# Transaction Costs Theory Applied to the Choice of Reimbursement Scheme in an Integrated Health Care System

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# CONTENT

## Abstract

The majority of hospital models of choice and effects of reimbursement schemes implicitly assume that the third party payer and the hospitals are two separate and independent actors who contract on a voluntary basis. This is not a relevant description of public integrated health care systems. In order to understand the choice of hospital reimbursement schemes in public integrated health care systems the standard principal-agent analysis does not suffice. In this article an alternative framework using Transaction Cost Economics is presented to facilitate our understanding of incentives along with an appreciation of the role of organisations seen as governance mechanisms. The main argument is that integrated systems deviate from non-integrated systems because the financing third party through ownership also has the legitimate authority to prescribe hospital behaviour by hierarchical orders and rules in addition to the possibility of directing hospital production by administered prices. The choice of reimbursement scheme in a publicly integrated system should be considered as a choice of contractual relationship embedding a bundle of decision rights and not solely a system of financial flow.

# 1. Introduction

The choice of hospital reimbursement schemes is typically analysed and designed within a principal-agent (PA) framework. There are two independent parties who contract in a situation characterised by conflicting objective and asymmetric information. The majority of the hospital models in the literature implicitly assume that the third party payer and the hospitals are two separate and independent actors who contract voluntarily on an arm's-length principle like in a market (Bech 2004). Each independent party is assumed to maximise net gains based on completely specified ex ante contractual relationships, i.e. all possible contingencies are specified.

It may not be, however, a very good description of real world health care systems with complex services, and where all possible contingencies are impossible to specify. Furthermore, health care systems have complex structures of relationships which are neither truly arm's-length nor completely hierarchical, rarely perfectly voluntary, and furthermore often involve political bodies as an integral part of the resource allocation mechanism. These issues among others are neglected in the standard PA approach. It is, however, at the core of the Transaction Cost Economics (TCE) pioneered by Oliver E. Williamson (Williamson 1975;Williamson 1985) which basically assume that incomplete contracting is ubiquitous and furthermore assume bounded rationally agents. The aim of this article is to apply this line of thinking in relation to the choice of hospital reimbursement schemes.

The application of the TCE in part stems from dissatisfaction with the traditional PA approach, in part from a wish to investigate the use of TCE as an analytical framework in central parts of health economics. This is not the first attempt to apply TCE, e.g. (Ashton 1998;Coles and Hesterly 1998;Croxson 2000;Goddard and Mannion 1998;Posnett et al. 1998) but to our knowledge, it has not explicitly been applied to the question of hospital reimbursement scheme.

TCE offers the possibility of embedding our understanding of incentives within an appreciation of the role of organisations as governance mechanisms (Robinson 1993;Robinson 2001). We argue that the choice of reimbursement scheme cannot be analysed without looking at the institutional and organisational context and secondly that the choice of reimbursement scheme is an integrated part of a larger bundle of decision parameter which constitutes the relationship between the third party and the hospitals.

Most questions about hospital reimbursement can be formulated in contracting terms. Furthermore, incomplete contracts are the rule of the day. The analysis here focuses on contracting between the financing third party and the hospital in a publicly integrated health care system. The financing third party in such systems, e.g. England and the Scandinavian countries is a tax-financed body with considerable political involvement; however, the thinking easily can cover other systems.

A contract is usually a set of written agreements that spells out a set of specific actions of compliance by the parties to the contract. The contracting parties make reciprocal commitments – in essence a bilateral coordination arrangement. The general definition of a contract is fairly similar in PA and TCE, e.g. compare (Brousseau and Glachant 2002) and (Salanié 1997). The important difference concerns the degree of completeness of the contract. PA assumes completely specified contracts (Salanié 1997;Tirole 1999) whereas TCE relies on incomplete contracts (Brousseau and Glachant 2002;Hart 1988;Williamson 1985). This distinction is closely tied up with institutional assumptions. In PA the courts can resolve disputes whereas the incomplete contracts usually rely on what the TCE literature terms private ordering. Private ordering is a mechanism among decision-making entities in response to adaptive and sequential decision-making for information sharing, co-operation, dispute resolution or other interactions not formally dictated by the law. Furthermore, TCE also embeds contracts within a governance structure – something only vaguely addressed by PA. The key attributes of a governance structure is a) incentive intensity,

b) degree of use of administrative controls, and c) the applicability of contract law (Williamson 1991;Williamson 1999). In this way both different types of markets, e.g. spot markets and various forms of long(er) term contracting, and different forms of hierarchies, e.g. firms, public bureaus or regulation, can be distinguished.

