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Costs and Prices in the Internal Market:
Markets vs the NHS Management Executive Guidelines

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COSTS AND PRICES IN THE INTERNAL MARKET

Markets vs the NHS Management Executive Guidelines

by

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ABSTRACT

In both academic and government discussion of the performance of the internal market, lack of "good quality" information on prices is seen as a major impediment to the emergence of a competitive market. The National Steering Group on Costing was established to help NHS units improve the quality of market information through development of standardised cost accounting procedures to be used in the setting of market prices. This paper argues there has been a misunderstanding of the role and nature of prices in the internal market. The market structure that is emerging in the acute sector of the NHS is a fairly common one found throughout the economy. In markets characterised by contestability, small numbers and a high proportion of fixed costs, the prices at which transactions take place emerge from negotiation and tend to be unique to each buyer. Prices are usually secret, competition does not require nor does it lead to open information on prices. High fixed costs are relevant to negotiated prices being the preferred method of setting prices and to the incentives for existing suppliers to adapt services to changes in the pattern of demand. The model of the NSGC costing guidelines and the regulatory framework of the Department of Health is one of suppliers setting unique prices for each procedure and buyers choosing the quantity to purchase at that price. This model is appropriate in markets with large numbers of buyers who are price takers. This is clearly not the type of market to be found in the NHS and it is doubtful if regulators could enforce behaviour that is so contrary to the incentives generated in competitive markets with small numbers of participants.

I INTRODUCTION

In the first years of the internal market attention has focused on the incomplete and unsatisfactory nature of information on prices. In both academic and Department of Health discussion of the performance of the internal market, lack of "good quality" information on prices is seen as a major impediment to the emergence of a competitive market. Production of generally available "open" information on prices is considered essential if there is to be movement from the steady state pattern of resource use to some alternative mix of activity. Movement of resources will be produced by competitive behaviour and competitive markets require information on prices.

There has been a tendency to see poor information as a transitional problem arising from the legacy of poor cost accounting in provider units. The National Steering Group on Costing (NSGC) was established to help NHS units improve the quality of market information through development of standardised cost accounting procedures. Recently published guidelines, Costing for Contracting (NHSME 1993) instruct NHS provider units on how to produce an estimate of the short run average total cost (SRATC) of every set of procedures that may be the object of a transaction in the internal market. As the Department of Health has told provider units they should set prices equal to SRATC, the guidelines constitute a set of instructions on how each provider unit is to set price. The important role that prices based on the guidelines are expected to play is that of supplying a vital but missing component of the market mechanism -- information for purchasers on the prices at which alternative sellers are willing to agree transactions. In the guidance purchasers are implicitly assumed to be

price takers.

Discussion of the need for "meaningful" prices in the internal market seems to arise whenever providers quote very different prices for the same procedure. The prices that would emerge from application of the guidelines would be "meaningful" only in the sense that they represented the consistent application of arbitrary accounting rules. This is particularly true in acute units where the bulk of costs are fixed and often only indirectly related to specialties or procedures. The guidelines constitute a set of rules on how to allocate these costs first to specialties and ultimately to particular procedures. The prices that emerge will reflect no more than these accounting conventions. The prices will not be "meaningful" in any of the senses found in the economics literature. They do not reflect opportunity cost, alternative use within the NHS or realisable market value. They do not reflect marginal cost either short-run or long-run. They are not market clearing prices.

This paper argues there has been a general misunderstanding of the role and nature of prices in the internal market. The market structure that is emerging, especially in the acute sector of the NHS, is one where the cost accountancy approach to setting transaction prices is irrelevant to the contracts that will be agreed between buyer and seller. Open information on prices is not a requirement of a dynamic market. There are many markets in the economy similar in structure to those in the NHS, and the more competitive is behaviour in the market, the less one finds open, generally available information on prices. This lack of open information is not due to suppliers being ignorant of their cost structures but to the way buyers and sellers negotiate transactions in markets that are characterised by contestability, small numbers and a high proportion of fixed costs. It is the interaction of these three characteristics of the market that determines how prices are set and how suppliers compete

to win contracts from purchasers.

Section II examines reasons why openly available information on prices is only observed in relatively special types of markets, those with each supplier facing large numbers of buyers. Where there are few buyers and where a high proportion of costs are fixed, posted prices tend not to exist. Instead, prices emerge from negotiation, and are not independent of the mix and quantity of services provided. They are potentially unique to each buyer. The more competitive NHS markets become, the less likely it is that the guidelines on costing and pricing will be followed. In Section III another aspect of the influence of fixed costs on market behaviour is examined. The NSGC has confused indivisible inputs with fixed costs. The terms of contract of employment determine whether an input is a fixed or variable cost. Where an input is indivisible, moving to short term contracts in order to reduce fixed costs simply shifts the risk of holding excess capacity from one party to another. Flexibility in responding to changes in demand depends on the extent to which inputs (that may or may not be fixed costs) can be redeployed to produce different packages of services. Whether redeployment takes place within firms (e.g.Trusts) or between firms is often a function of access to capital markets and the regulatory regime. Section III points to some of the implications of this analysis for regulatory authorities.

