This paper looks at the issues involved in setting team- or individual-based incentive pay with special reference to the public sector and draws out some preliminary implications for the NHS.

Issues

*Individual-based incentive pay or team-based incentive pay?*

There is a prior question whether it is appropriate to have any form of incentive pay as opposed to straight salary. If it has been decided that the former is desirable, the next question is the *form* of the incentive pay. The standard argument in favour of individual-based incentive scheme (IBIS) is the following: if I am rewarded as an individual for my output, I get the full value for staying late at work; if I am paid as part of a team reward, I only get part of the reward, so I may choose not to put in the extra hours. As a recent HMT report puts it, it is said that a team-based incentive scheme (TBIS) “penalises performers and rewards passengers.” This is known as the ‘free-rider’ problem. Thus the organisation choosing to institute an IBIS provides stronger incentives for its employees.

The standard argument in favour of a TBIS is based on the nature of work in many organisations. In many jobs, co-operation is required to produce the best outcome; in such contexts, economists say there are complementarities between workers. If this is the case, then an IBIS will distort workers’ incentives and produce undesired outcomes. A good example is a team sport – paying each individual in a soccer team for each goal they personally score will not produce the intended result. If there is a significant team-element in the production process then a TBIS will create the right

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1 See Simon Burgess and Paul Metcalfe *Incentives in Organisations: A Selective Overview of the Literature with Application to the Public Sector* CMPO (1999) for a summary of the evidence on this. This is available at [http://www.bris.ac.uk/Depts/CMPO/incentives/incentindex.htm](http://www.bris.ac.uk/Depts/CMPO/incentives/incentindex.htm).

incentives for individuals to both work hard at their own task and to play their part in the co-operative tasks.

So the first key issue is whether there are any important co-operative inter-relationships in the organisation’s activities. If so, two things follow. First, ignoring the free-rider problem, a TBIS will work better to ensure the necessary co-operation occurs. Second, it implies that the measurement of individual output necessary for an IBIS will be difficult: disentangling one person’s contribution in a team context is bound to be somewhat subjective and disputable.

This suggests the following decision rule: if teamwork is unimportant in production, go for IBIS. If teamwork is important, the decision whether to have IBIS or TBIS is about the trade-off between the importance of co-operation in production and the problem of monitoring and measuring effort. Such a decision need not apply to an organisation as a whole. For some occupations, teamwork may be vital, for others unimportant. In such a case, the optimal response would be to have a mix of TBIS and IBIS schemes – for example, a TBIS for production workers or the R&D team, and an IBIS for sales persons.

There are other issues relating to the relative merits of TBIS and IBIS. Concern is expressed about the possibility of discrimination occurring with an IBIS based on subjective judgements with imperfect performance management data; this is less likely with a TBIS. It may be that a TBIS can be more easily linked in to the organisation’s targets and that the TBIS is based on a hierarchy of targets for teams. This also aids in benchmarking teams. Team spirit may be enhanced by TBIS, or individuals in the team may feel restricted and frustrated by their colleagues lack of effort and be de-motivated.

**How best to define the boundaries of teams?**

The key organising concept in defining teams is balancing the costs of monitoring free-riding within teams with the gains from internalising the rewards to co-operating with other workers. The first part of this trade-off requires keeping the teams relatively small and homogeneous to make monitoring easier; the second requires combining people doing complementary activities into teams.

In principle, the procedure would be as follows. First select the workers for whom co-operation and team-work is most critical and valuable. They become the nucleus of the team. Then widen the definition of the team to include workers with less but still important complementarities. However, while this makes sense from the perspective of encouraging team-working, it also increases the size of the team and the free-rider problem. This process of widening the definition of the team continues until the benefit of increased co-operation is offset by the cost of monitoring effort. This implies that optimal teams will include members who contribute activities that are important for the success of the activities of other team members, and will not include people whose activities are ‘separable’.

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3 Our research shows that this is not uncommon.
There are other factors involved in configuring teams in the optimal way. It is best to define teams that do not need to co-operate much with each other, as teams often become competitive with each other. For a TBIS to work, teams need to be defined in such a way that they have easily measurable output at the team level.

As a qualifying factor to the optimal configuration of teams outlined above, the fair treatment of staff needs to be considered. It seems fair that all should have an opportunity to earn performance bonuses. The interaction of perceived fairness with the design of team structures needs a case-by-case approach.

