



Office of Manpower  
Economics

# Targeted Pay Increases in the Public Sector: Theory and Practice

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## Summary

- In July 2016, the Chief Secretary to the Treasury reiterated the Government's expectation of targeted pay awards, in order to support the continued delivery of public services, and to address recruitment and retention pressures.
- Almost all pay structures already differentiate between employees. If these already work satisfactorily, an employer may not need further targeting via annual increases.
- Public sector workforces are funded for pay awards of 1 per cent per year up to 2019-20, providing only limited scope to change pay relativities. Therefore, targeted annual pay awards are most likely to be effective in addressing relatively minor pay discrepancies.
- Targeting may be done with reference to: economy (minimising public resource); efficiency (best outcome from a given level of resource); effectiveness (best outcome for societal wellbeing); and fairness (including equity, standard of living and diversity).
- Pay Review Bodies (PRBs) and departments need to be mindful of any indirect disproportionate effects of targeting according to legally protected characteristics.
- Vacancies or concerns about staff morale are not sufficient basis for a targeted pay award. There needs to be evidence that targeting will have an impact on the issue of concern.
- Targeted awards will have a greater impact where: labour supply is relatively responsive to pay; and/or where output-per-worker will rise relatively significantly in response to increased pay.
- Pay needs to be targeted in a manner that does not do more harm than good by creating other supply or motivation problems, especially in the context of limited budgets.
- Recruitment, retention and productivity may respond in different ways to pay. Employers need to understand both their existing workforces and the wider labour market.
- Potential dimensions for distinguishing employees to receive targeted pay rises from others are: skills, experience and occupation; location; and employee performance.
- Individuals operate simultaneously in skills-based and geographical labour markets. However, the relative 'pull' of these two labour markets will differ from case to case. If the workforce is relatively mobile, location may be an unsuitable dimension for pay targeting.
- Targeting pay by performance requires robust measurement, or at least ranking, of staff performance and a good understanding of the link between pay and employee output.
- Targeting can be done nationally, departmentally or locally. Relevant factors include overall financial control; the trade-off between using granular knowledge and general consistency; the importance of location; and the appropriate level for accountability.
- Effective targeting requires good evidence. Precise data requirements partly depend on the type of targeting. There generally needs to be a workforce strategy and an understanding of how pay is linked to output, at both individual and organisational level.
- In summary, when considering pay targeting, PRBs and government need to take account of: general context and strategy; the form of implementation; impacts on different sections of the workforce; and availability of necessary data and evidence.

# 1 Introduction

## *Purpose*

- 1.1 Each year, as part of the annual ‘pay round’ process where pay for public sector workforces is reviewed, government departments and other interested parties submit evidence and pay proposals to the public sector Pay Review Bodies (PRBs) and the PRBs subsequently consider the evidence and make recommendations to government<sup>1</sup>.
- 1.2 In July 2016, the Chief Secretary to the Treasury wrote to the Chairs of the PRBs about public sector pay in the financial year 2017-18. He reiterated the government’s commitment to “*fund public sector workforces for pay awards of an average of 1 per cent a year, up to 2019/20*”. He also restated a commitment made in a similar letter 12 months earlier to target pay awards. “*As I set out to you in my letter last year, I expect to see targeted pay awards, in order to support the continued delivery of public services, and to address recruitment and retention pressures. This may mean that some workers could receive more than 1 per cent whilst others receive less, and there should be no expectation that every worker will receive a 1 per cent pay award. I am aware that this requires you to receive good, evidence-based propositions to consider.*”
- 1.3 The heightened focus on targeting seen in the public sector in recent years is also evident in the private sector. In recent research for the Office of Manpower Economics (OME), PWC (2016) found that in a post-recession, low inflation environment, organisations are targeting their base pay review budgets at high performing, business critical talent, but with strong reference to market rates. There was evidence of increased consideration of employee value, potential and retention in the decision making process.
- 1.4 This paper aims to provide a basis for thinking about pay targeting in a systematic and structured way. It does not attempt to specify what proposals government departments should develop for pay targeting, nor what PRBs should recommend, but aims to aid analysis of the potential options and impacts. It concludes by setting out a range of issues that PRBs and departments may find useful when thinking about options for pay targeting.
- 1.5 This paper is written by the Office of Manpower Economics (OME) and it does not necessarily reflect the collective or individual view of PRBs, their members or government. Neither PRBs nor departments are required to cite or use this guidance. Nevertheless, the OME is grateful for the helpful comments and suggestions received from PRB members and government officials. It is the first attempt, which we know of, to place an explicit structured framework around the consideration of pay targeting in the public sector. The OME welcomes comments and suggestions relating to the subjects discussed in this paper from economists, labour market experts and others with an interest in pay targeting.

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<sup>1</sup> For more detail on the PRBs and their work see <https://www.gov.uk/government/organisations/office-of-manpower-economics>.

## ***Approach***

- 1.6 The remainder of this paper is structured as follows. Section 2 discusses basic principles of pay structure design and sets out some relevant definitions and assumptions. Section 3 maps out a general and relatively simple economic framework for thinking about pay targeting.
- 1.7 Next the paper considers the issue of pay targeting in more specific detail. First, section 4 discusses targeting in practice, covering how pay may be targeted and how targeting decisions are made. Data requirements are considered in section 5.
- 1.8 Finally, section 6 summarises some implications for pay targeting decisions, highlighting a number of questions and issues that should be considered when seeking to apply a more targeted approach to public sector pay.

