CPB Document

No 167

Vertical relationships between health insurers and healthcare providers

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ISBN 978-90-5833-370-4

Abstract in English

The current institutional reforms in the Dutch healthcare sector may increase the extent of vertical relations (such as vertical contracts and vertical integration) between insurers and healthcare providers. Vertical relations may have both welfare increasing and welfare reducing effects. In this study, we focus on the latter, in particular on anticompetitive foreclosure. We distinguish three possible mechanisms that may lead to anticompetitive foreclosure, called respectively 'exclusivity', 'sabotage', and the 'waterbed effect'. We discuss under which conditions they come into play and which policy measures can prevent them.

Key words: healthcare reform, selective contracting, vertical integration, foreclosure
JEL code: D4, I11, I18

Abstract in Dutch

De recente institutionele hervorming van de Nederlandse zorgsector leidt mogelijk tot intensievere verticale relaties (zoals selectieve contracten en verticale integratie) tussen zorgverzekeraars en zorgaanbieders. Verticale relaties kunnen zowel welvaartsverhogende als welvaartsverlagende effecten hebben. In deze studie richten wij ons vooral op de laatste, namelijk verticale uitsluiting van concurrenten in de betrokken markten. We onderscheiden drie mogelijke mechanismen van verticale uitsluiting in de zorgsector die wij 'exclusiviteit', 'sabotage' en het 'waterbed effect' noemen. We bespreken onder welke voorwaarden deze mechanismen in werking kunnen treden en hoe beleidsinterventies ze kunnen voorkomen.

Steekwoorden: hervorming zorgsector, selectieve contracten, verticale integratie, verticale uitsluiting

Een uitgebreide Nederlandse samenvatting is beschikbaar via www.cpb.nl.

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Preface

The recent institutional reform in the Dutch healthcare sector may increase the extent of vertical relations between health insurers and healthcare providers. Anticipating such developments, it is important to evaluate potential effects of these vertical relations on welfare. Vertical relations have both positive and negative effects. In this study we focus on the latter: we analyse situations in which vertical relations may give rise to anticompetitive foreclosure in the healthcare sector.

This report has been written by Michiel Bijlsma, Arno Meijer and Victoria Shestalova. The study benefited from valuable comments and suggestions of the advisory committee: Tjade Stroband from the Ministry of Economic Affairs, Jan Verduijn and Susan van Velzen from The Ministry of Healthcare, Welfare and Sport, Ilaria Mosca and Michiel Verkoulen from the Dutch Healthcare Authority, Gulbahar Tezel from the Dutch Competition Authority, and Jan Boone from Tilburg University. The authors also would like to thank Erik Schut (Erasmus University Rotterdam) and Rein Halbersma (the Dutch Healthcare Authority) for their detailed comments and suggestions, and our CPB-colleagues Paul de Bijl, Rudy Douven, Casper van Ewijk and Marc Pomp for their comments on earlier versions of the report.

The usual disclaimer applies: the responsibility for this publication rests entirely with the CPB.

Coen Teulings

Director

Summary

Introduction

The recent reforms in the Dutch healthcare sector have introduced the possibility of selective contracting of providers by insurers. Selective contracting is intended to stimulate competition among healthcare providers, which will strengthen their incentives to improve efficiency and quality of healthcare services. The reforms open the way to new forms of vertical relations between health insurers and healthcare providers (e.g., exclusive contracts or vertical integration between insurers and hospitals, or between insurers and general practitioners) and may potentially increase the extent of vertical relations between these market players. Anticipating such developments, it is important to evaluate potential effects of these vertical relations on competition and on welfare.

Pros and Cons of vertical relations

Vertical relations may enhance efficiency in the healthcare sector. They may bring efficiency gains, for example, by allowing for better coordination of services within an integrated firm. Most importantly, efficiency gains should arise from competition for better cost-efficiency and quality, created by selective contracting.

However, vertical relations may also reduce competition in this market. Competition decreases, in particular, if vertical relationships enable firms to reduce the abilities of their rivals to compete, resulting in foreclosure of these rivals. Foreclosure arises when a firm disadvantages its competitors, by denying or limiting their access to inputs or customers, thus, reducing competition in the market. We identify circumstances under which increased vertical relations between health insurers and healthcare providers in the Netherlands may decrease total welfare through this effect, what we call ‘anticompetitive foreclosure’.

We stress that for foreclosure to reduce total welfare, the negative effect of reduced competition has to outweigh efficiency-enhancing effects that may stem from vertical relations between firms. This is unlikely to occur as long as both vertically related markets do not feature market power. Only if market power exists and positive effects of vertical relations are small, may vertical relations work anticompetitively.

Foreclosure mechanisms

We describe and analyse in more detail three mechanisms that may lead to anticompetitive foreclosure: ‘exclusivity’, ‘the waterbed effect’, and ‘sabotage’. We discuss under which conditions each of these mechanisms could come into play, which effects they may have on welfare, and which policy measures could prevent them.

'Exclusivity'

In the Dutch context, an insurer can realise exclusive behaviour by setting compensation limits for healthcare services of non-contracted providers at zero. In addition, milder forms of exclusion can be realised via *tiering*, a price discrimination policy where the insurer firm charges its clients different levels of out-of-pocket payments for different subsets of providers.

Several theories of foreclosure focus on the question when it is rational (i.e. profit maximizing) for a vertically integrated firm to refrain from any business with other firms, or for non-integrated firms to engage in exclusive contracts, thereby excluding rivals from doing business with them. Of the mechanisms discussed under this heading, the main concern regarding the possibility of foreclosure in the Dutch healthcare sector arises in the following two situations. First, if there are economies of scale in the provision of certain healthcare services, then tiering may be used to foreclose access to these markets for some hospitals. If this negative effect dominates the positive effect of utilising scale economies, capping the possibilities for tiering may be a relevant policy option. Second, in a liberalised hospital market with limited possibilities of entry, vertical relations between a hospital and an insurer can support the hospital's commitment to limit access to the market for other insurers. Vertical contracts can achieve this effect via exclusivity clauses, while vertical integration supports commitment without the need for full exclusion. The latter behaviour is more difficult to detect because contractual prices have to be compared with internal transfer prices, which means that in practice it may be more difficult to mitigate the risk of foreclosure in the case of vertical integration than in the case of exclusive contracts, implying the need for a careful evaluation of mergers between hospitals and insurers.

'Waterbed effect'

Before 2006, most insurers in the Netherlands were regional entities. They still have large local client bases. A large insurer that serves a significant share of consumers in a certain region may have more bargaining power vis-à-vis hospitals in this region. Exclusive contracts or vertical integration may further increase this bargaining power, improving the position of this insurer at the expense of other insurers, which in turn may increase bargaining power even more. We call this the 'waterbed effect'. If this pattern continues, large insurers will grow and small insurers will become smaller in regions. This process may result in segmentation of the national insurance market into several regional markets, each of which will feature a dominant insurer. It is important to realise that the waterbed effect does not unambiguously lower welfare, because it is also associated with efficiencies. Besides, it occurs only under certain forms of contracts.

To some extent, community rating (i.e. at the level of province, the same insurance premiums should be offered to everybody insured by the same insurer) mitigates the waterbed effect at the level of the province, because under community rating, the insurer can not reduce rates in one part of the province without reducing them in the rest of the province. In addition, it is possible that collective insurance contracts help prevent the waterbed effect by lowering entry

barriers in the insurance market. A necessary conditions for the waterbed effect to arise is: it should be costly for insurers to switch to new healthcare providers. Therefore, additional policy measures should focus on reducing these costs, for example, by making providers' quality more transparent.

'Sabotage'

When hospital prices are regulated, vertical integration between insurers and hospitals may lead to 'sabotage' against competitors. This concern arises especially for hospitals having regional market power. Price regulation prevents hospitals from raising prices to exploit this market power. However, since insurance premiums are set freely, vertical integration between a (regulated) hospital and an insurer may enable the integrated firm to transfer market power from the hospital to the insurer level and to extract consumer surplus via insurance premiums. To do so, the integrated combination can engage in 'sabotage' against other insurers, hurting them by hidden (non-verifiable) actions. In the healthcare context, the medical professional ethics reduces the scope for sabotage. Still, sabotage may occur in the form of reducing access of competing insurers' clients to the hospital (e.g., longer waiting times for these clients) or in the form of engaging in risk-selection of clients.

Some institutional features in the Netherlands, such as community rating and the risk-equalisation scheme, mitigate these mechanisms to some extent. Additionally, policy could focus on a further refinement of the risk-equalisation model and increasing the transparency of the quality of healthcare services.

Conclusions

We conclude from this analysis that the likelihood that vertical integration between a health insurer and a healthcare provider leads to foreclosure seems to be higher than the likelihood that vertical contracts lead to foreclosure. First, the sabotage mechanism does not occur under vertical contracts (since it relies on non-contracted actions), whereas under vertical integration all mechanisms can potentially come into play. Second, the 'exclusivity' mechanism seems less probable in the case of vertical contracts, than in the case of vertical integration.

In addition, exclusive contracts are often temporary. In the Dutch market they mostly expire after a year. The renegotiation of contractual terms that follows expiry creates competition between insurers or providers for the exclusive relation. This reduces the possibility of foreclosure by means of such contracts.

Note also that selective contracting is an essential part of the reform of the Dutch healthcare sector. Selective contracts between insurers and hospitals strengthen insurers bargaining position vis-à-vis hospitals, thus mitigating the hospitals' market power and forcing them compete with each other, which improves efficiency and quality of healthcare services. Vertical integration poses no such advantage. Also, efficiency effects of vertical integration can often

also be realized by means of temporary contracts. This suggests that policymakers should be more concerned about vertical integration between insurers and healthcare providers than about vertical contracts: when at least one party involved in such a merger has large market power, policymakers should therefore be wary, unless significant merger specific advantages exist. Another policy avenue is providing more information on quality, which would contribute to better market functioning.

To date, the occurrence of vertical integration or exclusive relations in the Dutch healthcare sector is still scarce, but they are likely to occur more often in the future. In few cases of intensive forms of vertical relations in the Netherlands which we discuss in this document we do not observe indications of anticompetitive foreclosure.

"Is vertical integration anticompetitive?
Definitely maybe (but it's not final)."
M. Gaynor (2006, p.175)

1 Introduction

1.1 Policy issues and the purpose of this study

The recent reforms in the Dutch healthcare sector – including the introduction of a new national health insurance scheme, the partial liberalisation of prices of healthcare services, and the possibility of selective contracting of healthcare providers by insurers – bring new policy challenges. These institutional changes open the way to new forms of vertical relations between different market players. In particular, they can potentially lead to more vertical relations between health insurers and healthcare providers, ranging from selective contracting to (partial or full) vertical integration.[1]

So far, there has been little experience in the Netherlands with selective contracting or vertical integration. The only known instance where selective contracting was used actively[2] is the 'Zekur polis' of the Dutch health insurer Univé. This insurance policy offers full reimbursement for only 13 hospitals in the Netherlands; if the policyholder visits other hospitals, a co-payment of 20% is required.[3] Also, there are few examples of stronger forms of vertical relations: one case of partial vertical integration between a hospital and an insurer (the take-over of a minority share in a small orthopaedic clinic by the CZ insurance group), some examples of financing of general practitioner (GP) medical centres by insurers, and a few examples of GPs employed by insurers in medical centres.[4]

However, it is widely expected that vertical relations will proliferate in the near future.[5] Anticipating such developments in the Dutch healthcare sector, it is important to evaluate the potential welfare effects of these vertical relations.

Although vertical relations often increase efficiency, and hence total welfare, there may be circumstances in which they affect total welfare negatively, in particular, through anticompetitive foreclosure[6]. Foreclosure arises when a firm disadvantages its competitors,

[1] See, e.g., the recent letter of the Dutch Minister of Health, Welfare and Sport to the Parliament 'Standpunt op RVZ-advies zorginkoop' of July 22, 2008, in which he emphasises the necessity of giving the players room to have selective relationships: "ruimte en vertrouwen voor zorgverzekeraars en zorgaanbieders om, door zich te onderscheiden, zorg van goede kwaliteit te leveren". Source: http://www.minvws.nl/kamerstukken/z/2008/standpunt-op-rvz-advies-zorginkoop.asp.

