

The UK's coalition government has suggested that both pay and pensions in the public sector are too high relative to the private sector.

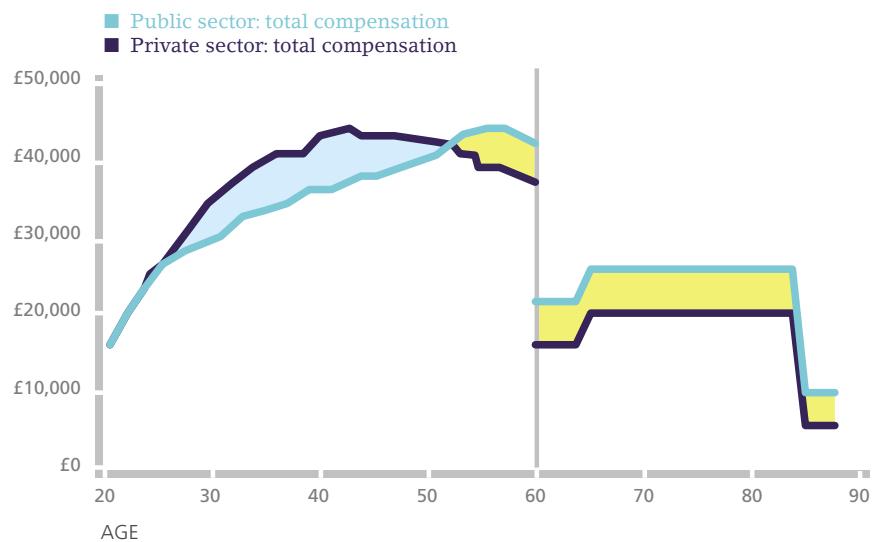
**Alexander Danzer and Peter Dolton** use the concept of 'total reward' to evaluate this claim, comparing the lifetime compensation available to highly educated men working in the two sectors.



# Are public sector employees overcompensated?



**Figure 1:**  
Illustration of lifetime income differences  
between the public and private sectors



**R**ecession and public debt problems have created huge pressures to reduce the remuneration of public sector employees in many countries. Greece and Ireland have already done so in nominal terms and most countries will be doing so in real terms over the next couple of years. At the same time, there are growing concerns about ageing populations and the future burden of pension obligations to public sector employees.

Changes to public sector pay, pensions or other conditions of service will have immediate consequences for many things: fiscal budgets, workforce composition, service delivery, inequality and relative remuneration between sectors. So it is essential that any proposed reforms of the total remuneration package available to current and future public sector employees are evaluated carefully.

Even more fundamental is the need to clarify how to measure total remuneration packages so that it is possible to make proper comparisons between sectors. The notion of 'total reward' (TR) has become fashionable in human resource management circles as a way of measuring employees' compensation, but as yet there is no consensus on specifically what TR should include.

We propose the most comprehensive measure of TR to date. It includes not only salary, bonuses, stock options, stock grants,

pensions and other monetary compensation but also hours of work, holiday entitlements, employer-provided health insurance as well as job security (the probability of being made unemployed).

Our new concept measures future benefits in present value terms. For this purpose, we define TR for an

average career in a sector as the total financial benefits and 'in kind' compensation, evaluated in money terms over the lifecycle.

We compare these measures of total compensation for the group of highly educated full-time male employees in the UK public and private sectors who are able to switch easily between the two sectors. This removes the potential difficulty that people initially choose a sector based on decisions that are unobservable to the statistician.

We analyse a new data set that brings together information from the Annual Survey of Hours and Earnings, the Labour Force Survey, the British Household Panel Study and the English Longitudinal Survey of Ageing.

Figure 1 provides the motivation for developing a rigorous definition of TR. It shows real annual remuneration for male graduates working in the public sector (light blue) and private sector (dark blue) from the start of their career to death. The measure comprises earnings, benefits and pensions.

While the two curves start off quite similarly at the age of 21, private sector employees soon develop an income advantage of roughly £5,000 per year, which persists almost up to the age of 50. From the age of 53 onwards, men working in the public sector are better off, including during their retirement years.

For these profiles, we estimate the

value of non-monetary TR components at around 15-20% of total earnings, a non-negligible fraction. The basic question for a proper comparison of public and private sector remuneration (and hence the two shaded areas of the figure) is whether any sector gains a clear monetary advantage over the lifecycle.