## 2 Basic principles and definitions

### *Pay structures, systems and targeting*

- 2.1 Targeted pay increases are, by definition, a form of pay differentiation. It is important to recognise, however, that almost all pay structures in both the public and private sectors already differentiate among employees. Common dimensions used to differentiate include levels of seniority, experience and performance. A typical process for determining a pay structure is discussed in Box 1.
- 2.2 If a pay structure already differentiates satisfactorily between employees, and people are paid in line with what it dictates, in a given year an employer could either decide not to alter pay at all or decide to award a non-targeted across-the-board pay increase. The latter may be done, for instance, to counteract the impact of price inflation on real earnings, reward employees for a general increase in productivity, boost motivation and effort, or to address general recruitment and retention problems or remain generally competitive in the labour market.
- 2.3 In contrast, some employees may be paid more or less than their peers within a current pay structure for historical or legacy reasons alone. The employer may then want to target pay rises towards certain individuals in order to eliminate, or at least reduce, the inconsistency. In such cases, the pay structure itself may still not need to be changed.
- 2.4 Alternatively, the employer may judge the pay structure itself as inappropriate to meet current business needs. Examples of when this may apply are as follows:
  - Circumstances internal to the organisation have changed: for instance, an increased or reduced focus on rewarding individual performance relative to team or organisational performance.
  - External circumstances have changed: for instance, a change in the demand for, or supply of, certain skills in the labour market.
  - New information shows that the pay of employees could be better aligned with the organisation's objectives.
- 2.5 In such cases, the employer may again decide that some employees should receive greater pay increases than others. In the cases of spot pay or progression pay systems this will require an alteration of the pay structure. In the case of a broad bands system it may or may not require such an alteration.
- 2.6 In the current public sector context, if the policy of funding workforces for pay awards of an average of 1 per cent is adhered to, and assuming that employees do not take a cash-terms pay cut, in most cases in a given year there will be only limited scope for changes to pay structures or what people get paid within them. Therefore, targeted annual pay awards are most likely to be effective in addressing relatively minor pay discrepancies. Major discrepancies may need to be addressed through more fundamental redesign of the pay system.

## Box 1: Pay structures and systems

- A **pay structure** is a collection of pay grades, levels or bands which links related jobs within a hierarchy or series.
- **Job analysis** is the process of collecting information about jobs in an organisation to determine job descriptions and specifications including job titles, tasks, the nature of the work and essential skills and responsibilities.
- **Job evaluation** is a method of establishing, on a systematic basis, the relative importance of a number of different jobs<sup>2</sup>. This can involve breaking jobs down into their core components, including required: knowledge and skills; effort; responsibility; people management; communication; networking; decision-making; and working conditions. The jobs can then be ranked according to their relative importance to the organisation and used as the basis for an organisational grading structure or hierarchy.
- **Market pricing** involves the use of some form of job matching, potentially based on job evaluation, to enable pay rates in the organisation to be compared with equivalent jobs with other employers. This can be done with a view to setting appropriate rates to recruit and retain staff<sup>3</sup>.
- Internal job evaluation may not rank jobs in the same order as external market pricing. This may leave employers facing a trade-off between ensuring that pay rates are seen as internally fair and externally competitive. Both considerations may influence the resulting pay structure.
- **Spot pay systems** are designed not to differentiate according to experience. They can be sub-divided into systems where all members of equivalent seniority receive the same salary; and where there is some flexibility or variation across salaries at the point of appointment.
- **Broad bands systems** enable salaries to be set within an overall minimum and maximum. Individuals may or may not receive performance-related or other pay increases within these bands.
- **Progression pay systems** have pay ranges which allow for more experienced people at a certain grade to be paid more than others of equivalent grade, as they progress in experience and/or competence.

### **Definitions and assumptions**

- 2.7 Our working definition of a targeted pay award is *a differential pay award that aims to improve the quality-adjusted output produced by a defined public sector workforce, or greater fairness or equity*. Quality adjusted output refers to the quality, or value, of output produced in addition to the quantity. For example, employing more nurses may allow a hospital to treat more patients or to treat each patient better: the first is an increase in the quantity of output and the second is an improvement in quality. Quality-

<sup>2</sup> Acas (2014) *Job evaluation: considerations and risks*, <http://www.acas.org.uk/index.aspx?articleid=682>

<sup>3</sup> CIPD, <http://www.cipd.co.uk/hr-resources/factsheets/market-pricing-job-evaluation.aspx>



adjusted output can potentially be increased either by employing more people or by boosting output-per-worker.

- 2.8 Targeting is considered in relative percentage terms. For example, we would consider a 2.0 per cent pay increase for one part of the workforce in comparison to a 0.5 per cent increase for another to be 'targeted'. Correspondingly, a flat £1,000 pay increase to all employees in a workforce would also be regarded as targeted, because higher-paid workers would be receiving a smaller percentage increase, proportionate to their pay, than lower-paid employees.
- 2.9 For simplicity, cuts to base pay in cash-terms are not considered in detail in this paper. However, inflation or other factors, such as taxes or pensions contributions, may lead to real-terms pay cuts even in the absence of cash-terms cuts to base pay.
- 2.10 For many purposes, in this paper, it is not necessary to specify a precise definition of 'pay'. It is written primarily with base pay and (where relevant) bonuses in mind. However, many of the principles discussed could apply to other forms of monetary reward, such as pensions. They could also apply to non-monetary factors, such as annual leave and the demands of the job, to the extent that the employer and the employee attach an explicit or implicit monetary cost or value to such factors.
- 2.11 Pay increases could also be either consolidated or non-consolidated. Non-consolidated payments are not included in basic pay and are usually non-pensionable. Bonuses are typically non-consolidated. More generally, non-consolidated awards have a 'temporary' connotation, suggesting that a specific circumstance justifies an award in a point in time, but that this may differ in following years. In contrast, a consolidated award is an increase that is added to basic pay and it is usually pensionable in the public sector.
- 2.12 Additionally, pay can be targeted through the means of either temporary or longer-standing specialist allowances, which may be either consolidated or non-consolidated.

### ***Why target pay increases?***

- 2.13 Resource allocation decisions, including on pay, may be made with reference to:
- **Economy:** Minimising the use of public resource.
  - **Efficiency:** Getting the best outcome from a given level of resource.
  - **Effectiveness:** Achieving the best outcome in terms of societal wellbeing.
  - **Fairness:** Potentially with reference to factors including equity, standard of living and diversity.
- 2.14 For PRBs, targeting goes further than simply saving money (economy). As part of their terms of reference, they need to consider evidence in respect of recruitment, retention and motivation of the workforce, which will impact on effectiveness. The concept of efficiency is also particularly relevant in the context of severe budgetary constraints,

which limit the extent to which better public service outcomes can be incentivised through higher pay.

- 2.15 Although not a primary focus of this paper, governments may intervene in the labour market for social policy as well as economic reasons. One example is the pay policy measure introduced by the Scottish government for the lowest earners, aimed at raising the minimum level of public sector pay to the Scottish Living Wage, in order to reduce income inequalities (the Scottish government, 2016). This policy was supported by evidence that shows that a high proportion of lower-paid staff belong to protected groups, such as individuals from ethnic minority groups, women, disabled people, part-time workers, younger employees or a combination of these characteristics.

