Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

18-Apr-2012

English - Or. English

DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE

Cancels & replaces the same document of 06 April 2012

Working Party No. 2 on Competition and Regulation

COMPETITION IN HOSPITAL SERVICES

-- Background Paper --

13 February 2012

The attached document is submitted to Working Party No.2 of the Competition Committee FOR DISCUSSION under item III of the agenda at its forthcoming meeting on 13 February 2012.

Please contact Mr. Frank Maier-Rigaud if you have any questions regarding this document [phone number:+33 1 45 24 89 78 -- Email: frank.maier-rigaud@oecd.org].

JT03320099

Complete document available on OLIS in its original format

TABLE OF CONTENTS

Boxes

COMPETITION IN HOSPITAL SERVICES – THE POLICY DIMENSION

By the Secretariat[*]

1. Introduction

1. This paper describes the potential for introducing or strengthening competition in the hospital services sector. It discusses the literature on competition in hospital markets of direct relevance to health system design. While health systems must generally be seen in terms of their broader goals, this paper focuses on the possibilities of introducing competitive processes into the provision of hospital services, more specifically inpatient acute care treatment, with the aim of improving health outcomes and ameliorating the provision of services. In order to do so, it draws on the relevant body of literature on hospital service and intermediaries competition including empirical analyses describing the experiences gained in various countries in the past from both, regulatory changes and mergers and acquisitions.

2. This paper should be seen as complementary to the 2006 OECD Roundtable Compilation on Competition in the Provision of Hospital Services. In contrast to this paper, the 2006 roundtable was not focused on policy questions and regulatory design but on competition law issues in this sector that are not always directly pertinent to regulatory design. The reverse applies to this paper: whilst it may shed some light on market definition and the impact of mergers and acquisitions in hospital services (including intermediaries), it does not attempt to analyze the sector through a specific competition law lens.[1] In addition the paper is complemented by two expert reports.[2]

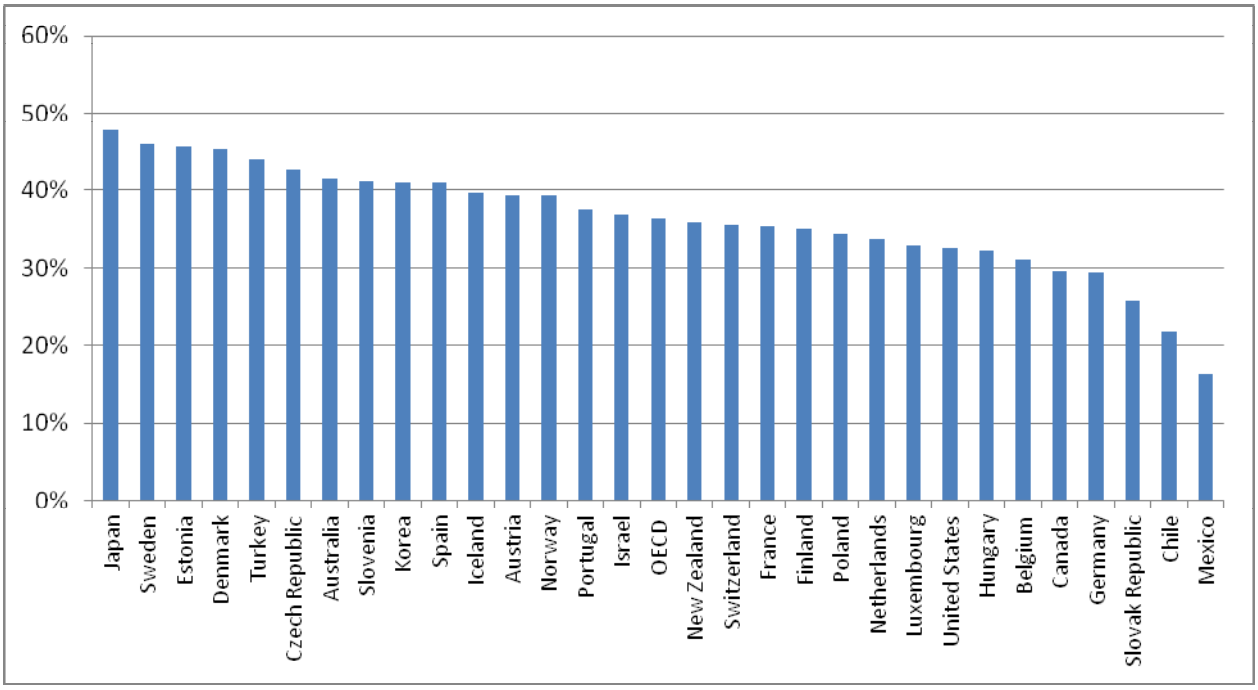
---

[*] The paper was prepared by Frank Maier-Rigaud from the Competition Division. The two Annexes, Section 3.2.2 and the first part of Section 3.2.3 were prepared by Ankit Kumar from the Health Division. The boxes on Italy, the Netherlands and Poland and the second part of Section 3.2.3 were prepared by Anna Pisarkiewicz from the Competition Division.

[1] For a competition law focussed treatment of the sector see OECD (2006) or for example Varkevisser and Schut (2009) discussing hospital merger control in the US, the Netherlands and Germany. See also Canoy and Sauter (2010) and the overview in Gaynor and Town (2011).

[2] The expert reports are written by Zack Cooper and Martin Gaynor respectively.

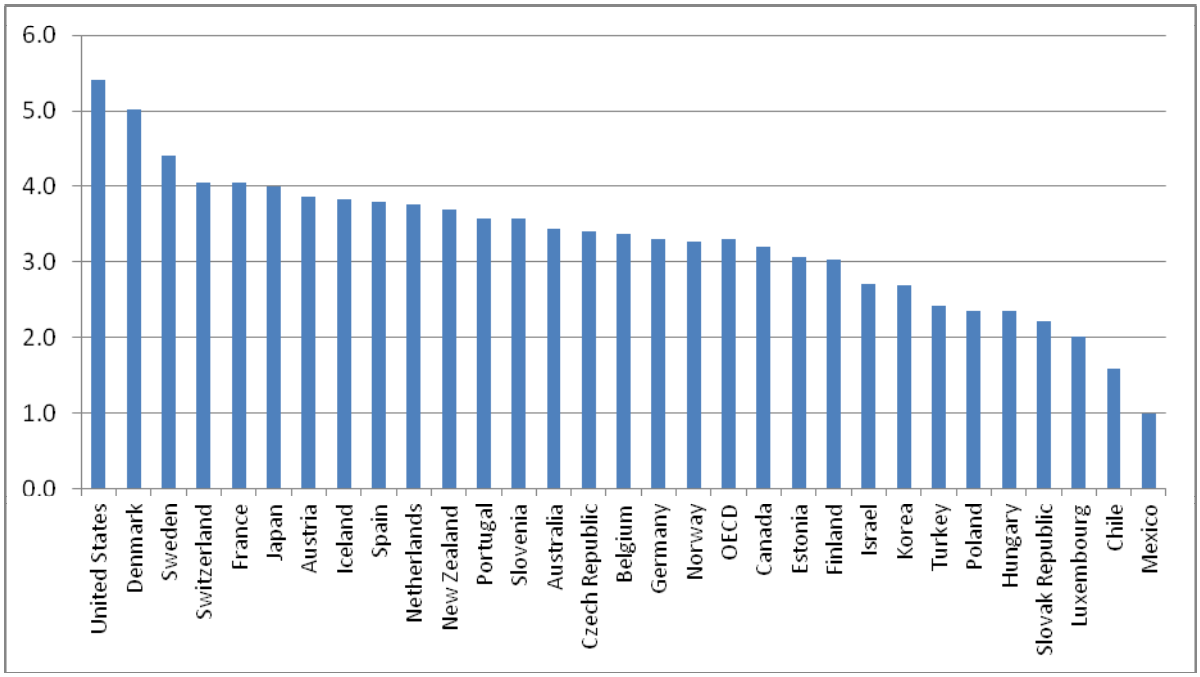
Figure 1: Spending on hospitals as a proportion of current health expenditure (2009 or earliest year available[3])



3. As can be seen in Figure 1, Hospitals are the single largest component of health expenditure across all OECD countries. On average, 33 percent of annual current health expenditure is spent on hospitals across OECD countries.

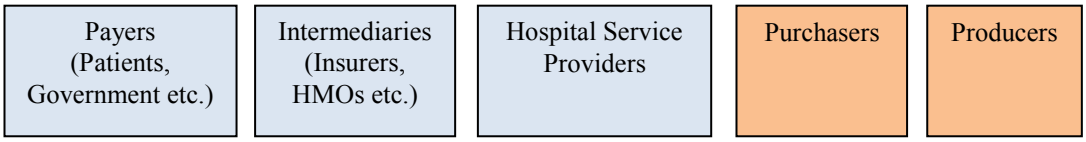
[3] OECD (2011).

Figure 2: Spending on hospitals as a proportion of GDP (2009 or earliest year available)[4]



4. Hospital expenditures are not only the single most important component of health expenditure but in themselves constitute a substantial part of GDP in a lot of OECD countries as can be seen in Figure 2. On average, OECD countries spent 3.3 percent of their GDP on hospitals in 2009. This ranges from more than 5.0 percent of GDP in the United States to 1.0 percent of GDP in Mexico.

Figure 3: Hospital Services Value Chain[5]



5. Health care policies, either intentionally by design or as an unintended consequence often affect the incentives of health care providers to enter, exit, invest, merge and innovate. Health policy therefore has a direct bearing on service provider market structure and on the outcomes influenced by that market structure. This encompasses price, quantity and quality even if they are outside the immediate reach of the policy. The incentives provided by the regulatory frameworks within which hospital service providers operate are a central force determining the costs and quality of hospital services. These incentives may differ by the ownership status of hospitals and thus policies may also have a bearing on the ownership structure as well as the mix of not-for-profit and for-profit hospitals.

6. Figure 3 sets out the hospital services value chain. In the following section the first three blocks of the value chain, i.e. the ultimate beneficiaries or buyers of hospital services, eventual intermediaries

4 OECD (2011).

5 Adaptation based on Burns et al. (2002).

(such as insurance companies HMOs etc.) and of course the hospital service providers themselves are discussed. The input side to hospital services, i.e. the purchasers of medical equipment or producers of pharmaceutical products are left out. The main input to the production of hospital services in terms of cost, i.e. personnel such as doctors and nurses will, however, briefly be treated.

2. Competition as an instrument

> In *every* society conflicts of interest among members of that society must be solved. The process by which that resolution (not elimination!) occurs is known as *competition*. Since, by definition, there is no way to eliminate competition, the relevant question is what kind of competition shall be used in the resolution of conflicts of interest.[6]

7. As expressed in the introductory quote by Alchian, competition, understood in a wide sense, is a process in which conflicts are resolved in society. Even without any explicit introduction of competitive processes into the provision of hospital services, the provision of such services is constrained by the available funding. Conflicts over the type, quality and volume of access to hospital services are pre-programmed and "resolved" by competitive processes. This is true for both, resolution via an economic allocation mechanism, for instance using prices (competition in a narrow sense) but also for other "resolutions" not relying on economic mechanisms and determined, for example, by wielding political power (competition in the widest sense).

8. Competition is a difficult concept. Difficulties are exacerbated by different associations with the concept. In the health care literature competition is often associated with privatisation and "laisser faire". It is likewise equated with compromised public health objectives and deteriorating health outcomes. In competition law in contrast, competition is associated with dynamic innovation and better outcomes for consumers in terms of prices and quality. These views appear incommensurate but in some sense, both these positions may be accurate descriptions of specific competitive outcomes.

9. An explanation for these different perspectives may be the following. That competition authorities typically have a more positive outlook on competition is due to the fact that they enforce competition law, i.e. they operate within an existing legal framework where the private hindrance, elimination or circumvention of competition generally entails negative outcomes. Health regulators on the other hand are often concerned with the problems of existing frameworks and are considering changes to those frameworks. In that context, the introduction of competition may not necessarily entail positive outcomes; eliminating competition on certain aspects may in fact be the appropriate regulatory response.[7]

10. The problem of hospital service provision is a problem of conflict over scarce resources for health - and quite often in OECD countries, scarce public resources.[8] This paper reviews the literature on the role of competition between providers of hospital services and other relevant players (such as insurers) and how competition can alleviate the budget constraints and improve overall outcomes. It is

---

6 Alchian (1977:127).

7 In fact economic incentives, for instance to reduce service quality in fixed price systems, is rightfully identified as problematic by regulators, reinforcing this perspective.

8 See for example Hauck et al. (2004) discussing the literature on priority setting in health care as a result of finite national health budgets.

fundamentally about harnessing competitive processes, streamlining and constraining them via appropriate regulatory means to achieve better outcomes.

11. Viewed as a process, competition allows an efficient allocation of resources, irrespective of the underlying set of preferences. In the absence of market failures this works well and a competition authority's role is to protect the proper workings of the market process. Competitive processes, as emphasized in some of the health and also more general literature, may, however, also result in undesirable outcomes. Such undesirable outcomes may not only be due to a destruction of the proper working of the competitive process[9] but possibly due to the particularly smooth functioning of competition and high competitive pressure. An example of the latter category, where the process of competition remains intact or is even enhanced, is the externalisation of cost. The externalisation of cost or the lack of internalisation has been debated and tackled through environmental policies. It is clear that a well-functioning competitive process will drive firms to lower their costs in order to improve their competitive situation. In hospital markets with fixed prices and asymmetric information for example, competition may result in suboptimal levels of quality being provided. While this does not affect the competitive process and is indeed only a manifestation of a functioning competitive process, it is typically not associated with positive outcomes.[10] With respect to environmental externalities it is generally accepted that competitive forces have to be harnessed for addressing the externality problems in an efficient way, allowing competitive advantages to those firms that produce at lower pollution levels as opposed to those employing no or less efficient abatement methods. The approach used is to force a full internalization of externalities, and thereby allow the competitive pressures to stimulate innovation also in this area. A similar argument applies to other market failures, for example in case of minimum quality standards in the supply of hospital services under case-based remuneration schemes ensuring that competitive advantages cannot be realized by risking the lives of patients.[11]

12. In summary, there are two distinct ways in which competition is constrained and channelled. The first constraint ensures that the competitive *process* is maintained and not undermined. The second ensures that competition takes place on the appropriate set of variables, i.e. excludes the externalisation of cost or leads towards what has also been termed "race to the bottom". While both contain normative elements, public interest considerations are of course much more visible in the latter category.[12]

13. From this perspective it is not any, but rather a very specific type of competition that competition advocates have in mind when they talk about the benefits of introducing it in hospital services –namely a form of competition that neither undermines itself nor allows competition on a different set of variables than the ones considered desirable. The question to be addressed here therefore is one of finding the

---

9 Such elimination or reduction in competition may, for example, be due to abuse of dominance, cartel or anti-competitive merger.

10 As a result the term "market failure" is somewhat unfortunate as such a "failure" often occurs exactly in those instances where market processes work extremely well but outcomes are viewed as undesirable.

11 These examples demonstrate that with respect to outcomes, competition may "naturally" be over- or under inclusive so that policies are aimed at either exposing new aspects to a competitive process or to take certain aspects out of the competitive process. The type of finding discussed in Propper et al. (2004) and (2008) that increased competition in markets without fixed regulated prices may increase mortality rates, for example, has been used as an argument to exclude the price variable from competition in certain systems.

12 This is certainly true if one considers how controversial certain aspects in the latter category can be. Health care is among the best examples of this.

appropriate regulatory design that allows an optimal provision of health services.[13] This implies the use of competition as an instrument in the provision of hospital services.[14]

14. The competitive processes can be put to use to the benefit of society in many areas if it is channelled and constrained by an appropriate frameworks. Health care in general and hospital services in particular are no exception. Distinguishing between competition as an *a priori* neutral process and the question in what domain and on what aspects competitive processes can be fruitfully deployed to fulfil public interest considerations is important in framing the debate on hospital services. Specifying certain characteristics of a racing car engine, for example, eliminates the competition between racing car teams on that element of engine development.[15] As this is the very purpose of such specifications, it is a fruitless argument to point out that competition on these elements will be eliminated by the measure. The question whether such specifications should be introduced or not, can, however, be fruitfully discussed with reference to the desirability of the general consequences of such a change in the rules. It may for instance be well justified to eliminate competition on that level to render the actual race more interesting to the viewers as there may otherwise be a risk that the race is determined less by the skills of the drivers than by the quality of the engine. Re-introducing competition on that element will then rightfully be viewed as problematic.[16]

15. Similarly, the institutional and regulatory conditions within which competition for hospital services take place matters. Just as a race may become more attractive when competition on engine development is eliminated, it may be part of a desirable framework to eliminate price competition between hospitals to the extent that this then allows for more intense quality competition and potentially fosters more desirable outcomes.

16. Once a framework can be considered appropriate in terms of fostering worthwhile patient outcomes and encouraging the prudent use of health service expenditures is devised, successful providers of hospital services will be rewarded. Conversely, unsuccessful providers of services will find it increasingly difficult to operate and will either leave the market or merge with more successful operators. If the framework within which hospital competition takes place is well-designed, there should be no concern with hospitals exiting the market. In fact, one cannot have it both ways, benefit from the efficiencies inherent to a competitive organisation of the sector on the one hand and argue against the closure of hospitals that are an inevitable ingredient of this process. Nonetheless, hospital closures remain a contentious issue across OECD countries.

---

13 Obviously competition does not take place in an institutional vacuum but within a set of rules. Health outcomes depend on the quality of these rules.

14 Generally, a mixture of appropriate regulatory constraints on competition explicitly excluding competition on certain aspects with the possibility to compete on all other factors allow for an optimal provision of health services. This effectively then only leaves out philosophical objections of the sort that those caring for the sick ought to be intrinsically motivated not extrinsically by pecuniary means. The role of intrinsically motivated "knights" and pecuniary motivated "knaves" in the transformation of the general public from uninformed "pawns" to informed "queens" is discussed in Le Grand (2006).

15 Of course the reasons for this are somewhat different than in market competition as the variables on which the competition is focussed on are typically driven by considerations on how to make the game more attractive to audiences. Rule changes in many sports disciplines are motivated by such considerations and it can be observed quite generally that competition on the level of the individual athlete (or team of athletes) is favoured over competition on employed equipment.