**What are the best team targets and bonuses?**

The human resources literature recommends that targets and incentives be SMART – specific, measurable, achievable, relevant, time-limited. This is generally self-evident, though a few points are worth making. First, the “specific” is important because many public servants, like other workers, face a plethora of different and possibly conflicting targets. Economists have shown that in this case, incentives for the worker to do anything are significantly reduced. The relevance of targets and incentives is also worth stressing. In the private sector, the overall goal of the organisation, profit, is clear and all individual or team targets can be aligned with that. In the public sector, individual or team targets also need to be clearly part of delivering the organisation’s overall goal. Finally, it is important that the performance bonuses be awarded for projects of relatively short duration, otherwise staff turnover means that incentives become diluted.

An issue of detail is to define the appropriate comparator for team performance. The main possibilities are the team’s own past performance, other similar teams within the organisation or other similar teams in other organisations (or a national average). All these have difficulties, but these are difficulties also faced and dealt with by private sector organisations.

A second practical issue is the appropriate size and nature of the team bonus. This remains an open question, with little data available to be able to quantify these effects. It seems clear that the amount needs to be non-trivial, and a level of at least 5% of salary has been recommended elsewhere\(^4\). It is important that the bonus is not consolidated into permanent salary but is re-awarded each year only if earned through continued high performance.

**The response of teams and the organisation to team-based incentive pay**

The economics evidence suggests that once an incentive scheme has been established, people will respond to it in a sophisticated manner. In this context, there are a number of ways in which the agents could react to the original definition of the team structure. The feasibility of these depend on the nature of the relationship between the teams and the parent organisation. First, membership of the teams is not fixed. There may be competition for the ‘best’ workers, there may be attempts to ‘transfer’ workers between teams. Second, the structure of teams may evolve as the system beds down. Different activities could be grouped together in different ways. This process could be

a learning response, raising the productivity of the organisation, or it could be
designed to ‘game’ the system and actually reduce efficiency.

Evidence on team-based incentive schemes
There is not a great deal of evidence on the nature and extent of TBIS in Britain. While IBIS seem more widespread, a significant fraction of establishments do use
tBIS. Our research at CMPO\(^5\) has shown that in 1990 some 20% of manufacturing
establishments operated a TBIS for some staff. This compared to 11% in private
services and 7% in public services. The equivalent figures for IBIS were 36%, 30%
and 15%. Drago and Heywood (1995) also show TBIS are common in Australia in a
similar survey. A recent repeat survey allows us to track changes in the use of
schemes over the period 1990 – 1998. Preliminary results show that there is
considerable flux in the choice of scheme, with a significant proportion of
establishments switching between having no scheme, an IBIS and TBIS. In fact, the
data suggest that the net result of these moves is a slight increase in the relative
importance of IBIS.

The economics incentives literature contains a few other papers. Gaynor and Pauly
(1990) study a sample of medical practices and show that output is greater where
compensation is more directly related to productivity. This confirms and quantifies
the free-rider effect. Kandel and Lazear (1992) investigate some alternative ways in
which the free riding problem may be resolved in actual team production settings by
means of peer pressure. Drago and Garvey (1998) show that when individual
promotion incentives are strong, individuals spend less effort helping other workers
and increase their own effort\(^6\).

How might this relate to the NHS?
The above discussion suggests there are three key questions to be asked to decide
whether team based rewards are a useful way to proceed in health care. These are
whether teams should be defined, how they should be defined and how they should be
rewarded.

Is it possible to define teams in health care?
The answer to the first question turns on the extent of complementarity in production.
It is commonly argued that in health care complementarities in production are
important. The provision of health care is an activity that requires the input of
individuals with different skills. Although there is little research that precisely
quantifies the extent to which complementarities are important, the current groupings


efficiency in partnerships: Evidence from medical group practice”, *Journal of Political Economy*, 98,
evidence”, *Journal of Labor Economics*, 16, pp.1-25
of individuals within hospitals and primary care settings suggests that in practice
team-based working is very common.

**How should teams be defined?**

Teams should be defined where complementarities are strong across members of the
team, and the boundaries of a team should be defined where there are less
complementarities. The current organisation of health care is already partly based on
teams, and partly on hierarchies. For example, within hospitals a common form of
organisation is directorates and within this wards. The former can be viewed as
hierarchies, and the latter as teams within them. In primary care, some general
practices operate more as a team than others.