### 3 A framework for pay targeting

#### *Options for targeting*

- 3.1 In considering all options, PRBs and departments will need to be mindful of any indirect disproportionate effects on sections of the workforce according to protected characteristics: the impact of proposals on the workforce population will need to be assessed. It is against the law to discriminate against anyone because of: age; being or becoming a transsexual person; being married or in a civil partnership; being pregnant or on maternity leave; disability; race including colour, nationality, ethnic or national origin; religion, belief or lack of religion/belief; sex; or sexual orientation<sup>4</sup>.
- 3.2 For the purposes of developing an economic framework for pay targeting, we have in mind three basic ways increased pay targeting could be applied by an employer:
- An employer may **adjust existing targeting dimensions**. For example, it may award people of certain seniority a higher or lower percentage pay increase than their peers.
  - It may **broaden the use of existing dimensions**. For instance, an employer may already supplement the pay of certain specialists through paying allowances, but decide to add new specialist categories to this arrangement.
  - It could **introduce new targeting dimensions**. For instance, this may involve putting in place new a performance pay system, in order to target high-performers, where previously there was no such system.

#### *Impacts on targeted workers*

- 3.3 According to simple economic theory, if demand for workers exceeds supply at the prevailing wage, there is a shortage of workers which can typically be addressed by raising the wage. While this can be regarded as a potential basis for targeting such workers, it is not necessarily sufficient. Vacancies or concerns about staff morale are not sufficient basis for a targeted pay award. There should, as a minimum, be reason to believe that targeting will have an impact on the issue of concern.
- 3.4 One factor that will determine the impact is the responsiveness of labour supply to changes in pay, referred to by economists as the 'elasticity' of supply of labour. An 'elastic' labour supply requires that a 1 per cent increase in pay leads to a more than one per cent increase in supply. The greater the degree of elasticity, the larger the supply response. This effect on the quantity of labour available is termed here as the 'recruitment and retention effect'.
- 3.5 Elastic labour supply requires a means through which supply will be increased over time, discussed further below. It also requires that any increase in supply is not counteracted by other effects, such as better paid workers choosing to work fewer hours.

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<sup>4</sup> See <https://www.gov.uk/discrimination-your-rights/types-of-discrimination>.

- 3.6 Another factor that might be influenced by pay is individual-level employee productivity. If output-per-employee rises as the result of a pay increase the same level of quality-adjusted output can be produced by fewer employees. We term this the 'motivation and productivity effect'.
- 3.7 Higher pay may raise productivity by motivating the existing workforce to produce more output. This argument is closely related to the branch of labour economics known as efficiency wage theory, under which it may be optimal for employers to pay employees more than the market wage in order to increase their individual effort, productivity or efficiency.
- 3.8 We note, in passing, that public sector productivity and output is notoriously difficult to measure. There are clear risks of not being able to measure output accurately or of measuring the 'wrong' output. Nevertheless, if the employer believes that the motivation and productivity effect exists and is manifested in terms of whatever output it is ultimately concerned with, it has a rational basis for taking it into account as part of the pay-setting process.
- 3.9 A second means through which a pay rise may lead to higher productivity is if it leads to an increase over time in the quality of the workforce through selection effects, whereby the employer can attract higher-quality new hires.
- 3.10 In the public sector, national pay scales may provide a potential test of the link between pay and output. Such scales make it possible to examine whether the performance of public services, such as schools and hospitals, is worse in areas where the wage relative to the private sector is lower.
- 3.11 Some studies on the link between pay and workforce quality or productivity are discussed in Box 2. The studies cited focus on the impact of pay on performance at the workplace level. They suggest that, if public sector pay is out of line with private sector pay (i.e. is arguably 'poorly targeted') there does appear to be some effect on institutional performance.
- 3.12 In terms of how output responds to an increase in pay, the recruitment and retention effect and the motivation and productivity effect reinforce each other. It is the combination of these two effects that will determine the extent to which output rises in response to an increase in pay for targeted individuals or sections of the workforce.

## Box 2: Some evidence on the link between pay and workforce quality or productivity

Propper and Van Reenen (2010) used data for English hospitals to find that higher outside wages significantly worsened hospital quality as measured by hospital deaths for emergency heart attacks. A 10 per cent increase in the outside wage was associated with a 7 per cent increase in death rates.

Crawford and Disney (2015) used a dataset of individual test scores, from the national assessment that is required of all applicants, to find that higher outside wages were associated with lower quality applicants, using several measures of outside wages. It also found that a greater disamenity of policing, as measured primarily by area differences in crime rates and in the proportion of crime that is violent, was associated with lower quality police applicants.

Britton and Propper (2016) used data on over 3000 schools to examine the effect of pay on school performance. The study found that a 10 per cent shock to the wage gap between local labour market and teacher wages led to lower average school performance in GCSE exams. The difference was equivalent to dropping one GCSE grade in one subject, or around a 2 per cent average fall at the mean of 44 points.

Georgiadis (2013) examined the effects of the UK National Minimum wage (NMW) on the UK residential care homes sector. This sector was characterised by small businesses which employed managerial staff and lower-skilled care assistants, the latter being affected by the introduction of the NMW. The evidence suggested that higher wage costs generated by the NMW introduction were at least partly offset by lower monitoring expenses, whereby more motivated staff needed to be monitored less closely. This meant that the NMW could result in productivity or efficiency gains (i.e. lower monitoring costs).

Capelli and Chauvin (1991) examined the relationship between rates of employee discipline and relative wage premiums across different plants within the same firm in the US car industry. The data collected concerned production workers, who were doing unskilled or semi-skilled jobs. The results suggested that greater wage premia were associated with lower levels of disciplinary dismissals. It was not clear whether the wage premia was necessarily efficient in the sense of generating sufficient reductions in discipline to offset the higher wage costs.

### ***Impacts on non-targeted workers***

3.13 Pay needs to be targeted in a way that does not do more harm than good, in terms of creating or exacerbating supply problems elsewhere. Currently, in the public sector, a pay increase of more than 1 per cent for some workers implies an increase of less than 1 per cent or zero for others. Importantly, there could be a negative effect on motivation or effort in the areas of the 'non-targeted' workforce not in receipt of disproportionately high pay increases.

