

## ***Work in Progress***

# **EARNED AUTONOMY IN THE NHS – AN ECONOMIC APPROACH**

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## **1. Introduction**

The NHS Plan signalled a fundamental change to the way in which the NHS is to be managed (Cm 48181; NHS Executive 2001). Whereas providers have traditionally been heavily regulated in terms of structure, process and outcomes, under a policy of *Earned Autonomy*, selected providers are now allowed greater operational freedoms and independence from central control. This devolution of responsibility represents a novel approach to performance management in health care and introduces new types of incentives into the NHS. Central to the new strategy is the notion that ‘trust’ in front-line staff is a valuable intangible capital asset that, if nurtured properly, may yield considerable benefits in terms of enhanced performance and improved patient care.

This paper draws on economic theories of trust and trustworthiness in order to develop a framework for classifying the potential benefits and costs of *Earned Autonomy*. Our aim is to develop a theoretical basis to guide the empirical phase of the project, so any feedback on our current proposals would be most welcome as we shall have time to consider them before embarking on the empirical arm of the study.

## **2. Earning Autonomy in the NHS – Policy Background**

The word *autonomy* derives from the Greek *autonomia*, which combined the Greek words for ‘self’ and ‘law’ (Dagger, 2002). To be autonomous then is to be self-governing.

The chosen method for bestowing *Earned Autonomy* is the NHS performance rating system which assigns all non-specialist hospital Trusts<sup>1</sup> to one of four performance categories, ranging from three stars (highest performing) to zero stars (lowest performing). The ratings are based on an assessment of an organisation’s performance on a range of indicators and targets and structured into four areas: key national targets (to which most weight is given); patient focus; clinical focus; and capability and capacity focus.

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<sup>1</sup> We confine our discussion largely to hospitals although the performance ratings are to be applied to all organisations

Star ratings are awarded primarily on the basis of performance on nine key targets (mostly relating to financial and waiting times issues). To achieve a higher star rating (two or three stars) good performance on key targets – defined as a performance falling in the top half of the national table - must be complemented by good performance on the other areas of performance. Finally, assessments from the Commission for Health Improvement are considered in the rating. A favourable CHI report can confirm a Trust as three star. Conversely, a CHI assessment highlighting a particular area for improvement can result in a reduction in rating.

In the accounting year 2001/02, 68 Trusts (22%) were awarded the highest performance rating which allowed a range of operational freedoms, including:

- less frequent monitoring from the centre (eg. fewer inspections by the Commission for Health Improvement).
- automatic access to the National Performance Fund
- greater freedom to develop their own investment programmes and to decide the local organisation of services
- retention of proceeds of local land sales for re-investment
- being used as pilot sites for new initiatives.

The highest performing Trusts have also been invited to apply for NHS Foundation Hospital status. These new organisations will have the freedom to develop their own board and governance structures and offer additional performance related awards to staff. They are also likely to have some financial freedoms related to the use of capital. The first foundation Trusts are due to be set up in shadow form in July 2003 and become fully operational in April 2004. Thus even if the freedoms associated with earned autonomy appear at first to be fairly limited, they are to be rolled into potentially a much more ambitious programme.

### **3. Economic Perspective**

From an economic perspective the concept of ‘earned autonomy’ touches upon two key issues:

- (a) What incentives exist for agents who operate ‘autonomously’ and what costs and benefits are implied for the principal?
- (b) What incentives arise from having to *earn* autonomy?

It seems appropriate to consider (a) as a steady-state situation; in contrast (b) reflects a dynamic aspect, where 'autonomy' is a prize offered to an agent for attaining pre-specified targets or a high performance more generally. We elaborate on these below.

### **(a) Steady-state incentives, benefits and costs of autonomy**

We outline the potential costs and benefits to agents and principals under three headings: moral hazard, adverse selection and direct financial impacts, but first we consider two important concepts, *trust* and the nature of *motivation* on the part of agents.

