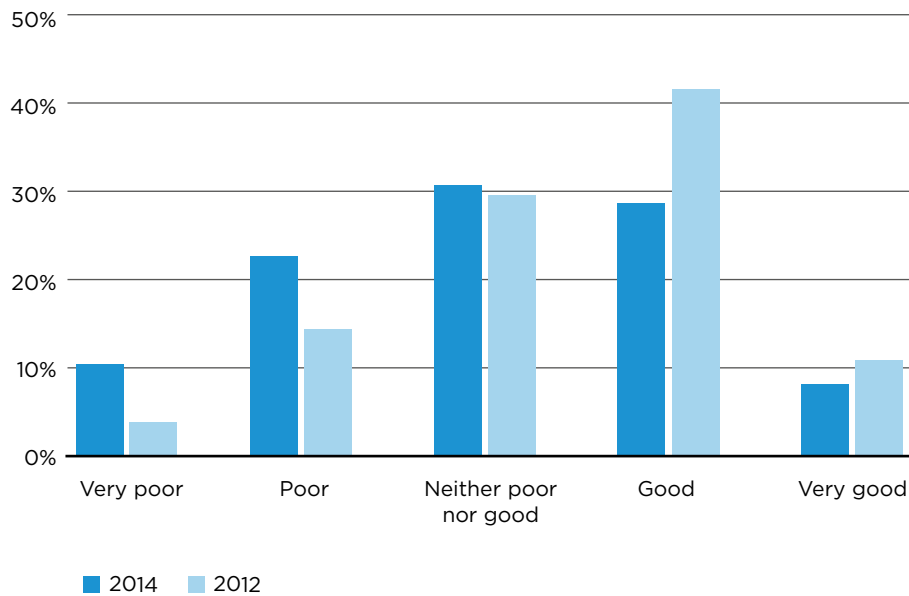


CHART 2
 Student views on value for money of university, 2014 and 2012

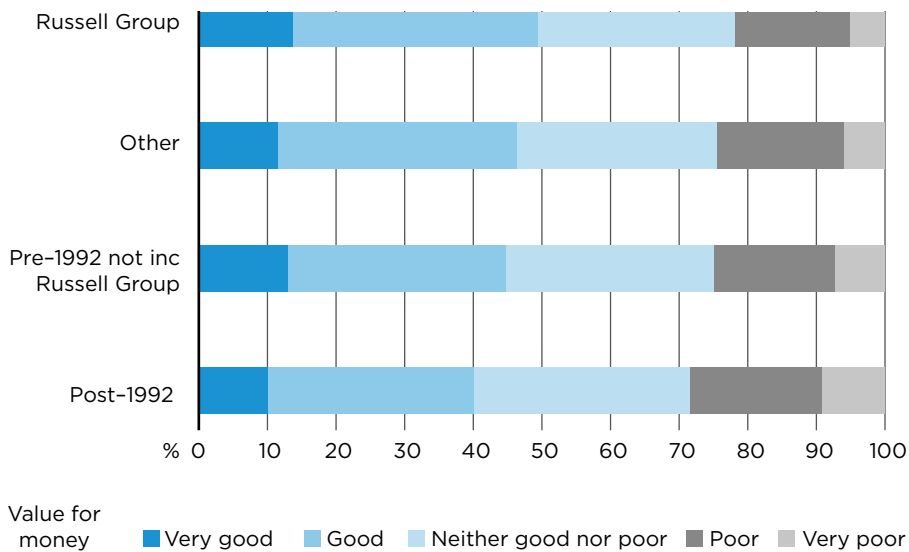
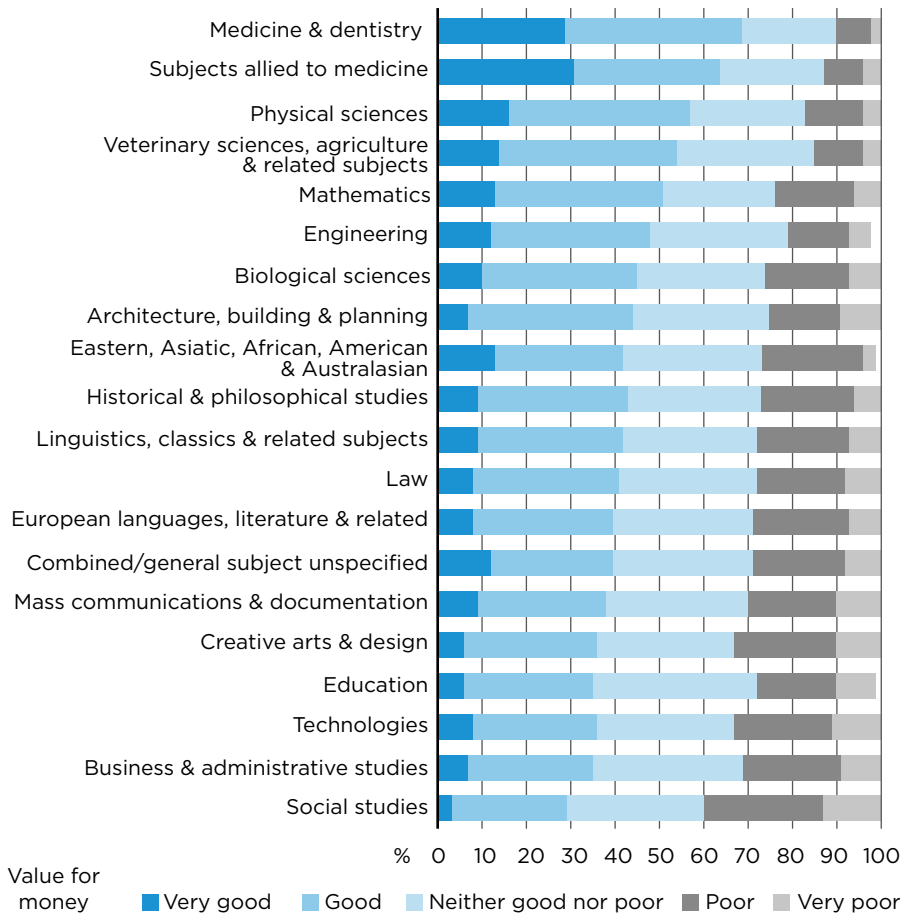
Does increased student debt affect career choices?

There is limited evidence from the UK so far as to how student debt affects choices. There is some evidence in the HEPI/HEA study to suggest that courses and universities associated with higher predicted earnings lead to greater satisfaction and feeling of value for money (though whether these thoughts led to course choice or simply reflect independently made course decisions can't be identified)

This data reflects a similar exercise undertaken at the time of the last tuition fee change. Universities UK research in 2010 looking at students who started in 2005/6 (ie the first cohort affected by the £3k fees) showed general concerns about paying off debt (but the research notes that as this cohort was graduating in 2009, general macroeconomic

worries would make this a large concern across the cohort). On the whole respondents also felt that courses leading to higher paid jobs were more value for money. Finally, the data shows that respondents with highest levels of predicted debt had clearer plans for future work than their peers with lower debt, but good planning was also associated with student with no debt, suggesting career planning may be relatively independent of financial considerations.⁵ A review of other UK evidence by Claire Callender and Jonathan Jackson also found that would-be students from lower socio economic backgrounds were more deterred by debt than their more affluent peers.⁶

There is a greater body of US evidence – albeit under a very different student funding and debt repayment model which is often not income contingent – which shows impact of



future life choices on student loans. A study in 2007 at a highly selective university in the early 2000s⁷ showed that debt led to a switch towards high paid private sector jobs and away from lower paid “public interest” jobs – and that “Debt effects are most notable on the propensity to take a job in education”.

The Brookings Institute summarised other US evidence⁸ which has variously found that:

- higher student loan debt causes a higher drive towards immediate employment among recently graduated women, in other words the likelihood of attending graduate school for further study reduces;
- the rate of placements in public-interest law are roughly one-third higher when law students are offered tuition waivers instead of loan repayment assistance;
- student debt is associated with students pursuing jobs that pay higher wages initially, perhaps at the expense of wages in the future; and
- student loan borrowers are roughly 60 to 70 percent less likely to apply to graduate school – after controlling for other factors – than non-borrowers.

Other papers recently published that were not covered by the Brookings piece show that there is a correlation between greater student loan debt and lower propensity to start a small

business⁹ and that the percentage of young Americans taking out mortgages had declined considerably – to the extent that Americans with no student loans aged 27–30 are now more likely to own a house than their graduate peers, despite the latter’s higher wages.¹⁰

What is the current state of the teacher labour market?

There are signs of a decline in overall numbers of graduates entering teacher training – though importantly this is unrelated to changes in tuition fees, as the inaugural cohort with the new fee repayment scheme do not graduate until summer 2015.

Overall, the ITT census for 2014/15 shows that 93% of places have been filled for those starting ITT in September 2014 (91% secondary, 93% primary). However, the secondary percentage is slightly skewed because several subject areas have over recruited (ie history has recruited 125% of places). If those percentages are capped at 100% (on the assumption that excess history teachers cannot easily be redeployed into filling gaps in other subjects), then overall just 83% of secondary places have been filled. Chris Husbands from the IOE has argued that this is overall the lowest level of teacher recruitment since 2008.¹¹

DfE funded research into the reasons why graduates choose to enter teaching show “a strong and significant negative correlation between number of applicants to ITT and GDP growth over the last fifteen years. When GDP falls, the number of applicants rises”. Such a finding has been shown consistently amongst successive cohorts of teachers entering the profession between 1960 and the 2000s. The research as to why teachers choose to stay or otherwise in the profession also includes an element of financial benefit – particularly relative to alternative careers – but also encompasses non financial factors including pupil behaviour, workload, and professional status. The related note for the Policy Exchange manifesto on attracting teachers to particular regions and subjects offers ideas on non financial rewards which could be offered.

It is therefore clear that a student loan repayment system would not act as a panacea to address wider issues of teacher labour market supply. Nevertheless, given it would act as an immediate pay rise both in absolute terms and relative to other graduate professions, it remains worth considering, especially – crucially – in the context of increasing student debt, and new research suggesting that a large majority of teachers will never repay their student debt, both of which will impact

on behavioural decisions made by future generations of graduates and which cannot be predicted by looking at past evidence of lower tuition fee repayments.¹²

What could a student loan repayment scheme look like

There are two previous models worth considering briefly – the English Repayment of Teacher Loans pilot which ran between 2002–2004, and the current federal student loan repayment scheme in the USA.

In 2001 in the Schools Green Paper, the then DfES set out that a Repayment of Teacher Loans pilot scheme.¹³ The Green Paper announced that

We want to make teaching still more attractive, by giving extra support to those who commit to it as a career. For shortage subject and areas of difficulty in recruitment, we will explore a scheme to assist new teachers who enter and remain in employment in the state education sector to pay off, over a set period of time, their student loans.

This scheme offered to pay off 10% of the total student loan for every year an eligible teacher remained in the state sector in a shortage subject, so after ten years the debt would be clear. This was open to those entering the profession in 2002–2004.¹⁴

School year commencing	Sep 2015	Sep 2016	Sep 2017	Sep 2018	Sep 2019	TOTAL
Cash saving to typical teacher	£513	£633	£759	£892	£1,031	£3,828

TABLE 1
Projected cash savings under proposed student loan repayment system

In the US, the federal government operates a Teacher Loan Forgiveness Programme (called a Stafford Loan Forgiveness Programme).¹⁵ This allows for \$17,500 to be written off from federal student loans if a graduate is a maths or science teacher or SEN teacher in a low income school. \$5,000 is available to be written off if a graduate teaches in a low income school in any other subject. Importantly, this scheme is available only after a full five year consecutive teaching period in eligible schools (during which time the teacher still makes loan repayments). It therefore acts as an effective golden handcuff more than the RTL scheme which commenced repayment from Year 1. Stafford loans are available to students up to a maximum of \$31,000 - ie under this programme the government will write off approx. 1/2 or 1/6 respectively of the total loans after a five year period.¹⁶

The proposal set out in this paper bears a closer resemblance to the RTL scheme, but it does not offer to repay all student debt over a ten year period. **It simply promises teachers that the government will cover all repayment of student loans that the teacher would have incurred (income dependent) for every year in which they teach in the state sector, up to retirement. For a typical teacher entering state teaching in**

September 2015, such a scheme over the lifetime of the next Parliament would save them around £3,800.¹⁷

This proposed scheme is less generous than either of the two examples set out above. A typical teacher would have between £7,500 and £21,000 paid off under the Stafford loan model over the next Parliament, and around £13,500 to £22,000 under the old RTL model.¹⁸ But there are reasons for thinking that this current model is both better in behavioural terms than the Stafford model, and far more affordable than the old RTL model - which as noted was piloted when average student debt was less than a quarter it is now.

- **A key behavioural insight is that such a scheme has to have immediacy and visibility.** A monthly statement on the payslip showing the saving made (in much the same way that payslips now have student loan deductions) would be a visible and immediate reminder and be felt right from month 1. By contrast, a scheme that promised a bigger reduction but only after 5 years service (and 5 years payments) like the Stafford scheme could be felt to have less power in that regard. This was a key insight from the RTL evaluation - because it was low visibility, and many

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teachers had not heard of it, it had limited impact in increasing recruitment and retention (although the evaluation suggests that around 10% of entrants to the profession during that time had been encouraged in by the scheme, which is actually a very significant increase if that is pure additional entrants to teaching).

- **Such a scheme also keeps a link between income and earnings.** The government is rightly keen to stress the income contingency of the current scheme and its protection for lower earners, and encouraging people not to obsess over the current figure as it doesn't actually bear much resemblance to the total repayments that will be made. Any scheme which weakens that, and promises - as the RTL and Stafford schemes do - to pay off all loans or a fixed sum of money regardless of total debt and total income weakens that link, and could actually increase teacher wastage because of a renewed focus on the overall quantum of debt.

