



EUROPE

# Understanding Teacher Retention

Using a discrete choice experiment to  
measure teacher retention in England

Peter Burge, Hui Lu, William Phillips

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# Preface

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This report has been produced for the UK Office of Manpower Economics (OME), an independent organisation that provides impartial secretariat support to the independent Pay Review Bodies. The work described in this report was carried out under contract as a part of OME's research programme, and the views and judgements expressed in this report are therefore those of the contractor and do not necessarily reflect those of the OME.

The report presents findings of a research study to understand the factors that influence teachers' retention. The overarching research objective was to measure the impact of pay, rewards and other employment characteristics on the retention of teachers, and at the core of the study was a quantitative survey conducted with teachers in England. The survey collected information on the employment and socio-economic characteristics of the respondents, and contained an embedded stated preference discrete choice experiment. The collected data was used to develop discrete choice models that quantify the importance of the factors influencing teachers' retention. The outputs from these models were used to estimate the relative value respondents place on rewards and employment characteristics.

RAND Europe led the study, designed the choice experiments and the surveys, and developed the models to analyse the survey results. Teacher Tapp, Survey Engine Ltd and NFER Teacher Voice Omnibus Survey managed the data collection. The study was conducted between August 2019 and June 2020.

This report describes the key aspects of the study: evidence review, survey methodology, design of the choice experiments, model analysis and findings. While the primary audience for the document is OME, it may be of wider interest to agencies who are interested in teachers' retention issues.

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For more information about RAND Europe or this document, please contact Peter Burge at:

RAND Europe  
Westbrook Centre  
Milton Road  
Cambridge CB4 1YG  
United Kingdom  
[burge@randeurope.org](mailto:burge@randeurope.org)

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<sup>1</sup> See RAND Europe (2020).





## Executive Summary

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Over recent years, maintaining an adequate teacher supply has become an increasing concern. The House of Commons Committee of Public Accounts (2018) stated that the number of secondary school teachers has been falling since 2010 and the number of teachers leaving for reasons other than retirement has been increasing since 2012. Coupled with the fact that the number of pupils is increasing, and is expected to keep increasing in the future, this has placed increased pressure on the supply of teachers (House of Commons Committee of Public Accounts, 2018).

Previous evidence shows that pay is deemed to be one of the most important factors influencing retention, together with the workload and flexibility of working hours (NFER, 2018a). However, to date no study has quantified the relative importance of the different factors that could influence retention, nor quantified the impact that changes to these could have on workforce retention in the teachers' setting. Therefore, we were commissioned to undertake new research to measure the impact of pay and rewards on the retention of teachers. The overarching research objective was to **measure the impact of pay, rewards and other working conditions on the retention of teachers**.

A research approach was designed using a quantitative method to provide an understanding and estimates of the impacts of pay, rewards and other working conditions on teachers' retention. At the core of the project was a survey, containing a stated preference discrete choice experiment (DCE) in which respondents were presented with a series of scenarios with teacher job options, described by pay, rewards and other employment characteristics:

**Pay:** the annual salary, including any allowances.

**Pension:** the monthly retirement income (from the teacher's pension).

**Pay progression:** annual movement up the pay range, expressed as a percentage; the number of years it would take to progress from the pay-range minimum to the pay-range maximum; and whether excellent performance accelerates movement up the pay range.

**Workload:** total working hours as a teacher per week (including contact and non-contact hours).

**Development opportunities:** total number of days of continuing professional development (CPD) per year, distributed between two different types of CPD:

- general CPD offered to all teachers in school;
- personalised CPD tailored to individual teachers' own development needs.

**Part-time work:** feasibility of moving to a part-time work arrangement.

**School culture:** how much support teachers receive from school leadership and other teaching colleagues.

### **School characteristics:** pupil behaviour in classes.

To our knowledge, the research reported here represents the first use of a discrete choice experiment (DCE) approach to understand teachers' retention and their preferences for different employment characteristics. We have taken care to use a rigorous approach, building up to and designing the DCE on the basis of detailed background research, discussion and consultation with experts in the subject area, thorough discussions with the OME steering group – which included members of the School Teachers' Review Body (STRB) secretariat – and piloting. The DCE was embedded in a survey that also collected teachers' current employment and socio-economic characteristics. The background questions allowed us to understand how preferences vary according to different characteristics of the school, and the individual teacher, and also provided some reference information that gave further insight to the choices made in the DCE.

From the data collected from the choice experiments, discrete choice models were developed to quantify the importance of pay, rewards and employment characteristics in teachers' retention choices, thus providing estimates of the relative importance of those factors in shaping retention choices. The model was based on 22,100 choice observations, collected from 2,210 teachers. The relative values (compared to the influence of changes in annual pay) illustrate the relative impact of different factors on the retention of teachers and their broader employment preferences. Our model showed that the choices made by teachers are influenced by a variety of work-related factors, as well as variables related to an individual's current employment and socio-economic characteristics. Previous evidence has repeatedly found that a wide range of factors have influenced teacher retention, such as pay, workload and flexibility of working arrangement, etc. Our findings are consistent with this but go deeper, by providing insight into how these factors interact with each other in teachers' retention choices, quantifying their relative impact and revealing how these preferences differ between different groups of teachers.

Below we highlight key aspects of the methodology and discuss the key findings from the study.

### **The quality of the quantitative survey results is believed to be high**

We believe the quality of the results to be high, because of the robustness of the survey sample and the level of engagement of respondents in the stated preference discrete choice experiments.

By using a survey with a DCE element among 2,210 teachers in England, who are broadly nationally representative of the teacher population, we were able to probe carefully the preferences of teachers for their retention decisions. The sample covered a wide range of types of schools, roles in schools and contract types, and was drawn from the full spectrum of the pay scales.

Our analysis suggests that respondents engaged well with the survey, for instance most of the respondents provided detailed comments to three non-compulsory open-text questions. In the choice experiments, respondents appeared to have been sensitive to the variation in the choices offered, and as a result, selected different alternatives contingent upon what was offered. In the probing questions – which were asked after the choice experiments – 86% of respondents said they were able to make the choices, which is in line with what we would expect from our previous experience with similar surveys.

We noted that the sample of respondents participating in the DCE survey differed in some characteristics to overall teacher statistics in England. Our sample over-represented headteachers and younger teachers compared to national teacher statistics. We accounted for this by stratifying our models by respondents'

reported employment and socio-economic characteristics, to ensure that the model can identify whether there are significant differences by each subgroup. The total sample and the size of most subgroups were within accepted limits for robust analysis using a DCE.

## Caveats

As with any research, there are some important caveats to the DCE study. The results were based on self-reported responses that have been provided in a survey, rather than from observations of actual behaviour. However, the DCE was designed using a rigorous research method, drew on detailed background research, discussion and consultation with experts in the subject area, and was tested through a pilot survey. This method ensures that the employment attributes included in the DCE are most relevant to the respondents in their retention choices. In addition, our method allowed us to explore a wide range of scenarios to support our development of models of teachers' preferences, giving us rich and important insights into the trade-offs that individuals state that they are willing to make.

It should be noted that all the development work and survey fieldwork took place before the Covid-19 pandemic, which seriously affected England, particularly the education sector. Some attitudes towards teaching may have been modified in the light of subsequent experiences.

## Key findings

### Highlight of the DCE findings:

Pay and rewards are important retention factors, but they are not the only factors that shape teachers' retention choices.

Workplace characteristics (workload, school culture and teaching environment) are highly valued by teachers. Teachers would be willing to trade-off higher pay/rewards to work in supportive environments with fewer challenges from pupil behaviour. Hence non-financial aspects can be used to compensate for (or in some cases may be more effective than) increases in pay.

Our study shows how subgroups of teachers respond differently to different remuneration and employment policy interventions.

Respondents were significantly averse to losses in pay and rewards (pension and pay progression), but pay and rewards alone do not drive their retention choices.

Respondents were more sensitive to the loss (reduction of pay and pension) compared to the gain (increase in these) of pay and rewards, reflected by higher negative values placed on their reduction (pay and pension). For instance, a 1% increase in final pension was valued at a 0.55% increase in annual pay; whilst each percentage reduction in final pension was valued negatively and would require a 1.67% increase in annual pay to compensate. The losses (in final pension) were valued almost three times (more negatively) than the corresponding increases in final pension. The asymmetry in gains and losses is in line with Prospect Theory (Kahneman and Tversky, 1979) which describes that individuals assess their loss and gain perspectives in an asymmetric manner (i.e. they value losses more than gains: loss aversion, in terms of the absolute size of utility measure). We found that household income had a significant impact on respondents' sensitivity to changes in pay, where teachers with lower household income (more likely to be young teachers or from a

single member household) were less sensitive to increases in pay, relative to other rewards and employment related factors. This could be partly explained by the pay increases being presented and modelled as *percentage* increases, which at lower income levels will be worth less in absolute terms.

On average, respondents preferred larger pay scale steps, and a quicker rate of progression when their performance was rated as excellent. However, we found that the number of steps (i.e. years) of increases within the pay range was less important to respondents. Our study found that while respondents significantly valued pay and rewards, these attributes alone did not drive job choice.

Level of workload impacts significantly on teachers' choices.

Respondents reported heavy workload. Nearly half of the sample stated they work 21% to 50% more than their contract hours and almost a third report working 51% to 100% more. When faced with choices that featured differences in workload, respondents valued workload reduction very positively, but showed a strong disinclination towards options that increased their workload. Each 1-percentage-point increase in workload would require an increase of 2.72% in annual pay to compensate, indicating that respondents strongly disliked options that increased their workload. Again, teachers assessed the increase and decrease of workload in an asymmetric way. On average, a 1% reduction in workload was valued equivalent to a 0.77% increase in annual pay. This finding is in line with previous evidence, for instance by DfE (2017a, 2018a) that the workload associated with teaching is the biggest cause of retention issues. It is also in line with what respondents told us when asked directly about the factors influencing decisions to stay or leave (see section 3.4.4).

Respondents valued greater investment in their professional development.

Our results found that respondents preferred more CPD days, and that they were willing to trade a 0.43% pay increase for a one-day increase in CPD days per year. We observed variation in preferences by teachers' characteristics, for instance headteachers and leading practitioners placed higher values on increased CPD days. Respondents showed a higher preference towards CPD training at school with all staff, compared to CPD training of their own choice outside of school.

Respondents valued having the flexibility to access part-time arrangements.

When asked directly, we found that part-time working/flexible working hours was one of the most prominent factors reported by teachers as influencing their intention to stay or leave. The choice-model outputs reinforced this finding. On average, offering flexibility of moving to a part-time working arrangement (compared to 'very little possibility to move to a part-time arrangement') had an impact equivalent to a 4.34% increase in annual pay.

Respondents preferred situations where they receive support from school leadership and peers. They have shown a strong disinclination towards poor teaching environments.

Within our survey most respondents stated that they believe they are supported by school leadership and their peers. However, our choice model analysis showed that a collaborative and supportive environment could improve teacher retention. This finding was reinforced by our analysis of the reasons that underpin teachers' stated intention to leave in the coming years. That analysis revealed that one of the more frequently stated reasons for respondents intending to leave their current post was poor school culture (including lack of leadership and peer support, bad communication and poor student behaviour, etc.).

Our study identifies the teaching environment as one of the most important factors that influence retention outcomes. For example, our model suggested that moving from a situation where ‘poor behaviour is rarely a serious problem’ to a role where ‘poor behaviour from a few students significantly disrupts most lessons’ would, on average, require an increase of 26.2% in annual pay to compensate. This is in line with previous literature that found poor behaviour leads to higher workloads for teachers, higher levels of stress and reduced well-being levels, which negatively affects teacher retention (DfE, 2018a; Williams, 2018; Ofsted, 2019).

Respondents demonstrated a strong preference to stay in their current job, all else being equal.

Whilst a range of factors are observed to influence the decision to change job or stay in the existing role, when all other differences (such as pay, rewards and employment characteristics) are taken into account we observe that there is an underlying preference for teachers to stay in their current job. This finding from the modelling of the DCE data is reinforced by a direct question on this issue, in which 40% of respondents stated they would like to stay in their current school for three years or more. Within our models we observed variations in the strength of this preference, dependent upon a range of employment and socio-economic characteristics. For instance, teachers who are currently in a part-time working arrangement showed a higher preference to stay in their current job, and teachers in sixth-form schools showed a lower preference to stay in their current post.

Respondents traded pay, rewards and employment characteristics off against each other in their retention choices.

Our analysis showed that teachers’ retention choice was influenced by a wide variety of work-related characteristics, as well as variables related to an individual’s current employment and socio-economic characteristics.

A range of non-pay factors also come into play in retention decisions, and because these factors are traded off against each other it is possible to influence retention by improving a range of different aspects of the employment offer. Our models show that changes in non-financial aspects (such as teaching environment, school leadership and peer support, etc.) are highly valued by teachers and can be used to compensate for – or in some cases, may be more effective than – increases in pay.

Using the DCE model outputs, we ran a range of illustrative scenario forecasts to show how different changes in the employment offer could affect teacher retention rates. More details can be found in section 4.3.4.

## Policy implications

It is clear that no single intervention will effectively resolve teacher workforce shortages. Policies seeking to improve retention rates of teachers are likely to be multi-faceted. Therefore, a set of interventions that is developed to target the preferences and expectations of specific groups of teachers is likely to be necessary.

This study has used an innovative method to quantify the relative importance of a range of key factors that influence staff retention, and how they interact with each other. The accompanying forecasting model provides unique insights into the relative effectiveness of different policy interventions. Our findings provide policymakers and schools with information that could be used to strengthen or highlight relevant characteristics of the employment environment that are valued by teachers.

Our study provides rich insight into which job characteristics matter most to teachers in England, the trade-offs they would be willing to make between pay and other characteristics of the work environment, and insight into subgroups of teachers who may be more or less responsive to different changes.

Of direct interest for OME will be the evidence regarding the influence of different aspects of the financial offer, and the relative impacts that each of these can have.

However, there is also a range of broader policy implications that will be relevant to other stakeholders, outside of OME:

- Work conditions (such as workload, and flexibility of moving to part-time working) are identified as important to teachers, and changes in these could be similarly effective at improving retention rates as addressing financial aspects of pay and reward. Policies or initiatives (such as DfE, 2018d) in supporting schools to improve current work conditions could assist in improving teacher retention.
- Teachers valued professional development opportunities and preferred more CPD days, so there may be merit in reviewing and further developing the current CPD standards within the early career framework (DfE, 2016). A range of resources that could assist in making time invested in this subject more effective is available from the Education Endowment Foundation (EEF), Teacher Development Trust and the College of Teachers.
- A supportive school culture and teaching environment (good student behaviour) are highly valued by teachers. In particular, teaching environment has been identified as the most influential non-financial factor that influences retention rate. More guidance (such as EEF, 2019) or policies in supporting schools to address this issue could assist in improving retention.

Whilst outside of the direct scope of this study, the next logical step in applying this research would be to estimate the financial costs of different packages of policy interventions. If used alongside the estimated impact on retention rates (which can be forecast from our model), these estimates of cost would allow cost-benefit analysis to be conducted across a range of different policy scenarios.

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# Abbreviations

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CPD	Continuing Professional Development
DCE	Discrete choice experiment
DfE	Department for Education
EEF	Education Endowment Foundation
FTE	Full Time Equivalent
ITT	Initial Teacher Training
LFS	Labour Force Survey
NAO	National Audit Office
NASUWT	National Association of Schoolmasters Union of Women Teachers
NCTL	National College for Teaching and Leadership
NEU	National Education Union
NFER	National Foundation for Education Research
NQT	Newly Qualified Teachers
Ofsted	Office for Standards in Education, Children's Services and Skills
OME	Office of Manpower Economics
PGCE	Postgraduate Certificate in Education
QTS	Qualified Teacher Status
SD	Standard deviation
SEN	Special educational needs
STRB	School Teachers' Review Body
STEM	Science, technology, engineering and mathematics
SWC	School workforce census
SWF	School Workforce
TALIS	Teaching and Learning International Survey
TT	Teacher Tapp

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# 1. Introduction

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This section presents:

- Research background;
- Research objectives and methodologies; and
- The structure of the rest of the report.

Over the past few years, maintaining an adequate teacher supply has become an increasing concern. The House of Commons stated that the number of secondary school teachers has been falling since 2010 and the number of teachers leaving for reasons other than retirement has been increasing since 2012 (House of Commons Committee of Public Accounts, 2018). Coupled with the fact that the number of pupils is increasing, and is expected to keep increasing in the future (House of Commons Committee of Public Accounts, 2018), and the number of teachers being trained is not enough to cover this gap, this has placed increased pressure on the supply of teachers.

In the 2019 School Teachers' Review Body report (STRB, 2019) the issue of teacher retention is highlighted as an area of significant concern:

*'This year the evidence shows that the teacher supply situation has continued to deteriorate, particularly for secondary schools. This has affected teachers at all stages of their careers:*

- *The Government's target for recruitment to postgraduate Initial Teacher Training (ITT) was missed in 2018/19 for the seventh successive year. There has also been a marked decline in the number of overseas teachers being awarded Qualified Teacher Status (QTS).*
- *Retention rates for teachers in the early years of their careers have continued to worsen, a trend that we have noted for several years now.*
- *There is also evidence that retention rates are starting to deteriorate for experienced teachers, and there has been a marked increase in the number of teachers aged over 50 leaving the profession.*
- *Retention rates for head teachers have fallen in recent years and our consultees report that it is increasingly difficult to attract good quality applicants to fill leadership posts at all levels. We have heard similar concerns from some of those we spoke to during our school visit programme.'*

The report highlights the role that pay plays in teacher retention:

*'...our evidence shows that teachers' salaries continue to lag behind those available in other graduate professions:*

*Median starting salaries for other graduate careers remain higher than those for teachers in most areas of England, and the earnings of experienced teachers are lower than those available in other professional occupations.*

*Over the last decade, the position of the national teachers' pay framework in the earnings distributions for both professional occupations and the wider economy has deteriorated. In other words, more people in more occupations are becoming better paid than teachers.'*

However, it also acknowledges that there is a range of other factors that interplay with this, and which need consideration:

*'Pay is by no means the only factor that affects teacher recruitment and retention.'*

The challenges within the profession have been followed closely in the popular media, with many possible causes being cited including pay, workload, stress and inflexible working (The Economist, 2018; Busby, 2019). The government recognises the problem and has made more substantial increases to pay levels for teachers in September 2018 and in September 2019 than in the previous decade.

The Government has consistently focused on recruitment measures to address shortages, but bodies including the National Audit Office (NAO, 2016), the House of Commons Education Committee (2017) and NFER (Lynch et al. 2016) have all called for a greater emphasis on improving teacher retention. The main reasons why retaining teachers is proving so difficult are still not yet fully understood. Previous studies (e.g. DfE 2018a, 2019a; Foster, 2019; House of Commons Education Committee, 2017) have looked at this, however the evidence so far is limited.

From the studies that have been published, pay is deemed as one of the most important factors influencing retention, together with workload and flexibility of working hours (NFER, 2018a; DfE, 2019b). However, to the best of our knowledge no study has to date quantified the relative importance of the different factors that could influence retention, or quantified the impact that changes to these could have on workforce retention in teachers' settings.

RAND Europe was commissioned to undertake new research to measure the impact of pay and reward on the retention of teachers. The overarching research objective is to **measure the impact of pay, rewards and other working conditions on the retention of teachers**. To address this research question, a quantitative survey with a discrete choice experiment (DCE) was designed and implemented to cover the range of issues identified above. A brief introduction to the DCE research method is presented in the box below.

The study involved four phases:

**Phase 1** was a literature review to identify a longlist of important factors that influence teacher retention with regards to teachers' pay, pension, pay progression, workload and school culture. After holding an internal workshop, consulting with expert advisors and discussions with the OME steering group, we reduced the longlist down to a shortlist of eight factors.

At the core of the study was a quantitative survey with a series of Discrete Choice Experiments (DCEs). **Phase 2** involved the design of this survey and the choice experiments and pilot testing of the survey design. The pilot survey showed that the choice experiment and survey design worked as intended. Some refinements were undertaken prior to the main survey data collection.



**What are DCEs?**

Research on the issues influencing teacher retention has traditionally been based on qualitative surveys of samples of teachers or school leaders. Such surveys would identify a longlist of factors that influence teachers' decisions to take up, stay in or leave their employment. These factors often followed a 'laundry list' format – ranking income, incentives, working environment, career development, management style, etc. – that does not readily support policymakers, as it is hard to conclude how to then these factors in considering the employment offer. Just knowing that pay, as an abstract concept, is stated to be important (or even most important) is not helpful on its own. It is more useful to consider different levels of change in pay. Doing so both anchors the concept in a meaningful way, and allows clearer insights to be gained into the relative importance ascribed to smaller and larger changes, and how these may compare with the importance placed on changes in other factors.

Discrete Choice Experiments (Ben-Akiva and Lerman, 1985; Train, 2003) are a quantitative research method for valuing different factors that influence choices. DCEs enable valuations to be broken down into a range of component parts, which are taken into account through the inclusion of a range of different attributes. In this context the attributes could relate to both pay (for example, levels of pay, types of reward and structure) and wider non-monetary factors that influence the retention of the teachers.

This research method has emerged as a very attractive method for researchers and policymakers alike, because it provides quantitative information on the relative importance of various characteristics, the trade-offs between these factors and the probability of different combinations being taken up.

This method goes beyond traditional qualitative assessments and provides quantifiable data that can better guide the selection of the most appropriate strategies for structuring offers that could improve recruitment and retention. It also goes beyond traditional ranking and rating exercises that do not provide information on strength of preference, trade-offs or probability of take-up.

This research method has thorough economics theory underpinning it. Daniel McFadden won the Nobel Prize in 2000 for his pioneering work (McFadden, 1974) in developing the theoretical basis for discrete choice. This method has been widely applied to a number of different areas of public policy – for example, health and social care, the environment and security.

**Phase 3** of the study involved the main survey data collection and analysis of the econometric model to quantify the relative importance of the factors and to allow estimates to be made of the changes in retention rates that might be achievable across key staff groups.

**Phase 4** involved the policy scenario forecasting and the conclusion of the study.

Below we set out the structure of the research report, which comprises:

- Chapter 1: presents the introduction of the research background, objectives and research process;
- Chapter 2: presents the evidence review and development of the discrete choice experiment;
- Chapter 3: presents the survey data collection and sample descriptive analysis;
- Chapter 4: presents the discussion of the key findings from the econometric models; and
- Chapter 5: presents conclusions and potential areas for future research.



## 2. Evidence review and discrete choice experiment design

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This section presents an overview of the development of the survey at the core of this study:

- Evidence review and development of a longlist of relevant employment offer attributes;
- Developing the shortlist of attributes;
- Developing the wider survey questionnaire; and
- Pilot testing of the survey.

### 2.1. Evidence review

As part of the evidence review, we collated the most recent evidence on teachers' current pay and total reward packages, and the patterns observed in teacher retention. Through this process we developed a longlist of possible factors that could improve retention. A few challenges were identified from previous studies, such as issues around the impact of different types of rewards and the impact of changes to the reward. Before we go into details of the research design, below we summarise the existing evidence on the factors that influence the teacher retention issue.

#### 2.1.1. Pay

Evidence shows that teacher pay lags behind many other professions and other public sectors. 2016 estimates show starting salaries for teachers were 10%–25% lower than the average graduate starting salary (STRB, 2018). This persists even when progression has increased, with the earnings at least 5% below the average of other professional jobs for the last four years.

Pay is often stated as an important factor that influences the retention of teachers. For example, the 2015 'Why Teach?' survey (LKMco, 2015) asked over 1,000 teachers questions about what would cause them to leave the profession. 43% claimed that insufficient pay would be an influential factor.

Previous research (NFER, 2018b) has suggested that there may be merits to considering pay rises that are prioritised for particularly pay-sensitive areas, such as teachers early on in their career and teachers in subjects that have well-paid options outside of the teaching profession (particularly STEM subjects).

However, evidence to date has found that pay is not the only primary reason why teachers leave the profession. A study from the NFER (2015) recommended that '*policy responses that aim to increase teacher retention need to consider pay alongside other factors affecting the trade-offs that teachers make, such as teachers' workload, working hours and job satisfaction*', and explored what teachers who leave the profession go on to do next. Using the Labour Force Survey (LFS) data, the study found that teachers who left the profession ended up taking a 10% pay cut on average, even when taking into account characteristics such as initial pay

level, management responsibilities and age. Furthermore, there was not a statistically significant difference in pay based on whether teachers left for the private school system or the private sector. The study cautions that the LFS data is not sufficient to look at long-term pay structures and that short-term pay may not be the main motivation.

### 2.1.2. Pensions

As with many other public sector pension schemes, teacher pensions are viewed as being fairly generous (DfE, 2019a), and the existing (and lack of) literature suggests it has not been viewed to date as one of the major factors associated with retention and recruitment issues in teaching. For example, Smithers & Robinson (2003) analysed a survey of 1,021 teachers in the UK who were leaving their current roles. When looking at the factors affecting these decisions, pensions was one of the least common answers, with so few people answering it that it was grouped into a category labelled 'other', comprising just 5.6% of the respondents. Furthermore, when investigating factors affecting teacher retention through a qualitative interview, the Department for Education (DfE, 2018a) found that pensions were not one of the concerns (or triggers) that led teachers to leave the profession. In fact, the loss of pension was a consideration for a small number of more experienced teachers leaving teaching, although for those that left this was felt to be worthwhile. From September 2019, employer pension contributions for teachers rose from 16.4% to 23.6%, a rise far greater than many were expecting, with no employee contribution increases necessary (Naseem, 2018). It seems clear that pensions, to date, have not been considered to be acting as a push factor; however, they may potentially be acting as an important pull factor assisting in retaining staff.

### 2.1.3. Performance Incentives

There is rich international evidence on the impact of performance incentives on retention. For instance, Harvey-Beavis (2003) looked at different kinds of performance-based reward systems for teachers in the US. These included merit-pay systems, where teachers are rewarded based on the performance of their students; knowledge- and skill-based systems, where teachers are rewarded for gaining qualifications and skills; and school-based systems where an entire school is rewarded for student performance. These systems contrast with the traditional US systems that tend to reward teachers for formal qualifications (degrees) and experience as opposed to actual performance. This could mean talented and capable teachers leave the education sector because they are not being rewarded for their competence. Harvey-Beavis also argues that alternative reward systems could support collegiality between teachers and the administration, helping improve teacher retention. However, possible negative issues were also raised, such as teachers being less likely to work together, and a more hierarchical, less co-operative administration.

More recent research (OECD, 2012) notes that these alternative reward systems have a limited effect on educational standards. The stance in the UK is mixed. The unions representing teachers and school leaders in England are against performance-related pay – the National Education Union, for example, cited poorer teaching standards as its reason (NEU, 2019). However, in 2013 the UK government introduced performance-related pay to a variety of schools, with the aim of attracting and retaining teachers. This moved away from pay being primarily linked to experience rather than performance.

An independent review of these reforms undertaken in 2017 found that many schools had implemented pay reforms. At the time of the survey (2015), teachers reported mixed views of the desirability of pay

reforms. A third of headteachers said that pay reforms had a positive impact on staff retention, however the headteachers interviewed in 2016 revealed that it was too soon to tell whether the changes to pay would impact on teacher recruitment and retention in the UK (DfE, 2017d).

In 2017 the Education Endowment Foundation (EEF) commissioned RAND Europe, in collaboration with the University of Cambridge, to conduct a randomised controlled trial to explore the impact of incentivised pay and peer coaching in the teaching of mathematics. However, the study was cancelled due to the challenges of recruiting teachers into the trial. Following the cancellation of the trial, RAND Europe explored the factors that influenced the low recruitment of teachers into the study (Sutherland et al. 2018). The main concerns were found to be the perceived unfairness that teachers in receipt of the incentive payment were ‘gaming the system’ by focusing more attention on those children on whose test performance the incentive payment would be decided, and less attention on children in other classes.

Given that performance incentives are one of the important factors that could potentially shape teachers’ retention choices, we took this factor forward for inclusion as part of the pay and rewards characteristics in the study.

#### 2.1.4. Workload and wider working conditions

Apart from pay, working hours and work-life balance have been listed as the most important reasons for teachers leaving their profession. According to research commissioned by the DfE (2017a; 2018a), the workload associated with teaching is the biggest cause of retention issues. Teachers in Britain are regularly working some of the longest hours in the world, primarily caused by the amount of work required (Kentish, 2018; NFER, 2018b).

The latest NEU (2018) survey of 8,173 people found that 81% of teachers considered leaving in the last 12 months due to workload pressures. Further, 40% were working over 21 hours extra a week during evenings and weekends, and over 80% were working more hours than in 2016. Similar findings were found from the ‘Why Teach’ survey, which cited workload as the most important reason for considering leaving, with the next highest response being pay and management issues, both with 43% (LKMco, 2015). Previous NFER research (Lynch et al. 2016) identified the quality of school leadership and management, including teacher autonomy and whether staff feel they are supported and valued by managers, and whether or not teachers feel their workload is manageable, as important determinants of job satisfaction. The National Audit Office surveyed school leaders and found that they cited excessive workloads as the biggest barrier to retention (DfE, 2017b). Based on the evidence, we have included workload for consideration in the choice experiment.

#### 2.1.5. Development opportunities

The Teaching and Learning International Survey (TALIS) defines professional development as ‘activities that develop an individual’s skills, knowledge, expertise and other characteristics as a teacher.’ (OECD, 2009). It is important that CPD is offered to teachers throughout their careers to provide them with the skills necessary to adapt to the changing demands of being a teacher. A particularly important time is right at the beginning of a teacher’s career, when they arguably need the most development support (DfE, 2019a). As this is when teachers are most likely to leave the profession, it is an area that needs particular focus – as reflected in the development of the Early Career Framework (DfE, 2019e). A qualitative study (DfE, 2018a)

examining why teachers leave their jobs identified that secondary school teachers with under five years' experience who qualified via a PGCE, School Direct or Teach First routes, believed they had not had the training necessary to prepare them sufficiently for the classroom. In particular, these teachers felt less equipped to address poor behaviour and pupils with special educational needs (SEN). The study also showed insufficient time was provided with mentors or teachers to support the Newly Qualified Teachers (NQTs). As a result, earlier in 2019 the DfE released the Teacher Recruitment and Retention Strategy (DfE, 2019a), and one of the key issues it raised was the lack of professional support received by teachers, especially early in their careers. This led to the launch of the Early Career Framework (DfE, 2019e), a 2-year programme of support aimed at improving the retention of early career teachers.

Kraft and Papay (2014) found that providing more training opportunities leads to higher levels of retention. A school that provides more CPD to its staff indicates a more collaborative culture and shows the staff are valued, making them more likely to feel engaged (DfE, 2015). It also equips teachers with the skills to perform better in their job, leading to better class management, planning, marking and data management, which can all reduce workload levels – one of the most commonly cited reasons for teachers leaving (DfE, 2018b), as noted above. Research from the Educational Policy Institute found teachers in England spent an average of 4 days a year on Continuing Professional Development (CPD) in 2013, compared to an average of 10.5 for the other 36 countries in its analysis (House of Commons Committee of Public Accounts, 2018). To understand the impact of development opportunity on teachers' retention choices, we included this characteristic in the choice experiment and survey.

### 2.1.6. Flexible/part-time working

For the sake of this analysis, we define flexible working as working a normal full-time equivalent (FTE) contract, but with hours that are different to the standard working day. This could be in the form of staggered hours – having different start, finish and break times to other staff – or compressed hours (working FTE hours but over fewer days). Part-time working concerns teachers who work less than an FTE contract, either via shorter working hours or fewer working days.