II MARKET STRUCTURE AND OPENNESS IN PRICING

The concern that lack of public information on the prices that suppliers will charge for different services inhibits competition derives from one particular model of markets, the "large numbers" case of economics textbooks. In this model competitive behaviour of purchasers

consists of "shopping around". Each purchaser observes the price charged by each supplier for a particular good and selects the lowest price supplier as the one with whom the purchaser will agree a transaction. Suppliers whose costs will not enable them to break even at market clearing prices[1] exit the industry. Hence competitive behaviour on the part of suppliers in markets where there is excess capacity (or potential entry) consists of seeking to reduce costs and alter product ranges so that the prices they publish will attract sufficient buyers to avoid bankruptcy. If each supplier sells to a large number of buyers and each buyer can choose from a large number of suppliers, the transactions costs of buyers in obtaining information on the prices they will be charged would be extremely high in the absence of published prices. This is the classic case where publicly available take-it-or-leave-it prices set by the supplier prior to a transaction is likely to be the least cost way of facilitating competitive behaviour.

There are two important points to note about the information content and role of "open" or generally observable prices in this model. First consulting a price list is simply a means of selecting a supplier. In alternative market structures other means of identifying the least cost supplier may be more efficient than use of a public price list. Second, there is no scope to negotiate prices . If you have information on the advertised price you know the price at which the subsequent transaction actually occurred. Ex ante openness in pricing can be defined as the posting of prices that can be observed by potential buyers and other suppliers and where transactions take place at the posted prices. It is this kind of price information that the Management Executive and other commentators appear to consider

[1]NHS units are not allowed to set market clearing prices. Low cost units are intended to set prices equal to their own costs and not the costs (price) of the marginal supplier. The resulting structure of prices corresponds to what would be expected of a monopsonist practising first degree price discrimination. Suppliers are not allowed to practice price discrimination, only purchasers are intended to discriminate.

necessary for a competitive market.

Ex ante openness in pricing is not the norm in the economy and is not observed in what would be considered highly competitive markets. Ex ante openness exists primarily in a sub-set of retail markets where suppliers deal with a large number of small buyers (e.g. supermarkets). Even in the retail sector, if each supplier deals with relatively few buyers and each transaction is large relative to total activity (car dealers, house agents) the price at which a transaction takes place is a negotiated price, not a posted price. An input-output table is a useful means of visualising the variety of market transactions that exist in the economy. The sector where "openness" is common is part of one entry--retailing for final consumption. For the rest of the economy, virtually all of the inter-industry matrix, transactions tend to be negotiated between a few buyers and sellers on terms that are not made known to other potential buyers or suppliers. Even in industries where product price lists are posted (textiles, paper) published prices bear little relation to the prices at which transactions take place. Published price lists exist **either** for small buyers not sufficiently important for the supplier to cultivate, **or** as a starting point for price negotiation. Neither buyer nor seller has an interest in negotiated prices becoming public knowledge.

The incentive to enhance productive efficiency and responsiveness to buyers that is commonly associated with competitive behaviour is a function of the insecurity of suppliers rather than the number of suppliers. However the number of market participants can affect the manner in which competitive processes operate, in particular how market participants arrive at prices and the output mix. It is useful to ask how we would expect prices to be determined in a market characterised by multi-product firms with high fixed costs relative to

variable costs and where transactions are agreed between a few buyers and sellers in each market. As suggested in the previous paragraph this market structure is common throughout the economy and is in no sense unique to the NHS. It is not a market structure where open information on prices is common or of much use. If NHS markets come to behave in the same way as similar markets observed elsewhere in the economy, failure to produce good comparative price information in the internal market will not be a transitional problem, it is likely to be a permanent feature of the market.

Why is ex ante openness so rare in markets where competition is intense and the number of buyers and sellers small enough to make negotiation feasible? The supplier wants to minimise the risk of losing a potential contract that may be profitable (or at least loss minimising). The relative importance of different products and product characteristics will differ from one buyer to another. The seller obtains information about the nature of demand through the process of negotiation. For any firm with overhead costs there will be a degree of arbitrariness in ex ante (posted) individual product prices. The set of relative prices that will be attractive to one buyer will not necessarily be appropriate to another. The seller wants to know how his total costs will be affected by agreeing a contract and whether the total value of the contract will contribute to overheads and profits. The allocation of that contribution between products is irrelevant. In the small numbers case contracts will be complicated, covering issues of duration, timing, risk sharing, quality as well as quantity of a variety of services. There is no unique relationship between quantity and unit cost (Alchian 1959). After a contract has been agreed, total cost can be divided by quantity to arrive at a "price per unit" but this price will be an outcome of the contract agreement rather than a determinant of that outcome. Another contract negotiated with a different purchaser and containing

different terms would generate a different price per unit.