#### *Trust*

Devolving power and responsibility to providers entails a degree of trust on behalf of the government in the belief that, freed from central controls, these organisations will deliver the desired performance improvements. We therefore consider the benefits and costs to the principals (the government) and agents (providers) in the context of the notion of *trust*. The emergence of the concept of trust in economics has been largely in response to the problem of uncertainty about the unknown or unknowable actions of other economic agents (Coriat and Guennif 1998). Full verification of all agent actions and their consequences is simply not possible in any but the most trivial of relationships and given the complexity and uncertainty intrinsic to health care production, almost all principal-agent relationships in this context will require at least some degree of trust as a backdrop to more explicit monitoring (Mannion and Davies 2002).

Mutual relationships based on trust may therefore represent an effective method of economising on the transaction and co-ordination costs of economic production, especially in highly complex situations. Gambetta (1988) defines trust as:

'trust (or symmetrically, distrust) is a particular level of subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he (sic) can monitor such action (or independently of his capacity to monitor it) and in a context in which it affects his own action' (Gambetta 1988, p217).

A number of important points arise from this definition. First, trust may be interpreted as a threshold point located on a probabilistic distribution which can take any value from complete distrust (0) to complete trust (1) and centered around a mid-point of uncertainty (0.5). For example a principal's level of trust in an agent is likely to be based on the agents previous behaviour, which gives rise to *reputation*. Here, blind trust (loyalty) or blind distrust (disloyalty) represent lexicographic predispositions to maintain the extreme values even when experience might not support this and encourage withdrawal. Second, this conceptualisation of trust is based on the

expectation that an agent has sufficient freedom and disposition to disappoint the principal's expectations. If agents were heavily constrained by the form of their contracts there would be little concern on the part of the principal about the likelihood of agents performing in accordance with their wishes. Indeed trust has been defined as a device for coping with the freedom of others (Luhmann, 1979). Third, a reputation for trustworthiness can be viewed as an intangible capital asset. Although a reputation for trustworthiness is usually acquired gradually, it can be destroyed very quickly. Agents may thus be eager to establish a good reputation, and to that end it may be optimal for an agent to put resources into enhancing its reputation to signal its trustworthiness.

### *Intrinsic and Extrinsic Motivation*

Second, we distinguish between intrinsic and extrinsic motivation in discussing the benefits and costs of autonomy. Drawing on insights from psychology (Deci and Ryan 1985), Frey (1993, 1997) argues that agents may be driven by intrinsic motivation. This means that agents derive satisfaction from performing a task well or from providing a good service to their clients, regardless of the existence of extrinsic rewards or punishments. On the contrary, agents may be motivated to undertake tasks largely in response to extrinsic factors such as financial payments, fear of being sacked etc. As we discuss below, the costs and benefits associated with enhanced autonomy and trust will vary depending on the extent to which agents are intrinsically or extrinsically motivated.

### **Moral Hazard**

One benefit to the principal from granting autonomy is that intrinsically motivated agents may respond positively by increasing further their efforts. If we assume that intrinsically motivated agents are providing effort even in the absence of extrinsic incentives, then it is possible it may be *crowded out* by the emphasis on the latter eg demanding performance standards and the associated punishments or rewards. Extrinsic rewards and sanctions may tend to destroy the agents' self-evaluation of doing 'something decent' over and above what is expected or enforced anyway. The control associated with extrinsic rewards also leads to a loss of self-determinedness, which may further undermine the agent's motivation to provide effort.

However, we should bear in mind that even if agents are intrinsically motivated, their objectives may differ from those of the principal. For example, the principal may be concerned about production costs, whereas an intrinsically motivated agent may be more concerned about the quality of the service provided. If quality is costly, the incentives obviously diverge. The agent is intrinsically motivated to provide quality but not to contain cost. This issue has been addressed in the literature in the form of the multi-task principal-agent problem (Holmström and Milgrom 1991). Under such circumstances, greater autonomy may allow agents the scope to pursue their

own objectives at the expense of those of the principal and thus represents a potential cost to the principal.