It is difficult to fully understand the merits of flexible working for teachers (in the form of staggered or compressed hours) because it is so rare in practice that the literature barely touches upon it (DfE, 2018c). In a recent survey of a representative sample of teachers in England, less than 1% of teachers said they worked staggered hours, compressed hours or annualised flexible hours (DfE, 2019b). This is perhaps understandable given the limitations around the school day – teaching a class of students is not something that can be done at any time of day, nor from any location.<sup>2</sup> That being said, there is evidence to suggest that teachers want more flexible working opportunities to enable a better work-life balance and to help with family and care responsibilities (DfE, 2018c). A DfE study (2019b) found that benefits of more flexible working practices include being able to better manage your workload (stated by 89% of 766 teachers working flexibly) and improved well-being (85% of 766 teachers working flexibly).

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<sup>2</sup> Some attitudes towards teaching – including the extent to which providing tuition remotely might be possible – may have been modified in the light of recent experiences of adapting to the challenges of the 2020 COVID-19 pandemic.

The NASUWT found that employers tended to present negative attitudes towards flexible working, listing reasons such as timetable problems, inconvenience for children and not wanting to set a precedent so everyone else asks for it, alongside many other reasons. Therefore, many schools do not allow flexible working or teachers are regularly denied it if they request it, which could encourage many teachers to leave the teaching profession. On balance, the lack of evidence on flexible working and its impact on retention makes this a particularly worthwhile topic to include in the discrete choice experiment – especially since much prior evidence defines flexible working to include part-time working as well.

Part-time working is more prevalent for teachers than flexible working. The percentage of teachers who work part-time is 22%, which is much lower than the national average (DfE, 2017c). In the NFER Teacher Voice Omnibus Survey (Smith et al. 2018), 60% of respondents said part-time or flexible working arrangements were easy to agree upon. However, a significant portion, 27%, said it was not easy to agree. Resistance to part-time working can be due to arrangements being made on an individual school basis, meaning schools can reject applications and be resistant to part-time arrangements for a variety of reasons, such as increased costs to schools, timetabling issues and impact on students.

There is evidence that inflexibility of facilitating part-time arrangements can disproportionately affect women (Chatfield, 2018). Between 2008 and 2012, 6,000 women in their 30s left teaching every year – 25% of all leavers during that period (Simons, 2016). Of this group, it is estimated only half returned to teaching. Whilst no hard conclusions can be drawn around this, it could be maternity related, and the lack of flexibility around working practices could mean many returners find it hard to balance personal childcare commitments with returning to a teaching job (DfE, 2018a). Teachers who have periodically left and then returned on a part-time contract have said it damaged their career progression and meant they still had to work overtime.

It is not just this demographic that is affected. Older teachers are more likely to remain in teaching if they can work on a part-time contract (Allen-Kinross, 2017). Over the period from 2010 to 2018 the demand for part-time work in teaching increased, across multiple demographics, whilst for other ‘similar professions’ it remained at fairly similar levels (Worth and Van den Brande, 2019). The National College for Teaching and Leadership (NCTL) conducted pilot schemes looking at encouraging former teachers to return to the profession (DfE, 2017c). It was found that former teachers are more likely to be attracted back if schools can provide roles with greater flexibility.

Although limited access to part-time and flexible working practices are not among the most commonly cited reasons teachers leave, they are likely to be very important factors nonetheless. Further, the small proportion of teachers currently working flexible hours has meant there has been relatively little research done in this area, presenting a good opportunity for us to collect data on people’s preferences around this topic.

### 2.1.7. School leadership & culture

School culture can be understood to mean many things, but Stoll (1998) takes it to incorporate the assumptions and beliefs that are shared by the staff of a school, and which frequently operate unconsciously. The culture of a school is what gives teachers a support and identity network, and underlines the way things are done in a school. This can include things such as decision-making processes, management style and the

existence of support structures for teachers. A joint survey by Pearson and LKMco<sup>3</sup> found that of those who were considering leaving the teaching profession, 43% claimed the quality of leadership and management was a driver of this – the second-most cited response behind excessive workloads (LKMco, 2015). Further, in DfE-backed research (DfE, 2018a) ineffective school leadership was cited by 40% of secondary school teachers as a main reason for leaving teaching. Sims (2017) analysed the 2013 TALIS data and found that with better school leadership, teachers were happier. Every standard deviation (SD)<sup>4</sup> increase in quality of school leadership was associated with 0.49 SD increase in teacher job satisfaction, and a 64% reduction in the probability that a teacher would ‘strongly agree’ that they want to leave their current post. Generally, a collaborative and supportive environment has been shown to improve teacher retention (Skaalvik and Skaalvik, 2010; Scutt, 2019). The evidence would indicate that school culture is a key factor affecting teachers’ decisions to leave their jobs.

### 2.1.8. School characteristics

Schools vary greatly from one another, so considering an attribute that reflects individual school differences – especially since these differences can have a big effect on the variation in retention rates – could be important. School characteristics could include factors such as Ofsted rating, pupil behaviour, the level of deprivation in the local area and the resourcing and funding of a particular school.

On average, 50% of schools report it is challenging to recruit and retain enough teachers, but in particularly deprived areas the figure increases to 75–77% (House of Commons Committee of Public Accounts, 2018). Further, teachers at the 20% most deprived schools are 70% more likely to resign compared to those in the 20% least deprived schools (Social Market Foundation, 2017). Thus, it is probably not surprising that according to a House of Commons briefing paper, teachers in schools that were given an ‘inadequate’ grade by Ofsted are more likely to quit their job (Foster, 2019). Research from the University of Cambridge (Weale, 2016) found that teachers in more deprived schools were likely to have less experience. These factors all have consequences for retention in the teaching profession. A survey of 7,000 teachers through the Teacher Tapp app found that teachers tend to agree that teaching in disadvantaged schools requires more effort and skills (Allen and McInerney, 2019).

Another key characteristic of schools that has been shown to affect retention is pupil behaviour (DfE, 2018a). Disciplinary issues make it hard to maintain an effective lesson and can create additional workloads (logging issues, communication with parents, general behavioural management, etc.). During DfE-commissioned interviews with teachers, bad pupil behaviour was described as draining and, in some cases, were ‘trigger’ points that pushed teachers into leaving. One survey found two thirds of teachers have thought about leaving the profession as a result of poor pupil behaviour (Williams, 2018). Teachers prefer teaching in schools with less behavioural problems and are attracted to more affluent schools because of their better reputation (Allen and McInerney, 2019). Barmby (2006) surveyed 246 teachers in England and Wales and found that stress, workload, the unpleasantness of teaching children who did not want to learn, and a lack of respect were all frequently raised issues associated with poor pupil behaviour. As the DfE’s new teacher

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<sup>3</sup> LKMco has since been renamed the Centre for Education and Youth.

<sup>4</sup> Standard deviation (SD) is a measure of how ‘spread out’ values of a variable are.



retention strategy states (DfE, 2019a): *‘A positive school culture – including good pupil behaviour – is crucial for retention.’*

Another closely related characteristic is availability of funding and resources. Underfunded schools can mean that teachers do not have the necessary resources in place to do their job properly. A survey from NEU (2018b) found 41% of teachers cited ‘lack of money and resources in school’ as one of the biggest drivers in workload, which as we have already seen, is a big driver of retention problems; 33% cited reduction in support staff and 27% cited increasing class sizes. All of these are a symptom of a school with inadequate resourcing, which contributes to increased workloads for teachers, which has been shown to decrease well-being and lead to retention problems.

### 2.1.9. Other factors

The output of the background review was a longlist of potential attributes that could be included in the choice experiment. The full longlist of factors that were initially considered is shown in Annex D, along with the decision of whether or not to include them on the shortlist and justifications for the decision. There were many other potentially relevant factors that have not made it onto our shortlist. In some cases we prioritised certain attributes over others, whilst others could be merged with similar factors, and less relevant factors were dropped. We discuss some of the more notable exclusions from the shortlist attributes here.

**Teacher autonomy** is one such factor. The concept of teacher autonomy refers to the professional independence of teachers in schools, especially the degree to which they can make autonomous decisions about what they teach to students, and how they teach it. Rhodes et al. (2004) note that increasing central government involvement in education decision-making is a driving factor for teachers to leave their posts. Teachers claim that more rules stifle creativity and are disrespectful to the teaching profession (DfE, 2018a). Furthermore, Talbert and McLaughlin (1996) argue that the greater autonomy in the private system compared to the public system is a large source of attraction to teachers. This was viewed as a relevant factor, but on balance, was deemed less important than some of the other attributes.

Other attributes – such as **administrative burden** – were viewed as being too closely related to other factors (in this case workload), so were dropped/merged for this reason.

**Stress** and **Teacher well-being** were also considered. There is a strong relationship between job satisfaction and retention, with Lynch et al. finding it to be the most significant protective factor against considering leaving (Lynch et al. 2016). The UK’s Health and Safety Executive claims that ‘teaching staff and education professionals report the highest levels of work-related stress, depression and anxiety in Britain’ (Ofsted, 2019). However, we considered these to be symptoms of other systemic issues. In other words, despite the relationship with retention issues, we are more interested in what the possible drivers of stress and well-being are for teachers.

We also considered other monetary incentives such as **localised pay flexibility**, **market supplements** and **retention supplements**. However, we felt that from the perspective of an individual teacher these would provide little additional information on top of simply varying the pay attribute, so we decided not to recommend these.

## 2.2. Developing the shortlist of the attributes

Including all the possible factors in the survey was not recommended, as it would make the survey too long, increasing the likelihood that people would rush through the survey, not take it seriously or not take part in the first place. Therefore, we narrowed the longlist of identified potential attributes down to a shortlist of eight attributes for inclusion in the choice experiments.

The definitions of the attributes in the choice experiment are set out as follows:

**Pay:** the annual salary, including any allowances.

**Pension:** the monthly retirement income (from teachers' pension).

**Pay progression:** annual movement up the pay range, expressed as a percentage; the number of years it would take to progress from the pay range minimum to the pay range maximum; and whether excellent performance accelerates movement up the pay range.

**Workload:** total working hours as a teacher per week (including contact and non-contact hours).

**Development opportunities:** total number of days of continuous professional development (CPD) per year, distributed between two different types of CPD:

- general CPD offered to all teachers in school; and
- personalised CPD tailored to teachers' own development needs.

**Part-time work:** feasibility of moving to a part-time work arrangement.

**School culture:** how much support teachers receive from school leadership and other teaching colleagues.

**School characteristics:** pupil behaviour in classes.

The levels of the attributes were derived from a review of previous literature. Discussions with the OME steering group helped to ensure that the attributes/levels covered the main areas of policy that were of interest to the OME, and that the question wording would be accessible to teachers. The levels of attributes were tested and refined through the pilot survey.

Table 1 lists the attributes and levels included in the choice experiments. The attribute levels presented below reflect the final set of the levels in the main survey data collection work. Some minor wording changes were made after the pilot survey, which are summarised in the pilot survey analysis presented later in this section. To avoid overburdening respondents with a choice incorporating all eight attributes, we designed two choice experiments that served different purposes:

**The first DCE** (binary choice) focused on exploring the trade-offs between different levels of pay, pension, pay progression and working condition attributes in comparisons of different packages.

**The second DCE** (multiple choice) examined how different packages of pay, workload, development opportunities and school cultures compared to the respondent's current employment offer and the likelihood of them changing role in response to these.

Table 1 Attributes and levels included in the stated choice experiments

Attributes	Levels	Description
<b>Pay</b>	1	Your annual pay is 15% higher than now
	2	Your annual pay is 5% higher than now
	3	Your annual pay is the same as now
	4	Your annual pay is 5% lower than now
	5	Your annual pay is 15% lower than now
<b>Pension</b>	1	Your final pension will be 15% higher than now
	2	Your final pension will be 5% higher than now
	3	Your final pension will be the same as now
	4	Your final pension will be 5% lower than now
	5	Your final pension will be 15% lower than now
<b>Pay progression: Pay range % increase</b>	1	Your pay scale provides an annual progression increase of 15%
	2	Your pay scale provides an annual progression increase of 10%
	3	Your pay scale provides an annual progression increase of 5%
<b>Pay progression: Pay range years from minimum to maximum (at a normal speed)</b>	1	for up to 7 years
	2	for up to 5 years
	3	for up to 3 years
<b>Pay progression: Whether performance accelerates up scale</b>	1	If your performance is rated as satisfactory you will move up one step, if it is rated as excellent you will move up two steps in a year
	2	If your performance is rated as satisfactory or above you will move up one step in a year
<b>Development opportunities</b>	1	10 days CPD in total each year: - 3 days CPD in school with all the staff - and 7 days CPD at courses of your choice out of school
	2	10 days CPD in total each year: - 5 days CPD in school with all the staff - and 5 days CPD at courses of your choice out of school
	3	5 days CPD in total each year: - 2 days CPD in school with all the staff - and 3 days CPD at courses of your choice out of school
	4	5 days CPD in total each year: - 3 days CPD in school with all the staff - and 2 days CPD at courses of your choice out of school

Attributes	Levels	Description
<b>Part-time working</b>	1	Very likely to be able to move from full-time to part-time working if you request it
	2	Possible to move to part-time working, but only if you meet certain conditions
	3	Very little possibility regarding moving from full-time to part-time working
<b>Workload</b>	1	Total working hours reduce by 10%
	2	Total working hours reduce by 5%
	3	Total working hours remain the same as now
	4	Total working hours increase by 5%
	5	Total working hours increase by 10%
<b>Leadership culture</b>	1	You have sufficient support in your role from school leadership and from peers and supporting staff
	2	You have insufficient support in your role from school leadership; but sufficient support from peers and supporting staff
	3	You have sufficient support in your role from school leadership; but insufficient support from peers and supporting staff
	4	You have insufficient support in your role from school leadership and from peers and supporting staff
<b>Teaching environment</b>	1	Poor behaviour is rarely a serious problem
	2	Poor behaviour from a few students disrupts a few lessons
	3	Poor behaviour from many students disrupts a few lessons
	4	Poor behaviour from a few students significantly disrupts most lessons
	5	Poor behaviour from many students significantly disrupts most lessons

Examples of the two choices are shown in Figure 1 and Figure 2. In our experience, data from the second experiment was key in estimating the retention impacts. However, the first experiment was also necessary to unpack the relative value placed on the different factors, which may not have been so precisely determined in the second experiment (such as pay progression, pensions, etc.), where other factors relating to levels of current job satisfaction may, for some respondents, dominate such decisions.

Figure 1 Example of choice experiment 1

Scenario 4

	Option A	Option B
Pay	Your annual pay is 15% higher than now	Your annual pay is 15% lower than now
Pension	Your final pension will be 5% higher than now	Your final pension will be 15% lower than now
Pay Progression	Your pay scale provides an annual progression increase of 5% for up to 7 years	Your pay scale provides an annual progression increase of 10% for up to 3 years
	If your performance is rated as satisfactory or above you will move up one step in a year	If your performance is rated as satisfactory you will move up one step, if it is rated as excellent you will move up two steps in a year
Workload	Total working hours reduce by 5%	Total working hours increase by 10%
Which would you prefer?		
<div style="display: flex; justify-content: space-around;"> <span>Option A <input type="radio"/></span> <span>Option B <input type="radio"/></span> </div>		

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Figure 2 Example of choice experiment 2

Scenario 1

	Remain in your current post	Job A	Job B
Pay		Your annual pay is 15% higher than now	Your annual pay is the same as now
Workload		Total working hours remain the same as now	Total working hours increase by 10%
Development opportunities		10 days CPD in total each year: - 5 days CPD in school with all the staff - and 5 days CPD at courses of your choice out of school	5 days CPD in total each year: - 2 days CPD in school with all the staff - and 3 days CPD at courses of your choice out of school
Part-time working		Possible to move to part-time working, but only if you meet certain conditions	Very likely to be able to move from full-time to part-time working if you request it
Leadership culture		You have insufficient support in your role from school leadership; but sufficient support from peers and supporting staff	You have sufficient support in your role from school leadership; but insufficient support from peers and supporting staff
Teaching environment		Poor behaviour from a few students disrupts a few lessons	Poor behaviour from many students significantly disrupts most lessons
Which job would you choose?			
<div style="display: flex; justify-content: space-around;"> <span>Current Post <input type="radio"/></span> <span>Job A <input type="radio"/></span> <span>Job B <input type="radio"/></span> </div>			

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Another benefit of the way we grouped the attributes is that the attributes in the first DCE were more likely to link with teachers' pay schemes (scales, progression and range of increase), which would be similar within the same region or at the national level. They would not be significantly different across schools (job offers). However, the second DCE was linked to school-level factors (such as personal development opportunities and school cultures, etc.), which were more likely to differ by school settings and can therefore be used as the basis for a credible choice between competing jobs. Pay and workload were included in both experiments as both are very important attributes in shaping teacher choices, enabling us to bring together and jointly estimate a model using the data from the two choice experiments in the analysis.

The combinations of attribute levels to be presented within each package was specified using an experimental design to ensure that the maximum information was obtained from the stated choices. The experimental designs were developed using Ngene 1.1.2 (ChoiceMetrics, 2018). For each experiment, a design was generated with 60 rows that were blocked into 12 blocks of 5 rows each. This blocking arrangement minimised the total correlation between the blocking packages and all of the attributes. In practice this ensured that no single respondent saw similar combinations of attribute levels across the different choices offered to them. This design was distributed across respondents so that when the data was pooled we were able to estimate robust models of preferences across the sample and within different teacher cohorts. Each respondent was presented with ten choices in total (five in each DCE) in the survey.

### 2.3. Designing the wider questionnaire

Aside from the discrete choice experiment itself, some background questions were included to investigate how preferences vary according to different characteristics of the schools in which the respondents taught (such as Ofsted ratings, types of school, etc.), and according to characteristics of the teachers themselves (such as roles or subject of teaching, and the individual's demographic characteristics such as age, gender, etc.). The background questions also provided some reference information to provide further insight to the choices made in the DCE. For instance, asking about household income helped us to further understand teachers' choices in the pay and pension questions, with those on a higher household income perhaps valuing non-monetary aspects differently to those on a lower household income. We also wanted to observe any differences according to what type of school the teacher worked at. This included whether the school was secondary or primary, what age range the teacher mostly taught, and the school's Ofsted rating.

We also wanted to understand, where relevant, what subjects each individual taught. Some subjects, such as Science, Technology, Engineering and Maths (STEM), suffer more from retention problems than other subjects (Allen and Sims, 2017). We also asked about seniority levels, to see if teachers with more responsibility have different views to those of classroom teachers.

The key socio-economic characteristics were divided into the following categories:

- Demographics: age, gender, household income band, marital status and household structure, etc.
- Employment characteristics: teaching setting, subject of teaching, school characteristics (e.g. Ofsted rating, school location), pay scale, region of the school, length in the current post, seniority, current workload, current work flexibility, school culture and personal development opportunity.
- Questions related to current intentions and reason for length of stay, etc.

This information enabled us to undertake further segmentation analysis to understand how teachers' preferences varied according to their characteristics.

The questionnaire is included in Annex A, and was arranged according to the following structure:

**Section 1** collected information on current employment experience, including current intentions and reasons for length of stay.

**Section 2** collected the choice experiment observations. Each respondent was presented with five choices for each of the two choice experiments. Some diagnostic questions were included after the choice questions to understand respondents' perceived difficulty in making the choices, and reasons for that.

**Section 3** collected the socio-economic characteristics of respondents.

## 2.4. Pilot survey testing

The survey questionnaire and the choice experiments were tested through a pilot survey with 36 teachers in November 2019. The pilot survey showed that the survey design and questionnaire worked as intended – most of the respondents (85%) stated they could understand the survey questionnaire and were able to make the choices. The initial choice model outputs were intuitive, which showed that respondents engaged with the survey and choice experiments. A few changes were made prior to the main survey:

- **Introduction:** the wording was amended to state that the survey takes 10–15 minutes to complete (rather than 10 minutes), based on the pilot survey findings.
- **Filtering question:** after consulting OME/NFER, a screening question to identify (and screen out) teaching assistants was included.
- **Background question:** a question on professional development (CPD days) was added to identify the current split between CPD time spent on school activities and activities based on personal choice (as discussed in the following chapter).

## 3. Survey data collection and sample characteristics

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This section presents:

- An overview of the main survey data-collection field work;
- A description of the composition of our sample and an analysis of stated attitudes.

### 3.1. Introduction

The main survey was undertaken across England from January to March 2020 using an online data-collection approach. The data was collected through two channels: Teacher Tapp (TT) and the National Foundation for Education Research (NFER) Teacher Voice Omnibus Survey.

This section provides an overview of the main survey sample analysis, including a brief introduction to the main survey field work, a comparison of the data from the two survey channels, and an overview of the sample characteristics – both the respondents’ employment characteristics and their socio-economic characteristics – from the combined samples.

### 3.2. Main survey field work

#### 3.2.1. Teacher Tapp data-collection channel

Teacher Tapp (TT) is an online panel in England that provides an effective way to collect survey data from teachers (Teacher Tapp, n.d.). The online panel contains over 7,000 teachers in England and their daily polls (which includes three questions daily) typically achieve over 5,000 responses. The main survey link was posted at the end of the daily polls on the mobile app for three days (across three weeks from 10 January to 26 January 2020) on a Friday or Sunday, since these days tend to generate higher response rates. 1,511 teachers clicked the main survey link which was posted on the Survey Engine online survey platform. In total, we received 620 completed responses.<sup>5</sup> This survey response rate was judged to be high, when compared to our previous experience with DCE studies from a typical online panel: 41% (=620/1,511) of those who clicked the survey link, and around 12% (=620/5,000<sup>6</sup>) of the overall number of eligible people who accessed the app. In the survey, a cookie script was implemented so that teachers were not able to do

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<sup>5</sup> After removing responses that were incomplete, or from teaching assistants or teachers who stated they work for independent schools, which were out of the current research scope.

<sup>6</sup> Note that this is a rough estimate of the number of respondents who accessed the TT across the three survey days who were eligible for the survey (teachers who work in state schools).



the survey twice, although a time-out was implemented to allow respondents to complete the survey at a later time (within a day or two).

### 3.2.2. NFER Teacher Voice survey data-collection channel

The NFER Teacher Voice Omnibus Survey panel contains a nationally representative sample of over 3,500 teachers and senior leaders across primary and secondary schools (NFER, n.d.). For this study, the survey was delivered successfully to 3,457 teachers. A total of 1,590<sup>7</sup> practising teachers from 1,382 schools in England completed the bespoke online survey between 7 and 12 February 2020, giving a response rate of around 46%.

## 3.3. Sample characteristics

To allow robust data analysis of a sufficient sample size, we pooled the data from the two data sources. Before merging the two sources of data, we compared the sample characteristics between the responses from the TT survey (n=620) and those from the NFER panel (n=1,590). We examined the two samples separately to see whether there were any concerns suggesting that the data should not be pooled. Overall, the two samples shared a lot of similarities in terms of employment and socio-economic characteristics. Whilst we identified some differences in sample composition between the two sources, on balance we felt that pooling the data was beneficial and the two sources complemented each other. The detailed comparison can be found in Annex B.

Below, we present a descriptive analysis of the overall sample based on the 2,210 completed responses.

### 3.3.1. The sample is largely nationally representative of the teacher population within England

We have compared our achieved sample to the **national statistics**, shown in Table 2.

- The composition of our combined sample by school area, Ofsted rating, contracted working hours, gender and ethnicity is similar to the national levels.
- Our sample over-represents secondary schools (52% compared to 44%), but only marginally under-represents primary schools. However, our sample under-represents special schools; 1% of our sample teach at special schools compared to 5% of the national statistics. Sixth form is not measured separately in the national statistics we consulted.
- Our sample over-represents the senior positions of headteacher, deputy headteacher and assistant headteacher (27% compared to 14%) and under-represents other classroom teachers (73% compared to 86%).

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<sup>7</sup> We received 1,611 completed responses. Among the sample, 21 respondents reported they worked at independent schools so were excluded from our research.

Table 2 Sample representativeness

Sample characteristics	Sample	England
<b>Q1 Area your school is in<sup>8</sup></b>		
London	13%	13%
City other than London	19%	20%
Other	68%	67%
<b>Q2 School type<sup>9</sup></b>		
Primary	47%	50%
Secondary	52%	44%
Special	1%	5%
Other	1%	1%
[Sixth form	12%	-]
<b>Q5 Most recent Ofsted rating<sup>10</sup></b>		
Grade 1 Outstanding	21%	19%
Grade 2 Good	63%	67%
Grade 3 Requires Improvement	12%	10%
Grade 4 Inadequate	3%	4%
<b>Q11 What is your current post in your school?<sup>11</sup></b>		
Headteacher	9%	4%
Deputy headteacher	8%	4%
Assistant headteacher	10%	6%
Classroom teacher	73%	86%
<b>Q7 What is your current employment status as a teacher, in terms of working hours?</b>		
Full-time (more than 90% of full-time hours)	78%	76%
Part-time	22%	24%

Our sample is significantly older than the national population of teachers. 80% of our sample are over 34 years of age, however, nationally, this figure is 62%.

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<sup>8</sup> Teacher Voice Bespoke Omnibus Survey for OME/RAND, February 2020: Sample information document. NFER

<sup>9</sup> See DfE, 2019c, Main tables: Table 2a. It should be noted that the category 'Sixth form' is not recorded separately in the national statistics. The DfE School Workforce Census does not collect separate data on sixth form colleges and other further education colleges. Some data on KS5 teachers is included, but as part of secondary schools. Further, the 'Primary' category also includes nursery school teachers.

<sup>10</sup> Ofsted, 2019b.

<sup>11</sup> We compared our survey sample composition with the DfE (2019c) Main tables: school workforce census 2018 for questions Q11, Q7, Q22, Q23 and Q28.

Table 3 Sample representativeness – socio-economic characteristics

Sample characteristics	Sample	England
<b>Q22 Age</b>		
Under 25	1%	6%
25 to 34	18%	35%
35 to 44	37%	29%
45 to 54	31%	22%
55 and over	12%	8%
<b>Q23 Gender</b>		
Female	70%	74%
Male	29%	26%
Other	1%	-
<b>Q28 Ethnicity</b>		
White	91%	91%
Mixed/Multiple ethnic groups	2%	1%
Asian or Asian British	2%	4%
Black/African/Caribbean/Black British	1%	2%
Prefer not to say	1%	-
Other ethnic group	2%	1%

### 3.3.2. The sample covers a wide range of types of schools, roles in schools and contract types and is drawn from the full spectrum of the pay scales

As shown in Table 4, the sample covers a wide range of teachers in terms of their employment characteristics. More specifically:

- 86% of the teachers work in either a community school or an academy.
- Most of the sample (63%) are qualified teachers (upper or main pay range).
- 78% of the respondents are contracted as full-time teachers. Among the respondents who are contracted as part-time teachers (22% of the sample), most of them (18% out of 22%) stated that it is very likely or possible to move to part-time arrangement if they meet certain conditions.
- With regard to the flexibility of moving from a full-time to a part-time arrangement, 22% of the sample think it is very likely for them to be able to move from full-time to part-time if requested and 22% think there is little possibility for them to be able to do so. Almost half (46%) think it is possible if certain conditions are met (e.g. have childcare/other caring responsibilities, approaching retirement, returning from maternity leave).
- The majority of the sample are at the top end of their pay scale (61%).

Table 4 Employment characteristics: type of school, role, contract type, ability to move to part-time and pay scale (n=2,210)

Sample characteristics	%
<b>Q3 Type of school</b>	
Community school (Local authority maintained)	36%
Foundation or Voluntary school	8%
Academy	50%
Grammar school	3%
Other	2%
<b>Q11 Current post in School</b>	
Headteacher	9%
Deputy headteacher	8%
Assistant headteacher	10%
Leading practitioner	6%
Qualified teacher (upper pay range)	49%
Qualified teacher on the Main Pay Range not serving statutory induction	14%
NQT: Qualified teacher who is serving statutory induction	1%
Other	3%
<b>Q7 What is your current employment status as a teacher, in terms of working hours?</b>	
Full-time (more than 90% of full-time hours)	78%
Part-time (71–90% of full-time hours)	9%
Part-time (51–70% of full-time hours)	9%
Part-time (less than 50% of full-time hours)	4%
<b>Q9 Flexibility of moving to part-time working</b>	
Generally little possibility of moving from full-time to part-time working	22%
Possible to move to part-time working, but only if certain conditions are met (e.g. childcare/other caring responsibilities, approaching retirement, returning from maternity leave)	46%
Very likely to be able to move from full-time to part-time working if you request it	22%
Don't know	9%
<b>Q12 Roughly whereabouts are you placed on your current pay scale?</b>	
Bottom (I have recently been promoted to this pay scale)	13%
Middle	25%
Top (I am at the top end of the pay scale)	61%
Don't know	2%

Table 5 Current employment status and reported flexibility of moving to part-time working (column percentage of n=2,210)

Possibility of moving from full-time to part-time working	Full-time (more than 90% of full-time hours)	Part-time (71–90% of full-time hours)	Part-time (51–70% of full-time hours)	Part-time (less than 50% of full-time hours)	Total
Generally little possibility	24%	11%	11%	25%	22%
Possible but only if you meet certain conditions	45%	56%	44%	50%	46%
Very likely – if you request it	19%	33%	33%	25%	22%
Don't know	9%	11%	11%	0%	9%
Total	100%	100%	100%	100%	100%
Sample size	1,724	199	199	88	2,210

### 3.4. Stated attitudes and opinions of teachers in our sample

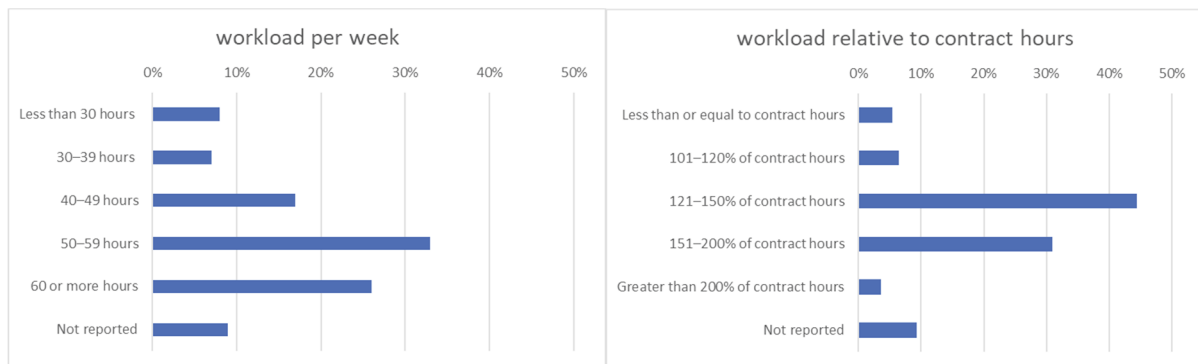
Within the questionnaire we asked the respondents to characterise their current role, in order to assess how their job would be profiled against the attributes that were included in the choice experiment. We also asked questions about how they found their current situation, whether they were looking to move in the near future, and the factors that were acting to encourage them to stay or leave.