From the point of view of the buyer openness in the sense of generally available posted prices is an irrelevance when negotiation is feasible. The buyer may want to minimise total expenditure on the package of outputs and characteristics to be purchased. In the small numbers case, even where a posted price list is available, the buyer will attempt to negotiate a lower price than the posted price. Differences in posted prices lose their allocative significance when negotiation is feasible--e.g. with two potential suppliers one may have a higher posted price than the other but as long as the buyer knows a negotiated price is possible, both suppliers are approached and the lowest price discovered through negotiation. The contract may go to the supplier with the higher posted price but not at that price.

If ex ante posted prices are irrelevant to price determination, would we expect the market to generate information on ex post prices at which transactions actually took place? In a competitive market neither buyer nor seller would want competitors to know current agreed prices in case that information weakened their bargaining position in the next period with alternative buyers/sellers. Each participant in the market has an incentive not to reveal correct information. Because each contract will be a package of different activities and characteristics, even a regulatory requirement to publish ex post prices would be complied with in a way that minimised the usefulness of the data to others.

If, whenever provider units face competition for contracts, information on prices and costs is unlikely to be "open" and relative prices unlikely to be based on the cost/price guidelines, does it matter? Does it imply an important source of market failure? Does it

suggest a significant welfare loss?

In theory openness supplies information to purchasers on which one of an available set of suppliers will sell at the lowest price for a given quantity and quality of service. It therefore directs demand to the lowest price supplier. The absence of posted transaction prices may impose additional search costs to locate the lowest price supplier and these search costs would determine the welfare loss. Whether these costs are significant or not is an empirical issue. With a complex commodity such as health care, buyers will need to discuss transactions with possible suppliers whether price lists exist or not. Given the need to search for non-price information, the marginal cost of obtaining price information should be low. For the majority of transactions where considerations of geographical access reduce the number of potential suppliers, the extra search costs should not be large relative to total transactions costs.

It could be argued that lack of general access to information about competitors' costs would impose a social welfare loss if it reduced the speed with which innovation in productive technique or best practice as developed by one supplier was recognised and adopted by other suppliers. This is the classic case of the "public good" nature of knowledge: any restriction on access is inefficient. However both Schumpeter's early discussion of the role of monopoly profit as an incentive to innovate and current economic analysis of patent/copyright law make it is clear that systems relying on market participants to innovate and supply dynamic efficiency must protect the innovator from early dissipation of the financial reward. Secrecy may or may not impose a net social loss. It depends on the role of secrecy in rewarding innovation. In the particular case of NHS markets, lack of open

information on costs is of minor importance relative to a regulatory regime designed to prevent any part of gains from innovation accruing to the innovating supplier.

There is no welfare loss implied by the failure of market determined relative prices to correspond to those derived from the cost/price guidelines. In the case of constant returns to scale where changes in capacity involve replicating existing facilities, short-run average total cost can be used as an indicator of long-run marginal cost. However it is clear that with the current rate of technical change in the delivery of health care, no one concerned with allocative efficiency would replicate the facilities of many of our existing hospitals. Relative prices based on historic short run average total cost bear no correspondence to short run or long run opportunity costs.

The NHSME effort to have units set prices openly on the basis of commonly applied accounting rules for calculating SRATC would be viewed in the economics literature as an attempt to limit competition--the opposite of the stated objective of encouraging competitive behaviour.[2] Several decades of research on price setting in industry shows average cost pricing tends to be used when there is relatively little competition in the market but if competition increases, pricing strategy changes.[3] Average cost pricing based on generally known costing procedures is a pricing policy used by firms that want to limit competition with each other but where overt collusion is illegal. "Full cost pricing facilitates oligopolistic coordination by making rivals' decisions more predictable and by providing common pricing

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[2] See the discussion of "Rule-of-Thumb Pricing as a Coordinating Device" in Chapter 7 of Scherer and Ross (1990).

[3] See Hay and Morris (1991) Chapter 7 "Pricing in Practice" for a review of empirical work on pricing.

guidelines." (Scherer and Ross p.264).

The degree of competition faced by provider units will be a key determinant of whether, as the market matures, we observe the majority of activity taking place at ex ante prices related to the cost/price guidelines. For a local monopoly, an arbitrary set of prices may not have a significant impact on the ability of the unit to secure contracts. If several potentially competing providers agree to adhere to a set of ex ante prices and if each trusts the others not to undertake transactions at different prices, than the published prices may be the transaction prices. However where provider units are under competitive pressure to win contracts we would not expect to observe them trading at ex ante prices. In the negotiation of each contract, a package will be tailored to the demands of the purchaser. Any prices quoted in the contract will not be independent of the content and structure of the contract. It will not be possible to decompose the final cost of the contract into a list of prices times quantities similar to that obtained at a supermarket till where the price for an item appearing on the receipt of one customer is the same price as that appearing on the receipt of another.