- 3.14 Therefore positive impacts of increased pay on labour supply or productivity may be necessary, but not sufficient, to justify a targeted pay increase, assuming the budget constraint is adhered to. There also needs to be reason to believe that the combined effect of the above factors is relatively strong in the area being targeted in comparison to those that could otherwise be targeted.

### ***The means of payment***

- 3.15 As discussed above, targeted pay can take a number of forms including consolidated or non-consolidated pay or allowances. It is possible that the impact of the pay rise on both the targeted and non-targeted group may differ according to the form of the pay or allowance, over and above the impact of the sums of money involved.
- 3.16 For example a non-consolidated award, being actually or potentially temporary, may have a smaller motivational impact than a permanent award. A new or increased specialist allowance may be more palatable to staff not in receipt of it than a simple basic pay increase which is directed towards their colleagues but not themselves.

### ***Recruitment, retention and motivation***

- 3.17 For an employer, labour supply at a point in time consists of existing workers 'retained' from the previous period and the pool of available recruits that can be drawn upon at the prevailing rate of pay. These existing and potential employees may respond differently to a change in the rate of pay offered for a job. They may also be motivated in different ways and possess different skills. Therefore, in order to anticipate the likely effects of a change in pay on recruitment and retention, an employer needs to understand both their existing workforce and the wider labour market.
- 3.18 For example, an employer may be considering awarding a targeted pay increase to those members of its workforce in a certain type of specialist role. Those in the existing workforce who would be targeted may possess largely job-specific knowledge that is not easily transferable outside, making it more likely that a pay increase would not have a large effect on their retention. At the same time, recruitment to the same roles may be sensitive to a pay rise, if it makes the jobs more attractive compared to the outside market. In this case, an employer with this knowledge is unlikely to award a targeted increase solely with the aim of retaining existing employees. However, it may do so in order to recruit new people.
- 3.19 Conversely, retention could be sensitive to pay while recruitment is not. For example, retention in the targeted roles may be improved by a pay rise if the existing workforce does have transferable knowledge because, all other things equal, the current job becomes more attractive relative to alternative ones. On the other hand, there may be limited external recruits available at even the new 'targeted' rate. In this instance, a targeted pay rise may be beneficial to the employer in terms of retention, but not recruitment.
- 3.20 In 2015 the School Teachers' Review Body (STRB) made a recommendation, subsequently accepted by the government, of a 1 per cent increase to most scale

minima and maxima but a 2 per cent increase to the maximum of the teachers' main scale. The main justifications offered by the STRB were as follows:

- It wished to send an important signal to new recruits, in a graduate labour market where pay prospects in early career are an important consideration: the PRB heard that new graduates typically look at the offer after 5 years, as well as starting salary.
- It wanted to support recruitment and retention of experienced teachers: there were some signs of falling retention after 3-5 years' service and of schools finding it difficult to recruit experienced teachers.

3.21 The sensitivity of retention and recruitment to pay will depend on the flexibility and mobility of the relevant labour force. Macaulay (2003) used the Labour Force Survey and the New Earnings Survey Panel Dataset to examine job mobility and job tenure in the UK. The study found that job or occupational mobility were affected by a number of factors including sex, age, marital and family status, home ownership, qualifications, occupation, earnings and the size of employer.

3.22 Similarly, the productivity of existing workers and new recruits may be increased through different mechanisms in response to targeting. A targeted pay rise for the specialist posts may boost the motivation of the relevant members of the retained workforce, which could make them more productive. In addition, targeting certain posts may make it possible to recruit higher quality or more productive workers than otherwise.

3.23 In summary, therefore, an employer may offer a targeted pay rise in order to increase the proportion of staff retained in the relevant roles, increase the number of recruited staff, or to positively influence the productivity of either group. Any of these effects could occur in isolation or a number of them could act in parallel. It will be the magnitude of these effects in combination that determines the change in output of the targeted section of the workforce. There may, again, also be impacts on the output of non-targeted workforce, which will also need to be taken into account.

3.24 In addition, whilst it is important to distinguish between effects on recruits and retained workers when considering pay targeting, it is also important to bear in mind that such workers will often not be fully substitutable for each other. For instance, retained workers will have more job-specific experience than recruited employees. On the other hand, recruited employees may bring fresh ideas or specialist skills that are under-represented within the organisation.

## 4 Targeting in practice

### *Dimensions for targeting*

- 4.1 Differential pay changes for members of the same workforce require a dimension on which to distinguish between which employees are targeted and which are not. Below some potential dimensions for targeting are considered.
- 4.2 Relatively responsive, or elastic, supply of labour is likely to require that employees can be recruited from outside the current reference group. This may be, for example, from inactivity or the private or not-for-profit sectors. Therefore, one potential method for identifying targeting dimensions is to look for defined segments of the labour market which include both public and other sectors.
- 4.3 Employees will often see themselves as belonging to, or competing in, a labour market where people have similar **skills** and experience, implying one potential dimension. This will manifest itself differently from case to case. For public sector nurses or teachers, appropriate comparators may be people doing jobs with the same job titles outside the public sector. In the case of other occupations, such as judges and the military, there are no such direct comparators available. However, judges are typically recruited from roles as solicitors or barristers. In the military the relevant labour market may be determined by the specialisation of the individual.
- 4.4 **Location** is another potential dimension, because ‘an individual’s labour market will be defined, at least in part, by where they are willing to work. For instance, a prison officer living in Devon may be more likely to take a job as a security guard in Devon than as a prison officer in Yorkshire.
- 4.5 Many employers also target pay according to factors where the labour market is less well defined, notably **employee performance**. For example, in the civil service, non-consolidated performance bonuses are paid to some staff identified as high-performers.
- 4.6 These potential dimensions for targeting are discussed in turn below.

### *Targeting according to skills*

- 4.7 The National Skills Task Force (2000) reported that: “*At the core of the term skill is the idea of competence or proficiency...Skill is the ability to perform a task to a predefined standard of competence... but also connotes a dimension of increasing ability (i.e. a hierarchy of skill). Skills therefore go hand in hand with knowledge.*” However, for the purposes of pay targeting, what matters is whether the employer can use the concept of skill to distinguish between different roles, some of which will be targeted and some which will not. Ideally the method used to distinguish between jobs will also be recognisable to employees. Occupations, often further segmented by experience or seniority, typically meet these criteria.