The total costs of the scheme to government depend on the exact parameters of who would be eligible. This paper suggests three options:

- **Option 1** - open to all teachers in all state schools¹⁹
- **Option 2** - open to all teachers in challenging schools²⁰
- **Option 3** - open to STEM teachers only²¹

A simplified model built for this report for illustrative purposes estimates how many teachers would be eligible in the beginning of each year, and then makes assumptions on retention rates for each of the cohorts as they progress through their school careers. Obviously, the total cost of the scheme builds over time both as average cohort salary increases and as more cohorts join the scheme. It would be possible to design a break in the system after 5 years - as the original RTL scheme did - to evaluate it and to control costs.

This report estimates total costs to government as follows (all in 2014/15 prices):

Teachers starting teaching in	Sep 2015	Sep 2016	Sep 2017	Sep 2018	Sep 2019
Option 1	£13m	£27m	£44m	£63m	£83m
Option 1a	£13m	£28m	£45m	£65m	£86m
Option 2	£6m	£12m	£260m	£28m	£37m
Option 3	£5.5m	£11.5m	£18m	£25.5m	£33.5m

TABLE 2
Projected annual costs to government of student loan repayment system under different eligibility criteria

In the context of increasing student debt, declining satisfaction with value for money of study since the fee increase, declining recruitment numbers into teacher training overall, and some US evidence of longer term

knock on effects of career choices especially teaching, a scheme of the type outlined here would be a worthy commitment for all parties to make in 2015.

CITY REGIONS

Government should work with the new City Regions and Combined Authorities to construct a recruitment and retention offer for teachers that goes beyond schools – including housing, transport, childcare and jobs.

In a flexible labour market teachers are free to move between schools and areas. The effect of this is that different schools and regions have differing levels of interest and choice about teachers working there. Different subjects have different degrees of shortages, with maths, English and science suffering the highest percentage of vacancies as a percentage of teachers in post.²² In Ofsted's recent annual report the issue was raised about difficulty recruiting teachers in certain geographies as well as in these shortage subjects.²³

There are already national, regional, and school based efforts to create incentives which resolve the issues around recruiting and retaining of teachers.²⁴ Schools are also increasingly able to develop their own offers

to attract teachers²⁵, especially as the new broad national pay framework means all schools now have greater pay flexibility and are being encouraged to use it. Although pay is an incentive which can and should be considered – and indeed the related note from Policy Exchange on student loan repayments sets out how that could happen – there are also incentives which focus on professional development and promotion, and working as part of a supportive culture all of which would help with retention.

National policy can help with recruiting and retaining teachers throughout the country. However more targeted incentives should be more widely used to address specific localised teacher shortages. In particular, the recent move to devolve powers and funding

to combined city regions – with Manchester being the first example of a region gaining extra autonomy – offers an opportunity for local areas to construct incentives that go wider than simply those that are currently offered by a school or group of schools.²⁶ Cities with devolved powers could use their new powers and budgetary flexibility to offer attractive packages to encourage re-location, recruitment and retention of teachers to their area, specifically in subjects or geographical areas where they have teacher shortages.

Policy Exchange therefore recommends that political parties commit in their manifestos to working with these new combined authorities and regions with new devolved powers to encourage them to use their new powers to construct area wide relocation packages to encourage teachers to move to their areas. As the first of these new combined city regions, Manchester should prioritise doing this as its new role starts to develop. Such incentives would take place within the newly devolved budgets for city regions so would represent no additional financial burden on central government.

What incentives already exist for teachers?

In his research on successful education systems, Michael Barber concluded that

“The quality of an education system cannot exceed the quality of its teachers”. This view has driven the focus of government resources in recent years into encouraging higher calibre graduates to join the profession, and the best teachers to stay in it. National incentives in recent years have included the funding of schemes which recruit top graduates who historically might not have chosen a career in teaching such as Teach First, and direct entry training schemes such as the Graduate Training Programme. There have also been incentives for in career teachers such as the introduction of Performance Related Pay, the introduction of the Advanced Skills Teacher qualification and pay scale, market pay for shortage subjects with “golden hello” payments for maths teachers and others, and battle pay where teachers in schools with high levels of pupils on Free School Meals had a “golden handcuff” payment if they stayed in the school long term.

At a local level, schools and Academy Trusts have started differentiating the packages they offer to encourage more teachers to apply for jobs at schools in their networks. Some are offering high quality Continued Professional Development programmes, including support for teachers to study for Masters programmes and other external career development courses. This is especially important for those stand alone schools or chains of schools which

One particular challenge is the need to consider not only the relocating teacher, but also their partner who may not be a teacher, but is likely to be highly educated and needing employment.

are located in areas of high deprivation where retention of teachers is lower.²⁷ Teachers who join the ARK network enjoy some financial incentives such as 2.5% salary uplift and a travel loan of up to £5,000, but also high standards of professional development for every level of teaching staff, and plenty of opportunity for career progression. The Harris Federation also focus on financial incentives, offering a range of benefits to their teachers from private health-care to loyalty and performance bonuses.

There are also national schemes which schools or areas can opt into which also offer high quality career development for teachers who are moving into leadership positions. These include Talented Leaders, Future Leaders, and Teaching Leaders.

More recently some local areas have begun models of leader development and recruitment. The Achieve Together programme is an example of regionalised education improvement. The initiative focuses on teacher recruitment and retention to raise standards within Bournemouth. The project, which has been funded by JP Morgan and the Education Endowment Fund, involves Teach First, Teaching Leaders and Future Leaders working together in Bournemouth to recruit, develop, and retain excellent teachers across a geographic region.

City Regions

The key areas which a City Region or Combined Authority could offer incentives around will depend on the areas they have decision making or budgetary authority over. As such, each City Region will be best placed to create their own offer. They will also need to consider that incentives will be different for hiring trainee and inexperienced younger teachers, than from those needed to hire more experienced teachers who possibly have more financial commitments and perhaps a spouse and children. One particular challenge with recruiting teachers is the two-body or trailing-spouse problem. This is the need to consider not only the relocating teacher, but also their partner who may not be a teacher, but is likely to be highly educated and needing employment. In geographical areas where there is not much employment, areas which are both isolated and deprived, this can prove particularly problematic.

As the first combined City Region, Manchester should explore various proposals to grow their own teacher pool as well as how to attract experienced teachers.

- **Strengthen the pipeline of new locally trained teachers.** City Regions should build relationships with all local universities to ensure that graduates and

Initial Teacher Trainees stay in the region after graduating and teach in their local schools. This could be two fold.

- The Greater Manchester Combined Authority could introduce a programme based on the North Carolina Teacher Fellows programme.²⁸ They could recruit local exceptional students in year 13, and offer them loan forgiveness in return for studying a bachelor's degree at a local Manchester university followed by a teaching qualification. The programme could include summer projects and possibly an international element, as well as exceptional training and support. They would then be required to teach for a designated period of time at a disadvantaged school in the area. If they left the programme before the end of their contracted teaching time, they would need to repay the loan with interest.
- Approximately half of students graduating from Manchester universities leave the area after graduation.²⁹ Local universities and Manchester city region could develop incentives to persuade some of these graduates to stay in the city and teach in local Manchester schools.

High calibre students graduating from Manchester Universities could receive financial incentives in order to stay in Manchester to complete Initial Teach Training qualifications and teach at local schools for a fixed period of time.

- **Prioritise teachers for access to financial support for housing.** Manchester, for example, have been given £300million to build 15,000 new homes over the next ten years and could decide to prioritise a number of these as priority teacher houses, or to offer local equity homebuy loans to teachers who are moving to the area. For those in the rental market, there may be solutions around creating clusters of teacher housing which can be rented at reduced rates, or perhaps an interest free loan for the deposit. This could be used as an economic incentive, as well as a social one.
- **Offer a regional wide package of CPD support and leadership training.** As well as attracting new teachers, the development and retention of existing teachers could also be addressed in this way. Combined Authorities could lead to a regional high quality CPD support package where leadership pathways are created within the area. Smithers and Robinson's research showed that the opportunity to develop professionally

Such area wide schemes could be a cost effective and innovative way of addressing regional labour market issues.

and be promoted is the main reason teachers move jobs, so increased CPD alongside transparency around promotion opportunities will improve retention of teachers.

- **Offer subsidised access to public transport.** The Greater Manchester Combined Authority will also have authority over transport, and may be able to offer reduced transport cost to teachers and the partners – as London offers for school children for example under the auspices of TfL.
- **Wider skills and training opportunities for teachers' families.** City regions could target an element of their skills funding into professional training opportunities for teachers' spouses – for example, funding to undertake postgraduate study.
- **Financial support for childcare.** It is likely that City Regions will focus on efforts to increase access and reduce costs of childcare; one option could be to extend

parts of those offers to teachers (eg additional free hours childcare a week or supporting local schools to offer additional tax free childcare).

- **Access to job relocation support and placements.** If teachers' spouses work in the public sector, the City Region could look to broker assistance with helping to try and place them in the local area, e.g. into a local NHS Trust, or the council, whilst continuing to observe fair competition for jobs. They could also participate in broader efforts by the City Region to increase employment in the region (training, job fairs, back to work support etc).

Such area wide schemes, which combine educational benefits with wider geographical incentives, could be a cost effective and innovative way of addressing regional labour market issues, and raise standards by helping put teachers in front of classes of children who would benefit the most.

CASE STUDIES FROM USA

The flexibility different states in America have had to create their own incentives shows some interesting and effective examples of this which English cities could learn from

North Carolina Teaching Fellow Programme

North Carolina created an incentive driven teacher training programme to retain the best graduates in the area, as well as to find teachers in shortage subjects and under represented demographics.

The North Carolina state funds \$26,000 in service scholarships across four years to between 400 and 500 high ability North Carolina high school seniors. The students enrol in four year teacher education programmes at North Carolina based universities. The universities also offer funding to cover, for example, housing costs and course fees. The programme includes an opportunity to study in Costa Rica or London for a semester, and to learn about educational policy at Washington DC. The fellows must teach in North Carolina schools for four years after completing the programme or repay the full loan including 10% interest.

Demographically the programme has been able to target a disproportionate number of ethnic minority males who specialise in high-need, typically STEM subjects. Various evaluations have followed the fellows, and found that 7 years into the programme 75% are still teaching in public schools (many in the most disadvantaged communities), and many of the others are in educational leadership.³⁰ Teaching fellows reported feeling well prepared after their training period, and their students outperformed those of other new teachers in the area.³¹

The main benefits of this scheme are that they keep some of the highest performing young people within the local area, as well as hiring teachers into shortage areas. Retention is higher, perhaps because the teachers have a network of support within the area already. This would be particularly beneficial in remote or disadvantaged communities.

San Diego City Schools

San Diego reformed its teacher recruitment and training systems in order to entice highly qualified teachers to move to the area and teach in its schools. This was to address teacher shortage issues which led to overly depending on unqualified teachers, particularly in the most disadvantaged schools.

The purpose of this reform was to aggressively focus on recruiting well trained teachers within California, as well as to reach out to teachers in other states in order to encourage them to relocate to San Diego schools. In their local area part of their strategy was to improve links with their local universities. This meant they were able to smooth the transition for newly qualified teachers moving into local teaching positions meaning these teachers were more likely to stay and teach in the city after graduating. They also worked with the universities to create new teacher training programmes which focused on shortage subjects. This was to encourage potential trainee teachers with shortage subject specialisms to choose to study in San Diego.

In order to recruit more qualified teachers into the city, San Diego offered contracts to teachers as early as possible, sometimes up to a year in advance. They also invested in developing an online application system, and on streamlining their use of data in the hiring process, as well as their vacancy posting and interview process. By making the application system easier and quicker, many more qualified teachers applied for jobs in the city and completed the application process.

This focused strategy was successful. San Diego filled almost all 1,081 vacancies with high quality teachers. They were also able to eliminate all but 11 of the hundreds of emergency teachers who had previously been hired and who had been mainly allocated to high minority, low income schools.

MATHS TO 18

Government should commit that all post 16 students, regardless of whether pursuing academic or technical qualifications, must complete a standalone maths qualification by the age of 18.

More than 50% of 16–19 year olds do not study maths post 16. Of those who do only 15% are currently taking a post level 2 maths qualification. A recent study by the Nuffield Foundation found England has the lowest level of participants in post 16 maths of any of the 24 OECD nations they studied.³² These are some of the drivers behind proposals by both the Conservatives and Labour to encourage some form of compulsory maths for some or all 16–18 year olds (depending on the route and other qualifications they undertake).

However, there is scope to go further. Given the value of post 16 maths education for all students, and the STEM skills gap in both vocational and academic routes, [Policy Exchange proposes that all parties commit in their manifestos:](#)

- to make maths compulsory for all students until 18 whether they pursue an academic or vocational route (approx. an additional 340,000 students across the 16–18 range);
- that English not be made compulsory post 16;
- that all 16–19 year olds study a maths course which is suited to their ability and needs – both Level 2 and Level 3;
- that given concerns over teacher supply, this is delivered via the creation of one or more Ofqual approved online courses which all 16–19 year olds will study and be accredited in.

In the longer term research has shown that students who study A Level maths, when all other factors are the same, experience a 7-10% increase in lifetime earnings.

The rationale for post 16 maths

Post 16 maths is desirable for Higher Education access even when not going into a course which requires maths A Level. Universities say that many undergraduates are struggling to access degree level content because they have weak maths knowledge, and this is attributed partly to the gap of two years in many students' maths education³³ and partly to the low proportion of students studying maths post 16. Universities have estimated that the total number of students who would benefit from having continued experience of mathematics beyond GCSE but do not currently do so is at least 200,000 per annum, which is around 50% of the undergraduate student cohort.³⁴ It follows that some form of post 16 maths qualification should be compulsory for all students wanting to follow an academic route after compulsory education.

Post 16 maths isn't only desired by Higher Education institutions. Industry has expressed similar concerns. In the short and mid term there is an ongoing industry based skills gap in

STEM. The UK STEM skills shortage will lead to a shortfall of approximately 80,000 workers in the next three years alone³⁵, and industry has called for urgent action to address this supply issue.³⁶ In the longer term research has shown that students who study A Level maths, when all other factors are the same, experience a 7-10% increase in lifetime earnings.³⁷

What are the post 16 curriculum positions from the political parties?