Evidence that a provider unit was actually charging all purchasers at published prices (ex ante prices) and that these prices had been arrived at by following the cost allocation guidelines would be evidence of the market power of providers. No provider facing competitive pressure would adopt that approach to contracting. The market vulnerability of providers is thus critical to the issue of whether the internal market is likely to produce open information on transaction prices related to individual procedures or groups of procedures as

envisaged by the NHSME guidance.[4]

In early analysis of the internal market there was a presumption that at least for acute care, local monopoly was likely. With the exception of London, the location and rationalisation of NHS hospitals was intended to minimise duplication of facilities within areas and extensive waiting lists were interpreted as evidence of little or no excess capacity. However it now appears there has been an acceleration in the trend to reduce length of stay creating excess capacity in existing facilities (relative to existing and forecast purchasing power). Purchasers are beginning to switch contracts from capacity concentrated in urban centres. New entry and potential entry is coming not from new hospitals but new kinds of suppliers encouraged by GP Fundholders and DHA purchasers and competing for only some of a hospital's activity -- day surgery, specialist out patient clinics and diagnostic testing. There appears to be GP pressure to move some inpatient services from large district hospitals to local cottage hospitals. Even in areas that appeared secure monopolies, accident and emergency hospital services, primary care centres as partial substitutes for hospital provision are receiving increasing attention from purchasers. The cumulative effect of these trends is that existing secondary units must cut costs and reduce the scale and type of work they do unless they can attract new contracts and discourage any existing purchasers from switching contracts. It is the incentive to avoid being the units that must exit or undertake major

[4] It could be argued that NHS Trusts are public corporations subject to direction by the Secretary of State and as such will obey departmental guidance to set their prices in particular ways. Public employees are expected to follow government direction. The problem is that where those responsible for negotiating contracts know that adherence to the guidelines makes it less likely they will secure a contract and lack of success in securing contacts may mean contraction and loss of jobs within the unit, the incentive structure does not reward those who follow departmental guidance.

contraction that leads to competitive behaviour.[5] We would expect management to attempt to attract each individual potential purchaser with an individually tailored package of services and prices rather than adhere to an arbitrary set of ex ante procedure prices. The greater the emphasis on selling a package of services with characteristics adjusted to suit each buyer, the less the significance of separate prices attached to component parts of the package. This is particularly true where some contracts relate to packages of integrated care and others do not.

The financial structure within which NHS units operate makes them potentially vulnerable to small changes in activity and cash flow. So far the Government has directly or via the Regions bailed out units that have failed to break even. If clinicians and managers believed this would continue to occur there is no necessary reason for them to behave competitively in seeking to attract contracts away from other providers. However increases in future NHS funding are not expected to be as generous as in recent years. During the past year Government Ministers and the ME have stressed their intention that the market is to become more "contestable".[6] Competitive behaviour is a function of credible threats. Is this

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[5] [5] The fact that competitive pressure affecting the behaviour of incumbents can come from potential entry or non-standard suppliers or excess supply renders traditional measures of competition such as concentration indices fairly useless. The Herfindahl-Hirshman index has been used in several US studies of concentration in hospital markets and was applied to the NHS market for general surgery in the West Midlands (Appleby 1993). Once an index has been constructed,to test the hypothesis that increased concentration leads to higher prices, one needs price data. Since market price data is not available in hospital markets, studies in the United States usually use a proxy for price, a variable such as total operating costs divided by patient days. This necessarily restricts the analysis to competition between incumbents with similar cost structures.

[6] In discussions of the internal market "contestable" appears to refer to any situation where provider units may be forced to radically reduce the scale of their activities or close because of their failure to attract sufficient contract income. This is much more a threat due to excess capacity than one due to costless entry and exit. The popularity of the term "contestable" and its use to describe markets very different from those of zero sunk costs is probably due to the fact it reminded people that competitive pressure to perform efficiently

a credible threat?

II COSTS AND FLEXIBILITY OF SUPPLY

The structure of costs, especially in traditional acute units, has been held to be partially responsible for an apparently slow development of market activity. The high proportion of costs that could not obviously be related to individual patient treatments made the estimation of cost related prices difficult. The high proportion of costs that appeared to be fixed also made it difficult for units to alter the pattern of activity in response to changes in demand. (See Annex 1 Table 1 for a numerical example of the structure of costs in an acute hospital.) The bulk of the material produced by the NSGC relates to how units can analyze their use of inputs in order to discover which costs are associated with particular activities and whether these costs vary with the level of activity in question. The approach is to start with information from costing returns.[7] For each item of expenditure, Grade C nurses or electricity the accountants are asked to indicate whether the item of expenditure can be directly or indirectly attributed to a specialty. It is straight forward to debit the ENT account with the cost of a consultant in ENT, this would be a " direct" cost. Where expenditure can be traced to wards, e.g. expenditure on cleaning or on nurses, these costs would be assigned to specialties such as ENT by reference to the proportion of patients on the ward under an ENT consultant. If there is no information at all as to which patients benefit from an expenditure the item is called an overhead and a share might be assigned to ENT on the basis

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can be made intense even where the number of firms is small.

[7] This refers to the "top down" method applicable to the 1994/95 contracting round. See NHSME (1993a) for a more detailed discussion of this and the alternative "bottom up" approach.

of the percent of total floor space occupied by ENT patients. For each item of expenditure providers are also to indicate whether the expenditure varies smoothly with activity during the year (variable cost),varies in a discontinuous manner (semi-fixed cost) or not at all (fixed costs). (See Annex 2 for examples.) For the following discussion it is useful to present the taxonomy of costs in the form of the matrix in Figure 1.