16 These are in fact the two stylized positions introduced above. While it may be difficult for competition authorities to accept the select elimination of competition as beneficial, it may be equally difficult for health regulators to allow the select introduction of competition. This is not a fundamental conflict but a technical misunderstanding.

17. It is the aim of this paper to not only give some initial ideas and stylized facts under what conditions competition can be beneficially introduced in the hospital sector but to also provide enough comfort to policy makers that once competition is properly introduced, they have enough confidence to resist the pressure to curb competition once particular hospital closures appear problematic.[17]

3. General considerations

3.1. The role of economics

18. Competition in health care markets, and the hospital services sector in particular, can support better incentives for providers to work efficiently and deliver better outcomes for patients. This holds the potential to reduce costs and fiscal pressures in countries with high levels of public health expenditure. The success of competition, however, often hinges on a country's regulatory and institutional environment as well as the responses of consumers and health care service providers. Therefore, in health care, increasing competition rarely implies abolishing all regulation. On the contrary, the successful introduction of competition more often than not is dependent on the design of appropriate (and sometimes complex) regulation. In a sector where quality is difficult to measure even *ex post* and where bounded rational consumers regularly face information asymmetries in making potentially life changing decisions, there is an active role for regulation to ensure that health care services work well. For these reasons, health policy makers, supported by influential provider and other professional organisations, have often been slower to embrace reforms that introduce competitive markets for services. To the extent that countries have successfully established competition, minimum standards of quality of care are often an essential ingredient, and are regularly complemented by the provision of information and comparisons of supply side performance. It is often argued that regulating the prices of hospital services can foster socially useful competition on quality and performance.

19. Markets for hospital services differ substantially from standard textbook competitive markets. Due to the different types of treatment and different geographic locations of hospitals, the supply of hospital services is differentiated. From the demand side, information is imperfect. Hospital services and healthcare services more generally are credence goods.[18] Credence goods share with experience goods the property that it is difficult for customers to decide *ex ante* whether the service is of high or low quality. In contrast to experience goods, however, assessing the properties of credence goods or services remains difficult or impossible even after it has been delivered. This is a well-established cause of market failure that has led to (often extensive) government regulation. In addition, also the presence of a substantial amount of not-for-profit hospitals even in otherwise fully market-based systems renders the analysis of hospital services with standard theoretical economic tools difficult. As many basic assumptions in economic models are not fulfilled, theory provides limited guidance under what conditions and when competition will lead to desirable results.

20. Despite these limitations, the following two subsections will provide a short review of the insights economic theory holds for the efficient provision of hospital services, both from a supply and from a demand perspective. The approach followed is rather standard. It rests on the (controversial) welfare economic notion of Pareto optimality.

---

17 See in particular the literature discussing the impact of hospital closure on efficiency and patient outcomes in Box 7.

18 The term has been coined by Darby and Karni (1973).

3.2. Supply side factors

21. Hospital services are differentiated products. This encompasses both horizontal and vertical differentiation.[19] From a theory point of view, quality and variety can be oversupplied, undersupplied or supplied optimally. In the spectrum from monopoly to perfect competition the provision of quality and variety may vary considerably and theoretical models currently do not allow discriminating between possible outcomes.

22. A monopolist may oversupply variety as it is the only seller in the market and therefore capable to capture the consumer surplus whereas competitive firms may undersupply variety for the same reason. Also the reverse is possible as competition may provide too much variety to the extent that additional profits may derive from variety generated to "steal" competing hospitals market share.[20] As shown by Gaynor and Vogt (2000), the known result will be an oversupply of variety as individual hospitals will not take the externality of stealing demand into account when choosing variety.

23. Also the research that takes the multi-product nature of hospital services into account demonstrates that the impact of competition between hospital services on quality, variety and price is ambiguous.[21] Theory suggests that the impact of competition will depend on the responsiveness of the demand for hospital services to price, variety and quality. If the quality of hospital services cannot be measured or properly reported, patients (or insurers) will not know which hospital is best and therefore will not be able to make optimal choices. This is typically captured by a relatively inelastic demand for individual hospital services.

24. Healthcare markets are often characterised by high levels of state funding and financing systems that ensure that patients do not care about prices and often do not even observe them. If this is the case, and if quality is readily observable, then there may be an incentive to increase costly services, and possibly supply them in quantities that are not optimal. To the extent that quality of actual hospital services is not readily observable, other aspects, such as the "hotel" properties of the hospital may become salient. This may encourage hospitals to offer higher quality on service dimensions that are less important to health outcomes. Similarly, if patients know the price and care about it (as for instance in case of high out of pocket costs) but quality is not easy for them to observe (because properly assessing it requires diagnostic capabilities and knowledge of clinical outcomes and may remain ambiguous even after the service was offered), then this could foster a race to the bottom with less than optimal quality provision.

3.2.1. Prices and payment systems

25. How prices are set and how the overall remuneration of hospital services is determined matters. In hospital markets with limited price regulation and payment systems that provide scope for generous reimbursement of hospital activities, hospitals may not face incentives to be efficient and patients will be sensitive mostly to quality or additional services. In markets with less generous payment systems, hospitals may compete on prices but leave quality to fall below optimal levels.

26. If there is a single fixed price for all providers, competition will be on quality and possibly produce too low or too high of a quality depending on the fixed price. Diagnosis Related Group (DRG, see Box 1 below) remuneration can lead to providers undersupplying quality in order to reduce their costs

---

19 Horizontal differentiation is sometimes referred to as product variety while vertical differentiation is usually associated with product quality.

20 See Gaynor (2004).

21 Dranove and Satterthwaite (2000).

relative to the fixed prices on which they are reimbursed. The level at which prices are set can also lead to patient selection on the basis of the severity of their condition, creating incentives for hospitals to prefer patients that are less costly to assist relative to reimbursement prices.[22]

27. A single price is therefore likely to affect patients differently depending on the severity of their illness. These risks exist in fixed price systems based on DRG classifications or any type of system where maximum payments are fixed prior to the treatment.[23]

28. Establishing case-based fixed prices has been a recent trend as OECD countries increasingly shift towards DRG based payments for hospitals. Theoretical research suggests that competition for quality amongst hospitals is more likely to occur when prices are fixed.[24] Payments on the basis of DRGs imply that different hospitals are paid similar prices for similar services. DRGs seek to benchmark different kinds of hospital services according to their clinical complexity and (theoretically) assign an 'efficient' price per case delivered. Those hospitals that are able to deliver services more efficiently realise a windfall, while hospitals that are less efficient face losses on particular services. These *de facto* price signals provide an incentive to improve efficiency and can encourage competition on quality, but they need to be carefully managed.

Box 1. Diagnosis Related Group (DRG)

Diagnosis-related group (DRG) is a description of systems that aim to classify hospital services into groups. The original intent was to identify the "products" that a hospital provides. By definition, patients within a DRG category, such as for example the "product" appendectomy, are clinically similar and are therefore expected to require the same level of hospital resources. A DRG is therefore a weight that indicates the amount of resources necessary to treat a patient with a given diagnosis (McCellan, 1997).

The system was originally developed as a replacement for wide-spread "cost based" reimbursement of hospital services. DRGs have been used in the US since 1982 to determine Medicare payments to the hospital for each "product". DRG based payment systems have since been introduced to varying degrees, i.e. with more or less extensive exceptions and additional qualifications, in other reimbursement systems world-wide. Since its initial introduction the hospital services sector has evolved and developed an increased demand for patient classification systems that can serve its original objective at a higher level of sophistication and precision. As a result, there exist many different DRG based systems, sometimes even within a country. For example the UK introduced Health Care Resource Groups (HRGs), France has Groupes Homogènes de Malades (GHMs), Canada has Case Mix Groups (CMG) and Australia has National DRGs (AN DRGs).

29. The basic principle of DRG based prices is that the actual payment is independent of the duration and the treatments received during a hospital stay. Indeed, the theoretical objective of DRG based prices is to specify and pay the "efficient" price for a particular service. As higher quality treatment and longer hospital stays entail additional cost, DRG based systems provide incentives for early (including so-called 'bloody') release and a reduction in treatment quality. Fixed price systems transfer the treatment risk from the insurer to the hospital. If a patient requires a certain treatment that is only partially covered by the DRG

22 This may lead to patients who are more expensive to treat to remain untreated or to get worse quality, known in the literature as "skimping" or "dumping" while hospitals competing for lower cost patients by offering better quality is known as "creaming". See Ellis (1998).

23 Countries that have shifted to some form of DRG or case-based payment for hospital care include for example Chile, Israel, Singapore, Switzerland, Chinese Taipei, the Netherlands, Germany, the UK, the US (for Medicare and Medicaid). For a description of the health care reforms in the former six countries see Okma et al. (2010).

24 The empirical literature is reviewed in the next section.

flat rate or if the hospital stay has to be extended, the hospital is forced to absorb the extra cost. Generally speaking flat rates based on DRG are designed in a way that should allow reasonably sized hospitals (some estimates consider more than 8000 cases a year to be sufficient) to be able to deal with such particularly expensive cases.[25] Some systems, such as the one currently in force in Germany (see Box 2), introduced a ceiling based on the length of the hospital stay. If the duration exceeds this threshold, hospitals are reimbursed on a daily rate basis for the period exceeding the threshold. This helps render the distribution of the risk between hospitals and insurers more balanced.[26]

Box 2. Institutional context of hospital services in Germany[27]

Introduction

Universal health care in Germany is achieved by mandating individual enrolment in a statutory health insurance fund. The German government requires low and middle income earners to enrol in the sickness funds, but higher-income individuals can opt out and choose to purchase their own private health insurance.

The structure of the German hospital sector

The German hospital sector exhibits a variety of not-for profit and for-profit hospitals with different ownership structures. Beside the public hospitals, which are owned by municipalities, regional districts or the federal states, there has been a long tradition of not-for-profit hospitals run by churches and various welfare organisations. For quite a long time there have also been some private hospitals mainly in the form of small and specialised clinics. There was not much change in the composition of hospital ownership until the early 1990s, where following German unification in 1990, a first wave of privatisations of hospitals– mainly in eastern Germany – took place. Since the beginning of the new millennium a second wave of hospital privatisations has started which now covers all regions of Germany.[28]

The funding system in Germany is considered to be dual as the federal states are responsible for the investment cost of building, expanding or modifying hospitals while the health insurance funds are responsible for the operating costs.[29] As laid down in the Hospital Financing Act (*Krankenhausfinanzierungsgesetz*, KHG), only hospitals that are officially registered within the national hospital plans receive funding from the federal states. The federal states have to respect the various ownership structures and have to assure that all different types of hospitals – be they for-profit or not-for-profit, public or private – receive sufficient funding. And according to the German Social Security Code (Sizialgesetzbuch, SGB) only these or the hospitals that have a contract for hospital services with the federal associations of sickness funds can receive funding from the health insurance funds (*Sozialgesetzbuch*, SGB Code No. 5, Article 108).

In principle all patients, i.e. those with private health insurance and those with statutory health insurance, can choose freely among the registered hospitals. The costs are borne by the private or statutory health insurance funds

25 See Monopolkommission (2008).

26 At the same time, OECD countries often supplement DRG prices with surveillance and monitoring of average lengths of stay and key clinical indicator checklists – these act as safeguards to try and identify if there is systematic under-servicing of patients, or that key quality processes are not being undertaken in providing patient care. The extent to which these systems are effective is dependent on their design and implementation and an area of considerable ongoing research.

27 The box draws on the German contribution reprinted in OECD (2006), Schulte (2006) and Monopolkommission (2008).

28 See the contribution from Germany in OECD (2006:135ff.) specifying that between 1991 and 2004 the proportion of private hospitals increased from 14.8 percent to 25.4 percent. At the same time the share of public hospitals decreased from 46 percent to 36 percent while the proportion of non-profit hospitals remained relatively stable.

29 See the Federal German Law of Hospital Financing (KHG). Maintenance is considered part of the operating costs. Furthermore, with tight public budgets, more and more hospital investments are only partially paid by the states, the remaining part being financed through operating "profits".

that are responsible for the running costs of the hospital. Another important factor is that all hospitals, including the public hospitals, are independent in their structure and organisation. The recruitment of doctors or administrative staff is not subject to specific regulation. The outsourcing of certain areas, such as kitchen and laundry services, is allowed, as well as the external operation of dormitories, provided overall responsibility remains with the hospital.

Remuneration of hospital services

With the health reforms undertaken in 2000 the system was transformed from a financing system focused on the costs of individual services delivered to one of financing cases over a patient's hospital stay. The conversion to the system of Diagnosis Related Groups, DRG, became binding as of 1 January 2004 and implies regulated prices. One of the objectives of such a service-oriented grouping system is to avoid wrong incentives emanating from a remuneration system based on patient days, which leads to patients staying longer, and to replace it with a more performance-oriented remuneration system. The introduction of DRGs in Germany has in addition improved transparency regarding the type and volume of services provided by hospitals. This increased transparency provides information on the hospitals' areas of focus and specialisation and makes it possible to compare individual hospitals. These improved possibilities of comparison have also strengthened the health insurance funds' strategic position in budget negotiations with the hospitals.

Due to the DRG system it was expected that losses incurred by hospitals that are not used to full capacity or that are uneconomic for other reasons, will increase further. More and more public and non-profit operators of hospitals will be forced to either close down their hospitals or sell them to commercial operators.

Ensuring the quality of hospitals

The following quality assurance measures are applicable to hospitals:

- Hospitals are obliged to introduce and further develop an internal quality management system.
- Hospitals are obliged to adhere to comparative quality assurance measures. Any irregularities may be subject to selective intervention.
- The quality of diagnostic and therapeutic services as well as the necessity of their provision are assessed on the basis of uniform criteria; in this respect, expensive medical-technology services are of particular significance.
- Hospitals must fulfil minimum requirements regarding structural quality and quality of results.
- In cases where the quality of the treatment results depends in particular on the quantity of services provided, such medical services may only be provided if a minimum number of operations can be proved.

Since 2005 all registered hospitals are obliged to draft a quality report that is published. Of particular interest is the comparison of quality conducted by the Bundesgeschäftsstelle Qualitätsicherung (BQS) on the basis of individual hospital submissions. Since 2007 hospitals are obliged to release quality indicators on a certain amount of procedures twice a year.[30]

30. In addition, DRG based fixed price systems have repercussions on the financial incentives for patient selection. For any given DRG flat rate, patients who can receive treatment at low cost to the hospital will be particularly attractive to the hospital. This implies that hospitals will have strong incentives to influence the decision making of GPs or any other gatekeeper towards directing particularly unattractive cases to other hospitals. Moreover, the hospital itself has a variety of means to avoid such patients by pleading for example limited specialization in this area, no available capacity or inflated waiting times. Daily rate reimbursements above a threshold may generally mitigate these incentives although they are

30 See Monopolkommission (2008:320) arguing for a systematic quality register to increase transparency for patients.

obviously incapable of addressing the additional costs not associated with the length of stay. The risks of too early release can be reduced by minimum stay thresholds and by discharge criteria linked to payments. While the hospital may financially benefit from such early releases, the patient or insurer is likely to face additional cost down the road due to necessary additional treatments. The risk of this can be mitigated by reducing possibilities of reimbursement for repeated admissions based on the same diagnosis and a minimum length of stay. If a patient is released earlier than the minimum duration specified, the flat rate is reduced.

31. Generally speaking the DRG based flat rate system is prone to reductions in quality, manipulation of the coding and abusive behaviour that is unlikely to be fully eliminated by the safeguards discussed.[31]

32. DRG based flat rate systems can also influence the scope and the incentives for innovation. Any fixed price system will encourage those medical innovations that keep overall treatment costs constant or reduce them. These incentives can support innovation and improve efficiency. At times, they may also require a renegotiation of the DRG flat rate, thereby substantially contributing to the already substantial administrative costs of operating such a system.

33. As in other areas, such incentives remain independent of the degree of competition but high levels of competition are likely to render such incentives particularly salient. Nonetheless, if regulated prices genuinely reflect a considered judgement on what an 'efficient' price ought to be – they can drive hospitals to become more efficient. When hospitals cannot lower their cost sufficiently quickly, or maintain operations at the prescribed fixed prices, they may withdraw services. Where the withdrawal of services is contrary to universal service obligations, fixed prices are likely to be supplemented by additional government support or through service providers cross-subsidising essential services – limiting scope for competition on quality. There are also certain hospital services, such as mental health services, trauma and emergency, where it is too difficult or not optimal to establish fixed prices.

34. A recent theoretical paper by Janssen and Parakhonyak (2011) analyzes the effect of regulated price structures (such as DRG or case-based systems) on the decision of service providers to deny services or to provide non-required services in markets for credence goods. Their results are based on three assumptions: (i) consumers differ in the type of services required and arrive sequentially in time; (ii) price structures are fixed by a regulator and depend on the service required and (iii) service providers can freely decide on the service themselves and service truthfully, deny the service or cheat and give a different treatment.

35. Based on these assumptions, the paper analyzes dynamic selection effects in markets for credence goods such as hospital services showing that for a large class of price structures some types of patients are not treated and will be refused. As intuition would indicate, equilibria where this happens are welfare inferior to equilibria without selection. As the market becomes larger or service providers become more patient (remember the sequential treatment assumptions implying discounting) the class of selection-free price structures shrinks and in the limit becomes unique. This unique price structure is characterized by a

[31] This is for example described in Monopolkommission (2008:326). With the introduction of the DRG system in Germany the quantity of births classified as "normal" radically diminished in favour of much more lucrative births "with complications".

set of prices where service providers are indifferent to providing any possible treatment thereby eliminating incentives to cheat.[32]

36. The existing body of theoretical literature on quality competition under a fixed price regime indicates a positive relationship between competition and quality.[33] However, Brekke et al. (2011) provide a theoretical model mimicking the empirical finding that competition in hospital markets with regulated prices may lead to ambiguous quality effects. Their model is based on three variations of the standard approach. The authors populate their model with semi-altruistic health care providers, i.e. providers that care to some extent about patient utility and are not pure profit maximisers. In addition, heterogeneous patients (with respect to gross benefits of treatment) and quality elastic total demand for health care are introduced, implying that some patients will forego treatment in equilibrium. Finally, general cost functions that are weakly convex in activity and non-separable in activity and quality are used. This implies increasing marginal cost of treatment and also that quality and cost are modelled as complements, the latter being justified by learning-by-doing effects.[34] Based on these assumptions the authors analyse the effect of competition on quality in hospital services with regulated prices. To do so, they distinguish between monopoly provision and competitive provision with variations through either reductions in transportation costs (increased substitutability) or a higher number of hospitals. Their paper may shed some light on the set of necessary conditions for competition to increase quality under a fixed price regime as a positive relationship between competition and quality is no longer guaranteed, in particular when hospitals are sufficiently altruistic and compete for a large number of patients. Brekke et al. (2011:465) caution though that even if "policy measures to increase competition among health-care providers do not lead to the expected results- higher quality of health care – it does not automatically follow that such policy measures should not be undertaken" as this may still be welfare improving.