- 4.8 In section 3 we cited a case where new teachers were in receipt of pay targeting. In this case, potential and actual teachers who were relatively early on in their career were regarded as a defined segment of the labour market. As a further example, civil service finance professionals may not typically operate in the same labour market as policy professionals, suggesting that such specialisms may provide an appropriate means of segmentation.
- 4.9 There have been situations where PRBs have explicitly targeted subsets of their workforce defined by job or seniority in order to support recruitment, retention and motivation. For instance, in 2010 the PRB for doctors and dentists targeted pay at more junior groups<sup>5</sup> (Review Body on Doctors and Dentists' Remuneration, 2010). This recommendation was made during the economic crisis in an uncertain inflationary climate and the PRB took this decision in order to maintain recruitment, although it also recognised that pay increases for highly-paid individuals would have been difficult to justify in such circumstances.
- 4.10 The Armed Forces' Pay Review Body (AFPRB) has recommended an array of recruitment and retention payments (RRPs), which are paid to specific groups where there are long-standing issues. Reasons have included difficulties inherent to some cadres or trades or an external pull on a particular group, perhaps from industry, but where the Ministry of Defence did not consider a bespoke pay spine was warranted. Bespoke pay spines are used as a long-term solution for groups with different career progression to the mainstream, such as pilots or chaplains. They are also used for groups who have pay aligned with direct comparators, such as nurses. See Armed Forces Pay Review Body (2016).
- 4.11 It is important to note that if targeting is focused on job-specific skills, there will sometimes be significant lag effects in recruitment: even if higher pay successfully attracts people towards the profession, it can take years to train them. In the meantime, employers may face a choice between setting less stringent recruitment standards, reconfiguring or rationing services, or carrying vacancies. Forecasting recruitment and retention patterns can help in avoiding such trade-offs.
- 4.12 Related to, but not identical, to skill and occupation are job characteristics, which provide another potential dimension for targeting. It may be used to compensate for negative job-related factors, such as difficult, unpleasant or dangerous work or inconvenient or unsociable working patterns. Conversely, employees may be willing to accept lower pay because the job is rewarding or enjoyable.
- 4.13 However, job characteristics will not always vary substantially, or at least may only change gradually, over time. For instance, if some jobs are relatively difficult or unpleasant, that is arguably better reflected in targeting through the design of the pay system, such as through an allowance for unpleasant or difficult work, rather than through annual awards. Annual targeting is likely to only be appropriate if there is

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<sup>5</sup> The PRB recommended a 0 per cent pay rise for consultants, General Medical Practitioners (GMPs) and General Dental Practitioners; 1 per cent for registrars, Specialty and Associate Specialist (SAS) grades, salaried GMPs and salaried dentists; and 1.5 per cent for foundation house officers.

reason to believe that the nature of the work or labour market has changed or if new evidence shows that the pay system previously did not adequately reflect such factors.

### ***Targeting according to location***

- 4.14 Pay may be targeted towards jobs in certain locations either to compensate employees for higher costs of living, or to aid recruitment and retention, or for both reasons.
- 4.15 Some public sector workers in certain specialisms or locations already receive a premium in terms of pay or allowances. For example, among the police workforce, regional allowances are paid in London and the South East of England to compensate for the cost of living, and Northern Ireland officers receive the Northern Ireland Transitional Allowance to take account of the particular circumstances facing police officers in Northern Ireland.
- 4.16 Incomes Data Services (2012), in work commissioned by the OME, carried out nine case studies in order to assess how large multi-site private sector firms approach the issue of geographical pay differentiation, and to provide an overall assessment of current practice in addressing local pay across the private sector. It found that employers' objectives for their local pay systems are the same as those for their pay setting practices and policies as a whole, with competitiveness with the external labour market being key. Seven of the nine employers said they would install similar location pay systems if they did not have one.
- 4.17 However, as with other targeting dimensions, it is important to distinguish between whether any existing targeting is effective and justified, and whether alternative or additional targeting is required, perhaps due to changing labour market circumstances. For example, in the period 2005-10 some uplifts were applied to pay scales for teachers in Inner and Outer London that were slightly higher than the relevant years' headline awards. At the time, recruitment and retention was a more significant problem in London than elsewhere.
- 4.18 Individuals will operate simultaneously in both skills-based and geographical labour markets: workers are not usually fully mobile across all occupations or locations, but will typically have some mobility within both. However, in more specialised and high-skilled jobs the 'pull' of the occupational labour market may be relatively strong compared to the local one.
- 4.19 If the workforce is relatively mobile across regions, location may not be the right dimension for targeting. This may be true for those early in their career. Data shown in Ball (2015) from six months after graduation for the 2012/2013 graduate cohort shows 36 per cent coming into jobs in London had neither lived nor studied in the area previously, a much higher figure than for other UK regions or countries, with 85 per cent taking professional and managerial jobs.
- 4.20 Targeting by location requires flexibility of funding across geographical boundaries to support the differential pay awards. For example, there are 43 police areas in England

and Wales and differential pay awards across those areas would create differing financial burdens for the police forces involved.

### **Targeting according to employee performance**

- 4.21 Pay may be targeted in order to reward and incentivise good performance, retain high-performing workers and attract talented staff. Following the establishment of a new performance management system, the Prison Service Pay Review Body (2016) recommended the introduction of non-consolidated 1 per cent performance awards for staff at Band 5 (the top uniformed grade) with the highest performance category of “outstanding”. This group had not previously received non-consolidated awards linked to performance. Similar awards were not introduced for staff at Bands 2 to 4 as, although the new performance management system also applied to them, it was not yet operating fully effectively for those, more junior, grades.
- 4.22 Sheremeta (2016) considered studies on competitive workplace compensation schemes, sometimes known as workplace ‘tournaments’, which rank and reward employees according to their performance. The study identified the following advantages:
- Tournaments can create powerful competitive incentives, motivating individuals to exert effort levels well above those predicted by the rational decision-making model.
  - Tournaments provide non-monetary incentives in the form of recognition and winning.
  - When compared to other compensation schemes, tournaments may require less information about individual performance.
  - Tournaments play an important function of matching better workers to better jobs.
- 4.23 The same study found the following disadvantages:
- The win-or-lose structure of tournaments creates some winners at the expense of many losers, leading to substantial payoff inequality.
  - Relative incentives create a ‘discouragement effect’ causing lower-ability workers to cut back effort or withdraw entirely from competition.
  - Workers view each other as competitors when using relative incentives, resulting in more selfish and less helpful behaviour.
  - Tournaments may encourage counterproductive behaviours such as cheating, sabotage, and collusion.
  - Women may be discouraged from participating in tournaments, even when they are more capable and have better skills than men. This has been attributed to differences in risk attitudes, confidence and beliefs, although this remains a subject for debate.
- 4.24 A number of studies have attempted to measure the impact of performance-related pay, which in some cases differentiates between employees within a workplace. Some studies are summarised in Box 3. Prentice *et al.* (2007) reviewed performance-related