[2] In the sense that the insurer has contracted only a small number of hospitals to offer an insurance policy fully covering only these hospitals.

[3] Co-payments do not apply to special cases, e.g. emergency care.

[4] These examples will be discussed in more details in chapter 5.

[5] Currently, a practical obstacle to vertical contracting is the incommensurability of the various payment schemes across the vertical chain, as this introduces administrative burdens and might hamper innovative contracting. The Dutch Healthcare Authority (NZa) currently investigates which measures could improve this situation.

[6] The other potential negative effect concerns the increased risk of collusion under vertical integration. We will briefly touch upon this in section 2.2.2.

denying or limiting their access to inputs or customers, thus, reducing competition in the market.[7] If this negative effect outweighs positive effects of vertical relations, total welfare reduces. We will call this situation, in which foreclosure reduces total welfare, 'anticompetitive foreclosure'. In this study we evaluate the risk that stronger vertical relations between health insurers and healthcare providers in the Netherlands may potentially result in this anticompetitive effect.

The aim of this study is twofold:

- To identify mechanisms that can give rise to anticompetitive foreclosure in the healthcare sector and the conditions under which each of these mechanisms could come into play;
- To put forward and assess policy measures that can prevent this.

To address these questions, we apply insights from the industrial organisation literature to the case of vertical relations between health insurers and healthcare providers. The study provides no analysis of (i) legal aspects of vertical contracts and different forms of vertical integration; (ii) potential negative effects of vertical integration on the intrinsic motivation of medical personnel associated with mergers or acquisitions, such as change into a for-profit firm[8]; and (iii) effects of horizontal relations between providers, or between insurers, such as horizontal agreements or mergers between providers or between insurers. In addition, when discussing positive efficiency effects we will not discuss in detail healthcare-specific effects.

This study focuses purely on the vertical relationship between an insurer and a healthcare provider, such as a hospital or a GP. The main question is: When does this relationship lead to anticompetitive foreclosure? Although vertical relations are also possible within healthcare provision itself, e.g., between the primary and secondary care services, hospitals and pharmacies, and hospitals and physicians, those relations can also be seen as horizontal relations. They are rather different from relations between providers and insurers; therefore, they are outside of the scope of this study.

In the remainder of this chapter we describe the institutional features and the current stage of the reforms in the Dutch healthcare sector. Next, in chapter 2, we consider positive and negative effects of vertical integration and vertical contractual relations between health insurers and healthcare providers. Chapter 3 provides an overview of experiences in the US, which have a large history of vertical relations in the healthcare sector. Chapter 4 represents the core of this

[7] Competition and regulation authorities have an important role in mitigating the risk of foreclosure. In particular, in his recent letter to the Parliament, the Dutch Minister of Health, Welfare and Sport stresses the role of NMa and NZa in preventing negative consequences for the insured and patients, as well as the role of the DNB (Dutch central bank) with respect to the surveillance of financial risks of vertical relationship for the insurance companies. Source: letter to the Parliament 'Standpunt op RVZ-advies zorginkoop', July 22, 2008, http://www.minvws.nl/kamerstukken/z/2008/standpunt-op-rvz-advies-zorginkoop.asp.

[8] Health insurance firms may be for-profit firms, mutual funds, or cooperatives with a not-for-profit motive. A corporate culture clash may arise also in case of mergers or acquisitions of firms with the same status. See e.g. p.574 of Milgrom and Roberts (1992).

study, where we identify potential foreclosure mechanisms in healthcare. We discuss some illustrations in chapter 5. Chapter 6 concludes the study.

1.2 Dutch health insurance reform and the current situation

The study focuses on the Dutch healthcare sector. Therefore, we first provide an overview of the institutional details (section 1.2.1) and the current market situation (section 1.2.2).

1.2.1 The new insurance scheme

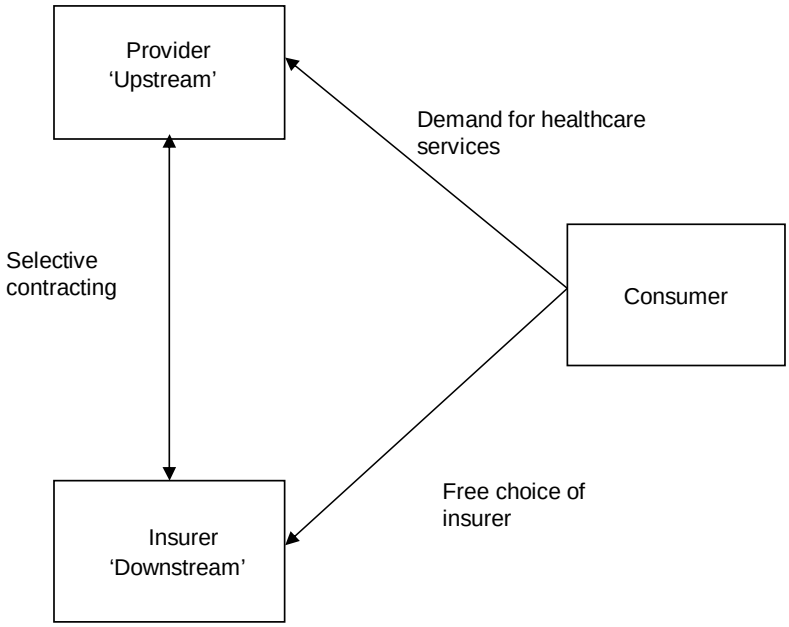
In 2006, the Netherlands reformed the national health insurance scheme. The current insurance scheme has the following features. All health insurance for basic and supplementary healthcare services is provided by private insurers. Insurance plans for basic insurance are standardised and mandatory, while all consumers can freely choose among insurers. Insurers have to accept all applicants (open enrolment) for the basic insurance package and charge a community insurance premium (i.e. the same to all clients within each province).[9] A risk equalization scheme among insurers compensates the insurers whose client base has a worse than average risk profile. In addition to the standardised basic insurance policy, insurers also sell supplementary insurance for healthcare services that are not part of the standardised benefit package. For supplementary insurance, insurers can refuse clients and they are free to charge different risk-premiums to different customers.

An important feature of the new health insurance scheme is the possibility for insurers to selectively contract with healthcare providers, such as general practitioners and hospitals. Selective contracting is intended by policy makers to improve efficiency and quality of healthcare services, as insurers would select only providers that are more efficient and/or provide higher quality, and healthcare providers would compete for these contracts. We summarise this scheme in Figure 1.1 below. When signing up, a consumer chooses between two types of insurance policies: traditional indemnity insurance (‘restitutiepolis’), which does not restrict the choice of provider, and (preferred provider) insurance policy in kind (‘naturapolis’), which may restrict this choice. Selective contracting gives rise to the latter type of insurance policies. These policies may offer access (i.e. full reimbursement of expenses) to a limited number of hospitals, which were selected and contracted by the insurer.[10]

[9] Only group discounts are allowed and discounts for people who opt for higher voluntary deductibles. Insurers with more than 850.000 policyholders are required to offer at least one nationwide insurance policy.

[10] Another difference between contracted and non-contracted providers is that contracted providers typically can send the bill directly to the insurer, while non-contracted providers first send the bill to the patient, who then claims this amount from the insurer. Note, that insurers can use selective contracting for both types of policies: preferred provider insurance and traditional indemnity insurance.

Figure 1.1 Vertical relationship in the healthcare sector



By itself, selective contracting does not exclude the possibility for a policyholder to be treated by a provider not contracted on a preferential basis by his insurer. However, patients who choose to buy a preferred provide policy will have to pay more for treatment by these providers. In practice, this extra payment may take different forms: the insurer can charge policyholders a co-payment or set compensation limits[11] on services of non-contracted providers. According to legislation, the extra payments required from patients should be sufficiently low not to constitute a real hinder for the insured[12]. Since the law does not provide an unambiguous explanation about the minimum level over indemnity payment, the Dutch Healthcare Authority (NZa) stipulates that it uses the precept that in judging the legality of basic insurance contracts any level of reimbursement is acceptable, under the condition that the level of reimbursement of non-contracted providers are transparent to consumers[13] (NZa, 2007a). This implies that contracts offering zero compensation to the insured for healthcare of non-contracted providers

[11] In addition to requiring co-payments for non-preferred providers, or charging different levels of out-of-pocket payments insurers may use certain reimbursement limits for non-contracted providers. These limits only result in out-of-pocket payments (in this case paid to providers not to insurers) if providers charge higher prices than the reimbursement limit.

[12] The exact formulation from the explanatory memorandum to the law is the following: "De precieze vormgeving van die korting wordt overgelaten aan de zorgverzekeraar. De omvang ervan mag op grond van de overwegingen van het Europese Hof van Justitie in de zaak Muller/Faure niet zodanig groot zijn dat die een feitelijke hinderpaal vormt voor het inroepen van zorg bij een niet in loondienst zijnde of niet gecontracteerde (buitenlandse) zorgaanbieder." (Het Tweede Kamer der Staten Generaal, "Regeling van een sociale verzekering voor geneeskundige zorg ten behoeve van de gehele bevolking (Zorgverzekeringswet), Memorie van Toelichting", kamerstuk 29763 nr. 3, p.31.)

[13] In the NZa outlook 'Richting geven aan keuzes' (NZa, 2007a, p.10), they say: "De NZa hanteert bij de beoordeling van modelpolissen de stelregel dat elke restitutievergoeding acceptabel is, mits voor de verzekerden transparant is welke restitutievergoeding de verzekeraar hanteert als de verzekerde naar een niet gecontracteerde zorgaanbieder gaat. In haar "Richtsnoeren zorgverzekeringen" geeft de NZa aan wat zij wel en niet transparant vindt. Daarnaast controleert de NZa of zorgverzekeraars aan hun zorgplicht voldoen en voldoende, kwalitatief goede zorg met een aanvaardbare wachttijd hebben ingekocht. In alle polissen is de toegang tot verzekerde zorg voor de consument dus geborgd."

are in principle feasible and legal as long as they are not challenged and subsequently prohibited in court. It is also feasible for the insurer to offer a better quality (e.g. shorter waiting times) with preferred providers.

1.2.2 The current situation in healthcare

Let us now look at the current situation in The Netherlands. In the health insurance market, there are several players, although their number is decreasing. If all currently announced mergers and takeovers are approved, there will be four large insurer groups[14], serving almost 90% of the Dutch population and several small insurers (Schut and Varkevisser, 2008). Competition in the basic insurance segment[15] was very intense in 2006, when the new national health insurance scheme was introduced. In that year, the rate of consumer switching reached 20% and some insurers were possibly offering prices below the cost level (Douven et al., 2007). However, in 2007, the rate of switching was again close to the normally observed level (NZa, 2007b, fig. 9 on p.38).

Healthcare services are generally subject to price regulation by the Dutch Healthcare Authority (NZa). In hospital care, (maximum) prices are regulated in the so-called A-segment, while the fees for certain medical procedures (the so-called B-segment) are freely negotiable between insurers and healthcare providers. The share of liberalised hospital services was about 8% in 2007 and increased to 20% in 2008. In 2009 the share will increase to 34%.[16] There are plans to increase the percentage of liberalised hospital services to 70% in the future. Most (maximum) prices for other healthcare providers, such as GPs, are currently also regulated. Therefore, for most healthcare services, healthcare providers do not compete on price, but may compete on quality of service or other aspects.

Contracts between insurers and healthcare providers are typically linear, i.e., the transaction price per treatment is constant and does not depend on the number of treatments provided to customers of a particular insurer. More precisely: in the (regulated) A-segment of hospital care, the prices are regulated, hence, they are linear by definition. In the (liberalised) B-segment of hospital care, non-linear contracts such as two-part tariffs, rebates and quantity discounts are in

[14] Achmea / Agis (29%), UVIT (26%), CZ / OZ / Delta Lloyd (20%), and Menzis groep (13%). Source: http://www.ggzbeleid.nl/cijfers/zorgverzekeraars.

[15] In addition to basic insurance, insurers also sell supplementary insurance. Traditionally, more than 90% of the compulsorily insured population buys supplementary health insurance from the same insurer where they buy basic insurance (Schut et al., 2007). Both types of health insurance are often sold as a joint product.