This accountancy work would be of no economic significance if it were not for constant reference to the need for providers to find means of reducing the proportion of costs that are fixed and increasing the proportion that are direct. It is argued that these changes in the structure of costs are necessary if providers are to become more flexible and responsive to changes in the pattern of demand. With reference to Figure 1, the NHSME advice can be seen to urge providers to put more effort into (1) filling in the boxes and (2) shifting entries from the south-east corner into the north-west corner. There seems to be no appreciation of the economic implications of moving up that diagonal.

Figure I

Cost Classification	Variable	Semi-fixed	Fixed
Direct			
Indirect			
Overhead			

The Direct/Indirect/Overhead distinction simply relates to our lack of information (or

the costs of acquiring information) on precisely what inputs are used in treating a particular patient for a particular problem. For example, if each room in a hospital had a separate electricity meter, one could record exactly how much electricity was used in the operating theatre when John Doe had his appendix removed, how much was used while he was in the recovery room and how much was used while the pharmacist measured out his medication. All electricity consumption would be a direct cost. If there is only one electricity meter in the hospital, electricity consumption is an overhead cost. Whether the benefits of acquiring more information on direct costs are worth the resource costs of adopting a form of organisation that generates that information depends on the extent to which decisions are affected by the information. For a cost minimising or profit maximising multi-product firm in a competitive market, the proportion of direct in total costs is irrelevant to the determination of price and output hence we would not expect much investment in acquiring such information for the purpose of pricing.[8] The Department of Health wants NHS provider units to set prices for each set of procedures equal to SRATC. This is not an easy pricing rule for a regulator to enforce when direct costs are difficult to identify and a low proportion of total costs. While this makes the NHSME insistence that units acquire more information on direct costs understandable, it does not make it a worthwhile use of resources if, as argued in Section II, unit prices for procedures will not be the basis of transactions. Market forces will make the pricing rule unenforceable, not lack of information.

The variable/semi-fixed/fixed distinction as used in the guidance appears to refer to

[8] All firms require financial and activity information for purposes of internal management control but the kind of information and its organisation depends on the purpose for which management needs the information. See MacKerrell (1993) for a brief discussion of the use of accounting data for internal incentive and control purposes in business and its relevance to the NHS .

the technological indivisibility of inputs -- i.e. the extent to which the quantity of an input employed varies with changes in the level of activity.[9] Examples are given of the rate at which the number of patients on a ward can be increased before it is necessary to increase the number of nurses. However technical characteristics do not determine whether costs are fixed or variable, this is determined by the form of contract. If you purchase the services of a surgeon or nurse on a per case basis, the input is variable. If you contract to purchase the services of a surgeon or nurse for five years, the input is fixed during that period. The guidance implicitly recognises this when Consultants are classified as "fixed costs" and nurses as "semi-fixed". The only relevant difference between these two types of employees is the form of contract on which each group is currently employed. Consultants are no more "technically indivisible" than nurses!

When discussing costs, the variable/semi-fixed/fixed distinction is most usefully thought of in terms of contract periods:

> A variable cost is one where you contract to purchase a particular quantity of an input after you know your planned activity/output level. You can adjust expenditure on inputs to activity.
>
> A fixed cost is one where the purchase contract for the input extends over a period for which activity levels are unknown. You try to adjust activity/output to inputs.

[9] With assets, including human capital, indivisibility refers to the capacity of the asset to provide services over a particular period of time. A trained nurse has the capacity to care for up to ten patients on a particular ward during an eight hour shift. The capacity to care for ten patients must be made available even if only two patients are on the ward. See Gravelle and Rees (1992) pp. 197 - 199 for a brief discussion of the problem of relating flows of input services from stocks of inputs to flows of outputs.

The economic issue is whether the efficiency of the NHS would be increased or reduced if more inputs were purchased on short-term contracts than at present. The proportion of fixed costs can be reduced either by extending output contract periods relative to existing input contract periods or by reducing input contract periods relative to given output contract periods. Are there economic reasons for doing one or the other or neither? Much of the transactions cost literature has focused on this issue since the original Coase observation that the north-west origin of the taxonomy diagram, representing spot contracts with every input individually priced, is so rare one might presume it to be highly inefficient.

From the point of view of participants in a market the significance of whether costs are fixed or variable lies in the risk of financial loss when the level of demand changes. Reducing the fixed costs of one supplier usually implies shifting the risk of holding capacity onto another market participant. Consultants and nurses could be put on piece rate contracts or contracts subject to termination on notice of one week or one month. Any period of notice of less than one year would make these inputs variable costs in a system that negotiated the volume of patients to be treated on a one year cycle. The financial risk of there being an excess supply of consultants or nurses in any particular organisation at any particular point in time will have been shifted from NHS units to medical personnel as individuals. We would expect the price NHS employers would have to pay for these inputs to rise.

Shifting the risk of holding capacity away from NHS employers has both short and long run implications. If a medical input could easily move to and from NHS employment and employment elsewhere in the economy at a wage virtually the same as that paid in the NHS, the move to short term contracts should only marginally increase input prices.