pay in the public sector for the OME. The report concluded that public sector workers do respond to financial schemes, particularly in the field of education and possibly also in health. Sometimes these responses are small, but often so are the incentives. However, the report also found evidence of manipulation of behaviour that uses resources and does not increase productivity in response to schemes.

### Box 3: Some evidence on performance pay

Dee and Keys (2004) evaluated a Tennessee merit pay scheme for teachers, which rewarded performance with progress up a career ladder. Assignment of students and teachers to classes was random, which it was believed would eliminate any significant correlation between teacher type and student ability. Pupils taught by career ladder teachers had 3 per cent higher maths scores than pupils taught by non-participating teachers. Results for reading score were also positive, but not statistically significant.

Comparing different US studies on performance pay in healthcare, Peterson *et al.* (2006) found tentative evidence that such schemes have had positive effects, although limitations to the literature allowed only preliminary conclusions. The study found that incentives were more effective when the potential reward is larger and that financial incentives may have incentivised better book keeping and documentation rather than increased medical provision.

Gielen A *et al.* (2009) used data from a panel of Dutch firms to investigate the labour productivity effects of performance-related pay. The data showed whether performance-related pay is used in the organisation, but not to what extent. The study found that performance-related pay increased productivity at the firm level by 9 per cent and employment growth by 5 per cent.

Lazear (2000) analysed a large US automobile windscreen installation firm where a new contract linked workers' pay to the number of windscreens they installed. The change was found to result in an average 44 per cent gain in output per worker. Incentive effects, resulting from a reduction in turnover of high-performing employees, were responsible for approximately half of the gain in output. The other half was due to selection effects, with more able workers attracted by the potential to earn higher wages.

Fernie and Metcalf (1999) analysed the impact of pay on performance of jockeys, using a dataset tracking 50 individuals over 8 years. The study found that incentive contracts generate superior performance to non-contingent payment systems.

4.25 Even if an employer believes performance pay will improve employee performance, there are a number of challenges in establishing whether, and by how much, high-performing staff should be paid relative to their peers:

- Even if it is generally accepted that employees assessed as high-performing are more 'productive' than their peers, it is difficult to measure the extent to which this is the case, which has implications for setting performance pay: it may not be efficient to pay a large performance increment in order to incentivise only a small performance improvement.

- In public sector roles it will often be difficult to distinguish between the performance of individuals and the performance of their teams; and the former may be less important than the latter.
- The external labour market for high-performing staff is likely to be poorly defined. For instance, whilst there is a recognisable labour market for nurses, it is difficult to systematically identify 'high-performing' nurses in labour market data. This makes it correspondingly hard to establish, in a non-anecdotal sense, whether and to what extent high-performers attract a market premium. Some high performance may also be highly specific to context and not easily transferable, which raises the question of whether it should attract a premium.
- High-performing workers may be such because they are motivated by, and enjoy, their work. It may not be necessary to pay high-performers more in order to motivate or retain them. For example, Review Body on Senior Salaries (2016) reported that, in 2015, Senior Civil Servants assessed as 'low' performers were over three times more likely to resign than 'high' performers. However, the high performance group received bonuses, meaning the lower resignation rate could in principle either indicate that the bonus scheme was working or that it was unnecessary. For example, it is possible that the high-performing group was more motivated by the prospect of future promotion than the bonus payments.

4.26 Even if it is possible to satisfactorily measure individual employee output, it may still be impractical to pay each employee an individual amount according to it. Therefore, even in a performance pay system, some employees are likely to be over-paid or under-paid relative to their contribution. An additional complexity stems from the fact that public sector output is typically multi-dimensional. Even if all relevant dimensions can be measured they would also need to be weighted in terms of relative importance in order to fully satisfactorily link them directly to pay.

4.27 Holmström and Milgrom (1991) demonstrate that, under certain conditions, if one output is important but hard-to-measure, it should be subject to only weak incentives. Therefore, less important but more easily measurable outputs should also be weakly incentivised in order to prevent too much effort being focused on them. This means that it may be enough that one important task or outcome is difficult to measure for low overall incentives to be optimal. The authors consider pay for teachers based on students test scores. It may lead teachers to work harder at teaching and to take greater interest in their students' success, but may also lead to them sacrificing such activities as promoting curiosity and creative thinking. Glewwe, Ilias, and Kremer (2010) conducted an experiment where some teachers in Kenya were paid according to students test scores. These teachers spent more time preparing students for the test, but there was little evidence of more or better teaching.

4.28 In addition, even if targeted pay will help to retain and motivate current high performers, this is distinct from the question of whether the employer would be better off instead using that resource to recruit a potentially greater number of additional people, on lower pay. Furthermore, as with other types of targeting, the impact of performance pay on wider employee motivation and performance needs to be taken

into account. This would include any detrimental impacts on factors such as team-working.

***Who decides whether and how to target?***

- 4.29 The decision to target pay awards can be made at several different levels. Table 1 summarises some of the arguments for targeting decisions being made at certain levels.
- 4.30 Current government policy is to fund public sector workforces for an average pay increase of 1 per cent. Nevertheless government, through HM Treasury, has the ability to target certain priorities when it allocates national budgets, for example through protecting or increasing budgets for areas such as health, education or defence. These priorities could affect the availability of funding for programme budgets or pay increases.
- 4.31 More relevant in the PRB context is the question of whether the PRB itself recommends how pay should, or should not, be targeted, or whether it recommends delegation to an authority with more granular knowledge of the workforce in order to best achieve broad objectives for that workforce. Authority for individual pay decisions could, for instance, be delegated to a school or academy trust, an NHS trust or a police force. In the case of the civil service it could also be delegated to individual government departments. In 2016, the PRB for senior salaries recommended that individual departments use 0.94 per cent of the paybill, of the 1.0 per cent available, for individual pay repositioning and for general pay increases for the Senior Civil Service (Review Body on Senior Salaries, 2016). The remaining 0.06 per cent was recommended to be used to raise pay-band minima across all departments<sup>6</sup>.