The remainder of this paper is organised as follows. Readers may be unfamiliar with TCE. Therefore the first two sections are devoted to both an exposition of core TCE concepts and the relationship to reimbursement issues. Section 2 presents important ideas of TCE and provides insights into why contracts are incomplete and the implication hereof. Section 3 introduces governance structures and their characteristics which provide a starting point for the analysis of the choice of reimbursement scheme in section 4. Section 5 discusses the trade-off between transaction costs and efficiency incentives and section 6 discusses the policy implications of the analysis.

## 2. Why are Contracts Incomplete and what are the Implications?

Agents in PA theory are assumed to be maximising individuals with perfect foresight. They are aware of every state that could conceivably occur in the future and know the relative frequencies of all states (Sappington 1991). This enables the principal to design a contract that takes all possible states into account, and the agent's incentives can be perfectly aligned ex ante. Additionally, the contracting parties can communicate their assessment of the environment costless implying implicitly that is costless to negotiate and to write the contract. Due to the perfect ex ante situation there is no need to be concerned about execution of the contract, and hence there are no ex post problems. This is not so in TCE.

TCE emphasises that not only is information asymmetric but it is costly. Individuals have limited cognitive abilities to foresee every conceivable event and to process information. Behaviourally this is bounded rationality meaning that 'human

behaviour is *intendedly* rational, but only *boundedly* so' p. 88 (Simon 1997). This innocuous change of assumptions basically imply that contracts by nature become imperfect, and that contracts must be analysed from an ex ante and an ex post perspective. Imperfect information and knowledge leave gaps and missing provisions in the contract. Contracts do either not specify contingencies completely or are vague on a number of key features.

Individuals are furthermore assumed to be opportunistic, meaning that they maximise their self-interests with guile (Williamson 1985). In situations without opportunism the consequences of incomplete contracting would be less problematic since the contracting parties would seek fair comprises and agreements. Combining incomplete contracts and opportunism means that *contractual hazard* is an ever-present threat.

Incomplete contracting is associated transaction costs such as the costs of developing/negotiating, maintaining, monitoring, and enforcing a contractual relationship. Transaction costs should be distinguished from production cost, even thought that it may be difficult to separate these in practice (Ashton 1998;Croxson 2000). Ex ante transaction costs are the costs of searching, drafting and negotiating a contract. Ex post transaction costs of contracting are the costs of monitoring the other party to ensure that the agreed contract is fulfilled, costs of corrections of misalignment of incentives, costs of enforcing the contract if it is not fulfilled, bonding costs of effecting secure commitments, and costs of handling ex post disputes.

Even though that ex ante and ex post transaction costs occur in different parts of the process of transacting they are not independent. "An imprecise contract may have lower ex ante transaction costs, but may lead to higher ex post costs if there is a dispute over whether the contract has actually been breached" (p. 17) (Croxson 2000). Writing costs are closely related to enforcement costs since more precise descriptions of contingencies simplify ex post enforcement (Tirole 1999;Williamson 2000). Cost of communication may in itself limit the principal's ability to make a comprehensive

contract because communication of all relevant dimensions of the transaction is excessively costly (Laffont and Martimort 1997).

Transaction costs are influenced by the nature of the transaction, the availability of alternative purchaser/buyers, the degree of uncertainty, the asset specificity of non-trivial investments involved in the transaction, the degree of understanding of the transformation process from input to output, the measurability/complexity of output, the mechanisms available to enforce contracts, and the social context in which the transaction is embedded, especially the extent of opportunism and trust between the contracting parties (Goddard et al. 2000;Preker et al. 2000;Williamson 1985).

All these elements are joined with the assertion that viable modes of organisation, i.e. governance structures (market, hybrid or hierarchy) are ones that economise on transaction costs. The efficient mode of governance is the one that minimise the sum of production costs and transaction costs.

## 3. Governance Structures

Transaction cost analysis is "…an examination of the comparative costs of planning, adapting, and monitoring task completion under alternative governance structures." (p.2) (Williamson 1985). A transaction cost analysis is a comparative discrete institutional analysis of different ways of organising economic transactions with the underlying idea that minimisation of transaction costs is a major concern for the choice of governance structure (Williamson 1986;Williamson 1991).

*Governance structures* define sets of rules for organising economic activities/contractual relations. Governance structures differ in their means of coordination and in their rules of resource allocation, i.e. the three key attributes mentioned in the introduction: intensity of incentives, use of administrative controls and fiats, and reliance on contract law.

The 'market', the 'hierarchy', and the 'hybrid' models are the alternative modes of governance possessing different mechanisms for alignment of incentives. The market and the hierarchy are considered to be as each other's opposites, and the hybrid as the name indicates is an intermediate form.