#### 3.4.1. Respondents report heavy workloads

With regards to the **current workload, Continuous Professional Development (CPD), classroom size and student behaviour**, we found:

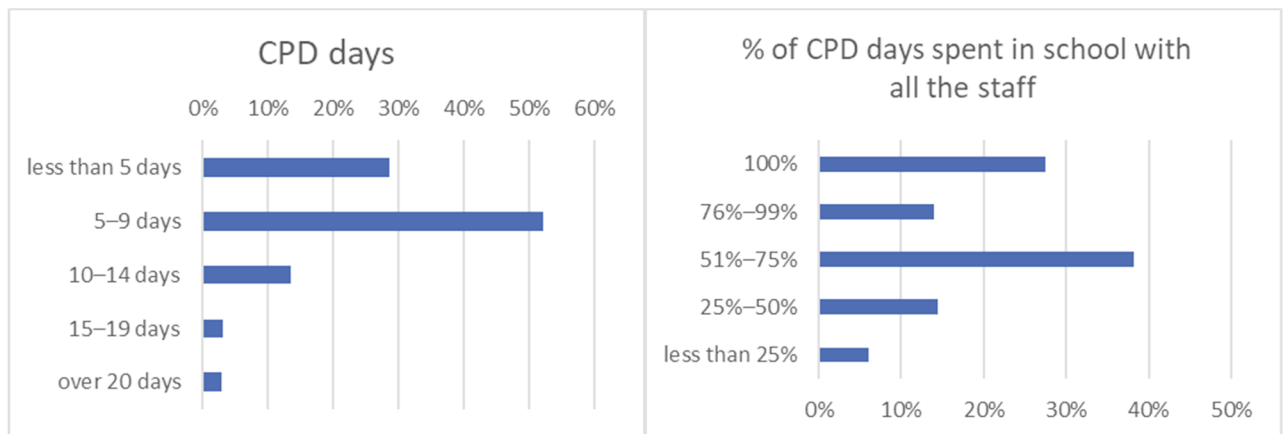
As shown in Figure 3, over three quarters of the respondents work 40 or more hours per week, with 26% working over 60 hours per week. We further examined the reported workload relative to the respondents' contract hours (Q7) and found that most of the respondents (85%) worked more than their contracted hours. Nearly half of the sample stated they worked 21 per cent to 50 per cent more than their contracted hours, and almost a third worked 51 per cent to 100 per cent more.

Figure 3 In an average week during the school term, how many hours do you work (including at school and home, and both contact and non-contact hours)?



As shown in Figure 4, respondents reported spending a range of days in CPD training in the last academic year, with 5–9 days being the most commonly selected range (52%). Of the CPD days, nearly 40% of the respondents reported that half to three quarters of the days were spent in school with all the staff, relative to the days spent outside of school; and well over 20% spent **all** their CPD days in school.

Figure 4 CPD days and split between days spent in school and out of school



With regards to the class size and student behaviour, we found:

- 60% of respondents mostly teach classes of between 26–30 students.
- Variations in respondents’ reports of poor pupil behaviour in classes, although options involving ‘many students’ were selected by just 5% of the sample.

Table 6 Workload, CPD days, class size and student behaviour (n=2,210)

Sample characteristics	%
<b>Q8 Current workload</b>	
Less than 30 hours per week	8%
30–39 hours per week	7%
40–49 hours per week	17%
50–59 hours per week	33%
60 or more hours per week	26%
Don’t know	9%
<b>Q16 Days spent on CPD over the last academic year</b>	
less than 5 days	29%
5–9 days	52%
10–14 days	13%
15 or more days	6%
<b>Q14 Class size (student numbers, or average student numbers if multiple classes taught)</b>	
Less than 20	6%
20–25	15%
26–30	60%
31–35	11%
N/A	7%
<b>Q15 Poor behaviour...</b>	
...from many students disrupts most lessons	2%
...from a few students disrupts most lessons	19%
...from many students disrupts a few lessons	3%
...from a few students disrupts a few lessons	44%
...is rarely a problem	29%
Not applicable	3%

### 3.4.2. Most respondents believe they are supported by school leadership and their peers

With regards to the school culture, most respondents (88%) positively rated the support they receive from peers and supporting staff (a rating of 3–5). We observe that the percentage for school leadership support is slightly lower, with 75% of the respondents positively rating the support they receive from school leadership (3–5). This percentage is even lower for the perceived support from Governors or academy trustees (68%), although it is acknowledged that these groups will be less involved in day-to-day operational issues.

Table 7 Respondents’ ratings on the support received from school leadership (row percentages)

Support received from	No support --> well supported						n/a
	0	1	2	3	4	5	
Governors or academy trustees	6%	9%	13%	23%	22%	24%	1%
School leadership	4%	8%	12%	23%	26%	27%	1%
Peers and supporting staff	1%	4%	7%	19%	35%	34%	0%

### 3.4.3. Over a third of respondents stated they would leave their current school in 2 years

Respondents were required to state their intended length of stay at their current school. Options ranging from less than 1 year to longer than 5 years were presented, along with the option 'I don't know'. We found that 36% of respondents stated they intend to leave in 2 years or less. Table B.2 (in Annex B) lists the cross-tabulation analysis of the relationship between the intended stay and respondents' characteristics. Below is a summary of the subgroup of teachers who were more likely to have a shorter 'intention to stay' (i.e. leave the school in less than 2 years), compared to the overall sample:

**Ofsted rating:** A higher proportion of teachers working at schools with Ofsted ratings of Grade 3 (requires improvement) or Grade 4 (inadequate) (47% and 53% respectively) stated that they intend to leave their current school in 2 years or less, compared to those working at outstanding or good schools (29% and 35% respectively).

**Flexibility of moving to part-time working arrangement:** teachers with little possibility of moving to a part-time working arrangement were more likely to state they intend to leave in 2 years or less (46%), compared to those who would find it possible or very likely to be able to move to a part-time working arrangement (35% and 26% respectively).

**School culture:** respondents who perceived themselves as being less well supported by school leadership and/or peers and supporting staff were more likely to want to leave in less than 2 years. More specifically, over half of the respondents who rated school leadership support as less than 2 (the relevant question was scored 0–5, where 0 is 'I get no support') stated they would leave in 2 years or less. A similar pattern is observed for support from peers.

**Teaching environment:** teaching environment has shown a significant impact on the intended length of stay. Over half of respondents who stated they would leave in 2 years or less rated student behaviour as being less satisfactory (i.e. they had chosen one of the first three options of question 15 about poor student behaviour in the classroom).

**Accommodation type:** teachers who currently reside in part-owned/part-rented and rented accommodation were more likely to want to leave their school in 2 years (10% of the sample). Presumably those who own outright or have a mortgage might feel more obliged to work/stay in the same location.

**Age:** younger (aged less than 34 years) and older (aged over 55 years) respondents were more likely to say they would leave the school in less than 2 years, with many in the latter group opting to retire. This is in line with previous research, which indicates that turnover is higher for younger and older teachers than it is for middle-aged teachers (Allen et al. 2012).

**Length of service as a teacher in total:** less experienced teachers (less than 5 years' service) or very experienced teachers (over 40 years) were more likely to want to leave in 2 years. Note the sample size is relatively small for those groups (6% and 1% respectively). Similarly, many within the latter group will probably leave because of retirement. This is consistent with previous evidence that shows turnover of very experienced teachers is likely explained by retirement, and younger teachers are more likely to quit, particularly in their first 5 years (Allen et al. 2012; Sibieta, 2018).

**Current job satisfaction:** respondents who gave lower job satisfaction ratings were more likely to say they would leave the school in the short term (less than 2 years) than remain 3 or more years, as shown in Table 8.

Table 8 Perceived job satisfaction and intention of length to stay in the current school

	Not satisfied at all --> Very satisfied											Total
	-5	-4	-3	-2	-1	0	1	2	3	4	5	
Less than 1 year	59%	28%	34%	25%	16%	20%	13%	11%	9%	7%	7%	15%
1–2 years	14%	21%	25%	32%	25%	28%	25%	21%	22%	13%	14%	21%
3–5 years	3%	15%	9%	14%	18%	17%	16%	23%	21%	26%	31%	21%
Longer than 5 years	3%	9%	5%	6%	7%	9%	13%	13%	19%	33%	37%	19%
I don't know	21%	26%	27%	23%	33%	25%	33%	33%	29%	20%	12%	25%
<b>Grand Total</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

### 3.4.4. The reasons for respondents' stated intention to stay (or leave) are varied

Respondents were asked to state the reasons for their intended length of stay. Almost all survey respondents chose to engage with this question, despite it being a free text question. We analysed the open text comments to identify the main themes.

Teachers who said they intend to stay for either 1–2 years, or less than 1 year, tended to give negative responses about their current position, so these were grouped together. Teachers who selected longer than 5 years tended to respond in a positive way, so this was analysed separately. Those who answered 3–5 years answered with a mixture of positive and negative reasons, hence, this was also analysed separately. Those who did not answer, or who answered 'Don't know' were omitted from this analysis.

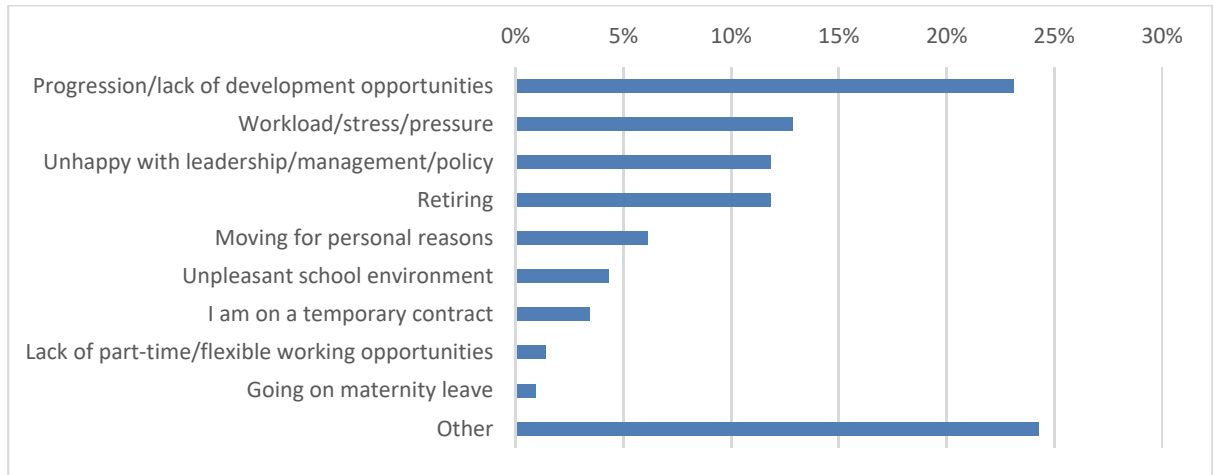
Figure 5 reports the main reasons people gave for wanting to **leave their position within the next 2 years** (36% of the sample):

- Almost a quarter (24%) cited 'Progression/lack of development opportunities' as the main reason for wanting to leave within the next 2 years. This captures respondents who feel they will need to move in order to get a promotion or to access better career opportunities.
- 13% cited 'workload/stress/pressure' as a reason for wanting to leave within 2 years. This includes teachers who are struggling to cope with the heavy workload, long hours and wider stresses of the job.
- Some respondents intended to leave because they disagree with decisions made by leadership, from subject leaders and headteachers, up to Ofsted and wider government policy (12%).
- 12% planned to retire.
- 6% planned to leave due to personal reasons such as moving to a new house and looking for a shorter commute.
- 4% cited an 'Unpleasant work environment'. This mainly encompassed bad pupil behaviour that made the school an unpleasant place to work.
- 3% wanted to leave because they are currently on a temporary contract.
- 1% wanted to leave their role because they cannot get the flexible or part-time working arrangements they desire.
- 1% will go on maternity leave.



- Many answers featured in the ‘Other’ category (24%), including: unintelligible answers, broadly negative responses that do not go into specifics, wanting a change or to try something new, and redundancy. None of these individually formed a large cluster.

Figure 5 Reasons for wanting to leave within 2 years (n=787)

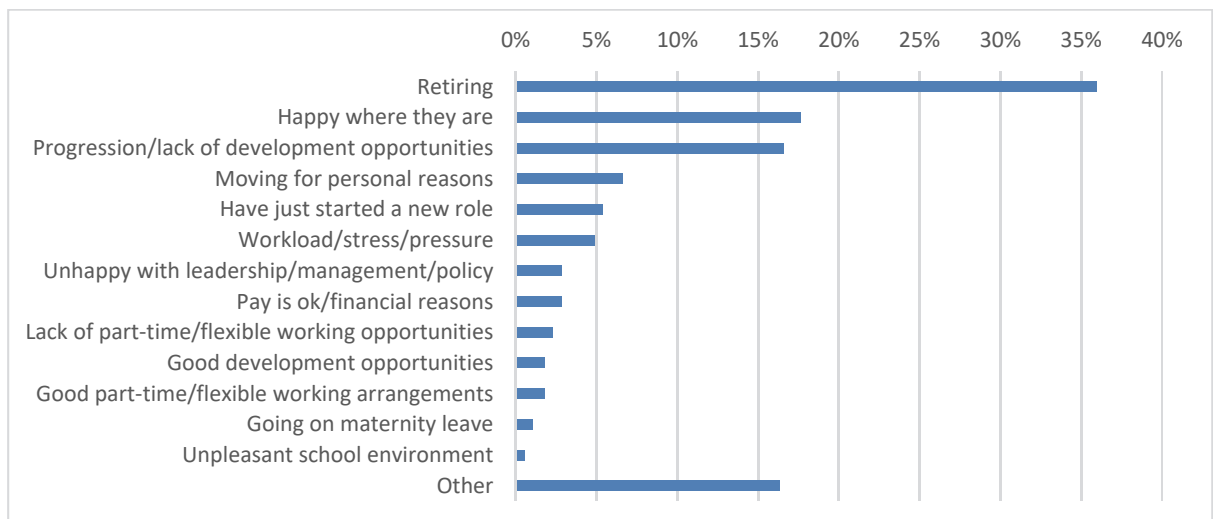


In summary, career progression, workload and school culture are the top three reasons that respondents are considering leaving their current school within 2 years.

Figure 6 shows the main reasons that people **selected 3–5 years’ time** (21% of the sample) – some of which indicate current satisfaction, whilst others indicate longer term aspirations:

- Retiring is the most popular reason for wanting to leave in 3–5 years’ time (31%).
- 15% are happy where they are.
- 14% want to leave in order to further their careers.
- 6% said they would move due to personal reasons.
- Some respondents had only just started a new role (5%), so want to give it a chance before considering a move elsewhere.
- Workload, being unhappy with leadership decisions and lack of part-time or flexible working opportunities all featured, but were each reported by fewer than 5% of respondents.

Figure 6 Reasons for wanting to leave in 3–5 years’ time (n=456)

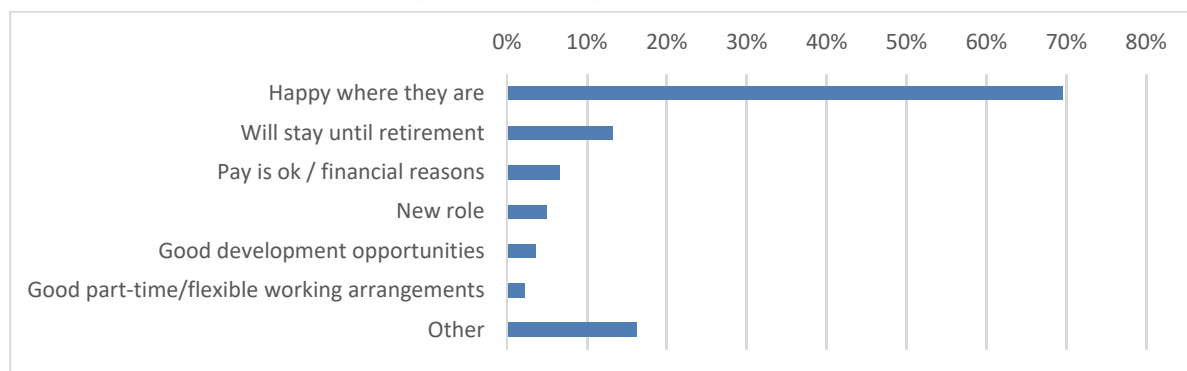


Overall, we observe that the reasons given in this category cover both ends of the spectrum that teachers would like to stay or would like to leave.

Figure 7 displays the main reasons people want to stay where they are for at **least another 5 years** (19% of the sample).

- The majority of respondents stated they are happy in their current position (60%).
- 11% said they are close to retirement. This includes people of all ages who stated they were happy where they were so would stay until retirement age, as well as those who could not be bothered with the hassle of finding another job.
- 6% wanted to stay for financial reasons. This includes people who are happy with the amount of pay, as well as those who wanted to leave but believed they could not afford to leave their current job. Some respondents did not particularly like where they were, but said that other schools would not be able to afford them.
- Some people had only just started their job (4%).
- 3% stated they would stay because of good career development opportunities.
- 2% liked their current job because they are able to work flexibly or part-time, with some adding they do not think they would be able to get this in most other places.

Figure 7 Reasons for wanting to stay for at least 5 years (n=424)



In summary, we analysed the open-text responses provided by respondents on the reasons given for their intended length of stay.

**Reasons to stay longer:** enjoy their career, close to retirement, financial reasons, new role, good development opportunities, part-time and flexible working arrangements.

**Reasons to leave:** lack of progression opportunities, heavy workload/no work-life balance, school culture (including lack of support, bad communication, poor student behaviour), the desire to try something new.

## 4. Choice model analysis

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This section presents:

- An assessment of the ability of respondents to engage with the choice experiment;
- The findings that follow from our modelling of the responses to the DCEs; and
- The model in use to forecast the outcomes of different policy scenarios.

### 4.1. Respondents engaged with the choice experiment

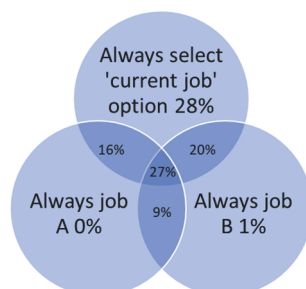
#### 4.1.1. Analysis of patterns in the responses from each individual

Firstly, we examined the extent to which respondents appear to have been sensitive to the variation in the choices offered, and as a result, whether they selected different alternatives contingent upon what was offered, or whether they consistently chose the same alternative.

In the first choice experiment, 7% of respondents always selected the same options (Option A or Option B) across the five choices offered. The trading behaviour for the second choice experiment is shown in the Venn diagram in Figure 8. Across the five choices offered, 28% of respondents always selected the 'Remain in the current job' option, regardless of the choices on offer, whereas 9% of respondents always chose one of the new job options across all five choices. In total, 63% (=16 + 20 + 27) of respondents switched between choosing 'Remain in the current job' and the new job options in their choices, contingent upon the specification of the new job options. We kept all of the observations (including those non-trading ones) in the models, as in many cases these could reflect respondents' real preferences.

This behaviour shows that the attribute combinations being presented in the choices led to differences in choice behaviour. This suggests that the relevant choice space is being investigated, and the data being collected will allow an understanding of how these attribute levels influence choice behaviour.

Figure 8 Choice behaviour in the second DCE (n=2,210)



We also examined the time spent on the main survey. Most respondents (around 80%) finished their survey in 5–20 minutes, with an average completion time of 13.7 minutes (when omitting the extra-long completion times).<sup>12</sup>

Table 9 Survey completion time

Time spent on the survey	TT	NFER	Overall
0–5 mins	0%	1%	1%
5–10 mins	27%	29%	29%
10–15 mins	43%	37%	39%
15–20 mins	16%	15%	15%
20–30 mins	11%	10%	10%
Above 30 mins	4%	8%	7%
Average (extra-long responses removed)	14.0	13.6	13.7

#### 4.1.2. Most respondents felt able to make the choices

Following the choice experiments, we included some diagnostic questions to explore respondents’ perceived difficulty in making the choices. 86% of respondents said they could make the choices. Compared to our previous experience with similar surveys, we judged that this is encouraging.

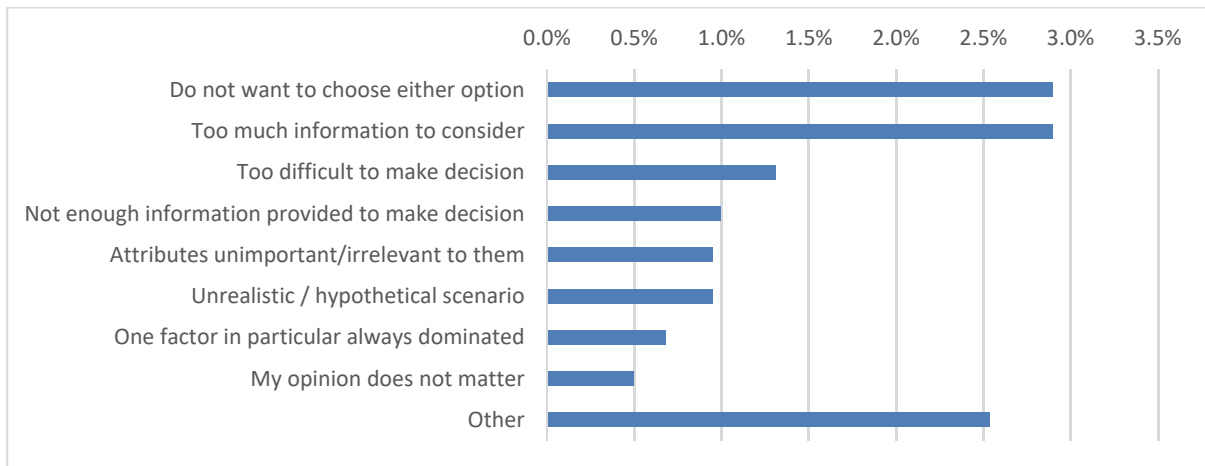
For respondents who stated they could not make the choice, we analysed the reasons that people felt unable to make the choices (14% of the overall sample, n=303), as shown in Figure 9.

- About 2.9% of all respondents did not want to choose either of the options presented to them. Some people said they did not like either of the options more than their current position, so did not want to make a choice.
- 2.9% said they struggled to understand what was being asked because there was too much information provided. Some responses said the choices could be made simpler.
- 1.3% felt it was too difficult to decide between the options.
- Some respondents felt there was not enough information provided about the schools in order to make an informed decision (1%). A few of the responses stated that the attribute levels were too vague.
- 1% said the attributes included in the choice experiment were not important to them. Location of the school, staff morale, resources and support from colleagues were suggested factors that should have been included.
- Some respondents felt that the attribute levels were unrealistic (1%).
- 0.7% of respondents stated that one factor always dominated above any others, so they never really made a trade-off.
- 0.5% said their opinion did not matter.

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<sup>12</sup> When calculating average completion time, we removed the records with a longer completion time than 4 hours (240 minutes), to avoid longer completion time distorting the average completion time. However in the choice models, we kept all the records in the model development.

Figure 9 Why did you feel unable to make the choices?



## 4.2. Discrete choice models were developed to understand the teachers’ preferences

We developed choice models to explain the choice behaviour of respondents regarding a range of different aspects of pay and employment characteristics, and how these preferences differ between groups in the population. The model is based on 22,100 choice observations, collected from 2,210 teachers. A wide range of background characteristics was tested to identify whether certain subgroups appear to exhibit differences in their responses. Annex C presents details of the theory underpinning the DCEs and the steps undertaken during the model development, and the model results.

We tested a wide range of factors that could affect respondents’ preferences on each attribute, including their socio-economic characteristics, current employment characteristics and aspects of the experimental design. (A detailed discussion of the factors being examined is presented in Annex C.) Only the factors that are statistically significant are presented here. There might be correlations among a few background questions, for example, role of teacher (Q11 – screening question), length of service as teacher in the current school or in total and age. For instance, in the current sample, over 95% of the headteachers (including deputy headteachers and assistant headteachers) stated they had worked for over 10 years as a teacher in total, and over 93% of them stated their annual household income is above £50,000. To avoid potential correlations in the impact of background questions, we undertook systematic tests to ensure the most significant impact factor was identified.

Below we summarise the findings from the choice models.

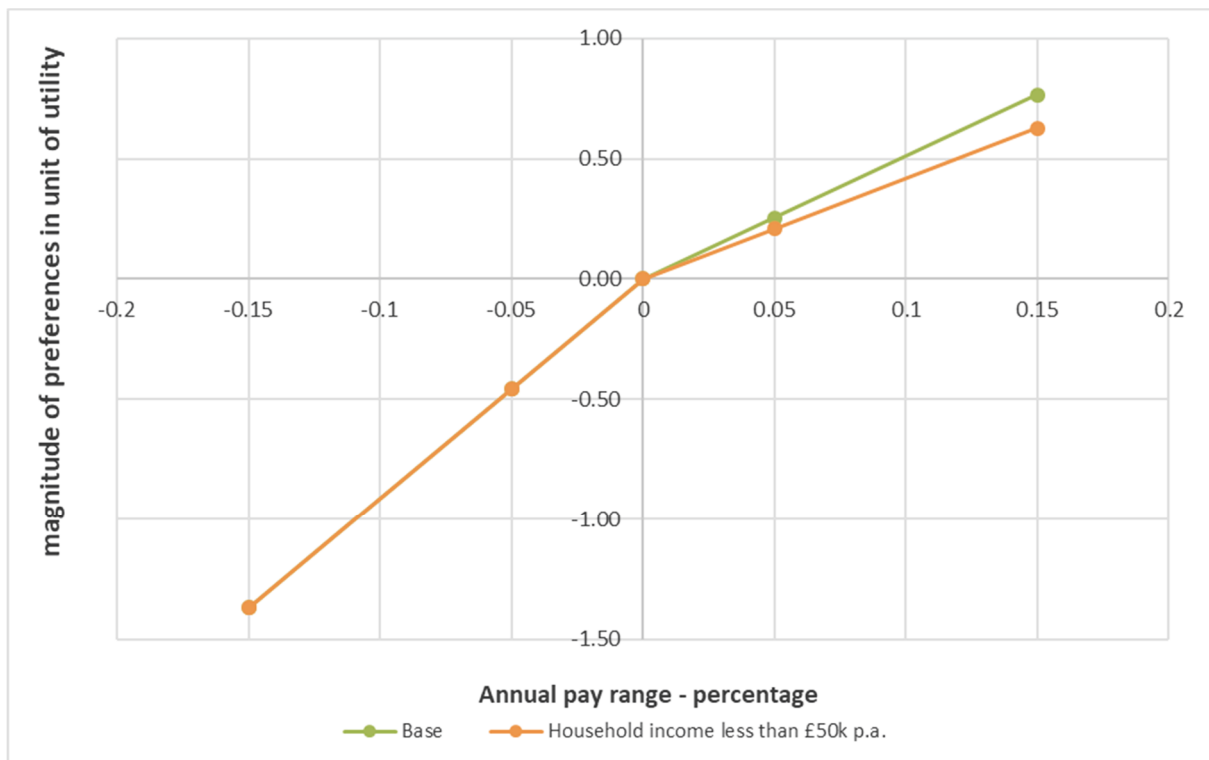
### 4.2.1. Respondents valued a pay increase differently to a pay reduction

We tested the respondents’ sensitivity to annual pay and found that a piecewise linear relationship<sup>13</sup> can best interpret the choice behaviour. The function is defined by two sub-functions that each apply to a certain interval of the main function, as shown in Figure 10. This function format is utilised to best capture the asymmetric manner in which respondents value their loss and gain perspectives with regards to annual

<sup>13</sup> A piecewise linear function allows points of inflection where the gradient changes but without a discontinuous step.

pay changes. A steep slope is found for the pay reduction (from 0 to -15%), which implies that within this interval, respondents show a higher penalty for a pay reduction. The slope then flattens slightly after the 0% change, indicating that whilst respondents prefer annual pay increases, the relative sensitivity of this compared to pay decreases is lower, i.e. they are more sensitive to decreases than increases in pay. These empirical findings are in line with Prospect Theory (Kahneman and Tversky, 1979), which finds that individuals assess their loss and gain perspectives in an asymmetric manner (i.e. losses are valued more than gains, in terms of the absolute size of the utility measure). People are more averse to losses than they are appreciative of gains.

Figure 10 Relative preferences for annual pay (percentage change)



Not surprisingly, teachers showed preference for the options with higher pay. This finding is in line with the previous literature. According to the findings from the TALIS survey (Jerrimand and Sims, 2019), 49% of primary school teachers and 54% of lower-secondary school teachers are satisfied with their pay, meaning approximately half of teachers are not satisfied with their level of pay, indicating a desire for pay increases. There is evidence that low pay is a contributing factor to teacher retention issues (Ofsted, 2019).

From our model, we found respondents who stated that their household income was less than £50,000 or did not state their income had a slightly lower sensitivity towards the pay increase options (the interval between 0–15%), compared to those whose household income was £50,000 or above. One possible reason could be that at lower income levels a percentage increase is worth less in cash terms. As shown in Figure 10, the green line (named 'Base') shows the average utility weight<sup>14</sup> for the overall sample, and the orange

<sup>14</sup> The absolute magnitudes of the coefficients do not have a direct interpretation, but show relative magnitude of the coefficients in relation to each other. For a given attribute, the relative size of coefficients (i.e. utility weight) indicates the order of the preference magnitude. For example, a coefficient of 0.4 means that the preference for a particular

line shows the utility weight for the teachers whose annual household income is less than £50,000. Within the interval range (-15% to 0), the utility weight is the same for teachers across different income groups (i.e. exactly the same line, so only one line is visible on the chart in this negative pay-change interval), whilst in the range (0 to 15%), i.e. pay increases, teachers with a lower household income are slightly less sensitive to the pay change than those on higher incomes. While this seems counter-intuitive, this may be because the increases are described in percentage terms, so in practice would result in lower absolute money increases for those on lower incomes.

From the background questions, this subgroup consists of a relatively higher proportion who work part-time or come from a single adult household, which may influence their slightly lower sensitivity to changes in their level of earnings.

For the pay attribute, we compared models that distinguish sensitivity to pay increases according to the length of service in the current post, role of the teacher and age, as well as household income bands. We found that only the household income bands showed a statistically significant impact on the pay increase. In other words, we did not identify that early career teachers have a different sensitivity to changes in pay compared to those who have worked for longer.

#### 4.2.2. Relative values are used to measure the trade-off between pay and employment characteristics

In the following sections, we discuss teachers' preferences for different rewards and employment characteristics that influence their retention choices. In discrete choice models, the absolute magnitudes of the coefficients do not have a direct interpretation but rather it is the relative magnitude of the coefficients in relation to each other that is meaningful. Therefore, we used relative values (coefficient estimated from the model relative to the coefficient of the annual pay increase attribute) here to show the magnitude of the preferences for different reward and employment characteristics. For example, if the relative value of a move to a particular attribute level is 0.5, this indicates that the change of this attribute level from the reference level has the same influence on choice behaviour as a 0.5% increase in annual pay.

In general, when the relative value is greater than zero, the move to that particular attribute level is preferred relative to the reference level (where the value is set to zero). Similarly, when relative values are less than zero, this means that respondents were 'averse' to the move to that particular attribute level, again when compared to the reference level from which this has been measured.

#### 4.2.3. Respondents were averse to losses in pension and increases in workload

Figure 11 shows the values of pension and workload changes relative to increases in annual pay. Note that we used the coefficient for increases rather than decreases in pay to calculate the relative values, on the basis that the context for this work is in part to understand how changes in other aspects of the employment offer are traded off against increases in salary. The values were calculated for teachers in higher (household income

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attribute level relative to the reference level of that attribute is stronger than the preference for a different attribute level where the coefficient is, say, 0.2.