The intuition is that once we account for differences in the risk of unemployment, the TR in both sectors should be equal for very similar employees performing equal work. This is based on the long established principle of 'compensating differentials', which assumes that all net disadvantages of a job will be compensated in monetary terms.

**The 'total reward' for highly educated male employees is roughly the same in the public sector as in the private sector**

## A new measure of total reward

Our measure of TR is made up of earnings and pensions, as well as an array of new components. The asset value of a defined benefit (DB) pension is evaluated as the sum of the discounted DB benefits from retirement until death (based on certain assumptions about retirement dates and life expectancy). The actual benefit value will depend on the pension plan details provided by different employers (accrual rates, accrual base, initial vesting period, lump sum options and survivors' benefits) as well as specific employee details, such as past earnings and years of service.

DB pension schemes are currently based on terminal salary value at retirement, but this rule is currently being challenged in an attempt to reduce the generosity of public sector DB pensions. The accrual fraction is assumed to be one sixtieth in private sector DB schemes and one eightieth in public sector DB schemes.

**For men, the early career advantage of working in the private sector is balanced by the long-run advantage of being in the public sector**



Public sector DB schemes provide a three-eighentieths lump sum per year of tenure, and the private sector DB schemes are assumed not to provide a lump sum payment. All DB schemes have a payment for the surviving spouse of half of the pension entitlement.

The asset value of a defined contribution (DC) plan is calculated by adding up the employer and employee contributions that are paid into the plan and applying real interest rates to the accumulated fund. The fund is then used, on retirement, to buy an annuity, which will yield a stream of earnings until death.

There are several important differences between DB and DC pension schemes:

- First, DB schemes are 'backloaded': they are geared to fractions of final salary in increment-based pay structures based on seniority. In contrast, DC schemes are 'frontloaded': they are based on cash contributions to an annuity fund at each age as a career progresses.
- Second, many DB schemes are portable to other jobs, whereas in the private sector most DC schemes are not.
- Third, DB schemes are basically risk-sharing agreements between the employer (the state) and the employee, while in DC schemes the employee bears the entire interest risk alone.

We suggest that TR at each given age should comprise *accumulated* earnings up to that time plus the accumulated wealth of a pension scheme, evaluated from the career start. But note that DB schemes are based on projected final salaries rather than current earnings. We call our measure 'accumulated lifetime total reward' (ALTR).

Our research is subject to some caveats. For data reasons, our analysis excludes several groups, such as the self-employed, most notably public sector GPs. For the purpose of outlining the concept of TR, we focus on the public and private sectors as two large groups, a perspective that comes closest to the current UK policy debate.

As yet, our research does not evaluate the monetary value of various conditions of work, including stress, control over time, autonomy, flexibility and work pressure. Nor do we make provision for the fact that higher earnings early in the working life in one sector may increase

private savings and asset accumulation. While we acknowledge that the timing of remuneration over the working life may differ between sectors and thus influence individual wealth, we ignore this fact because our principal interest is in work-related remuneration.

We also implicitly ignore the possibility that state investment (for example, in human capital) is different between the public and private sectors. A final caveat is the treatment of diverse kinds of risks: attitudes towards risk (risk aversion) and time preferences (discount factor) may differ between public and private sector employees, but we assume that they are the same.

## Some surprising results for the public-private sector compensation gap

Our ultimate goal is to provide an empirical estimate of TR at any given age and to compare employees in the public and private sectors. The valuation of different TR components is largely driven by the fact that private sector employees have lower pension contributions, fewer and less valuable fringe benefits and higher risks of unemployment.

Evidence on earnings is mixed with a clear dominance of the private sector earnings profile in mid-career and the counterbalance of an advantage for public sector employees at later stages of their working lives. But private sector employees work more hours per week, which implies potentially larger annual earnings throughout their entire working lives.

To value TR across sectors at every point in time (age), we add up all components. The constituent parts of our calculations are represented in Figure 2 as the lifecycle unfolds. The 'zero' line represents equality in the two sectors. Positive values represent an advantage to the public sector and negative values represent an advantage to the private sector.

The top left panel of Figure 2 shows the well-known fact that there is a substantial earnings advantage of working in the private sector for highly educated male employees between the ages of 30 and 50, while earnings in the public sector are more valuable towards the end of the working life.

The top right panel plots the current value of lifetime earnings including fringe

benefits, which results in more favourable results for private sector employees at retirement. Pension wealth (in the bottom left panel) is always substantially more favourable in the public sector, a fact that drives much of the debate about public sector remuneration.