If the agent is not intrinsically motivated and if the provision of effort is costly, the absence of central control may provide greater scope for shirking, which is costly to the principal. This prevails if the loss of control over the process of production is not compensated by greater accountability of the agent for the outcomes. Such accountability may involve for example, linking achievement of outcomes to the agent's rewards. This may not be feasible due to technological reasons e.g. measurement problems, joint production; due to a lack of verifiability of outcomes; or due to enforcement being difficult. In such a situation, the agent may exploit his autonomy and shirk or shift his effort towards other objectives. However, there are a number of caveats to this notion:<sup>2</sup>

*Accountability:* Greater autonomy may encourage effort if at the same time accountability is enhanced through extrinsic factors eg performance related pay (Holstrom & Milgrom 1994).

*Effort cost:* Autonomy can imply a lower cost of effort, thus even agents who do not care about autonomy per se and are extrinsically motivated may work harder. This may arise if it is costly for the agent to follow bureaucratic procedures, adhere to guidelines etc. In contrast, some agents may have a preference for being controlled (Kuhn 2002). This is the case if they perceive central intervention as helpful in coping with tasks. For example, some hospital trusts may value external intervention from organisations such as the Modernisation Agency.

*Risk:* In the agency literature, greater risk born by the agent usually has to be compensated for by a premium in order to induce participation (Milgrom and Roberts 1992). In a more general context, a higher risk may also induce the agent to undertake defensive (and unproductive) activities; or to forego profitable but risky projects.

The effect of greater autonomy on risk depends on whether or not the agent is held accountable for the outcomes. If he is not, then greater autonomy implies a lower risk of being monitored while performing poorly, where poor performance may be due entirely to external circumstances. This in turn would relax the agent's participation constraint and/or increase his willingness to engage in risky projects. In contrast, if the agent is accountable for outcomes, e.g. if he is subject to performance pay, the agent's risk may increase when outcome is stochastic. In this case, the incentive to provide effort may be weakened.

*Co-operation between agents:* In some environments, the agent competes in performance against other agents. Here, greater autonomy (without greater

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<sup>2</sup> A number of the following arguments apply also to the case of intrinsic motivation.

accountability) mitigates the intensity of this competition. In particular, when the agent's tasks are closely inter-linked, this could enhance co-operation between agents or at least reduce the incentive to sabotage each other's performance (Lazear 1989).

### **Adverse selection**

Autonomy with regard to the provision of performance information by the agent to the principal can take a variety of forms. In the extreme, a principal can ask for no performance information at all; it can ask for a limited amount of information only (eg only data on final health outcomes rather than on process); or it can receive performance information from the agent on a regular basis but subject these data to far less monitoring and audit. It is unlikely that the first two scenarios are realistic options in the current NHS where issues such as waiting times will remain a priority.

In the absence of intrinsic motivation, an agent may have an incentive to distort information provided to the principal in the absence of audit. This may allow the agent to maximise his scope for slack or to pursue other objectives. Even an intrinsically motivated agent may bias information in order to pursue his own objective if there is a divergence between those of the principal and the agent.

It is possible that the principal may involve the agent in policy-making and grant him some decision rights. This may be helpful if communication is costly, the drawing up of contingent contracts is too complex, or if it is too costly to audit the information provided by the agent (Melumad et al. 1992, 1997; Harris and Raviv 1998). Under these conditions, the agent has scope for influencing the formation of policy and thus, to some extent, the objectives against which he will be expected to perform. This may encourage greater effort from the agent or assist in the process of aligning the objectives of the principal and agent. However, if agents are not motivated intrinsically or if they pursue their own agenda, greater involvement in policy decisions may lead to substantial distortion, not only of performance information but of performance targets themselves.