**Table 1: The Three Stereotypical Governance Structures**

| | Market | Hierarchy | Hybrid |
|---|---|---|---|
| **Relationship** | Short-term interaction between independent actors | Long standing relationship between integrated actors | Intermediate and long term between partly integrated agents |
| **Type of contract** | Spot market - no contract | Incomplete/relational | Most often incomplete contracts |
| **Main governance mechanism: means of coordination** | Prices | Authority, fiat – orders, administrative rules and procedures | Prices and fiat |
| **Legal paradigm** | Classical contract law of markets through legislation prescribing that the court is the forum for ultimate appeal | Private ordering – the internal organisation becomes its own court of ultimate appeal and is characterised by forbearance | Both contract law and private ordering |
| **Budget constraint** | Hard budget constraint | Soft budget constraint (compared to the market) | Soft to hard(er) |
| **Intensity/power of incentives** | Mainly high powered incentives | Mainly low powered incentives | Mixture of low and high powered |
| **Transaction costs** | Market transaction costs | Bureaucracy costs | Both market and bureaucracy costs |

**Market Governance**

Market governance coordinates transactions through the price mechanism. The stereotypical market relation is the spot market in which anonymous providers and

purchasers meet, agree on prices and leave, and the relationship between the providers and purchasers is not expected to continue beyond the current exchange (Macneil 1981).

The market governance mode is particularly efficient for services that are simple, are easy to specify and measure and do not demand asset specific investments. If transactions are complex, are difficult to specify and to measure and require transaction specific investment, considerable market transaction costs will usually be involved meaning that considerable resources are used to search for a provider/purchaser, to write a comprehensive contract, to safeguard the transaction, to monitor the transaction and eventually to enforce the contract. With increasing market transaction costs alternative modes of governance may become comparatively attractive in terms of reduced transaction costs.

**Hierarchical Governance**

The alternative to handling transactions in the market is to handle them inside an organisation (hierarchy) meaning that the purchaser decides to integrate the production inside the organisation instead of buying in the market (also called the make or buy decision). The relationship between the transactors in the organisation is expected to imply long-term relationships with repeated interaction. The long-term nature of the relationship between the transactors and the existence of a central authority in the hierarchy reduces the need to negotiate and to write contracts. Integration provides a comprehensive repertory of authority relations and coordinative mechanisms (Simon 1991).

Integration in terms of asset ownership (property right) means that the firm acquires the assets implying that the firm gets the residual control rights. Property rights are defined as the "entire bundle of rights: 1) to be a residual claimant; 2) to observe input behaviour; 3) to be the central party common to all contracts with inputs; 4) to alter the membership of the teams; and 5) to sell these rights, that defines the ownership" (p. 783) (Alchian and Demsetz 1972).

Within the hierarchy, transactions and allocation of factors of production between different users are not coordinated by prices but by administrative command (fiats). Fiats as the coordination mechanism are not perfect and costless. Transaction costs in the hierarchy, correspondingly to market transaction costs, are often called bureaucracy cost. They are the costs of coordination, directing the production within an organisation and the costs of setting up, maintaining or changing organisational design and the costs of running an organisation (Radner 1996;Williamson 1985).

Contractual disputes within an organisation, i.e. private ordering, is not the replicate of the contract law in the market (Macneil 1981). The contracting paradigm in the hierarchical governance is that of private ordering and forbearance in which the internal organisations is its own court of appeal (Williamson 1991;Williamson 1994). The rational for the private ordering paradigm is threefold: 1) a legal court is unlikely to take an internal dispute, 2) the internal parties involved in the dispute have deep knowledge about the circumstances surrounding a dispute which can be communicated to the court only at great costs, and 3) solving internal disputes in court undermine the efficacy and integrity of the hierarchy.

When transactions are made between two independent parties each party is responsible for his own economic wellbeing implying that each party have strong incentives to control costs. Integration in one firm involves a shared responsibility for cost control and hence the possibility of shirking. A department within a firm that reports a loss can make plausible claims that others in the firm are culpable for this loss, for instance because of the internal transfer prices, the overhead assignment, the inventory conditions etc. Hence, a department's budget constraint is basically softened when it is able to get financial assistance when expenditures exceed revenues (Kornai 1980;Kornai 1986). Softening of the budget constraint in general may degrade the incentive intensity. The problem is that the risk of cost overruns is not exogenous but is partly a behavioural response to softer budget constraints. The hierarchical governance softens the budget constraint due to the closer relationship between the

contracting parties – there is more 'understanding and forgiveness' partly because both contracting parties have a share of the blame for the result.