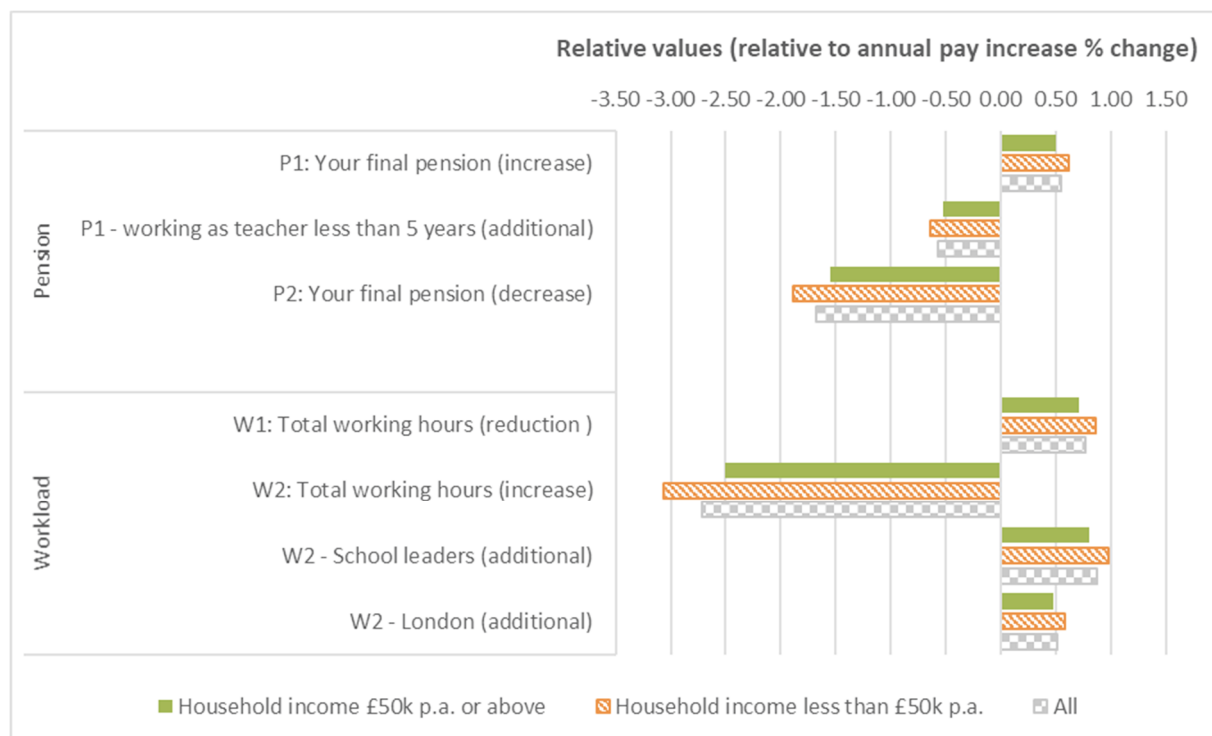
more than £50,000 p.a.) and lower (household income less than £50,000 p.a.) income groups respectively. In addition, we also presented the average values across all of the teachers in this study.

**Increases in final pension were valued positively.** A 1% increase in final pension was valued equivalent to a 0.5% increase in annual pay; whilst each percentage reduction in final pension was valued negatively and would require a 1.7% increase in annual pay to compensate. This shows that respondents are more sensitive to decreases than increases in pensions. This mirrors our findings with respect to pay, demonstrating that people are more averse to losses than they are appreciative of gains (Kahneman and Tversky, 1979).

Additive covariates were added to the model to capture the differences in preferences between different subgroups within the survey sample. We tested a wide range of the factors that could influence teachers' preferences on job characteristics, including their current job characteristics (role, type of school, length of service, subject of teaching, school characteristics) and their socio-economic characteristics (age, gender, household income, household structure, etc.). A detailed discussion of the factors and the test process is included in Annex C.2. Only factors that are statistically significant (above 90%) are presented here.

We identified that early career teachers (teachers who have worked in total for less than 5 years: 7% of the total sample) are indifferent to increases in pension, compared to other groups of teachers. As shown in Figure 11, the overall value of pension increases for early career teachers is very close to 0 ( $= -0.57 + 0.55$ ).

Figure 11 relative values for pension and workload change



This finding is in line with research from Thaler & Benartzi (2004) who find that individuals who are further away from retirement tend to value immediate consumption more than future consumption, compared to those who are closer to retirement. Hence, they value pension contributions less than those who are closer to retirement. As with many other public sector pension schemes, teacher pensions are viewed as being fairly generous (DfE, 2019a).



**Workload reduction is welcomed by respondents.** On average, a 1% reduction in workload was valued equivalent to a 0.77% increase in annual pay. Increases in workload were valued very negatively by respondents, with each percentage increase in workload requiring an increase of 2.72% in annual pay to compensate, indicating that respondents strongly disliked options that increased their workload. Indeed, from our evidence review and the analysis of the survey background questions (see section 3.4.4), working hours and work-life balance have been listed as some of the most important reasons for teachers leaving the professions (DfE, 2018a).

We found some variations in preferences by different subgroups of teachers:

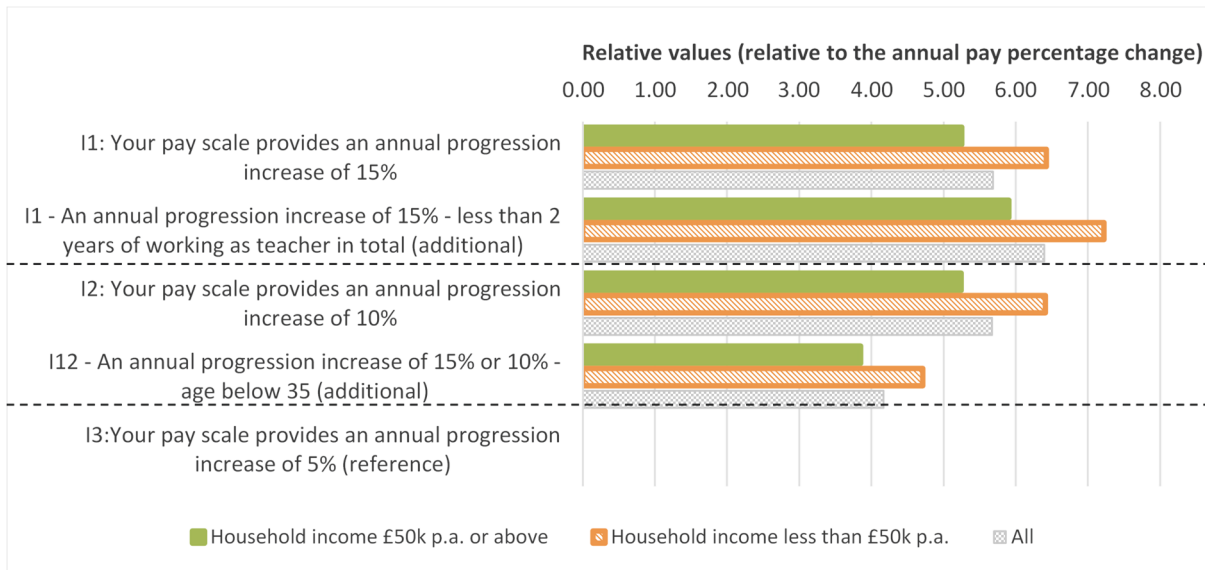
- School headteachers (including deputy and assistant headteachers) are less sensitive to increases in their workload (27% of the total sample).
- Teachers who work in London are slightly less sensitive to increases in their workload (13% of the total sample).

#### 4.2.4. Respondents prefer larger pay-scale steps and a quicker rate of pay progression, but are less sensitive to the total number of steps within the scale

As shown in Figure 12, respondents prefer larger pay-scale steps, all else being equal. This is intuitive, as a large pay-scale step implies a larger pay rise. Interestingly, the preference for pay-scale steps of 10% (valued equivalent to an increase of 5.67% in annual pay) is slightly lower (though not statistically different) from that of the pay-scale step of 15% (valued equivalent to an increase of 5.69% in annual pay). This indicates that respondents prefer to have a larger pay-scale step, but are less sensitive to the level of the step from the 10% increase onwards. This may be partially explained by the law of diminishing marginal utility: additional income positively impacts utility, but each additional unit increase corresponds to a smaller effect on utility (Dittmer, 2005).

We found that teachers who have worked less than 2 years as teachers in total (2% of the total sample) and respondents aged below 35 (19% of the total sample) placed additional value on the pay-scale steps, adding the equivalent of 6.39% and 4.17% to the value in terms of annual salary. It should also be noted that these are additive terms, so for younger early-stage teachers the value placed on each pay step approaches parity with the value placed on increase in annual salary. Respondents with lower annual household income are more sensitive to the progression increase relative values (with their focus appearing to be more on this issue of progression than overall change in the level of their base pay). This finding is in line with the study by Jerrimand and Sims (2019), based on the analysis of TALIS, which shows that early career teachers (less than 5 years' experience) are less likely to be satisfied with their pay than more experienced teachers.

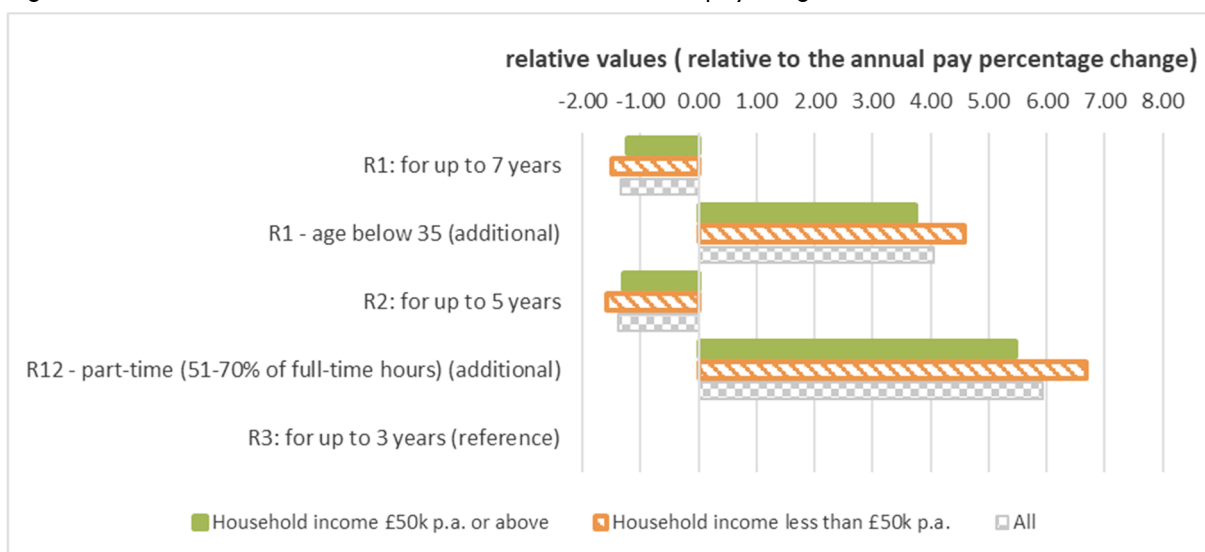
Figure 12 Relative values for size of pay-scale steps



As shown in Figure 13, with regards to the **number of steps in the pay range**, from our choice models, the values are not statistically significantly estimated, indicating that respondents are less sensitive to the number of years over which their salary would progress, all else being equal. However, both of the options with more years (i.e. for up to 7 or 5 years) are negatively estimated, compared to the baseline level (up to 3 years), which indicates respondents prefer a smaller number of years to go from the pay range minimum to the pay range maximum. This indicates teachers, on average, prefer to progress from the minimum to maximum of the pay range in fewer years, all else being equal. This is consistent with the preference for larger pay-scale steps.

We find young teachers (aged 35 and below: 19% of the total sample) and those who work part-time (9% of the total sample) prefer a higher number of the years over which increases will occur.

Figure 13 Relative values for the number of increases within pay range

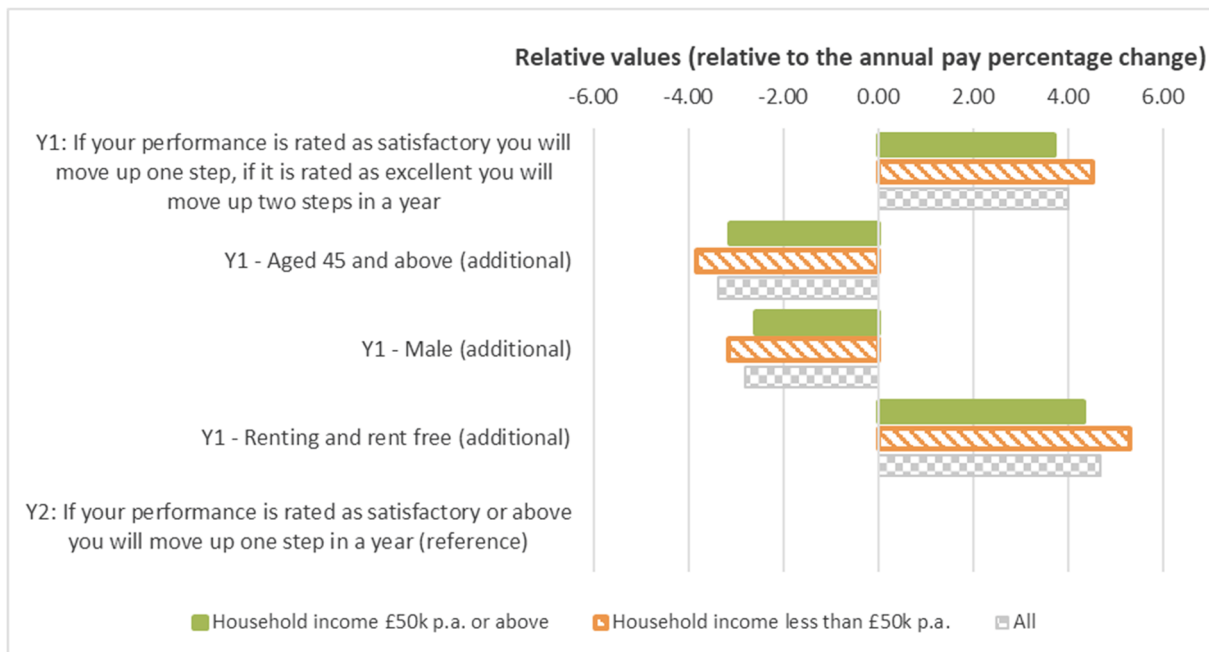


As shown in Figure 14, we found that respondents prefer excellent performance to accelerate the speed of moving up the pay scale (with an additional step awarded for excellent performance being valued equivalent

to a 4% increase in annual pay), compared to a normal speed where they move up one step in a year if performance is rated as satisfactory or above.

We observed some variation in preferences towards performance-related pay progression, with respondents aged 45 and above (45% of the total sample) and male teachers (29% of the total sample) being less keen on this option. Teachers who state they stay in rented or rent-free places (10% of the total sample) had a stronger preference towards performance-related progress. It should be noted that all of these modifiers are additive, so in some cases (e.g. male teachers over 45 years of age, who are homeowners and work in cities outside London) a significant preference against performance-related pay progression could be observed.

Figure 14 Relative values for whether performance accelerates pay-scale progress



The earlier literature review found that a performance-related pay system shows mixed evidence on its impact of attracting and retaining teachers. This is mirrored in our finding that there are differences in the value placed on performance-related pay progression.

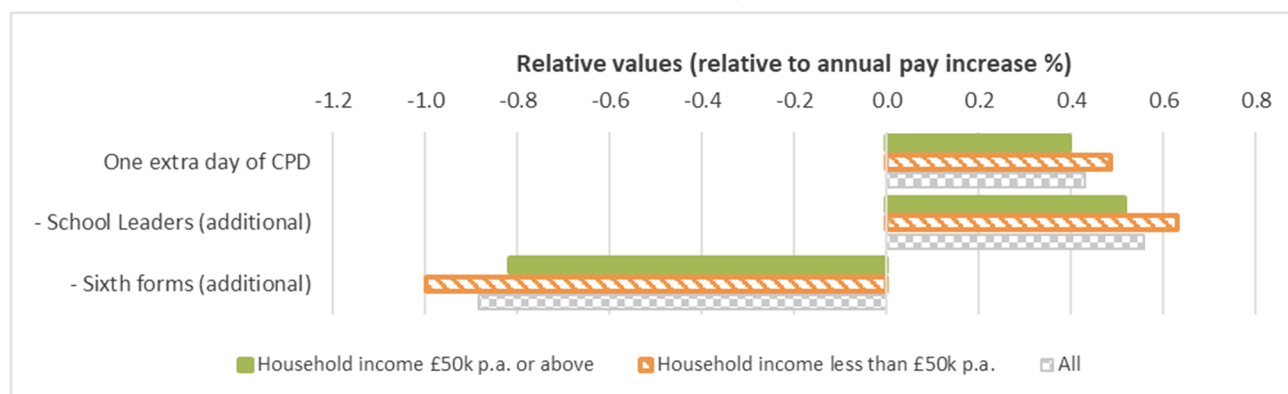
#### 4.2.5. Respondents prefer more CPD days and CPD training at school with all staff

As shown in Figure 15, respondents showed a preference for a higher number of CPD days. A 1-day increase in overall CPD days is valued as equivalent to a 0.43% increase in pay. Headteachers and leading practitioners (33% of the total sample) showed a stronger inclination towards more days of CPD compared to the rest of respondents. Interestingly, sixth-form teachers (12% of the total sample) showed a negative view regarding the increase in CPD days. This might be because the sixth-form teachers in the sample are more experienced teachers – 57% of the sixth-form teachers were ‘Qualified teacher (upper pay range)’. This finding is in line with the study by Jerrimand and Sims (2019), who found that based on the results from TALIS, less experienced teachers attend substantially more CPD days than experienced teachers, which may explain the differing appetites for extra CPD days.

In the literature review, professional development was identified as an important retention factor (Kraft and Papay, 2014). The provision of CPD days indicates a more collaborative culture and higher valuing of staff,

hence staff are more likely to feel engaged (DfE, 2015), particularly for teachers at the beginning of their career when more development support is needed (DfE, 2019a). From the analysis of the background questions, good development opportunities have been rated as one of the most important reasons for respondents to stay longer in their current post. The choice model analysis is consistent with the previous evidence, and advances it further by quantifying the magnitude of relative importance of CPD days.

Figure 15 Relative values for CPD activities (total number of days)



We found that respondents preferred to spend their CPD days at school with all the staff, rather than on their own and out of school.

#### 4.2.6. Respondents prefer the flexibility of potential part-time arrangements

With regards to **flexibility in working hours**, as shown in Figure 16, respondents preferred the flexibility of being able to change to a part-time arrangement. On average, compared to the option of ‘very little possibility to move to a part-time arrangement’, the option of ‘possible to move... but only if you meet certain conditions’ was valued equivalent to a 1.79% increase in annual pay, whilst the option of ‘very likely’ was valued at a 4.34% increase of annual pay. This reinforces the earlier reported finding (in section 3.4.4) that part-time working/flexible working hours were one of the most prominent factors reported by respondents as influencing the choice to stay in their current post, albeit only 22% of respondents stated it is very likely to be able to move to a part-time working arrangement if requested. More particularly, respondents with the following characteristics showed a higher preference towards the flexibility:

- Those who currently have a part-time working arrangement (less than 70% of FTE hours; 13% of the total sample);
- Respondents from non-white ethnicity groups (8% of the total sample); and
- Those who are teaching a small class (less than 25 students; 22% of the total sample).

The literature review shows that teachers want more flexible working opportunities to enable a better work-life balance and to help with family and care responsibilities (DfE, 2018c).

Previous evidence shows that gender and household composition have some impact on teachers’ preferences for part-time and flexible working arrangements. With the existing evidence appearing rather mixed as to who serve longer tenures, Worth et al. (2017) find women are much more likely to request part-time work. Other research (DfE, 2019b) finds that teachers with children are more likely to request part-time working in order to cope with childcare responsibilities.

We were not able to identify any significant differences in part-time working preferences by gender or household composition in the choice models. The only factor relevant was, not surprisingly, that people who currently work part-time have a higher preference for a part-time working arrangement. We analysed the characteristics of those teachers who reported they currently have a part-time working arrangement and found that nearly 30% of female teachers are currently in a part-time working arrangement, whilst only 10% of male teachers are, as shown in Figure 17. Regarding household composition, teachers who reported they have children are more likely to have a part-time arrangement (28%) compared to those who do not have children at home (16%). However, the differences are not significant.

Figure 16 Relative values for flexibility of part-time arrangement

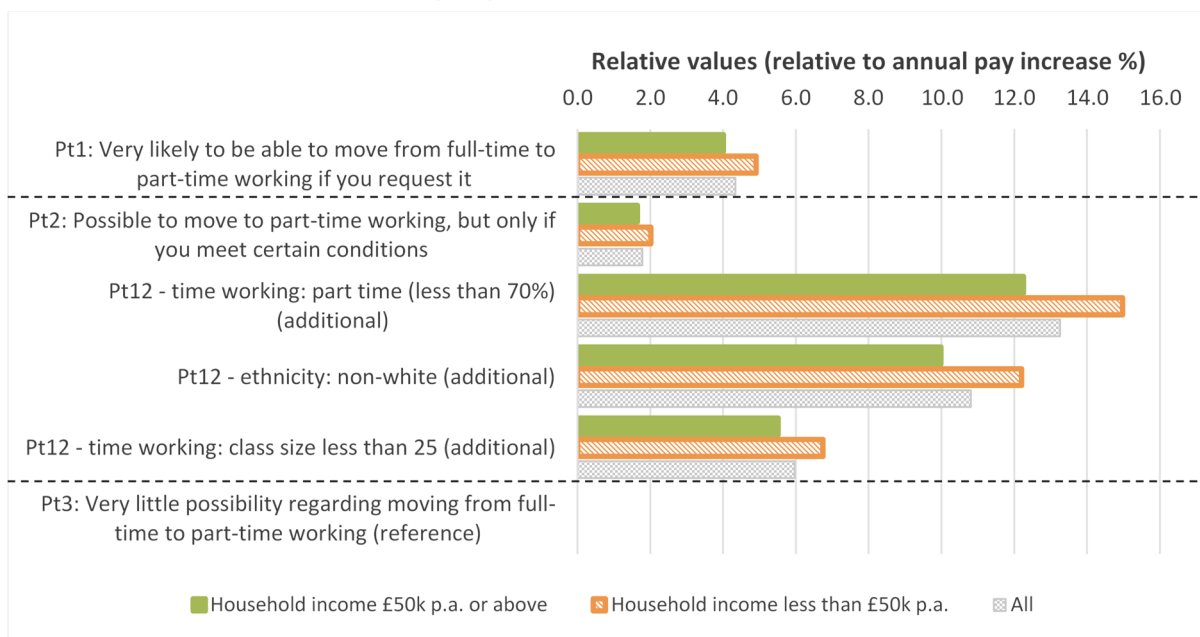
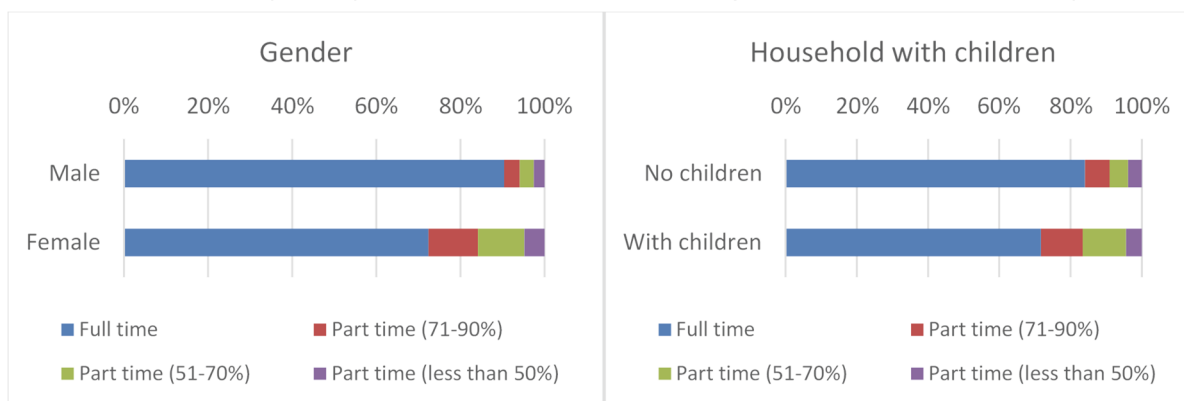


Figure 17 Teachers' reported part-time working arrangement by gender and household composition



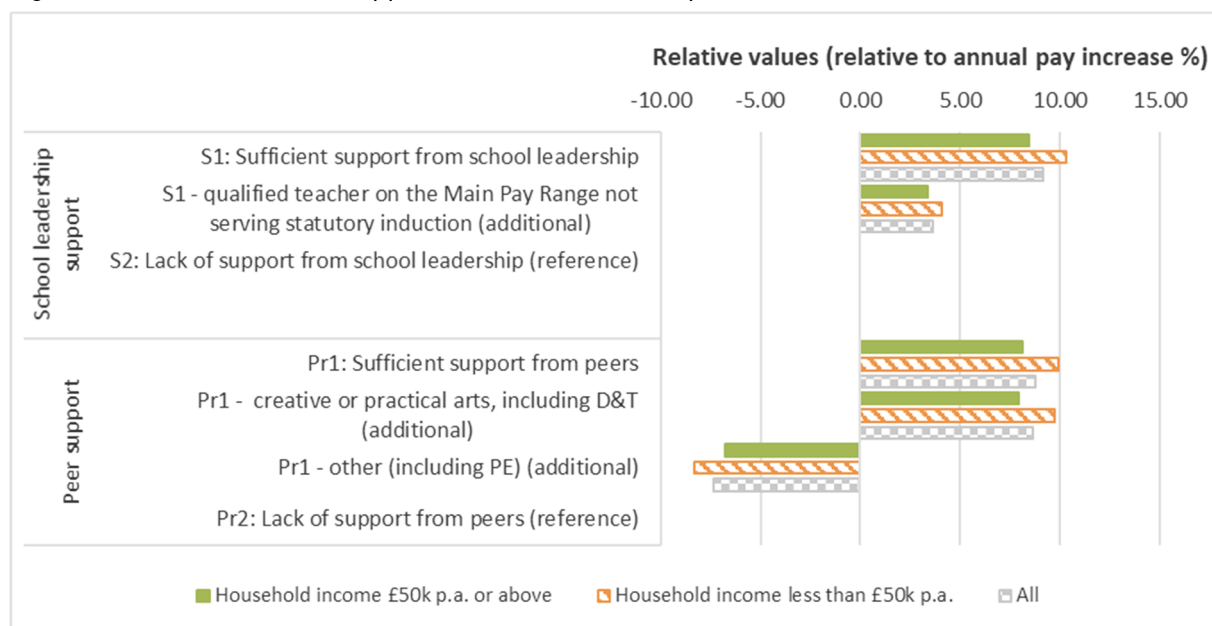
#### 4.2.7. Respondents prefer posts with support from school leadership and peers, and show strong disinclination towards poor teaching environments

Figure 18 shows that respondents preferred posts that offer support from school leadership and peers. On average, the value associated with support from school leadership and peers is equivalent to a 9.14% and 8.8% increase in annual pay respectively, compared to cases where there is a lack of support. More

specifically, ‘qualified teachers on main pay range but not serving statutory induction’ (14% of the total sample) – mostly early career teachers<sup>15</sup> – had a higher level of preference for support from school leadership compared to the rest of the sample. Teachers who stated their subjects as ‘creative or practical arts, including D & T’ (5% of the total sample) placed more value on support from peers than others. Respondents who reported their subject as ‘other’,<sup>16</sup> i.e. less mainstream subjects (5% of the total sample) showed less preference for peer support compared to the rest of the sample. This is not surprising as they are less likely to be part of a larger department or cluster, so may feel less need for, or expectation of, peer support.

Our findings align with previous evidence that indicates school culture is a key factor affecting teachers’ decisions to leave their jobs. For instance, earlier literature (Skaalvik and Skaalvik, 2010; Scutt, 2019) reports that a collaborative and supportive environment improves teacher retention. Our model results also show congruence with the earlier background question analysis of the stated reasons for intending to leave, in which we found that one of the more frequently stated reasons for respondents to leave their current post was poor school culture. Our findings take this further by quantifying the impact of a supportive environment on teachers’ retention choices, relative to the pay increase.

Figure 18 Relative values for support from school leadership



With regards to the **teaching environment**, five levels of student behaviour were included in the choice experiment. The increase in the attribute level from 1 to 5 represents poor student behaviour getting increasingly severe. The choice modelling result found that compared to the best behaviour option ‘L1: poor behaviour is rarely a serious problem’, the levels relating to more problematic student behaviour were

<sup>15</sup> Our background analysis shows that this group of teachers is younger (nearly 60% aged less than 35) and working less than 10 years as teachers in total (71%).

<sup>16</sup> The survey collected the information on the subjects that teachers are currently teaching. The ‘other’ category captured the other subjects not included in the options, such as multiple[primary], Maths, English, Language, Science, Arts etc. (see Annex A, Q10 for more details).

valued negatively by respondents. This confirms that when considering the choices, on average the teachers preferred environments with better student behaviour.

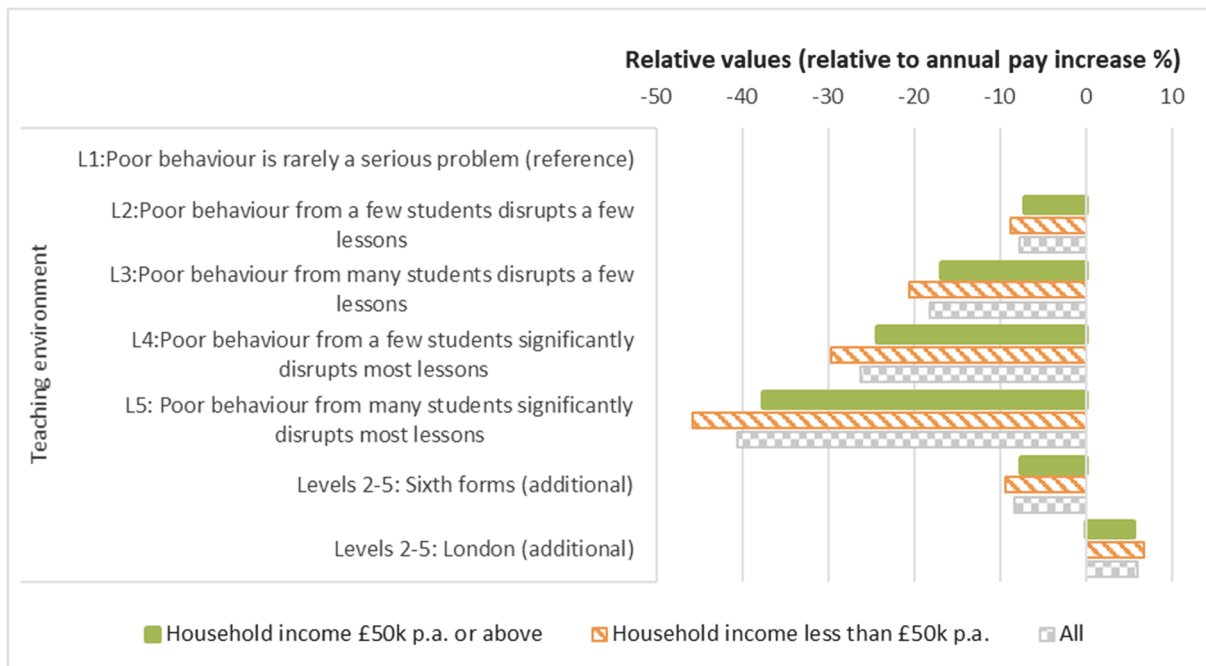
This attribute can have a major influence on retention outcomes. For example, our model suggests that moving from a situation where ‘poor behaviour is rarely a serious problem’ to a role where ‘poor behaviour from a few students significantly disrupts most lessons’ would, on average, require an increase of 40.6% in annual pay to compensate.

We identified a range of variations in preferences by respondents’ characteristics, impacting most attribute levels:

- Teachers in London (12% of the total sample) had a higher tolerance for poor student behaviour (levels 2 to 5 of the attribute). They still preferred situations where ‘poor behaviour is rarely a serious problem’, but they were more accepting of poor behaviour than teachers from other areas.
- Sixth-form teachers are less tolerant of poor behaviour, and our model incorporates an additional term that accounts for the additional premium they place on avoiding these conditions.