However, where transfer earnings are significantly lower outside the NHS or the costs of changing employment high, we would expect the risk premium for a shift to short term contracts to be high. Employment opportunities outside the NHS will depend on demand for the general skills of NHS employees, not their specific medical skills. If those medical skills are likely to deteriorate in quality through intermittent use, shifting the risk of accommodating uncertain demand on to employees may not be efficient for the system as a whole. Here it is relevant to identify the nature of the uncertain demand. There could be random or seasonal fluctuations in expected patient numbers. In the NHS elective admissions have traditionally been used to smooth these fluctuations rather than variations in employment.[10] A more important source of changing demand would be where a change in technology, say a new drug therapy, displaced a surgical specialty thus reducing the demand for certain theatre services and altering the nature of the demand for consultant time and activity. A change in tastes, preference for treatment in local cottage hospitals rather then the large District General Hospitals, would change the geographical location of demand for medical inputs. When discussing the efficiency of a market in adjusting to changes in the pattern of demand, it is these longer term changes that are ordinarily of concern. Would a move to short term contracts and thus reduced fixed costs increase the speed and reduce the cost of adjusting the supply of health care services?

The flexibility of a supplier in responding to these changes in the pattern of demand

[10] In the electricity industry where risk aversion leads to holding excess capacity to meet unusual demand as well as peak demand, marginal capacity must be paid for even though idle. In the NHS marginal capacity need not be idle and can be employed during normal and off-peak periods. An implication of the full employment of NHS resources during these periods is that the value of the marginal work done would be less than the cost of the resources employed by an amount equal to the risk premium (willingness to pay) for excess capacity.

is a function of whether resources can be redeployed **not** whether they represent fixed costs. A Consultant may be a fixed cost but a Trust that offers purchasers the option of consultant out-patient sessions in local health centres rather than in the District General Hospital has made supply more flexible than a Trust that only offers DGH sessions. Changing the pattern of supply within the health care industry refers to something that would not show up in an accountant's cost analysis and that is the extent to which patterns of delivery of services can be changed using the same resources. Flexibility depends on whether a resource can be redeployed not whether that resource is a fixed cost. The competitive pricing and supply behaviour discussed in Section II, where suppliers obtain information on purchaser requirements during negotiation and adjust the mix and characteristics of output accordingly, is only possible where resources can be redeployed.

Redeployment of resources within an industry can be achieved in basically one of two ways. Each firm or supplier produces one set of outputs or services. When the pattern of demand changes, these firms exit the industry and new firms emerge offering the new range of products. Some of the inputs made redundant by the first set of firms may be reemployed by the second set of firms. An alternative and more common means of redeployment is for the management of a firm faced with falling demand for existing product lines to seek out new markets and develop new product lines. Redeployment of inputs from old to new services takes place **within** the firm. The structure and length of contracts forms part of the incentive structure within firms. A predominance of short contracts and therefore a low proportion of fixed costs, reduces the financial cost to owners of running down a firm in the face of declining demand. A predominance of long term contracts (fixed costs) for resources that can be redeployed increases the incentive to seek out new markets and organise new

services if a firm is to minimise losses/ maximise profit in the face of changing patterns of demand.

We would expect to observe redeployment through firm closure in declining industries but redeployment through 'within firm' supply change in stable or growing industries where skilled labour may be at a premium and management has knowledge of the market. Changing labour contracts to eliminate restrictive practices may reflect once and for all efficiency gains. Offering long term contracts for flexible labour practices is a means of enabling management to redeploy labour when patterns of demand change.

While it would be expected that most medical personnel could be redeployed to produce new types of health care services, it is unlikely that the existing capital stock is very redeployable. Where it is necessary to alter the capital stock in order to make significant changes in the pattern of supply, it is the lack of access to capital markets, a Treasury policy decision, that limits the flexibility of existing Trusts in adapting to changes in demand. The proportion of fixed costs is a red herring.

A good example of how the NHSME guidance confuses economic issues requiring policy decisions with accounting conventions is the following:

> "...the NHSME felt that the contracting process would be more flexible and responsive to changes in activity if the proportion of costs defined as fixed were to be reduced. However it was aware that, in the context of in-year activity, such an approach might increase the marginal costs and thereby reduce some of the potential for increasing activity by moving from an average cost to a marginal cost basis." (NHSME,1993 p.3)

One does not make an input variable by changing the definition! It is achieved by changing

the terms of the contract of employment. How the terms of contract are to be changed depends on the incentive structure desired for the internal market.The fundamental problem this quotation identifies, insufficient use being made of fixed available capacity, arises from the policy decision to instruct units to negotiate planned activity rates with reference to average costs and to ignore marginal costs. It has long been known this leads to lower utilization rates than would be obtained with other pricing regimes. Where marginal cost is significantly below average cost and the institutional rules are that total costs must be covered, a non-uniform pricing structure will increase activity relative to average cost prices (Brown and Sibley 1986). What are sometimes referred to as sophisticated block contracts, a purchase of capacity with target activity rates, separate prices for activity below and above targets and the latter related to marginal cost would be superior in terms of activity levels to cost and volume contracts based on average cost prices. The cost and volume contract is another example of the mistaken application of the retail market model.