Hierarchical governance is in particular efficient when asset specific investments are required, when contracts require ex post gap filing, when output measures are hard to specify and measure and when contracts are highly incomplete. Asset specific investments lock the parties into a bilateral dependency (Alchian and Demsetz 1972;Williamson 1985). The parties therefore want to safeguard against opportunism by e.g. having common ownership or long-term contracts

**Hybrid Governance**

The 'hybrid' governance mode is fairly recently introduced in the TCE literature. Williamson introduced it in 1991 (Williamson 1991), in response to criticism of the simple market-hierarchy dichotomy. By the very nature of the word, it is an intermediate form between market and hierarchy, for instance a situation, where a company or a hospital makes intensive use of contracting-out rather than going for full vertical integration of the production. In the health area the internal (or quasi market) of the UK in the early and mid 90ies comes to mind. More generally, hybrid forms are characterised by specific combinations of market incentives and modalities of coordination that involve some forms of hierarchical relationship (Menard 1995), including long term contracts.

Hybrid forms develop essentially when transactions involve assets that are specific, but not specific enough to justify integration, and/or when the frequency of transactions is rather low and involves developing personal relationships among traders (Menard 1995).

**Publicly Integrated Health Care Systems and the Mode of Governance**

Publicly integrated health care systems are systems where the public third party purchaser for a variety of reasons have integrated forward into the production of

health care services (Bech and Pedersen 2002;Eggleston and Zeckhauser 2001). Public ownership of hospitals means that the public third party not only reimburses the hospitals' costs but that hospitals are directed and managed by the public third party - the same political body and its associated management are responsible for financing, allocating funds, determining the capacity and its geographical distribution and running the hospitals (Saltman 2002).

Publicly integrated health care systems historically have relied mainly on the hierarchical mode of governance with fiats, administrative procedures and resources allocation by fiats. This does not necessarily imply that some kind of price coordination is discarded, however, the norm is that resources are allocated by some kind of capped global budgets rather that by competitive prices. Although that the global budget ex post results in a "price" of an episode of care, this is clearly an implicit price which does not serve as a critical input to resource allocation decisions at the micro level (Evans 1991). Vertical integration involves that transactions are no longer solely coordinated by prices as in the stereotypical market but by fiats and administrative procedures. Publicly integrated systems have gradually moved toward a hybrid form, e.g. use of outsourcing, creation of internal markets, but retaining the basic elements of a publicly integrated health care systems.

The authority to control and to decide is ultimately placed with the politicians in a publicly integrated system, also in the case of internal markets. However, some discretion is delegated to hospitals since the production of health services requires detailed information about the production process and the individual patients. The move towards hybrid forms has increased the degree of delegated autonomy to the hospitals. Delegation of the short term control of the use of the apparatus means that hospitals control short-term output decisions whereas the long term and larger changes still are controlled by the public owner implying e.g. that hospitals have to apply for funds for investments above a certain limit.

# 4. Reimbursement within Publicly Integrated Health Care Systems

One way of describing reimbursement schemes is to what extent they apply market-like governance mechanisms (see table 2). When hospitals are reimbursed per diem or per case, hospital production is mainly coordinated and controlled by (administered) prices[1]. Ideally hospitals take decision about their production by looking at the relative prices. However, in publicly integrated systems hospitals often have to accept all patients and in principle then cannot cream skim based on relative profitability – once again showing that a too simplistic transfer of traditional economic theories may be dangerous, i.e. the role of relative 'prices' is blunted. If the third party wants hospitals to increase production of certain types of services, prices for these services are increased as a means to increase incentives to increase production of these services. In the real world, however, even in a world with per case, i.e. DRG, reimbursement there will often be some element of budget ceiling ('capped budget'). Hence, incentives are modified and softened by using various 'kinked' (quasi-marginal) DRG tariff curves, at the budget ceiling is approached.

The situation with a combination of capped global budget, but where a considerable part of the budget is allocated by means of for instance case-based reimbursement is an example of what is essentially hybrid governance. In Norway for instance, hospitals received their 'expected budget' as 50% base budget and 50% case-based payment, where the case-based reimbursement obviously involve some degree of risk sharing.
The line-item budget is the best example of hierarchical governance of hospitals. Hospitals receive their funding distributed across pre-specified accounts. Transfer of funds between accounts requires (political) approval, and the number of staff positions in the hospitals is specified in advance. Hospitals have in a sense been dictated a

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[1] 'Prices in the following are synonymous with administered price and internal transfer prices and do not in any way resemble competitively established prices. Administered prices are determined inside an organisation and are calculated 'cost-prices', often not including all costs incurred.

certain production function by the third party. Hospitals are, in the extreme case, not able to transfer money from one account to another and cannot have a deficit on any of the accounts. Hospitals do not benefit from a surplus which will go back to the third party. Line-item budgets rely mainly on hierarchical control/-surveillance/command applying hierarchical fiats rather than internal prices, and the performance is assessed in terms of rule compliance and the meeting of specified targets (Gianakis 1996;Goddard, Mannion, and Smith 2000).