37. Another aspect of quality that patients may care about and that has been modelled theoretically is waiting times. Brekke et al. (2008) for example argue that limiting patient choice may allow certain hospitals to attract high benefit patients reducing waiting times.

38. In conclusion, economic theory would predict that quality may either increase or decrease with increased competition when firms are setting both quality and price. Whether competition leads to increased or decreased quality will depend on the relative impact on hospitals price and quality elasticities of demand. When prices are regulated, the majority of the theoretical literature predicts increases in quality although some recent literature also allows for more ambiguous results. With competition under regulated prices, quality will depend on the administered price and its relation to marginal cost.

3.2.2. Hospital autonomy and health system characteristics

39. The extent to which hospital managers have autonomy to hire and fire staff is a key supply side factor in influencing the capacity for hospitals to compete on efficiency and quality. The OECD's Health System Characteristics Survey reports that in a majority of OECD countries (20 out of 29), hospital managers have complete autonomy in recruiting medical staff. By contrast, in Canada, France, Greece, Italy, Ireland, Mexico, Norway, Spain and Turkey, central or local governments make decisions about medical staff recruitment.

---

32 In addition, this optimal price structure also removes the moral hazard problem of overtreatment. This is probably the most unconvincing argument made by the authors because overtreatment, as defined in the paper, is equivalent to giving a different treatment.

33 See for example Karlsson (2007) and Brekke et al. (2006).

34 As one may suppose that increasing quality increases cost it is unusual not to model quality and costs as complements. The authors acknowledge that.

40. Yet while a majority of OECD countries provide managers with the capacity to hire and fire, a much smaller number allow them to influence the pay of doctors. Physicians' remuneration in hospitals is most often constrained by a pay scale negotiated at the national level (in 17 out of 29 countries). In 11 countries, hospital managers have complete autonomy for both the recruitment and pay of medical staff. In the Netherlands, however, managers have in practice little influence on the recruitment and remuneration of specialists since decisions are often made by specialists already present in the group-practices.

41. More frequently, hospitals retain a complete autonomy for recruiting health professionals (in 21 out of 29 countries) other than doctors. Central or local level governments make decisions in seven countries (Canada, Greece, Italy, Ireland, Mexico, Spain and Turkey) and hospitals must negotiate with local authorities in Luxembourg. Hospitals can most often determine autonomously the remuneration level (11 countries) but national pay scales are defined in 18 countries. In 11 countries, hospital managers have a complete autonomy in both the recruitment and remuneration setting for non-medical health staff.

42. There is considerable diversity in the structure, institutions and operations of different health systems across OECD countries. To help policy makers make worthwhile comparisons in terms of performance, the OECD's work on health systems performance has sought to 'cluster' health systems into groups of countries with similar institutions.

43. While some judgement is always needed to define the optimal number of clusters because of the trade-off between the number of groups and the degree of heterogeneity within groups, the cluster analysis suggests that OECD countries can reasonably be grouped into six clusters.

44. These country clusters display the following key institutional features:

- Germany (see Box 2), the Netherlands (see Box 5), the Slovak Republic and Switzerland rely extensively on market mechanisms in regulating the basic insurance coverage. Private providers play an important role and are mostly paid through fee-for-service schemes. Users are offered ample choice among providers but gate-keeping arrangements are in place. There is no strict spending rule and little reliance on regulation of prices paid by third-party payers to control public spending growth. These countries still differ significantly in the degree of decentralisation: sub-national governments have extensive autonomy in managing health care services in Switzerland, while the Netherlands is at the opposite side of the spectrum.

- A second group of countries – Australia, Belgium, Canada and France – features public basic insurance coverage combined with heavy reliance on market mechanisms at the provider level: users are given a wide choice among providers; private provision of both in-patient and outpatient care is relatively abundant; incentives for providers to produce high volumes of services tend to be important, and user information on quality and prices may act as a disciplining factor. Over-the-basic insurance coverage plays a significant role in these countries. In France and to a lesser extent in Belgium, the basic coverage package imposes significant cost-sharing on users, which is largely covered by complementary insurance. Canada has a large supplementary market (67 percent of the population) whereby private insurance pays for prescription drugs and dental care that are not publicly reimbursed. In Australia, over-the-basic coverage both takes the form of supplementary and duplicative private insurance. In this group of countries, cost control generally takes the form of moderate gate-keeping arrangements and strict priority setting arrangements (benefit basket defined at the central government level by a positive list and/or effective use of health technology assessment in determining which goods and services should be included in the basic coverage package).

- The third group – which includes Austria, the Czech Republic, Greece, Japan, Korea and Luxembourg – is also characterised by extensive private provision of care and wide patient choice. But there is no gate-keeping system in place, and the available information on quality and prices is scarce, creating little competitive pressures on providers. Over-the-basic coverage is limited. The budget constraint tends to be less stringent than in other country groups.

- The health care systems of Iceland, Sweden and Turkey offer free choice of provider to patients in all three areas of care – primary, specialist and hospital care – with no gate-keeping. However, private provision is very limited, suppliers have few incentives to increase volumes and their prices tend to be tightly regulated. The budget constraint is weak, except in Sweden, where it is very strict.

- In the group consisting of Denmark, Finland, Mexico, Portugal and Spain, health care is mainly provided by a heavily regulated public system. Patients' choice among providers is extremely limited and the role of gate-keeping is important. There is a public spending target for health care but no strict budget constraint, except in Portugal. Among these countries, Spain and Finland are clearly more decentralised than the OECD average.

- The last group also consists of heavily regulated public systems – Hungary, Ireland, Italy (see Box 4), New Zealand, Norway, Poland (see Box 3) and the United Kingdom (see Box 6). The budget constraint is more stringent than in most other OECD countries. Compared with the previous group, the possibility for patients of choosing between providers tends to be large and sub-national government autonomy tends to be lower. Over-the-basic coverage is very limited, except in Ireland and New Zealand, where duplicative coverage is significant and provides faster private-sector access to medical services.

Box 3. Institutional context of hospital services in Poland

Introduction

Prior to the 1999 reform, the Polish health care system - then based on 'free access' to health care services - was financed directly by the state budget. With the introduction of a mandatory and universal health insurance, income-related social contributions have become the main source of funding for the sickness funds, which in 2003 have been replaced by the National Health Fund (*Narodowy Fundusz Zdrowia, NFZ*).

As of August 2004, health insurance is regulated by the Act on Health Care Services Financed from Public Means. Mandatory social health insurance, which covers nearly all of the population, is at the moment set at the level of 9 percent of an employee's salary (of which 7.5 percent is tax deductible). Contributions are collected by the Social Insurance Institution (*Zaklad Ubezpieczen Spolecznych, ZUS*), and then transferred to the NFZ. The NFZ centrally divides its budget and transfers it to its 16 regional offices, which then contract health services in their respective regions. In addition to the mandatory insurance, it is possible to buy since 1998 voluntary health insurance. In contrast to mandatory insurance, which is provided exclusively by the National Health Fund, voluntary health insurance is provided by private companies.

The structure of the Polish hospital sector

The Polish healthcare system is characterised by a strict separation of outpatient and inpatient healthcare structures. The outpatient healthcare services are provided mostly by private medical practices, whereas inpatient care (i.e. hospitals) remains predominantly public. The process of hospital ownership transformation began in 1995. While the share of non-public hospitals in comparison to the total number of hospitals (currently around 25percent) has been steadily increasing, this share remains low in terms of beds (around 7percent).[35] Such a difference is caused by the

[35] In the aftermath of the ownership transformation, new structures have emerged such as the Polish National Association of Non-Public Hospitals and the Polish National Association of Non-Public Local Government

fact that private hospitals tend to be much smaller than public hospitals and focus mostly on the most profitable and highly specialised areas of medicine. The majority of non-public hospitals (around 65percent) is run by a private entity, while the remaining 35percent is run by local government.

Inpatient healthcare services can be provided by both public and private hospitals. However, regional health funds can only contract services that are included in the list of procedures contracted by the NFZ.

Remuneration of hospital services

Prior to the introduction of the DRG system in Poland, the hospital payment system was based on a very similar so-called Catalogue of Health Care Products system. Under that system hospitals were paid a flat per-admission fee corresponding to the value of a given product. The scope of the catalogue, however, was continuously increasing, and the system overall was not deemed transparent. The use of the DRG payment system on a national basis was introduced in July 2008, and is now mandatory in all public and non-public hospitals that have signed contracts with the NFZ.

3.2.3. Public and private provision of hospital services

45. Delivery patterns in public healthcare services can be seen as a continuum of provision models ranging from fully publicly financed direct provision by governments to loosely regulated and highly privatized markets. However, as governments are more and more often confronted with rising demand for healthcare services (due to the growing percentage of elderly population, patient's choice, awareness of differences in services' quality), rising consumer expectations, and rising costs, utilising different forms of the public/private provision is becoming increasingly important.

46. The public/private mix in the provision of hospital services can be assessed from two different perspectives: from a system wide perspective, which can be characterised by the share of beds in public/private hospitals and the possibility of exercising private practice by self-employed as well as salaried doctors in public hospitals, or it can also be seen through the perspective of purchasing strategies by governments in the context of public-private partnerships and public-private collaboration (PPPs and PPC).

The public-private mix in health systems at large

47. In several OECD countries, the public/private mix in the provision of hospital services varies according to the type of care (acute, rehabilitation, long-term). As it was not possible to collect information for all types of services, the OECD's Survey on Health Systems Characteristics focused on acute in-patient care to gain an overall understanding of the extent of the public/private mix across OECD countries. For most OECD countries, acute in-patient care is the dominant activity in the hospital sector. Hospital acute care beds account for on average ¾ of all hospital beds in OECD countries, ranging from 51 percent in Ireland to 93 percent in Turkey.[36]

48. There are two broad indicators that were used to characterise the extent of the public / private mix in hospital services across OECD countries:

- The respective shares of acute care beds located in "publicly owned hospitals", "not-for-profit privately owned hospitals" and "for-profit privately owned hospitals".

Hospitals. These undertake various joint initiatives promoting changes in the organisation of health services in Poland that would provide equal treatment for/of public and private health care service providers.

36 See OECD (2011).

- Whether private practice was allowed in public hospitals, for self-employed doctors and/or for salaried doctors.

49. It is also worth noting that in a few OECD countries, organisations providing covered health services cannot earn profits. This is the case for instance in Japan. In Canada, though health services covered through the Canada Health Act must be provided on a not-for-profit basis, a small number of for-profit hospitals exist and provide covered health services. However, most hospitals are public or not-for-profit entities.

50. Acute hospital care is mainly provided by the public sector in all OECD countries, except Belgium, Japan, Korea and the Netherlands, where the private not-for-profit sector is the predominant provider. The private for-profit sector plays an important role in the Slovak Republic (40 percent of acute beds), in Mexico (35 percent), in Greece (28 percent), as well as in France and Korea (25 percent each).

51. Private practice in public hospitals is authorised in 18 out of 29 countries. Indeed, physicians working in public hospitals are not always salaried staff. For instance, in Belgium and some Canadian provinces, the vast majority of doctors working in public hospitals are self-employed and paid on a fee-for service basis.

52. In some countries (e.g. France, the United Kingdom), salaried doctors of public hospitals are permitted in some circumstances to treat patients on a private basis. In France, this privilege was granted as a concession to attract and keep experienced doctors in public hospitals where salaries are in general lower than in the private sector. In both countries, private practice in public hospitals is however limited.

Table 1: Public-private mix in the provision of hospital acute care[37]

Country	Percentage of total acute care beds in:			Is private practice in the public hospital setting allowed?		
	Publically owned hospitals	Not-for-profit privately owned hospitals	For-profit privately owned hospitals	For self-employed doctors	For salaried doctors	No
Australia	69.59	14.38	16.03		X	
Austria	72.5	18.8	8.7		X	
Belgium	34	66	0	X	X	
Canada	100	0	0	X		
Czech Republic	91	0	9			X
Denmark	96.7	2.5	0.8			X
Finland	89	0	11			X
France	66	9	25		X	
Germany	49	36	15	X		
Greece	69	3	28		X	
Hungary	n.a.	n.a.	n.a.			X
Iceland	100	0	0			X
Ireland	88	0	12		X	
Italy	81.5	16.7	1.8		X	
Japan	26.3	73.7	0	X	X	
Korea	10	65	25			X
Luxembourg	68	29	3	X	X	
Mexico	65	0	35			X
Netherlands	0	100	0	X(2)	X(2)	
New Zealand	81	9.5(1)	9.5(1)			X
Norway	99	1	0			X
Poland	95	0	5	X		X
Portugal	85.7	6.6	7.7		X	
Slovak Republic	59.6	0	40.4	n.a.	n.a.	n.a.
Spain	74.23	17	8.77			X
Sweden	98	0	2	X		
Switzerland	82.7	4.8	12.5	X	X	
Turkey	89.5	0	10.5		X	
United Kingdom	96	4	0		X	

Note: (1) OECD imputation; (2) Both salaried and self-employed doctors in not-for-profit hospitals.
Note: n.a. means Not Available.

[37] Paris et al. (2010). Note that the entry for Italy deviates from the original entry.

Box 4. Institutional context of hospital services in Italy[38]

Introduction

The current model of the Italian health care system, explicitly modeled on the British NHS, is the outcome of three fundamental reforms that took place in 1978, 1992 and 1999. The first reform replaced over 100 health insurance funds with the National Health Service (*Servizion Sanitario Nazionale, SSN*), which now provides universal health assistance to all citizens as well as legal foreign residents free of charge at the point of service. Insurance is mandatory and there is no possibility to opt-out. In addition, patients may buy private health insurance and receive services from non-accredited private hospitals at their own expense. The second reform, driven by difficulties in controlling health-related public expenditures introduced the principles of "private" management and brought more autonomy to hospitals with a view to encouraging competition and boosting efficiency in the provision of health care services. The Local Health Units were transformed in Local Health Care Enterprises (*Aziende Sanitarie Locali*, *ASLs*), under the direction of managers appointed by the Region on a contractual basis with performance related remuneration. The third reform, completed in 2001, introduced the concept of the basic benefit package (*Livelli Essenziali di Assistenza, LEA*) and finalized the transformation of the SSN into a regional system.

Decentralised organisation of the system is built upon a three-tier structure, which involves the national government, the regions and local health authorities. At the national level, the Ministry of Health determines general objectives as well as the basic benefit package (*LEA*)[39] and allocates the SSN resources to regions. The Regions, on the other hand, are responsible for the organisation and administration of publicly financed healthcare, while the local level ASLs are entrusted with the delivery of healthcare services.

The SSN is funded through general taxation, and in particular direct taxes (income tax IRPEF and regional IRAP - around 40 percent) as well as indirect taxes (VAT and petrol tax – around 42 percent).[40] These constitute regions' income. Moreover, ASLs obtain direct revenues from prescription charges as well as provision of services subject to payment.

The structure of the Italian hospital sector

Hospital services in Italy are provided by public, private-for-profit and private non-profit organisations.[41]

Overall, around 54 percent of hospitals are public, and 46 percent are private.[42] Responsibility for providing hospital services rests with the ASLs, which can contract services from public as well as private hospitals, as long as the latter are accredited. However, some Regions impose ceilings on the total amount of private services reimbursed by ASLs.

Remuneration of hospital services

The DRG payment system was implemented in Italy in 1994. It applies to public as well as private hospitals, and covers most devices used in hospitals. The Ministry of Health adopts a set of DRG tariffs at the national level, but regions are free to depart from them and adopt lower individual tariffs.[43]

Hospitals and ASLs are increasingly forming procurement commissions (*Commissioni Terapeutiche di Area*

38 The box draws on the Italian contribution reprinted in OECD (2006).

39 Regions are free to provide services not included in LEA, but these they must finance themselves.

40 The remaining part comes from other transfers from public and private sectors (around 14%), and from ASLs'own sources of income (around 3%). See Tediosi et al. (2009).

41 Private non-profit hospitals include mostly teaching and research hospitals incorporated as private entities as well as church-run hospitals.

42 Ministero della Salute, *Relazione sullo Stato Sanitario del Paese 2009-2010*, p. 433

43 For instance, Lombardy, which has above average level of health care, decided to set its own reimbursement rates, and encourage equal treatment of public and private hospitals by treating them equally in terms of eligibility for public funds.

Vasta – CTAV) to obtain better prices. The use of innovative and costly devices, which are not covered by the DRG funding, can be reimbursed separately from the regions budget.

The use of public-private partnerships in delivering hospital services

53. Increasing financial constraints have prompted governments to search for and use alternative provision models with a view of optimising economic performance in the provision of public services. The increasing support for the use of PPPs in the healthcare sector, seen as a means of investing in healthcare capital while limiting the impact of this expenditure on the public finances, can be seen as a response to that challenge.

54. Currently there is no clear definition of what constitutes a public-private partnership in health services, despite the fact that PPPs have been in use since 1990s. A public-private partnership is defined "as an agreement between the government and one or more private partners (which may include the operators and the financers) according to which the private partners deliver the service in such a manner that the service delivery objectives of the government are aligned with the profit objectives of the private partners and where the effectiveness of the alignment depends on a sufficient transfer of risk to the private partners."[44]

55. PPPs in the healthcare sector usually take the form of long-term contracts (most commonly of a duration between 15 and 30 years) between a public authority and a private entity, referred to as special-purpose vehicle (SPV). The private party builds, maintains and/or manages delivery of contracted services upon payment received from the public authority.