Both Labour and the Conservatives have said they will require those who do not achieve a C at GCSE maths and English post May 2015 to keep studying the subject.³⁸ Both the Conservatives and Labour are also supporting extending post 16 maths as part of their core 16-19 curriculum offering via the new core maths qualification. The Liberal Democrats have not advocated any clear position on this issue³⁹ although David Laws has supported the roll out of core maths as part of the Coalition reforms.⁴⁰ The Conservative and Labour plans for how post 16 curriculum options would look like are summarised below in Table 3.

	Conservative	Labour
Academic route	A Levels (recoupled as one linear qualification)	General Baccalaureate The core component to be 3 A Levels
Vocational	Technical Baccalaureate A soft performance measure for schools and colleges rather than a qualification for an individual student. The main way of measuring how many students study it is through a Tech level qualification (equal in size to at least one A Level)	Technical Baccalaureate A hard qualification for learners The core component to be a vocational level 3 course (either the current Tech Level qualification or another approved Level 3 qualification)
Additional requirements	(Tech Bacc only): Extended Project Qualification Post GCSE maths (core maths)	(Both General Bacc and Tech Bacc⁴¹): Extended Project qualification Post GCSE maths (core maths or encompassed in core component) Post GCSE English (either a stand alone qual or encompassed in core component) Personal development programme (work experience or voluntary work)

TABLE 3
Current proposals from the two main parties around post 16 curriculum options

Almost all of the focus from both parties to date has been on the technical element of the qualifications and the Tech Bacc. The Conservatives propose that the Tech Bacc be a performance indicator rather than a qualification in its own right. Students undertaking either Tech Levels or Applied General Qualifications plus core maths plus the extended project will be eligible to be described as having achieved the Tech Bacc.⁴² There is no plan that under the new A Levels there will be any requirement for compulsory maths or an extended project. The measure has been monitored from September 2014, yet only 5 colleges and 2 schools are currently offering the qualification on a trailblazer basis.⁴³

Labour's plans come from the Skills Taskforce report for the party.⁴⁴ This commits to a compulsory Baccalaureate for all students. Most

discussion to date from Labour has been on its own version of the Technical Baccalaureate which will – unlike the Conservative plan – be a standalone qualification, which will comprise a standalone vocational qualification (potentially keeping the Coalition Tech Levels), a Level 3 qualification (probably core maths) and an Extended Project. However, in addition to the Conservative plan, the Labour plan will also require some form of post GCSE English for all students, as well as a personal development programme with some sort of work experience and character building. Tristram Hunt has indicated that most – potentially all – Tech Bacc qualifications will be delivered in high performing FE colleges which will be rebranded as Institutes of Technical Education.⁴⁵ The second area of difference is that Labour propose – tentatively – to extend the

Parties should commit to all students studying some form of maths post 18, regardless of the other qualifications they are taking.

Baccalaureate concept to the academic route. Therefore, in addition to studying A Levels, all students will also need to undertake maths and English to 18 – although this could potentially be waived if the A Levels are deemed to have sufficient content of maths or English in them – as well as the EPQ and work experience.⁴⁶

Building on the current proposals

Both main parties have rightly acknowledged the importance of studying maths beyond 16 and the skills and knowledge it can bring for students. In order to build on the existing propositions, Policy Exchange makes two further suggestions.

- **Making it a requirement to study post 16 maths only to those undertaking vocational or technical education limits it to around 70% of the cohort.** Last year of 560,000 17-18 year olds in England, approximately 80,000 did A Level maths and 110,000 of 16-17 year olds did AS maths, so 15% were studying maths above level 2. Nick Boles, the Skills Minister, has estimated that the Tech Bacc performance measures (ie with students studying core maths) could cover a further 25% of the cohort. A further 30% or so failed to achieve a Grade C at GCSE so will be engaged in

some form of catch up study post 16. This however leaves around 30% of the cohort studying predominantly academic qualifications but not including any form of maths. This is unsatisfactory when one considers the benefit of post 16 maths and the current skills gaps that exist and which have been summarised above with regards to accessing further study or meeting the needs of industry. **Policy Exchange recommends that parties commit to all students studying some form of maths post 18, regardless of the other qualifications they are taking.**

- **Going further than just requiring study of maths post 16 risks narrowing other options, especially under an academic route.** A full Technical Baccalaureate option that included compulsory maths, compulsory English and an extended project is equal to approximately 3 1/2 A Levels worth of content excluding the personal development programme⁴⁷ – ie the compulsory maths, compulsory English and EPQ are approximately as large as 1 1/2 A Levels. If under an academic route a student studied 3 A Levels, the total course load would be the equivalent of 4 1/2 A Levels (as well as the personal development programme). This would in practice be almost impossible to deliver without either decreasing the content and teaching time for A Levels, significantly

increasing the teaching time available in Key Stage 5 (ie increasing the number of hours funded per learner) or decreasing choices available so that in practice a student undertaking some sort of academic Baccalaureate had a free choice of only 2 A Levels, unless at least one and perhaps two of their A Levels included sufficient maths or English content.⁴⁸ Although there are benefits to mandating both English and maths post 16, we believe it would be very difficult to do so under the current system. Both maths and English offer a range of benefits in terms of access to further work or study – indeed that is why in other countries, a post 16 Baccalaureate style qualification includes both maths and home language. However, the bigger gap that has been identified in the English education system is clearly maths, and that is where the immediate focus should be. **Policy Exchange therefore recommends that any academic Baccalaureate have only maths as a compulsory element, and not English.**

How best to deliver post 16 maths

Offering differentiated options based on prior attainment is crucial to the success of

compulsory post 16 maths. There are the three options which are available to students (see Table 4).

A/AS Level take up is likely to remain relatively unaffected by any requirement to roll out some form of compulsory post 16 maths. It is likely that the greatest increase in student numbers undertaking maths will be those taking the core maths qualification who were not engaged in post 16 maths previously, and the stepping stone qualifications for those who did not achieve a C and need to take a retake.

One of the big questions is the teacher supply required to cover this additional maths teaching. Currently there are approximately 1.3 million 16–18⁴⁹ year olds in England of which:⁵⁰

- 468,000 (36%) are in school
- 429,000 (33%) are in FE college
- 156,000 (12%) are in sixth form college
- 52,000 (4%) are in work based learning
- 195,000 (15%) are NEET

As noted above, of 560,000 17–18 year olds in England, approximately 80,000 did A Level maths and 110,000 of 16–17 year olds did AS maths, so 15% of the post 16 cohort were studying or will have studied maths above level 2. Nick Boles, the Skills Minister, has estimated that the Tech Bacc performance

TABLE 4
Options for
post 16 maths

Qualification level and name	A/AS level maths and further maths	Core maths qualification *	GCSE or other level 2 qualifications, or “stepping stone” qualifications **
Level	3	3	2
Prior maths attainment	GCSE grade A/A* and perhaps strong Bs	GCSE grade C+ who don’t want to study higher level maths	GCSE grade D or below
Education pathways	Higher Education courses which require advanced maths	All non advanced maths Higher Education courses (e.g. geography, sociology)	All higher education courses

* *Core maths* - A Level maths is not suitable for all students. If a student achieves a B or C in GCSE maths they are unlikely to pass A Level maths.⁵¹ In 2013 a £20million development fund was allocated to create the core maths qualification. It has been explicitly constructed to develop quantitative maths skills⁵² which can be used in authentic situations, and this practical element makes it suitable for all students who do not require the higher level maths skills which A level develops.

** *Stepping stone qualifications* - from September 2013, any student not achieving a Grade C in GCSE maths (or English) is required to study it in their post 16 learning. This will affect around a third of the cohort.⁵³

measures (ie with students studying core maths) could cover a further 25% of the cohort. A further 30% or so failed to achieve a Grade C at GCSE so will be engaged in some form of catch up study post 16. This however leaves around 30% of the cohort - or approximately 170,000 students a year, or 340,000 over the post 16 period in total - studying predominantly academic qualifications but not including any form of maths

There are currently approximately 41,310 maths teachers working in England of which:

- 35,200 are in secondary schools (+220 vacancies last year) = 35,420
- 4,690⁵⁴ are in Further Education Colleges (+1,200 vacancies last year) = 5,890

Assuming - which is a big assumption - that there are currently enough teachers and lecturers to cover all of the maths teaching needed at the moment, including the rapid increase of those projected to study core maths, we estimate that the additional teachers needed in schools and colleges to cover the remaining 30% of the cohort, if every new teacher taught classes of 20 students⁵⁵ and taught 7 classes for 4 hours per week, with each class being taught for a year, would be 2,400 more maths teachers to teach all 16-18 year olds who are currently not re-taking maths GCSE or studying for maths A Level.⁵⁶ About half would be teachers, and about half would be FE lecturers. Assuming 1 teacher to 30 students, we would need 1,600 new maths teachers.

In recent years, online courses have developed from largely theoretical to a reality for many qualifications.

This is a significant challenge, especially as it is likely to be an underestimate which assumes sufficient capacity in the system already. In reality, given the current shortage of maths trainee teachers for next year, the staffing pressures GCSE retakes and core maths tuition have put on 16–19 providers this year and in future meaning further shortages are arising (especially if 25% of the cohort end up studying core maths), and the new ‘fat’ maths GCSE which requires an estimated third more teaching time (and hence even less capacity for existing teachers to cover the post 16 cohort), even more teachers and lecturers would be needed. The Government has recently committed to training a further 17,500 maths and science teachers⁵⁷ but only 2,500 of these are additional staff, and there are questions about the feasibility of meeting such a target.⁵⁸

The only way in which post 16 compulsory maths for all can be achieved is through an alternative delivery model. This is set out further below.

An online course for post 16 maths

In recent years, online courses have developed from largely theoretical to a reality for many qualifications. The use of online technology

is already used to deliver International Baccalaureate’s standard and higher maths courses. Pamoja Education have developed a system to deliver lessons “live” online. Students are then able to log in to a virtual classroom to be taught new concepts by a teacher in real time. There is also an option for students to rewatch these lessons at another point as they are archived afterwards. Sparx education is trialling adaptive learning in maths to understand how students access learning and where real time data is fed back to the content designers so areas of particular difficulty can be analysed and the benefits of different methods of teaching (for example the extent of repetition of key concepts, the frequency of testing, the extent of praise) can be analysed and compared. Massive Open Online Courses (MOOCs) are increasingly popular with online platforms such as EdX and Coursera offering courses to millions of students from all over the world⁵⁹, and school level programmes such as Khan Academy are showing some of the potential technology has in the 21st century classroom.

Policy Exchange recommends that the government seek to facilitate the creation of a small number of high quality online courses for Level 3 maths. The intention would be that over the period of 16–18 study, in whatever setting – school, college, work

Such a delivery model would help address shortages of this skill and help students access further study and employment.

based learning – every individual would be required to complete the course and be accredited as having done so. Although teachers and lecturers could also deliver some content face to face if the institutions wished to, the intention would be that the online course was sufficiently adaptive and included sufficient online synchronous and asynchronous interaction with trained maths professionals that such additional, local face to face learning would not be required.

Some of the key elements of the online course would be as follows:

- Providers would need to submit all proposals to Ofqual for accreditation and approval. Ofqual would be required to approve more than one to ensure a competitive marketplace but all providers would be required to pass a high bar both for content and deliverability.
- The content of the course should draw largely from the existing content of the qualifications – ie the core maths content, although providers would be free to go beyond it if they wished to. Providers may also wish to develop a separate course for Level 2 resits/stepping stone qualifications.
- Deliverability should include both online and video tuition with access to trained maths professionals via the course. All courses would need to offer opportunities for both synchronous learning (ie real time learning in which students engage with other students and a teacher all at the same time, albeit virtually, through chat, video conference and other virtual platforms) and asynchronous learning (where students complete the course at their own pace and in their own time, and submit their materials via email and message boards which are then assessed by the provider).
- Providers must be willing to release maximum amounts of data about the content of their course as a condition of being approved. This should include (anonymised) data on real time student interaction with the material to allow third party researchers to study which elements are particularly accessible or inaccessible to students, and to study the impact of different pedagogical online methods for efficacy (ie the frequency of testing) it must also include progress and attainment data made by students undertaking the course. In time, providers could be paid on a payment by results basis.
- The course must be accessible by all forms of technology eg smartphone and tablet as well as laptop/desktop.
- Providers will be able to charge a fee per learner but this should be kept to

a minimum. There is unlikely to be any additional 16-19 funding to schools and colleges available to cover this (or at least not significant additional funding) although the final decision on this would be a matter for the spending review for 2016/17 onwards.

- The course must allow for a form of terminal accreditation. Schools and colleges should be held to account on their post 16 maths performance, and this information should be included within league tables.
- Industry and Higher Education institutions should also be made aware of different post 16 maths course options so they know to expect it from applicants and to include it within their application requirements.

The 16-18 cohort is the ideal group for rolling out a large scale online learning proposal:

- Many of these students are already used to working independently as part of the wider learning (particularly those in FE colleges and work based learning environments).
- They are also older and more mature and able to access learning in this way.
- The fractured nature of 16-18 pathways also suggests a focus on self managed learning rather than a uniform classroom/

lecture style delivery which is more feasible when all students are in one type of setting.

- Online courses are a way of re-engaging 16-18 year old NEETs in a more accessible way than face to face learning even within an FE college.
- There have already been attempts to support transformation of learning via technology within HE and FE settings as a way to encourage innovation within tight financial budget including HEFCE's Catalyst fund. A shift towards mass online learning for maths may spur a general interest and engagement in further online and innovative methods of delivering other qualifications, particularly in the FE sector.

If a well developed online option is available for post 16 maths courses - predominantly core maths but with potential for this also including Level 2 resits - then institutions would be able to choose an option which worked for their particular context. This should alleviate pressures on resources, space, and staffing. Such a delivery model - required for all 16-18 year olds in all settings and pathways, but not combined with compulsory English - would help address shortages of this skill and help students access further study and employment.

EARLY YEARS

Government should commit to a package of reforms to encourage closer engagement between schools and nurseries and other early years providers.