**Table 2: Reimbursement Schemes and Governance Mechanisms**

| Reimbursement scheme | Governance mechanisms |
|---|---|
| Line-item budgets<br>Global budget<br>Global budgets with production targets | Mainly hierarchical decision making (orders and surveillance) |
| Fee-for-service<br>Payment per diem<br>Payment per case | Mainly market-like governance (administered and internal transfer prices) |
| Mixed systems (e.g.):<br>Capped global budget with a base budget, the rest being dispersed using case-based payment | Hybrid (administered prices and fiat/orders) |

Global budgets delegate far more freedom to the hospitals; however, there is no direct connection between the hospitals' activity, their performance and their budget. In a sense, the third party still dictates the level of production with a global budget. If the third party wants to increase/enhance the treatment of a specific group of patients, they provide extra funding to the hospital directed to this specific use[2].

[2] Note that this type of resource allocation is how political priority setting is traditionally implemented in a publicly integrated system. If (100%) case-based reimbursement is substituted for global budgets, it becomes harder to set political priorities through the reimbursement system while this requires substantial information about hospitals' supply elasticities subtly changing the means of political prioritisation.

The third party owner and payer can in different degrees delegate discretionary power to the hospitals. Table 3 provides a number of examples of decisions that can be delegated from the third party payer to the hospitals.

**Table 3: Reimbursement Schemes and Discretionary Power**

| Area | Discretionary power |
|---|---|
| Clinical/production autonomy | Freedom to select the type of treatment of patients? Freedom to select composition of the personnel and employment status of personnel? Freedom to select the composition of input factors? Freedom to determine the managerial and organisational structure? Freedom to determine opening hours? |
| Assignment of medical specialties | Freedom to choose which services they want to provide? |
| Investments | Freedom to make decisions about large investments in new equipment? |
| Capacity decisions | Freedom to make decision about capacity both overall and within specialties? |
| Budget | Freedom to dispose across account? Freedom to give personnel bonuses? |
| Residual claims | Do hospitals retain a surplus or a deficit? |

The public third party owner and payer has as the central authority the right to take decisions on all the dimensions in table 3 but the decisions can in different degrees be delegated to the hospitals. It is highly unlikely that the third party would not delegate part of the clinical/production autonomy to the hospitals. However, clinical autonomy can be constrained by restricting the treatments that hospitals are allowed to provide, deciding which patients should be prioritised first (i.e. fixing target waiting time for some patients and not for others), deciding criteria for treatment etc. The clinical/production autonomy also concerns the freedom to decide the composition of input factors which can be restricted as in the line-item budgeting where factor input are locked by the distribution in the political appropriation.

Assignment of medical specialties to hospitals is one way of coordinating and controlling hospital production constraining the hospitals' production decisions. Another way to constrain the hospitals' production possibilities is to control hospitals' investments i.e. by letting hospitals apply for grants for investments above a certain amount. The right to decide hospital capacity (i.e. number of beds, buildings, number of physicians etc.) can also be delegated to the hospitals e.g. by given hospitals the right to decide if departments should be closed temporarily.

Hospitals can generate a surplus (or deficit) in each of the reimbursement schemes (except for cost reimbursement), and the third party decides whether the hospitals are allowed to keep a surplus or pay make up for a deficit. Hospitals are given residual control rights when they are allowed to dispose a surplus (more or less freely) and are given the responsibility to cover a loss. High-powered reimbursement schemes, that provide incentives to minimise costs and to work efficiently, are conditioned on hospitals being residual claimants.

Hospitals embedded in a public integrated system cannot dispose excess revenues totally free as if they where separate legal units with their own property rights. There may be restrictions on the use of the excess revenue and the size of the excess revenue assigned to the hospitals. The residual claimant status by agreement implies weaker incentives than being the actual owner. Strength of the residual claimant incentives depends on the freedom to dispose of the net revenue and the character of the budget constraint. Higher freedom of disposal and harder budget constraints imply stronger residual claimant incentives. If the third party compensates hospitals having a deficit one would expect that the hospital's efficiency incentives are weaker. A hard(er) budget constraint usually contributes to efficiency, i.e. the threat of closure calls for cost-consciousness, revenue generating activities etc. Conversely, knowledge about forgiveness (soft budget constraint) tends to create slack.

From figure 1 it is seen that the choice of reimbursement scheme in reality is a coherent bundle of rights and obligations that have to be considered as a whole.

Line-item and global budget in the one end of the continuum are primarily focused on controlling hospitals' input factors whereas the per diem and per case payment in the other end of the continuum concentrate on hospitals' output[3]. The power of incentives and the implicit mode of governance in the different schemes are summarised in figure 1.