56. PPPs can take a variety of forms, each with a different degree of responsibility and risk born by private and public parties. The most commonly used models are described in Table 2 below:

Table 2: Models of public–private partnership in hospital provision[45]

Model	Description
Franchising	Public authority contracts a private company to manage existing hospital
DBFO (design, build, finance, operate)	Private consortium designs facilities based on public authority's specified requirements, builds the facility, finances the capital cost and operates their facilities
BOO (build, own, operate)	Public authority purchases services for fixed period (say 30 years) after which ownership remains with private provider
BOOT (build, own, operate, transfer)	Public authority purchases services for fixed period after which ownership reverts to public authority
BOLB (buy, own, lease back)	Private contractor builds hospital; facility is leased back and managed by public authority
Alzira model	Private contractor builds and operates hospital, with contract to provide care for a defined population

57. The choice of a specific PPP model depends on the regulatory framework which is in place and may require amendments in order to accommodate the possibility to use new forms of partnership.

44 See OECD (2008).

45 See McKee et al. (2006).

58. The policy framework for PPPs adopted by many countries around the world has been strongly influenced by the UK model, called the Private Finance Initiative (PFI), which uses the DBFO model.[46] There, the private sector finances and constructs a hospital building, and also delivers the service and maintenance functions. Other models, in particular *Alzira*, go as far as entrusting private sector not only with financing, constructing and operating the hospital building, but also with the actual provision of clinical services. La Ribera hospital in the Valencia region in Spain is a case in point.

59. Despite diversity of the PPPs models and the fact that PPPs hospitals have been operational since 1990s, there is still no conclusive and comprehensive evaluation of the merits of such a mixed provision.[47] Various authors, such as Hodge and Greve (2007), point out that PPPs should be subjected to rigorous analysis. While PPPs can certainly alleviate the burden on public finances, they may not always offer the most efficient solution, which is why it is important that governments carry out a careful up-front evaluation. McKee et al. (2006) draw attention to such contentious issues as cost, quality, flexibility and complexity.

3.3. Demand side factors

60. The Economics of hospital services typically focuses on supply side factors and the literature normally refers to supplier induced demand. To understand why demand may be largely supplier induced, hospital services as credence goods are discussed. The asymmetric information and the boundedly rational behaviour of patients also play an important role in rendering demand largely supplier induced. Finally, there are several policy initiatives that aim at increasing transparency and moving at least partially away from a purely supplier induced demand mainly by strengthening the informational basis of patients for hospital choice.

3.3.1. Hospital services as credence goods

61. An essential feature of hospital services derives from the nature of the service, usually referred to as credence good or service. The term refers to goods and services for which consumers are incapable of discovering the optimal quantity and quality *ex ante* and *ex post*. Typically, providers of credence goods not only provide the good or service but also act as experts determining the customer requirements. Credence goods are found not only in medical services but exist also in the provision of taxi services, legal and financial advice, as well as in a wide variety of repair professions. As customers never determine the quality of the product or service and often cannot even judge whether the service has been performed at all, these goods and services have been called credence goods.[48]

62. According to Emond (2001) this asymmetry of information gives sellers several opportunities to exploit consumers. The seller may choose to take advantage of a buyer by recommending unnecessary expensive treatments - a problem which has been dubbed ‘demand inducement’ in the health economics literature. If, in contrast, other activities are more profitable, sellers may not perform urgently needed treatments.

---

46 This model has been adopted by Spain, Italy, Mexico, South Africa, France and Australia. For an overview of the use of PPS in the European context, see Nikolic and Maikisch (2006).

47 Even for the UK, which has one of the longest experiences with the use of PPPs in the provision of hospital services, no such evaluation is available. The UK National Audit Office (NAO), which controls public spending on behalf of the parliament, pointed out that they “have yet to come across truly robust and systemic evaluation of the use of private finance built into PPPs at either a project or programme level”. See National Audit Office (2009)..

48 See Dulleck and Kerschbamer (2006) for an overview of the literature on credence goods.

63. Emond (2001:376) gives some anecdotal evidence to demonstrate this point. He writes that patients in Switzerland with the minimum level of schooling are twice as likely to have their womb or gall-stones removed than patients with a university degree and that for hip-joint operations the probability is even 150 percent higher. According to him, ordinary children are 80 percent more likely to have their tonsils taken out than children of medical doctors. Emond refers to an article in the Economist[49] conjecturing that a third of current health-care spending in the US goes on irrelevant tests, unproven procedures, and unnecessarily pricey drugs and devices.[50]

3.3.2. Bounded rationality

64. In addition to the credence good characteristics of hospital services and the implied information asymmetry, it is now largely recognized also by economists that economic actors in general and hospital patients in particular are boundedly rational[51], exacerbating the credence good aspects of hospital services.

65. Bounded rationality is generally characterized as having two components: the limitations of the human mind, and the structure of the environment within which the human mind operates. The first component addresses the fact that in many real-world situations, optimal strategies are unknown or unknowable.[52] Even in a game such as chess, where an optimal response exists at every stage of the game, no (computer) algorithm exists that would allow to calculate this move in a reasonable amount of time. This is surprising as chess in stark contrast to most other environments is a well-defined game. If identifying an optimal strategy is not even possible in such an environment it surely is impossible in more complex scenarios. As a result, humans "must use approximate methods to handle most tasks".[53]

66. The second component of bounded rationality, namely environmental structure, is of crucial importance because it provides an explanation for why humans remain capable of reasonably good decision making despite these inherent limitations. To the extent that the decision processes are adapted to the environment through an evolutionary process, they will do reasonably well.[54]

67. One form of bounded rationality is Simon's concept of satisficing - a method for making a choice from a set of alternatives encountered sequentially when probabilities are unknown. In such situations, there may be no optimal method for stopping the search - for instance, there would be no optimal way of deciding when to stop looking for a suitable hospital for any particular treatment. Satisficing takes the shortcut of setting an aspiration level and ending the search for alternatives as soon as a hospital is found that exceeds the aspiration level. Obviously, there is a big difference if satisficing is focussed on the

49 Economist of 13 February 1999.

50 Emons (2001) provides a signalling model based on capacity and prices for diagnosis and treatment in the context of monopoly provision of credence goods.

51 It is important to note the distinction between boundedly rational behaviour and what has sometimes been referred to as decision biases. While for example the experimental literature in economics and psychology originally focussed on so-called biases or deviations from the rational actor model, essentially describing behaviour as rational and measuring deviations from it, it is now generally recognized that the research program into boundedly rational behaviour is systematically different from a characterization of behavioural biases as deviations from perfectly rational decision making. This is unfortunately not (yet) well understood in antitrust as exemplified in Bennett et al. (2010) or Garcés-Tolon (2010).

52 See Simon (1987).

53 See Simon (1990:6).

54 The classic example of this given by Simon (1956) concerns imaginary organisms foraging according to simple rules. The behaviour of these organisms can only be understood by looking at the structure of the information in the environment.

"hotel" qualities of the hospital rather than mortality rates for example. The apparent preference for local hospitals may be the result of a satisficing approach to choosing a hospital.[55]

68. The study of Hoffrage and Gigerenzer (1998) demonstrates the relevance of bounded rationality aspects not only for understanding patient choices but also for understanding decisions of health professionals. In their study, the capabilities of gynaecologists for understanding positive mammograms was tested with the result that many physicians do not know the probabilities that a patient has a disease given a positive screening test—that is, the positive predictive value. The authors also find that they are unable to estimate it from the relevant health statistics when the statistics are framed in terms of conditional probabilities, even when this test is in their own area of specialty.[56]

3.3.3. Increasing transparency

69. The market failure attributed to the credence good characteristics of hospital services, paired with the boundedly rational decision making of patients can be mitigated by increasing the informational basis for hospital choice – either by providing more information or making it more accessible to patients.[57] Various OECD countries have sought to report on hospital performance according to indicators of quality of care (such as mortality rates) or performance/access (such as waiting times) to alleviate information asymmetries. These measures had varying degrees of success in supporting patients to make informed decisions when choosing between hospitals.

70. While good information can support better decision making in selecting hospital services, information often may not need to be provided to a patient directly. Indeed, many OECD countries actively structure their health system so that professionals help patients overcome information asymmetries in choosing their hospital.[58] Establishing 'purchasers' of health care such as insurance companies or HMOs (health maintenance organisations) are one way of driving competition between hospitals, as they should seek improvements in quality and efficiency in negotiating contracts for health services.

71. This way of increasing competition between hospitals focuses on the role that insurers or HMOs can take in the selection of hospitals that they want to conclude agreements with. While it is not always clear whether insurer preferences are fully aligned with patients, it is clear that insurance companies have the capabilities of performing market screens. Such screening may take place concerning both, the costs but also the quality of hospital services as measured for instance by re-admissions or mortality rates. While insurers can probably be relied upon weeding out the least cost efficient hospitals in those systems that

---

55 See Dixon et al. (2010) who provide an empirical overview of choice in the UK. That distance or travel time has a large and negative effect in hospital demand is also set out in Beckert et al. (2012), Capps et al. (2001), Capps et al. (2003), Capps et al. (2009), Ho (2006), Sivey (2011), Tay (2003). That quality may also matter is shown in Beckert et al. (2012). The lower the mortality rate and the shorter the waiting time, the more likely a patient is to choose a hospital. In addition, UK patients are more likely to choose a hospital the higher the CQC rate and the lower the number of MRSA infections is.

56 Gigerenzer et al. (2007:58) provide several additional examples pointing to "the collective statistical illiteracy of patients, physicians and politicians, as well as the considerable costs health systems pay as a consequence." Their article focuses on different ways of framing the information in order to make it more comprehensible to boundedly rational humans. They also analyze the question whether patients are likely to find transparent information in medical pamphlets and on the internet suggesting more appropriate ways of presenting statistical evidence.

57 Accessibility covers both, the framing or presentation of the information and also the facility for patients to gain physical access to it.

58 See Annex II: Information on Provider Services for more information on the different types of information available to patients in different health systems.

allow for free price formation, even without exerting buyer power, their effect on quality is more ambiguous and will largely depend on how costly positive and negative deviations from some fixed quality is. So while potentially capable of accessing a much wider set of information on costs and quality, it is not always clear whether insurer preferences fully align with patients needs in terms of hospital selection.[59] While purchasers may also seek to limit the extent of consumer choice, in an effort to channel consumers towards higher quality hospital services, the market structure and the nature of individual purchasers can sometimes compromise the incentive for purchasers to improve quality or reduce price on behalf of their patients. In encouraging patient choice amongst hospitals, regulation can also affect the capacity for insurers to channel patients towards providers that deliver higher quality or more efficient outcomes.

72. A second way of driving competition between hospitals is the use of informed agents, who could act as an impartial adviser to the patient, or indeed as a 'gatekeeper' that helps determine if (and what kind of) hospital service is worthwhile for the patient. This may, for example, be a general practitioner (GP), primary care professional or an (assigned) independent patient advocate who helps and advises patients on their choices. To the extent that such approaches work well, it may mean that patient choice in the market can be the driver of competition, rather than competition via contract negotiations.

73. In conclusion, while price inelastic demand for hospital services can in part be explained by information asymmetries and the credence good properties discussed above, a certain degree of inelasticity is of course a deliberate social policy choice. An additional point of relevance is also the fact that for non-elective treatments, for example in acute cases, satisficing is likely to occur earlier than with elective treatments. In case of emergency, for example in case of a coma, there is no room for demand side choices. This puts some natural constraints on the possibilities for moving away from supplier induced choice of hospital services.

4. Empirical evidence

74. The following subsections seek to compile a catalogue of stylized facts based on the relevant empirical investigations conducted into competition in hospital services. Its (geographical) scope is limited to those systems that have more often been empirically investigated, implying a certain bias towards countries such as the US, the UK and the Netherlands. Furthermore, the majority of studies discussed here address primarily positive questions and only few allow for straight forward normative policy conclusions. In addition, the causalities that are posited typically do not address the underlying mechanism that generated or enhanced causality[60] so that even if a strong and robust relationship is found, the scientific explanation for its occurrence remains open, rendering policy advice particularly difficult.

75. The following studies are mostly based on the structure conduct performance (SCP) paradigm as an underlying structure of the econometric approach.[61] This means that a causal link between market structure, market conduct and market performance is made although most models disregard performance. A generally accepted conduct measure in the industrial organization literature is price or the price-cost margin but in analyzing hospital services this is often replaced by some measure of quality. Market structure is generally measured using the Herfindahl-Hirschmann Index (HHI)[62] although this is not

59 There are obviously various other ways in which insurance companies and HMOs can negatively affect patients, for instance by excluding certain treatments or declining proper payment.

60 Some doubts may also apply as to whether the posited causalities are indeed causalities as opposed to correlations. See Black (1982) for a very readable discussion of this problem in general terms.

61 The classic contributions are from Edward Mason and Joe Bain. See Bain (1956) and (1959). Schmalensee (1989) provides an overview.

62 The Index is given by $HHI = \sum_{i=1}^{N} s_i^2$ where s_i is the market share of firm i in the market, and N is the number of firms. Thus, in a market with two firms that each have 50 percent market share, the Herfindahl-

without difficulty in hospital service markets.[63] Using the SCP conjecture in econometric models is known to be problematic. For example, structure, irrespective of how it is measured, is usually considered to be endogenous.[64] Any unmeasured variation in demand and cost factors for example both affect quality and market structure, i.e. a firm with low costs is likely to have both a high market share resulting in a high HHI and choose high quality.[65] Besides the SCP approach, some studies look at the impact of mergers or regulatory changes while others look at the relationship between the volume of particular procedures and patient health outcomes. These studies are normally based either on simulations or event studies that compare events before and after the merger or change in regulation.[66]

4.1. Studies on competition on quality under a fixed price regime

76. The following studies all address the question of what happens to quality of hospital services when comparing hospitals subject to various degrees of competition under a fixed price regime.[67]

77. Fixed price regimes can be observed in many countries including the UK (see Box 6), the US (for Medicare and Medicaid beneficiaries), the Netherlands (see Box 5) and Germany (see Box 2).[68] As prices are regulated, they are not a strategic variable for hospitals.

Hirschmann Index equals $0.50^2 + 0.50^2 = 0.5$. The Herfindahl-Hirschmann Index (*HHI*) ranges from $\frac{1}{N}$ to 1, where N is the number of firms in the market. Equivalently, if percentage integers are used as in 75 instead of 0.75, the HHI can range up to 100^2, or 10000.

63 The main theoretical problem is that the HHI derives from a homogenous good Cournot model and therefore there is no theoretical foundation for using this model in hospital services. Furthermore, hospitals provide differentiated products an important feature typically left unaccounted for in HHI calculations.

64 Endogeneity is arguably the single most problematic aspect of modelling hospital services. Technically speaking, a parameter or variable is said to be endogenous when there is a correlation between the parameter or variable and the error term. In other words, the model suffers from endogeneity if the dependent and the independent variable are both in a causal relationship with each other. Consider for example the (negative) relationship between the volume of a particular treatment in any particular hospital and mortality rates. Even if this relationship is significant and also substantial, it remains unclear whether it is due to patients being attracted to hospitals with better mortality rates, thereby leading to higher volumes or whether higher volumes in any particular hospital leads to improved mortality rates due to some learning-by-doing effect or other quality improvements linked to volume. The way causality (mainly) goes, or in other words, which one is the strongest effect, is of direct relevance to antitrust. If volume causes higher quality then higher market concentration that by definition causes higher volume and thereby quality could be considered having a positive effect on patient outcomes. For example, both, Gaynor et al. (2005) and Gowrisankaran et al. (2004) using an instrumental variable approach find a significant and substantial causal effect of volume on outcome. See, however, Huesch (2009) who fails to identify a learning-by-doing effect possibly excluding this explanation for the volume-quality causality. Gaynor and Town (2011:79ff.) review these and other studies attempting to investigate volume-quality causality.

65 See Gaynor and Town (2011:60f.) who also draw attention to other specification issues of relevance to hospital markets.

66 With increasing interest in an *ex post* assessment of competition policy effects, the literature on merger event studies in the hospital sector is likely to grow significantly in the coming years.

67 One of the justifications for leaving out a discussion of studies looking at the effects of competition on quality when also prices are being set by hospitals is their mainly US relevance and the ambiguous results, rendering it impossible to draw conclusions without going into much more institutional detail.

68 In addition it may of course make a difference if hospitals are for-profit or not-for-profit including various mixed forms.

78. Kessler and McClellan (2000), one of the first studies attempting to draw inferences about causal effects of competition on hospital service quality, consider the impact of market concentration as measured by HHI predictions (drawn from a patient choice model mainly relying on hospital distance) on the quality of hospital services as measured by the risk-adjusted one year mortality rate from acute myocardial infarction (heart attack). The results of this US study are striking as their quality measure is substantially and significantly higher in less concentrated markets. Patients in the most concentrated markets had mortality probabilities 1.46 points higher than those in the least concentrated markets. This constituted a substantial 4.4 percent difference in mortality rates or, in other words, over 2000 fewer (statistical) deaths in the least versus the most concentrated markets for their data. With regard to expenditures the relationship inverts over time with expenditures first being higher in less concentrated markets and then lower. While looking at the more recent data, both expenditures and mortality rates are lower in less concentrated markets implying higher health benefits for patients combined with lower cost. The claim of welfare gains from competition is, however, uncertain, as the expenditure measure used is not equivalent to economic cost as required in a welfare analysis.[69]

Box 5. Institutional context of hospital services in the Netherlands

Introduction

Prior to 2006, the Netherlands had a rather complex health insurance and finance system that relied on the coexistence of mandatory social and voluntary private health insurance. The 2006 reform, undertaken with a view to introducing competition between health insurers, abolished the division between these two types of insurances, and replaced it with a universal mandatory scheme. In accordance with the Health Insurance Act (*Zorgverzekeringwt, ZvW*), all residents are now required to subscribe for insurance with one of the competing health insurers, who can be chosen on annual basis (open enrolment). All insurers operate under private law.

The Dutch health insurance system is based on the distinction between long-term (chronic diseases, long-term hospital care), basic (routine) and supplementary care (i.e. dental services, physiotherapy). Mandatory universal insurance for the long-term care, introduced in 1968, is regulated by the Exceptional Medical Expenses Act (*Algemene Wet Bijzondere Ziektekosten, ABWZ*). It is financed through income-based salary deductions as well as government revenue grant. The financing of the statutory basic health insurance comes from income-related employer contributions (50 percent), community-rated notional premiums (45 percent), and from generated tax revenues (5 percent). Insurance for children up to the age of 18 is covered by government through general taxation. The scope of the minimum care package is defined by public authorities.