[16] On May 28th, the Dutch Ministry of Health, Welfare and Sport announced that from January 1st 2009, the percentage of liberalised hospital services will be 34%, conditional upon price developments in the current liberalised segment. In the case the 'Monitor ziekenhuiszorg' of the NZa does not demonstrate moderate price and volume developments, further liberalisation might be postponed. Recently, the NZa concluded that there were not enough indications to suppose an enlargement of the liberalised segment would lead to negative effects on quality, accessibility and affordability of hospital care (NZa, 2008). Consequently, the Minister of Health, Welfare and Sport has written that he considers an enlargement of the B-segment in 2009 sensible. Source: letter to the Parliament "NZa monitor 2008 en uitbreiding B-segment, July 18, 2008, http://www.minvws.nl/kamerstukken/cz/2008/nza-monitor-2008-en-uitbreiding-b-segment.asp.

principle allowed, but we have no information that they actually are being used.[17] However, there are indications that some insurers and hospitals have agreed upon quantity discounts (NZa, 2007c).

So far, Dutch insurers generally do not encourage their policyholders to choose preferred providers. In fact, insurers typically contract almost every healthcare provider available (NZa, 2007a), with one exception, the Zekur polis that was mentioned earlier. A recent document of the NZa lists several possible reasons for this, such as (i) unclear legislation with respect to the minimum level of reimbursement (which they are allowed to give to their policyholders in the case of the use of non-contracted healthcare); (ii) insufficient supply of healthcare services; (iv) insufficient transparency; (iii) limited discounts from healthcare providers; and (v) that general practitioners, who direct patients to specialists, do not take into account which specialists are contracted, and thus 'preferred', by the patient's insurer.[18]

[17] We leave aside the contractual relationship between medical specialists and hospitals. In practice, medical specialists can either be hospital employees (this is mostly the case in academic hospitals, where physicians are on the payroll of the hospital) or operate as independent contractors. In the latter case, medical specialists are paid on a fee-for-service basis, but they are typically affiliated to a certain hospital (or hospitals).

[18] The authors' translation from: "a) Onduidelijkheid over hoogte restitutievergoeding, b) Onvoldoende zorgaanbod, c) Onvoldoende transparantie, d) Onvoldoende inkoopvoordelen, e) Huisarts houdt geen rekening met inkoopbeleid van de zorgverzekeraar." See NZa (2007a).

2 Vertical relations: what do we know from theory?

By vertical relations we understand vertical integration or a vertical contract between an insurer and a healthcare provider. This includes, for example, vertical integration, exclusive dealing, and most-favoured nation clauses. Such contracts can either set general terms for payments, or introduce certain behavioural restrictions, or both.[19] The textbox on the next page provides more details on types of vertical relations in healthcare.

In general, some degree of vertical relations is always present and also needed in the healthcare sector. In particular, as we explained in the introduction, selective contracting is a necessary part of the new Dutch healthcare model, which is meant to increase the efficiency of the Dutch healthcare system.

Vertical relations have several positive effects. First, vertical integration and vertical contracts can be used to coordinate pricing and investment decisions of vertically related firms, by aligning their pricing and investment incentives. Because the products offered by vertically related firms are complementary in nature, this can increase welfare. Second, vertical integration and vertical contracts can also reduce horizontal spillovers between horizontally related firms competing at some level of the vertical chain (for example among healthcare providers, or among health insurers). Last, but not least, they solve problems that result from informational asymmetry or contractual incompleteness (Bishop et al., 2005; Bijlsma et al., 2008). This last advantage is probably the most important in our case, given the pervasive information asymmetries between insurers and providers.

However, vertical integration and certain vertical contracts can also have negative welfare effects. As we will explain in this section, negative effects mainly manifest in reduced competitiveness of these markets. Less competition may be harmful for welfare.

In this chapter, we give a brief general overview of both efficiencies (section 2.1) and anticompetitive effects (section 2.2) of vertical relations, with a focus on the circumstances under which the latter arise and how they can be mitigated. These types of effects can arise in any industry featuring vertical relations, therefore, this chapter is less healthcare specific than the rest of the document. However, we will include particular examples of these effects which are specifically relevant for healthcare.

[19] This is in line with Rey and Vergé (2005), who define vertical restraints as contractual arrangements "which can not only set more general terms for payments (non-linear prices - two-part tariffs, quantity discounts-, royalties, slotting allowances), but also include terms limiting one party's decisions (resale price maintenance, quantity fixing, tie-ins) or softening competition (exclusive dealing, franchising, exclusive territories)".

Types of vertical relations in healthcare (based on the literature about the US healthcare sector)

Vertical integration is the strongest form of a vertical relation and implies the integration of the insurance and healthcare provision within one firm. Under vertical integration market transaction among the participating firms are replaced by a simple reallocation or transfer within an organization. In practice, both full and partial vertical integration can occur.
In the case of partial integration one firm takes over a (minority or majority) share of another firm.

Vertical contracts represent an intermediate degree of vertical relations. Contractual provisions are also referred as *vertical restraints*. Below we discuss several forms of vertical restraints that typically have been used in the healthcare sector (for example in the US): exclusivity agreements, selectivity agreements with tiering, and most-favoured-nation clauses.

1) Exclusivity agreements limit certain rights of one or both parties signing such an agreement. The main forms are exclusive dealing and exclusive territories. An exclusive dealing agreement between an upstream firm (say a hospital) and a downstream firm (an insurer) requires the downstream firm not to engage in businesses that compete with activities of the upstream firm (or sometimes in any other businesses). In particular, an exclusive purchasing agreement requires the insurer to buy exclusively from this hospital. Such restrictions in the healthcare sector result in the different treatment of participating and non-participating healthcare providers.

2) Selectivity on the preferential basis with tiering. Under this contractual form, the insurer firm enters into contracts with some providers that it will treat as preferable providers. In order to stimulate policyholders to use the services of contracted preferred providers, insurers can use tiering. Tiering is a price discrimination policy of the insurer that charges different levels of out-of-pocket payments by policyholders for different subsets of providers. These subsets of providers are called tiers.

3) Most-favoured-nation (MFN) clauses are vertical contractual agreements in which the seller (say a hospital) agrees not to charge the buyer (the insurer) more than the lowest price it charges any other buyer. If the seller sells the product to another buyer at a lower price, then he must offer the same price to a MFN-buyer as well. Such contracts were used, for example, in the healthcare sector in the US in contracts between healthcare providers and health maintenance organisations (HMOs, see section 3 for a definition of HMO). However, we are not aware of their use in contracts between Dutch health insurers and healthcare providers.

2.1 Efficiency gains

Vertical relations can mitigate several types of inefficiencies that can occur in vertically related markets. In particular, they can reduce or eliminate efficiency losses associated with vertical externalities, horizontal externalities, informational asymmetry and contractual incompleteness. This section briefly discusses how vertical integration or contracts can curb these inefficiencies.

Vertical externalities

Vertical externalities arise if the surplus created by pricing or investments decisions of a firm at one level in the vertical chain (partly) accrues to a firm in a different part of the vertical chain. Such externalities for example exist if there is a monopoly both downstream and upstream. Double marginalization is the classical example. If a downstream firm raises its prices, the

upstream firm that buys the output from this firm has to increase its price too. This affects the profits of an upstream firm, because fewer units are sold.[20] However, a downstream firm only takes into account the effect of a price change on its own profits. If a downstream firm's marginal costs differ from the marginal costs of the total vertical chain, the price will be suboptimal from the viewpoint of the integrated firm.

This pricing externality can lower investments and lead to inefficient input substitution. As an example of the former, suppose a downstream firm can invest to lower its production cost. The investment increases profits, but a part of these profits accrues to an upstream firm. As a result, from the viewpoint of the vertically integrated structure the downstream firm's incentives to invest are sub optimal. Inefficient input substitution occurs when a downstream firm can substitute between different inputs and one input is more efficient to use than another input, but the latter is sold under more competitive conditions. A mark-up charged for the efficient input then causes the downstream firm to switch to a less efficient substitute.

Both vertical integration and vertical contracts can internalise this pricing externality. Under suitable conditions, a simple two-part tariff already suffices. The variable part (price per unit) is set equal to marginal costs, and the fixed part is used to distribute profits. In this way, the downstream distributor becomes the residual claimant and chooses prices that are optimal for the vertical chain.

However, vertical contracts may not fully internalise vertical externality for several reasons. First, if the wholesale good is tradable or there exists substantial informational asymmetry, non-linear contracts may not be feasible. Second, if bilateral contracts are not observable and easily renegotiated, exclusivity clauses may be necessary to fully resolve the externality. Finally, vertical agreements can also be used to reallocate firms' exposure to demand or cost uncertainty. If vertically related firms are risk averse, it matters how risks are allocated between different firms. In this case, from the viewpoint of the vertical structure a trade-off between optimal pricing and optimal risk allocation exists. Again, the externality may not be fully resolved. Note that different types of agreements allocate risk in different ways. Therefore, if firms are risk averse, these types are no longer equivalent.

Horizontal externalities

Horizontal externalities may arise if several firms compete at some level in the vertical chain and surplus created by investment decisions of one firm spill over to other firms. In this case the incentives to invest may be suboptimal.

Pre-sale advice is an example where one distributor's efforts to provide high quality advice may benefit his competitors that do not make such investments. Vertical restraint can mitigate this problem. For example, if consumers are not willing to travel to another hospital, exclusive territories effectively create a local monopoly for an insurer and thereby prevent free riding of

[20] In the case of compulsory insurance, and insurers paying for services, this example does not apply.

insurers on each other's efforts.[21] An insurer might then be more willing to invest in better quality of healthcare. As an example in healthcare, consider investment of insurers in a hospital administrative system or preventive healthcare measures. Other insurers can free ride on these investments. Exclusive dealing between a hospital and an insurer can ameliorate free riding effects by reducing the probability that consumers will switch to other insurers.

Risk selection by insurers may also provide an example of a horizontal externality, which plays a large role in the healthcare sector. Suppose there exist two insurers and a fixed pool of consumers, all of whom are legally required to buy insurance. Assume that insurers cannot refuse applicants for a particular policy, but can somehow tailor their insurance policy in such a way that consumers self select into a particular insurance policy (for example by offering policies that differ in quality or in the freedom to choose a hospital). If one insurer succeeds in selecting less costly (healthier) insurants (in a way not compensated by the risk-equalisation scheme), the remaining pool of consumers becomes more costly. This forces the remaining insurer to increase the price it charges to consumers. Risk-equalisation scheme among insurers, such as the one existing in the Netherlands, can correct for this effect. However, imperfect equalisation opens the possibilities for 'cherry picking' by insurers.

Informational asymmetry

Informational asymmetry between a principal and an agent arises when hidden information or hidden actions exist. The existence of such hidden information restricts the possibilities for parties to contract their way out of inefficiencies due to for example vertical or horizontal externalities.

An example of information asymmetry specifically relevant for healthcare relates to supplier-induced demand for some services (e.g., suppliers may want to increase utilisation of some diagnostic equipment and unnecessary prescribe some more expensive tests in simple situations where less expensive tests were sufficient). Vertical integration may reduce the information asymmetry because it may lead to better monitoring or because it makes information about costs directly available.

Given the pervasive information asymmetries in healthcare, vertical relations between health insures and healthcare providers may be particularly relevant to reduce the resulting agency problems. So, within this relationship this is probably the most important advantage of vertical relations.

[21] The limited willingness to travel and the resulting local monopoly is not desirable in case it is the result of incomplete information and a lack of transparency about the quality of (other) healthcare providers.

Table 2.1 Summary of effects of vertical relations

Inefficiency	Necessary condition	Solved by vertical contracts	Solved by vertical integration
Vertical externality / spillover (double marginalization, input substitution, less investment, risk allocation)	Market power upstream or downstream, no price discrimination downstream	Yes, if input is not easily tradable and adverse selection is no problem. Exclusivity clauses may be necessary to solve commitment problem, Also, under uncertainty and risk aversion the inefficiency may not be fully resolved	Yes
Horizontal externality / spillovers (free riding between upstream or downstream firms, risk selection)	Competition somewhere in the vertical chain. Spillovers should not be appropriable. In case of innovations, for example, patenting may be a partial solution.	Exclusive dealing and exclusive territories may reduce spillovers.	Yes, if free riding is eliminated
Information asymmetry (induced demand, agency problems)	The existence of hidden information or hidden actions.	Partly, if contracts can be conditioned on observable outcome. Limited by incentive compatibility.	Partly, if merger leads to a reduction of uncertainty through better monitoring or information.
Contract incompleteness (hold up)	Transaction costs should be prohibitively high. In addition, reputation effects should not be important. In case of hold-up investment should be relation specific and sunk.	Exclusivity clauses may help, if non-contractible investments affect the value of trade with parties outside of the contract.	Ownership allocates residual rights of control. This may solve the problem, but only partly if ex post rent seeking remains possible.