Dame Clare Tickell, in her landmark review of early education in 2011, succinctly captured the importance of early education and its wide-ranging implications for future outcomes:

The earliest years in a child's life are absolutely critical. There is overwhelming international evidence that foundations are laid in the first years of life which, if weak, can have a permanent and detrimental impact on children's longer term development. A child's future choices, attainment, wellbeing, happiness and resilience are profoundly affected by the quality of the guidance, love and care they receive during these first years.

Overall, the quality of these early years settings is improving. Between 2009 and 2013, there was a 14 percentage point increase (64 per cent to 78 per cent) in the proportion of settings judged good or better by Ofsted. The proportion of inadequate settings also fell from 5 per cent to 2 per cent over the same time period. The fact still

remains, however, that young children in one fifth of early years settings are in receipt of education and care that is less than good. In Ofsted's 2012/13 Early Years Annual Report, the inspectorate reported that 18 per cent of registered providers were Satisfactory (14,400) and 2 per cent (1,600) were deemed Inadequate. Such poor provision is much more likely to be found in deprived communities. For example, Ofsted showed that 76 per cent of centre-based childcare providers in the most deprived areas were graded as good or outstanding, compared with 86 per cent in the least deprived areas.

Large-scale research projects all concur that the quality of staff and, in particular, the input from graduate-level staff, make a significant difference to the outcomes of children, particularly for the most vulnerable children.

In addition, there is emerging evidence to suggest that smoother transitions between early years and primary provision is beneficial to children in terms of allowing for shared curriculum planning, monitoring progress, and tracking the impact of early intervention.

To ensure that children from the most disadvantaged homes receive the best quality early education and care, which is required to close the gap between the most disadvantaged children and their wealthier peers **Policy Exchange proposes that all parties should couple their existing commitment to up-skilling the early years workforce, with a commitment in their manifestos to increase the number of schools participating in early years provision.**

This commitment would encompass a broad range of collaborations, which include:

- good or better primary academies in chains taking over local failing early years settings;
- encouraging good or better primary academies in chains to set up new early years provision where there is a need for it with the support of capital funding; and
- fostering collaborations between existing early years settings and good or better schools to enable early years staff to benefit from the capacity and capability of schools.

The current early years sector – quality and variety

The importance of high quality early years education on a range of cognitive and non-cognitive outcomes is well documented and does not need repeating here. It is the rationale behind a successive series of interventions from governments of all stripes to extend the quality and reach of free early years education through childcare, children's centres, parenting support, and a strengthened focus on the early years as a coherent stage of development through the Early Years Foundation Stage.⁶⁰

Today, the range of early years provision is diverse, but a common feature is the statutory Early Years Foundation Stage Framework, which aims to prepare all children for formal schooling aged five. In August 2013, over half of all 0–5 year olds received education and care in an early years setting, of which there are 80,000 registered providers, including maintained nurseries, nursery classes attached to primary schools, children's centres, child-minders and private, voluntary and independent providers (PVI).

Children are split almost evenly between PVI settings and maintained settings, though the proportion of children in the latter is

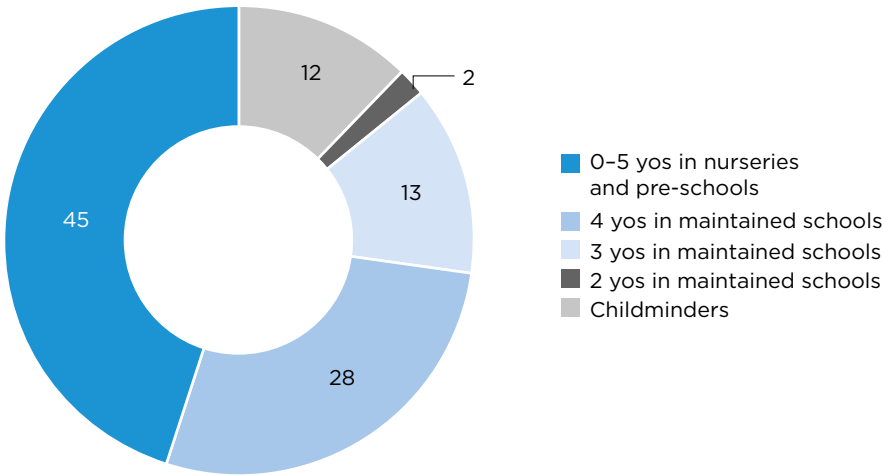


CHART 5
 Proportion of children in different types of Early Years settings

tilted heavily towards older children aged four years old, the age at which primary schools becomes compulsory.⁶¹ Around 12% of children are cared for by Ofsted registered childminders. Furthermore, most parents⁶² benefit from a choice of sessional, school day and all day opening hours and the flexibility to stagger attendance across a school year or all year, to suit their routines and working arrangements.

Overall, the quality of these early years settings is improving. Between 2009 and 2013, there was a 14-percentage point increase (64 per cent to 78 per cent) in the proportion of settings judged good or better by Ofsted. The proportion of inadequate settings also fell from five per cent to 2 per cent over the same time period. The fact still remains, however, that young children in one fifth of early years settings are in receipt of education and care that is less than good. In Ofsted's 2012/13 Early Years Annual Report, the inspectorate reported that 18 per cent of registered

providers were Satisfactory (14,400) and two per cent (1,600) were deemed Inadequate. Such poor provision is much more likely to be found in deprived communities.

A similar story plays out in the progress children make towards the standards set out in the Early Years Foundation Stage Framework.⁶³ Nearly two-thirds of children (60 per cent) made a good level of development in each of the prime areas of learning and in literacy and maths.⁶⁴ This is up eight percentage points from 52 per cent last year, which is positive news. There remains, however, a stubborn achievement gap of 12 per cent between the 30 per cent most deprived areas of England and elsewhere.

It is clear that, whilst the overall trajectory of improvement in early years settings is positive, settings are not improving the way in which they meet the specific needs of children from disadvantaged areas over and above the progress they make with their

	Proportion of Children Achieving a Good Level of Development in the 30 per cent most deprived areas of England	Proportion of Children Achieving a Good Level of Development elsewhere in England	Difference between the 30 per cent most deprived areas of England and elsewhere
2013	44 per cent	56 per cent	12 per cent
2014	53 per cent	65 per cent	12 per cent

TABLE 5
Proportion of children achieving a good level of development by area

wealthier peers. In *Quality and Equality*, the Nuffield Foundation see this gap as a ‘quality gradient’ that corresponds with Ofsted’s inspections of early years provision: ‘settings in the most deprived areas are least likely to be good or outstanding.’⁶⁵ In August 2013, 77 per cent of providers were graded as good or outstanding in the most deprived areas, compared to 86 per cent in the least deprived areas.

The motivation for addressing these gaps – the nine per cent gap between most deprived/least deprived areas and the stubborn 12 per cent performance gap between children from different areas – is clear. Developing children’s cognitive, social and behavioural skills in the early years is important for a child’s later development. The Department for Education reports that ‘94 per cent of children who achieve a good level of development aged 5 years old go on to achieve the expected levels for reading at Key Stage 1, and they are five times more likely to achieve the highest level’.⁶⁶ On the other hand, they also find that ‘pupils who start off in the bottom 20 per cent of attainment at age five are six times more likely to be in the bottom 20 per cent at Key Stage 1 compared to their peers.

Large-scale research projects – such as the EPPE Project – evaluations of Government-led initiatives – for example of the Graduate Leadership Fund – and most recently a report by the Nuffield Foundation into the specific impact of different settings on the development of children from the most deprived backgrounds, all concur that the quality of staff and, in particular, the input from graduate-level staff, make a significant difference to the outcomes of children, particularly for the most vulnerable children. To date, most initiatives to improve the quality of early years provision is targeted towards the PVI sector, where ‘qualifications and quality [...] have been an ongoing concern for successive governments, following research showing quality is consistently lower than in state-maintained sector.’⁶⁷

Whilst important work continues to up-skill the PVI sector – for example Ofsted’s framework to inspect early years settings has toughened up – the publication of Ofsted’s Early Years Annual Report heralded the beginning of a renewed focus on school-based early years provision. In a speech to the sector, Sir Michael Wilshaw took action on Ofsted’s finding that children from disadvantaged backgrounds make ‘the strongest progress when supported

by highly qualified staff, particularly with graduate level qualifications. Nursery schools have high levels of graduate level staff and perform as strongly in deprived areas as in more affluent ones.⁶⁸ He argued that:

*What children facing serious disadvantage need is high-quality, early education from the age of two delivered by skilled practitioners, led by a teacher, in a setting that parents can recognise and access. These already exist. They are called schools.*⁶⁹

This sentiment is exactly right. As well as access to graduate leaders and a familiar setting, closer provision between schools and early years settings could have the following benefits:

- **Transition and curriculum planning** – Reception teachers, which are graduates, share the same curriculum – the Early Years Foundation Stage Framework – as their colleagues in nurseries, most of whom are not graduates. School-based nurseries provide these nursery staff with ready access to the expertise of Reception teachers. They also provide a forum in which staff can discuss the progress of children across the early years phase, planning for a more coherent and information-rich transition from nursery through the first year of statutory schooling. Sharing the aspirations of Reception teachers with nursery staff, for example about specific

phonics programmes, helps nursery staff to sharpen their focus during structured adult-led sessions, laying the foundations that children need in order to thrive in their Reception year.

- **Joined up family intervention** – The most vulnerable families benefit from continuity of interventions and services from their local authority and community organisations. School-based nurseries minimize the turbulence generated by a transition between two separate education institutions by providing continuity of leadership and better information sharing.
- **Meeting an expanded offer of childcare** – With the free entitlement of childcare expanded to include the most disadvantaged two year olds (approximately 40 per cent of two year olds), the early years sector is struggling to meet the increased demand for places. The sector is at risk of compromising the quality of places in order to meet demands for quantity. This risk is outlined in *Sound Foundations*, the Sutton Trust’s report on the limitations of an already burdened sector to provide quantity and quality of places.⁷⁰ Primary schools are a more secure platform from which to expand or create new nursery places, either on-site or by forming hub-like relationships with

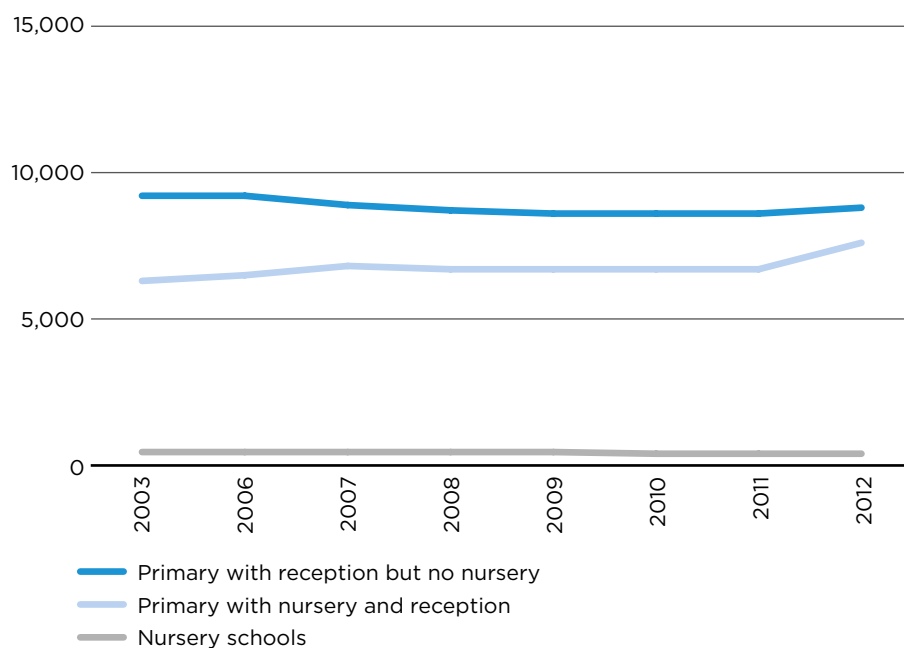


CHART 6
Early Years
Provision Within
School Settings,
2003-2012

existing nearby provision that wants to expand. Primary schools are much larger than nurseries and so can offer better capacity and capability to manage the creation of new places and deliver a graduate-led education that lays the best foundations for starting school.

- **Effective use of pupil premium** - Primary schools have experience of using the Pupil Premium to the benefit of the most vulnerable in their classes. Many schools are devising innovative data-rich ways to inform the decision making process around spending the Pupil Premium to benefit children. School-based nurseries implementing the new Early Years Pupil Premium will be able to tap into and learn from schools' data-rich culture to ensure that this additional funding is spent in the most effective way. This support from primary schools to nursery settings is critical at a time when little

is known at a national level about the most effective early years interventions - the onus, therefore, will be on nursery settings to evaluate the success of the interventions they choose.

The role of schools in improving the quality of early years

The number of school-based providers - including primary schools with reception only, nursery and reception and nursery schools - has remained largely consistent over the course of the past decade. Most notably, there has been a 12 per cent increase (900 schools) in the number of primary schools with nursery and reception classes between 2011 and 2013, though the majority of primary schools (54 per cent) still have a reception class and no nursery provision.

To ensure that children from the most disadvantaged homes receive the best quality early education and care, which is required to close the gap between the most disadvantaged children and their wealthier peers – **Policy Exchange proposes that all parties should couple their existing commitment to up-skilling the early years workforce in all settings with a commitment in their manifestos which promises to increase the number of schools participating in early years provision.** This commitment would encompass a broad range of collaborations, which include: good or better primary academies in chains taking over failing, local early years settings; encouraging good or better primary academies in chains to set up new early years provision where there is a need for it with the support of capital funding; and fostering collaborations between existing early years settings and good or better schools to enable early years staff to benefit from the capacity and capability of schools.

Recommendations

The following series of recommendations address the well-established finding that early years settings with consistent input from graduate-level staff are better equipped to meet the needs of children as they develop the cognitive, social and behavioural aspects

required to flourish in formal schooling. These recommendations, taken together, are broad in scope include interventions that target failing early years settings where children are most at risk from falling behind their peers and policies that recognise the appetite amongst Academy chains to expand their age range to ensure that children in their catchment areas benefit the best educators from the earliest age.