**Figure 1: Summary Description of Reimbursement Schemes**

| Line-item | Global budget | Per diem payment | Per case payment |
|---|---|---|---|

$\longleftarrow\joinrel\relbar\joinrel\longrightarrow$

Control hospitals mainl   through fiats      Control hospitals mainl   through prices
Hospitals have low discretionar              Hospitals have high discretionar   power
Soft budget constraints                                          Hard budget constraints
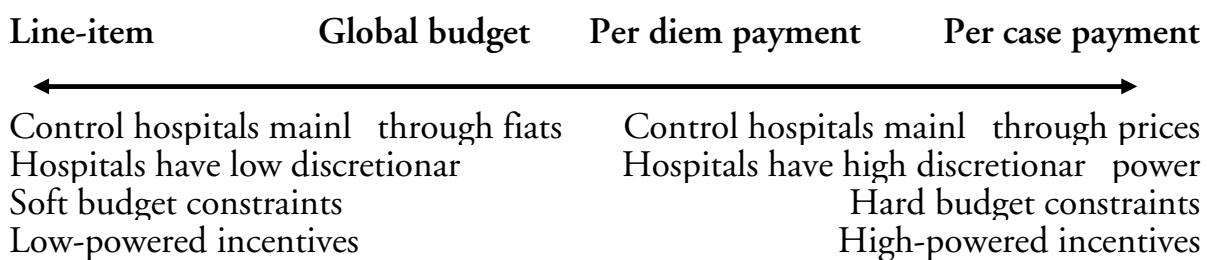Low-powered incentives                                          High-powered incentives

Figure 1 is inevitably a simplification of how the reimbursement schemes are actually applied. However, it illustrates the coherent bundle of dimensions implicitly in the choice of reimbursement scheme which is a much more extensive description of the schemes than what is realised in the PA literature. A frame is now presented for the understanding of how the third party chooses reimbursement scheme in a public integrated health care system.

## 5. Trade-off between Transaction Costs and Efficiency Incentives

The public third party's choice of reimbursement scheme will now be analysed with regard to the anticipated effects of the different schemes in terms of governance costs

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[3] Capitation is not included in the figure of a number of reasons. It can be difficult to see the exact difference between global budget and capitation except that the criteria for allocation of resources may differ and that capitation conditions a well-defined catchment area or population covered.

(transaction costs). One can think of the following question: what are the consequences from a TCE perspective in terms of governance costs of going from line-item to global budgets and on to case-based reimbursement or mixed 'base budget + case-based payment' relying per tradition on low-powered incentives compared with the introduction of prospective case-based reimbursement with more high-powered incentives?

**Governance Costs**

In a line-item world the third party controls the hospital production directly by fiats and bureaucratic procedures. The contractual relationship is very unlikely to be specified in a detailed contract. The implicit contractual relationship is less vulnerable to contractual hazards because of the smaller discretionary power given to the hospitals. "Bureaucratic rules, regulations, standard operating procedures, and the like are thus partly explained by the fact that egregious shirking can be limited in this way." (p. 325) (Williamson 1999). When the third party reimburses hospitals with line-item budgets the contract is deliberately rather incomplete since attempts to write a complete contract is costly and is of no use since the third party controls the hospital production by hierarchical means anyway. This implies that there are few ex ante and ex post transaction costs involved whereas the scheme may involve bureaucracy costs.

The deliberate incompleteness of the contract is also a general feature when hospitals are reimbursed with global budgets. Along with global budgets, hospitals are delegated the right to make a wider set of decisions than in the line-item budget. The third party uses fewer resources to command the hospitals directly, and the contractual relation is therefore characterised by fewer bureaucracy costs than the line-item budget. With the wider range of decisions delegated to the hospitals, a somewhat more specified contract is probably needed. The third party may want to specify more carefully what is expected from the hospitals with regard to the size and the composition of the production thereby generating ex ante costs of negotiating and writing a contract and ex post costs of monitoring and enforcing the specified

contract. Specification of target levels could therefore be argued to involve higher transaction costs than the global budget without target levels[4].

Case-based reimbursement coordinates hospital production mainly by administered prices and the contractual relation between the third party and the hospitals will naturally be focused on how these 'prices' are calculated. The two parties contract with each other explicitly by signing contracts or implicitly by agreeing on the prices. Considerable transaction costs may be involved in negotiating prices and writing contracts including searching and revealing information about the hospitals' expected cost structure. The high number of calculated prices in a case-based scheme requires more information about hospital cost structures and is itself an added transaction cost of using a case-based system compared to a global budget system.