The definition of the optimal team in health care is one that may change over time,
and is also somewhat under-researched area. In terms of established structures to
which team rewards could be attached, the hospital directorate may not be a very
good basis for defining a team. Within directorates there may be groups of individuals
whose activities do not complement each other. The definition of a team as the ward
may be more appropriate. At this level of the organisation, the group of consultants,
doctors and nurses, social workers etc deal with patients who require care from
different individuals within the team, and so the actions of team members are
generally complementary.

Specialty may be another sensible team grouping within hospital, though the
definitions of specialties may vary across hospitals which could cause problems if
rewards were based on comparison of performance across rather than within hospitals.

Defining teams within hospitals in this way will mean that not everyone will fall
within one of these teams. There will be general hospital-wide functions that are
outside teams based on wards or specialties (administration, portering etc). One
approach is to add them to teams, and in the limit move to a rather larger definition of
the team as being the whole hospital. The extent to which a hospital is a good
definition of a team turns on two things. First, the extent of complementarity across
the tasks of individuals within the team, and the similarity of teams across different
organisations. Second, the size of the free-rider problem and the possibility of
adequate monitoring of effort in such a large unit. The extent of complementarity at
hospital level is obviously less than at ward or specialty level. Differences in the
range and type of activities undertaken within hospitals may also make comparing the
output of one hospital with that of another difficult as to compare across hospitals
requires adding together the output or throughput for different mixes of activity.

Another approach would be to define services which do not form a team with a ward
or a specialty as a team on their own e.g. the portering team, the administration team.
The output of these teams may be amenable to measurement and having meaningful
targets; they are relatively small which allows monitoring; they can “compete” against
each other across hospitals

Yet another approach is to define teams based on ‘care pathways’ rather than existing
organisations. This patient focus is an attractive one. But to implement team based
rewards based on care pathways may require substantial reorganisation of existing
organisations. Given this has a high cost, it may be better to introduce team rewards
based on existing grouping of individuals first, in order to get some evidence on how
team rewards might work in practice.

How should teams be rewarded

Teams could be compared within institutions, for example comparison of specialty
teams within hospitals. They could also be compared across institutions, for example
comparing a particular specialty in hospital A with a similarly defined specialty in
hospital B. The latter is to be preferred. Comparison within hospital means teams with
different outputs are compared, and the comparison may result in unhelpful
competition (for example, hoarding of resources in order to prevent other teams
getting access). Comparison across teams across hospitals avoids the problem of
within hospital destructive competition and means that teams that produce similar
outputs are compared.

To increase comparability, teams could be compared within certain groupings of
hospitals (for example, the groupings used to present the current health outcome
tables). This controls somewhat for hospital specific characteristics that may affect
performance (e.g. size, teaching status, split site working). Comparison with other
teams in a given year has other advantages. There are clear links to other issues of
performance management such as benchmarking. Any special events which have
happened within a year that affect all teams are netted out of the comparison (e.g. a
year in which there were severe flu epidemics). By using an external comparator
rather than previous performance any ratchet effect is removed.

Research Questions

There has been considerable research on incentives in general in economics, but there
remain a substantial number of outstanding issues, particularly relating to the public
sector and to TBIS. These include:

• What is the amount needed for an incentive scheme to be effective?
• How to define in detail the appropriate size and membership of teams, particularly
  in health care providers and schools?
• How important are team incentives in the private sector?
• What circumstances are correlated with use of team rather than individual
  incentive schemes?
• Are things likely to be different in public sector as opposed to private sector?
• What are the links between team-based incentives and benchmarking?

Research at CMPO

A major strand of the research carried out at the Centre for Market and Public
Organisation (CMPO) relates to incentives in the public sector. This includes
empirical papers on the nature and extent of incentive schemes in Britain, theoretical
work on bureaucrat’s career concerns and a detailed and thorough survey of the
literature on incentives with particular focus on the public sector. Details of this work
can be found at http://www.bris.ac.uk/Depts/CMPO/researchorgan.htm. We are also
running an ESRC-sponsored seminar series over two years on ‘Pay, Incentives and
Performance in the Public Sector’. 