1. Capital Funding for School-Led Early Years Provision

In areas where there is a demonstrable shortage of early years places, Academies be considered for capital funding to establish new settings on or nearby their premises. In order to qualify for this funding stream and in addition to a requirement to demonstrate a need for new places, Academies wishing to expand their age-range must be able to demonstrate that the children in receipt of Free School Meals in their Reception classes consistently – for example, over three years – make average or better progress towards the Early Learning Goals set out in the Early Years Foundation Stage Framework. This would demonstrate the capability of the school to provide a good education and care for younger children in much the same

Early Years settings that Ofsted judge to be Requires Improvement should be encouraged to form partnerships with groups of good or better local schools in Academy chains.

way Local Authorities current prioritise the expansion of places at Ofsted-rated good or better settings. Capital funding may include projects that seek to increase available floor space through partitions, adaptations to outdoor space, adding additional toilets and changing facilities, and extensions to existing buildings onsite or nearby to the school.⁷¹

2. Targeted school-led early years improvement

Maintained Early Years settings that receive an Inadequate judgment from Ofsted should form a partnership with a local chain of Academies that is responsible for at least one Good or Outstanding nearby primary academy. The proximity of the failing early years setting to the chain's schools, in particular the Good or Outstanding primary academy, is important to develop the setting's capacity and capability. For example, the ability of nursery staff to meet with the primary school's Early Years phase leader. For this reason, this type of school-led early years improvement strategy in the maintained sector will need to include early years collaborations with a broad range of school partnerships, including Multi-Academy Trusts and Federations. Failing PVI settings should be encouraged by the Local Authority to partner with successful local Academy chains.

3. Specific capital funding for nurseries under the Free Schools programme

Free School proposer groups should be eligible for additional capital funding to make a reality of their freedoms to establish nursery provision as part of their application to open a primary Free School. Free schools are already able to offer nursery provision should they wish. However, whilst "capital funding allocated for the project can be used to support nursery provision", there is no additional capital entitlement for what is effectively additional provision at the beginning of the phase, meaning that schools will have to trade off primary capital allocations against nursery space. If schools are approved to offer nursery provision, they should be funded to do so with specific additional capital.

4. Incentivising soft partnerships to share best practice in schools with early years settings

Early Years settings that Ofsted judge to be Requires Improvement should be encouraged to form partnerships with groups of good or better local schools in Academy chains. This would be aimed at boosting the nursery setting's performance from Satisfactory to Good or better with the support of expertise and capacity. To encourage a broad range of

collaborations and to ensure that a key feature of the partnership is centred around the importance of graduate-level staff, an incentive to collaborate should be the prospect of nursery staff being able to access training opportunities, which should include School Direct equivalent courses for early years staff with the relevant prerequisite qualifications.

These policy recommendations should not be read as a movement towards narrowing the choice of early years settings currently available to parents. Schools will often share premises with PVI providers who run nurseries independently of the school and this should

continue. Similarly, non-school-based settings, in particular PVI providers, should continue to encourage graduate-level staff into their settings and provide training that equips staff with the tools to foster the best outcomes for young children. The policy recommendations presented in this policy note should be understood part of a wider package of support to address current deficits in the quality of early education that impact above all on the academic, social and emotional development of the most disadvantaged young children and, therefore, their readiness to enter formal schooling and flourish.

LOOKED AFTER CHILDREN

Government should require that the Director of Children Services should have to formally sign off any placement of a Looked After Child in a school rated less than Good, and to monitor more closely the placement of Looked After Children outside their home authority.

There are currently around 60,000 looked after children in the UK, and their educational outcomes are significantly lower than their non-looked after counterparts. In 2013, only 15.3% of children in care achieved the benchmark of 5 A*-C at GCSE including English and Maths. This compares to 62% nationally.⁷² One of the most important ways in which education for this cohort could be improved is through Local Authorities, as the corporate parent, ensuring that wherever possible, Looked After Children are exercising their right to attend the highest performing school in the Local Authority as they are entitled to under the Admissions Code, and that the Local Authority is using best practice. However, data revealed via an FOI shows this isn't happening.⁷³

Policy Exchange recommend that all parties, as part of their manifesto, commit to:

- a new duty on Local Authorities Director of Children's Services to sign off any placement of a Looked After Child in any school rated below Good by Ofsted.
- That Local Authorities be required to collect data on Looked After Children in a standardised way including, crucially, out of area placements.
- That Ofsted conduct an updated thematic review of Virtual Schools as soon as possible, following the passage of the Children and Families Act, including the level of seniority of the Virtual School Headteacher and the funding spent on them, in order to disseminate best practice in this emerging sector.

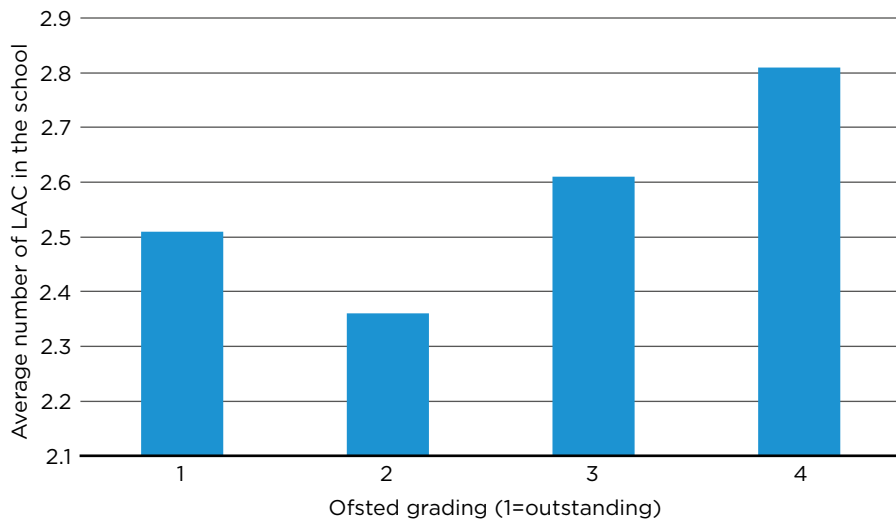


CHART 7
Clustering of Looked After Children in schools by Ofsted grading

School quality

Looked after Children (LAC) are given the highest possible priority when applying for school admissions. Even when a school is full, schools have a statutory obligation to give a space to a looked after child. This was extended to children formerly looked after when the School Admissions Code was revised in 2012.⁷⁴ Given this fact, one might expect LAC to be in far better performing schools than non-LAC and the purpose of the FOI was to find out whether this is indeed the case.

The performance metrics used were Ofsted grading, and percentage 5 A*-C at GCSE including English and Maths. We acknowledge that in some areas, there may not be an Outstanding school available for LAC to be placed in. Similarly, an Outstanding school, or a school with particularly strong GCSE results may not always be the school with the best provision and pastoral support for a LAC. The placement process is a social care

procedure that focusses more on carer availability and family circumstance than it does on availability of good schools. If there can be no expectation that LAC can all be placed in good or outstanding schools with good exam results, then we suggest there could be an expectation for the schools that LAC are placed in to be at least as good as the national average. Additionally whilst an outstanding school might not provide the best provision, we contest that it would be more likely to do so than a school that is either unsatisfactory or one that requires improvement.

Our FOI showed that 28% of children in care are at schools rated below Good by Ofsted. This compares to 21% nationally. We also found that a lower graded school was more likely to have a higher number of LAC in it. This clustering effect suggests that in some cases lower performing schools are being used as an easy option by local authorities who are looking to place LAC.

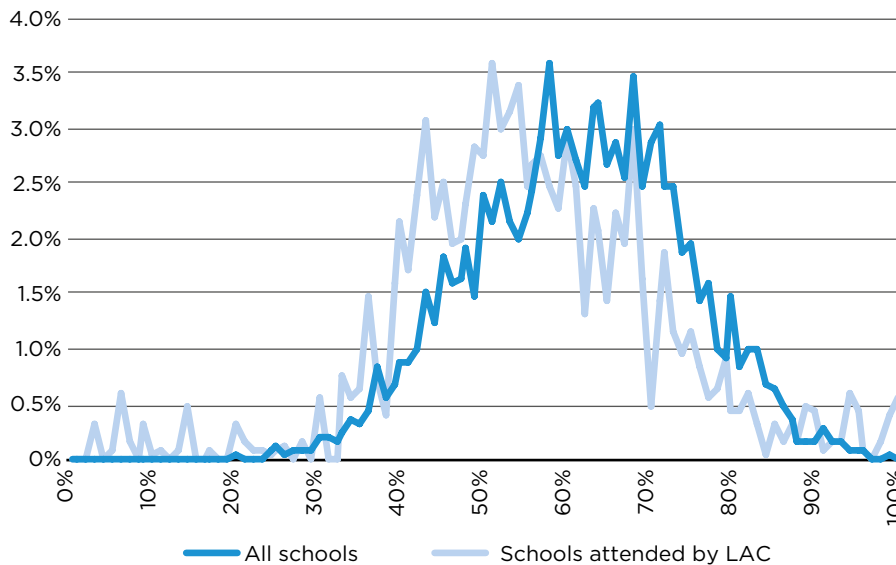


CHART 8
Distributions of Looked After Children (light blue) and non Looked After Children (dark blue) in secondary schools by headline GCSE pass rates

Our FOI also showed that the average GCSE results for the schools which are attended by LAC is lower than the national average. The average school attended by LAC gets 54% A*-C including English and Maths, compared to 59% nationally. This gap can be seen in the graph below which shows percentage of pupils against performance of the school at GCSE. The difference between the distributions is clear, particularly the higher concentration of LAC in schools between 40% and 55%.

On the face of it, this suggests that despite having top priority in the admissions criteria, LAC are not only not attending higher performing schools (using either academic exam scores or Ofsted results) - neither are they attending schools roughly in line with national standards. **Instead, whether measured by Ofsted grades or exam scores, they are in lower performing schools than average.**

Budget

The Children and Families Act gives local authorities a statutory obligation to run a Virtual School for the benefit of looked after Children. A Virtual School is a body within the local authority which has the responsibility of the educational attainment of looked after children. This includes those placed outside of the local authority. Many local authorities already have a Virtual School structure, although they vary hugely in their make up.

The Virtual School Head (VSH) usually has experience at the senior level within schools, often being an ex-headteacher. The school might also include educational consultants, learning mentors or educational psychologists. An Ofsted report and a VSH handbook published by the DfE both provide examples of best practice within virtual schools.⁷⁵

However, the FOI showed a large variation both in structure and budget for Virtual

Total funding, per pupil funding and the number of staff in the virtual school all have no correlation with GCSE exam results.

Schools. Of those that replied, 95% of Local Authorities have a recognisable virtual school. However the budgets ranged from £20,000 to £1.9m. These two figures equate to a spend per pupil of £192 and £1,041 respectively. This large discrepancy bears no correlation to recent GCSE results for the LAC in particular, with the less funded local authority in this example gaining 50% A*-C compared to 33.5% for the well-funded authority. **In fact total funding, per pupil funding and the number of staff in the virtual school all have no correlation with GCSE exam results.**

Data quality

Statutory guidance from the DfE already states that the role of the VSH or equivalent is to improve the educational standards of looked after children *'as if they were attending a single school'* by, among other things 'maintaining a roll of all the authority's school age looked after children with current information regarding their school placement and educational performance'.⁷⁶ Our FOI request did not explicitly ask for the quality of data that local authorities keep but an indirect consequence of the request was that it revealed that data quality was very patchy. Local authorities were asked to provide data on all the LAC they are accountable for, including those placed out of area. **A large proportion of LAs responded**

with data only for those pupils placed in authority. The reason for this was mainly that they did not keep access as frequently on children placed out of the home authority, and a request would exceed the timeframe of an FOI. This lack of accessibility to data would surely have an impact on the tracking of educational progress, and the writing of Personal Education Plans which are used to support learning.

Policy recommendations

1. Changes introduced in January 2014 require that the Director of Children's Services (DCS) has to approve out of area placements.⁷⁷ Similarly **the DCS should have to approve placements in a school rated 'requires improvement' or 'inadequate'**. There may be a good case for it, but the DCS should have to satisfy himself or herself that the placement is in the best interests of the child.
2. Data collection should be expected to be of a consistent quality so that both those placed in authority and those placed outside authority are tracked in the same way. The idea that the virtual school is treating the pupils as though they are in the same school should be true for in and out of area placements. **Local Authorities should be required to collect data on Looked After Children**

in a standardised way including out of area placements.

- 3.** Ofsted's last review of Virtual Schools is now out of date following the passage of the Children and Families Act. **Ofsted should conduct an updated thematic review of Virtual Schools as soon as possible to disseminate good practice**

in a fast moving sector. This should have a specific focus on the level of seniority of the Virtual School Headteacher, the funding spent on them, and the extent to which LAC are a specific group that are tracked in discussions between the LA and schools in order to disseminate best practice in this emerging sector.

LIFELONG LEARNING

Government should fully fund qualifications for individuals wishing to retrain at the same level they are already qualified to if they wish to move into important sectors of growth for the UK.

One of the principles in both the further education and higher education system is that public funding should be limited to (or steeply targeted towards) qualifications that upskill an individual, so as to prioritise the general increase in skills and (implicitly) productivity and output that is a prerequisite for economic growth as well as social mobility.

Employers groups, trades unions, charities, businesses and government are jointly agreed that the future shape of the labour market will place a greater emphasis and a need for retraining and lifelong learning. Although this in and of itself is not an argument for public funding (given that the benefits of retraining will accrue predominantly to the individual), there are instances where a more flexible approach is necessary. This paper suggests

that parties should commit in their manifestos, funding dependent, **for introducing a new policy to fully fund repeat qualifications in a number of strategically important subjects at Level 2 and 3** in order to increase the number of individuals qualified in these important sectors of the economy, and to address specific market failures which may occur with regards to this level of qualification.