Ex post transaction costs can also be considerable; firstly, because it is costly to administer the money transfer and billing system and secondly, because the third party's monitoring costs may be considerable. The third party wants to make sure that the hospitals do not behave opportunistically by up coding patients, readmitting patients deliberately, decreasing quality of treatment, malpractice, exploiting their assets, manipulate accounting information etc. When hospitals are motivated by more intensive incentives than in the other types of reimbursement schemes, they also have a stronger incentive to behave opportunistic. The stronger incentive to work efficiently is not realised without costs. The intensified incentive to behave opportunistic will be counterbalanced by the third party's bigger effort to monitor and to enforce the (incomplete) contract increasing the ex post transaction costs. "From an economic point of view, the trade-off that needs to be faced in excusing contract

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[4] The analysis of the size of the governance costs is here always comparatively meaning that the governance costs in one type of reimbursement scheme are compared to another in acquiescence with comparative framework in TCE (Williamson 1986;Williamson 1990;Williamson 1991). The absolute size of the different governance costs is not relevant to the choice between the reimbursement schemes since one scheme has to be chosen. The relevant criterion is which scheme that has the lowest governance costs.

performance is between stronger incentives and reduced opportunism." (p. 273) (Williamson 1991). The case-based scheme may on the other hand be embedded with lower bureaucracy costs (see table 4).

**Table 4: Governance Costs**

| | Efficiency incentives (cost minimisation) | Market transactions costs | Bureaucracy transaction costs |
|---|---|---|---|
| Line-item budget | ÷÷ | ÷÷ | ++ |
| Global budget – hospitals do not retain surplus/deficit | ÷ | ÷ | + |
| Global budget – hospitals retain surplus/deficit | ÷/+ | ÷/+ | + |
| Global budget with target levels – hospital allowed to keep a surplus | ÷/+ | + | + |
| Per diem payment | ÷/+ | ++ | ÷÷ |
| Per case payment | ++ | ++ | ÷÷ |

÷÷ = very low degree of presence   ÷ = low degree of presence   + = present to some extent   ++ = present to a larger extent

The governance costs in each of the schemes are summarised in table 4 in three dimensions. The incentive to minimise costs depends on the degree of cost sharing and the degree of delegation of residual control rights to the hospital. In table 4 the conventional (PA) wisdom is followed, i.e. that the use of prices increases (technical) efficiency. Undoubtedly this is a serious simplification. If for instance – following Niskanen - budget maximisation is assumed, production would be technically

efficient, but too large compared to a competitive solution (Niskanen 1971). The next two columns concern transaction costs as discussed above.

Some reimbursement schemes imply that hospital production is mainly coordinated by administered prices and focus primarily on hospital output whereas others imply that the production is mainly coordinated and controlled by bureaucratic means and focuses primarily on hospital input. The market transaction costs of the output-based schemes are generally higher than the input-based schemes because of ex ante transaction cost of writing and negotiating the contract and ex post cost of measurement and enforcement of contracts. The bureaucratic transaction costs are in general higher in the input-based schemes employing mainly hierarchical governance.

**Residual Rights and Hardness of Budget Constraint**

When it is assumed above that the residual rights are delegated to the hospitals, it should be noted that the final legal residual claimant is in the end always the legal owner. Line-item and to some degree global budgeting prevent hospitals from generating surpluses but provide only weak incentives to work efficiently according to the conventional wisdom in PA theory whereas the other schemes to some extent allow hospitals to generate surpluses (or deficits) within a given year and provide stronger incentives to work efficiently. The third party is forced to trade-off between providing stronger efficiency incentives and allowing providers to generate surpluses.

However, in many integrated health care systems, e.g. the Scandinavian countries, (too large) surpluses may be a problematic because the public body often is also purchaser of other public services and it may therefore politically be hard to legitimate a surplus in hospitals if other sectors lack funding (Anell 1996). However, if the public third party intervenes and takes the surplus from a hospital (which it has the right to do), the power of the reimbursement scheme decreases and credible commitment is lacking. Similarly when hospitals have a deficit: if the third party is unwilling to take actions (fire the top manager, let the hospital cover the loss, close the

hospital) when a hospital has a continuing deficit, the intensity of the hospitals' incentives decreases. High-powered incentives are conditional on a hard budget constraint for the hospitals, i.e. political resole, and if the third party is unwilling to enforce this, the incentives will be less intense.

**Incomplete Contracts and the Quality of Health Care Services**

Health care output and outcome are hard to define and to measure implying that health care contracts are highly incomplete. The incompleteness of health care contracts increases the awareness of 1) costs of measuring output (Barzel 1982), 2) costs of writing and enforcing a contract (Anderlini and Felli 1999), 3) risk of distorting incentives to enhance productivity and to decrease quality (Holmstrom and Milgrom 1991), and 4) problems of incomplete ex ante alignment causing the need for ex post gap filling (Williamson 1999). "Faced with incomplete contracts, governance mechanisms that facilitate cooperation (through ex post gap filling, dispute settlement, and cooperative adaptation) take on importance as contractual hazards build up." (p. 321) (Williamson 1999). The harder it is to measure the outcomes and to specify the contract and hence larger room for contractual hazard, the more would one expect that the third party relies on low-powered reimbursement schemes and hierarchical governance since these leave less scope for the hospitals to act opportunistic and less intensive incentives to do so.