The literature shows that poor behaviour leads to higher workloads for teachers, higher levels of stress and reduced well-being levels, which negatively affects teacher retention (DfE, 2018a; Williams, 2018; Ofsted, 2019). Our study aligns with the previous evidence that improving poor behaviour would improve teachers’ retention. From the relative values, teaching environment shows the greatest impact of any single attribute when taken in isolation, and reveals its importance in influencing teachers’ retention.

Figure 19 Relative values for teaching environment





#### 4.2.8. Teachers show a strong preference to ‘remain at the current post’, with variations in their preferences

We examined whether teachers prefer to stay in their current post and show less propensity to choose the other jobs offered in the choice experiment. The model analysis shows that respondents demonstrate a strong preference for their current job over moving to a new job in the choices offered (all else being equal). The ‘Remain in the current post’ (i.e. ‘as now’ constant in the model term) suggests that a 15.3% pay increase would be required to encourage those on higher incomes (more than £50,000 p.a.) to move to an otherwise identical job, and a 18.7% pay increase for those with a lower household income.

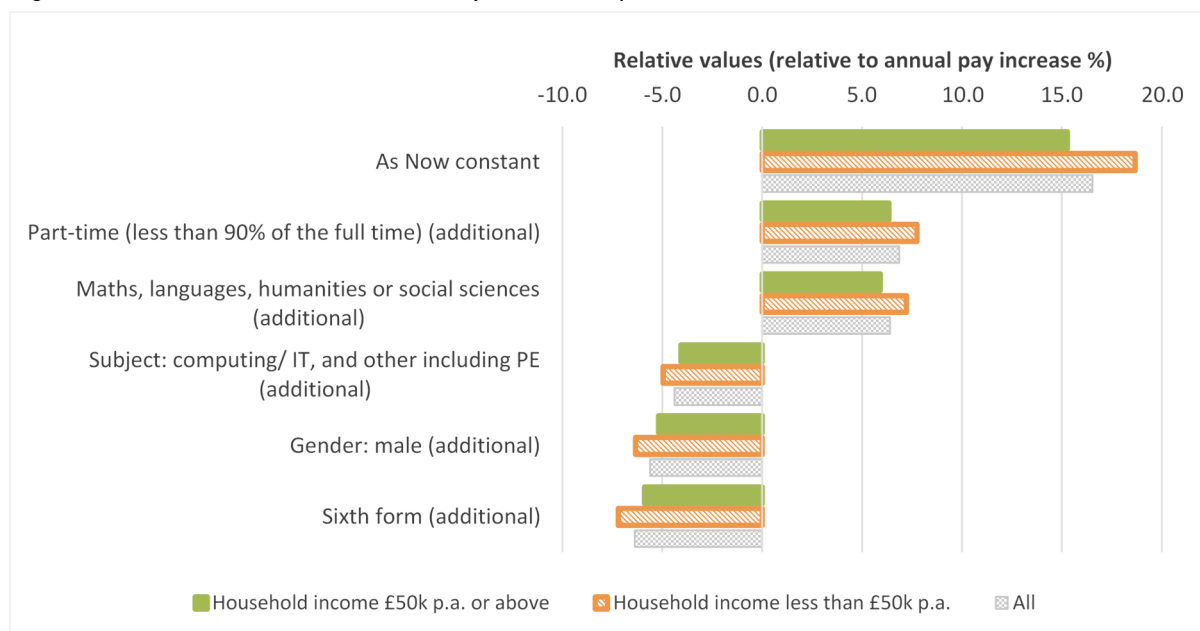
From the earlier background question analysis (see Section 3.4.3), we found 40% of the respondents stated they would like to stay in their current school for 3 years or more. In the trading analysis (see Section 4.1.1), 28% of respondents selected ‘Remain in the current post’ across all of the five choice tasks in the experiment, no matter what configuration of other alternatives was offered. In summary, teachers prefer to stay in their current job over moving to a new identical job. This is consistent with the DfE workforce census (DfE, 2019c), in which the 1-year retention rate is reported to be 85% and the 5-year retention rate is 68%, which indicates over two-thirds of teachers will stay in their current post over this time frame.

However, our analysis reveals that retention becomes more challenging when all else is not equal.

There are also differences in the strength of preference for the status quo between subgroups. As shown in Figure 20, compared with the average, teachers with the following characteristics have a stronger preference to remain in their current post:

- Those in part-time posts (less than 90% of full-time hours; 22% of the total sample); and
- Maths, languages, humanities or social science teachers (27% of the total sample).

Figure 20 Relative values for ‘remain in your current post’



Compared with the average, teachers with the following characteristics were more likely to opt to leave their current post for one of the new jobs offered:

- Teachers whose subjects are computing/IT and ‘other’, including PE (8% of the sample);
- Male teachers (29% of the total sample); and
- Sixth-form teachers (12% of the total sample).



These terms are additive, so cumulatively can lead to large preferences for staying with the status quo in some cases, and quite weak preferences for doing so in others. For example, female part-time teachers (less than 90% FTE) whose subject is Maths (or a language or humanity or social science) had a higher preference of staying in the current job, relative to male counterparts. Those in this grouping who were on a higher income (more than £50,000 p.a.) would require a 27.5% pay increase to encourage them to move to an otherwise identical job ( $27.5 = 15.3 + 6.3 + 5.9$ ).

### 4.3. Using the model for policy analysis

#### 4.3.1. Policy scenario forecasting

The choice model output can be used to forecast the uptake of a specified employment package or set of policy interventions (for instance, pay increase or improving CPD opportunities) by using a sample enumeration approach. This entails calculating the probabilities that each of the respondents in the sample will choose a given package if it were offered (compared to their current employment situation). The probabilities are then summed over the sample to provide estimates of the demand for the employment package offered. We used this approach to undertake indicative scenario runs with our choice model to forecast the relative influence that a range of different policy interventions could have on the retention of teachers in current posts.

In the sampling process for a survey some groups may be over- or under-represented compared to the actual teaching population from which they have been drawn. In the forecasting process we applied weights to individuals in the sample in order to produce forecasts that more closely represent those that would be expected from the teaching population in England. The weights are calculated based on age, gender and respondents' role in schools (see Annex C.5 for more details).

Our scenario forecasts consider how the probability of choosing a given post changes as the attribute levels are changed. Different characteristics and policies may make an alternative job more or less attractive than the current role.

The baseline situation is shown in Table 10. We constructed a choice between the current job and a new role. The current job's characteristics are based around each respondent's self-reported situation. For the new role, we started by taking a baseline which is identical to the job characteristics reported by respondents. More specifically:

- For both current and new jobs, we defined the pay, pension and workload as 'same as now'.
- For both current and new jobs, the baseline attribute levels for the development opportunities, part-time working, leadership and teaching environment attributes were based on each respondent's self-reported situation.
- For the pay progression attributes, we did not collect the baseline information from respondents, so we defined a consistent base level for these for both the current job and new job options.<sup>17</sup>

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<sup>17</sup> We could potentially have linked the pay progression to the individual based on their role in school. However it was judged that the pay scales for different roles are very complicated, especially for leadership group (for more information, see NASUWT, n.d.a).

Table 10 Summary of baseline situation

	<b>Remain in your current post</b>	<b>New Job (identical in all job characteristics)</b>
<b>Pay</b>	Your annual pay is the same as now	Your annual pay is the same as now
<b>Workload</b>	Total working hours remain the same as now	Total working hours remain the same as now
<b>Pension</b>	Your final pension will be the same as now	Your final pension will be the same as now
<b>Pay progression</b>	Your pay scale provides an annual progression increase of 5%	Your pay scale provides an annual progression increase of 5%
	For up to 3 years	For up to 3 years
	If your performance is rated as satisfactory or above you will move up one step in a year	If your performance is rated as satisfactory or above you will move up one step in a year
<b>Development opportunities</b>	(self-reported)	(self-reported)
<b>Part-time working</b>	(self-reported)	(self-reported)
<b>Leadership culture</b>	(self-reported)	(self-reported)
<b>Teaching environment</b>	(self-reported)	(self-reported)
<b>Uptake</b>	69%	31%

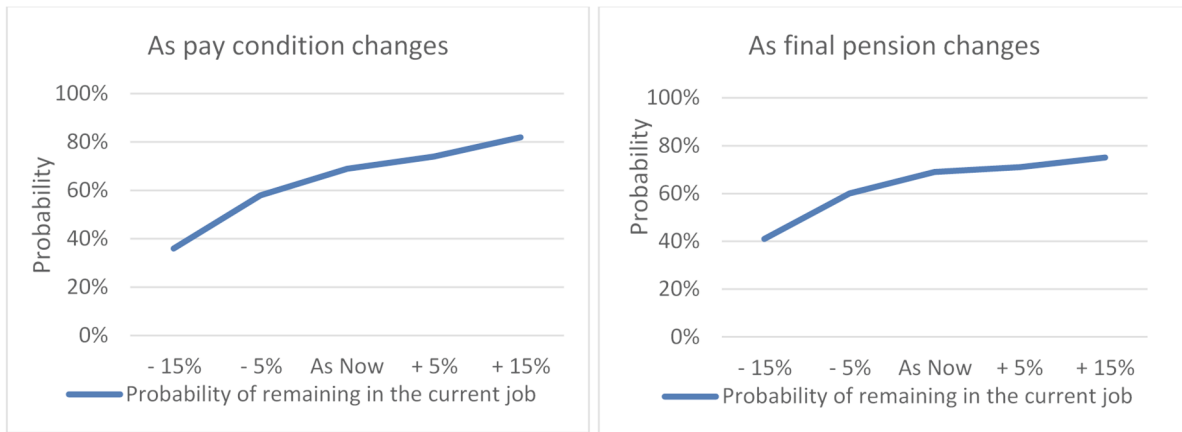
In this baseline situation, the probability of taking a new job (identical in all the job characteristics) is 31%, with 69% forecast to choose to ‘Remain in the current post’. This reflects that respondents, on average, prefer to stay in their current job (see section 4.2.8 for more details). Our early analysis revealed that when asked directly about their intentions, over a third of respondents stated they would like to leave their current posts in less than 2 years (see section 3.4.3 for more details). This reveals a good level of consistency between the forecast behaviour from our model and the stated intentions of respondents.

In the following analysis, we adjusted different characteristics of the ‘Current Job’ alternative to explore how changes influenced the predicted retention rate, before moving on to show how different packages of changes may cumulatively impact on retention rates.

#### 4.3.2. Impact of changes in pay and workload

Figure 21 shows the impact of changing the level of pay and pension conditions. When all aspects are the same, we forecast a retention rate of 69%. If the pay for the current job is increased by 5%, the retention rate increases to 74%, and when pay is increased by 15% the retention rate reaches 82% (an increase of 13 percentage points). In contrast, if the pay for the current role decreases by 15%, the retention rate drops to 36% (a reduction of 33 percentage points). So clearly, pay is a very important factor influencing teachers’ retention decisions. Many previous studies have concluded that pay, as an abstract concept, is important, but to the best of our knowledge this is one of the first studies to quantify the impact of changes in pay in this way, allowing comparisons of this factor with the impact of changes to other factors.

Figure 21 Changes in probabilities of remaining in the current post, as pay and pension changes



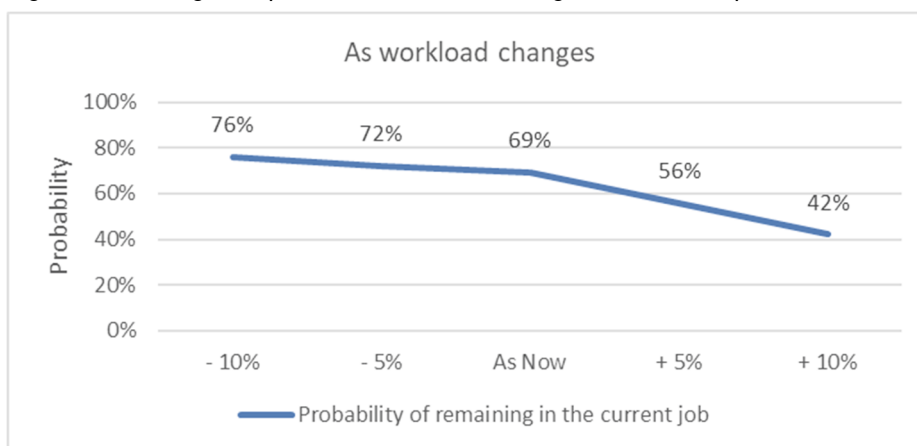
A similar trend was found for the final pension changes, although the corresponding changes to the probability of remaining in the current job were slightly smaller. A 15% increase in final pension increases the retention rate to 75%, and a 15% decrease in final pension leads to a retention rate of 41%.

Our forecasts show that changes in pay progression characteristics (the size of each step, the number of steps in the range, and whether teachers' performance accelerates progress) have less impact than changes in the current pay level or pension. Our forecasts show that changing from an annual progression of 5% to 10% increases retention by 7 percentage points (from 69% to 76%). As was noted earlier, further increases in annual progression were not observed to have a significant impact. Including a performance increment where an 'excellent' rating leads to two steps progression on the scale increases the retention rate by 3 percentage points.

With regards to workload, Figure 22 shows the impact of changing the level of workload on the current role. In situations where this increases by 10% the retention rate reduces from 69% to 42%. Whereas if the workload on the current role were to decrease by 10%, the retention rate is forecast to increase to 76%.

These two tests show the forecasted impacts of changes in pay and workload on the retention rate in isolation; we look at how these come together as packages later in this section.

Figure 22 Changes in probabilities of remaining in the current job, as workload changes



### 4.3.3. Impact of changes in other job characteristics

Next we discuss the impact of changing other characteristics, over and above pay and rewards. Changing the **development opportunities** available to teachers leads to small impacts on the retention rate, reflecting the low values placed on the different levels of this attribute.

Table 11 Changes in probabilities of remaining in the current post, as development opportunities change

Development Opportunities	Retention Rate
10 days CPD in total each year: - 3 days CPD in school with all the staff - and 7 days CPD at courses of your choice out of school	68%
10 days CPD in total each year: - 5 days CPD in school with all the staff - and 5 days CPD at courses of your choice out of school	69%
5 days CPD in total each year: - 2 days CPD in school with all the staff - and 3 days CPD at courses of your choice out of school	66%
5 days CPD in total each year: - 3 days CPD in school with all the staff - and 2 days CPD at courses of your choice out of school	67%
<b>Baseline (based on the respondents self-reported CPD)</b>	69%

Regarding the **flexibility of moving to a part-time working arrangement**, there was variation in teachers' reported ability to access such arrangements. Of the sample, 22% believed being able to move from full-time to part-time if requested was very likely, 46% thought it would be possible if certain conditions were met and 22% thought there was little possibility.

Moving to a situation where it is 'very likely that you would be able to move from full-time to part-time working if you request it' increased the current forecast retention rate from 69% to 72%. Similarly, restrictions in the ability to consider part-time working had negative impacts on forecast retention rates.

Table 12 Changes in probabilities of remaining in the current job, as the flexibility of moving to part-time changes

	Flexibility of moving to a part-time working arrangement		
	Little possibility	Possible	Very likely
Retention rate	64%	69%	72%

For teachers currently unable to access flexible working arrangements (22% of the sample), the impact of offering this is forecast to improve the likelihood of staying in their current role from 69% to 75%. As noted above, making this uniformly possible across the whole teaching population is forecast to lead to a retention rate of 72%.

Regarding the **school culture**, improving the environment to one in which the teacher feels they have the support of both the school leadership and their peers can increase retention rates to 75%. Conversely, changing to a negative environment in which they feel they have insufficient support from both the leadership and their peers is forecast to reduce the retention rate to 57%.

Table 13 Changes in probabilities of remaining in the current post, as school culture changes

Levels	Support from...	Sufficient or insufficient	retention rate
1	school leadership	×	57%
	peers and supporting staff	×	
2	school leadership	✓	67%
	peers and supporting staff	×	
3	school leadership	×	66%
	peers and supporting staff	✓	
4	school leadership	✓	75%
	peers and supporting staff	✓	

Lastly, the **teaching environment** has a significant impact on retention decisions. As shown in Table 14, our forecasts show that if environments could be consistently improved to a situation where poor behaviour is rarely a problem, the retention rate could be increased to 78%. However, the impact of negative behaviour is severe. Changing to a situation where poor behaviour from many students significantly disrupts most lessons reduces the forecast retention rate to 36%. This is the greatest impact of any single attribute when taken in isolation, and reveals just how important non-financial aspects can also be in influencing staff retention.

Table 14 Changes in probabilities of remaining in the current job, as the teaching environment changes

Poor behaviour...	retention rate
<b>is rarely a serious problem</b>	78%
<b>from a few students disrupts a few lessons</b>	71%
<b>from many students disrupts a few lessons</b>	60%
<b>from a few students significantly disrupts most lessons</b>	52%
<b>from many students significantly disrupts most lessons</b>	36%

These illustrative forecasts provide insight into how different factors impact on retention, relative to one another. The forecasts show that changes to pay and reward aspects (such as pension) have a strong impact on the retention rate. Changes to non-financial aspects (such as workload and teaching environment) also have a strong impact on teacher retention. As to which is 'most important': our model forecasts illustrate that this entirely depends on the degree of change to each factor.

#### 4.3.4. The potential impact of packages of changes

To explore the impact that might be achieved by improving a range of different characteristics simultaneously, we began with packages of pay and reward attributes, then considered employment characteristics, and lastly examined a package of both pay and employment characteristics.

##### Pay and reward attributes

We started by examining how different pay-related attributes combine to influence the forecast retention rates, beginning with pay and rewards (pension and progression). We introduced a situation with a choice between the current job and a new job that is the same in all respects. We then incrementally changed the current job to illustrate the impact that packages of changes could have on retention rates.

As shown in Figure 23, we started by changing the annual pay-scale increments to 10%, with the result being that our model predicts the retention rate increasing from 69% to 76%. If a performance increment where an ‘excellent’ rating leads to two steps progression on the scale is added on top of this, the retention rate increases to 78%. Further, if the pay is 5% higher than baseline, the probability of remaining in the current job further increases to 82%. And if in addition the final pension of the current post is increased by 5%, the forecast retention rate increases to 83%.

This illustrates the cumulative impacts that can be achieved through packages of improvements. It also demonstrates that whilst the utility functions explaining the importance placed on different factors are linear and additive in structure, the impact on the forecasts is non-linear due to the exponential form of the formula that calculates the probability of each alternative. There are therefore (slight) declining returns from packages of improvements, and the order in which these are applied can influence the relative impact that each has. However, the end result effect of **all** the changes having been applied is the same, regardless of the order in which each is applied.

In Figure 24, the first four changes are the same as in Example 1 (see Figure 23). For the fifth change, if the workload of the current role increases by 5%, a significant drop in the retention rate – to 74% – follows, demonstrating respondents’ strong disinclination towards longer working hours. This shows that some changes can act to undo the improvements made in other areas, or perhaps more importantly, if it is necessary to make an adverse change to an aspect of the employment offer then there is scope to balance the impact of this with changes in other aspects.

Figure 23 Changes in probabilities of remaining in job, as conditions change – Example 1

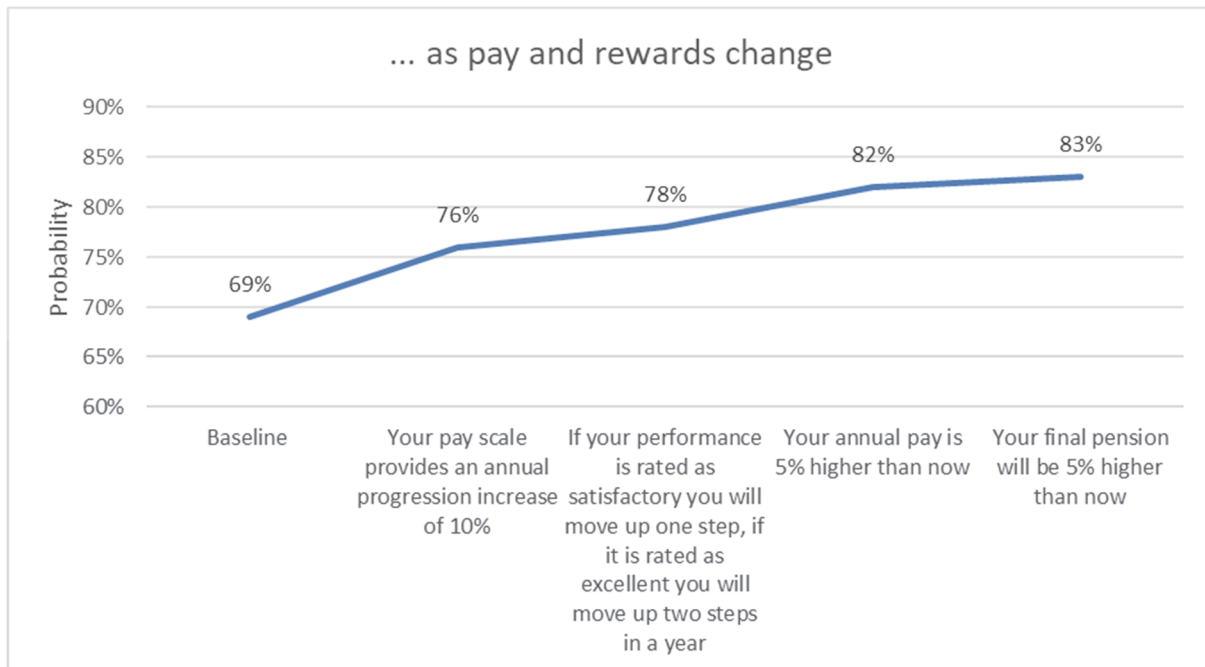
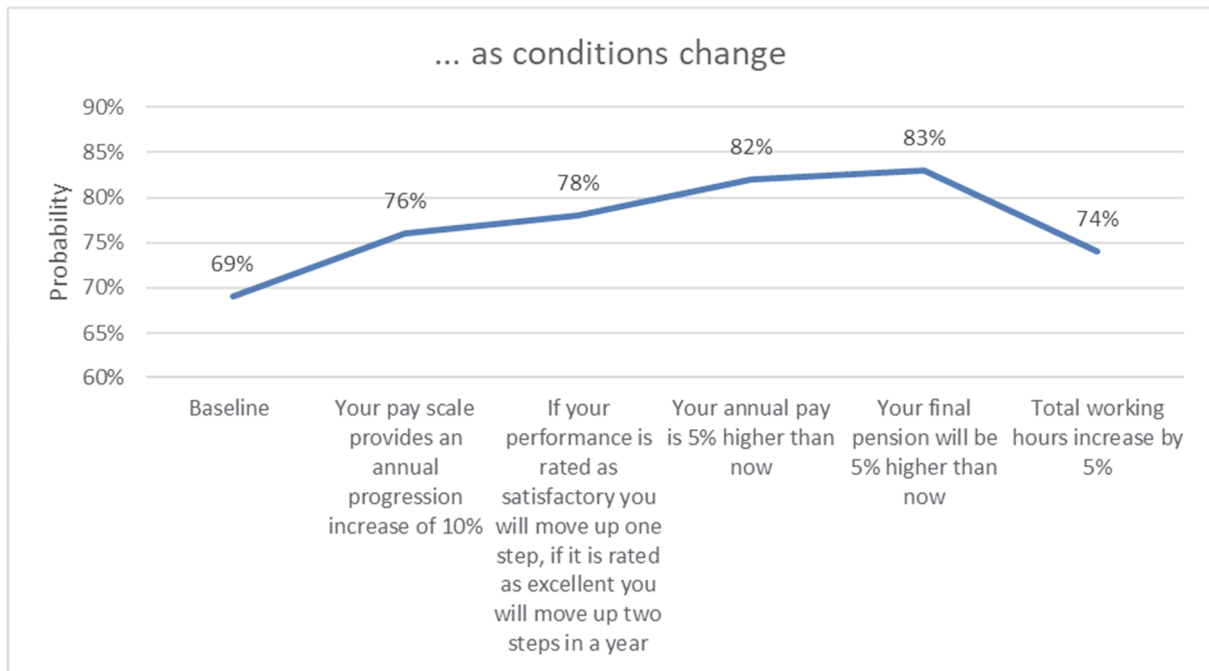


Figure 24 Changes in probabilities of remaining in job, as conditions change – Example 2



Impact of different workplace characteristics

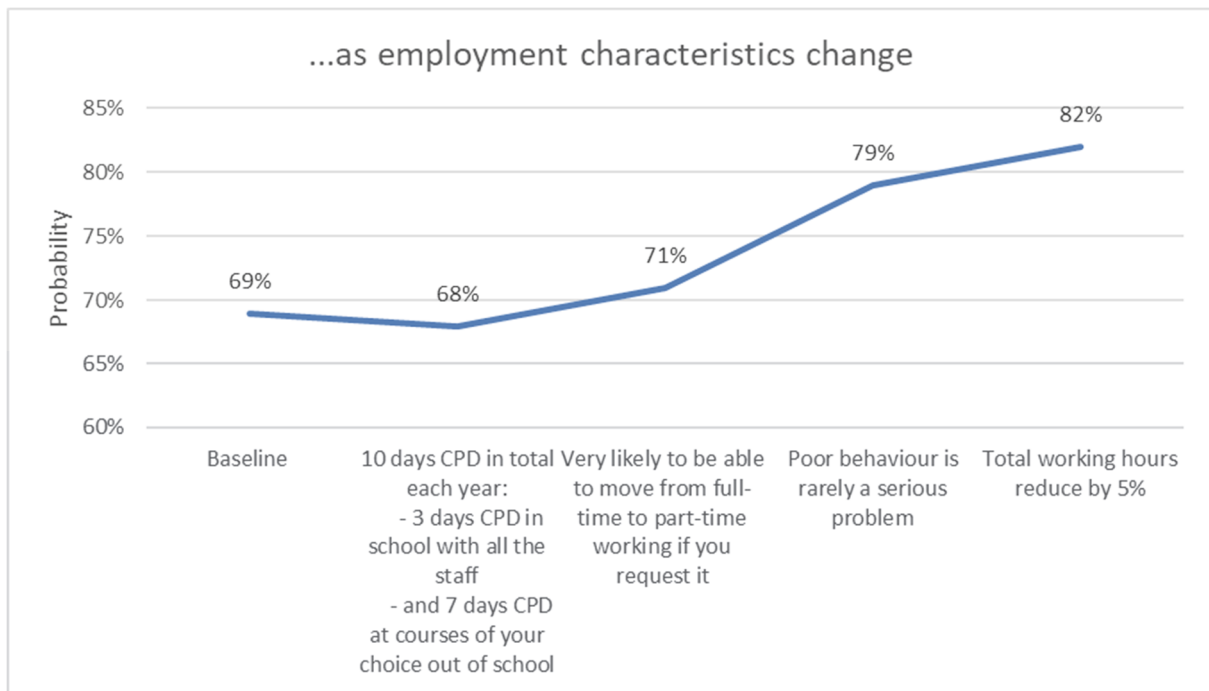
Next we looked at the impact of different workplace characteristics, independent of any change in financial reward. As can be seen from Figure 26, the impact of moving to a consistent CPD offer of 10 days in total – with 3 of these being training days with colleagues, and 7 having more personal discretion – was a decrease in the retention rate from 69% to 68%. This reveals that the majority of current staff would not see value in changing this part of their current role.

If conditions were also changed to allow all teachers to access the option of part-time working, the retention rate increased to 71%. Again, the impact of this is small – in part reflecting that those wishing to access part-time working are more likely to have already chosen a role that allows for it.

However, the impact of also moving to a uniform learning environment, where poor behaviour is rarely a problem, was to increase the forecast retention rate to 79%.

Finally, if in addition the workload of the current post was reduced by 5%, the predicated retention rate increased to 82%.

Figure 25 Changes in probabilities of remaining in job, as employment characteristics change – Example 3



#### Differences in preferences by subgroups of teachers

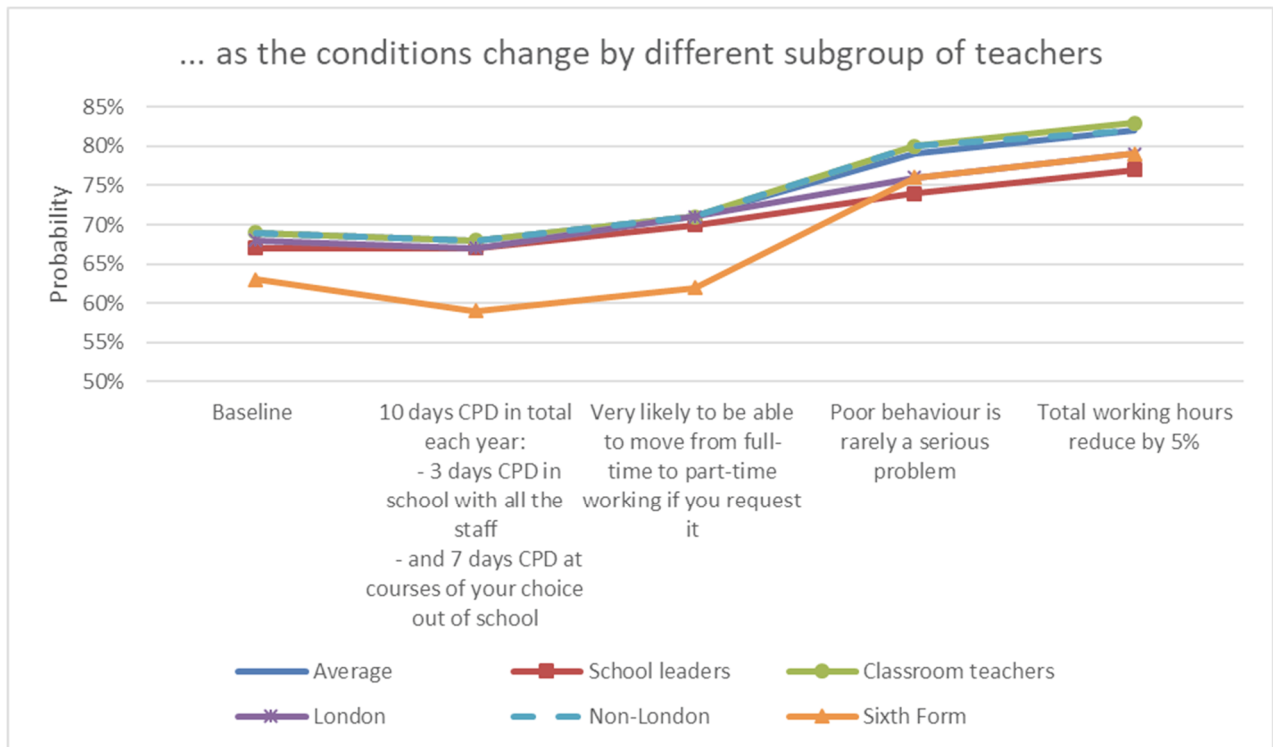
We also examined how a number of teacher characteristics explain differences in job preferences in our models. We were therefore able to see how the forecast retention rates differ between different groups of teachers. Figure 26 shows how the forecast retention rates from the scenario shown in Figure 25 (i.e., the employment characteristics changes) differed between some subgroups. We found that most of the variations by subgroups were small, but some illustrative trends are discussed below.

Headteachers and teachers from London areas were slightly less likely to stay in their current posts, compared to other teachers. It is noteworthy that whilst they generally track the trend for changes in CPD and part-time working, in relative terms they were less influenced by changes in pupil behaviour or working hours.

Sixth-form teachers start with lower forecast retention rates, but were significantly more responsive to improvements in pupil behaviour. This reveals the differential impacts that can be achieved within different groups through different policies.