The structure of the Dutch hospital sector

The dominant pattern in the Dutch hospital sector is that of private, not-for-profit hospitals, which are predominantly owned and operated by locally controlled not-for-profit foundations. Hospital budgets are defined on the basis of a formula consisting of a fixed and a variable component. The fixed component is defined by such parameters as patient volume, the number of beds as well as the number of licensed specialists. The variable component, which relates to production, is in contrast calculated on the basis of parameters such as regional agreements, inpatient and daycare patients' days and the number of first-time visits.

Prior to 2008, entry to the hospital market was virtually impossible as the construction of a new hospital required a building permit from the government as well as access to legally guaranteed full reimbursement of capital investment.[70] Moreover, hospitals are not allowed to compensate financiers by paying dividends, which renders entry for private firms highly unattractive. Entry regulation, however, has been slowly relaxed. As of 2008, the building permits are no longer required. As for the opportunity of profit making, law on other admission of health care institutions (*WTZi*) enables the relevant rules to be changed in order to allow for profit health care providers in the future (target date 2012).

69 See Gaynor and Town (2011:63f.).

70 See Schut and Van de Ven (2011).

In addition to hospitals, healthcare is also provided by Independent Treatment Centers (*zelfstandige behandelcentra*), which have been present in the market since 1998. However, such centres can only provide treatments, which do not require an overnight stay.

Remuneration of hospital services

In 2005, a new hospital and medical specialist payment system – the DBC (Diagnosis Treatment Combination) - was introduced to ensure that prices are cost-related. All hospital care services fall into one of the two segments: A – with fixed rates - and Bwhich can be priced freely by the health insurance companies, except for those of specialists and anaesthesiologists for the treatments in that segment, which are set by the NZa, the Dutch Health Authority. [71]

Ensuring the quality of hospitals

In accordance with the 1996 Care Institutions Quality Act hospitals are required to set up their own Quality Management System with a view to improving the quality of the care they provide. While the Act does not require any specific standards to be used, it imposes on hospitals as well as on other care institutions an obligation to publish an annual quality report. Moreover, an increasing number of hospitals implement the quality assurance standards developed by NIAZ (The Netherlands Institute for Accreditation of Hospitals). The Netherlands Health Insurance Association annually publishes a special guide that includes performance indicators for specific DTCs.

79. Gowrisankaran and Town (2003) follow a similar approach as Kessler and McClellan (2000) but find an opposite effect. Kessler and Geppert (2005) extend this approach to the impact of concentration on differences in quality between groups of patients. They examine outcomes (re-admissions and mortality) and expenditures for heart attack patients but contrast outcomes and expenditures for high- and low-risk patients[72] in highly concentrated and unconcentrated markets. They conclude that competition leads to increased variation in patient expenditures and that this is welfare enhancing since the more intensive treatment that low-risk patients receive in highly concentrated markets results in no statistically different outcomes whereas high-risk patients receive less intense treatment paired with significantly worse outcomes in such markets.

80. Cooper et al. (2010a) in a study based on UK data, considered whether hospitals facing more competition lowered heart attack death rates more quickly than hospitals in monopoly markets after competition in the form of limited patient choice was introduced into the health system in 2006 (see Box 6). In light of the debate concerning the appropriate empirical measure of hospital competition, the study relies on four different methods for defining hospital service markets and two measures of competition. The study consistently finds that hospitals facing greater competition decrease mortality rates in heart attack cases about a third of a percentage point more quickly than monopoly providers. With a 12percent mortality rate, this difference is substantial. The authors also conjecture that these results are in part driven by demand aspects due to the role GPs play in the UK system. It appears plausible that the expert knowledge and experience gained by GPs renders the importance of quality more salient for hospitals competing for patients.

81. Cooper et al. (2010b), in another study based on UK data, attempted to explore whether competition would prompt hospitals to become more efficient by measuring patient's length of stay in hospital for an elective hip replacement in terms of two key components: the time a patient waited after admission for the surgery and the time from the surgery to discharge. While the latter relies heavily on the patients characteristics, the former is a direct function of hospital efficiency. The study found that

71 Most services fall into segment A and are regulated by government. However, a number of routine services falling into segment B has been steadily increasing. In 2009, around 34 percent of hospital expenditure could have been freely negotiated.

72 Where high-risk patients are defined as patients that were hospitalized with a heart attack in the previous year.

competition reduces the pre-surgery stay compared to monopoly providers, whereas the post surgery stay was not significantly different, indicating that competition would increase efficiency without reduction in quality.[73] This evidence suggests that hospital competition within fixed price markets can increase efficiency.

82. In a study entitled "Death by Market Power", Gaynor et al. (2011b) find strong evidence that under a regulated price regime hospitals engage in quality competition. Within two years of the implementation of the 2006 NHS reforms (see Box 6) significant improvements in mortality and reductions in length of stay without changes in total expenditure or increases in expenditure per patient were found. They conclude that if the UK were to pursue policies that lead to de-concentration of hospital markets, the gains could be substantially larger than their estimate of 276 million GBP.

83. Bijlsma et al. (2010) focus on the relationship between competition and quality in the Dutch hospital sector after healthcare reform (see Box 5). They find that the increased attention to hospital quality and its growing importance in the context of the reform have led to an increased voluntary disclosure of quality indicators by Dutch hospitals. Using panel data on hospitals from 2004 to 2008 including both process (a variable that according to the authors is more easily and directly controlled by hospitals) and outcome indicators of hospital quality, and employing a model that takes the correlation between the disclosure decision and the level of the disclosed information into account, the performance on process indicators but not on outcome indicators could be explained by competition. Their results suggest that competition between hospitals puts pressure on profits margins, forcing hospitals to improve production efficiency. According to Bijlsma et al. (2010:35), "one way to improve production efficiency entails a more intensive use of hospital operation capacity, which probably explains a greater proportion of cancellations (on short notice) and delays of operations in more competitive areas. Furthermore, competition may provide hospitals incentives to improve on quality indicators that can easily be observed by patients and perceived as a signal of quality (such as the time the patient has to wait for a diagnosis and check-up frequency for chronic patients)."

84. In contrast, although not focussing on process indicators, Mukamel et al. (2001) find no statistically significant impact of concentration as measured by HHI on mortality in their study.

[73] In addition, the reduction in length of stay did also not lead to selection effects, i.e. operations on healthier, wealthier or younger patients.

Box 6. Institutional context of hospital services in the UK[74]

National Health Service (NHS) hospital services in England are funded by the government and are mainly provided by publicly owned, not-for-profit hospitals. NHS hospitals operate subject to a budget constraint and have a statutory obligation to break even. Certain hospitals (so-called Foundation Trusts) can retain a surplus if it is to be reinvested in services for patients. Local government organisations called Primary Care Trusts (PCTs) are responsible for purchasing hospital services based on a fixed budget for their local population. Local and national government organisations play a role in determining the appropriate configuration of hospital services. Successive governments have used various forms in an attempt to increase competition and create incentives for hospitals to improve quality.

Reforms since 2002 focused on the role of patient choice in driving hospital competition. From 2006, patients in England have been offered a constrained choice of hospital and since 2008 they have had the right to choose any hospital with a contract to provide NHS-funded services and prepared to accept the fixed government price for that treatment. The choice of which hospital to attend for treatment is supposed to be made by the patient with the support and advice of their general practitioner (GP). Using the webpage Choose and Book, the GP can show the patient the set of hospitals available to them.[75]

Hospitals are reimbursed at a fixed price per period of care, per patient for groups of clinically similar treatments that use common levels of healthcare resources. Minimum standards of quality of care are regulated by the Care Quality Commission (CQC), a government body that also rates the clinical and financial quality of hospitals.[76] The government, via the CQC and local purchasing organisations, sets targets for minimum quality of care including minimum waiting times and MRSA[77] infection rates.

85. Tay (2003) examines the effect of a range of aspects on the probability of a patient being admitted to a particular hospital. The aspects considered include distance, quality measures (mortality and complication rate), a measure for input intensity (nurses per bed) and a measure of sophistication in cardiac services (whether the hospital can perform catherization or revascularization). She finds that hospital demand is negatively affected by patient distance and positively by quality. Furthermore she does some comparative statics by simulating the effect of introducing either a catherization or a revascularization treatment or increasing the nurse per bed ratio. All these introductions result in substantial increases in demand for the hospital. The comparative static nature of the exercise is, however, an important constraint on these findings as becomes clear when considering the predicted effects in case all hospitals in the region adopt all treatments. Obviously aggregate demand for hospital services, even if largely supplier induced, is likely to remain unaffected by all these individual "business-stealing" measures rendering the predictions off-equilibrium.[78]

---

74 The box draws heavily on Beckert et al. (2012). See also Sussex (2009) and Dixon and Propper (2011), who provide good overviews. See also Commonwealth Fund (2010) a publication containing short descriptions of the health systems in the US, Germany, Canada, Australia, Switzerland, the Netherlands, the UK, France, Denmark, Italy, Norway, Sweden and Switzerland.

75 http://www.chooseandbook.nhs.uk/

76 Ratings are publicly available and can be accessed at www.cqc.org.uk.

77 Methicillin-resistant Staphylococcus aureus (MRSA) is a bacterium responsible for several difficult-to-treat infections in humans. MRSA is especially troublesome in hospitals and nursing homes, where patients with open wounds, invasive devices, and weakened immune systems are at greater risk of infection than the general public

78 This is also noted by Gaynor and Town (2011:68) who state that effects could potentially even be zero. See also Schmidt-Dengler (2006) who for magnetic resonance imaging (MRI) devices in the US finds substantial demand effects that are traced back to business stealing effects in the adoption of the technology.

86. Quality improvements may, however, be due to other factors than increased competition as demonstrated by Propper et al. (2010). In their study, the authors analyse the effects of performance target instruments concerning waiting time. The paper exploits a natural policy experiment between England and Scotland in the UK. To establish the effectiveness of such targets, the authors considered waiting times and found that introducing a target led to a reduction in waiting time without diverting activity from other less well monitored aspects of health services and without negative impact on patient health on discharge.

4.2. Studies on hospital market concentration

87. As the results of studies analysing the impact of competition on quality when both quality and prices are a choice variable for the hospital are ambiguous, this section will rather focus on a more general discussion of the impact of concentration on price, quality and operating costs. The discussion starts with a description of the international consolidation trend in the hospital sector. The analysis focuses on the US as most of the studies are conducted based on US data.

88. For the US and in the time period spanning from 1990 to 2003, Town et al (2006) find that "the aggregate magnitude of the impact of hospital mergers is modest but not trivial. In 2001, average HMO premiums are estimated to be 3.2percent higher than they would have been absent any hospital merger activity during the 1990s."

89. Capps (2009:7) writes that although US Courts appear to have been in favour of rather wide market definitions for hospital mergers in the 1990s, evidence indicates that hospitals generally "compete locally and that hospital mergers – even those that have very small effects on metropolitan statistical area (MSA)-level or multicounty HHI's- can lead to large price increases".[79] As has been pointed out in the literature it would be desirable to define markets based on patient flow between facilities instead of larger and more arbitrary classifications such as MSA's, nevertheless, even such studies result in average price increases of roughly 5percent for an increase in HHI of 800 points.[80] Capps (2009:8) suggests that over "the 15 years spanning 1993-2008, antitrust policy likely had little restraining effect on hospital mergers" as the FTC and DOJ lost six consecutive hospital merger challenges and the State of California the 7th in 2001 resulting in a decade where "neither the FTC nor the DOJ challenged a prospective hospital merger in court"[81].

90. Figure 4 below is an indication of the concentration trend as most markets were highly concentrated in 2006 in contrast to 1990. It also demonstrates that the average results are not due to outliers but that the concentration trend is a general and broad phenomenon.

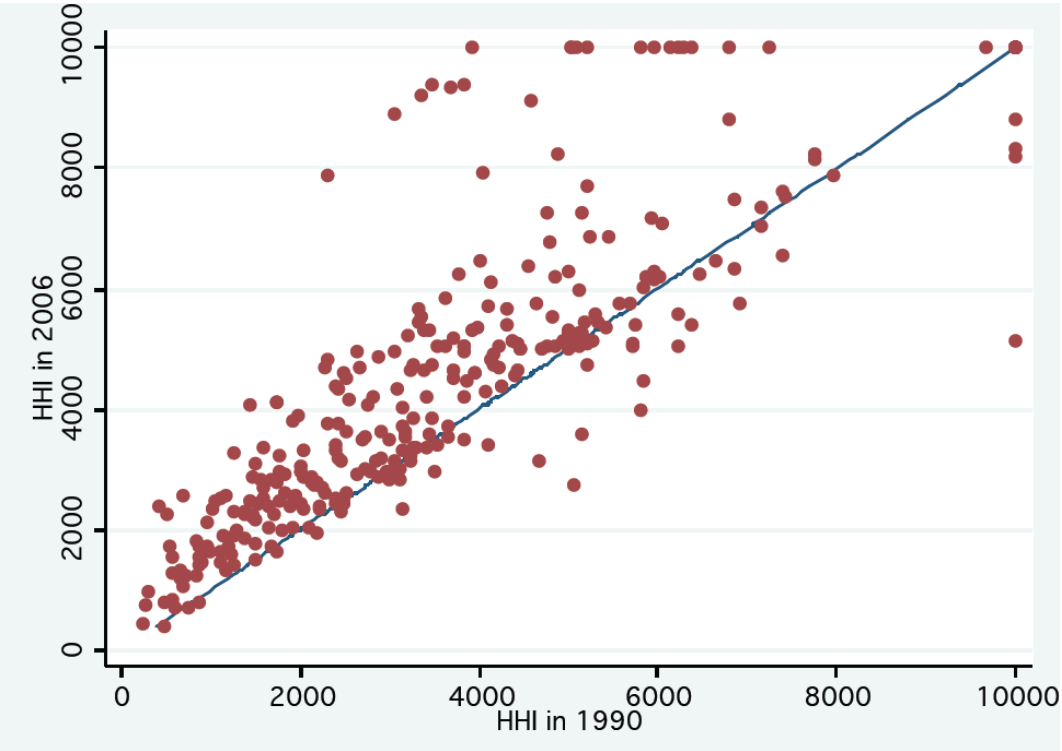
---

79 His view is also shared by Vogt and Town (2006) who explicitly state that hospital markets appear to be narrower than suggested by US courts. See also Varkevisser and Schut (2009) who argue that it is better for authorities to be too restrictive due to the serious anticompetitive effects and the particular difficulties of post merger enforcement in this sector.

80 See Vogt and Town (2006).

81 See Capps (2009:8). This trend seems to have halted in 2008 with the INOVA/ Prince William Hospital Merger. According to Gaynor and Town (2011:46) "the FTC has been more aggressive in challenging hospital mergers".

Figure 4: Scatterplot of HHI values in 1990 and 2006 for US hospital markets[82]



91. This trend in hospital consolidation is not confined to the US or to systems with market-based pricing but can be found, among other countries, also in Germany, the Netherlands and the UK.[83] In all these countries this trend has been explained by pricing pressure and the need to exploit cost advantages although the empirical evidence for example for the US is mixed. The argument advanced in the US is that the rise of HMO's introduced aggressive price negotiations with hospitals that were subsequently forced to consolidate in order to increase their bargaining power but possibly also to become more efficient, with smaller hospitals failing. This is for example suggested by the empirical study conducted by Fuchs (2007) although Town et al. (2007) find no significant correlation between hospital market structure and HMO penetration.[84]

92. There is, however, an important difference between the situation in the US and in the other countries mentioned. To the extent that prices for hospital services are administrated, to name only one important institutional difference between systems, the impact of higher concentration is likely to be different.

---

82 The Figure is taken from Town and Gaynor (2011:130). Note that markets are based on Metropolitan Statistical Areas (MSA) and may therefore not correspond to actual markets in an antitrust sense.

83 In Germany this has for instance triggered a debate as to whether the notification threshold for the Federal Cartel Office should be calculated differently in order to allow antitrust scrutiny of those hospital mergers that otherwise would fall through the filter. In particular the German monopolies commission (Monopolkommission) suggested to multiply the turnover in the hospital sector by 3 and use the resulting figure in determining whether a merger should be notified to and scrutinized by the competition authority. See Monopolkommission (2008).

84 According to Gaynor and Town (2011), Town and Park (2011), however, provide some support for the hypothesis that it was less the actual entry of HMOs as the anticipated future importance of HMOs. They identify a significant negative relationship between HMO exit and hospital consolidation.

4.2.1. Effects of concentrated markets on price

93. US hospital markets are highly concentrated and have become so relatively recently and mostly through mergers and acquisitions.[85] According to Gaynor and Town (2011) the average HHI in US hospital markets was 2340 in 1987 but increased by over 900 points to an HHI of 3161 in 2006.[86] Gaynor and Town (2011:34) distinguishing between studies using aggregated measures of price and those using insurer claims data, find price increases (or faster increasing prices relative to trend) relative to the control group in all merger studies they review except in one that they dismiss as using relatively poor measures of price and costs.

94. According to the review of studies conducted by Vogt and Town (2006), the hospital consolidation wave in the "1990s raised prices by at least 5percent and likely by significantly more". Their review of the empirical literature distinguishes between estimates derived from three different methods: event studies,[87] SCP based studies and simulations. The consolidation specific simulation results are the most striking with estimates of as much as 53percent. Event studies estimate price increase effects of between 10-40percent[88] and SCP approaches yield the lowest price increase predictions ranging between 4 to 5percent.