III CONCLUSIONS

To the extent that Costing for Contracting is representative of current ME understanding of how they expect competitive markets to operate, they have got it wrong. If competition does emerge through excess capacity or new forms of entry there are strong market incentives to determine prices in a very different manner from that set out in the guidelines. The market, as it develops, is unlikely to resemble markets where there are large numbers of buyers and sellers. Markets in acute services will have much more in common with markets in industrial goods than with retail markets. Activity in each market will be dominated by a few (usually) knowledgable negotiators who agree contracts for complicated

packages of care covering many products and non-price aspects of delivery. This fact has important implications for the system as a whole and particularly for the Department of Health or any other organisation responsible for regulating the market.

Prices at which transactions take place will not in general be observable. The regulator could insist that some form of standardised product price list be published but the more competitive is the market, the less likely it is that transactions will take place at these published prices. From the point of view of efficient market activity, this is not a problem. Those who need the information to make market decisions, the buyers and sellers, obtain the information through negotiation. It is a set of non-market participants, observers of the market such as academics and regulators who are inconvenienced by the absence of information on transaction prices.

Perhaps the most important of the inconvenienced parties is the Department of Health. A central responsibility of the Department is to see that resources are allocated to purchasers in a way that is consistent with the equity objectives of the NHS. It had been anticipated that capitation and the share of GP fundholders could be determined by formulae that incorporated market prices for relevant procedures. The market will not generate this price information and an alternative approach to the design of resource allocation formulae will have to be adopted.

Unlike the major public utilities that have been given greater market freedom through privatisation, there is no organisation (perhaps understandably) called OFFHEALTH to regulate the market in terms of limiting monopoly prices, monitoring competitive behaviour

and with the ultimate sanction of a monopolies and mergers referral. At present this task rests with the Department of Health and the NHSME. It had been anticipated that observable transaction prices would help the Department and the Management Executive to identify units exploiting a monopoly position by charging excessive prices. An excessive price would be identified by comparison with prices charged by other units (Ferguson and Posnett, 1990 p.10). If comparable transaction price information is not available, regulators cannot use this particular technique to identify monopoly. [11]

It can be argued that the arbitrary accounting prices provider units have been instructed to use were expected to be a means of controlling price discrimination, another manifestation of monopoly power. In markets where complex transactions are negotiated there are rarely unique unit prices that will permit comparison between contracts. Regulators will not be able to use this technique to control "unfair" prices.

Regulatory regimes have little hope of being effective unless designed with reference to a clear understanding of the nature of the market to be regulated. The objective of this paper is to focus debate on the nature of the market. There needs to be some agreement on the likely structure and incentives of the market before an alternative regulatory framework can be formulated and assessed.

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[11] Even if price information were available, this would not provide evidence of abuse of monopoly power. NHS units are not allowed to generate a cash surplus so monopoly pricing would take the form of more expensive or higher quality services. To determine whether the more expensive service was an abuse of monopoly power the regulator would have to decide whether a purchaser would prefer a low cost package available elsewhere but not offered by the local monopolist.

Markets can be irritating for academics who want to study them and for regulators who want to manipulate them. Prices generally cannot be observed and the intensity of competition cannot be measured. It is often impossible for a third party to be able to observe the difference between competitive behaviour and anti-competitive behaviour. Regulatory systems may not produce the outcomes expected. These characteristics of markets have long been recognised as inevitable whenever it has been decided, presumably on consideration of some balance of advantages, to rely on market forces to allocate resources. The National Health Service and Community Care Act 1990 does not require market behaviour on the part of NHS providers. The Department of Health could decide to abandon the policy of encouraging competition between suppliers and there would be no need to amend the Act. The legislation is equally consistent with a form of decentralised administration, an approach to management analogous to a large corporation like ICI establishing cost or profit centres within which managers have some discretion but access to capital, pricing, rewards for good or poor performance, including unit closure or major expansion are determined in an administrative, discretionary manner by the centre. The cost/price guidelines make sense as a form of transfer pricing imposed on sub-divisions of an organisation but make no sense as the basis of market pricing in small numbers, multi-product health care markets. At present the reformed NHS has much more in common with a profit centre model than it has with a market model[12], an idea reflected in often repeated advice from the NHSME on the need for purchasers and providers to trust each other and share information:

> "It is too simple to classify everything as 'commercial in confidence' and we need to remember we are all part of one National Health Service." (NHSME 1993b,p2)

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[12] See Kaplan and Atkinson (1989) Chapter 14 "Profit Centres and Transfer Pricing". Note the discussion of the inefficiency of full cost transfer prices.