Figure 26 Variation in probabilities of remaining in job, by teacher subgroup – Example 4



Changing both financial and workplace characteristics together

We also examined three different targeted interventions:

**Policy Package 1** placed the emphasis on modest (but still significant) increases in remuneration (pay and rewards), consisting of:

- Annual pay increases of 5%;
- Final pension increases of 5%; and
- ‘Excellent’ rating leads to two steps progression on the scale.

Note: the other attributes remained the same as the baseline (see Table 10 for more details).

**Policy Package 2** placed the emphasis on improving workplace characteristics, consisting of:

- Workload reduces by 10%;
- Uniform access to 10 CPD days per year;
- Uniform access to part-time working arrangements;
- Uniform support: ‘sufficient support in your role’ from school leadership and from peers; and
- Uniform student behaviour: ‘Poor behaviour from a few students disrupts a few lessons’.

Note: the other attributes remained the same as the baseline (see Table 10 for more details).

**Policy Package 3** included a combination of improvements to remuneration (pay, rewards) and workplace characteristics, combining packages 1 and 2:

- Annual pay increases by 5%;
- Final pension increases by 5%;
- ‘Excellent’ rating leads to two steps progression on the scale;
- Workload reduces by 10%;
- Uniform access to 10 CPD days per year;
- Uniform access to part-time working arrangements;

- Uniform support: ‘sufficient support in your role’ from school leadership and from peers; and
- Uniform student behaviour: ‘Poor behaviour from a few students disrupts a few lessons’.

Note: the other attributes remained the same as the baseline (see Table 10 for more details).

Table 15 shows the impact of the three Packages on the forecast retention rates, and how these differ between some different teacher groupings.

Table 15 Forecast retention rates by different teacher subgroup (%)

	Base scenario (B)	Package 1 (P1) (pay)	Package 2 (P2) (employment conditions)	Package 3 (P3) (Pay and employment)
Average	69%	78%	82%	87%
Headteachers	67%	76%	75%	82%
Classroom teachers	69%	78%	83%	88%
- on the upper pay range (UPR)	69%	78%	82%	87%
- on the main pay range (MPR)	69%	78%	85%	90%
Computing/IT, ‘Other’ teachers	60%	69%	76%	82%
Poor teaching environment	69%	78%	93%	95%
Good teaching environment	69%	79%	78%	85%
Ofsted 1/2 outstanding and good	69%	78%	81%	87%
Ofsted 3/4 requires improvement or inadequate	68%	77%	83%	89%

Table 16 shows the relative impact of the Packages, with the increase in retention rate being calculated relative to the base scenario, i.e. showing the percentage change in proportion of teachers retained (rather than the percentage points difference in the rates).

Table 16 Changes in forecast retention rates, as a percentage increase of base scenario

	Base scenario (B)	Package 1 (P1) (pay) (P1/B -1)	Package 2 (P2) (employment conditions) (P2/B-1)	Package 3 (P3) (Pay and employment) (P3/B-1)
Average	-	13%	19%	26%
Headteachers	-	13%	12%	22%
Classroom teachers	-	13%	20%	28%
- on the upper pay range (UPR)	-	13%	19%	26%
- on the main pay range (MPR)	-	13%	23%	30%
Computing/IT, ‘Other’ teachers	-	15%	27%	37%
Poor teaching environment	-	13%	35%	38%
Good teaching environment	-	14%	13%	23%
Ofsted 1/2 outstanding and good	-	13%	17%	26%
Ofsted 3/4 requires improvement or inadequate	-	13%	22%	31%

Under **Package 1**, which focused on pay and reward, the average retention rate increased from 69% to 78%. It can be observed that teachers whose subject is computing/IT or 'other'<sup>18</sup> start with lower retention rates in the base scenario but were relatively more responsive to the pay and rewards policy interventions, compared to other teachers. In proportional terms this cluster of teachers showed a 15% increase in their retention rate. Interestingly there is no difference in the base scenario retention rates between teachers working in poor and good working environments; however, those who reported a good teaching environment where poor student behaviour only disrupts a few classes or is rarely a problem showed slightly greater sensitivity to the financial-based intervention. This suggests that there is little difference in the response to these changes in pay and rewards across teacher groups.

Under **Package 2**, which focused on workplace environment, the average retention rate increased from 69% in the base scenario to 82%. It is noteworthy that those teachers who reported a poor teaching environment were much more responsive to these workplace improvements, with a 35% increase in their relative retention rate. In contrast, headteachers and teachers currently experiencing better pupil behaviour were less sensitive to these workplace improvements. This suggests that improvements in employment conditions show a significant impact on influencing teachers' retention. The impact differs by different school or teacher characteristics, for instance, teachers in schools that require improvement (such as with a poor teaching environment or where the Ofsted rating is 3 or 4) were more responsive to these improvements.

Under **Package 3**, which comprehensively addressed both financial rewards and working environment, the forecast retention rates increased to 87% on average. The probabilities of uptake differed between groups of teachers. It again shows that those whose subject is computing/IT or 'other', and teachers who reported a poor teaching environment, were more responsive to the combined remuneration and workplace improvement policy interventions, compared to other teachers, with their retention rates increasing by 38% and 37% respectively in relative terms. In addition, teachers who currently work in schools with lower Ofsted ratings showed a higher increase in their predicted retention rate compared to those in better performing schools. This shows the significant impacts on retention rates that might be achieved through a combination of actions at both a national and a local level.

From the scenario tests, we can observe that pay and rewards are important retention factors, but they are not the only factors that shape teachers' retention choices. Workplace characteristics (such as school culture and teaching environment) are highly valued by teachers, and teachers would be willing to trade-off higher pay/pensions to work in supportive environments with fewer challenges from pupil behaviour. In addition, the scenario tests illustrate how subgroups of teachers respond differently to different remuneration and employment policy interventions.

Whilst we have shown some illustrative scenarios above, the model produced through this work can be used by OME, the School Teachers' Review Body, the Department for Education and others to gain rich insight into the potential effectiveness of a wider range of policy options.

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<sup>18</sup> We did not collect the explicit subject information for teachers who selected 'others (including PE)' category. This is a relatively small segment (5% of the total sample).

## 5. Conclusions

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This section presents:

- A summary of the key findings;
- Caveats to the research method;
- Avenues for possible future research; and
- Some of the policy implications that follow from our findings.

### 5.1. Summary of key findings

Teacher retention has remained a challenge over the past few years, and has been discussed in School Teachers' Review Body annual reports (STRB, 2018; 2019) and various studies (House of Commons Committee of Public Accounts, 2018). We identified a rich literature that documents some of the factors that influence teachers' retention. However, to the best of our knowledge, this is the first study to quantify both the relative importance of the different employment factors and the impact that changes in these factors could have on the retention of teachers in England.

Our approach provides new and important insights regarding the impact that pay, rewards and other working conditions can have on the retention of teachers.

Increases in pay and rewards (pension and pay progression) positively influence retention rates.

Our results suggest that respondents showed higher sensitivity to loss of (reductions in) pay and pension compared to gains (increase), which is reflected by the higher negative values teachers placed on the reduction of rewards (pay and pension). On average, respondents preferred larger pay-scale steps and a quicker rate of progress for performance that is rated as excellent. However, the number of steps (i.e. years) of increases within the pay range was less important to respondents.

While respondents significantly valued different types of rewards, rewards alone did not drive job choice.

Reductions in workload would be welcomed by teachers.

Every 1% reduction in workload was valued equivalent to a 0.77% increase in annual pay. In contrast, increases in workload were valued very negatively by respondents, indicating that respondents showed strong disinclination towards the options that increased their workload. Each percentage increase in workload required an increase of 2.72% in annual pay to compensate for it. The direction of these impacts is in line with previous evidence; however, our analysis quantifies the relative value of each, and greatly adds to understanding by illustrating just how critical workload can be for retention.

Respondents valued increases in professional development time.

Our results found that respondents preferred more CPD days and that they were willing to trade a 0.43% pay increase for an additional 1 day of CPD per year. While our findings are pertinent to teachers in different roles, they are particularly relevant to headteachers and leading practitioners who often do not have the same access to CPD as early career teachers. Respondents showed higher preference towards CPD training within the school environment alongside all staff, compared to CPD training of their own choice outside of school.

Teachers value having the flexibility to access part-time arrangements.

Our qualitative analysis of factors that influence choices to stay in the current post found that part-time working/flexible working hours were identified as one of the most prominent factors reported by teachers. The DCE model outputs reinforced this, finding that on average, the flexibility of potentially moving to a part-time working arrangement – compared to the option of ‘very little possibility to move to a part-time arrangement’ – was valued as equivalent to a 4.34% increase in annual pay.

Support from school leadership and peers is important.

The model results showed that a collaborative and supportive environment can improve teacher retention. This aligns with the influence that a poor school culture was stated to have on the reasons for intending to leave. Moving from an environment with a lack of support to one that has the support of school leadership is valued as equivalent to a 9.14% increase in annual pay, while a move to one that has the support of peers is valued as equivalent to an 8.8% increase in annual pay.

Poor student behaviour can have a significant impact on staff retention.

The quality of the teaching environment has been identified as one of the most important factors that influence retention outcomes. For example, our model suggests that moving from a situation where ‘poor behaviour is rarely a serious problem’ to a role where ‘poor behaviour from a few students significantly disrupts most lessons’ would, on average, require an increase in annual pay of 26.22% to compensate. This illustrates just how significant this issue can be.

Respondents trade-off pay, rewards and employment characteristics in their retention choices.

Our model showed that retention choices are influenced by a variety of work-related factors, as well as by variables related to an individual’s current employment and socio-economic characteristics. Previous evidence has repeatedly found that a wide range of factors influenced retention, such as pay, workload and flexibility of working arrangements. Our findings are consistent with this, but go deeper into the understanding of how these factors interplay with each other in teachers’ retention choices, and how the preferences differ by individual characteristics.

We observed that these are traded off against each other, so it is possible to increase retention by improving different aspects of the employment offer, and increases in other aspects can be used to compensate for (or in some cases may be more effective than) increases in pay.

We applied our model to undertake scenario forecasts of a range of policy interventions, including both national policies – such as pay and benefits – and local interventions to improve the working environment. From these we forecast the likely impact on retention rates.

This study both provides a new, rich evidence base to support policy development regarding teacher retention, and also illustrates the wider utility of DCEs as tools for investigating retention in public services.

## 5.2. Caveats to our approach

As with any research, there are some important caveats to this DCE study. The results are based on self-reported responses provided in a survey, rather than on observations of actual behaviour. However, the approach we used constrained respondents to consider what employment attributes are most important to them, forcing them to make trade-offs and reveal their preferences. Our method has allowed us to explore a wide range of scenarios to support the development of models of teachers' preferences, giving us rich and important insights into the trade-offs that individuals are willing to make.

We note that the sample of respondents in our DCE survey appears to differ in some aspects from that of the national profile of teachers. Overall, our sample over-represents headteachers and younger teachers compared to national teacher statistics. We addressed this by stratifying our models by respondents' reported employment and socio-economic characteristics, to ensure the model could identify significant differences by subgroups. The overall sample size and the size of most subgroup samples were within accepted limits for robust analysis using a DCE. We then applied weights in our forecasts to address the known biases in the sample structure.

Notably, all the survey development and fieldwork took place before the Covid-19 pandemic, which seriously affected England, particularly the education sector and teaching behaviour. Some attitudes towards teaching may have been modified in the light of subsequent experiences.

## 5.3. Opportunities for future research

Our research showed that the DCE research method can be used to measure the impact of pay, rewards and other employment characteristics on teachers' retention choices. Hence, this method can potentially be applied to other public sector professions in order to understand their pay and workforce issues. Cross-sector comparisons may also be helpful in identifying similarities and differences in the job preferences of teachers compared to other public sector workforces.

In this study, we examined the variation of preferences and valuations by subgroup of teachers. However, some of the categories (such as non-white ethnicity groups, or some of the school types, such as special schools) contained small sample sizes, which do not allow a robust analysis of the cohorts. Should specific cohorts be of interest, a similar survey could be run among targeted groups of respondents.

Further, it would be beneficial to employ more advanced research methods to enable robust analysis. For instance, with more resource, more advanced choice-modelling techniques (such as latent class models or mixed logit models) could be used to provide a richer understanding of the heterogeneity in preferences.

## 5.4. Policy implications

Previous research suggests that no single intervention will effectively resolve teacher workforce shortages. Hence, a set of interventions developed to target the preferences and expectations of specific groups of

teachers is necessary. Our findings provide policymakers and schools with information that could be used to strengthen or highlight the employment environment characteristics that are valued by teachers.

Our study provides schools with preliminary information on which job characteristics matter most to teachers in England, the trade-offs they would be willing to make between pay and other characteristics of the work environment, and insight into subgroups of teachers who may be more or less responsive to different changes. As such, our findings bring into focus some of the impacts that might be achieved at a local level, and suggest that increasing funding to enable this could be as effective in influencing teacher retention as putting funding into improving pay.

Ultimately any policy seeking to improve retention rates of teachers is likely to be multi-faceted. The strength of this research, and the accompanying forecasting model, is that it quantifies the relative importance of a range of key factors and allows insight to be obtained into the relative effectiveness of different policy interventions.

Whilst outside of the direct scope of this study, the next logical step in applying this research would be to estimate the financial costs of different packages of policy interventions. If used alongside the estimated impact on retention rates (which can be forecast from our model), these estimates of cost would allow cost-benefit analysis to be conducted across a range of different policy scenarios.





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## Annex A. Main survey questionnaire

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### Factors influencing teachers' retention – Questionnaire Structure

#### Introduction

Thank you for agreeing to participate in this survey. The purpose of this survey is to develop an understanding of the factors influencing teachers' retention.

This study is being undertaken by NFER and RAND Europe, a not-for-profit research institute, for the Office of Manpower Economics (OME). The OME provides secretariat support to the public sector pay review bodies.

Please do your best to answer the questions as you understand them. The survey will take 10 – 15 minutes to complete. We will undertake analysis on these to understand how preferences differ between different groups within teachers, but we will not identify individuals at any stage so your identity will be treated as confidential and kept private.

Please note that all the information you provide to the NFER will be treated in the strictest confidence and the anonymity of individuals and schools will be preserved. All of our work is governed by internationally recognised standards for ethics and transparency, and we treat the safety of researchers and research participants with the utmost importance. These policies and their implementation are governed by our Code of Practice and Code of Practice Committee. Our Code of Practice which takes into account the British Educational Research Association, the Market Research Association, the Social Research Association and the Market Research Society. Further details can be found on our website: <https://www.nfer.ac.uk/privacy/>

For the purposes of administering the questionnaire and for analysis, we may collect demographic information. You do not have to answer any questions that you do not wish to and if you do you can withdraw your consent for us to process this information at any time. The survey data will only be shared with OME professional data analysts, who will; not release any information externally. Any personal data collected over the course of this survey will be held securely and will not be shared with any third party unless you give permission (or unless we are legally required to do so).

Our privacy notice provides information about how we will lawfully process your personal data: [https://www.nfer.ac.uk/media/3633/teacher\\_voice\\_panel\\_members\\_privacy\\_notice.pdf](https://www.nfer.ac.uk/media/3633/teacher_voice_panel_members_privacy_notice.pdf)

Do you agree to proceed with the survey on this basis?

Yes

No **THANK AND CLOSE**

#### QA

What is your current post in your school?

1. Headteacher
2. Deputy headteacher
3. Assistant headteacher
4. Leading Practitioner
5. Qualified teacher (upper pay range)
6. Qualified teacher on the Main Pay Range not serving statutory induction
7. NQT: Qualified teacher who is serving statutory induction
8. Unqualified teacher
9. Other

## Section 1 Current employment experience

### Q1

What type of area is your school located in? (If you teach in multiple locations, please answer according to the area you most frequently teach in).

1. London
2. City other than London
3. Town
4. Village/rural area

### Q2

What type of school do you work at? (Tick all that apply)

1. Primary
2. Secondary
3. Sixth form
4. Special school
5. Alternative provision

### Q3

Which of the following best describes your school?

1. Community school (Local authority maintained)
2. Foundation or Voluntary school
3. Academy
4. Grammar school
5. Independent
6. Other

### Q4

Which years do you typically teach? (Tick all that apply)

1. Early years foundation stage (age 3 to 5)
2. KS1 (age 5 to 7)
3. KS2 (age 7 to 11)
4. KS3 (age 11 to 14)
5. KS4 (age 14 to 16)
6. KS5 (age 16 to 18)

### Q5

What was the most recent Ofsted rating of your school?

1. Grade 1 Outstanding
2. Grade 2 Good
3. Grade 3 Requires Improvement
4. Grade 4 Inadequate
5. Other
6. Don't know

### Q6

How many years of work experience do you have, regardless of whether you worked full-time or part-time? Please fill in all of the below, even if the answer is 0.

- a. \_\_\_ years working as a teacher at this school
- b. \_\_\_ years working as a teacher in total
- c. \_\_\_ years working in other education roles, not as a teacher
- d. \_\_\_ years working in other non-education roles



**Q7**

What is your current employment status as a teacher, in terms of working hours?

1. Full-time (more than 90% of full-time hours)
2. Part-time (71-90% of full-time hours)
3. Part-time (51-70% of full-time hours)
4. Part-time (less than 50% of full-time hours)

**Q8**

How many hours do you work as a teacher in an average week during the school term, both at school and at home/elsewhere, including contact and non-contact hours?

1. \_\_\_\_ hours
2. Don't know

**Q9**

Generally, how flexible do you think your school/s would be to individual staff wishing to move from full-time to part-time working arrangements?

1. generally little possibility of moving from full-time to part-time working
2. possible to move to part-time working, but only if you meet certain conditions (e.g. have childcare / other caring responsibilities, approaching retirement, returning from maternity leave)
3. very likely to be able to move from full-time to part-time working if you request it
4. Don't know

**Q10**

What subject area/s do you currently teach? Please select the option that takes up the majority of your timetable. If necessary you may select more than one.

1. Multiple (primary)
2. Multiple (special school or alternative provision)
3. Maths
4. English
5. Science
6. Languages
7. Humanities or social sciences
8. Creative or practical arts, including D&T
9. Computing/ IT
10. Other (including PE)
11. Most of my time is spent on non-classroom duties (e.g. management and leadership duties)

**Q12**

Roughly whereabouts are you placed on your current pay scale?

1. Bottom (I have just entered this pay scale)
2. Middle
3. Top (I am at the top end of the pay scale)
4. Don't know

**Q13**

To what extent do you have sufficient support in your role from (From 0 to 5: 0 I get no support; 5 I feel very well supported)

1. School leadership \_\_\_\_\_
2. Peers and supporting staff \_\_\_\_\_
3. Governors or academy trustees

**Q14**

How many students are there in your class? (If multiple classes, what is the average class size?)

1. Less than 20
2. 20 – 25
3. 26 – 30
4. 31 – 35
5. 36 – 40
6. Over 40
7. Not relevant

**Q15**

Overall, how would you describe the student behaviour in your classes?

Poor behaviour...

1. from **many** students disrupts **most** lessons
2. from **a few** students disrupts **most** lessons
3. from **many** students disrupts **a few** lessons
4. from **a few** students disrupts **a few** lessons
5. is **rarely** a problem
6. Not relevant

**Q16**

During the last academic year (2018-2019), how many days in total have you spent on Continuing Professional Development (CPD) activities \_\_\_\_\_?

Among them, how many CPD days spent in school with all the staff (please include your statutory INSET days in this response) \_\_\_\_\_?

And for how many CPD days at courses of your choice out of school \_\_\_\_\_?

**Q17**

On a scale of -5 to 5 (-5: not satisfied at all; 5: very satisfied), how satisfied are you with your job as a teacher?

\_\_\_\_\_

1. Don't know

**Q18**

How much longer do you expect to stay at your current school?

1. Less than 1 year
2. 1 – 2 years
3. 3 – 5 years
4. Longer than 5 years
5. I don't know

Explain why you selected the response above:

## Q19A (first choice experiment)

## INTRO SCREEN 1

In this section of the questionnaire, we want to try and understand what type of teaching jobs you most prefer. We will be doing this by presenting you with two different teaching jobs and then asking you tell us which you prefer. You will see that each job has advantages and disadvantages and you will need to carefully trade-off the advantages and disadvantages before deciding which job you prefer. You can assume that both Option A and Option B are full-time jobs. Each job is described by the following characteristics:

**Pay:** the annual salary, including any allowances

**Pension:** the monthly retirement income (from your teachers' pension)

**Pay progression:** annual movement up the pay range, expressed as a percentage; the number of years it would take to progress from the pay range minimum to the pay range maximum if your performance is rated as satisfactory; and whether excellent performance accelerates movement up the pay range

**Workload:** total working hours as a teacher per week (including contact and non-contact hours)

An **example** of the choices is shown as below:

Scenario 4

	Option A	Option B
Pay	Your annual pay is 15% higher than now	Your annual pay is 15% lower than now
Pension	Your final pension will be 5% higher than now	Your final pension will be 15% lower than now
Pay Progression	Your pay scale provides an annual progression increase of 5% for up to 7 years	Your pay scale provides an annual progression increase of 10% for up to 3 years
	If your performance is rated as satisfactory or above you will move up one step in a year	If your performance is rated as satisfactory you will move up one step, if it is rated as excellent you will move up two steps in a year
Workload	Total working hours reduce by 5%	Total working hours increase by 10%
	<p>Which would you prefer?</p> <p style="text-align: center;"> <input type="radio"/> Option A           <span style="margin-left: 200px;"><input type="radio"/> Option B</span> </p>	

## Q19A1

1. Option A
2. Option B

## Q19A2

1. Option A
2. Option B

## Q19A3

1. Option A
2. Option B

## Q19A4

1. Option A
2. Option B

## Q19A5

1. Option A
2. Option B

### Q19B (second choice experiment)

In this section of the questionnaire, we want to try and understand what type of teaching jobs you most prefer. For each option, we would like to know whether you would accept this job over your current job if a school offered it to you. Each job is described by the following characteristics:

**Pay:** the annual salary, including any allowances

**Workload:** total working hours as a teacher per week (including contact and non-contact hours)

**Development opportunities:** total number of days of Continuing Professional Development (CPD) per year, distributed between two different types of CPD:

- general CPD offered to all teachers in school
- personalised CPD tailored to your own development needs.

**Part-time work:** feasibility of moving to a part-time work arrangement

**School culture:** how much support you receive from school leadership and other teaching colleagues

**School characteristics:** pupil behaviour in classes

An example of the choices is shown as below:

Scenario 1

	Remain in your current post	Job A	Job B
Pay		Your annual pay is 15% higher than now	Your annual pay is the same as now
Workload		Total working hours remain the same as now	Total working hours increase by 10%
Development opportunities		10 days CPD in total each year: - 5 days CPD in school with all the staff - and 5 days CPD at courses of your choice out of school	5 days CPD in total each year: - 2 days CPD in school with all the staff - and 3 days CPD at courses of your choice out of school
Part-time working		Possible to move to part-time working, but only if you meet certain conditions	Very likely to be able to move from full-time to part-time working if you request it
Leadership culture		You have insufficient support in your role from school leadership; but sufficient support from peers and supporting staff	You have sufficient support in your role from school leadership; but insufficient support from peers and supporting staff
Teaching environment		Poor behaviour from a few students disrupts a few lessons	Poor behaviour from many students significantly disrupts most lessons
	<p>Which job would you choose?</p> <p style="text-align: center;"> <input type="radio"/> Current Post                      <input type="radio"/> Job A                      <input type="radio"/> Job B         </p>		

### Q19B1

1. Remain in your current post
2. Job A
3. Job B

### Q19B2

1. Remain in your current post
2. Job A
3. Job B

### Q19B3

1. Remain in your current post
2. Job A
3. Job B

Q19B4

1. Remain in your current post
2. Job A
3. Job B

Q19B5

1. Remain in your current post
2. Job A
3. Job B

Q20

Did you feel able to make the choices?

1. Yes **GO TO Q22**
2. No.

Q21

Why were you unable to do that? Please specify in the box below

### Section 3. About You

We would now like to ask a few questions which will help us to understand some of the information you have provided. Please be assured that all details you give will be treated with the strictest confidence.

Q22

How old are you?

1. 18 – 24 years
2. 25 – 34 years
3. 35 – 44 years
4. 45 – 54 years
5. 55 – 64 years
6. 65 – 74 years
7. 75 years or older
8. Prefer not to say

Q23

Are you?

1. Male
2. Female
3. Prefer not to say

Q24

Do you (or your household) own or rent the accommodation you live in?

1. Own it outright
2. Own it with a mortgage/loan
3. Part own and part rent (shared ownership)
4. Rent it (includes all those who are on Housing Benefit or Local Housing Allowance)
5. Live here rent-free (including rent-free in relative's/friend's property but excluding squatters)

6. Other
7. Don't know
8. Prefer not to say

**Q25**

How many adults and children are there in your household?

1. Number of Adults (aged 18 and over including yourself): \_\_\_\_\_
2. Number of Children (aged below 18): \_\_\_\_\_
3. Prefer not to say

**Q26**

What is your current marital status?

1. Married or in a civil partnership
2. Separated (still legally married or still in a civil partnership)
3. Divorced / Formerly in a civil partnership, now legally dissolved
4. Widowed / Formerly in civil partnership, partner died
5. Single, that is, never married AND never in a civil partnership
6. Cohabiting
7. Prefer not to say

**Q27**

What is your household's combined yearly income (before tax and National Insurance has been taken off)?

1. Up to £15,499
2. £15,500 - £24,999
3. £25,000 - £34,999
4. £35,000 - £49,999
5. £50,000 - £74,999
6. £75,000 - £99,999
7. £100,000+
8. Prefer not to say

**Q28**

How would you describe your ethnicity? Please tick one box only

1. White
2. Mixed/Multiple ethnic groups
3. Asian or Asian British
4. Black/African/Caribbean/Black British
5. Other ethnic group
6. Prefer not to say

**Q29** Do you have any other comments or thoughts on this survey?

No

## Annex B. Sample characteristics

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Here we highlight a few notable differences between the samples obtained from the two survey channels: Teacher Tapp (TT) and NFER Teacher Voice Omnibus Survey. A detailed comparison between the two samples is shown in Annex B.2.

### **Introduction to the NFER Teacher Voice omnibus surveys**

The NFER runs Teacher Voice Omnibus Surveys three times a year, in the autumn, spring and summer terms. The robust survey achieves responses from over 1,000 practising teachers from schools in the publicly funded sector in England. The panel is representative of teachers from the full range of roles in primary and secondary schools, from head teachers to newly qualified class teachers.

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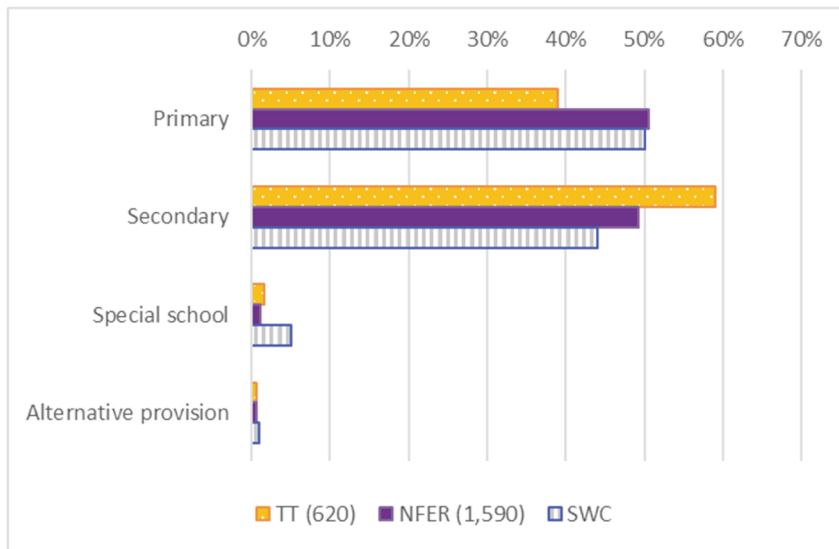
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## B.1. Sample comparison by employment characteristics

B.1.1. The Teacher Tapp sample consists of a higher proportion of secondary school teachers, whilst the responding teachers from the NFER Teacher Voice panel show an even split

As shown in Figure 27, the TT sample captured a higher proportion of secondary school teachers (59%) compared to primary school teachers (39%), however the NFER sample was almost evenly split. According to the school workforce statistics (DfE, 2019d), in 2018 the ratio of teachers working in primary schools and secondary schools was close to 1 (222,000 full time equivalent (FTE) teachers in nursery and primary schools and 204,000 FTEs in secondary schools).

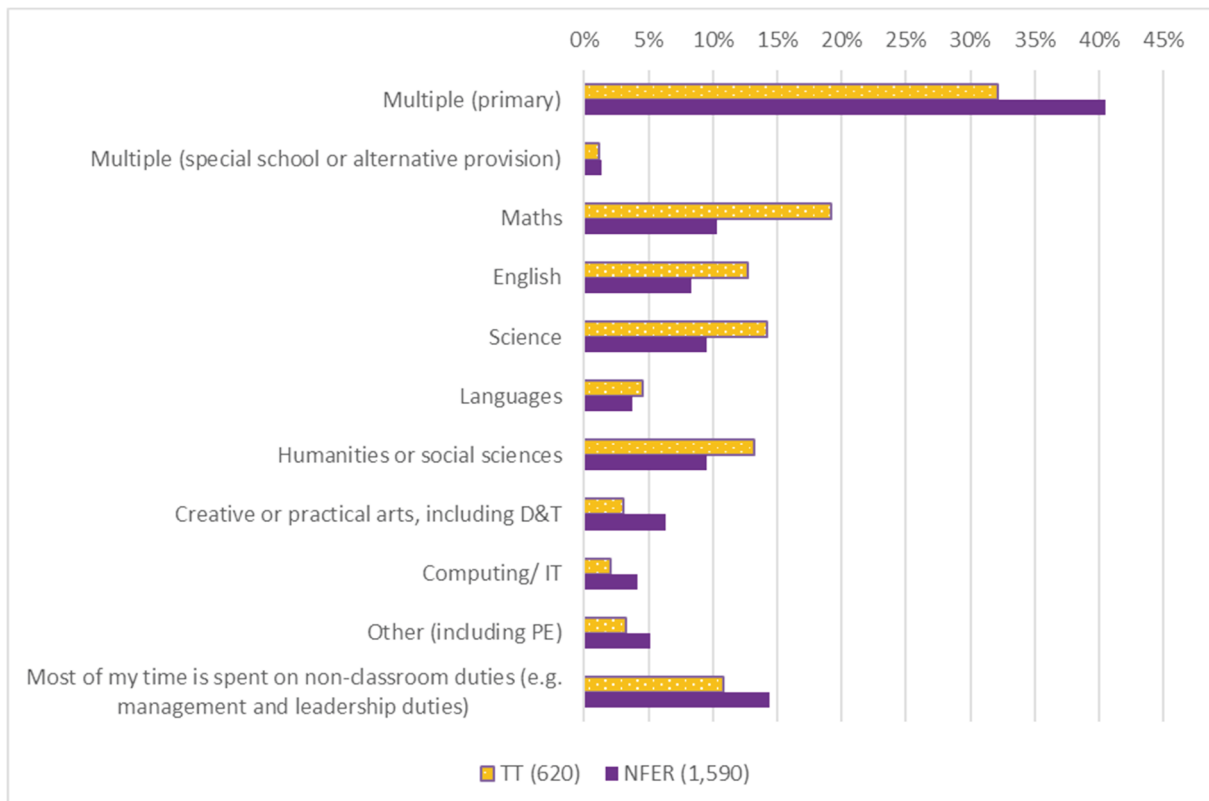
Figure 27 Sample comparison by type of schools



The differences in the sample composition relating to school types was reflected in a number of employment characteristics:

- First, the TT sample has higher proportions teaching KS3 and above compared to the NFER sample.
- Second, as shown in Figure 28, a higher proportion of NFER respondents teach multiple subjects in a primary school (41%), 9 percentage points higher than in the TT sample. However, 46% of TT respondents teach a core subject (English, Maths or Science) compared to just 28% in the NFER sample.