Contract incompleteness

A contract is incomplete if the set of feasible contracts is somehow restricted for other reasons than asymmetric information.[22] These restrictions are usually ad hoc and justified by referring to transaction costs that fall into three categories: unforeseen contingencies, the costs of writing a contract, and the costs of enforcing a contract (Tirole, 1999).[23]

[22] i.e., different from the restrictions arising due to informational asymmetry (hidden information or hidden action) where incentive constraints lead to a well-defined delineation of the set of feasible outcomes and where 'there is no limitation on the parties' ability to foresee contingencies, to write contracts, and to enforce them.' (Tirole, 1999.)

[23] There is some debate as to what extent such costs can justify incomplete contracts (Maskin and Tirole, 1999).

If contracts are incomplete, hold-up can occur, leading to vertical or horizontal externalities. Suppose two firms can trade at some future date, and that one of the firms can make a relation specific investment that increases the value generated by this future transaction. Assume that the terms of the future transaction cannot be fixed, i.e., contracts are incomplete, and that the investment looses (part of) its value outside of the relation, i.e., the investment is relation specific. Ex post, after the investment has been done, the two firms will bargain over the split of the realised value of the transaction. If the investing firm anticipates that it will be left with too little profits to compensate for its initial investment, it will not invest in the first place and hold-up occurs.

Exclusivity clauses, such as exclusive territories or exclusive dealing agreements may help to reduce hold-up problems. Vertical integration also solves hold-up problems if it eliminates the possibility of ex post bargaining.

2.2 Anticompetitive effects

Vertical integration and vertical contracts can lead to welfare-lowering effects; see also Bijlsma et al. (2008). In particular, in this document we focus on the main policy concern with respect to vertical relations in most markets: foreclosure. This anticompetitive effect has been studied extensively theoretically, but there exists relatively little empirical work. We briefly summarize findings from the economic literature in section 2.2.1. Another possible anticompetitive effect of vertical relations relates to facilitation of collusion. However, there exist no empirical study and relatively few theoretical studies on this issue. We only briefly discuss this potential effect in 2.2.2.

2.2.1 Foreclosure

In vertically related markets, foreclosure arises when an upstream or a downstream firm directly or indirectly denies or limits access to its inputs or customers. As a result, the rival firm incurs a higher cost (partial foreclosure) or has to leave the market (full foreclosure). Most of the literature has focused on the effects of exclusive contracts and vertical integration.

Foreclosure comes in two types: customer foreclosure and input foreclosure. Either of these two types may play a role in the context of the healthcare sector. Suppose an insurer and a provider (say, a hospital) integrate and the integrated firm start offering downstream insurance services as well as upstream hospital care. It can, for example, foreclose access of other insurance firms to its hospital (e.g., its affiliated hospital can ask a higher price for treating patients insured by other firms; this is input foreclosure), or it can foreclose other hospitals from providing healthcare to its clients (e.g., by asking its clients co-payments, or setting budget limits on compensations for treatments in other hospitals; this is customer foreclosure).

A central argument, due to the so-called Chicago school of thought in economics, is that in the monopoly case, foreclosure can never be anticompetitive because a monopolist can realise

its monopoly profit without foreclosing competitors. Much of the literature is intended to counter this argument. A key paper in this respect is Bernheim and Whinston (1998). They consider a market with an upstream monopolist and two downstream retailers, and show that bilateral contracting will not result in inefficient exclusion if this is not optimal from the perspective of a fully integrated structure. They argue that inefficient exclusion will only occur if so-called contracting externalities exist. Contracting externalities arise when the terms of a contract between the upstream monopolist and one downstream retailer affect the monopolist's optimal contract with the other downstream retailer. Pure bilateral bargaining cannot internalise this externality, therefore inefficient exclusion may be an equilibrium outcome.

The literature on foreclosure identifies particular circumstances that lead to contracting externalities. Indeed, contracting externalities may result in several ways.

First, they may result from contracting restrictions. Such restrictions arise if firms are forced to use linear pricing (for example because goods are tradable), if contracts are incomplete (because of significant transaction costs), or if information asymmetry limits the contracts to those that are incentive compatible.

Second, downstream competition may introduce contracting externalities. In an important paper by Hart and Tirole (1990), downstream competition introduces a commitment problem for the upstream supplier. This works as follows. It would be optimal for the upstream monopolist to supply both downstream retailers with half the monopoly quantity. However, given the quantity sold to retailer A, it wants to optimise its bilateral profit with retailer B. The monopolist will therefore sell more than half the monopoly quantity to retailer B. Retailers know this, and in equilibrium the monopolist sells the duopoly quantity to each retailer. By vertical integration or exclusives the monopolist can restore its market power.

Third, scale effects may lead to contracting externalities. If scale effects necessitate a minimum feasible scale of operation, a firm can enter into exclusive contracts with a critical number of downstream firms ('buyers'), depriving a potential entrant of the minimum scale necessary to enter the market, see Rasmussen et al. (1991) and Segal and Whinston (2000). In this case, entry can be deterred profitably, and the Chicago argument fails, because not all the buyers have to be 'bribed' into signing a contract.

In Chapter 4 we discuss how these different theories may apply in the case of vertical contracts in the Dutch healthcare market. In addition to pure pricing mechanisms of foreclosure, we also discuss those related to quality, such as sabotage.

2.2.2 Facilitating collusion

Finally, although the theoretical literature on this issue is rather sparse, it is sometimes argued that vertical contracts and vertical integration may facilitate collusion. The general idea is that vertical integration or vertical contracts increase the risk of collusion by facilitating the monitoring of prices.

For example, retail price maintenance (RPM) has been mentioned as one of such collusion-facilitating relationships between firms. In principle, cartel members have an incentive to deviate unilaterally from the cartel agreement. In the absence of RPM or vertical integration, it may be difficult to judge why prices have dropped: because of an upstream deviation, or because downstream market conditions have changed? However, more uncertainty about market conditions also makes RPM less profitable because they cannot react optimally to changing retail conditions (Julien and Rey, 2001).

In the remainder of this study, although interesting, we do not go into detail on the interaction between vertical relations and collusion.

3 What do we know about vertical relations in healthcare from the US experience?

The United States (US) has a long experience with different forms of vertical relations in healthcare. Although institutional differences exist between the US and the Netherlands, the forms and effects of vertical relations may be the same. Let us therefore look what we can learn from developments in the US.

3.1 Extent of vertical relations between insurers and healthcare providers

Arrangements in which insurance and the delivery of healthcare services are to some degree integrated are typically referred to as 'managed care'. There are different types of managed care. The textbox 'Characteristics of managed care in the US' included in this section presents the main features of these different types of managed care in the US. Managed care in the US is characterized by the rise of vertically integrated insurer-healthcare providers (such as forms of healthcare maintenance organisations, HMOs) and the occurrence of selective contracting of providers by insurers (preferred provider organisations, PPOs) from the end of the 1980s to the mid 1990s. The growth of managed care was driven by the desire to contain healthcare expenditures. However, from the mid 1990s, the number of HMOs declined. Currently less exclusive forms of managed care such as PPOs, offering financial incentives to subscribers for choosing certain healthcare providers, dominate (see e.g. Baranes and Bardey, 2004). In 2000-2001 around 17% of physician practices were owned by a health insurer and 2.3% of all physicians were employed by a staff model HMO.

The general consensus seems to be that HMOs have low costs, while there is no evidence that they have lower quality of service provision than indemnity insurers (see e.g. Miller and Luft (1997, 2002).[24] From this viewpoint, the rapid decline in vertically integrated managed care organizations (staff and group model HMOs) is difficult to explain.[25] Some suggested explanations are the following. First, in vertical integrated organizations it may be difficult to align the incentives between medical specialists and managers, because they have to some extent different objectives and constraints. In addition, the corporate culture of the insurance business may be different from the medical culture (Burns and Pauly, 2002). Second, the so-called 'managed care backlash', caused by the reluctance of policyholders to be restricted in their choice of healthcare provider (Miller, 2006), may have forced health plans to increase choice and to abandon the HMO model.

[24] Section 3.2 provides more details about the effects of vertical relations in the US.

[25] Staff model HMOs have both declined in number as in importance (i.e. market share) over time, while hospital owned HMOs mostly failed and were abandoned.

Characteristics of managed care in the US

Managed care differs from traditional health insurance in a number of respects. In traditional indemnity insurance, an insurance contract specifies a premium, a set of covered benefits and – often – a set of cost-sharing provisions that apply to these benefits. Managed care plans have other instruments at their disposal such as the selection and organization of service providers, the way providers are remunerated and methods used for monitoring service utilization. The table below distinguishes between three main types of managed care organisations on the basis of the most important relevant dimensions. In practice though, the delineation is not always clear-cut.

Characteristics of managed care in the US

	Traditional	Managed care		
	Indemnity	Preferred provider organization (PPO)	Independent practice association HMO	Staff and group model HMO
Service providers qualified	Almost all	Almost all (network)	Network (non-exclusive)	Network (exclusive)
Choice of providers	Patient	Patient	Gatekeeper (in network)	Gatekeeper (in network)
Payment of providers	Fee-for-service	Discounted fee-for-service	Capitation	Salary
Cost sharing	Moderate	Low in network; High out of network	Low in network; High out of network	Low in network; High or all out of network
Role of insurer	Pay bills	Pay bills; Form network	Pay bills; Form network; Monitor utilization	Provide care
Limits on utilization	Demand-side	Supply-side (price)	Supply-side (price, quantity)	Supply-side (price, quantity)

Source: Cutler et al (2000)

Staff and group model health maintenance organizations (HMOs) fully (vertically) integrate insurance and healthcare service delivery. In a staff and group model, people work for a (limited) number of hospitals and physicians are employees of organizations that bear insurance risk.[a)] A managed care plan with independent practice associations (IPAs) is an arrangement in which insured people are restricted in receiving care from a defined set of service providers. These service providers have not concluded exclusive contracts with a managed care plan, but also service patients under indemnity insurance. Arrangements in which the choice of providers is unrestricted but insurers provide incentives to use selected providers are managed care plans with preferred provider organizations (PPOs). They negotiate discount rates with a defined panel of providers. Hence, restrictions on the use of service providers and the methods of payment are determining factors in characterizing managed healthcare organizations.

The extent of *exclusive dealing* between insurers and healthcare providers is complete in the case of a staff and group model HMO but much lower within an independent practice association HMO and certainly a PPO. In practice, some contracts between insurers and healthcare providers in a PPO health plan and IPAs include *most-favoured-nation clauses*. Across all types of health plans for-profit and not-for-profit insurers and healthcare providers are active in the US.

[a)] The distinction between a group and a staff model HMO refers to whether a physician is employed by a medical group that contracts exclusively with the HMO (group model) or whether the HMO employs the physicians directly (staff model).

Today, Kaiser Permanente is considered as one of the few successes of managed care. The textbox below 'Kaiser Permanente' provides some factual information about this organisation. Although Kaiser Permanente is not the only successful HMO, some economists argue that these experiences are rather exceptional, although they take different views on possible reasons for this.

Kaiser Permanente

Kaiser Permanente is the largest non-profit managed care organisation in the US, operating in nine states and Washington, D.C. Although Kaiser has membership around the country, it is based out of Oakland, California and maintains an extremely high number of members in Northern California. It is a consortium of three distinct groups: the Kaiser Foundation Health Plan, Inc. and its regional operating organizations, Kaiser Foundation Hospitals, and the Permanente Medical Groups. The Health Plan and Hospitals operate under state and federal not-for-profit tax status, while the Medical Groups operate as for-profit partnerships or professional corporations in their respective regions.