95. Analysis for hospital mergers in the US between 1993 and 1999 indicates that hospital consolidation has increased total national healthcare expenditures by roughly $10-$12 billion annually or roughly 0.5percent.[89]

96. These effects are largely confirmed by studies focusing on the effects of individual hospital mergers. Tenn (2011) in an analysis of a single US hospital merger finds price increases between 28 and 44percent. Similar effects are also found by Kemp and Severijnen (2011) for hip replacement costs after two mergers in the Netherlands. Akosa Antwi et al. (2009) consider hospital prices in California in the period from 1999 to 2006 and find a 100percent price increase in this period although concentration was not found to be a significant factor.[90]

97. With respect to the hope that market power effects are mitigated in case of not-for-profit hospitals, Capps et al. (2010b) find no evidence that not-for-profit hospitals offer more charitable services in response to an increase in market power than for-profit hospitals based on a 7 year sample of hospital data in California.[91]

4.2.2. Effects of concentrated markets on quality

98. In their review of 10 studies that directly analyse the effect of consolidation on the quality of hospital services, Vogt and Town (2006:8) find that on balance, "the evidence suggests that increasing hospital concentration lowers quality. The authors do, however, caution by pointing out the sensitivity of

85 See Town et al. (2006).

86 The FTC and the DoJ consider a market "highly concentrated" if its HHI is equal to or above 2500.

87 Event studies are based on a comparison of relevant data taken from before and after a particular event such as a merger or change in regulatory framework conditions.

88 The 40percent estimate goes back to Dafny (2005)

89 See Capps (2009) and Town et al. (2006).

90 See also Martin et al. (2011).

91 Several other studies on possible differences between for-profit and not-for-profit hospitals under a largely non-fixed price regime are discussed in Gaynor and Town (2011:42).

the results to the type of methodology applied and geographic zone analysed. As noted previously it is extremely difficult to draw conclusions on the effects of market concentration on quality when prices are also a choice variable. Similarly Maeda and LoSasso (2011) only find marginal incremental benefits of lower HHI values to inpatient heart-failure care, concluding that "market competition might be a blunt instrument and it may not be the most suitable policy tool to drive hospital quality-improvement effects".[92]

99. Generally speaking there seems to be little evidence that mergers in price regulated hospital systems improve quality. An analysis of hospital mergers in the UK between 1997 and 2006, for example, puts in question whether mergers in publicly funded and regulated markets deliver better patient outcomes.[93]

4.2.3. Effects of concentrated markets on costs

100. There are many reasons why mergers may result in cost reductions for the newly created entity not least among which cost reduction due to increases in buyer power and economies of scale as well as cost reductions due to knowledge transfer and the consolidation of services. Even when such reductions arise, reductions in the costs of hospital services are not identical with reductions in the prices paid by insurers or patients.

101. Reductions in cost through merger may come in two general forms, ownership consolidation and facilities consolidation. While a pure consolidation of ownership produces no effects on hospital costs according to the review conducted by Vogt and Town (2006:10), the actual consolidation of facilities tends to lower costs. Dranove and Lindrooth (2003), for example, match merging hospitals with hospitals that share the main characteristics and distinguish between single license mergers, where the two hospitals give up one license and where the merging hospitals continue to operate under two licenses. Of the 122 mergers they study between 1989 and 1996, 81 combined licenses and resulted in a significant and substantial (14percent) reduction in hospital operating costs whereas the others did not lead to significant cost reductions.

102. Research on for-profit hospital mergers suggests that most mergers yield modest cost savings,[94] have no or a negative effect on quality[95] and to the extent that they lessen price competition do have substantial price effects.[96]

---

92 See Maeda and LoSasso (2011:821). The analysis is based on HHI values of hospital referral regions and self-reported hospital performance data in the US from 2003 to 2006.

93 See Beckert et al. (2012) and Gaynor et al. (2011a). There is a host of literature on mergers in for-profit hospital markets in the US. See for example the retroactive studies by Haas-Wilson and Garmon (2011) and Haas-Wilson and Vita (2011) and the simulation work by Capps et al. (2001). Beckert et al. (2012) also provide a method for conducting merger simulation by looking at demand before and after the merger following Capps et al. (2001). Less elastic demand post merger suggests a limited competitive pressure from other hospitals making room for unilateral quality reductions.

94 See Vogt and Town (2006) suggesting that the balance of evidence indicates that hospital consolidation produces cost savings and that these cost savings can be significant when hospitals consolidate their services fully.

95 See Vogt and Town (2006) finding 5 studies indicating reductions in quality for some procedures, four with quality improvements in some procedures and three with no effect out of a total of 10 studies reviewed.

96 See for example Capps et al. (2003) and the studies listed in Vogt and Town (2006).

103. Bloom et al. (2010), for example, provide some evidence emphasizing the importance of management autonomy. They find that better managed hospitals are not only more cost-effective but also provide better outcomes for patients. As competition would tend to benefit well managed hospitals, the study shows that it may not be problematic to let less well managed hospitals be driven out of the market (see Box 7).

Box 7. Hospital failures

The displacement of inefficient firms is a normal process in competitive markets. Allowing inefficient firms to fail is the flip-side of allowing efficient firms to succeed and allowing this process to work is considered essential in harvesting the benefits of competition. In fact, in most markets the decline and failure of inefficient firms is the main source of productivity gains. Facilitating the exit of inefficient firms from the market has even been considered a beneficial by-product of economic crises.[97]

That hospital closure may be a good thing for patients is argued by Capps et al. (2010a) who find that the loss in consumer welfare is more than compensated by the savings of hospital closure in the five hospital closures in Arizona and Florida they considered. Similarly, Lindrooth et al. (2003) examine the impact of hospital closure on the average cost of hospital care in the market. They find that the hospitals that close are less efficient and that closure reduces service cost by 2-4percent overall and up to 8percent on average for the former patients of the closed hospital.

These findings are, however, not confirmed by Buchmueller et al. (2006) who argue that hospital closures in California did have negative effects on the surrounding population in terms of health outcomes, a result mainly driven by the fact that hospital distance is crucial for emergency care.

As argued in the section "Competition as an Instrument", whether competitive outcomes are considered appropriate or not crucially hinges on the framework within which competition takes place. It therefore seems crucial to design an appropriate framework – one that establishes safety and quality standards and helps policy makers and hospital managers to make informed decisions on whether the services they are providing are being delivered prudently. With such a framework in place, it is important for health systems and decision makers to allow for hospital failures. This can help ensure that patients receive services in safe and appropriate facilities and also that (public) funding is being directed to its most efficient use to improve population-wide health outcomes.

4.3. Studies on effects of intermediaries

The health insurance choice of a patient is typically made prior to the hospital choice and actual treatment. This is the reason that hospital services markets are considered to be option demand markets. As some insurance companies constrain the hospital or treatment choices of patients and as even those that do not, determine the price to be paid for insurance, an analysis of hospital markets requires the study of intermediaries. In particular the question of whether insurance markets are competitive or not has a direct bearing on insurance cost and therefore ultimately also hospital services. The same applies to HMOs and other intermediaries.

4.3.1. Empirical studies on demand elasticity of intermediaries

104. The effect of insurance companies, HMOs or PPOs (see Box 8) predicted by theory is that they increase the price elasticity of demand facing hospitals. This increased price elasticity is likely to lead to quality reductions in particular in less concentrated markets. Shen (2003), for example, finds a significant negative relationship between changes in administered prices and mortality and a significant positive effect between HMO penetration and mortality. Mukamel et al. (2001), however, find that HMO penetration is associated with lower than predicted risk-adjusted mortality rates.

[97] Needless to say that this "cleansing" theory of economic crises is highly controversial.

Box 8. HMOs and PPOs

A health maintenance organization (HMO) is an organization that provides managed care for health insurance contracts in the United States as a liaison with health care providers (hospitals, doctors, etc.). It is common for HMOs to require members to select a primary care physician (PCP), a doctor who acts as a "gatekeeper" to direct access to medical services. With the exception of medical emergency, patients need a referral from the PCP, usually a general practitioner (GP) in order to see a specialist, and the gatekeepers often authorize referrals on the basis of HMO guidelines. "Open access" HMOs do not use gatekeepers - there is no requirement to obtain a referral before seeing a specialist - but may employ beneficiary cost sharing in the form of higher co-payment or coinsurance for specialist care.

A preferred provider organization (PPO) also enters into contractual agreements with health care providers and creates a "provider network." But unlike HMOs, PPO health insurance will cover some – but not all – of the cost of care administered by out-of-network providers. A third type of health plan - known as a point-of-service (POS) plan – offers a combination of PPO health insurance and HMO insurance services. In fact, the "point of service" in the name reflects the fact that you make your choice of whether to use HMO or PPO services each time you see a provider.

105. Dafny (2010) find an increase in the concentration of insurance markets in the US. This trend is confirmed by Dafny et al. (2011b) who report an increase in the mean HHI in their sample consisting of the large employer segment of the insurance market, from an HHI of 2286 in 1998 to an HHI of 2984 in 2006. CR4 increased to 90percent and the average number of insurance companies declined to 9.6 from a previous 18.9.[98]

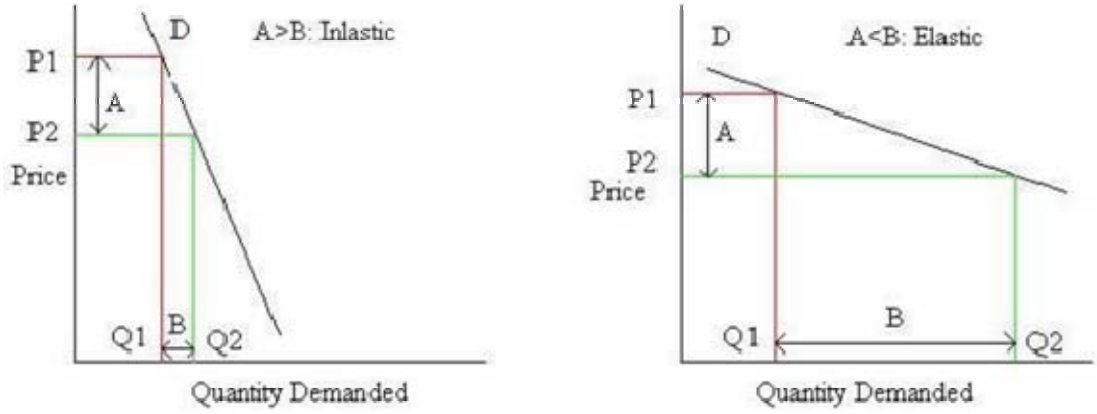
106. If insurance firms face a high absolute price elasticity of their residual demand, the industry is competitive as there is not much mark-up potential given the substantial quantity effect such an elastic residual demand would trigger.[99] In fact the residual demand that a firm faces in a perfectly competitive industry is perfectly elastic with an absolute elasticity of infinity implying that any price increase results in all sales being lost. The reverse is true, as is commonly known through the Lerner index that exploits that property, for less elastic or inelastic residual demand that is indicative of market power.[100] Figure 5 provides an intuitive presentation of demand functions exhibiting different elasticities.

98 See the summary contained in Gaynor and Town (2011) for further references.

99 This is actually the reason that collusion is considered to be less stable in markets where firms face elastic demand: there are huge benefits of deviating from the collusive outcome as the higher the price elasticity, the more sensitive consumers are to price changes.

100 There is the potential additional complication that it is theoretically not clear why a firm would ever want to operate on the inelastic portion of its residual demand curve.

Figure 5: Example of relatively inelastic and relatively elastic demand curves[101]



107. In a study on the Netherlands, van Dijk et al. (2008) use administrative data to estimate the absolute price elasticity[102] of the residual demand of an insurance firm to range between 0.1 and 0.38, implying very limited competition between insurance companies in the Netherlands as a 1percent increase in price only leads to a 0.1 to 0.38 decrease in demand.

108. Schut et al. (2003) estimate individual demand elasticities for Germany (3.45) and the Netherlands (0.41). Tamm et al. (2007) estimate a short run price elasticity of 0.5 and a long run elasticity of 12 for Germany. Based on the Lerner index, this implies that there is still an 8.4 percent mark-up over marginal cost in the long run and much more substantial mark-ups in the short run in Germany and in the Netherlands.[103]

4.3.2. Buyer power of intermediaries

109. Another aspect of relevance is the potential buyer power of insurance companies, HMOs or other intermediaries.

110. When hospitals negotiate prices with intermediaries with buyer power (up to monopsonist) hospitals face what in the bargaining literature is considered a large discrepancy between agreement and disagreement outcomes.

111. It is therefore not surprising that Shen et al. (2010) find that hospital revenue is significantly lower in markets with high HMO penetration and low hospital concentration. Similarly, Moriya et al.

---

101 Note that elasticity being a percentage based concept varies along the line of every individual demand function. As a unit price change based on a high price results in a lower percentage change, demand curves are more elastic at the top and become less elastic approaching the x-axis where percentage price changes are relatively large.

102 Elasticity is almost always negative, as demand curves slope downwards, but usually expressed in terms of absolute value (i.e. as positive numbers) since the negative can be assumed. If the elasticity is greater than 1 demand is said to be elastic; between zero and one demand is inelastic and if it equals one, demand is unit-elastic. A perfectly elastic demand curve is horizontal (an elasticity of infinity) whereas a perfectly inelastic demand curve is vertical (an elasticity of 0).

103 The Lerner Index is given by $\frac{1}{\varepsilon}$ where ε denotes elasticity. For an elasticity of 12 is $\frac{1}{12}$ = 0.084 implying a cost mark-up of 8.4percent.

(2010) find that increases in insurance market concentration are significantly associated with decreases in hospital prices, whereas increases in hospital concentration do not imply significant effects on insurance prices. A hypothetical merger between equal sized insurers from 5 to 4 is estimated to have a disciplining decreasing effect of 6.7 percent on hospital prices. These results are, however, not replicated by the study from Schneider et al. (2008a) who found no significant impact of insurance market concentration on physician prices in contrast to significant price effects of physician market concentration on physician prices.

4.4. Summary of stylized facts

112. The empirical literature investigating the relationship between competition and various outcome variables such as price and quality has grown rapidly in the last ten years and begun to help establish the foundations for a broader basis for efficient market structures in health care.

113. Based on the results of merger and concentration studies reviewed here it seems reasonable to conclude that hospital market concentration is to be avoided when prices are not administered. The often substantial price effects due to increases in market power leave one wondering as to the effects of market power on quality when prices are not a choice variable for hospitals. In any case, the literature considering the effects of competition on quality under regulated prices seems to confirm the important role competitive processes can play. In particular, increased demand driven competition seems to entail positive outcomes on both, quality but also efficiency. Of interest is certainly also the literature on public/private and in particular for-profit and not-for-profit hospitals that broadly suggests that the structure within which these hospitals operate is more important than their management structure or ownership.

114. These stylised facts present an academic perspective on market design and the nature and operation of incentives and market structures on the delivery of hospital services. With health policy and health services researchers undertaking considerable work on measuring quality and efficiency in hospitals, in time, a further convergence in these two bodies of work could help inform more explicit policy recommendations on how best to design hospital markets that can harness competition to deliver socially beneficial outcomes.

5. Conclusion

115. This paper analysed the policy question of when and how competitive mechanisms could fruitfully be introduced into the hospital services sector. The starting point was to establish an unambiguous notion of competition itself, in order to overcome the often differing interpretations in the spheres of health policy and among competition law practitioners. On the surface these views appear incommensurate but can be reconciled by distinguishing between competitive *processes* and *outcomes* of competitive processes. Whereas functioning competitive processes are a guarantee for efficiency, they are not a guarantee for desirable outcomes. With such a distinction the question of introducing competitive processes is a quest for appropriate regulatory conditions that may reduce or eliminate competition in certain instances and introduce or expand competition in others.

116. The theoretical literature on competition in hospital services in particular with respect to the research considering quality competition under administered prices suggests that introducing competition on quality is beneficial but will of course accentuate the role of the administered price. Quality will depend on the administered price and in particular the effective price relative to marginal cost will be a key to appropriate outcomes. When both prices and quality are variables of choice for hospitals, the guidance of the theoretical literature is limited as it is not possible to discriminate between results. The prediction then largely depends on the respective price and quality elasticity of demand.

117. The empirical literature reviewed here mainly focused on findings in circumstances where prices were administered, reflecting what is increasingly becoming the norm across OECD Health Systems. Outcomes were mixed, but tend to reinforce theoretical work that competitive processes, if introduced carefully, can improve outcomes and in particular quality of hospital services. While this paper has not put an emphasis on the review of empirical studies of effects of competition in instances where prices and quality are market based, the results again mirror the theoretical work in providing ambiguous findings. As should be no surprise for competition practitioners, competition is found to generally reduce prices whereas effects on quality are mixed.

118. The empirical and theoretical research together therefore points to the specific circumstances under which competition takes place as a key element in determining whether it is considered (socially) beneficial or not. The rather crude finding that excluding competition on price fosters beneficial competition on quality is proof of the need to consider carefully in what circumstances and on what variables competition should be introduced and when it should be excluded. This requires a detailed, country specific analysis that can, however, draw on international best practice and the discussion summarized here.

BIBLIOGRAPHY

Alchian, A. A. (1977) *Economic Forces at Work,* Indianpolis, Liberty Press.

Bain, Joe S. (1956) Barriers to New Competition: Their Character and Consequences in Manufacturing Industries, Harvard University Press.

Bain, Joe S. (1959) *Industrial Organization*, John Wiley & Sons.

Beckert, Walter, Christensen, Mette, Collyer, Kate (2012) Choice of NHS-funded hospital services in England, working paper.

Bennett, Matthew; John Fingleton, Amelia Fletcher, Liz Hurley, David Ruck (2010) What Does Behavioral Economics Mean for Competition Policy? *Competition Policy International*, 6(1), 111-137.

Bevan, Gwyn and Matthew Skellern (2011) Does competition between hospitals improve clinical quality? A review of evidence from two eras of competition in the English NHS, *BMJ*, 343:d6470, available at: http://www.bmj.com/highwire/filestream/447553/field_highwire_article_pdf/0.pdf

Bijlsma, Michiel, Koning, Pierre, Shestalova, Victoria and Ali Aouragh (2010) The effect of competition on process and outcome quality of hospital care – An empirical analysis for the Netherlands, CPB discussion paper no 157.

Black, Fischer (1982) The Trouble with Econometric Models, *Financial Analyst Journal*, 38(2), 29-37.

Bloom, Nicholas, Propper, Carol, Seiler, Stephan and John Van Reenen (2010) The Impact of Competition on Management Quality: Evidence from Public Hospitals, NBER working paper w16032.

Brekke, Kurt, Nuscheler, R., and O. R. Straume (2006) Quality and Location Choices under Price Regulation, *Journal of Economics and management Strategy*, 15, 207-227.