### **Direct financial impact**

The issues of adverse selection and moral hazard discussed above are likely to be associated with indirect financial costs and benefits eg the knock-on effect of shirking on the part of the agent. There will also be direct financial impacts associated with granting greater autonomy: such as reduced data collection and processing costs; reduced costs of communication and monitoring (Melumad et al. 1992; Harris and Raviv 1998); or increased costs of providing additional financial incentives in the system; and increased costs associated with generating or distorting information and engaging in activity to influence the principal (Milgrom and Roberts 1988, 1992).

## **(b) Inter-temporal incentives, costs and benefits**

We now go on to focus on dynamic incentives within a repeated game framework (Kuhn 2002). We consider the position of the agent and the principle and then consider the interaction in a dynamic context.

### *Agent: Intertemporal performance incentives*

It is easy to see that autonomy as a reward induces greater effort only if it is valued by the agent. However, under some circumstances, the agent places no value or even a negative value on autonomy eg if it implies a greater effort cost to them; a greater risk; or if it comes with greater output related performance incentives and thus gives less scope for shirking. Nevertheless, we assume in the following discussions, that agents value autonomy.

If the principal can commit to reward autonomy if and only if the agent's performance meets a pre-specified standard, agents may be prepared to provide more effort in period 0 in order to gain autonomy in period 1. Notably, this is the case even if agents exploit the trust placed in them in period 1 by shirking. Under these circumstances, there is a trade-off between the dynamic incentive (greater effort) and the steady-state incentive (lower effort). Harrington (1988) considers a repeated incentive scheme in which the dynamic incentive outweighs the steady-state incentive. Initially agents are placed within a group 1 with a low monitoring intensity, but they are moved to a group 2 with a high monitoring intensity when found to be shirking. If an agent in group 2 is found to be complying he is moved back to group 1 in due course. However, if the agent is found to be shirking repeatedly, he is punished severely. Harrington shows that this mechanism serves to reinforce compliance, although the agent's effort cost exceeds the punishment even within group 2. This may be explained by the fact that an agent's reward for compliance amounts not only to the punishment avoided but also to the expected benefit from being moved to group 1 or remaining within group 1. While Harrington has considered this scheme in the context of US pollution control, in many ways it is equally as applicable to the star-rating system within the NHS where 'high-star' trusts (or foundation hospitals) correspond to group 1 and 'no-star' trusts to group 2. Indeed, monitoring intensity is low within group 1 and the only loss for observed non-compliance would be being moved to an intermediate group or, at worst, to group 2. In contrast, 'no star' trusts are heavily monitored and non-compliance within this group may be punished ultimately by replacement of the management.

### *Principal: Commitment*

As outlined earlier, awarding autonomy may come at a cost or benefit to the principal depending on the steady state incentives. For example, awarding autonomy is costly if the agent exploits this extension of trust by shirking; but it may also carry additional benefit if the process nurtures enhanced intrinsic

motivation. Here, different expected benefits and costs of autonomy offset each other to give rise to an expected net benefit, which may be positive negative or zero.

The net benefit of autonomy becomes important if the principal is unable to commit to awarding autonomy in response to – and only to – good performance. Imperfect commitment arises if performance is not verifiable. In this case, once the agent has successfully achieved the target, the principal has an incentive to withhold the promised award in order to save the cost. Since the agent will expect such opportunistic behaviour, he will not provide effort in the first place, and the dynamic incentive is blunted. The literature has focused on monetary rewards (Malcomson 1999), but the same commitment problem arises if awarding autonomy is costly. However, while monetary rewards are always costly for the principal, awarding autonomy may also come at a positive or zero net benefit. If granting autonomy also carries a benefit for the principal a converse commitment problem arises. In this case, the principal cannot commit to withholding autonomy. The agent then expects to receive the prize irrespective of his current performance, and the dynamic incentive is blunted again. If, however, the principal derives zero net benefit from awarding autonomy, they can commit to awarding autonomy if and only if the agent has achieved the performance target. Thus, even when the principal is unable to commit, the scheme of earned autonomy may provide dynamic incentives in those situations (and only in those) in which the expected costs and benefits of autonomy balance each other.