Retraining and lifelong learning – the need for it

The link between adult skills and economic growth is widely accepted and empirically demonstrated across countries.⁷⁸ Furthermore, as well as directly supporting economic growth, the acquisition of skills

has various other intrinsic advantages. These include improvements in health, in civic participation, reduction in crime, and in parenting.⁷⁹ Successive governments have accepted that the benefits from higher skills accrue both to the individual and society, and hence the rationale for a mixed funding model and public investment in training and skill acquisition.

The emphasis on retraining relates to the way in which skills needs throughout the economy are not static but rather dynamic. This reflects both the flexible nature of the labour market (with sectors growing and shrinking relatively swiftly) but also the changing structural nature of the economy with an increasing emphasis on higher skills. Between 2010–2020 the proportion of the UK workforce required to be qualified to higher levels will rise from 34% to 44%. But the majority of the 2020 workforce is already the compulsory age of education, meaning that most of these skills will need to be developed during an individual's working life.⁸⁰ Another analysis suggests that between now and 2025, there will be 13.5 million job vacancies, but only 7 million young people entering the labour force during that time.⁸¹ Organisations such as the CBI and TUC both agree that a focus on lifelong learning and retraining must be at the heart of economic growth.

What is currently offered and funded

This note is concerned with adult skills funding and training from within the publicly funded Further Education budget. However, the principles behind the Higher Education system are worth noting. Since 2007, neither HEFCE funding direct to universities (latterly replaced with tuition fee loans) nor student loans for living costs have been available to undergraduates who already hold an honours degree.⁸² This ban on what is termed Equivalent Level Qualifications was brought in by the last government in order to save funding and direct limited public funds towards students who were acquiring their first qualification – upskilling – rather than subsidise second degrees or the occasionally titled “perpetual students”. Such a move was largely unpopular, particularly with institutions that enrolled large numbers of part time students who were largely undertaking equivalent qualifications.⁸³ In 2013, David Willetts partially reversed this policy and extended fee loans to part time students in engineering, technology and computer science who already have an honours degree in different subjects.⁸⁴

Within the Further Education sector (or to be more precise, the Adult Skills Budget), eligibility for 2014/15 is as set out below (see Table 6).

Qualification	Eligibility
English and maths qualifications and units to help adults progress to GCSE A*-C (Level 2)	Learners aged 19 and over
Traineeships to help young people progress to an Apprenticeship or other job	Young people aged 16 to 24
Qualifications and units (up to and including Level 2) to help adults into work	Learners aged 19 and over
Qualifications and units (Level 3 or above) to help adults into work	Learners aged 19 to 23
Entry and Level 1 qualifications (not English, maths or ESOL) to help adults to progress to their first full Level 2	Learners aged 19 to 23
First full Level 2 qualification	Learners aged 19 to 23
First full Level 3 qualification	Learners aged 19 to 23

TABLE 6
Fully state funded

Qualification	Eligibility
Intermediate-level Apprenticeships (Level 2)	Apprentices aged 19 and over
Advanced-level Apprenticeships (Level 3)	Apprentices aged 19 and over
Higher Apprenticeships (at Levels 4, 5 and 6) – non-prescribed HE qualifications	Apprentices aged 19 and over
Entry, Level 1 and Level 2 qualifications	Learners aged 19 and over who do not qualify for full-funding
Level 3 or 4 qualifications	Learners aged 19 to 23 who do not qualify for full-funding Learners aged 24 and over have access to 24+ Advanced Learning Loans

Partly state funded

The relevant point here is that it is only full first qualifications at Level 2 and 3 that are fully funded by the state (ie at no cost to the individual). For an individual looking to retrain, they can either receive 50% funding and pay the rest themselves (for all learners at Level 2, and 19–23 year olds at Level 3), or they have to pay the full cost of the course and can be supported by a student loan (currently for Level 3 students aged 24 or over – however note that BIS consulted last summer on whether to expand the loans threshold so

it also covered all students 19+ undertaking repeat qualifications – this may come in from 2016 depending on decisions made by government after the 2015 election)⁸⁵

The rationale is the same as in HE; that limited public funds should be prioritised on individuals gaining a new skill. There remains some public benefit in retraining at the same level (especially for those who would stand to gain from it, for example those in receipt of state unemployment benefits) which is why co-funding exists and why the state offers

a student loan for older learners who wish to retrain (which offers more advantageous interest and repayment rates than commercial loans). But as at least part of the benefit from new skills (even at the same level) accrues to the individual, they should make a contribution.

Strategically important areas, growth industries and skills shortage vacancies

There exist a number of sectors in the economy which are considered of particular interest in government and justify specific intervention, either because:

- They are predicted to be areas of significant job growth in future years
- They are in industries and sectors considered to be “strategically important” to UK plc
- They are industries which have high levels of skills shortage and hence recruitment difficulties

Some sectors, of course, can fall into more than one category.

A purist approach to free market economics would argue that such special attention

is misleading or indeed actively harmful. Industries compete for talent via wages and other factors, and information to prospective employees about future areas of economic growth helps inform their choices as to what to study either in compulsory education or indeed where and when to retrain.⁸⁶ Such an approach argues against firm or industry specific training subsidised by the taxpayer.

However, advocates of this approach also recognise the constraints placed on individuals when considering whether to invest in further skill development at a post compulsory age. The constraints can be summarised as:

- **Risk aversion:** if it is uncertain how retraining (at a financial cost to the individual) will be rewarded financially – because of the uncertainty of getting a different job and/or because of the unknown wage premium – then there is a risk to investing in retraining. All things being equal, the greater the risk, the less likely an individual is to invest.
- **Credit constraint:** Even if risk can be calculated approximately and an individual feels happy that the reward outweighs the risk, credit may not be easily available in order to finance the training (or only available at an additional cost which tips the risk/reward ratio back into negative).

There is a case to be made for marrying individuals who may otherwise underinvest in skill development with specific industries and sectors that would benefit from greater skill availability.

- **Ignorance:** Clear information is a basic pre requisite for individuals in making informed decisions; both about the macro picture (ie the extent to which an industry is expected to grow or shrink in the next decade) and also the individual providers success rates and therefore the specific risk which the individual would be taking on. In the absence of such information, potentially beneficial retraining may not even be considered.

Taken together, there is a theoretical (and empirical) case for individuals under investing in skill development, even when it would be thought rational to do so.⁸⁷ There are also varying responses by level of education and social class – all things being equal, individuals from a lower education background will tend to be more risk averse and will almost certainly be more credit constrained.

Funding dependent, there is then a case to be made for marrying individuals who may otherwise underinvest in skill development with specific industries and sectors that would benefit from greater skill availability – so long as benefits accrue to society as well as to those individuals. Of the three categories above, a predicted job boom is not in of itself an argument for government subsidy so this can be discounted. The other categories, of sectors which are important (economi-

cally) to UK plc and those which historically have skills shortages, represent theoretically stronger cases. And of those, the former (strategically important sectors) are more attractive because of the benefits that can be seen to be shared between individual and society the economy – although a skills shortage can indeed, as UKCES point out, lead to a drag on economic growth, this is also not an in principle argument for government intervention – and indeed, as some sectors (such as construction) are doing, collective sector wide approaches may be more beneficial.

Therefore, Policy Exchange recommends that all political parties commit to amending the Skills Funding Agency funding rates for the Adult Skills Budget, **so that individuals undertaking a repeat qualification in carefully defined sectors at Level 3 or 4 are fully funded by the state, rather than co-funding or being required to take out an Advanced Learning Loan.**⁸⁸ This would in effect replicate the principle from the partial withdrawal of the ELQ rule in Higher Education set out by David Willetts – individuals who wish to retrain in strategically important subject areas which will benefit UK plc should be nudged to do so through greater access to public funds.

The cost of such a scheme is entirely dependent on the number of potential beneficiaries and the qualifications which are open to them to retrain in. As an illustration,

- Currently repeat Level 3 and 4 qualifications for learners aged 19–23 are co-funded; that is to say, the Skills Funding Agency funds half the sum it would fund for an entirely free qualification to the learner; and they are expected to meet the remaining cost themselves (the actual cost of the qualification will be at the provider’s discretion, so the learner may end up in practice paying less than half).
- The total cost of each qualification depends on its “size” (ie how many hours it takes to study) and its “weighting” (eg a qualification with more equipment in a lab or a workshop costs more to deliver than a qualification largely delivered in a lecture or classroom). As an illustration, at the lowest end an A Level (Level 3 qualification) delivered via the SFA is funded at £1,987 in 2014/15, and an access to higher education Diploma (Level 4 qualification) is funded at £3,022. Some qualifications, particularly STEM ones, are weighted up to 30% higher, and there are also area weighting costs so that courses delivered in London have up to a 20% weighting higher, and additional costs for those living in disadvantaged areas.
- **For simplicity’s sake, we assume here that an average Level 3 qualification cost of £4,000 and an average Level 4 qualification cost of £6,000. The total cost of delivering say 10,000 fully funded qualifications in strategically important sectors per year on a L3:L4 ratio of 3:1 would be approximately £45m a year.** This would be offset by the current total costs of government funding those qualifications either via co-funding or the Advanced Learning Loan – if for example all of these 10,000 would have previously been co-funded, the extra cost to government will be £22.5m; it will be higher if some of these are delivered via a loan (where the costs to government of providing the loan are less than providing 50% co-funding).⁸⁹

Such a scheme would allow for a clear policy focus to back up the widely accepted rhetoric around the importance of lifelong learning and retraining for individuals throughout their life. It would also recognise the potential under investment from an individual perspective, the need for collective action in some instances (for example forecasting specific skills needs which is difficult to do from a single individual’s perspective), and the shared benefits to the state and to the individual from greater skill development.

NATIONAL SCHOLARSHIPS

Government should design a prestigious scholarship scheme to financially support the most talented undergraduates in the country – covering approximately 200 individuals a year – if they attend a UK university and remain in the UK for at least three years after graduation.

In 2011, as part of the Coalition's change to tuition fees, they introduced a National Scholarship Programme that was sensible in its premise and intention – to provide students from disadvantaged backgrounds help with the cost of attending university. The package was worth a minimum of £3000 to each eligible applicant and a total of £300m was made available over three years to fund up to 50,000 students a year from 2014. However, despite a sensible premise, the way in which the scheme was poorly received by many universities and by the National Union of Students⁹⁰ and in 2013 the funding was cut by £100m and refocused to concentrate on postgraduate students rather than undergraduates.

It is clear with hindsight that the specific design of the National Scholarship Programme was

deeply flawed. However, the principle of aiding a proportion of students with access to university is a worthy one. **Policy Exchange therefore recommends that all parties consider a new national scholarship scheme – this time targeted on talent rather than socio economic background – which can support a small number of extremely highly able students (those with ability levels equivalent to roughly 1 in 10000) during their time university in England.** This would seek to match exceptional students with some of the exceptional provision which exists within the Higher Education sector in England, to the benefit of the UK as a country. **An annual award of £10,000 for each of the three years of a typical undergraduate degree, to the top 200 scholars in the country, would cost £6m a year in steady state.**

The old National Scholarship Programme

The original intention of the National Scholarship Programme was to support suitably qualified individuals who would not have otherwise gone to university due to the new financial arrangements and fear of debt burden. The government funding, which was required to be matched by universities, was to allow for a financial package of support.

However, the design of the scheme was unnecessarily complex from the start, and in many ways contributed to its subsequent unpopularity:

- Each university could design its own scheme, meaning no consistency between offers from different institutions to different students.
- The income cap for eligibility was just £25k, with this tight threshold meaning that many students from modest backgrounds just above this level, who could also theoretically have been put off university, were not eligible.
- The benefits were only available in the first year of an undergraduate's time, so any real financial worries would simply be delayed by a year.
- Each university was asked to offer a package of support, but the most easily

visible element – a financial bursary – was capped at £1,000.

In this scenario, it is perhaps understandable that the universities found the scheme complex to set up, and the National Union of Students pointed out that it did not cover many students eligible for full grants elsewhere and was confusing.

In 2013, BIS announced that the scheme was being cut by 2/3rds in funding terms, and the remaining £50m a year would be retargeted at postgraduate provision. This was ostensibly because a combination of universities wider financial support and outreach work and a greater understanding of the financial support model had meant there was already sufficient incentives to demonstrate empirically that low income students were not deterred from going to university – all of which is true. But it is also potentially a result of the complexity and unpopularity of the scheme as noted above.

The rationale for supporting the extremely able

There are few current incentives at any stage of the education system that recognise and support the most intellectually able. At a school level, the previous National Academy for Gifted and Talented Youth, was cancelled in 2010 and its funds used for

the National Scholarship Programme! In line with a general move towards greater school autonomy, schools now have discretion as to how they identify and support their most able pupils, but there are signs that such an approach is limited.⁹¹

Within the English university system, students are already selected by a combination of suitability for the subject and university in question (via a personal statement) and ability (using a combination of A Level scores or other Level 3 qualifications, plus occasional extra tests such as the UKCAT, LMAT, BMAT for particularly competitive subjects) and in rare instances, via interviews.

In line with a general approach towards autonomy, there is also no agreed definition of able students or gifted and talented students. Anecdotally, it is often tended to be used for somewhere around the top 15% or so of the cohort in ability terms. However, this note takes a different and much narrower definition, and is concerned with what might be called the extremely able – those with ability levels found in approximately 1 in every 10,000 of the population. This small group of individuals have been the focus of some study over a number of years and in different countries by the academics David Lubinski and Camilla Benbow. Their research has shown that

*Their awards and creative accomplishments by age 38, in combination with specific details about their occupational responsibilities illuminate the magnitude of their contribution and professional stature. Many have been entrusted with obligations and resources for making critical decisions about individual and organizational well-being. Their leadership positions in business, health care, law, the professoriate, and STEM suggest that many are outstanding creators of modern culture, constituting a precious human-capital resource.*⁹²

It is this last element in particular which is of interest. If such highly able individuals can accrue great awards and accomplishments which benefit not just themselves but, through positive spillovers, drive increase in human capital more widely, then this will be of wider benefit. Lubinski and Benbow further conclude that one can identify with some degree of accuracy individuals who are likely to develop into such accomplished adults by the age of 13:

by any standard, it appears that many individuals identifiable by age 13 as having profound mathematical and verbal reasoning ability develop into truly outstanding contributors in their respective fields.