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<sup>6</sup> The Government did not fully accept this recommendation and put in place a smaller increase in pay-band minima, which left 0.99 per cent to be used flexibly by departments.

**Table 1: Potential levels of pay targeting, their benefits, and the role of Pay Review Bodies**

Level	Benefits of targeting at this level	Role of PRB
<b>Government (HM Treasury) targeting of national budgets</b>	<ul style="list-style-type: none"> <li>• Reflects very high level national government priorities.</li> <li>• Government can ensure appropriate consistency of approach across all public sector groups: reduced scope for unintended inequity.</li> </ul>	<ul style="list-style-type: none"> <li>• No formal role.</li> <li>• However PRBs' views, as set out in reports, may influence government thinking regarding priorities.</li> </ul>
<b>Government department or national agency targeting of a pay award</b>	<ul style="list-style-type: none"> <li>• Retain central financial control.</li> <li>• Government department can ensure appropriate consistency of approach across its own workforce groups.</li> <li>• Decisions informed by government priorities.</li> <li>• Allows some balancing of regional or other geographical differences as they affect specific workforces.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended annual pay increases, bonuses, allowances, changes to pay scales etc.</li> <li>• May recommend some decisions taken by Government department or agency (for example, which specialisms to target).</li> </ul>
<b>Devolved decision-making (for example, within a school or Trust)</b>	<ul style="list-style-type: none"> <li>• Local bodies may have better sight of local priorities, contextual knowledge and access to data.</li> <li>• Can target more precisely (for example, at valuable individual staff members).</li> <li>• Local responsibility and accountability.</li> </ul>	<ul style="list-style-type: none"> <li>• May recommend that certain decisions are taken at a local level (for example, pay progression or bonuses).</li> </ul>

## 5 Data and evidence requirements

5.1 This report demonstrates that the information requirements for economic, efficient, effective and fair pay targeting are high. It requires good data and evidence. Precise data requirements are context-specific and require case-by-case consideration. However, some likely requirements are set out in Table 2.

**Table 2: Data, evidence and other requirements for different types of pay targeting**

Dimension	Examples of data, evidence and other requirements
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Skill requirements for certain roles.</li> <li>• Supply of, demand for and 'going pay rate' for such skills.</li> <li>• Vacancies and turnover rates for relevant occupations.</li> <li>• Numbers of inactive workers eligible and qualified to return to workforce.</li> <li>• Training plans and timescales.</li> </ul>
<b>Location</b>	<ul style="list-style-type: none"> <li>• General knowledge about labour markets at relevant level of locality (for example, composition of local economy; types of jobs available; rates of pay).</li> <li>• Vacancies and turnover rates at relevant level of locality.</li> </ul>
<b>Employee performance</b>	<ul style="list-style-type: none"> <li>• Robust measures of performance (for example, from performance appraisal systems and 360 degree feedback).</li> <li>• Data on performance ranking of individual staff members.</li> <li>• Evidence of how pay influences performance, motivation, recruitment and retention of both high and non-high performers.</li> <li>• Evidence on the organisational impact of high-performers on the organisation (for example, the link between appraisal marking and productivity).</li> </ul>
<b>Job characteristics</b>	<ul style="list-style-type: none"> <li>• Measures of job quality (for example, monetary equivalents of non-financial costs associated with doing unpleasant or dangerous work).</li> <li>• Evidence on the trade-offs individuals may be willing to make between pay and other financial and non-financial job characteristics.</li> <li>• Evidence on the extent to which job characteristics affect recruitment, retention and motivation.</li> </ul>
<b>General (many or all of above)</b>	<ul style="list-style-type: none"> <li>• Clear workforce strategy, aligned with wider policy and delivery priorities.</li> <li>• Granular data on workforce trends over time, including vacancies, recruitment, retention and motivation.</li> <li>• Evidence on link between pay and the above factors for both targeted and non-targeted staff.</li> <li>• Evidence of impact of staff shortages and vacancies on public service delivery.</li> <li>• Knowledge of overall impact on the workforce according to legally protected characteristics.</li> <li>• Expected future workforce demand and supply; and drivers of demand and supply.</li> </ul>



5.2 In practice, in certain cases, some of the data and evidence listed will either be of imperfect quality or not exist at all. In such cases PRBs and departments will need to apply judgement to decide whether, on the basis of the evidence that is available, the likely benefits of a more targeted approach outweigh those of a flat across-the-board pay award or other next-best alternative.

## 6 Implications for pay targeting decisions

- 6.1 This paper does not aim to set out under precisely what conditions a more targeted approach to pay is or is not justified. We hope, however, that it provides PRBs and government departments with assistance in thinking systematically about the issues involved. It highlights a number of questions and issues that should be asked when considering a more targeted approach to public sector pay. Some relevant questions are set out below.
- 6.2 First, there are questions of general context and strategy:
- What is the **aim of greater pay targeting**? For example, is the aim to improve economy, efficiency, effectiveness or equity? How does targeting support the wider strategy for the workforce, policy and delivery?
  - Does the **current pay structure** already target the right employees to the right extent and, if not, why not?
  - Are the desired strategic aims **achievable through annual pay reviews**, especially in the context of tight control of the public sector payroll? Or is more fundamental reform of pay and pay structures required?
  - What is the main intended purpose of targeting pay? For example, is it related to **retention or motivation of existing employees or recruitment or selection of new ones**?
- 6.3 Second, there are questions of detail of implementation:
- **In what form should targeted pay increases be paid**? For example, should targeted pay increases be consolidated or non-consolidated or in the form of allowances? Will the impacts differ in accordance with the form of increase?
  - Should increased targeting be delivered through **means of targeting already in use or the introduction of new ones**?
  - According to **which potential dimensions** (for example skills, location or employee performance) will targeting be delivered?
  - What are the **alternatives to increased pay targeting**, and if they are less suitable, why is that?
  - What will the **impacts be according to protected characteristics**?
  - **At what level** is the required targeting decision best made? By the relevant government department (advised by the relevant PRB) or delegated to a local level?
  - However pay is targeted, are there appropriate **supporting mechanisms to appropriately redirect the required funding**?
- 6.4 Third, there are questions of expected **impacts** of increased pay targeting:
- On the **retention of targeted employees**?