Brekke, Kurt, Siciliani, Luigi and Odd Rune Straume (2011) Hospital Competition and Quality with Regulated Prices, Scandinavian Journal of Economics, 113(2), 444–469.

Buchmueller, T., Jacobson, M., and Wold, C. (2006) The effect of hospital closures on access to care. *Journal of Health Economics*, 25, 740-761.

Burns, Lawton R.; Robert A. DeGraaff, Patricia M. Danzon, John R. Kimberly, William L. Kissick, and Mark V. Pauly (2002) *The Health Care Value Chain: Producers, Purchasers, and Providers*, Jossey-Bass.

Canoy, Marcel and Wolf Sauter (2010) Hospital Mergers in the Netherlands and the Public Interest, *European Competition Law Review*, 31(9), 35-41.

Capps, Cory S. D. Dranove, and M. Satterthwaite (2001) 'The silent majority fallacy of the Elzinga-Hogarty criteria: a critique and new approach to analyzing hospital mergers', NBER working paper no. 8216.

Capps, Cory S., D. Dranove, and M. Satterthwaite (2003) "Competition and Market Power in Option Demand Markets.", RAND Journal of Economics 34, no. 4.

Capps, Cory S. (2009) Buyer Power in Health Plan Mergers, Journal of Competition Law and Economics, 6(2), 375-391.

Capps, Cory S. (2009) The extent of hospital consolidation and its effects on national health expenditures, mimeo.

Capps, C., Dranove, D., and Lindrooth, R. (2010a) Hospital closure and economic efficiency, *Journal of Health Economics*, 29, 87-109.

Capps, C., Carlton, D., and David, G. (2010b) Antitrust treatment of nonprofits: Should hospitals receive special care? mimeo, available at: http://www.nber.org/public_html/confer/2010/HCs10/Capps_Carlton_David.pdf

Commonwealth Fund (2010) International Profiles of Health Care Systems, available at http://www.commonwealthfund.org/~/media/Files/Publications/Fundpercent20Report/2010/Jun/1417_Squires_Intl_Profiles_622.pdf

Cooper, Zack, Gibbons, Stephen, Jones, Simon and Alistair McGuire (2011) Does Hospital Competition Save Lives? Evidence from the English NHS Patient Choice Reforms *Economic Journal,* 121**,** 228 - 260.

Cooper, Zack, Gibbons, Stephen, Jones, Simon and Alistair McGuire (2010b) Does Hospital Competition Improve Efficiency? An Analysis of the Recent Market- Based Reforms to the English NHS, CEP discussion paper no 988.

Dafny, L. (2005) Estimation and Identification of merger effects: an application to hospital mergers, Northwestern University, mimeo, available at http://www.aeaweb.org/assa/2006/0107_1015_1602.pdf.

Dafny, L. (2010) Are health insurance markets competitive? American Economic Review, 100, 1399-1431.

Dafny, L., Duggan, M., and Ramanarayanan, S. (2011b) Paying a premium on your premium? Consolidation in the U.S. health insurance industry, NBER Working Paper No. 15434.

Darby, M. R., Karni, E. (1973) Free competition and the optimal amount of fraud, *Journal of Law and Economics*, 16, 67–88.

Dixon, Anna; Robertson, Ruth; Appleby, John; Burge, Peter; Devlin, Nancy and Helen Magee (2010) Patient Choice – How Patients choose and how providers respond, The Kings Fund, available at http://www.kingsfund.org.uk/publications/patient_choice.html

Dixon, Jennifer and Carol Propper (2011) The Impact of Competition Between Hospitals, working paper.

Dranove, David and Satterthwaite, M. A. (2000) The industrial organization of health care markets, in: Culyer, A. and Newhouse, J., (eds.), *Handbook of Health Economics*, ch. 20, pp. 1094-1139. Elsevier Science, North-Holland, New York and Oxford.

Dranove, D. and Lindrooth, R. (2003) Hospital Consolidation and Costs: Another look at the evidence, *Journal of Health Economics*, 22(6), 983-997.

Dulleck U. and R. Kerschbamer (2006) On doctors, mechanics, and computer specialists: The economics of credence goods, *Journal of Economic Literature*, 44, 5–42.

Ellis, R. P. (1998) Creaming, Skimping and Dumping: Provider Competition on the Intensive and Extensive Margins, *Journal of Health Economics*, 17, 537-555.

Emma Hall, Carol Propper, John Van Reenen (2008) Can pay regulation kill? Panel data evidence on the effect of labor markets on hospital performance NBER working paper w13776

Emons, Winand (2001) Credence goods monopolists, *International Journal of Industrial Organization*, 19, 375–389

Ettelt, Stefanie, Thomson, Sarah, Nolte, Ellen and Nicholas Mays (2007), The regulation of competition between publicly-financed hospitals: Final Report, London School of Hygiene and Topical Medicine (Commissioned and funded by the Department of Health)

FTC (2010) Overview of FTC Antitrust Actions in Health Care Services and Products, Health Care Division, Bureau of Competition Federal Trade Commission Washington D.C.

Garcés-Tolon, Eliana (2010) The Impact of Behavioral Economics on Consumer and Competition Policies, *Competition Policy International*, 6(1), 145-152.

Gaynor, M. and Vogt, W. B. (2000) Antitrust and competition in health care markets, in: Culyer, A. and Newhouse, J., editors, *Handbook of Health Economics*, ch. 27, pp. 1405-1487. Elsevier Science, North-Holland, New York and Oxford.

Gaynor, M., Seider, H., and Vogt, W. B. (2005) Is there a volume-outcome effect and does it matter? Yes, and yes, *American Economic Review*, 95(2), 243-247.

Gaynor, Martin (2006) What Do We Know About Competition and Quality in Health Care Markets?, CMPO Working Paper Series No. 06/151.

Gaynor, Martin and Robert J. Town (2011) Competition in Health Care Markets, NBER Working Paper.

Gaynor, Martin, Laudicella, M. and Carol Propper (2011a) Can governments do it better? Merger mania and hospital outcomes in the English NHS, mimeo Business School, Imperial College.

Gaynor, Martin, Moreno-Serra, Rodrigo and Carol Propper (2011b) Death by Market Power Reform, Competition and Patient Outcomes in the National Health Service, CMPO Working Paper No. 10/242.

Gigerenzer, G., Gaissmaier, W., Kurz-Milcke, E., Schwartz, L. M., & Woloshin, S. (2007) Helping doctors and patients to make sense of health statistics. *Psychological Science in the Public Interest*, 8, 53–96, available at: http://citrixweb.mpib-berlin.mpg.de/montez/upload/PaperLibrary/GG_etAl_Helping_doctors-1.pdf

Gowrisankaran, G. and Town, R. (2003) Competition, payers, and hospital quality, *Health Services Research*, 38, 1403-1422.

Gowrisankaran, G., Ho, V., and Town, R. (2004). Causality and the volume-outcome relationship in surgery, University of Minnesota, mimeo, available at: http://www.ftc.gov/be/healthcare/wp/04_Gowrisankaran_CausalityLearningandForgettinginSurgery.pdf

Haas-Wilson, Deborah. and Garmon, C. (2011) Hospital mergers and competitive effects: Two retrospective analyses, *International Journal of the Economics of Business*, 18(1), 17-32.

Haas-Wilson, D and Michael Vita (2011) Mergers between Competing Hospitals: Lessons from Retrospective Analyses, *International Journal of the Economics of Business*, 18(1), 1-4.

Hauk, Katharina, Peter C. Smith and Maria Goddard (2004) The Economics of Priority Setting for Health Care: A Literature Review, *The International Bank for Reconstruction and Development / The World Bank*, Washington, available at: http://siteresources.worldbank.org/HEALTHNUTRITIONANDPOPULATION/Resources/281627-1095698140167/Chapter3Final.pdf

Ho, K. (2006) The welfare effects of restricted hospital choice in the U.S. medical care market, *Journal of Applied Econometrics*, 21(7), 1039-1079.

Hodge, G., and Greve, C. (2007) "Public-private partnerships: an international performance review", *Public Administration Review*, 67(3), 545-558.

Hoffrage, U., and Gigerenzer, G. (1998) Using natural frequencies to improve diagnostic inferences. *Academic Medicine*, 73, 538–540, available at: http://library.mpib-berlin.mpg.de/ft/gg/GG_Using_1998.pdf.

Huesch, M. D. (2009). Learning by doing, scale effects, or neither? Cardiac surgeons after residency, *Health Services Research*, 44(6), 1960-1982.

Janssen, Maarten and Alexei Parakhonyak (2011) Service Refusal in Regulated Markets for Credence Goods, National Research University, Higher School of Economics, Moscow, mimeo, available at: http://www.hse.ru/data/2011/12/18/1261718480/Maartenpercent20Janssen,percent20Alexeipercent20Parakhonyak_SERV..ATEDpercent20MARKETSpercent20FORpercent20CREDENCEpercent20GOODS.pdf

Karlsson, M. (2007) Quality Incentives for GPs in A regulated Market, *Journal of Health Economics*, 26, 699-720.

Kemp, R. and Severijnen, A. (2011) Price effects of Dutch hospital mergers: An ex post assessment of hip surgery, NMa Working Paper No. 2, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1769544.

Kessler, D. and McClellan, M. (2000) Is hospital competition socially wasteful? *Quarterly Journal of Economics*, 115(2), 577-615.

Kessler, D. P. and Geppert, J. J. (2005) The effects of competition on variation in the quality and cost of medical care, *Journal of Economics and Management Strategy*, 14(3), 575-589.

Le Grand, Julian (2006) *Motivation, Agency, and Public Policy: Of Knights and Knaves, Pawns and Queens*, Oxford Universit Press.

Lindrooth, R., Lo Sasso, A., and G. Bazzoli (2003) The effect of urban hospital closure on markets. *Journal of Health Economics*, 22, 691-712.

Maeda, Jared Lane K. and Anthony T. LoSasso (2011) Effect of Market Competition on Hospital Performance for Heart Failure, *American Journal of Managed Care*, 17(12), 816-822

McCellan, M. (1997) Hospital reimbursement Incentives: An Empirical Analysis, *Journal of Economics and management Strategy*, 6, 91-128.

McKee, Martin, Edwards Niger and Atun, Rifat (2006) Public-private partnerships for hospitals, *Bulletin of the World Health Organization*, 84(11).

Mukamel, D., Zwanziger, J., and Tomaszewski, K. J. (2001) HMO penetration, competition and risk-adjusted hospital mortality, *Health Services Research*, 36(6), 1019-1035.

Monopolkommission (2008) Potenziale für mehr Wettbewerb auf dem Krankenhausmarkt, in: Weniger Staat, mehr Wettbewerb, Gesundheitsmärkte und staatliche Beihilfen in der Wettbewerbsordnung, 17. Hauptgutachten der Monopolkommission, Bundestagsdrucksache 16/10140, available at http://www.monopolkommission.de/aktuell_hg17.html.

National Audit Office (2009) Private Finance Projects, available at: http://www.nao.org.uk/publications/0809/private_finance_projects.aspx.

Nikolic Irina A. and Maikisch, Harald (2006) Public-Private partnerships and Collaboration in the Health Sector: An Overview with Case Studies from Recent European Experience, *The World Bank*, HNP Discussion Paper.

OECD (2006) Competition in the Provision of Hospital Services, [DAF/COMP(2006)20], Paris.

OECD (2008) Public-Private Partnerships: In Pursuit of Risk Sharing and Value for Money, GOV/PGC/SBO(2008)1/REV1.

OECD (2010) Value for Money in Health Spending, OECD Publishing, Paris.

OECD (2011) OECD Health Data, Paris, available at: http://stats.oecd.org/

Okma, Kieke G. H.; Tsung-Mei Cheng, David Chinitz, Luca Crivelli, Meng-kin Lim, Hans Maarse and Maria Eliana Labra (2010) Six Countries, Six Health Reform Models? Health Care Reform in Chile, Israel, Singapore, Switzerland, Taiwan and the Netherlands, *Journal of Comparative Policy Analysis*, 12(1-2), 75-113.

Paris, V., M. Devaux and L. Wei (2010) Health Systems Institutional Characteristics: A Survey of 29 OECD Countries, OECD Health Working Papers, No. 50, OECD Publishing, available at: http://dx.doi.org/10.1787/5kmfxfq9qbnr-en.

Propper, Carol, Burgess, Simon and K. Green (2004) Does Competition between Hospitals Improve the quality of care? Hospital Death Rates and the NHS Internal Market, *Journal of Public Economics*, 88, 1247-1272.

Propper, Carol, Burgess, Simon and Denise Gossage (2008) Competition and Quality: Evidence from the NHS Internal Market 1991-1999, *Economic Journal*, 118(525), 138-170.

Propper, Carol, Sutton, Matt, Whitnall, Carolyn and Frank Windmeijer (2010) Incentives and targets in hospital care: Evidence from a natural experiment, Journal of Public Economics, 94, 318–335.

Propper, Carol (2011) Competition, Incentives and the English NHS, *Health Economics*, forthcoming.

Schmalensee, R. (1989). Inter-industry studies of structure and performance, in: Schmalensee, R. and Willig, R., (eds.) *Handbook of Industrial Organization*, vol. 2, chapter 16, p. 951-1009, Elsevier Science, North-Holland, Amsterdam and New York.

Schmidt-Dengler, P. (2006) The timing of new technology adoption: The case of MRI, London School of Economics, mimeo.

Schulte, Thorsten (2006) Liberalisation, privatisation and regulation in the German healthcare sector/hospitals, WSI report available at http://www.boeckler.de/pdf/wsi_pj_piq_sekkrankh.pdf

Shen, Y.-S. (2003). The effect of financial pressure on the quality of care in hospitals, *Journal of Health Economics*, 22, 243-269.

Simon, H. A. (1956) Rational choice and the structure of environments. *Psychological Review*, 63, 129-138.

Simon, H.A. (1987) Rational decision making in business organizations, in: L. Green & J.H. Kagel (eds.), *Advances in behavioral economics*, Vol. 1, pp. 18-47. Norwood, N.J.: Ablex.

Simon, H. A. (1990) Invariants of human behaviour, *Annual Review of Psychology*, 41, 1-19.

Sivey, Peter (2011) The effect of waiting time and distance on hospital choice for English cataract patients, *Health Economics*, forthcoming.

Sussex, Jon (2009) How Fair? Competition between independent and NHS providers to supply non-emergency hospital care to NHS patients in England, *Office of Health Economics Briefing* No. 50.

Tay, A. (2003) Assessing competition in hospital care markets: The importance of accounting for quality differentiation, *Rand Journal of Economics*, 34(4), 786-814.

Tediosi, F., S. Gabriele, F. Longo, (2009) Governing decentralization in health care under tough budget constraint: What can we learn from the Italian experience?, *Health Policy*, 90.

Tenn, S. (2011) The price effects of hospital mergers: A case study of the sutter-summit transaction. *International Journal of the Economics of Business*, 18, 65-82.

Town, D., Wholey, R., Feldman and L. Burns (2006) The Welfare Consequences of Hospital mergers, NBER Working Paper W12244.

Town, R., Wholey, D., Feldman, R., and Burns, L. (2007) Revisiting the relationship between managed care and hospital consolidation. *Health Services Research*, 42, 219-238.

Town, R. J. and Park, M. (2011). Market structure beliefs and hospital merger waves, University of Minnesota, mimeo.

Varkevisser Marco and Frederik T. Schut (2009) Hospital merger control – an international comparison, iBMG working paper W2009.01, available at: http://oldwww.bmg.eur.nl/personal/schut/Varkevisser&Schut_Hospitalpercent20mergerpercent20control.pdf.

van Dijk, M., Pomp, M., Douven, R., Laske-Aldershof, T., Schut, E., de Boer, W., and do Boo, A. (2008) Consumer price sensitivity in dutch health insurance, *International Journal of Health Care Finance and Economics*, 8, 225-244.

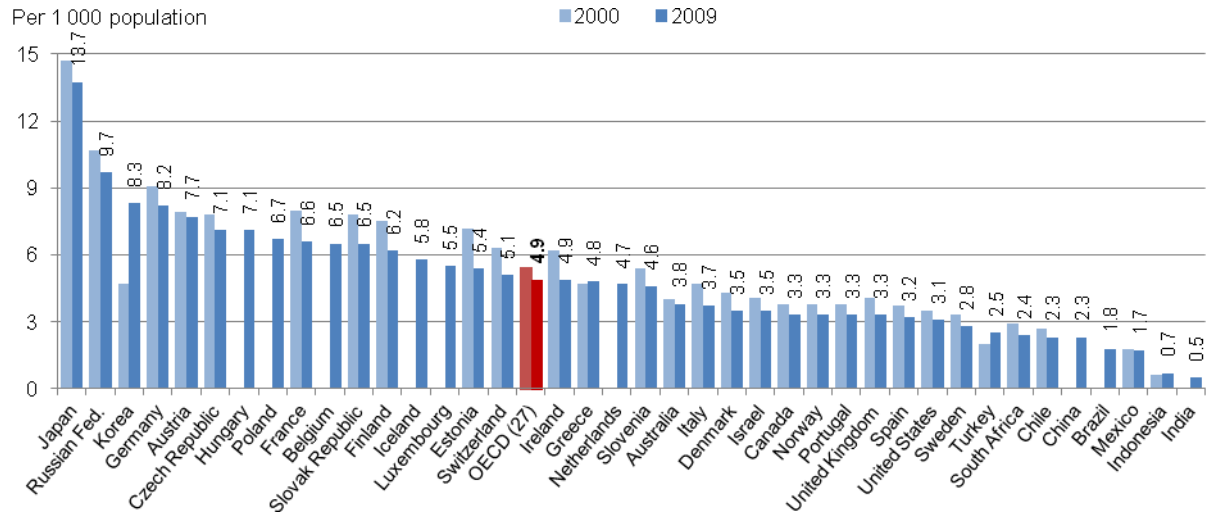
Vogt, W. B. and R. Town (2006) How has hospital consolidation affected the price and quality of hospital care?, Research Synthesis Report No.9, Robert Wood Johnson Foundation.

ANNEX I: CHARACTERISTICS OF THE HOSPITAL SECTOR

1. Hospital beds

1. The number of hospital beds provides a measure of the resources available for delivering services to inpatients in hospitals. The following figures present data on the total number of hospital beds, how they are allocated across curative (acute), psychiatric, long-term and other types of care. An indicator of bed occupancy rates focuses on curative care beds.