They argue for a national scheme to identify such individuals and nurture them, both for the individuals' own benefits but also for the benefits of their home nations. This is because in advanced economies in particular, with a shift towards higher skilled jobs, the economic prosperity of a country depends on its human

In advanced economies in particular, with a shift towards higher skilled jobs, the economic prosperity of a country depends on its human capital potential.

capital potential. Education today is the economy of tomorrow. If such individuals as these under discussion can generate further talent by virtue of their own accomplishments, then there is a competitive rationale for countries to identify and support these individuals.

Although identification at 13 is less common, some elite universities across the world already make efforts to identify and recruit highly talented individuals:

- Harvard historically had a category in admissions termed S (for scholar) which sought to identify and recruit these 1 in 10,000 students. Stephen Pinker has written recently how Harvard now selects only 5-10% of students on ability and is losing ground as a result.⁹³
- The Indian Institute of Technology (IIT) is commonly cited as having a rigorous entrance exam which selects just 5,000 students from over 300,000 applicants (who themselves have risen to the top in a country of over 1 billion people).⁹⁴
- Similarly, France has a system of elite universities including Ecole Polytechnique and Ecole Nationale D'Administration. *“Out of 130,000 students who focus on math and science in French high schools each year, roughly 15 percent do well enough on their exams to qualify for the two – to three-*

*year preparation course required by the elite universities. Of those who make it through that, 5,000 apply to École Polytechnique and just 400 are admitted from France.”*⁹⁵

- The Kolmogorov Physics and Mathematics School in Russia is attached to Moscow State University and offers specialist maths and physics tuition via boarding provision to the brightest students in Russia – who normally start at 15 but can join from 13. 85% of the students remain to go on and study Moscow State University at 18 but the remaining 15% study at world leading universities across the globe.⁹⁶

A simplified National Scholarship Scheme

As noted above, although the English university system selects by ability (using A Levels or other Level 3 qualifications as a proxy for the most part), even the most selective universities do not specifically target the 1 in 10,000 students (or likely even the 1 in 1000 students) and there is almost no mechanism for reliably doing so in any case.

Policy Exchange recommends that political parties commit to working with universities and other interested parties to design a new test that will be optional for all 17 or 18 year

The intention would be to marry the most able students within the UK with some of the world class provision on offer at UK universities.

olds to take. Any UK domiciled potential student would be eligible to sit it, and the test would seek to measure via a range of metrics a combination of academic ability and academic potential. The test would be calibrated to accurately identify those with ability found in approximately 1 in 10,000 individuals (or variants of this depending on how wide the entry criteria are drawn). A proportion of the top ranked scores on this test would be designated National Scholars and be eligible for a package of incentives under the National Scholarship Scheme, contingent upon enrolling as an undergraduate at a UK university.

The design of the National Scholarship scheme would be deliberately in many ways the exact opposite of the NSP which contributed to its unpopularity. Its features should include:

- it should be run nationally (as opposed to different criteria from each participating university);
- it should be open to all regardless of background (as opposed to a £25k income limit);
- it should be significant in financial terms for all the time a scholar is at university (as opposed to only for the first year);
- it should include a large amount of direct cash support (as opposed to a cash award capped at £1,000); and

- it should act as a nudge to retain the scholar in the UK after graduation.

The cost of such a scheme is obviously scale-able. An annual award of £10,000 for each of the three years of a typical undergraduate degree (which would be sufficient to cover full living costs and, should they wish to, early repayment of tuition fees), to the top 200 scholars in the country⁹⁷, would cost £6m a year in steady state. The scholarship would also be contingent on the graduate remaining domiciled in the UK for at least three years after graduation - whether in further study or work - with graduates leaving the country being required to repay the award.

The intention would be to marry the most able students within the UK with some of the world class provision on offer at UK universities (though the scholar would have their free choice of which institution to attend). The financial package would act less as a facilitator to go to university in general but as a nudge to incentivise scholars to remain in the UK throughout university and beyond, as opposed to going abroad, which is becoming an increasingly competitive battleground. A BIS report from 2010 found that some 2.8 per cent of state sector pupils and 5.5 per cent of independent sector pupils apply to universities outside the UK - small in absolute terms but "It is particularly significant that it is the

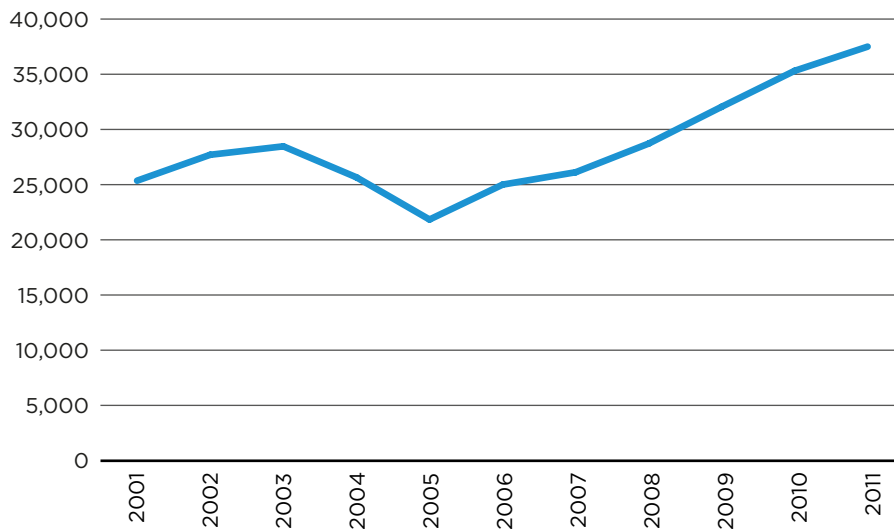


CHART 9
UK domiciled students studying at universities abroad, 2001 to 2011

academically most gifted pupils who are the most likely to apply to foreign universities”.⁹⁸ Longitudinal data – which unfortunately only goes to 2011 – nevertheless shows a consistent increase since 2005.

Most recently, the Institute for International Education and the US-UK Fulbright Commission released data in late 2014 showing that there were a record number of UK students studying in the USA, which has always been the most popular country for foreign study. 10,191 British students pursued study in the US during the 2013/14 academic year, up from around 9,500 12 months earlier and the largest year-on-year increase in more than a decade. Undergraduates accounted for 49.6 per cent of all UK students heading to the US. Some 23.9 per cent were postgraduates and the remainder were taking part in short-term exchanges or graduate work programmes.⁹⁹

One final point should be addressed. It may be that under such a scheme, a disproportionate number of scholars – perhaps even an absolute majority – will come from the independent sector or affluent backgrounds in the state sector. Traditionally, political parties have shied away from such approaches and preferred to focus on closing the gaps and using other programmes to promote social mobility. In and of itself, such approaches are clearly worthwhile and should continue. However, in this instance, there is a strong argument for focussing on talent wherever it comes from. If the intention is to retain and nurture highly able individuals who have the potential to contribute hugely to the future of the UK – economically, culturally, scientifically, aesthetically or otherwise – then the background of such individuals should be a secondary consideration. This approach mirrors closely the “no compromise approach” of elite sporting organisations funded by UK Sport, which requires tangible outcomes of

	GB	Australia	USA	China	Germany
1996	15 (1)	41 (9)	101 (44)	50 (16)	65 (20)
2000	28 (11)	58 (16)	97 (40)	59 (28)	56 (13)
2004	30 (9)	50 (17)	103 (35)	63 (32)	48 (14)
2008	47 (19)	46 (14)	110 (36)	100 (51)	41 (16)
2012	65 (29)	35 (7)	104 (46)	88 (38)	44 (11)

TABLE 7
Medals (and gold medals) won by selected countries in summer Olympics since 1996¹⁰⁰

high performance (ie realistic chances of an Olympic medal) in exchange for funding. Less successful sports, however, popular, are not entitled to the same levels of funding. The net result is that performance at the elite end of UK sport has exponentially grown - whilst alongside that, other funding helps develop grass roots sport and widening participation.

The same approach should be taken here. Schemes such as improving early years education, the pupil premium, efforts to attract high performing teachers to challenging schools, options for lifelong learning and retraining

and the like- all of which sit in this manifesto or come from previous Policy Exchange work - form part of a necessary social mobility agenda through education. There should also be a renewed focus on how to stretch all pupils within the state sector at whatever level, and further work on identifying potential highly able talent across the wider state education sector as Ofsted have identified - both of which will be the focus of future Policy Exchange work. But this is not the same thing, and nor should it be confused with, a scheme to reward and nurture excellence at 18 now, wherever it comes from.

ENDNOTES

1. UCAS, application rates to universities in 2014, January deadline.
2. The *YouGov student finance report 2012* found that 81% of British students agree that attending university is essential for the career they want to pursue, 40% think a university qualification is still worth the cost, and 28% think a university qualification is not worth the cost of paying the new higher tuition fees.
3. The *National Student Survey 2014* showed a record 86% of students satisfied overall with their course and their university experience.
4. Higher Education Policy Institute and Higher Education Academy, *The Student Academic Experience Survey 2014*
5. Universities UK, "Changes in student choices and graduate employment", 2010
6. Callender and Jackson, "Does the fear of debt deter students from higher education?" April 2010
7. Rothstein and Rouse, "Constrained after college: student loans and early career occupational choices" NBER working paper 13117, May 2007. The paper finds that each \$10,000 in student loan debt reduces the likelihood that a graduate will find employment in the government, non-profit, or education sectors by about 6 percentage points, with especially strong impacts on graduates taking jobs in education.
8. Urban Institute and Brookings Institution, "Student loans rising: an overview of causes, consequences and policy options", May 2014
9. Ambrose, Cordell and Ma, "The impact of student loan debt on small business formation", March 2014
10. Brown, Caldwell and Sutherland, drawing on New York Federal Reserve Bank data <http://libertystreeteconomics.newyorkfed.org/2014/05/just-released-young-student-loan-borrowers-remained-on-the-sidelines-of-the-housing-market-in-2013.html#.VH71WzGsXKN>
11. Husbands/IOE, *Teacher supply: why deregulation is not working*, December 1 2014
12. Institute for Fiscal Studies/Sutton Trust, "*Payback time? Student debt and loan repayments: what will the 2012 reforms mean for graduates*" found that 73% of graduates will not repay their debts by the time they are wiped in 30 years after graduation, with the average teacher still owing around £25,000. Although this could be taken as an endorsement of the income contingent nature of the scheme and the benefit of a write off, it has been largely presented in media debate as an effective tax rise on teachers right into their 40s and 50s of around £2,500 a year.
13. For more details see the evaluation of the pilot by Coe and Barmby here <http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/RR576.pdf>
14. Very importantly, such a scheme was under the previous system of fees – even before top up fees were introduced at a £3k limit in 2006, and when average student debt was much less. Fees were £1,000 a year in 1998/99 and loans were approx. £2735 (of which 1/4 income assessed and 3/4 flat contributions). In other words total student debt for a typical graduate who did three years undergraduate course, took all loans including income contingent and then did a PGCE on same basis and then entered teaching in 2002 as the first year of who would benefit from the pilot would be approx. £11 to £14k (the total figure is slightly complicated because PGCEs at time didn't incur tuition fees, and additionally different teachers were entitled to bursaries as living costs during training and so they didn't all take out another loan for the PGCE year).

15. For more details see <https://studentaid.ed.gov/sites/default/files/loan-forgiveness-for-teachers.pdf>
16. There is a related programme of debt cancellation for another type of loan – the Perkins Loan Programme for low income students – but for simplicity's sake this is not covered here.
17. Based on a starting salary of £26,700, which is the average salary of FT employed men and women teachers in state schools in September 2013 for those aged under 25 and those aged 26–30, and assuming a 5% cash uplift a year. Importantly, even though there may be a pay freeze for one or more years of the next Parliament, any school broadly following the main STPCD paycales and any teacher meeting their PRP requirements would expect between a 7% and an 8% cash uplift every year simply by moving up the scales (using 2013 STPCD main payscale) even if the scales themselves do not increase under the pay freeze. The 5% modelled increase on average therefore allows for a slight tightening from present as school budgets remain tight. All figures in 2014/15 prices.
18. This model assumes for simplicity sake, a 3 year full time course not in London in this current year (14/15) at a uni charging £9k a year. It also assumes maintenance loans don't increase in subsequent years (which they do) and tuition fee rates don't increase (which at the moment they are pegged in cash terms), for which a student takes out maximum available loans of £9,000 a year tuition and £5,555 in maintenance. This would give an illustrative debt to the SLC which totals £43,665. The Stafford loan pays off between 1/2 and 1/6 of total student loans over 5 years which is £7.5 to £21k. The RTL model would pay off all of that debt over 10 years so would pay either £22k (if all debts were included) or £13.5k (if only tuition fee debt was included) over 5 years. Again, all calculations in 14/15 prices.
19. Option 1 actually has two models, one which assumes total deadweight cost ie no additional recruitment or retention to what would have happened anyway (using recent DfE analysis from Database of Teacher Records and School Workforce Census as to five year wastage rates for NQTs), and one with increased retention rates (recruitment rates are capped by the overall cap on ITT numbers).
20. Defined here as teachers in schools where 50% of pupils are in the bottom three IDACI deciles (the Teach First eligibility criteria). This covers approx. 1/3 of all primary and secondary schools in England. Because such schools have higher turnover of staff, the model assumes such schools would recruit around 44% of all teachers (ie 44% of NQTs would be eligible for the loan repayments). Option 2 assumes a meeting of overall recruitment targets as per 2014/15 census for all years, and higher teacher retention rate as per option 1a.
21. Defined here as teachers in maths, all science subjects, and computing. On the ITT census data for 2014, around 5,730 teachers are needed from this September 2014 to enter training (and then enter the workforce in Sep 2015). Option 3 assumes a meeting of overall recruitment targets as per 2014/15 census for all years, and higher teacher retention rate as per option 1a
22. DfE, "School Workforce survey 2013"
23. Ofsted, "Annual Report 2013/14"
24. Part of the success of the London Challenge programme was the focus on creating incentives for teachers to work in London, for example the creation of Teach First for new teachers, and Chartered London Teacher status alongside targeted professional development to help improve and retain those who already teaching in the city (CfBT, "Lessons from London schools: investigating the success", June 2014).
25. STRB 24th report, 10 June 2014
26. An agreement was signed between Manchester and the government on 3rd November 2014 to devolve more powers to a new Greater Manchester Combined Authority, so Greater Manchester will have an elected mayor from 2017 who will be given responsibility for housing, planning, Further Education and skills, policing, and transport.
27. Allen, Burgess and Mayo, "The teacher labour market, teacher turnover and disadvantaged schools" June 2012