Once we combine these different components in the bottom right panel, our ALTR picture emerges, which shows no advantage for men of either sector at retirement age. ALTR indeed leads to very different conclusions than any of the components.

Our analysis suggests that there is not equality of TR profiles between the two sectors at every point in time. Yet the ALTR for men is equalised between the public and private sectors over the lifecycle, suggesting that the private sector earnings advantage at younger ages is counterbalanced by the more generous benefits associated with public sector pension schemes.

This result implies that male graduates who choose employment in either of the two sectors based on their potential early career reward prospects might get a biased signal with respect to lifetime reward. Our results for women (not shown here) suggest that they are better off in the public sector at almost any point of the lifecycle profile.

If employees in both sectors are exposed to similar disadvantages in the workplace (for example, stress or mortality risk), our results imply that after taking account of pensions, the public sector confers a high positive TR advantage for women but a very closely comparable one for men in the two sectors. This equalisation of total lifetime remuneration means, for men, that the early career advantage of being in the private sector is balanced by the long-run advantage of being in the public sector later.

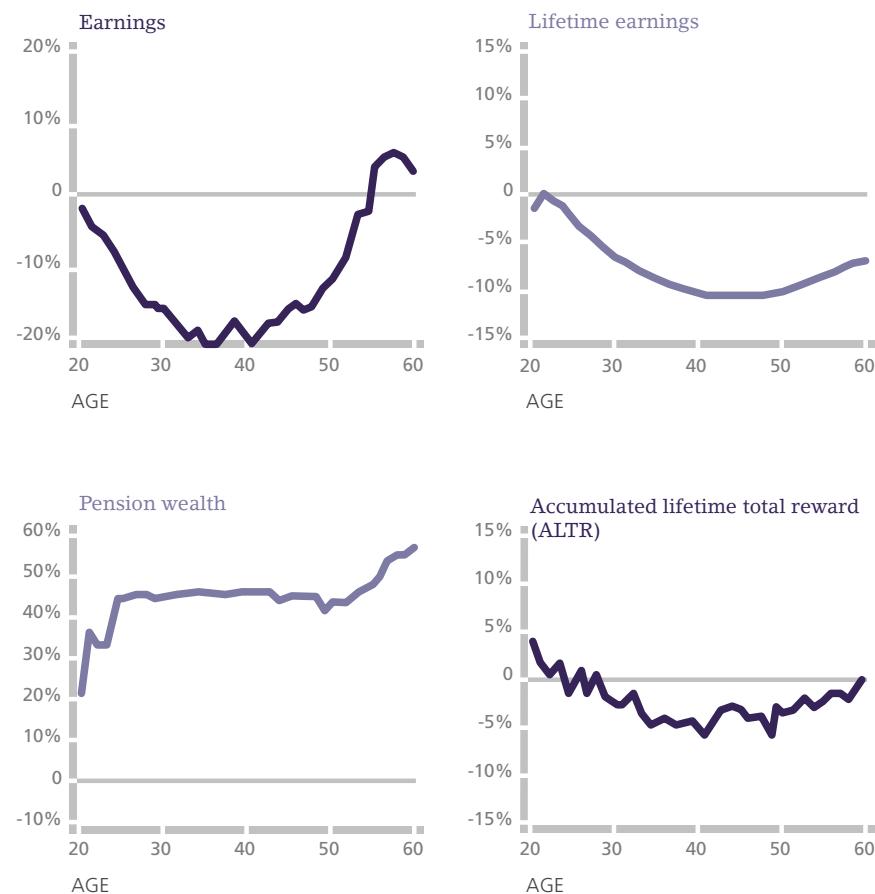
The insights from this exercise are straightforward: while the pensions of

highly educated men working in the public sector are quite generous, there is no clear advantage of either sector once we take account of the full complexity of the comparison. This should caution policy-makers not to reform public sector compensation packages prematurely, unless they accept the implications that this might have for the quality of employees they can recruit and retain.

This article summarises 'Total Reward and Pensions in the UK in the Public and Private Sectors' by Alexander Danzer and Peter Dolton, *Labour Economics* 19(4): 584-94 (August 2012).

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Figure 2:  
Public sector premiums (in percentages) for highly educated men according to earnings, lifetime earnings, pension wealth and 'accumulated total lifetime reward' (ALTR)



Women are  
better off in  
the public  
sector at  
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