Figure - Hospital beds per 1 000 population, 2000 and 2009 (or nearest year)

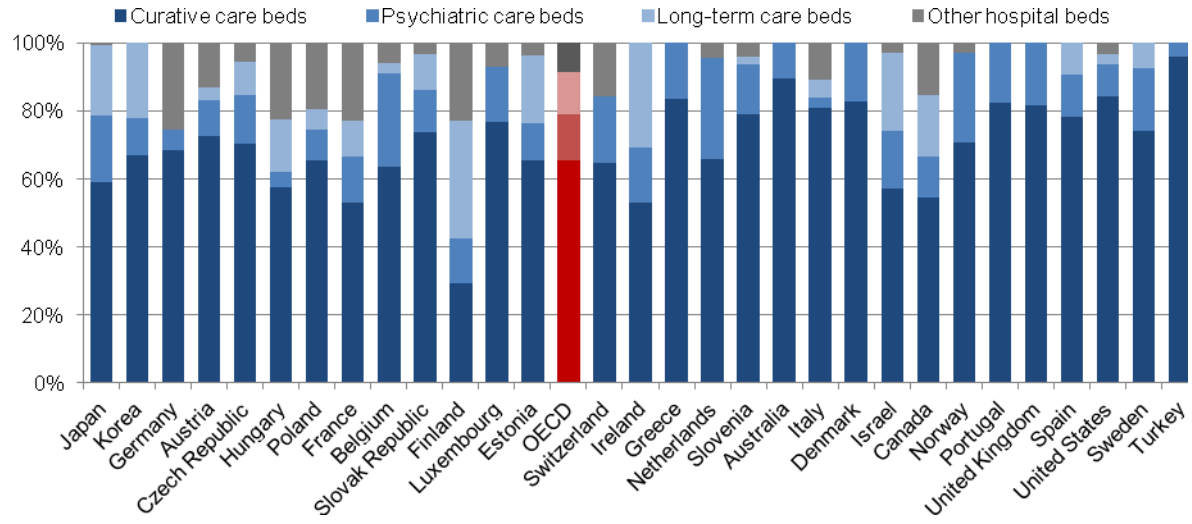


Source: OECD Health Data 2011; national sources for non-OECD countries.

2. Among OECD countries, the number of hospital beds per capita is the highest in Japan and Korea, with over eight beds per 1 000 population in 2009. Both Japan and Korea have "social admissions", that is, a significant part of hospital beds are devoted to long-term care. The number of hospital beds is also well above the OECD average in the Russian Federation, Germany and Austria. On the other hand, large emerging countries in Asia (India, Indonesia and China) have relatively few hospital beds compared with the OECD average. This is also the case for OECD and emerging countries in Central and South America (Mexico, Brazil and Chile). The number of hospital beds per capita has decreased at least slightly over the past decade in most OECD countries, falling from 5.4 per 1 000 population in 2000 to 4.9 in 2009.

3. This reduction has been driven partly by progress in medical technology which has enabled a move to day surgery and a reduced need for hospitalization. The reduction in hospital beds has been accompanied in many countries by a reduction in hospital discharges and the average length of stay. Only in Korea, Greece and Turkey has the number of hospital beds per capita grown between 2000 and 2009.

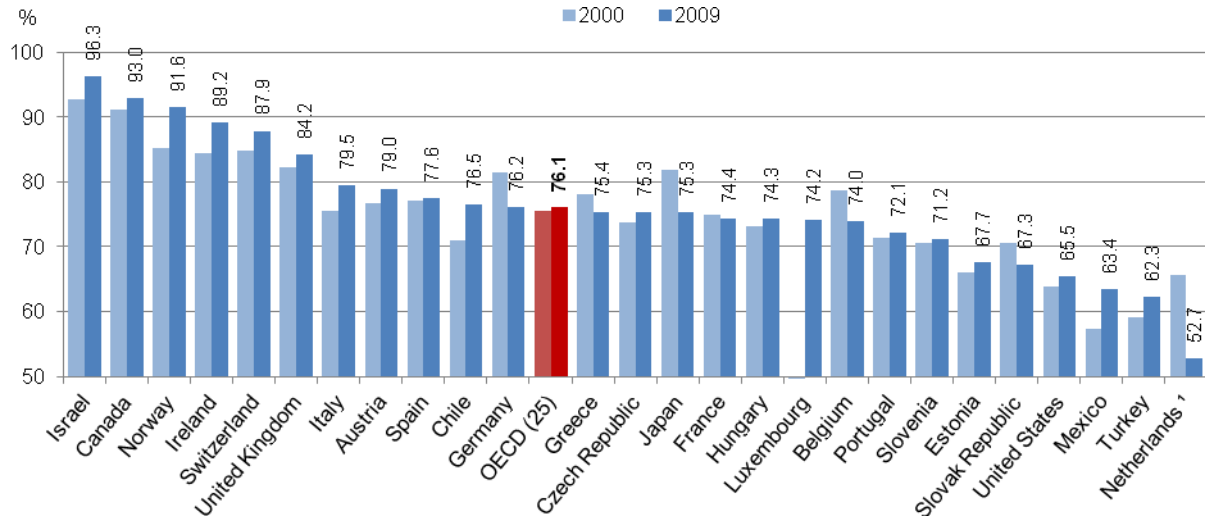
Figure - Hospital beds by function of health care, 2009 (or nearest year)



Source: OECD Health Data 2011.

4. On average, two-thirds of hospital beds are allocated for curative care across OECD countries. The rest of the beds are allocated for psychiatric (14percent), long-term (12percent) and other types of care (8percent). In some countries, the share of beds allocated for psychiatric care and long-term care is much greater than the average. In Finland, a greater number of hospital beds is in fact allocated for long-term care than for curative care, because local governments (municipalities) use some beds in health care centres (which are defined as hospitals) for at least some of the institution-based long-term care. In Ireland, just over half of hospital beds are allocated for acute care, while 30percent are devoted to long-term care.

Figure - Occupancy rate of curative (acute) care beds, 2000 and 2009 (or nearest year)



Source: OECD Health Data 2011.

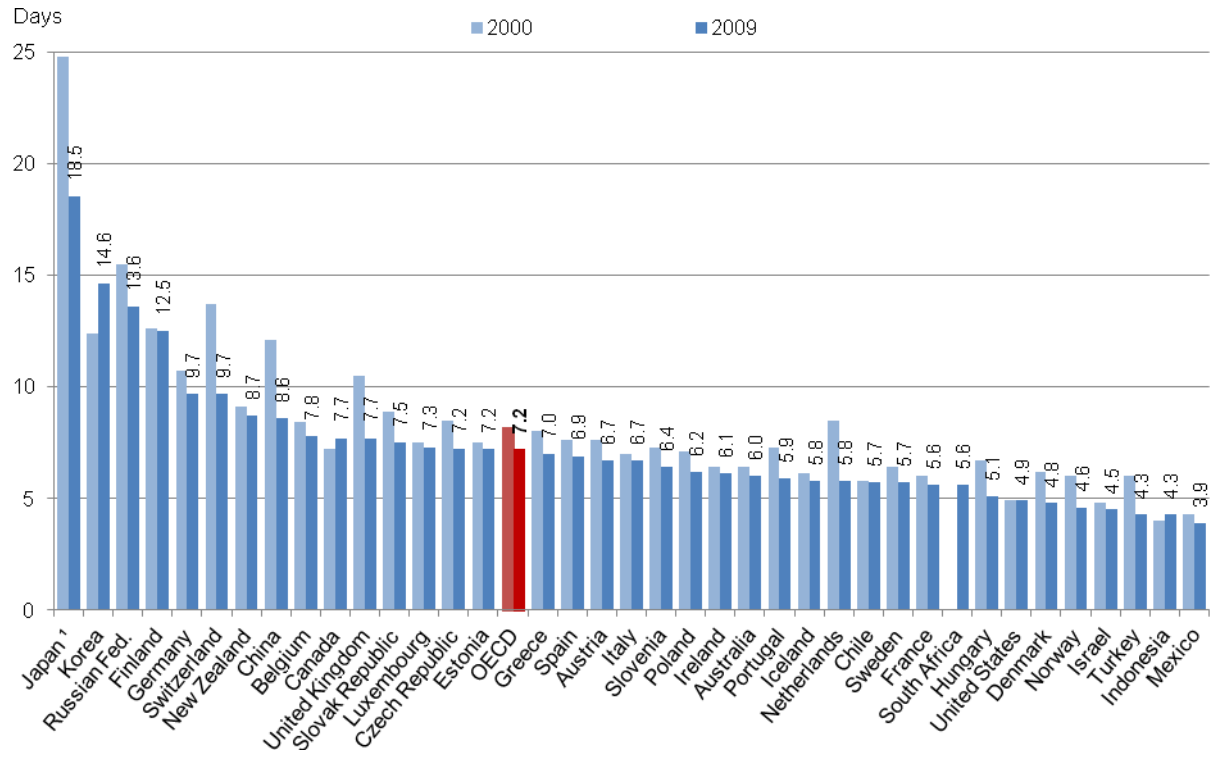
5. In several countries, the reduction in the number of hospital beds has been accompanied by an increase in their occupancy rates. The occupancy rate of curative (acute) care beds stood at 76percent on

average across OECD countries in 2009, slightly above the 2000 level. Israel, Canada, Norway, Ireland, Switzerland, and the United Kingdom had the highest occupancy rates in 2009. All of these countries have fewer curative care beds than most other OECD countries. On the other hand, the Netherlands, Turkey and Mexico have the lowest occupancy rates, although the occupancy rate has increased over the past decade in Turkey and Mexico. In the Netherlands, the low occupancy rates can be explained at least partly by the fact that hospital beds include all administratively approved beds and not only those available for immediate use.

2. Average length of stays

6. The average length of stay in hospitals (ALOS) is often used as an indicator of efficiency. All other things being equal, a shorter stay will reduce the cost per discharge and shift care from inpatient to less expensive post-acute settings. However, shorter stays tend to be more service intensive and more costly per day. Too short a length of stay could also cause adverse effects on health outcomes, or reduce the comfort and recovery of the patient. If this leads to a greater readmission rate, costs per episode of illness may fall only slightly, or even rise.

Figure - Average length of stay in hospital for all causes, 2000 and 2009 (or nearest year)



Source: OECD Health Data 2011; WHO-Europe for the Russian Federation and national sources for other non-OECD countries.

7. In 2009, the average length of stay in hospitals for all causes among OECD countries was the lowest in Mexico, Turkey and Israel. It was also low in Norway and Denmark, as well as in the United States, all at less than five days. The average length of stay was highest in Japan, followed by Korea. The OECD average was about 7 days.

8. Several factors can explain these cross-country differences. The abundant supply of beds and the structure of hospital payments in Japan provide hospitals with incentives to keep patients longer. Financial incentives inherent in hospital payment methods can also influence length of stay in other countries. The average length of stay in hospitals has fallen over the past decade in nearly all OECD countries – from 8.2 days in 2000 to 7.2 days in 2009 on average across OECD countries. It fell particularly quickly in some of the countries that had relatively high levels in 2000 (e.g. Japan, Switzerland and the United Kingdom). Several factors explain this decline, including the use of less invasive surgical procedures, changes in hospital payment methods, and the expansion of early discharge programmes which enable patients to return to their home to receive follow-up care.

ANNEX II: INFORMATION ON PROVIDER SERVICES

1. The availability of information on quality and prices for users or purchasers has the potential to enhance the basis for consumer choices in their choice of hospital, and drive competition amongst hospitals. Studies suggest that information on quality is seldom used by consumers but nevertheless impacts the quality of care and has the power to influence providers' performances (see Canadian Health Services Research Foundation, 2006 for a review). The extent of consumer information on prices and quality of hospital services varies dramatically across OECD countries, this section provides a high level overview of which countries publish information and the kinds of information they make available.

1. Information on prices

2. In the vast majority of OECD countries, health services are free of charge for patients or have uniform prices (and copayments) set at the national level (as detailed in the table below). In both of these circumstances, information on prices is not really needed by or useful to users.

Information on prices of providers' services

Country	Q45a. May prices differ prices across providers?	Q45b. Information on prices of physicians' consultations	Q45c. Information on prices of medical exams
Australia	Prices may differ	No information	No information
Austria	No price or unique price	-	-
Belgium	Prices may differ	Readily available	No information
Canada	No price or unique price	-	-
Czech Republic	No price or unique price	-	-
Denmark	No price or unique price	-	-
Finland	No price or unique price	-	-
France	Prices may differ	Readily available	Readily available
Germany	No price or unique price		
Greece	Prices may differ	Readily available	Readily available
Hungary	n.a.	n.a.	n.a.
Iceland	No price or unique price	-	-
Ireland	Prices may differ	No information	No information
Italy	No price or unique price	-	-
Japan	No price or unique price	-	-
Korea	No price or unique price	-	-
Luxembourg	No price or unique price	-	-
Mexico	No price or unique price(1)	-	-
Netherlands	Prices may differ(2)	No information	No information
New Zealand	Prices may differ	Readily available	No information
Norway	No price or unique price	-	-
Poland	No price or unique price	-	-
Portugal	No price or unique price	-	-
Slovak Republic	Prices may differ	Readily available	Readily available

Spain	No price or unique price	-	-
Sweden	No price or unique price	-	-
Switzerland	No price or unique price	-	-
Turkey	Prices may differ	Readily available	No information
United Kingdom	No price or unique price	-	-

Note : (1) In Mexico, prices may differ for services which are not covered by voluntary or compulsory health insurance ;
(2) In the Netherlands, prices may differ but only for the so-called B-segment which accounts for 34% of all DRGs.
n.a. means Not Available; "-"Not Applicable.

Source: OECD Survey on health system characteristics 2008-2009

3. In other countries, prices may differ across providers. This is the case for instance in Belgium, where information on prices is readily available for doctors consultations but not for medical procedures.

4. France, Greece and the Slovak Republic reported that information on prices is readily available for both types of services (consultations and procedures). In France, the national insurance fund for salaried workers (CNAMTS) publishes on its website the average price of current medical procedures for individual doctors. The situation of Greece is more complicated since informal payments are frequent.

5. In Australia, whilst the Medical Benefits Schedule (MBS) fee and the patient rebates are publicly available, the actual fee that the practitioner charges for the services may be more difficult to obtain. Under the Australian Constitution, the Australian Government cannot control the price that practitioners can charge for their services. Patients are required to do their own research regarding the fees that are charged by individual practitioners.

2. Information on quality

6. Seventeen OECD countries provided details regarding available information on the quality of hospital services (see Table below). In Denmark, Germany, New Zealand, Norway, the Slovak Republic and the United Kingdom, four types of information are available: clinical outcomes, appropriate processes, patient satisfaction and patient experience. This information is published by the government in Denmark, New Zealand, and Norway; by the government and health insurers in the Slovak Republic; and by the government and "other NGOs" in the United Kingdom. In Germany, insurers, media and other NGOs publish such information.

7. In Belgium, France, Ireland, Korea, Mexico and Switzerland, published information is limited to clinical matters (outcomes measures and/or processes of care). The information is published by the government in Ireland and Mexico, by the government and insurers in Belgium, by insurers and NGOs in Korea, by the government and NGOs in Switzerland. In France, the government publishes information on the use of appropriate processes in terms of safety, as well as information about the equipment and volume of activity performed in each hospital. The media publishes hospital rankings based on different indicators of performance (including attractiveness, use of advanced technologies and degree of specialisation, etc.[17]).

8. In Hungary and the Netherlands, the focus is on patient satisfaction and experience. Information is ublished by insurers and media in Hungary, while in the Netherlands, the government, insurers and NGOs release this information.

9. In Australia, different levels of government publish information on clinical outcomes and processes, as well as information on patient experience. Some state governments publish information in a form that facilitates comparisons across providers. In the Czech Republic, insurers, the media and NGOs publish information on clinical outcomes and patient satisfaction.

		About hospitals							
Country	**Q46. Is there any comparable information published on the quality of services supplied by individuals providers?**	**Data on clinical outcomes**	**Data on the use of appropriate processes**	**Data on patient satisfaction**	**Data on patient experiences**	**Is the information in a form that facilitates cross-provider comparisons?**	**Who develops and/or publishes such information:**	**Is there evidence that such information is used by prospective patients in selecting providers?**	**Is there evidence that such information is used by providers in informing referrals?**
Australia	yes	X	X	X	X	yes	Government[(1)]	n.a.	n.a.
Austria	no								
Belgium	yes	X				yes	Government, Insurers	n.a.	n.a.
Canada	no								
Czech Republic	yes	X		X		yes	Insurers, Media, other NGOs	n.a.	n.a.
Denmark	yes	X	X	X	X	yes	Government	no	yes
Finland	no								
France	yes		X			yes	Government, Media		
Germany	yes	X	X	X	X	yes	Insurers, Media, other NGOs	no	no
Greece	no								
Hungary	yes			X	X	n.a.	Insurers, Media	n.a.	n.a.
Iceland	no								
Ireland	yes		X			no	Government	no	yes
Italy	no								
Japan	no								
Korea	yes	X	X			no	Insurers, other NGOs	n.a.	n.a.
Luxembourg	no								
Mexico	no	X				no	Government	no	no
Netherlands	yes	X	X	X	X	yes	Government, Insurers, other NGOs (*)	n.a.	n.a.

		About hospitals							
Country	**Q46. Is there any comparable information published on the quality of services supplied by individuals providers?**	**Data on clinical outcomes**	**Data on the use of appropriate processes**	**Data on patient satisfaction**	**Data on patient experiences**	**Is the information in a form that facilitates cross-provider comparisons?**	**Who develops and/or publishes such information:**	**Is there evidence that such information is used by prospective patients in selecting providers?**	**Is there evidence that such information is used by providers in informing referrals?**
Norway	yes	X	X	X	X	yes	Government	n.a.	n.a.
Poland	no								
Portugal	no								
Slovak Republic	yes	X	X	X	X	yes	Government, Insurers	n.a.	n.a.
Spain	no								
Sweden	no								
Switzerland	yes	X	X			yes	Government, other NGOs	n.a.	n.a.
Turkey	no								
United Kingdom	yes	X	X	X	X	yes	Government, other NGOs	n.a.	n.a.

Note: n.a. means Not Available.