Each Medical Group enters into a mutually exclusive contract to provide medical services to the members with the regional Health Plan/Hospitals. Medical Group physicians provide patient care services through a prepaid group capitation arrangement with Health Plan. Individual physicians are compensated on a salaried basis.

The organisation was founded in 1945, when two separate healthcare organizations merged into it. Since that merger the healthcare provider has continuously grown to its current point where it has 8.5 million health plan members, 148,884 employees, 12,879 physicians, 37 medical centres, 400 medical offices, and $31.1 billion in annual operating revenues.

The Kaiser Permanente model is a fully integrated model that features three main levels of integration: (1) integration of the insurance with the provision of care; (2) integration of inpatient care and outpatient care; and (3) integration of prevention, diagnosis, treatment, and care. This model has often been seen as highly cost efficient. In particular, Ham et al. (2003) have found Kaiser Permanente to achieve lower hospital cost per patient, compared to several other health systems: "Bed day use in the NHS for the 11 leading causes is three and a half times that of Kaiser's standardised rate, almost twice that of the Medicare California's standardised rate, and more than 50% higher than the standardised rate in Medicare in the United States. Kaiser achieves these results through a combination of low admission rates and relatively short stays."

Kaiser Permanente has been also ranked among the top on quality (apart from the recent negative report concerning mismanagement in the new in-house program for kidney transplantation by Northern California Kaiser Permanente (initiated in 2004) that brought it negative publicity in 2006[26] (Ornstein, C. and T. Webe, 2006), soon after which this transplant program was closed).

Sources: information retrieved from the website of Kaiser Permanente, Ham et al. (2003) and Ornstein and Webe (2006).

Burns and Pauly (2002) analyse many integrated insurer - healthcare providers networks and conclude that vertical integration was successful only in the case of early HMOs, such as Kaiser Permanente developing their health plans in the 1970s, and in the case of some HMOs in rural

[26] Ornstein, C. and T. Webe (2006) Kaiser Put Kidney Patients at Risk - By opening its own transplant center in the Bay Area, the HMO harmed recipients' odds of obtaining organs, a Times probe finds. In Los Angeles Times, May 3, 2006.

areas that buffered them against the entry of commercial plans. The other attempts of integration into integrated delivery organisations have typically failed to improve the hospital performance. Several authors have argued that the proportional (rather than a fixed) employer subsidy may be an important reason for the limited success of vertically integrated HMOs. Such subsidies imply that employer have less of an incentive to reduce costs.

3.2 Empirical findings about vertical relations in the US

Despite the long history of vertical relations in healthcare in the US, the empirical literature on the effect of vertical relations between insurers and healthcare providers is scarce. It mainly concerns the effects of such relationships on the price of the healthcare services (or products e.g. pharmaceutical products) charged by healthcare providers. Here we give an overview of the main findings.

Lower transaction prices of HMOs compared to indemnity insurers

Dor et al. (2004) attempt to explain transaction prices of procedures and treatment of bypasses (to treat coronary heart diseases) on the basis of insurance type, hospital characteristics and the market structure. The type of insurance in the form of managed care has significantly lower transaction prices compared to fee-for-service insurance. PPO plans receive a discount per treatment between 12-13% on the procedure price dependent on the presented functional form of the econometric specification. HMO plans receive 18 to 23% discount compared to fee-for-service. Brooks et al. (1997) find comparable results.

Cutler et al. (2000) compare costs in HMOs and traditional insurance plans using two datasets on heart disease treatments from Massachusetts.[27] They find 30-40% lower reimbursements, conditional on the form of acute or chronic treatment, in HMOs, primarily the results from lower prices and not from lower quantity in terms of treatment or lower quality of service in terms of health outcome.

Altman et al. (2000) analyse cost differences between managed care and indemnity insurance plans for eight different conditions by using data of employees in Massachusetts insured in a single pool. They take into account differences in treatment intensity, enrolee mix and prices paid for the same treatment. Their results are: 90% of the residual cost differences between a fee-for-service plans and managed care plans are the result of differences in price paid (the remainder due to differences in treatment intensity).

Sorensen (2003) focuses on the importance of insurer characteristics in explaining variation in discount magnitudes using data from a large number of insurers and a small number of hospitals in Connecticut (1995-1998). He finds that HMOs and PPOs extract larger discounts than indemnity plans.

[27] They put forward that the unpredictability of heart diseases of which the severity can't be foreseen, leading the distribution of disease severity likely to be independent from plan choice.

Lower transaction prices when the insurer can turn to alternative providers

In addition to the result of larger discounts of HMOs and PPOs as compared to indemnity insurers, Sorensen (2003) finds that the discounts are significantly larger when the payer is better able to channel patients to hospitals with more favourable discounts. Moreover, this factor appears to be much more important in determining the insurer bargaining power than other factors, such as the size of the insurer.

Town and Vistnes (2001) analyse the bargaining relations between hospitals and HMO under selective contracting, based on the dataset for the Los-Angeles area in 1990-1993. In line with the previous result, they have also found that a hospital's bargaining power (and thus the price it charges) decreases when HMO can readily turn to another network, excluding the hospital.

Lower cost of healthcare due to lower utilisation and more preventive services by HMOs

Managed care, in comparison with indemnity insurance, has a different impact on the quantity of healthcare services used. Miller and Luft (1997, 2002) provide literature reviews of healthcare utilization over time and show that HMOs typically have somewhat lower hospitalization rates (= quantity used per number of insured), shorter hospital stays (1 to 20%) and less use of expensive tests and procedures than healthcare providers covered by indemnity insurance and fee-for-service. Note however, that there maybe some substitution between healthcare services provided through HMOs and other parts of the healthcare system. Therefore, lower utilisation rates of healthcare services by HMOs do not necessarily imply lower overall cost of healthcare provision (see also the paragraphs on risk selection and spill-over effects).

Miller and Luft conclude also that HMOs show a greater use of preventive services and the same or more physician office visits per enrolee.

Lower insurance premiums of HMOs, but maybe higher profitability

A relevant question is if lower negotiated prices for healthcare services in managed care organizations, compared to indemnity insures, are passed on to the insured in the form of lower insurance premiums? Or, has the rise of managed care organizations lead to a situation in which they possess a certain degree of market power so that cost savings are not passed on to consumers?

The insurance premiums of enrolees in HMO-plans are lower compared to more or less similar fee-for-service plans, although comparisons are hard to make. Managed care organizations have indeed lowered insurance premiums, but it is uncertain to what extent cost savings have been passed on (Cutler and Zeckhauser, 2000). The share prices of publicly listed HMOs have at least increased substantially over the past fifteen years, indicating a sharp increase in profitability.

Risk selection by HMOs

According to Hellinger (1995), HMOs tend to enrol patients who are younger and healthier on average. Also, Newhouse (1996) provides some empirical evidence suggesting that HMOs have had some success in enrolling persons with lower health risks as opposed tot traditional indemnity insurance. This might be the prime reason why managed care organisations in the US have been successful. Note, however, the differences in institutional settings between the US and the Netherlands. The US has neither open enrolment nor risk equalisation among insurers, which augments the problem of risk selection in the US.

Typically no significant effects of HMOs on quality of service

Miller and Luft (1994, 1997) find no evidence of a significant negative effect of managed care on quality of care: most studies report no effects, but there are some studies that find either positive or slightly negative effects. Sullivan (1999) reviews the same studies as Miller and Luft (2004) do, analysing differences in quality of care provided by managed care plans and indemnity (fee-for-service) insurance plans. He explicitly takes differences in the breadth of insurance coverage into account as a criterion to exclude studies from the Miller and Luft's sample. His conclusion is that the quality of care provided by managed care plans tends to be equal or slightly inferior to that provided by fee-for-service plans. Kessler and McLellan (1999) find additionally that the presence of HMO in the region affects the relation between hospital concentration and quality: in areas of the US with a significant presence of HMOs, concentration between hospitals decreases quality while in areas without a significant HMO presence there is no relationship.

Ambiguous spill-over effects between HMOs and indemnity insurers

The empirical literature provides ambiguous results about the effect of the HMO penetration on premiums of indemnity insurers. Two effects may play a role: 'market discipline' and 'market segmentation'. The market discipline effect arises if competition by HMOs disciplines indemnity insurers, leading to a decrease of their premiums. In contrast, under the market segmentation hypothesis, premium of indemnity insurers increase because they begin to specialise in certain customer groups.

The empirical literature shows that either of these two effects can dominate. Cutler and Sheiner (1998), Gaskin and Hadley (1997), Baker (1997) and Zwanziger and Melnick (1988) found that increases in managed care market shares led to reductions in fee-for-service expenditure levels and/or their rates of growth, a result consistent with the 'market discipline' effect. Other studies, Baker and Corts (1996; 1999) and McLaughlin (1987) find that managed care market share growth can lead to higher fee-for-service premiums, a finding consistent with the 'market segmentation' hypothesis.

Baker and Corts (1996) estimated the relationship between market share and premiums and found a convex relationship between indemnity insurance premiums and penetration of

managed care organisations (in terms of market share). They suggest that the market segmentation effect becomes relatively more important as HMO penetration increases: above some threshold level (between 10-20% HMO market share), the net effect of increased HMO activity is to raise traditional insurers' premiums.

Little empirical evidence on effects of MFN clauses

There has been only little empirical research on the effect of MFNs in healthcare markets, which does not allow drawing a general conclusion. Scott Morton (1997) looked at the effect of MFN in pharmaceuticals and found that the introduction of MFN may be associated with anticompetitive effects for certain products, in particular, prices of brand-name drugs that face competition from generic drugs increased by 4% after the introduction of MFN, however there was no changes for other products.

3.3 Antitrust issues

The increase in vertical integration (as well as horizontal concentration) in the healthcare sector has posed new challenges for antitrust policy. The textbox 'Antitrust cases' (see the next page) shows some known examples from the US of antitrust cases in this area. All these cases date back to the mid 90s of the last century. The overview shows that vertical relations between insurers and healthcare providers were not judged as anti-competitive in case sufficient alternative competitors existed in the relevant market.

3.4 Conclusions

From the overview of the US experience with vertical relations we conclude the following. First, different forms of vertical relations occur in the US, ranging from fully vertically integrated staff and group model HMOs to less restrictive PPOs with selective contracts between insurers and healthcare providers. Also traditional indemnity insurance is offered by insurers. Second, apart from a few successful HMOs, vertical integration between insurers and healthcare providers has not become widespread in the US. There is no single view in the literature regarding the reasons for this. Third, most empirical studies report positive efficiency effects for HMOs: a decrease of transaction prices and lower utilisation rates of healthcare services, while no clear evidence of reductions in quality. However, the literature signals some potential negative effects, such as risk-selection, which may partly explain the lower costs of HMOs compared to the rest of the US healthcare sector. It is unclear what effect HMOs had on the rest of the healthcare system. Moreover, the 'managed care backlash' may indicate that consumers value the possibility of more choice, that HMOs do not provide.

Antitrust cases in the US

Vertical relations in the healthcare industry have not been subject to significant antitrust scrutiny, exceptions being exclusive dealing agreements between physicians and hospitals and MFN-contracts between insurers and hospitals. In the antitrust practice in the US, there are examples of both positive and negative rulings with respect to these contracts. These types of relations by itself cannot generally be seen neither competitive or non-competitive, but they may appear to have negative effects in some circumstances. Therefore, in the current US practice these types of contracts are evaluated under the rule of reason. Here we present the outcomes of the most important US cases.[28]

A well-known case with respect to *vertical integration and exclusive dealing* is New Hampshire (Marshfield Clinic). Blue Cross and Blue Shield of Wisconsin (BC/BS) charged that Marshfield Clinic, a physician-owned clinic that was vertically integrated with its HMO, had excluded the BC/BS HMO from the healthcare financing market by monopolizing the market for physician services. The court found in favour of Marshfield Clinic and concluded that the clinic did not have the market power to foreclose the plaintiff from the HMO market. Marshfield Clinic employed about 400 physicians and contracted with approximately 900 additional physicians through its HMO. These contracts were not exclusive; the contracting physicians could contract to provide services for other HMOs and could practice fee-for-service medicine.