Figure 28 Sample comparison by subject

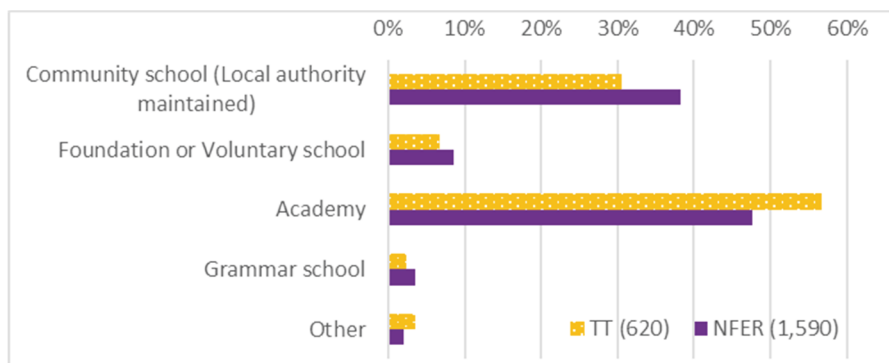




**B.1.2. The TT sample consists of a greater proportion of teachers who work at academy schools and work full-time**

As shown in Figure 29, the NFER sample contains a greater proportion of teachers working at community schools (38% compared to 30%), whereas the TT sample has a higher proportion of teachers working at academies (57% compared to 48%).

Figure 29 Sample comparison by type of school



A higher proportion of the TT sample works full-time (85%) relative to the NFER sample (75%). Figure 30 shows a breakdown of working hours for full-time teachers, and reveals that the breakdown is similar for both the NFER and TT sample. However, the same is not so for the breakdown of part-time teachers' working hours (as shown in Figure 31). A higher proportion of TT part-time teachers work 40 hours or more, compared to the NFER sample (which is quite small).

Figure 30 Sample comparison by reported workload per week (full-time teachers only)

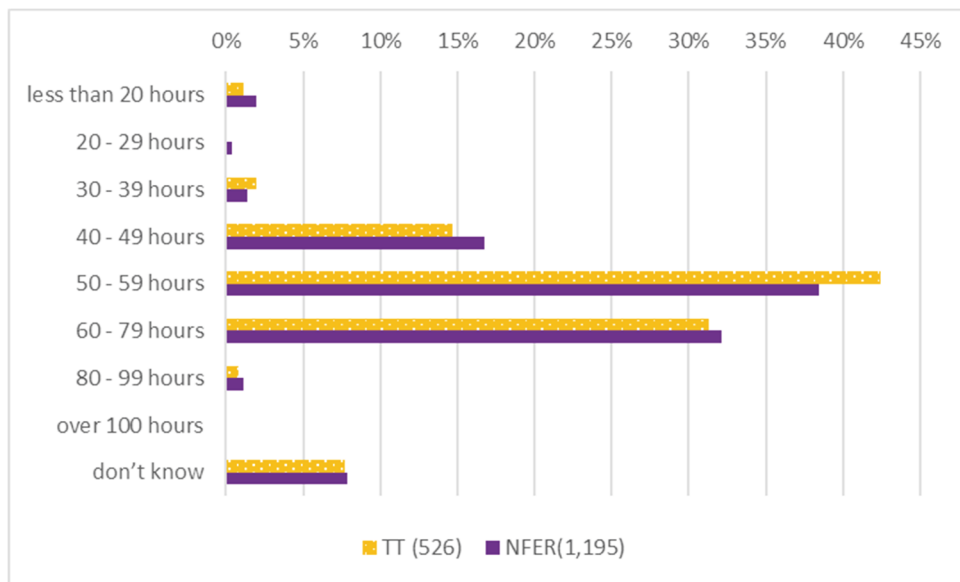
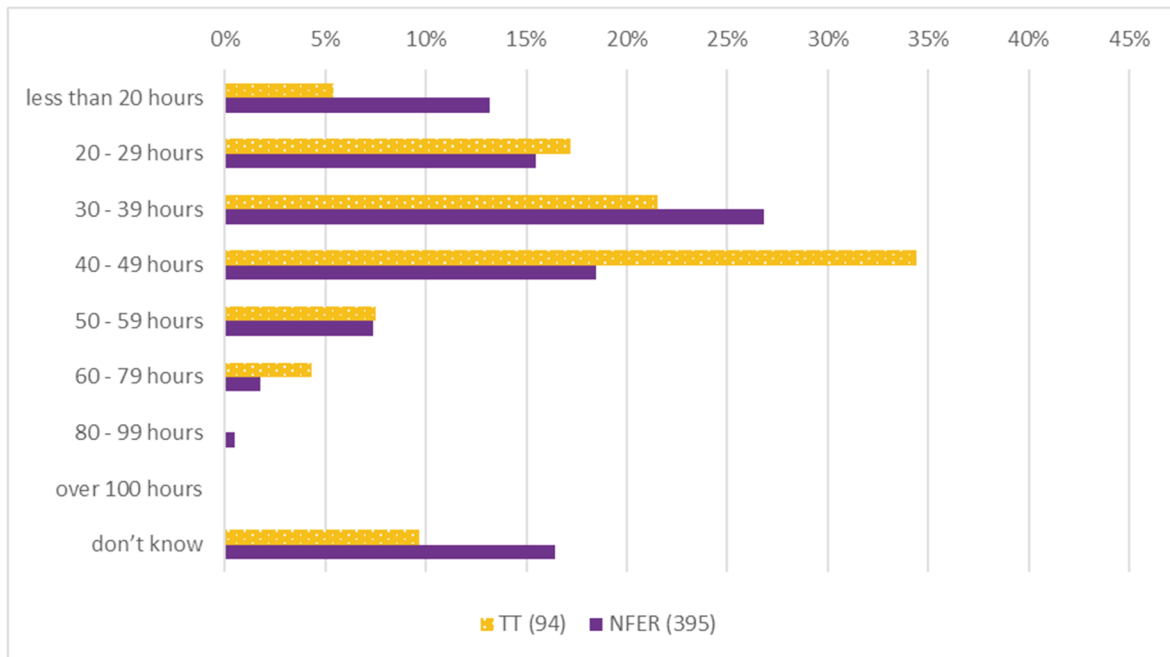


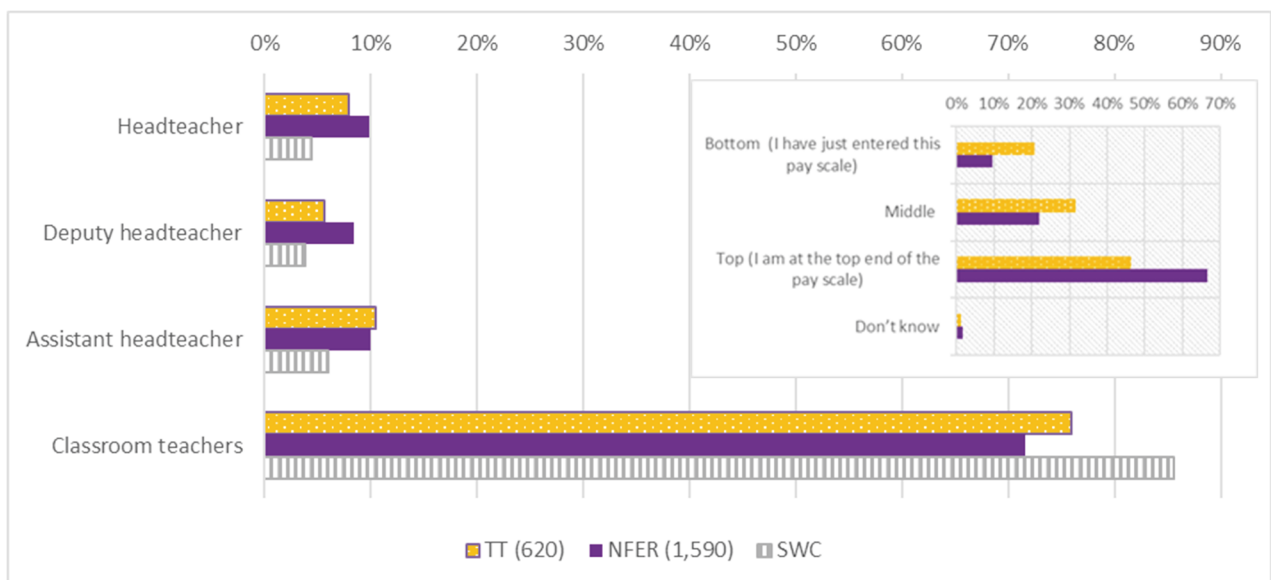
Figure 31 Sample comparison by reported workload per week (part-time teachers only)



**B.1.3. The TT sample consists of a lower proportion of teachers at the top of their pay scale and a shorter average length of service as teachers**

As shown in Figure 32, over half of the NFER sample are qualified teachers on the upper pay scale (53%), whereas less than 40% of the TT sample hold posts at this level. Further, a lower proportion of TT respondents report being on the top of their pay scale (46%) compared to the NFER respondents (67%).

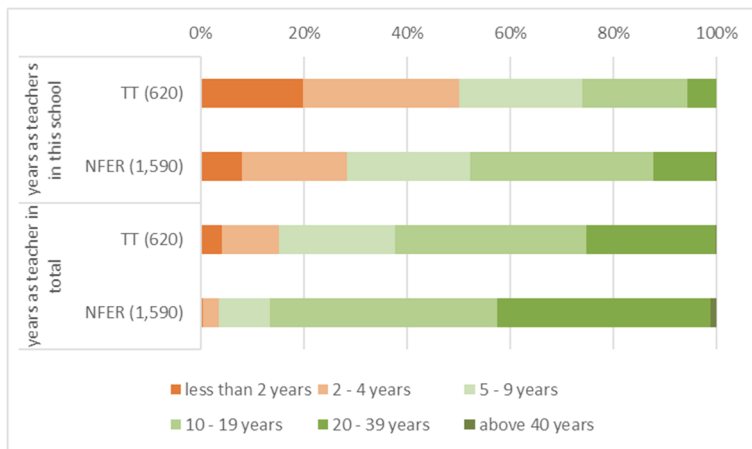
Figure 32 Sample comparison by role in school and current pay scale



As reflected in Figure 33, on average, teachers from the TT sample reported a shorter time spent working as a teacher both in total and in their current school. The NFER sample is more experienced, with 86% of the sample having 10 or more years of teaching experience, compared to 62% in the TT sample. This could

partly explain the slightly lower proportion of the TT teacher sample in the middle or bottom of their pay scales.

Figure 33 Sample comparison by length of service as teachers



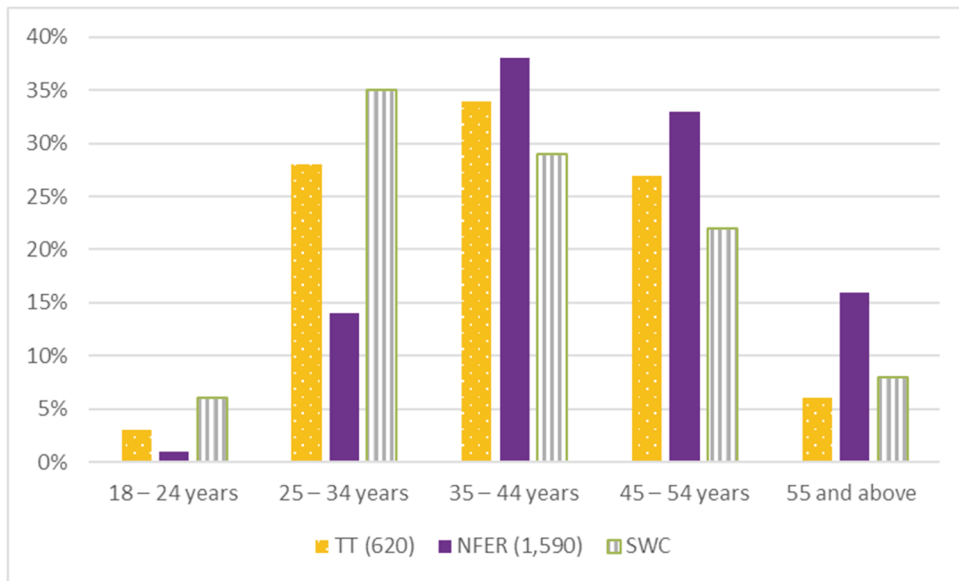
In summary, the TT sample captures a higher proportion of teachers working at secondary schools and on a full-time contract. The NFER sample shows a relatively higher proportion of teachers on the upper pay scale and working at community schools. Apart from the above employment characteristics, no substantial differences were observed between the two samples in other employment characteristics (including school location area, school Ofsted rating, flexibility of moving to part-time work arrangements, continuous professional development (CPD) days and the split between school and individual activities, reported class size, reported student behaviour, and perceived support from peers, school leadership and governors). A detailed tabulation comparison can be found in Annex B.2.

## B.2. Sample comparison by socio-economic characteristics

### B.2.1. On average, the TT sample is younger than the NFER sample and a higher proportion of respondents are female

Figure 34 shows that 31% of the TT sample are aged under 35, compared to 15% of the NFER sample. The NFER sample has a higher proportion of respondents aged 55 and older (15%) compared to the TT sample (6%). The younger profile of the TT respondents may, in part, reflect the survey medium, i.e. younger teachers are perhaps more likely to engage with an app compared to older teachers. Compared with the School Workforce Census (SWC)(DfE, 2019c), our sample slightly under-samples young teachers, particularly from the NFER channel.

Figure 34 Sample comparison by age



Both samples contain far more women than men, although the NFER sample contains a lower proportion of female respondents (67%) compared to TT (80%). According to the school workforce census (2018), 76% of FTE teachers are women, which explains the higher proportion of female respondents. This differs substantially by school type: 85% of nursery and primary school teachers are female, compared to only 63% of secondary school teachers.

### B.2.2. The two samples show similarities in household structure and household income, albeit differences in other characteristics

Figure 35 shows that the two samples have similar household structures in terms of the number of adults and children. A slightly higher proportion of NFER respondents are married or in a civil partnership (67% compared to 59%), and more TT respondents are single (19% compared to 11%), as might be expected given the respective age profiles.

Figure 35 Sample comparison by household structure (number of adults and children)

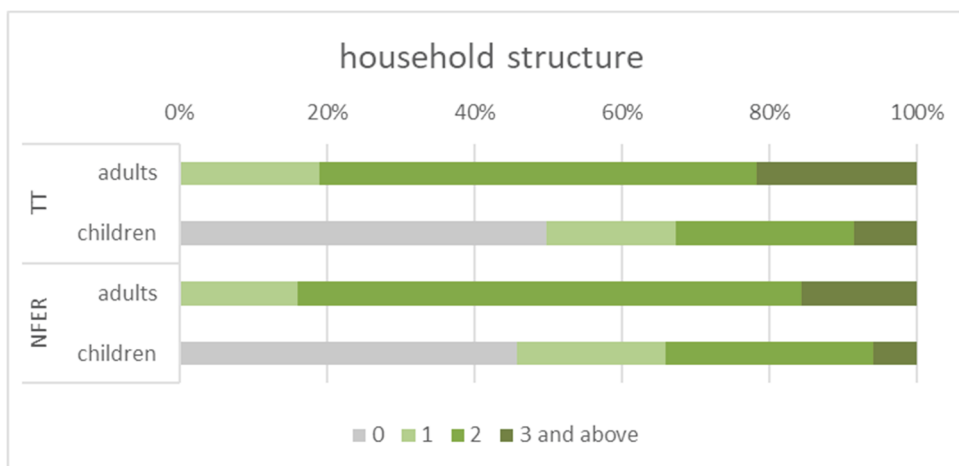


Table B.1 Sample composition (n=2,210)

Sample characteristics	TT	NFER	Combined sample	England <sup>19</sup>
Q1 What type of area is your school located in?				
London	15%	12%	13%	13%
City other than London	19%	20%	19%	20%
Others <sup>20</sup>	65%	68%	68%	67%
Town <sup>21</sup>	48%	50%	50%	-
Village/rural area	17%	18%	18%	-
Q2 What type of school do you work at?				
Primary	39%	51%	47%	50%
Secondary	59%	49%	52%	44%
[of which Sixth form	10%	13%	12%	-]
Special school	2%	1%	1%	5%
Alternative provision	1%	1%	1%	1%
Q3 Which of the following best describes your school?				
Community school (Local authority maintained)	30%	38%	36%	-
Foundation or Voluntary school	7%	9%	8%	-
Academy	57%	48%	50%	-
Grammar school	2%	3%	3%	-
Independent	0%	0%	0%	-
Other	4%	2%	2%	-
Q4 Which years do you typically teach?				
Early years foundation stage (typically age 3 to 5)	8%	20%	16%	-
KS1 (typically age 5 to 7)	16%	25%	22%	-
KS2 (typically age 7 to 11)	32%	37%	35%	-
KS3 (typically age 11 to 14)	53%	43%	46%	-
KS4 (typically age 14 to 16)	56%	45%	48%	-
KS5 (typically age 16 to 18)	33%	28%	29%	-
Q5 Most recent Ofsted rating of your school <sup>22</sup>				
Grade 1 Outstanding	20%	21%	21%	19%
Grade 2 Good	60%	64%	63%	67%
Grade 3 Requires Improvement	15%	11%	12%	10%
Grade 4 Inadequate	3%	3%	3%	4%
Other	0%	1%	0%	-
Don't know	2%	1%	1%	-
Q6_1 Years of work experience as a teacher at your current school				
less than 2 years	20%	8%	11%	-
2–4 years	30%	20%	23%	-
5–9 years	24%	24%	24%	-
10–19 years	20%	36%	31%	-
20–39 years	6%	12%	10%	-
above 40 years	0%	0%	0%	-
<b>Q6_2 Years of work experience as a teacher in total</b>				

<sup>19</sup> Data comes from the School Workforce Census (DfE, 2019c) unless otherwise specified.

<sup>20</sup> 'Others' category includes town and village/rural area in the present study.

<sup>21</sup> Figures come from: 'Teacher Voice Bespoke Omnibus Survey for OME/RAND, February 2020: Sample information document. NFER.' Figures do not break down into village/town granularity.

<sup>22</sup> This information comes from DfE (2019b). It should be noted that this data is the actual Ofsted ratings, as opposed to teacher self-reported answers about their own schools.

Sample characteristics	TT	NFER	Combined sample	England <sup>19</sup>
less than 2 years	4%	0%	1%	
2–4 years	11%	3%	5%	
5–9 years	22%	10%	13%	
10–19 years	37%	44%	42%	
20 +years	25%	42%	38%	
<b>Q6_3 Years of work experience working in other education roles</b>				
less than 2 years	75%	84%	81%	-
2–4 years	14%	8%	10%	-
5–9 years	6%	4%	4%	-
10–19 years	4%	3%	3%	-
20–39 years	1%	1%	1%	-
above 40 years	0%	0%	0%	-
<b>Q6_4 Years of work experience working in other non-education roles</b>				
less than 2 years	46%	58%	55%	-
2–4 years	19%	18%	18%	-
5–9 years	18%	13%	14%	-
10–19 years	12%	9%	10%	-
20–39 years	5%	3%	3%	-
above 40 years	0%	0%	0%	-
<b>Q7 What are your contracted working hours?</b>				
Full-time (more than 90% of full-time hours)	85%	75%	78%	76%
Part-time (sum of the three categories below)	15%	25%	22%	24% <sup>23</sup>
Part-time (71–90% of full-time hours)	9%	9%	9%	-
Part-time (51–70% of full-time hours)	4%	10%	9%	-
Part-time (less than 50% of full-time hours)	2%	5%	4%	-
<b>Q8 How many hours a week do you work? (work as a teacher)</b>				
Less than 20 hours	2%	5%	4%	-
20–29 hours	3%	4%	4%	-
30–39 hours	5%	8%	7%	-
40–49 hours	18%	17%	17%	-
50–59 hours	37%	31%	33%	-
60–79 hours	27%	25%	25%	-
80–99 hours	1%	1%	1%	-
Over 100 hours	0%	0%	0%	-
Don't know	8%	10%	9%	-
<b>Q9 Flexibility of moving to part-time working arrangements?</b>				
Generally little possibility	22%	23%	22%	-
Possible	43%	48%	46%	-
Very likely	22%	22%	22%	-
Don't know	13%	7%	9%	-
<b>Q10 What subject area/s do you currently teach<sup>24</sup></b>				
Multiple (primary)	32%	41%	38%	-
Multiple (special school or alternative provision)	1%	1%	1%	-

<sup>23</sup> The School Workforce Census only breaks down by full-time and part-time.

<sup>24</sup> The School Workforce Census does offer breakdown by subject, but due to differences in the way data is recorded and the exclusion of primary school teachers, it would not produce a meaningful comparison with our sample.

Sample characteristics	TT	NFER	Combined sample	England <sup>19</sup>
Maths	19%	10%	13%	-
English	13%	8%	10%	-
Science	14%	10%	11%	-
Languages	5%	4%	4%	-
Humanities or social sciences	13%	10%	11%	-
Creative or practical arts, including D&T	3%	6%	5%	-
Computing/ IT	2%	4%	4%	-
Other (including PE)	3%	5%	5%	-
Most of my time is spent on non-classroom duties	11%	14%	13%	-
<b>Q11 What is your current post in your school?<sup>25</sup></b>				
Headteacher	8%	10%	9%	4%
Deputy headteacher	6%	8%	8%	4%
Assistant headteacher	10%	10%	10%	6%
Classroom teachers <sup>26</sup>	71%	70%	70%	86%
Leading Practitioner	9%	5%	6%	-
Qualified teacher (upper pay range)	39%	53%	49%	-
Qualified teacher on the Main Pay Range not serving statutory induction	19%	12%	14%	-
NQT: Qualified teacher who is serving statutory induction	3%	0%	1%	-
Unqualified teacher	1%	0%	0%	-
Teaching assistant	0%	0%	0%	-
Other	4%	2%	3%	-
<b>Q12 Where are you on the pay scale?</b>				
Bottom (I have just entered this pay scale)	21%	10%	13%	-
Middle	32%	22%	25%	-
Top (I am at the top end of the pay scale)	46%	67%	61%	-
Don't know	1%	2%	2%	-
<b>Q13_1 Do you feel supported by school leadership?</b>				
0: I get no support	3%	4%	4%	-
1	7%	9%	8%	-
2	9%	13%	12%	-
3	25%	22%	23%	-
4	28%	25%	26%	-
5: I feel very well supported	24%	28%	27%	-
Not applicable	4%	0%	1%	-
<b>Q13_2 Do you feel supported by peers and supporting staff?</b>				
0: I get no support	1%	1%	1%	-
1	2%	4%	4%	-
2	6%	8%	7%	-
3	19%	19%	19%	-
4	35%	35%	35%	-
5: I feel very well supported	35%	34%	34%	-
Not applicable	1%	0%	0%	-
<b>Q13_3 Do you feel supported by governors or academy trustees?</b>				

<sup>25</sup> The School Workforce Census does offer a breakdown by teaching grade, but not to the same granularity as our sample, hence it would not produce a meaningful comparison with our sample.

<sup>26</sup> 'Classroom teachers' includes: Leading practitioner; Qualified teacher (upper pay range); Qualified teacher on the Main Pay Range not serving statutory induction; NQT: Qualified teacher who is serving statutory induction.

Sample characteristics	TT	NFER	Combined sample	England <sup>19</sup>
0: I get no support	7%	6%	6%	-
1	7%	10%	9%	-
2	14%	12%	13%	-
3	27%	21%	23%	-
4	14%	25%	22%	-
5: I feel very well supported	18%	26%	24%	-
Not applicable	2%	0%	1%	-
<b>Q14 Class sizes</b>				
Less than 20	7%	6%	6%	-
20–25	17%	15%	15%	-
26–30	60%	60%	60%	-
31–35	11%	11%	11%	-
36–40	0%	0%	0%	-
Over 40	0%	0%	0%	-
Not applicable	5%	7%	7%	-
<b>Q15 Poor student behaviour...</b>				
...from many students disrupts most lessons	2%	2%	2%	-
...from a few students disrupts most lessons	24%	17%	19%	-
...from many students disrupts a few lessons	2%	3%	3%	-
...from a few students disrupts a few lessons	42%	45%	44%	-
...is rarely a problem	28%	29%	29%	-
Not applicable	2%	4%	3%	-
<b>Q16 How many CPD days?</b>				
less than 5 days	28%	29%	29%	-
5– 9 days	49%	54%	52%	-
10–14 days	15%	13%	13%	-
15–19 days	4%	3%	3%	-
over 20 days	4%	2%	3%	-
<b>Q17 How satisfied are you with your job as a teacher?</b>				
-5: not satisfied at all	2%	4%	3%	-
-4	3%	5%	4%	-
-3	4%	6%	6%	-
-2	5%	6%	6%	-
-1	2%	4%	3%	-
0	5%	6%	6%	-
1	5%	6%	6%	-
2	14%	13%	14%	-
3	25%	23%	23%	-
4	23%	18%	19%	-
5: very satisfied	11%	9%	10%	-
Don't know	0%	0%	0%	-
<b>Q18 How much longer do you expect to stay at your current school?</b>				
Less than 1 year	14%	15%	15%	-
1–2 years	27%	18%	21%	-
3–5 years	20%	20%	20%	-
Longer than 5 years	18%	19%	19%	-
I don't know	21%	27%	25%	-
Not applicable	0%	0%	0%	-
<b>Q20 Did you feel able to make the DCE choices?</b>				



Sample characteristics	TT	NFER	Combined sample	England <sup>19</sup>
Yes	87%	85%	86%	-
No	12%	15%	14%	-
<b>Q22 Age</b>				
18–24 years	3%	1%	1%	6%
25–34 years	28%	14%	18%	35%
35–44 years	34%	38%	37%	29%
45–54 years	27%	33%	31%	22%
55 and above (sum of the following categories)	6%	16%	12%	8% <sup>27</sup>
55–64 years	6%	14%	12%	-
65–74 years	0%	1%	0%	-
75 years or older	0%	0%	0%	-
Prefer not to say	0%	1%	0%	-
<b>Q23 Gender<sup>28</sup></b>				
Male	20%	33%	29%	24%
Female	79%	66%	70%	76%
Prefer not to say	0%	1%	1%	-
Other	0%	0%	0%	-
<b>Q24 Do you (or your household) own or rent your accommodation?</b>				
Own it outright	13%	19%	17%	-
Own it with a mortgage/loan	67%	68%	68%	-
Part own and part rent (shared ownership)	1%	1%	1%	-
Rent it (includes all those who are on Housing Benefit or Local Housing Allowance)	13%	7%	9%	-
Live here rent-free (including rent-free in relative's/friend's property but excluding squatters)	2%	1%	1%	-
Don't know	0%	1%	1%	-
Other	2%	0%	1%	-
Prefer not to say	1%	3%	2%	-
<b>Q25_1 How many adults are there living in your household?</b>				
1	19%	16%	17%	-
2	59%	66%	64%	-
3 or more	22%	15%	17%	-
<b>Q25_2 How many children are there living in your household?</b>				
None	50%	44%	46%	-
1	18%	19%	19%	-
2	24%	27%	26%	-
3 or more	9%	6%	7%	-
<b>Q26 Marital status</b>				
Married or in a civil partnership	59%	67%	65%	-
Separated (still legally married or still in a civil partnership)	1%	2%	1%	-
Divorced/Formerly in a civil partnership, now legally dissolved	4%	5%	5%	-
Widowed/Formerly in civil partnership, partner died	0%	0%	0%	-
Single, that is, never married AND never in a civil partnership	19%	11%	13%	-

<sup>27</sup> This category includes all teachers 55 and over since the categories 65–74 and 75+ are not captured by the School Workforce Census.

<sup>28</sup> The category 'Other' and 'Prefer not to say' are not captured by the School Workforce Census.

Sample characteristics	TT	NFER	Combined sample	England <sup>19</sup>
Cohabiting	14%	11%	12%	-
Prefer not to say	2%	4%	3%	-
<b>Q27 Household income<sup>29</sup></b>				
Up to £15,499	0%	0%	0%	-
£15,500–£24,999	2%	1%	1%	-
£25,000–£34,999	5%	4%	4%	-
£35,000–£49,999	18%	19%	19%	-
£50,000–£74,999	34%	33%	33%	-
£75,000–£99,999	21%	20%	20%	-
£100,000+	10%	10%	10%	-
Prefer not to say	8%	13%	12%	-
<b>Q28 Ethnicity</b>				
White	93%	91%	91%	91%
Mixed/Multiple ethnic groups	1%	2%	2%	1%
Asian or Asian British	1%	2%	2%	4%
Black/African/Caribbean/Black British	1%	1%	1%	2%
Prefer not to say	2%	1%	1%	-
Other ethnic group	0%	3%	2%	1%

### B.3. Cross-tab analysis between intended length of stay and job characteristics

Table B.2 Cross-tab analysis between intended length of stay and job characteristics (n=2,159)

			Intended length of stay at current school (row percentages)				
			less than 2 years	3–5 years	over 5 years	I don't know	sample size
Total			35%	21%	19%	25%	2159
<b>What is your current post in your school?</b>							
q11	1	Headteacher	35%	29%	20%	17%	194
	2	Deputy headteacher	41%	22%	15%	22%	173
	3	Assistant headteacher	42%	19%	17%	22%	216
	4	Leading Practitioner	40%	15%	19%	25%	130
	5	Qualified teacher (upper pay range)	30%	21%	21%	28%	1080
	6	Qualified teacher on the Main Pay Range not serving statutory induction	44%	17%	12%	27%	302
	7	NQT: Qualified teacher who is serving statutory induction	42%	11%	26%	21%	22
	8	Unqualified teacher	33%	44%	11%	11%	0
	10	Other	42%	17%	21%	21%	22
<b>What type of area is your school located in?</b>							
q1	1	London	35%	23%	13%	29%	281
	2	City other than London	36%	19%	18%	26%	410
	3	Town	35%	20%	21%	24%	1080

<sup>29</sup> The School Workforce Census has data on teacher salaries, but not households. Therefore, it would not produce a meaningful comparison with our sample.