- On **recruitment into targeted posts**?
- On **productivity of targeted employees or new recruits** into targeted posts?
- On **non-targeted employees and posts**?
- On **fairness and equity**?
- What will the **net effect be on the cost, size, motivation and composition of the workforce**?
- Will there be **wider labour market effects**?

6.5 Finally, there are questions of data and evidence:

- **What data or information is required** to support decisions on targeted pay?
- In a situation of imperfect evidence or data, to what extent **should judgement be applied**?
- **How might the quality of evidence or data be improved** over time to support improved decision-making?

## References

Armed Forces Pay Review Body (2016), *Armed Forces' Pay Review Body Forty-Fifth Report 2016*.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/505928/53949\\_Armed\\_Forces\\_Pay\\_Review\\_2016\\_Accessible.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/505928/53949_Armed_Forces_Pay_Review_2016_Accessible.pdf)

Ball (2015), *Loyals, stayers, returners and incomers: Graduate migration patterns*, Higher Education Careers Services Unit.

[http://www.hecsu.ac.uk/publications\\_and\\_resources\\_research\\_reports.htm](http://www.hecsu.ac.uk/publications_and_resources_research_reports.htm)

Britton J and Propper C (2016), *Teacher pay and school productivity: Exploiting wage regulation*, *Journal of Public Economics*, vol.133.

<http://www.sciencedirect.com/science/article/pii/S004727271500208X>

Cappelli P and Chauvin K (1991), *An interplant test of the efficiency wage hypothesis*, *The Quarterly Journal of Economics*.

Crawford R and Disney R (2015), *Wage regulation and the quality of police officer recruits*, IFS working paper (W15/19). <https://www.ifs.org.uk/publications/7937>

Georgiadis A (2013), *Efficiency wages and the economic effects of the minimum wage: evidence from a low-wage labour market*, *Oxford Bulletin of economics and statistics*, vol. 75 issue 6.

Fernie S and Metcalf D (1999), *It's not what you pay it's the way that you pay it and that's what gets results: Jockeys' pay and performance*, *Review of Labour Economics and Industrial Relations*, vol. 13 no. 2.

Gielen A, Kerkhofs M, van Ours J (2010), *How performance related pay affects productivity and employment*, vol. 23 issue 1. <http://link.springer.com/article/10.1007/s00148-009-0252-9>

Glewwe, Paul, Nauman Ilias and Michael Kremer (2010), *Teacher Incentives*, *American Economic Journal: Applied Economics* vol. 2 no. 3.

Holmström B and Milgrom P (1991), *Multi-Task Principal Agent Analysis*, *Journal of Law, Economics and Organization* vol. 7.

Incomes Data Services (2012), *Case studies on Geographically-Differentiated Pay: A research report for the OME*.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/226322/RAG\\_-\\_Case\\_studies\\_on\\_geographically-differentiated\\_pay\\_1\\_.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/226322/RAG_-_Case_studies_on_geographically-differentiated_pay_1_.pdf)

Lazear E (2000), *Performance Pay and Productivity*, *The American Economic Review*, vol. 90 no. 5. <http://www.econ.yale.edu/~dirkb/teach/pdf/l/lazear/2000-performancepay.pdf>

Macaulay (2003), *Job mobility and job tenure in the UK*, *Labour Market Trends* November 2003.

<http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/rel/lms/labour-market-trends--discontinued-/volume-111--no--11/job-mobility-and-job-tenure-in-the-uk.pdf>

National Skills Task Force (2000) *Skills for All*, Department for Education and Employment (DfEE).

Petersen L, Woodard L, Urech T, Daw C and Supicha S (2006), *Does Pay-for-Performance Improve the Quality of Health Care?* Annals of Internal Medicine, vol. 145 no. 4.  
<http://annals.org/article.aspx?articleid=727450>

Prentice G, Burgess S and Proper C (2007), *Performance pay in the public sector: A review of the issues and evidence.*  
<http://webarchive.nationalarchives.gov.uk/20130106083031/http://www.ome.uk.com/downloads/Performance%20pay%20in%20the%20Public%20Sector.%20A%20review%20of%20the%20issues%20and%20evidence.pdf>

Prison Service Pay Review Body (2016), *Fifteenth Report on England and Wales 2016.*  
<https://www.gov.uk/government/publications/psprb-fifteenth-report-on-england-and-wales-2016>

Propper C and Van Reenen J (2010), *Can Pay Regulation Kill? Panel Data Evidence on the Effect of Labor Markets on Hospital Performance*, Journal of Political Economy vol. 118 no. 2.

PWC (2016), *Research into Modern Pay Systems: Office of Manpower Economics.*  
<https://www.gov.uk/government/publications/research-on-modern-pay-systems-november-2016>

Review body on Doctors and Dentists (2010), *Review Body on Doctors' and Dentists' Remuneration thirty-ninth report 2010.* <https://www.gov.uk/government/publications/review-body-on-doctors-and-dentists-remuneration-thirty-ninth-report-2010>

Review Body on Senior Salaries (2016), *Thirty-Eighth Annual Report on Senior Salaries 2016.* <https://www.gov.uk/government/publications/thirty-eighth-annual-report-on-senior-salaries-2016>

School Teacher's Review Body (2015), *School Teachers' Review Body 25th report: 2015.*  
<https://www.gov.uk/government/publications/school-teachers-review-body-25th-report-2015>

Sheremeta (2016), *The Pros and Cons of Workplace Tournaments*, IZA World of Labor.  
<http://wol.iza.org/articles/pros-and-cons-of-workplace-tournaments>

The Scottish government (2016), *Public Sector Pay Policy 2016-17.*  
<http://www.gov.scot/Resource/0049/00491174.pdf>

Thomas D and Keys B (2004), *Does Merit Pay Reward Good Teachers? Evidence from a Randomized Experiment*, Journal of Policy Analysis and Management, vol. 23 no. 3.