MFN contracts are effectively treated by the courts as per se legal since the Ocean State case in 1989, despite concerns that the contracts harm competition by excluding other insurers or facilitating collusion. An example in which the *MFN* requirement was seen as anticompetitive later on is the case of Delta Dental (1997). Delta Dental is a dental insurance plan that contracts with about 85% of all licensed dentists in Arizona. Before Delta Dental began to enforce its MFN requirement, many of the dentists on its provider panel also served for other dental insurance plans, or offered their services to individual patients, at discounts of 25-40% off their usual fees. When Delta Dental began enforcing its MFN provision, many of those dentists stopped giving discounts to non-Delta patients, and resigned from competing dental plans, rather than face a reduction in the Delta-rates. Thus, Delta Dental's MFN requirement impeded the entry of low-cost dental insurance plans. Delta Dental agreed to discontinue the use of its prudent buyer program after complaints and following a consent decree.

Sources: Kursch (1995), Recent activities of the antitrust division in the healthcare field, address before the American Bar Association on April 5, 1995, Washington, D.C. http://www.usdoj.gov/atr/public/sppeeches/0171.htm.

[28] We do not discuss cases of physician hospital integration and exclusive dealing. Examples of important cases are Jefferson Parish (1984) and Woman's Hospital in Baton Rouge (1996).

4 Vertical relations in the healthcare sector: is there a risk of foreclosure?

4.1 Introduction

As we explained in chapter 2, in addition to positive effects, vertical integration may also have anticompetitive effects, such as foreclosure, which is the focus of this document. The relatively small number of antitrust cases concerning vertical integration in healthcare may indicate that foreclosure has not been a frequent problem in this sector. The number of such cases is small even in US healthcare markets, where the antitrust practice regarding potential foreclosure cases was stricter than in Europe.

Although the empirical evidence is scarce, the theoretical literature suggests that we cannot disregard the possibility that vertical relations may cause this anticompetitive effect. Therefore, in this chapter we use the economic theory to identify possible mechanisms of foreclosure that may be relevant in the context of the Dutch healthcare industry. The theoretical literature on foreclosure consists of three main groups. For each group, we review main theoretical results concerning factors triggering foreclosure and describe under which conditions this may occur.

The first group covers theoretical papers that focus on exclusive dealing between firms, i.e., it assumes that two vertically related firms will deal only with each other and fully refrain from having businesses with other firms competing in these vertically related markets. We discuss these papers in section 4.2.

The second group goes back to the literature on the so-called 'waterbed effect' (or 'cost-shift') in vertically related markets. This effect manifests when the growth of one downstream firm 'unproportionally' worsens the competitive position of other downstream firms. Since in the context of the healthcare sector, the downstream market is the market for health insurance, this effect concerns the competitiveness of this particular market. We explain this mechanism in more detail in section 4.3.

Finally, in the last group of the papers, which we discuss in section 4.4, vertically related firms can foreclose competitors by 'sabotage'. Sabotage arises when a vertically integrated firm engages in hidden actions to increase production costs or to decrease the quality of products supplied by its competitors.

Our analysis covers main forms of vertical integration relevant in the context of the Dutch healthcare sector: full integration and selective contracts between providers and insurers. When analysing the risk of foreclosure under these forms of vertical relations, we take into account important institutional features of the Dutch healthcare market, which may mitigate this negative effect. In particular, we discuss mitigating effects of community rating, collective contracts, risk-equalisation among insurers, and open enrolment for the basic insurance. We also stress that some forms of vertical relations between insurers and providers[29] always exist in

[29] Here we leave out the distinction between different types of healthcare providers.

healthcare provision. Strengthening such relations (via selective or exclusive contracts, or via full vertical integration) does not lead to anticompetitive foreclosure when both markets are sufficiently competitive.

4.2 Foreclosure by 'exclusivity'

Introduction

Several theories of foreclosure analyse when it is rational (i.e. profit maximizing) for vertically integrated firms to refrain from any business with other firms, or for non-integrated firms to engage in exclusive contracts, thereby excluding rivals from doing business with them. Before discussing this literature, we first explain in more detail some practical issues related to achieving exclusivity in the context of the Dutch healthcare sector.

Institutional context

By definition, an exclusive contract[30] between an insurer and a healthcare provider (e.g., a hospital) is a contract that prevents the insurer from engaging in business with other providers, or prevents the provider from engaging in business with other insurers. In the other words, the insurer does not reimburse his clients in case they go to a non-contracted hospital, or a contracted hospital does not accept the clients of other insurers. As explained in section 1.2.1, such contracts may occur in the Netherlands. On the insurer side, an insurer can fully refrain from dealing with certain providers by selling insurance policies without reimbursement for services of non-contracted providers. On the provider side, possibilities for excluding clients of other insurers are restricted. Providers have to serve all clients irrespectively of their insurers, especially for emergency care. However, there may be capacity constraints, in which case contracting hospital capacity by one insurer restricts the availability of this capacity to clients of another insurer.

In addition to compensation limits[31], insurers can stimulate consumers to chose preferred providers by supplementing their preferred provider policies with *tiering*, a price discrimination policy of the insurer that charges different levels of out-of-pocket payments by enrolees for different subsets of providers. In other words, insurers can require co-payments or co-insurance in insurance contracts if clients visit hospitals that they have not contracted with. Tiering is an essential part of the mechanism of selective contracting, because in order to sustain selective contracts (or in other words, to guarantee the volumes) the insurer needs to be able to channel patients towards contracted hospitals. The insurer is able to do this by charging consumers different levels of out-of-pocket payments for healthcare services of contracted and for non-contracted hospitals. An important empirical question, therefore, is whether consumers accept

[30] See also the textbox in chapter 2 for the description of exclusive contracts.

[31] The insurer can charge policyholders a co-payment or set compensation limits on services of non-contracted providers.

insurers that restrict choice by selectively contracting with very few hospitals and whether they react to such differences in co-payments.

The empirical literature confirms that the ability of channelling their clients improves the bargaining position of the insurer. (Sorensen, 2003[32]). There is some empirical evidence of the effectiveness of consumer channelling for pharmacies in the Netherlands (Boonen et al., 2007 and 2008).

If consumers are highly responsive to monetary incentives provided by tiering, tiering may be used as an alternative (more mild) form of exclusivity. If this is the case, foreclosure mechanisms relying on exclusivity still hold in the case of tiering. We discuss these mechanisms below.

Mechanisms

(a) Foreclosure in case of strong differentiation among insurers

According to the literature, as long as both the insurance market and the hospital market are competitive, exclusive dealing or vertical integration are unlikely to trigger foreclosure (see Bijlsma et al., 2008, for a literature review). However, the antitrust concerns arise when market power is large. For example, large market power may arise for large regional hospitals, where consumers do not have a good possibility of switching, and for hospitals specialised in certain diseases, because the consumers with this disease may have no alternative. This market power arises because consumers may have strong preference for certain hospitals; hence they see hospital products as highly differentiated.[33]

As long as insurers themselves are not differentiated (for example, by offering extra services) and provide consumers access to all the hospitals on the same terms, the insurance product can be seen as homogeneous. Of course, in practice, insurers are differentiated at least to some extent, e.g. with respect to service quality or with respect to the composition of their benefit packages. The introduction of selective contracting and tiering will enhance differentiation between insurers, because now the insurance policies are linked with differentiated products of hospitals.[34]

Gaynor and Ma (1996) conjecture that in the case of non-differentiated insurers, exclusive contracts will not occur, even though hospitals have market power. Gal-Or (1997) shows that

[32] Sorensen (2003) analyses the situation in the US healthcare sector, where the institutional setting differs from the Netherlands. However, his result that the ability to switch to alternative supplies improves bargaining power of the firm, is rather general and holds also in other markets. Sorensen also finds for the US, that the channelling ability is much more important in determining the insurer bargaining power than other factors, such as the size of the insurer. However, the latter result is likely to be more sensitive to institutional settings.

[33] Hospitals may be differentiated because they offer different sets of services: some operations may for example be available at one hospital but not at another one; or because patients' travel costs differ ('horizontal differentiation'); or because they offer different quality, for example, one hospital may be better at replacing knees than the other ('vertical differentiation').

[34] Two major reasons why the initial differentiation among insurers is likely to be lower than among hospitals are the standardisation of the basic benefit package and the difference on the nature of the consumer contact with hospitals (more personal and emotional) and insurers (more business-like and formal).

strong differentiation among insurers, may cause foreclosure of a hospital in equilibrium. She considers a model with two insurers and two hospitals, in which both hospitals and insurers are differentiated (differentiation is modelled as 'transportation cost'). She shows that under certain conditions on the parameters of this model, both insurers exclusively contract with the same hospital in equilibrium. In her model, although one hospital is foreclosed, insurance premiums are lower relative to a non-exclusive equilibrium; therefore, consumer welfare increases. This is due to the improved bargaining position of insurers: they can threaten the hospital to contract with its (foreclosed) competitor.

Note however that the paper takes a static approach, and does not consider a dynamic game, in which the insurer should take into account that their profit may reduce if in the next period there will be only one monopoly hospital to deal with. Besides, the result of Gal-Or relies on certain strong assumptions. One such assumption is that the consumers preferences among providers and insurers are reflected by transportation cost, and their preferences among insurers are stronger than among providers. Another strong assumption is that contracts between insurers and hospitals are linear. With general non-linear contracts, or even two-part tariffs, there are no results on foreclosure in the theoretical literature.

(b) Foreclosure as a result of scale economies in healthcare provision

Another relevant theory of foreclosure is due to Rasmussen et al. (1991) and Segal and Whinston (2000). This theory applies if scale effects in the upstream market exist. According to this theory, if there are scale economies upstream, then vertical integration or exclusive contracts may lead to foreclosure of upstream firms.

Two main assumptions playing role in this theory are (i) that there are economies of scale upstream; and (ii) that the integrated firm can effectively 'exclude' competing suppliers. Therefore, this theory is relevant only where healthcare provision is characterised by scale economies, and where there are effective ways of deterring the use of alternative providers by the enrolees of the vertical combination. Under these conditions, vertical integration or contracts between a provider and an insurer may result in foreclosure.

This may in practice be achieved, for example, as follows: since large hospitals have relatively many patients; vertical contracts or integration with large hospitals would be more attractive for insurers than with small hospitals. After signing a contract with such a large hospital, the insurer can channel clients to this hospital. Smaller hospitals may then not have enough clients to achieve their optimal scale and are forced to supply at a higher price, or have to close certain treatments, because they have not enough clients to achieve a minimum scale under which they can still satisfy the quality requirements[35] (e.g. the minimum number of medical procedures in order to be allowed to perform them). As a result these hospitals have a disadvantage, or they may even have to exit from the market.

[35] These minimum standards can specify the minimum number of medical procedures that a doctor (or a hospital) should perform, for example annually, in order to be allowed to perform them.

Note that the theoretical arguments concern only the cost-side, however, there may arise also effects on quality. Empirical evidence confirms the presence of a positive relationship between the volume of operations and quality for complex forms of healthcare, but the question of the causality between them is more complex: on the one side, patients may prefer to go to providers with higher quality; on the other side, a larger size of operations may increase quality through scale and learning effects. Some recent studies testing the causality for datasets on several types of complex treatments (such as aorta-aneurysm operations, or open-hart surgeries) find the latter effect to be stronger. See Halbersma (2008) for a brief overview.

The presence of positive effects of scale on quality justifies the need for certain restrictions on the minimal scale. The welfare gain associated with positive effects of scale on quality has to be included in the evaluation of the overall effect of vertical relations on welfare.

(c) Vertical relations as a commitment device

According to the economic literature, vertical relations can arise as commitment device for a firm with market power to restrict its output (Hart and Tirole, 1990). In more technical terms, this works as follows. When an upstream firm has market power, and there exists downstream competition, the upstream firm wants to restrict its downstream output and extract as much profit from the market as possible. However, it faces a commitment problem similar to the problem of a durable goods monopolist: as soon as he has sold his product to some downstream firm A at some price P, he has an incentive to produce some more and to sell it to other downstream firms, because he will gain from additional sales. The increase of the output, however, lowers the price level in the downstream market, thereby decreasing revenues of firm A. As firm A expects this opportunistic behaviour of the upstream monopolist, it will not agree to pay him price P. In such a case, vertical integration or an exclusive contract would provide the upstream monopolist the possibility to commit not to increase his output. Hence, he will deal with one downstream firm and will exclude the others. Therefore, this theory generates foreclosure.