One of the ultimate goals is to enhance the population's health. However, this goal is hard to measure and effects cannot unilaterally be attributed to health care. Health is also influenced by other factors than the hospital services. Therefore this objective is not operational and cannot be used as a criterion for hospital reimbursement. Hospital output is an alternative – a proxy – to outcome. Proxy measures are problematic since they can be manipulated implying that hospitals can act opportunistic without being 'caught'. The imperfection and the uncertainty in the proxy measures may even involve difficulties with regard to ex post verification of the state of nature and it will therefore be extremely difficult to enforce sanctions on hospitals. The scope for

manipulation because of the incompleteness of the contract calls for more bureaucratic rules that are less prone to discretion.

The incentive for the hospital to shorten patients' length of stay or to decrease quality of care in general in case-based reimbursement (Chalkley and Malcomson 1998;Chalkley and Malcomson 2000;Ma 1994;Pope 1989) is not easy to detect and even harder to verify for the third party. Shortening the length of stay beyond what the patients need to get well increases the likelihood of readmission - hospital output hereby increases whereas outcome decreases. Imperfect measures, capturing only part of the final goal, embed potentials for contractual hazards. Some of these contractual hazards may be counterbalanced by (expensive) monitoring. If quality of care could be specified ex ante in a contract and could ex post be monitored perfectly, there would be no worries. If a hospital fails to deliver the appropriate quality, proper actions could be taken that would punish the hospital for its opportunistic behaviour – and in a sense prevent the hospital from acting opportunistic. When the quality of care cannot be specified ex ante completely in the sense that all aspects of care and contingencies for the treatment are specified in details, it is impossible to verify whether the hospital has done a poor or a good job. If it in addition is impossible or costly to measure ex post, hospitals will not be detected. Imperfect measure implies that the contract is left incomplete leaving the contract open to opportunistic behaviour. When the two contracting parties know that the (incomplete) contract cannot be enforced by the court, they realise that there is no need to write complete contracts – opportunism has to be controlled in other ways and in this case it is controlled by controlling hospital production by some degree of fiat rather than prices.

## 6. Conclusion and Policy Implications of the Transaction Cost Approach

The main argument here has been that integrated systems deviate from non-integrated systems because the financing third party through ownership also has the legitimate authority to prescribe hospital behaviour by hierarchical orders and rules in addition

to the possibility of directing hospital production by administered prices. When the two parties are two separate legal units like in Germany (Krankenkassen and public/non-profit/private hospitals of which none of owned by the Krankenkassen), the third party can only or mainly control hospitals by market governance, i.e. some kind of administered prices. A monopsonic public third party – or big party, e.g. Medicare in the U.S., can regulate the hospital industry but when hospitals are separate legal units, the third party has limited power to exercise control of hospital production directly by rules and orders.

PA models typically contain no specification of the principal – it is an abstract entity - and contains no specification of the structure of the health care system. The financial third party is often neglected as an active party in setting up and analysing the choice of reimbursement scheme. PA models typically implicitly assume an arm's length relationship between the third party and the hospitals which is not a very good description of a publicly integrated health care system (and many other systems for that matter). In a public integrated system the purchaser is a political-administrative body which does not fit very well into the role as a passive third party.

The TCE framework differs from the PA theory in that TCE among other things also considers authority to direct production by hierarchical order and do not solely look at the reimbursement system as a way of transferring money from the third party to the hospitals, i.e. a quasi price mechanism. From a TCE perspective the choice of reimbursement scheme and the anticipated effects cannot be seen in isolation from the other means of controlling hospital production that are available - (particularly) in a vertical integrated health system. TCE uses insights from PA about the anticipated efficiency effects of the different schemes but adds possible transaction costs due to writing, monitoring and enforcing contractual relations.

The main conclusion from the application of TCE is that high-powered incentive schemes, according to which hospitals can appropriate net surplus motivates to a more

efficient production but these incentives unfortunately are associated opportunistic behaviour and thereby generates higher transaction costs (Williamson 1999). The potential gains from the increase hospital efficiency have to be counterbalanced by the increased transaction costs needed to safeguard the third party's objectives. This is probably an important point to have in mind when for instance administered prices like DRG are introduced in publicly integrated health care systems. The evidence, e.g. in Norway, is not overwhelmingly clear as to whether efficiency effects outweigh added transaction costs.

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