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			Intended length of stay at current school (row percentages)				
			less than 2 years	3–5 years	over 5 years	I don't know	sample size
	4	Village/rural area	35%	21%	18%	26%	389
<b>What type of school do you work at?</b>							
q2_1	2	Primary	37%	20%	17%	26%	1015
q2_2	2	Secondary	34%	20%	20%	25%	1123
q2_3	2	Sixth form	28%	24%	24%	25%	259
q2_4	2	Special school	37%	19%	30%	15%	22
q2_5	2	Alternative provision	33%	25%	17%	25%	22
<b>Which of the following best describes your school?</b>							
q3	1	Community school (Local authority maintained)	33%	22%	19%	27%	777
	2	Foundation or Voluntary school	40%	21%	21%	18%	173
	3	Academy	38%	19%	18%	26%	1080
	4	Grammar school	18%	25%	34%	24%	65
	6	Other	30%	30%	13%	28%	65
<b>Which years do you typically teach?</b>							
q4_1	2	Early years foundation stage (typically age 3 to 5)	33%	22%	19%	27%	345
q4_2	2	KS1 (typically age 5 to 7)	34%	20%	18%	28%	475
q4_3	2	KS2 (typically age 7 to 11)	37%	21%	17%	25%	756
q4_4	2	KS3 (typically age 11 to 14)	34%	20%	21%	25%	993
q4_5	2	KS4 (typically age 14 to 16)	34%	21%	20%	25%	1036
q4_6	2	KS5 (typically age 16 to 18)	31%	22%	21%	26%	626
<b>What was the most recent Ofsted rating of your school?</b>							
q5	1	Grade 1 Outstanding	29%	23%	22%	26%	453
	2	Grade 2 Good	35%	21%	19%	26%	1360
	3	Grade 3 Requires Improvement	47%	17%	13%	24%	281
	4	Grade 4 Inadequate	53%	17%	7%	22%	65
	5	Don't know	18%	27%	18%	36%	22
	6	Other	27%	14%	23%	36%	22
<b>What is your current employment status as a teacher, in terms of working hours?</b>							
q7	1	Full-time (more than 90% of full-time hours)	36%	21%	19%	24%	1684
	2	Part-time (71-90% of full-time hours)	32%	23%	17%	28%	194
	3	Part-time (51-70% of full-time hours)	32%	15%	22%	31%	194
	4	Part-time (less than 50% of full-time hours)	43%	17%	12%	28%	86
<b>Generally, how flexible do you think your school/s would be to individual staff wishing to move from full-time to part-time working arrangements?</b>							
q9	1	Generally little possibility of moving from full-time to part-time working	46%	20%	11%	23%	475
	2	Possible to move to part-time working, but only if you meet certain conditions	35%	20%	19%	26%	993
	3	Very likely to be able to move from full-time to part-time working if you request it	26%	25%	25%	24%	475
	4	Don't know	33%	15%	21%	32%	194
<b>Subject of teaching</b>							
q10_1	2	Multiple (primary)	37%	20%	17%	26%	842

			Intended length of stay at current school (row percentages)				
			less than 2 years	3–5 years	over 5 years	I don't know	sample size
q10_2	2	Multiple (special school or alternative provision)	32%	21%	18%	29%	22
q10_3	2	Maths	37%	17%	19%	27%	281
q10_4	2	English	40%	19%	16%	25%	216
q10_5	2	Science	34%	21%	16%	29%	237
q10_6	2	Languages	37%	20%	21%	23%	86
q10_7	2	Humanities or social sciences	33%	22%	20%	24%	237
q10_8	2	Creative or practical arts, including D&T	24%	23%	21%	32%	108
q10_9	2	Computing/ IT	29%	29%	21%	21%	86
q10_10	2	Other (including PE)	31%	14%	25%	30%	86
q10_11	2	Most of my time is spent on non-classroom duties (e.g. management and leadership duties)	37%	24%	18%	21%	281
<b>Whereabouts are you placed on your current pay scale?</b>							
q12	1	Bottom (I have just entered this pay scale)	38%	25%	14%	23%	281
	2	Middle	38%	22%	17%	23%	540
	3	Top (I am at the top end of the pay scale)	34%	19%	20%	26%	1317
	4	Don't know	19%	19%	16%	45%	22
<b>Perceived support received from school leadership?</b>							
q13_1	1	0: I get no support	58%	11%	4%	27%	86
	2	1	54%	14%	7%	24%	173
	3	2	52%	11%	8%	30%	259
	4	3	36%	20%	15%	29%	497
	5	4	29%	23%	20%	28%	561
	6	5: I feel very well supported	25%	25%	31%	19%	583
	7	Not applicable	32%	41%	9%	18%	22
<b>Peers and supporting staff?</b>							
q13_2	1	0: I get no support	61%	6%	11%	22%	22
	2	1	53%	16%	6%	25%	86
	3	2	44%	19%	10%	27%	151
	4	3	43%	17%	13%	26%	410
	5	4	33%	22%	16%	29%	756
	6	5: I feel very well supported	29%	22%	28%	21%	734
	7	Not applicable	44%	56%	0%	0%	0
<b>How many students are there in your class? (If multiple classes, what is the average class size?)</b>							
q14	1	Less than 20	38%	16%	14%	31%	130
	2	20–25	37%	19%	18%	26%	324
	3	26–30	34%	21%	20%	25%	1317
	4	31–35	40%	22%	11%	28%	237
	5	36–40	33%	0%	33%	33%	0
	6	Over 40	0%	50%	50%	0%	0
	7	Not applicable	32%	24%	20%	24%	130
<b>Overall, how would you describe the student behaviour in your classes? Poor behaviour...</b>							
q15	1	...from many students disrupts most lessons	55%	16%	7%	23%	130

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			Intended length of stay at current school (row percentages)				
			less than 2 years	3–5 years	over 5 years	I don't know	sample size
	2	...from a few students disrupts most lessons	46%	17%	13%	24%	130
	3	...from many students disrupts a few lessons	50%	20%	9%	21%	130
	4	...from a few students disrupts a few lessons	33%	22%	18%	27%	130
	5	...is rarely a problem	31%	21%	23%	25%	130
	6	Not applicable	26%	24%	26%	24%	130
<b>On a scale of -5 to 5, how satisfied are you with your job as a teacher?</b>							
q17	1	-5: not satisfied at all	74%	3%	3%	21%	86
	2	-4	49%	15%	9%	26%	86
	3	-3	59%	9%	5%	27%	130
	4	-2	57%	14%	6%	23%	130
	5	-1	42%	18%	7%	33%	65
	6	0	48%	17%	9%	25%	130
	7	1	38%	16%	13%	33%	108
	8	2	32%	23%	13%	33%	302
	9	3	31%	21%	19%	29%	497
	10	4	20%	26%	33%	20%	410
	11	5: very satisfied	21%	31%	37%	12%	194
	12	Don't know	50%	25%	25%	0%	0
<b>Were you able to make the choices?</b>							
q20	1	Yes	35%	21%	19%	25%	1857
	2	No	38%	18%	14%	30%	302
	99	#N/A	75%	25%	0%	0%	0
<b>How old are you?</b>							
q22	1	18–24 years	54%	17%	4%	25%	22
	2	25–34 years	43%	19%	11%	27%	389
	3	35–44 years	34%	16%	20%	30%	799
	4	45–54 years	28%	21%	27%	24%	669
	5	55–64 years	46%	35%	8%	11%	259
	6	65–74 years	56%	22%	0%	22%	0
	8	Prefer not to say	40%	0%	10%	50%	0
	99	#N/A	63%	25%	0%	13%	0
<b>Are you?</b>							
23	1	Male	38%	21%	18%	23%	626
	2	Female	34%	21%	19%	26%	1490
	3	Prefer not to say	43%	5%	5%	48%	22
	4	Other	100%	0%	0%	0%	0
	99	#N/A	63%	25%	0%	13%	0
<b>Do you (or your household) own or rent the accommodation you live in?</b>							
q24	1	Own it outright	37%	30%	16%	17%	367
	2	Own it with a mortgage/loan	33%	19%	21%	28%	1468
	3	Part own and part rent (shared ownership)	44%	17%	11%	28%	22
	4	Rent it (includes all those who are on Housing Benefit or Local Housing Allowance)	50%	16%	11%	23%	194

			Intended length of stay at current school (row percentages)				
			less than 2 years	3–5 years	over 5 years	I don't know	sample size
	5	Live here rent-free (including rent-free in relative's/friend's property but excluding squatters)	59%	21%	3%	17%	22
	6	Don't know	25%	42%	17%	17%	22
	7	Other	42%	25%	17%	17%	22
	8	Prefer not to say	20%	18%	10%	51%	43
<b>What is your current marital status?</b>							
q26	1	Married or in a civil partnership	34%	21%	20%	25%	1403
	2	Separated (still legally married or still in a civil partnership)	22%	31%	22%	25%	22
	3	Divorced/Formerly in a civil partnership, now legally dissolved	34%	21%	28%	17%	86
	4	Widowed/Formerly in civil partnership, partner died	50%	25%	25%	0%	0
	5	Single, that is, never married AND never in a civil partnership	39%	17%	12%	32%	281
	6	Cohabiting	40%	21%	18%	22%	259
	7	Prefer not to say	28%	19%	12%	41%	65
<b>What is your household's combined yearly income (pre-tax and National Insurance)?</b>							
q27	1	Up to £15,499	100%	0%	0%	0%	0
	2	£15,500–£24,999	45%	13%	16%	26%	22
	3	£25,000–£34,999	33%	16%	10%	41%	86
	4	£35,000–£49,999	33%	22%	19%	26%	410
	5	£50,000–£74,999	37%	19%	18%	25%	712
	6	£75,000–£99,999	34%	21%	21%	25%	432
	7	£100,000+	36%	29%	21%	15%	216
	8	Prefer not to say	35%	18%	17%	30%	259
<b>How would you describe your ethnicity?</b>							
q28	1	White	35%	21%	19%	26%	1965
	2	Mixed/Multiple ethnic groups	49%	27%	12%	12%	43
	3	Asian or Asian British	36%	19%	14%	31%	43
	4	Black/African/Caribbean/Black British	53%	26%	11%	11%	22
	5	Prefer not to say	39%	21%	11%	29%	22
	6	Other ethnic group	35%	10%	17%	38%	43
<b>length of service in current school</b>							
	1	0–2 years	39%	19%	18%	24%	237
	2	3–5 years	43%	20%	16%	22%	497
	3	6–10 years	38%	19%	15%	28%	518
	4	11–20 years	29%	22%	21%	29%	691
	5	21–40 years	28%	23%	28%	21%	216
	6	above 40 years	100%	0%	0%	0%	0
<b>length of service as a teacher in total</b>							
	1	0–2 years	44%	13%	22%	22%	22
	2	3–5 years	45%	28%	9%	18%	108
	3	6–10 years	42%	18%	12%	28%	281
	4	11–20 years	37%	18%	18%	27%	907
	5	21–40 years	29%	24%	23%	24%	799
	6	above 40 years	63%	16%	0%	21%	22
<b>workload - relative to contract hours</b>							

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			Intended length of stay at current school (row percentages)				
			less than 2 years	3–5 years	over 5 years	I don't know	sample size
	1	0–1	34%	17%	20%	29%	108
	2	1–1.2	32%	24%	22%	22%	130
	3	1.2–1.5	34%	20%	19%	27%	950
	4	1.5–2	40%	21%	16%	22%	669
	5	2 above	29%	22%	25%	25%	86
	6	don't know	31%	19%	22%	29%	194
		<b>total CPD days</b>					
	1	0–5 days	39%	16%	16%	28%	626
	2	6–10 days	33%	22%	20%	24%	1144
	3	11–15 days	34%	24%	16%	26%	281
	4	16–20 days	39%	22%	24%	15%	65
	5	above 20 days	47%	20%	13%	20%	43
<b>Total</b>			35%	21%	19%	25%	2159

## Annex C. Discrete choice modelling analysis

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In this annex, we provide some additional information to explain the discrete choice model theories and analysis.

### C.1. Theory underpinning the discrete choice models

The basic tenet of discrete choice modelling is utility maximisation – that is, given a set of alternatives, each individual chooses the alternative that brings them the most utility. It is assumed that utility is derived from the underlying characteristics or attributes (Lancaster, 1966). The prediction of a respondent’s choice is represented by the Random Utility Model developed by McFadden (1973) and Manski (1977), under which utility has both a systematic and a random component. The random component may result from unobserved or unobservable attributes, unobserved taste variations, measurement errors or specification errors (Ben-Akiva & Lerman, 1985).

The model estimation can therefore be conducted within the framework of random utility theory, thus accounting for the fact that the analyst has only imperfect insight into the utility functions of the respondents.

Table C.1 describes the interpretation of the resulting model fit statistics and model coefficients.

Table C.1 Interpretation of the model fit statistics and coefficient estimates

Statistics	Interpretation
<b>Observations</b>	The number of choice observations included in the model estimation (reflecting the number of respondents and number of choice scenarios).
<b>Final log (L)</b>	This indicates the value of the log-likelihood at convergence. The log-likelihood is defined as the sum of the log of the probabilities of the chosen alternatives, and is the function that is maximised in model estimation. The value of log-likelihood for a single model has no obvious meaning; however, comparing the log-likelihood of two (nested) models estimated on the same data allows the statistical significance of new model coefficients to be assessed properly through the Likelihood Ratio test.
<b>DOF</b>	Degrees of freedom, i.e. the number of coefficients estimated in this model. Note that if a coefficient is fixed to zero then it is not a degree of freedom.
<b>Rho2(c)</b>	If we compare the log-likelihood (LL(final)) value obtained with the log-likelihood of a model with only constants (LL(c)) we get: $\text{Rho2}(c) = 1 - \text{LL}(\text{final})/\text{LL}(c)$ A higher value indicates a better-fitting model.



Statistics	Interpretation
<b>Sign</b>	<p>The sign of the coefficient indicates the preference for that attribute. A positive sign indicates that the attribute has a positive impact on respondents' choices, and therefore the attribute is preferred by respondents and vice versa.</p> <p>In the case of attributes with different levels that have been coded as categorical variables in the choice models it indicates the preference for an attribute level relative to its base level. The base level is a fixed attribute level relative to which the effects of other attribute levels are measured. A positive sign indicates that the attribute level is preferred relative to the base level by respondents and vice versa.</p>
<b>Magnitude</b>	The magnitude of the coefficient indicates the degree of preference. The larger the coefficient the stronger the preference for the attribute.
<b>Base level</b>	In the case of categorical variables it is necessary to fix a coefficient related to one of the levels to zero in order to estimate the model. The coefficients estimated for all other levels in that variable are then estimated with reference to the base level.
<b>t-ratio</b>	This indicates the significance of the coefficient. A 't-ratio' numerically greater than (+/-) 1.96 indicates that the corresponding coefficient is significant at a 95% level, and in practice is a commonly accepted level at which the effect implied by the coefficient is called significant. A 95% significance level indicates that the corresponding effect identified has only a 5% chance of being purely random.

## C.2. Testing for differences between the subgroups of teachers

The choice models were developed, testing for and taking into account any differences in preferences that can be observed between groups of teachers. A wide range of background characteristics were tested to identify whether certain subgroups appear to be responding in ways that the average model was not capturing. Table C.2 lists the characteristics that we examined in the modelling stage.

Table C.2 List of the characteristics examined

Employment characteristics	Socio-economic characteristics
Current post in school	Age
Area type of school	Gender
Type of school (primary, secondary, ...etc)	Accommodation (tenure type)
Type of school (community, foundation, academy etc.)	Marital status
Stage of years teaching	Household income
School Ofsted ratings	Ethnicity
Contract type (full-time, part-time etc)	
Workload	
Subject teaching	
Current pay scale (top, middle, and bottom)	
Support received (leadership, peers etc)	
Class size	
Current student behaviour	
CPD days and split between the inside and outside school	
Job satisfaction	

When testing the impact, these characteristics may interact with the observed decision making in two possible ways:

- There may be some subgroups of teachers that have differing sensitivity to different attributes within the job on offer (e.g. greater sensitivity to professional development opportunities, flexibility of moving to part-time arrangements, etc). These would be picked up through covariates on the attributes in the models.
- There may be some subgroups of teachers that are more reluctant to change job, independent of the specification of the job on offer. These impacts would be picked up through the use of dummy terms in the utility function of the ‘Remain in your current post’ alternative, which would allow differing levels of inertia by teacher types.

### C.3. Correcting for the repeated measures nature of the choice data

In discrete choice experiments there are multiple observations from the same individuals, and in the case of this study each respondent completed five choices for each of two DCEs in the survey. As such the individual observations on which the model is based are not independent, and therefore the naïve model does not provide true likelihood estimates.

The bootstrap technique has been applied to provide an improved estimate of the standard errors over those provided by the naïve estimation that assumes independence between observations. The bootstrap procedure (Efron, 1979) is a very general resampling procedure for estimating the standard errors in cases where the theory does not provide an exact estimate of the error. This resampling technique also identifies and corrects for other aspects of model misspecification.

The final model results (standard errors and parameter t-ratios from models) have been bootstrapped to correct the repeated measure issue.

### C.4. Final model specification

Table C.3 presents the initial model results. Separate models were developed initially for the two stated choice experiments – DCE1 and DCE2 (see Section 2.2 for more details) – and for TT<sup>30</sup> and NFER respectively. A joint model was then developed pooling the choice observations from both experiments and both data collection channels. A scaling parameter (Bradley and Daly, 1991) was included in the model to allow the different error variance from different sources of data when pooling the data. The scale parameter for DCE2 was slightly larger than for DCE1 (although it was not statistically significant). Similarly, the scale parameter for NFER data sources was not statistically significantly estimated. As a result, the model

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<sup>30</sup> We included the pilot survey responses in the model (TT only) as no substantial changes were made to the choice experiments after the pilot survey. To pool the pilot survey data, a scale parameter was included in the earlier model and found to be not statistically significantly different from the base. Therefore, we did not present the test here.

based on the pooled data reduces to a conventional multinomial logit (MNL) structure.<sup>31</sup> The model is based on over 21,000 choice observations for choice experiments, collected from 2,210 individuals.<sup>32</sup>

Table C.3 Model estimation (base model)

Description	Estimate	t-ratio	sample size
<b><i>Pay</i></b>			
Pay (reduction)	9.1298	29.9	
Pay (increase)	5.1115	17.8	
Household income less than £50k or prefer not to say category (additional)	-0.9307	-2.0	36%
<b><i>Pension</i></b>			
Pension (reduction)	7.9012	22.7	
Pension (increase)	2.5904	7.8	
Less than five years working in teaching (additional)	-2.6970	-2.5	6%
<b><i>Workload</i></b>			
Workload increase	-12.8242	-23.9	
School leaders (additional)	4.1119	4.6	33%
London (additional)	2.4171	2.1	13%
Workload reduction	-3.6254	-9.3	
<b><i>Pay progression - pay range % increase</i></b>			
I1: Your pay scale provides an annual progression increase of 15%	0.2686	7.5	
I1 - less than 2 years of working as teacher in total (additional)	0.3019	1.6	11%
I2: Your pay scale provides an annual progression increase of 10%	0.2679	8.0	
I2 - age below 35 (additional)	0.1969	3.0	19%
I3: Your pay scale provides an annual progression increase of 5% (reference)	0.0000	n/a	
<b><i>Pay progression - pay range years from minimal to maximum (at a normal speed)</i></b>			
R1: for up to 7 years	-0.0629	-1.7	
R1 - age below 35 (additional)	0.1917	2.6	19%
R2: for up to 5 years	-0.0658	-1.7	
R12 - part-time (51–70% of full-time hours) (additional)	0.2796	2.8	9%
R3: for up to 3 years (reference)	0.0000	n/a	
<b><i>Pay progression - Whether performance accelerates up scale</i></b>			
Y1: If your performance is rated as satisfactory you will move up one step, if it is rated as excellent you will move up two steps in a year	0.1890	4.7	
Y1 - Male (additional)	-0.1323	-2.2	29%
Y1 - Aged 45 and above (additional)	-0.1598	-3.5	45%
Y1 - Renting and rent free (additional)	0.2216	3.1	10%
Y2: If your performance is rated as satisfactory or above you will move up one step in a year (reference)	0.0000	n/a	
<b><i>Development opportunities</i></b>			
Cd: CPD total number of days	0.0203	2.9	
Cd - School Leaders (additional)	0.0263	1.8	33%
Cd - Sixth forms (additional)	-0.0417	-2.8	12%

<sup>31</sup> We examined the other model specification such as to have a nesting structure to capture the substitution effects of the two new job offer options but found no nesting parameters, and therefore did not report the model results here.

<sup>32</sup> We removed the responses from those who stated they had more than 30 days CPD in the past academic year. Keeping those responses in the model led to distorted and less significant model coefficients for the CPD total number of days, and worsened the model fit.

Description	Estimate	t-ratio	sample size
Csp: CPD split between in school and your choice	0.2646	2.5	
<b><i>Part-time working</i></b>			
Pt1: Very likely to be able to move from full-time to part-time working if you request it	0.2050	4.0	
Pt2: Possible to move to part-time working, but only if you meet certain conditions	0.0844	1.5	
Pt12 - part time (less than 70%) (additional)	0.6262	4.0	13%
Pt12 - ethnicity: non-white (additional)	0.5103	2.3	8%
Pt12 - class size less than 25 (additional)	0.2818	3.1	22%
Pt3: Very little possibility regarding moving from full-time to part-time working (reference)	0.0000	n/a	
<b><i>Leadership culture - school leadership support</i></b>			
S1: Sufficient support from school leadership	0.4319	10.3	
S1 - qualified teacher on the Main Pay Range not serving statutory induction (additional)	0.1716	2.0	14%
S2: Lack of support from school leadership (reference)	0.0000	n/a	
<b><i>Leadership culture - peers support</i></b>			
Pr1: Sufficient support from peers	0.4158	10.3	
Pr1 - creative or practical arts, including D&T (additional)	0.4073	2.4	5%
Pr1 - other (including PE) (additional)	-0.3473	-2.2	5%
Pr2: Lack of support from peers (reference)	0.0000	n/a	
<b><i>Teaching environment</i></b>			
L1: Poor behaviour is rarely a serious problem (reference)	0.0000	n/a	
L2: Poor behaviour from a few students disrupts a few lessons	-0.3659	-9.1	
L3: Poor behaviour from many students disrupts a few lessons	-0.8613	-15.4	
L4: Poor behaviour from a few students significantly disrupts most lessons	-1.2383	-20.4	
L5: Poor behaviour from many students significantly disrupts most lessons	-1.9175	-23.8	
Levels 2-5: Sixth forms (additional)	-0.3911	-3.3	12%
Levels 2-5: London (additional)	0.2809	2.6	13%
<b><i>Model constants</i></b>			
As Now constant	0.7807	14.7	
Part-time (less than 90% of the full time) (additional)	0.3243	4.5	22%
Maths, languages, humanities or social sciences (additional)	0.3023	3.0	27%
Marital status: cohabiting (additional)	0.0000	n/a	12%
Subject: computing/ IT, and other including PE (additional)	-0.2076	-2.8	8%
Gender: male (additional)	-0.2651	-3.9	29%
Sixth form (additional)	-0.3009	-2.5	12%

<b><i>Model Performance</i></b>	
Observations	21,590
Final Log Likelihood	-13154.3
D.O.F	48
Rho <sup>2</sup> (0)	0.3199
Rho <sup>2</sup> (c)	0.2319

## C.5. Weights calculation

The outputs from the choice modelling were reweighted to reflect the sample composition of the teacher workforce statistics (DfE, 2019d). The weights were applied in three dimensions: age, gender and current role in school (headteachers and classroom teachers), as these three factors are found to show a significant influence within the choice models. The sample over-represented the school headteachers in our study. Table C.4 shows the weights; it is encouraging most of the weights are close to 1; though some are higher, such as 9.37 for male classroom teachers aged 18–24. There are only three respondents in this subgroup, so we judged the impact as small. For respondents who did not provide information for gender or age, weight 1 was used.

Table C.4 weights calculation

Group id	Gender	Role	Age	weights
111	Male	Headteachers	18–24 years	0
112	Male	Headteachers	25–34 years	0.748872
113	Male	Headteachers	35 – 44 years	0.513011
114	Male	Headteachers	45–54 years	0.492256
115	Male	Headteachers	55 and above	0.63609
121	Male	Classroom teachers	18–24 years	9.369742
122	Male	Classroom teachers	25–34 years	2.256675
123	Male	Classroom teachers	35–44 years	1.066
124	Male	Classroom teachers	45–54 years	0.900516
125	Male	Classroom teachers	55 and above	0.558376
211	Female	Headteachers	18–24 years	0
212	Female	Headteachers	25–34 years	1.155504
213	Female	Headteachers	35–44 years	0.532688
214	Female	Headteachers	45–54 years	0.554169
215	Female	Headteachers	55 and above	0.515248
221	Female	Classroom teachers	18–24 years	5.093332
222	Female	Classroom teachers	25–34 years	1.997409
223	Female	Classroom teachers	35–44 years	0.819806
224	Female	Classroom teachers	45–54 years	0.780976
225	Female	Classroom teachers	55 and above	0.742892

## Annex D. Longlist of factors

Category	Factor	Definition	Include	Justification
<b>Rewards</b>	Pay	Salary.	Yes	Pay is frequently cited as one of the more important factors in this area, so is included.
	Pensions	Includes both employee and employer contribution.	Yes	Pensions are fairly generous, so whilst inadequate pensions are unlikely to be a key cause of retention issues, good pensions might well be a pull factor for people to remain in teaching.
	Market supplements	A payment made to an individual to ensure their recruitment by enhancing the salary package being offered. Sometimes including location allowance (such as London allowance).	No	This can be covered by varying the pay attribute.
	Retention supplement	A premium paid to an existing employee over and above the basic salary in order to retain their services.	No	This can be covered by varying the pay attribute.
	Teaching and learning responsibility (TLR) payments	Additional payment for teachers who take on more responsibilities: TLR 1 and TLR 2 ranges from £2,721 to £13,288.	No	This can be covered by varying the pay attribute.
	Special Educational Needs allowance (SEN)	Teachers may receive SEN allowances in respect of certain work with children with special needs.	No	Not likely to provide much information on retention issues.
<b>Pay and reward structure</b>	Pay progression	The frequency of the review of the pay and the rate at which it increases.	Yes	Since people look at their prospects for pay progression when making career decisions, this likely includes teaching as well.
	Performance-related pay	Pay progression that has been recommended and awarded as a result of the teacher's last annual performance review. UK evidence showed that the progression should not only	Merge with above	Incorporate into pay progression.

Category	Factor	Definition	Include	Justification
		rely on the quantitative assessment metrics, such as test outcomes.		
	Localised pay flexibility	Local allowance (such as London allowance).	No	Since this is fairly inflexible and applies just to London, we decided to drop this.
	Pay based on qualifications (if teacher has masters/CPD)	The idea that pay may be higher for teachers with more qualifications.	No	Does not happen very often in teaching and there is little evidence to suggest this particularly impacts on retention.
<b>Non-monetary incentives</b>	Holiday	The number of holiday days.	No	Holiday is fairly generous for teachers, and is also fairly inflexible due to fixed school terms and timetables.
	Day-care provision	Provision of adequate day-care facilities/benefits either on-site or in a nearby off-site location.	No	There is evidence this is a relevant issue especially in London, however, due to limited space, we decided this was not one of the most important issues.
	Development opportunities	Activities that aim to develop an individual's skills, knowledge, expertise and other characteristics as a teacher. Types of development activities provided by school may include: training, online courses, observation visits, coaching/mentoring, formal qualification programme.	Yes	The UK currently provides less development support compared to many other countries, so this is a good opportunity to test just how much this factor is valued compared to other attributes.
<b>Employment characteristics</b>	Flexible working hours	In this case, we interpret flexible working hours as the opportunity to work to a different schedule to other workers. This could come in two main forms: <ul style="list-style-type: none"> <li>• Compressed hours – working full-time hours but over fewer days.</li> <li>• Staggered hours – different start, finish and break times from other workers.</li> </ul>	No	Happens very rarely currently, partly due to the perceived incompatibility with teaching due to inflexible school terms and school timetables. Therefore, is not likely to provide much information on retention issues.
	Part-time working	Usually characterised by working less than full-time hours and/or working fewer days.	Yes	Certainly an issue, particularly for women in their 30s and people looking to return to teaching.

Category	Factor	Definition	Include	Justification
	Working from home	Ability to work some contracted hours from home (non-lesson delivering time, for example lesson planning or marking)	No	Since classes cannot be taught from home <sup>33</sup> , it seemed there would be little to be gained from including this.
	Workload	The amount of work a teacher has to do in a week, including teaching lessons, planning lessons, marking work, assessing pupils, inputting data, organising and running extra-curricular activities and taking on wider-school roles and responsibilities.	Yes	One of the, if not the, most cited reasons that teachers leave the profession.
	Working conditions	Working conditions cover a broad range of topics and issues, from working time to remuneration, as well as the physical conditions and mental demands that exist in the workplace.	Covered by other questions	Certainly important, but too broad to be a standalone question. Also covered by aspects of other specific questions.
	Stress	Stress and tension induced by any tasks related to an individual's role as a teacher.	No	Stress is important but is considered a consequence of other issues such as long working hours, etc.
	Attention/Ability/Behaviour of children	The degree to which disruptive behaviour impacts on the attitudes of teachers towards teaching.	Yes	Regularly cited as a reason that teachers decide to leave their jobs.
	Socio-economic status of school/class	Refers to the proportion of students at the school that are from low-income/socio-economically disadvantaged homes/backgrounds.	Covered by other questions	Evidence shows teachers are more likely to leave their post if they teach in a more deprived school, so this factor could be important. To be incorporated into a more general theme of 'school characteristics'.
	Ofsted rating	The most recent Ofsted rating of the school.	Yes	Retention is a bigger issue at schools with lower Ofsted ratings, so is certainly a relevant factor.
	Student–teacher relationship	The extent to which teachers feel they have a positive relationship with their students.	Covered by other questions	Since student–teacher interaction is a very important part of being a teacher it seems likely there is some kind of link. However, student behaviour could be used as a proxy for this.
	Teacher–parent relationship	The extent to which parental support and involvement has a positive or negative influence on teachers' ability to teach the children. This incorporates involvement of parents in student learning, interaction between parents and teachers, communication, etc.	No	Research on the link between this and retention is limited, so it is not prioritised to make our shortlist.

<sup>33</sup> It should be noted that all the development work and survey fieldwork took place before the Covid-19 pandemic, which seriously affected England, particularly the education sector. Some attitudes towards teaching may have been modified in the light of subsequent experiences.



Category	Factor	Definition	Include	Justification
	School engagement with community	The extent to which the school incorporates aspects of the local community into teaching – this could be by organising local trips and interacting with local businesses, schools, NHS trusts, charities and community organisations.	No	Advised by our expert that this is not a priority for teachers.
	Collaborative teaching	Collaborative teaching – sometimes called cooperative teaching or team teaching – involves educators working in tandem to lead, instruct and mentor groups of students.	No	There is evidence to suggest that teachers who have this opportunity are more engaged in their roles and so are more satisfied and less likely to leave. However, aspects of this are covered by questions on ‘school leadership and culture’ so it is not prioritised as a standalone question.
	Safety	Safety refers to the degree of physical and emotional security in the school, and to an orderly disciplinary climate.	No	In serious cases this will affect a small minority, and less serious cases could be covered by a student behaviour question.
	Student-teacher ratio/classroom size	The number of students to every teacher/The average size of the classes taught.	Yes	Larger classes are harder to manage and create more work.
	Happy with management/ decision-making at your school	The extent to which teachers agree with the decisions made by leadership/management.	Yes	Evidence shows this an important factor for retention. Question changed slightly to focus on support received from management/leadership.
	Leadership structure	How decisions are made and who makes them. Whether the structure is collaborative and flat or most decisions are made by only a few, with very little consultation with other staff.	No	Leadership structure is usually strictly defined so does not warrant its own question.
	Teacher well-being	Refers to the subjective well-being of teachers; how happy/satisfied they are.	Covered by other questions	Whilst this is important, it is more of a symptom of other more systemic issues; alone it does not give much insight into the root causes of retention issues. We have included it as a question about job satisfaction.
	Support received from school	Whether there is enough support given to teachers in terms of teaching support staff (teaching assistants and special needs carers, etc.).	Yes	Support from school leadership, other teachers and supporting staff all contribute towards a teacher’s support network in their job.
	Teacher Autonomy	The concept of teacher autonomy refers to the professional independence of teachers in schools, especially the degree to which they can make autonomous decisions about what they teach to students, and how they teach it.	No	This has been shown to be an important factor as it engages teachers and enables them to be more creative; however it is not as frequently discussed in the literature, may be a strange concept to a lot of teachers and is probably less important compared to other factors.

Category	Factor	Definition	Include	Justification
	General facilities (such as ICT) or support (such as materials for improving teaching).	Provision of adequate resources to teachers, allowing them to properly teach their class. This could consist of books, ICT equipment, stationary, etc.	No	Not important enough to be included as a separate factor.
	Administrative burden	The importance of reducing teachers' administration load by recruiting more support staff or improving IT systems.	No	Covered by 'workload'.