The main assumptions for the result to hold are the following: (i) the upstream firm has market power, (ii) the revenues of one downstream firm depend on the transactions that the monopolist has with other firms (this is called 'contracting externalities'), and (iii) the integrated combination can effectively exclude the other firms.

In healthcare, this theory may play a role where the provider market features significant market power (e.g. regional, or specialised healthcare provider) and the insurance market consists of several insurance firms competing for consumers.

Conditions

Based on the discussion above, we can formulate several conditions under which vertical integration or vertical restraints may cause anticompetitive foreclosure by the three exclusivity mechanisms described. Some of these conditions are general for these mechanisms:

- There is initially market power at least in one market
- Positive efficiency enhancing effects are small
- There is the possibility to realise the exclusion of competitors (e.g. it is possible to use exclusive contracts, or tiering is effective mechanism for exclusion)

In addition to these, there are also specific conditions supporting each outlined theory, which we summarise in the table below.

Table 4.1 Summary of the additional specific conditions

	a) Foreclosure in case of strong differentiation among insurers	b) Foreclosure as a result of scale economies in healthcare provision	c) Vertical relations as a commitment device
Form of vertical integration	Exclusive contracts	Exclusive contracts or full integration	Exclusive contracts or full integration
Specific conditions, based on insights from the economic literature	•Linear contracts •Higher differentiation among insurers than among hospitals	•Scale economies upstream	•Contracts/integration of one insurer with the hospital affect revenue of other insurers
Who is foreclosed from the market	Hospital	Hospital	Insurer

Before turning to the discussion of policies to mitigate these types of foreclosure, let us first address the question: how plausible are these mechanisms in the Dutch context?

For mechanism (a), given the uniform basic benefits package, a *strong* differentiation among insurers does not seem likely. Besides, additional assumptions that are required for this type of foreclosure, such as a restriction on contracts to be linear may not hold. Furthermore, in the model of Gal-Or, consumer welfare does not decrease as a result of foreclosure.

Mechanism (b) seems questionable, but we cannot rule it out. Recent research by Blank et al. (2008) finds no evidence of any economies of scale among Dutch hospitals; on the contrary, there is empirical evidence of diseconomies of scale as measured by the number of beds. However, this result holds for hospitals as a single entity providing multiple healthcare services. While on average, there may be no scale economies detected (just because some services are organised more efficiently and some are not), there may be scale economies for certain types of healthcare services within hospitals at the level of medical specialties. This conjecture, however, has not been empirically tested in the literature (yet). Reviewing the peer-reviewed literature on scale effects in hospitals, Blank et al. (2008) do not come across empirical evidence concerning scale effects for specific medical procedures. A study by the Center for

Healthcare Industry Performance Studies (1997) from the US, however, finds sizable cost savings in outpatient surgical procedures are realized by hospitals with higher case volumes. In addition to cost savings, there may be also a positive effect of operation scale on quality, which also has to be taken into account in the evaluation of the total effect of vertical integration (or vertical contracts) on welfare.

Mechanism (c) may play a role in practice. In the Netherlands, many hospitals have some level of market power, whereas competition between insurers seems to be fierce. In such a situation the commitment problems identified by Hart and Tirole (1990) may play a role. To solve the commitment problem by means of contracts, firms would have to use explicit exclusivity clauses. There are provisions in the law allowing the regulator to impose proportional obligations on providers and insurers with market power, which may mitigate the likely adverse effects of such exclusive contracts. However, the commitment problem may also be reduced by vertical integration. In the latter case, no full exclusion is necessary, since foreclosure can be realised also by simply raising rival cost. In contrast to full exclusion, the latter behaviour is less restrictive and therefore more likely to be feasible.

Summarising the discussion above, we conclude that we can basically 'disregard' the mechanism (a). For (b), we can restrict consideration to activities where scale effects are present, however, their positive effects on efficiency and quality are not large. For (c) it seems that the risk of foreclosure is higher in the case of vertical integration of providers with market power than in the case of contracts.

Mitigating effects and policy

The mechanisms discussed in this section rely on the possibility of exclusion, for example, by means of exclusive contracts or by contracts with tiering. On the one side, tiering is an important instrument to realise the benefits of selective contracting, therefore, it should be generally allowed, unless there are grounded anticompetitive concerns. According to NZa (2007a), unclear legislation could have been one of the reasons why selective contracting has been hardly used so far. NZa (2007a) has already taken a clear stance on this issue, stating that any degree of tiering is allowed under the condition of transparency (as already mentioned in section 1.2.1). On the other side, it is conceivable that tiering may in some cases appear to be an effective way of foreclosing competitors (when used by a vertically integrated firm to raise costs of other insurers). Therefore, it is important to investigate its effectiveness, to see if indeed the need for capping the allowed tiering for certain healthcare services, notably, for those where we expect economies of scale but where the positive effects do not outweigh the foreclosure effect.

In the case of mechanism (c), contracts (even those involving providers with market power) are less likely to achieve foreclosure than vertical integration, therefore, the latter should be considered with relatively more caution.

4.3 Waterbed effect

Introduction

An important feature of the Dutch healthcare market is an asymmetric distribution of insurers across regions. Historically, each insurer originates from a certain region and still serves the most of that initial region. This feature may trigger foreclosure via the so-called 'waterbed effect'. This effect may arise when the growth of one insurance firm results in a competitive disadvantage for another firm. This disadvantage relates to the cost-shifting of the provider to decrease prices for one insurer while raising prices for others. In relation to the foreclosure literature, the waterbed effect can be viewed as a specific way to raise rivals' cost. The related concepts that are known in the healthcare literature are 'dynamic cost shifting' or 'cost shifting' in the healthcare literature (Dranove and Satterthwaithe, 2000).

Institutional context

Before 2006, public insurers were local entities. Although the market has been liberalised and they can operate nationally, they still have large local client bases in their original regions. In one region insurer A is large and insurer B is small, whereas in another region insurer B is large and insurer A is small. At the level of each region, selective contracts or vertical integration may further increase the bargaining power of the large regional health insurer and decrease the bargaining power of competing small firms. When this happens, the so-called waterbed effect may come into play.

It seems probable that large insurers in the Netherlands have a better bargaining position than small insurers. For example, recent research using data on contracted prices and quantities of Dutch healthcare providers for 2004-2006, find that insurers with a larger market share are able to contract at a lower price (Mosca et al., 2007, Halbersma et al., 2007). Having an asymmetric distribution of market share to begin with may enhance the waterbed effect. Once triggered, the effect may stimulate a further growth of the large regional insurers in their respective regions. In the end, this may lead to the market structure that features a large dominant insurer in each region that contracts all major regional providers.

A counterargument to this reasoning arises if there is a shortage of healthcare supply capacity in the region (e.g. due to regulatory supply constraints). A large regional insurer may then be at a competitive disadvantage, because of its large regional market share and the legal obligation[36] to provide care such an insurer has to contract all providers (also inefficient ones), while small insurers can selectively contract with only the most efficient ones because they only have to contract care for a small number of customers. Moreover, since the providers know that the large insurer does not have an outside option, they may ask a higher price. Due to this lock-in effect, large regional health insurers may have to charge a higher premium.

[36] In Dutch, this obligation is called "zorgplicht".

Mechanism

When the downstream firm (the insurer firm, in our case) is growing as a result of horizontal mergers, the waterbed effect may arise as follows. Suppose that a large insurer receives a larger discount from a provider than a small insurer. If such a large insurance firm merges with another insurance firm, this increases its bargaining position, resulting in additional discounts. Therefore, the merged party can reduce insurance premium and attract more consumers, who will leave the competing insurers. This further increases its bargaining power, while reducing the small firms' bargaining power. As a consequence, the discount received by small firms from providers decreases, which further deteriorates their bargaining position. In this way, the large firms grow and the small firms shrink. Inderst and Valetti (2008) show that the waterbed effect may occur also if the growth of the large firm is 'organic' (because of efficiency improvements), instead of through horizontal mergers. The textbox on the next page explains in more technical terms how and under which conditions the waterbed effect may arise.

Since the mere mechanism of the waterbed affect consists in cost-shift between the firms, this effect by definition causes foreclosure of small firms by raising their cost. However, this foreclosure is not always anticompetitive. First, the large buyer's increased competitiveness (due to its lower marginal costs) may force smaller buyers to reduce their prices too.[37] If this happens, all prices decrease, which is generally good for welfare. Second, although the small firms' customers pay more, the large firm's customers pay less. The overall effect on welfare depends on the relative sizes of these two opposite effects.

Conditions

Based on the insights from the theory of Inderst and Valetti (2008), discussed in the textbox, we can identify several (cumulative) conditions for the waterbed effect to arise and to lead to anticompetitive foreclosure:

- Linear or at least restricted contracts
- The possibility of regional premium differentiation by insurers
- Large discrepancy in the size of insurers
- No shortage of healthcare supply capacity
- Significant fixed contracting costs leading to larger discounts to large insurers
- Significant share of consumers actively reacts to differences in premiums
- Low potential efficiency gains from integration

[37] Assuming that prices are above marginal cost.

The 'waterbed effect'

The term 'waterbed effect' was first coined by the UK's competition authority in their inquiries into the UK grocery retailing sector. It refers to a situation where a growth of one retailer ('buyer') generates a lower wholesale price for this firm, while a higher price for its competitors. A larger price reduction allows the large buyer to reduce its final prices and to attract a larger market share at the expense of its smaller competitors. This reduces the scale of small buyers' activities and deteriorates their bargaining position vis-à-vis their suppliers. As a result, small buyers' discounts are reduced and their prices are increased. This may harm consumer welfare, but it can also increase consumer welfare.

Inderst and Valetti (2008) present a theory of the waterbed effect. They assume that buyers can turn to an alternative supplier, but that they incur a fixed switching cost when doing so. The possibility of bypass (switching to an alternative supplier) creates an outside option for the buyer, which disciplines the incumbent supplier and determines the price it can charge the buyer. A large buyer can spread its fixed switching cost over a larger volume. Its outside option is therefore more attractive, which results in a larger discount. The resulting lower marginal costs make large buyers more competitive. Due to the increased competitiveness of larger buyers, the profits of a small buyer decrease, both when this buyer stays with the incumbent and when it switches to the alternative supplier. If the profit decrease is larger in the latter situation, then the large buyer's discount negatively affects the small firm's bargaining position. Inderst and Valetti argue that this is the case under plausible assumptions. The small buyers' less attractive outside option leads to lower discounts and, hence, higher prices for consumers. The waterbed effect is more likely to harm consumers when the large buyer's price discounts are already substantially larger compared to small competitors.

Inderst and Valetti show also that the waterbed effect arises irrespective of whether a firm grows by acquisitions or 'organically', i.e., by becoming more efficient. Note that the total welfare (of both firms and consumers) is increasing in the case of 'organic' growth, since a more efficient firm will be growing.

This theory may be relevant for the healthcare sector, where health insurers act as 'buyers', who have to bargain for the prices of healthcare services with hospitals who play the role of 'suppliers'. 'Switching costs' can be interpreted as the insurer costs of negotiating new contracts with alternative hospitals and stimulating the insurer's clients to use the services of these hospitals. Therefore, the theory can be used to illustrate the contracting *disadvantage of small insurers compared to large insurers*. An important caveat is that this paper restricts the contracting form to be linear. If the buyer and the seller (in the context of the healthcare market: the insurer and the hospital) can enter into nonlinear contracts, the waterbed effect may not survive. To see this, assume that a two-part tariff allows the insurer and a hospital to maximize their bilateral profit. A change in bargaining strength will then just change the allocation of total surplus through the fixed fee but not the per-unit price agreed upon. In this case, all other insurance firms' marginal costs are unaffected by the increased bargaining power of the large insurer firm and the market outcome does not change if the distribution of bargaining power changes. Nevertheless, general nonlinear contracts may not be feasible if the intermediate good (i.e. the provision of healthcare service by the hospital) is tradable, or if substantial information asymmetry about costs exists. Also, contracts may be incomplete due to transaction costs.