#### *Integrating the incentives: A game of mutual trust*

The interaction between principal and agent over time can be integrated into a repeated game of mutual trust (Milgrom and Roberts 1992). Similar games have been applied in a wide variety of contexts, including employment relationships (Malcomson 1999) and cartel behaviour (Shapiro 1989). The logic underpinning repeated games proceeds on the following basis. Let us consider as a benchmark a single stage of the game consisting of the following sequence:

- (i) the principal offers autonomy as a reward
- (ii) the agent chooses effort
- (iii) the principal awards autonomy
- (iv) the agent chooses effort
- (v) this stage of the game ends

Assume now that the agent is not intrinsically motivated and benefits from autonomy through enhanced scope for shirking. Under these circumstances it is optimal for the agent to reduce effort in period (iv) once he has been awarded autonomy. Given this situation, awarding autonomy in period (iii) is costly to the principal and he will not grant autonomy irrespective of his announcement in period (i). However, as the agent does not expect to receive



autonomy, there is an incentive for him in period (ii) to exert only minimum effort. A promise of autonomy in period (i) therefore carries no incentive effect. Thus, if this game is played only once, neither 'static' (period (iv)) nor dynamic (period (ii)) incentives are effective.

Now suppose the stage game consisting of periods (i)-(iv) is repeated over an infinite time horizon (or at least until an uncertain point of termination). There is now scope for co-operation even if the players have an incentive to play non-co-operatively in an isolated stage of the game. The reason is that repeated interaction allows a player to punish cheating by playing non-co-operatively for a certain number of future stages. So if the agent were to shirk in period (iv) of any one stage, the principal would have the sanction of withdrawing autonomy in subsequent stages. Likewise, the agent could punish the non-award of autonomy in period (iv) by withholding effort not only in period (iv) of the same stage but also in subsequent stages of the game. When deciding whether or not to cheat, a player will not only take into account the present gains from co-operation but also the fact that by cheating he will forego future gains from co-operation. If discounting of future benefits from co-operation is not too strong, both players have an incentive to sustain co-operation. In our case, the threat of autonomy being withdrawn induces the agent to provide effort above the minimum in all periods, i.e. in periods (ii) *and* (iv) of each stage. Likewise, the threat of the agent providing only minimum effort in all periods will induce the principal not to withdraw autonomy. Sustainability of the trusting relationship between the principal and agent relies on neither party having an incentive to break trust because the loss to them in terms of potential future gains from co-operation is too high.

In many cases the players have to rely on imperfect information when assessing whether or not their counterparts stick to the agreement. For instance, it is likely that observed performance varies due to unobservable random influences and chance variation. As the principal cannot monitor the agent's effort directly, he has to infer it through observed performance. However, poor performance may be attributable to a negative random shock rather than to low effort. It is thus difficult for the principal to judge whether or not he should punish the agent. Punishing the agent bears the risk of stifling the agent's future co-operation for no reason. Failure to punish the agent brings the risk of inducing him to provide only minimum effort in the first place.

It can be shown that in such an instance it is optimal for a player to adopt a trigger strategy (Shapiro 1989). In the case of imperfect performance observation, this would imply that the principal punishes the agent by withdrawing autonomy for a certain period of time if and only if outcome falls below a threshold. After the punishment phase they revert to co-operation. The threshold and duration of punishment are determined endogenously. One might expect them to depend on the history of the agent's co-operation. In this regard, the agent may acquire a reputation of being co-operative, in which case the threshold level of performance is lower. This signifies greater trust on the part of the principal, where trust means the principal's greater willingness to attribute poor performance to external circumstances rather than to the agent's lack of co-operation.

In some cases, the interaction between principal and agent is so complex that it is very difficult for both parties to monitor the co-operation of their counterparts. Kreps (1990) has argued that in such instances corporate culture may act as a focal point. Corporate culture is defined as a set of clear-cut simple rules for which it is easy to observe compliance. This facilitates co-operation as both parties can signal their co-operation by sticking to these rules. Note that the gains from co-operation may render it efficient for an organisation to adopt such rules even if in a world of perfect information they would not be optimal. This may explain the use of albeit imperfect performance indicators within the 'earned autonomy' framework - they serve as a focal point that is observable to all stakeholders: health care organisations, patients and the government.