28. More information in case studies at the end of this chapter.
29. Policy Exchange, "Silicon Cities: Supporting the development of tech clusters outside London and the South East" August 2014
30. <http://www.teachingfellows.org/userfiles/file/TeachingFellowsPolicyBrief-Final%203-28.pdf>
31. Berry, "Keeping Talented Teachers: Lessons learned from the North Carolina Teaching Fellows"
32. "Is the UK an outlier? An international comparison of upper secondary maths" found in 18 of 24 countries, more than half study maths post 16, and 8 have almost universal take up (participation rates above 95%)
33. "Mathematical transitions" Higher Education Academy https://www.heacademy.ac.uk/sites/default/files/resources/HEA_Mathematical-transitions_webv2.pdf
34. Advisory Committee on Mathematics Education, 2011 [http://www.acme-uk.org/media/7624/acme_theme_a_final%20\(2\).pdf](http://www.acme-uk.org/media/7624/acme_theme_a_final%20(2).pdf)
35. Interview with Semta's CEO, Sarah Sillars <http://www.semta.org.uk/mediacentre/163-skills-ceo-calls-for-war-on-mediocrity>
36. CMI in March 2014
37. "The return on post compulsory school mathematics study" *Anna Vignoles and Peter Dolton 2003*
38. 29% of 16-17 in 2013 achieved a D or below in maths or English, so these students would continue studying level 2 maths post 16.
39. There is no reference to post 16 curriculum in either the Liberal Democrat public services policy paper or the pre manifesto - although there are references to increasing Apprenticeships.
40. <http://www.theyworkforyou.com/wrans/?id=2014-07-22b.206615.h>
41. Confusingly, the Skills Taskforce report for Labour refers to the two qualifications together being referred to as a National Bacc - the idea is that every young person takes either the Tech Bacc or the General Baac to achieve this, with the qualification awarded at 18 - either a full Bacc (level 3) or a restricted or intermediate Bacc (Level 2).
42. Gov.uk "New TechBacc will give vocational education the high status it deserves" <https://www.gov.uk/government/news/new-techbacc-will-give-vocational-education-the-high-status-it-deserves>
43. <http://feweek.co.uk/2014/07/25/tech-bacc-could-help-one-in-four-says-skill-minister-boles/>
44. The third report of the independent Skills Taskforce "Qualifications matter: improving the curriculum and assessment for all"
45. <http://press.labour.org.uk/post/67655089828/tristram-hunt-my-mission-for-vocational>
46. <http://press.labour.org.uk/post/95085249764/the-choice-in-education-70-years-of-the-butler> . The exact wording reflects perhaps some caution over this element of the Bacc "More broadly, I am hopeful that we can build on the Tech Bacc and move towards a National Baccalaureate framework that binds all learning routes together within a rigorous common framework, whilst at the same time nurtures our young peoples' character, resilience and broader wellbeing".
47. The vocational level 3 course, if modelled on the Tech level qualification at the core, is likely to be equivalent in size to 2 A Levels, and the post GCSE maths and English are equal to half an A Level each. The EPQ is also equivalent in size to half an A Level.
48. The Skills Taskforce work for Labour note that the compulsory maths and English may be "embedded in the core learning qualifications" where such qualifications are relevant, and gives the example of Physics A Level or a BTEC in Engineering negating the need to study maths separately.
49. 570K in 2013 GCSE, 620k in 2014 GCSE
50. Applying destination data from 2014 and applying to both years.
51. Of those who get a B at GCSE, less than half (46%) go on to get a C or above at A Level, with only 5% achieving an A or A*, and those who achieve a C at GCSE only have a 36% chance of getting a C or higher at A Level.
52. Josh Hillman "Mathematics after 16" identified the deficit as being specifically a lack of quantitative skills

53. Gov.uk “Thousands of students drop English and maths after GCSE” <https://www.gov.uk/government/news/thousands-of-students-drop-english-and-maths-after-gcse> . In July 2013 there were 211,171 students who left school without a grade C in maths and 188,365 who had not managed a grade C in English <https://news.tes.co.uk/b/news/2014/09/11/just-seven-per-cent-get-gcse-maths-or-english-when-retaking-it-after-age-16.aspx>
54. Identified as “science and maths” in 2011-2012 from Individualised Record (SIR) *data set for further education* colleges in England for 2011-2012.
55. Large class size for A Level class at a school, small for FE college.
56. Assuming the new teachers only taught the 16-18 age group.
57. gov.uk “Maths and science top priority in schools” <https://www.gov.uk/government/news/maths-and-science-must-be-the-top-priority-in-our-schools-says-prime-minister>
58. <http://academiesweek.co.uk/cameron-needs-to-rethink-maths-and-science-plan/>
59. Coursera has over 22,000,000 students enrolled, with 240,000 students on their most popular course <https://www.coursera.org/about/community>
60. A summary of the evidence is set out in Policy Exchange “Centres of Excellence”.
61. Children are required to attend full time school from the term after their fifth birthday, though the majority of children begin in the September before their fifth birthday. For this reason, the number of children aged four years old in maintained schools is much higher than those aged two and three, where most of this age group in receipt of education and care are in PVI settings.
62. The range of Early Years settings available to choose from will vary from one place to another. For example, you expect a family in the centre of a busy city to have more choice than one in a remote and rural location.
63. The Early Years Foundation Stage Framework sets out a series of Early Learning Goals towards which children must make progress. At the end of the Early Years Foundation Stage, children are described as having made the ‘expected’ level of progress, ‘exceeded’ this point or are emerging towards this point.
64. The prime areas of the Early Years Foundation Stage Framework are Communication and Language, Physical Development and Personal, Social and Emotional Development.
65. Nuffield Foundation, *Quality and Inequality*, 2014
66. Department for Education, Early Years Evidence Pack, 2011
67. Nuffield Foundation, *Quality and Inequality*, 2014 For example, in 2006, the Labour Government launched a Transformation Fund to the tune of an £250 million. This built capacity in the PVI sector to introduce new cohorts of graduate-level staff working toward ‘Early Years Professional Status’ via various training pathways. The fund, which continued through 2007-11 as the Graduate Leader Fund with an additional £305 million, sought to address the imbalance of quality between the maintained and PVI sectors. The programme was successful and its evaluation set out a series of improvements that it created, including: settings that gained a graduate leader with EYPS made significant improvements in overall quality and specific areas of settings’ environments and curriculum; EYPS provided ‘added value’ over and above gaining a graduate in terms of overall quality and (to a lesser extent) provision to support literacy/ language, and planning for individual needs/diversity; improvements related most strongly to direct work with children, such as support for learning, communication and individual needs, reflecting the role of EYPs as ‘leaders of practice’. Fewer measurable improvements were seen in the more ‘structural aspects’ of provision, including the quality of the physical environment, care routines and provision for parents and staff members.
68. Ofsted, Early Years Annual Report, 2012/13
69. Ofsted, HMCI speech at the launch of the Early Years Annual Report 2012/13, 2014

70. Sutton Trust, *Sound Foundations*, 2014
71. DfE, information about the Capital Building Works Expansion Grant
72. Excluding independent schools. Pupil average not school average.
73. The FOI was undertaken in late 2013 and data collated in 2014, so before the 2014 GCSE rates were published and shortly before Virtual Schools became statutory. The FOI and all calculations in this paper were undertaken by Fred Burgess, a previous employee of Policy Exchange, and we are grateful to him for this paper.
74. <http://webarchive.nationalarchives.gov.uk/20130401151715/https://www.education.gov.uk/publications/eOrderingDownload/DFE-00013-2012.pdf>
75. <http://www.ofsted.gov.uk/resources/impact-of-virtual-schools-educational-progress-of-looked-after-children> and <http://webarchive.nationalarchives.gov.uk/20131027134109/http://media.education.gov.uk/assets/files/pdf/virtual%20school%20head%20toolkit.pdf>
76. Page 12 <http://webarchive.nationalarchives.gov.uk/20130401151715/https://www.education.gov.uk/publications/eOrderingDownload/DCSF-00342-2010.pdf>
77. <https://www.gov.uk/government/news/councils-told-to-stop-housing-vulnerable-children-miles-away-from-home>
78. For example as set out in OECD *Skills Outlook 2013* (November 2013)
79. As set out in the overview of a series of papers conducted by the Centre for Research on the Wider Benefits of Learning, Feinstein and Sabates *The Public Value of Adult Learning: Skills and Social Productivity* (June 2007).
80. University Alliance, *Closing the Gap: Unlocking opportunity through higher education* (May 2014)
81. NIACE, *Skills for prosperity: building a sustainable recovery for all* (June 2014)
82. With certain limited exemptions in 2007, including foundation degrees, and funding for disabled students. There are also exemptions for students completing vocational courses in some areas of medicine, teaching, and social work.
83. As set out in the review by the Innovation, Universities and Skills Select Committee on *Withdrawal of funding for ELQs* (March 2008).
84. Times Higher Education, *Willets looks to dismantle the ELQ bar*, 3 October 2013
85. BIS, *Further Education – future development of loans: expanding and simplifying the programme* June 2014
86. For example, as set out in Alison Wolf’s monograph *An adult approach to further education* (2009)
87. There are interesting examples of people over investing in skill development – most notably postgraduate law training, which is extremely expensive and where there is a continual over supply against demand. Yet because of the high rate of potential return, prestige attached to the qualification, and some belief in its transferability, law courses continue to attract applicants in high numbers.
88. The Government defines strategically important sectors as “advanced manufacturing” (covering aerospace, automotive and life sciences), “knowledge intensive services” (creative industries and professional business services) and “enabling” sectors which facilitate greater trade internationally (the information economy, construction, energy, including green energy and the digital and creative sectors). BIS, *Industrial strategy: UK sector analysis* (September 2012). In practice, this list may be far too broad and should be more tightly defined and a list of qualifications within each sector approved by the relevant industrial partnership.
89. As noted above, there is a possibility that co-funding will decrease for some of these qualifications and loan eligibility will widen for 2016 onwards, in that scenario the total cost to government of fully funding them will increase over what is currently modelled.
90. Times Higher Education, *Too few will benefit from ‘risible’ scholarship plan*, 17 February 2011

91. Ofsted's report in 2013 identified that in many schools expectations of the most able were too low and that there was a culture of ignorance or lack of concern about able students, that only 1 in 5 lessons supported able pupils well, and that many able pupils at age 11 didn't achieve what might have been expected at age 16. However no further action was taken by government. In Ofsted's latest annual report, they explicitly credited the continued improvement in primary schools to (among other things) "enabling the more able pupils to reach their potential" and noted that secondary schools had stalled due to, amongst other things, "the most able not being challenged". In total, almost two thirds of the most able pupils failed to meet their potential and almost a third of inspections found specific issues around the teaching of the most able.
92. Kell, Lubinski and Benbow, *Who rises to the top? Early indicators* (2012)
93. Pinker, *The Trouble With Harvard*, New Republic Sep 4 2014
94. Kell, Lubinski and Benbow, op cit
95. Schwartz and Bennhold, *In France, Heads No Longer Roll*, New York Times February 17 2008
96. Vaughan, *Nurturing a nation of number crunchers*, Times Educational Supplement February 17 2012. As the article notes, the government's new specialised 16-18 maths schools are partially based on this concept.
97. On the basis that approximately 600,000 UK domiciled students attend university every year, awarding a scholarship to 200 is approximately a 1 in 3,000 ratio - so less than the 1 in 10,000 set out in Kell et al. The rationale for this is twofold: 1) on the basis that such a proposed test has no track record on validity and there will be a large number of students therefore caught in statistical noise just outside the cut off score (however defined), there is an argument for casting the net wider at least initially 2) widening the criteria and increasing the number of national scholars allows for a scheme to encompass a larger number of students initially which will help build acceptance and understanding of the scheme.
98. BIS, *Motivations and experiences of UK students studying abroad* (January 2010)
99. Daily Telegraph, Record numbers of British students at US universities, 17 November 2014
100. Select Committee on Olympic and Paralympic Legacy, *Keeping the flame alive, paragraph 180*, 6 November 2013

ABOUT THE AUTHORS

Jonathan Simons is Head of Education at Policy Exchange where he directs all research within the Unit. Prior to joining Policy Exchange, Jonathan worked at Serco Group, and has also been Head of Education in the Prime Minister's Strategy Unit. He is chair of Governors of the Greenwich Free School; Vice Chair of Governors of one of his local schools, and Trustee of WWV Volunteering.

Natasha Porter joined Policy Exchange as Deputy Head of the Education Unit in August 2014. Before joining Policy Exchange Natasha helped found and build King Solomon Academy where she was Head of Key Stage 4 and part of the Senior Leadership team. Prior to that, she was Head of the English department, Head of Year and an Advanced Skills Teacher.

Natasha is a Teach First ambassador from the '06 cohort, and completed three years working in an inner city comprehensive school before joining the ARK network and starting King Solomon Academy.

Natasha holds a degree in English from the University of Warwick.

Annaliese Briggs is a Research Fellow within the Education Unit. Before joining Policy Exchange Annaliese worked for a small family of academies and led the set up of their new free school, Pimlico Primary, which opened in September 2013. Prior to this she worked on a number of practical education projects at the think tank Civitas.

Annaliese is a trained primary school teacher with a specialism in Early Years education.

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