There is nothing in the present organisation and finance of the NHS that compels movement toward market behaviour. The Department of Health and NHSME can move the system toward either the administered profit centre model or a competitive model. If they choose the latter, it is essential to be clear as to the type of market behaviour to expect. One can then begin to evaluate alternative approaches to regulating the market. A regulatory framework will have to address three issues:

1) Implementing Treasury financial controls;
2) Monitoring and control of anti-competitive behaviour;
3) Assessing whether the pattern of resource use generated by market trading reflects the opportunity cost of resources within the NHS.

It is likely that separate regulatory mechanisms will be required to deal effectively with each of these problem areas. That is not unusual in the field of economic regulation nor will it involve radically new approaches to regulation. The Department of Health has long experience implementing and monitoring Treasury controls. There is a wealth of experience from the work of the Monopolies and Mergers Commission and equivalent bodies in other countries on the problems of evaluating anti-competitive behaviour in small numbers market exchange. The NHSME has available far more information on the activities of the "firms" it seeks to regulate than the bodies that regulate other industries. The area that will require some new thinking is how to evaluate the allocation of resources produced in small numbers markets constrained by Treasury rules.

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ANNEX 1

A summary of the results of a pilot study to test the feasibility of obtaining data on costs of the kind desired by the NSGC is reproduced below. The primary use of this data for the present paper is confirmation that in an acute unit a very low proportion of total costs are variable. It should also be noted that in spite of the plea to share more information and be less secretive about costs and prices, all of the results of this pilot study were "scrambled in order to preserve the confidentiality of Preston's data" (NHSME 1993a p7).

Top Down Analysis of Costs by Activity

Table 1 shows this analysis for the 16 specialties costed in the pilot study. It can be seen that variable costs as a percentage of total costs range from 4% to over 30% depending on the speciality, with an average of 11%.

Table 1 Top down analysis of costs by specialty

Summary By Specialty	Capital Charges £000	Other Fixed £000	Total Fixed £000	Semi-Fixed £000	Variable £000	Total £000	Var as % Total % age
General Medicines	1,623	1,320	2,943	6,127	931	10,001	9%
Orthopaedics	1,263	1,166	2,429	5,657	1,034	9,120	11%
Obstetrics	982	677	1,659	3,624	310	5,593	6%
General Surgery	543	848	1,391	3,317	565	5,273	11%
Elderly Medicine	626	598	1,224	3,234	386	4,844	8%
Paediatrics	596	603	1,199	2,734	362	4,295	8%
Neurology	454	592	1,046	2,631	498	4,175	12%
Gynaecology	1,156	554	1,710	2,010	166	3,886	4%
Plastic Surgery	562	535	1,097	2,194	345	3,636	9%
A & E	434	514	948	1,879	275	3,102	9%
Renal	298	335	633	1,765	204	2,602	8%
ENT	448	268	716	1,022	817	2,555	32%
Urology	294	415	709	1,564	267	2,540	11%
Ophthalmology	246	309	555	1,014	203	1,772	11%
Oral Surgery & Orthodontics	205	320	525	877	214	1,616	13%
Other Specialties	59	187	246	511	62	819	8%
Blood Transfusion	176	161	337	620	495	1,452	34%
		7	7	24	653	684	95%
Total	9,965	9,409	19,374	40,804	7,787	67,965	11%

Source: Preston Pilot Study. (Figures have been scrambled in order not to reveal detailed costing data from the pilot study unit).

ANNEX 2

The following is a selection of items of expenditure with the associated minimum standard classification and cost analysis to be used in 1994-95 contracting. For a complete list see NHSME 1993a Part D pp 4-10.

General and Senior Managers

	Classification	Typical Analysis
Unit and other General Managers	Fixed	Overhead
Senior Managers' Pay - Board level	Fixed	Overhead

Medical (Note 1)

Consultants	Fixed	Direct
Associate Specialists	Fixed	Direct
Staff Grade Practitioners	Semi-Fixed	Direct
Senior Registrars	Semi-Fixed	Direct
Registrars	Semi-Fixed	Direct
Senior House Officers	Semi-Fixed	Direct
House Officers	Semi-Fixed	Direct
Hospital Practitioners	Semi-Fixed	Direct
Senior Clinical Medical Officers	Semi-Fixed	Direct

Note 1: In some units certain medical and nursing staff may be shared between specialties in which case they will be allocated as an indirect cost to those specialties.

Supplies and Services - General

Provisions - purchases	Variable	Indirect
Contract catering	Semi-Fixed	Indirect
Staff uniforms and clothing including contracts for making up, etc	Semi-Fixed	Indirect
Patients' clothing	Variable	Indirect
Laundry - equipment and materials	Semi-Fixed	Indirect
Laundry - external contracts	Semi-Fixed	Indirect
Bedding and linen - Disposable	Variable	Indirect
Bedding and linen - Non Disposable	Semi-Fixed	Indirect

Establishment Expenses

Printing and Stationery	Semi-Fixed	Overhead
Postage	Semi Fixed	Overhead
Telephone - rental	Semi-Fixed	Overhead
Telephone - other, including calls	Semi-Fixed	Overhead
Travelling and subsistence expenses	Semi-Fixed	Indirect
Leased and contract hire charges (staff cars)	Semi-Fixed	Indirect

Other

Capital charges	Fixed	Overhead