A related issue arises if players are uninformed about their opponent's type. For example, agents may differ in their cost of effort or their degree of intrinsic motivation. Generally, one would expect that a lower cost of effort (or greater intrinsic motivation) increases the scope for using autonomy as an incentive device. Likewise, a lower cost of effort tends to sustain a co-operative approach. The principal faces the problem at the beginning of the relationship, of deciding who should be offered autonomy in the first place. This problem is compounded if performance measures are subject to unobservable random influences. In this case, inferences about the agent's type cannot even be made in the second period. Two mechanisms may eventually establish a co-operative outcome.

First, agents may establish a reputation for being co-operative (Kreps et al. 1982). Problems may arise if this reputation is collective rather than attached to an individual agent (Tirole 1996). In this case a poor reputation inherited from past agents is difficult to over-come even if present agents would, in principle, be willing to co-operate. Second, agents may be able to directly signal their type. This may be facilitated by the presence of performance indicators even if these are imperfect. Thus, the performance framework may play a role in screening out those agents who are most likely not to respond to autonomy as an incentive device.

#### 4. Implications for Empirical Research

Recent policy developments suggest that the issue of earned autonomy is going to assume much more importance as the first tranche of hospitals are awarded foundation status and the precise nature of the freedoms they are to be granted, is clarified and developed over time. The preceding analytical framework focuses attention on the following areas as potential topics for our empirical research:

1. Elicitation of the *expected* costs and benefits to both principals and agents (and ultimately patients) ie exploring the aims underlying the policy. This is not straightforward as the architects of the reforms have not been explicit about the aims of the policies. Strategy on earned autonomy and the creation of foundation hospitals appears to have been developed within the general context of devolution of central control, the precise expected benefits of which have not been made very explicit.
2. Exploration of the *actual* costs and benefits to both parties ie what are the costs and benefits accruing to those to whom autonomy is granted or withheld? Is it perceived as a prize worth having? Do different aspects of autonomy appeal to different groups? What are the trade-offs in granting autonomy from the principal's perspective?
3. An examination of the impact of autonomy on intrinsic and extrinsic motivation. Does this vary for different professional groups or those at different levels within the hierarchy? Is enhanced autonomy likely to be associated with greater effort or greater shirking? What is the role for extrinsic incentives?
4. Consideration of the commitment issues for the principal. What is the impact of incentives on agents if they perceive a commitment problem on the principal's part?
5. Are the incentive issues the same for all organisations regardless of their star ratings status? Or is autonomy only an incentive for those at the top end of the distribution (they are nearly there) and those at the very bottom (who may wish to avoid heavy intervention eg by the Modernisation Agency)? What are the incentives for the middling performers?
6. Our discussion has cast the government in the role of principal (as regulator). However, earned autonomy in the guise of the development of foundation hospitals may also have an impact on the behaviour of health care commissioners. They also function as principals and it is

therefore important to also appreciate the costs, benefits and incentives from their perspective.

7. There are other wider aspects of autonomy that we could consider in our research eg views on which of the existing freedoms make a real difference; ideas for alternative freedoms that would be highly valued by agents; issues of how incentives associated with autonomy are transmitted from the apex of the organisation down to teams and individual staff; the balance between freedom and accountability; and the policy implications of withdrawing autonomy.

So far in the project we have adopted a perspective which treats *earned autonomy* as a reward and on the basis of this we have explored the implications for the principal-agent relationship over time in the light of different incentive structures and motivational drivers. We are aware of the limitations of this perspective and would welcome views on which alternative theoretical approaches might shed some light on the earned autonomy issue. Any advice regarding how best to tackle the practical problems arising when trying to design the empirical research to investigate some of the questions outlined above would also be most welcome!

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