Mitigating effects and policy

To some extent, community rating mitigates the waterbed effect at the level of province because an insurer cannot reduce rates in one part of the province without reducing them in the rest of the province. Therefore, the requirement for insurers of more than a certain size to offer policies on the national level would go against this effect. Currently no insurers offer provincial insurance policies yet, but we do not know if this will also hold in the future. The question is

therefore whether premium differentiation at the level of provinces (as allowed by the ZVW) is sufficiently refined to make the waterbed effect possible.

In addition, it is possible that collective contracts help prevent the effect by lowering entry barriers for insurers. Large employers often employ relatively many people from many different regions. If by offering a (small) price decrease a small insurance firm or a potential entrant succeed in convincing some large employer to sign a collective contract with it, this leads to a large shift in market share away from large insurers. Such a situation would ensure that large insurers' competitive advantage vis-à-vis small insurers would be small, thereby limiting the ability of large insurers to exercise their market power and obtain disproportionate discounts.

Note that the presence of fixed costs of dealing with another provider is an important condition for the waterbed effect. We interpreted these costs as contracting costs of getting involved with a new provider (it includes collecting information on quality and channelling consumers to this new provider). For example, these costs may arise because before engaging into a contract with a new provider, the insurance company needs to collect certain information about quality and capacity of this provider. Consumers are also more wiling to switch to the new provider if they know that the quality of its services is high. Policy can reduce contracting costs by making this information more transparent.

4.4 Foreclosure by hidden actions: sabotage

Introduction

The mechanisms that we discussed in sections 4.2 and 4.3 are realised by contractible actions of the firms (i.e. via prices). In this section we discuss the potential for foreclosure by hidden actions. Hidden actions to hurt competitors are known in the economic literature under the term 'sabotage'. There exists an extensive literature on sabotage in telecommunications markets (see e.g. Mandy and Sappington, 2007), which distinguishes two forms of sabotage: cost raising or demand lowering sabotage.

In theory, incentive for sabotage arises when a downstream firm, which has large market power and is subject to regulated prices, integrates with one of the firms competing in the upstream market. This circumstance may occur also in the healthcare market, where provider prices are often regulated. Therefore, in this section we study the implications of vertical integration between insurers and providers (without a loss of generality we will refer to providers as 'hospitals') when provider prices are regulated. The question we want to address is: can an integrated firm use hidden actions to foreclose competing insurers?

The concern arises for hospitals with strong market power. Price regulation prevents the hospital from raising prices to exploit this market power. However, vertical integration between such a hospital and an insurer may enable the combination to transfer the market power of the hospital to the insurer level. In contrast to the hospital market, the insurance market is not price-regulated. Gaining market power in the insurer segment would enable the vertically integrated

firm to extract consumer surplus via insurance premiums. Therefore, under regulated hospital prices, vertical integration of an insurer with a hospital possessing market power may give an incentive to the integrated firm to drive competing insurers out of the market. The vertically integrated firm may be able do this by engaging in sabotage.

Previously we noted that vertical integration can only lead to anticompetitive effects when either healthcare providers, insurers or both have market power. Here we consider the case in which market power is present on the provider side, i.e. in the provision of healthcare services in hospitals, rather than on the insurer side.

Institutional context

As explained in chapter 1, in the Netherlands, as in other European countries, prices of most healthcare services are regulated (the A-segment)[38], while prices of some healthcare services are not (the B-segment) (NZa, 2007c). Given a large share of price regulated healthcare services (80% in 2008) and the possibility that market power is present for some hospitals, there may be therefore a potential for sabotage.

The premiums of the total insurance package offered by insurers can be set freely.[39] However, insurers are required by law to demand community ratings *at least* per province, i.e. geographically uniform premiums within the province. In addition, they have to accept all clients applying for the basic package. Insurers offer consumers both the standardised basic benefit package and non-standardised supplementary benefit package.

Mechanisms

In order to illustrate the mechanism of sabotage, we restrict ourselves to the case in which maximum prices for all healthcare services provided in hospitals are regulated, while insurer premiums are not. This is currently nearly the case for the basic benefit package.[40]

Suppose we have a hospital with a monopoly position in a particular geographic area, and a relatively competitive insurer market. If an insurer vertically integrates with this hospital, it creates a vertically integrated firm that has market power in the upstream market, where its prices are regulated. We know from the literature on sabotage that such a firm can then exploit this power via sabotage, in the other words, hurting downstream rivals by non-verifiable

[38] More precisely: the prices of consults and medical procedures by GPs and (institutionalized) treatments in hospitals are regulated in the form of maximum reimbursement tariffs, and the prices of consults of freely established specialists are regulated by bandwidth tariffs. In the Netherlands the bandwidth tariffs for free established specialists consist of hourly fees, while maximum prices for institutionalized medical treatment in hospitals, i.e. a bundle of complementary medical services, are gradually paid on the basis on recently introduced forms of DRGs (DBCs in Dutch), but also still on the basis of functional macro budgeting. The prices of the some healthcare services covered under the mandatory basic benefit package in the segment of uncomplicated, elective care are unregulated. Insurers bargain with healthcare providers to determine transaction prices for both categories of healthcare services.

[39] Since the enactment of the Health Insurance Act (ZVW), insurers in the Netherlands are allowed to freely set insurance premiums for the basic mandatory insurance benefit package.

[40] Our reasoning concerns regulated prices, and therefore, strictly speaking, is not applicable for the liberalised segment. However, it is presumably still applicable, as long as the share of regulated services is large.

actions. Below, we describe three potential ways of sabotage that seem relevant from the theory.

First, as explained in chapter 2, the healthcare industry is characterised by information asymmetry between healthcare providers and insurers, therefore, many aspects of quality are not fully observable and consequently non-contracted. Hence, there is a theoretical possibility of 'sabotage' by decreasing non-contractible quality. The medical professional ethics makes non-contractible quality decreases unlikely to be manifested in the form of a reduction of the quality of medical treatments. Still, there may be also other aspects, which are not fully contracted yet observed by clients, inducing them to switch, e.g., hospitals can provide faster service to the own insurer's clients, while longer waiting times for other clients.

Second, it is known that firms in insurance markets may increase profits by selecting clients with smaller expected insurance costs. This behaviour is also called 'risk selection'. In the context of health insurance, vertical integration between an insurer and a provider may facilitate such behaviour against other insurers as follows. Hospitals have better information than insurers about potential risks of certain sicknesses and complications for their clients. Therefore, a vertically integrated firm has more information about potential future costs of the patients of this hospital than its competitors have. The firm has the incentive to use this superior information for profit maximisation, in particular, by 'risk selection', leaving higher risk clients to a less informed competing insurer. In practice, an insurer firm cannot reject clients for basic insurance, but it can make its product unattractive to certain clients, e.g. by not accepting them for supplementary insurance. Of course, the risk equalisation scheme among insurers reduces the scope for this. Risk selection is only possible to the extent to which the scheme may not be perfect. Another question is whether indeed the insurer could learn from the hospital much more than he could have learned from consumers directly (for example, by asking them to fill a form with health related questions before providing them with supplementary insurance).

A third form of hidden actions is supplier-induced demand, which we mentioned in chapter 2. A vertically integrated firm can in principle increase the cost of competing insurers by inducing extra demand for healthcare services of the clients of these insurers. However, in order to realise this, the doctors would need to selectively assign treatments in such a way that induces more costs on clients of other insurers, while not on the insured by this firm.

These three types of hidden actions fit to our definition of sabotage. Professional ethics may curb all forms of hidden actions detrimental to patients, but it might be corrupted in the face of strong incentives. The existence of non-contractible and not transparent information on quality seems the main concern here. Information regarding these aspects is very difficult to verify in practice.

Note also the difference between the case of regulated tariffs of healthcare providers and the case of unregulated tariffs. In the latter case, vertical integration of a hospital having strong market power (or even a monopoly position in some segment of the market) with a competitive insurer is less likely to evoke some form of sabotage for two reasons. First, hospitals operating

in the liberalised segment do not need integration in order to raise prices. Second, even if such a hospital would want to engage in sabotage, this would not be sustainable, as long as entry in the liberalised part of the hospital market is relatively easy. In the latter case, raising prices is likely to lead to new entry.

Conditions

Sabotage helps vertically-integrated firm transfer market power from the hospital market into the insurance market. Since market power is transferred to the insurer segment, insurance premiums are likely to increase, unless efficiency gains that can arise from vertical integration are extremely large. Based on the discussion, we identify the set of conditions for this mechanism come into force:

- Large initial market power of the provider (e.g. almost monopoly situation)
- Regulated prices of providers
- Non-contractible aspects and the possibility for the provider to engage into sabotage effectively
- Low potential efficiency gains from integration

Mitigating effects and policy

The presence of community rating and the risk-adjustment scheme among insurers mitigate incentives for sabotage to some extent. We discuss these two existing elements of the Dutch system below, and then turn to additional policy options.

In the Netherlands insurers are required to charge community premiums for the basic benefit package. Therefore, the insurer cannot raise the insurance premium only in one separate region, but would have to set a higher premium for the whole province. This may lead to a loss of clients in other parts of the province. Hence, under community rating, the increase in the insurance premium by a vertically integrated firm is lower than in the case of price differentiation across regions within the provinces. This limits the possibility for the insurer to benefit from market power that may arise because of vertical integration with a particular hospital, which reduces incentives for sabotage. However, if a firm is small and operates only in one region, this mitigating effect does not work.

The risk-equalisation scheme already limits the possibility of sabotage by risk selection, as insurers are ex ante and ex post compensated for the risk profile of their client base. If there is a scope for using the hospital's superior information for risk selection, an additional way to reduce sabotage would be erecting 'Chinese walls' within an insurer-hospital combination with regard to certain information about patients' health risks. This applies to information allowing the integrated firm to engage in sabotage, i.e., information which the insurer otherwise would not have.

Sabotage through quality degradation by hospitals will in practice be mitigated by the work ethic of medical specialists. Besides, policy measures can contribute to safeguarding quality,

e.g., by increasing transparency of the quality of service, for instance trough disclosure of quality aspects, such as waiting times, on websites.

If the above relatively soft measures remain insufficient for decreasing the negative effects of sabotage, the negative effects of vertical integration may dominate the positive effects, which will result in anticompetitive foreclosure. In such a case, a stricter policy measure would be to prohibit vertical integration.

4.5 Summary

In addition to positive effects, vertical relations (such as vertical integration or exclusive contracts) may also have anticompetitive effects, in particular, related to foreclosure. Therefore, it is important to recognise the special circumstances that may potentially initiate a 'foreclosure mechanism'. These mechanisms may target to exclude competitors, to disadvantage them, or to abuse market power via 'sabotage'. In this chapter we have identified market conditions associated with such mechanisms.

We stress that there are two general conditions, which hold for any foreclosure mechanism discussed above. First, foreclosure cannot arise in perfectly competitive markets; and second, for foreclosure to be anticompetitive, the negative anticompetitive effect has to outweigh the potential efficiency enhancing effect. In addition to these two conditions, each mechanism relies on additional specific conditions (an overview of the specific conditions is provided in Table 6.1 in the concluding chapter).

Several institutional features of the Dutch healthcare market mitigate foreclosure mechanisms to some extent. These mitigating factors include community rating, collective contracts, risk-equalisation among insurers and open enrolment for the basic insurance, which makes foreclosure in the Netherlands less likely than in countries that do not have these institutional arrangements. Yet, these features may not fully prevent the risk of foreclosure. Therefore, we have also discussed additional policy options that could improve the market outcome (summarised in the last row of Table 6.1).

In the next section we use these insights to provide some illustrative analyses of particular forms of vertical relations (full integration and vertical contracts) relevant for the Netherlands, highlighting the role of market conditions for the market outcome.

5 Illustrations

In the Netherlands, insurers and healthcare providers are contemplating cooperation, or in a few cases have already taken steps in this direction. Cooperation takes the form of selective contracts or mergers and acquisitions between insurers and providers, such as hospitals, nursing homes and GP practices. Several co-operations were realised recently. Examples are the take-over of a minority share of the Maxima Medical Centre by the CZ-insurance group, selective contracting related to preferred provider policies recently offered by two Dutch insurers (the 'Zekur' polis by Univé and the recent insurance policy by CZ[41]), and the agreement reached by GPs in Houten, a small Dutch city, with insurer Menzis to work in five medical centres, which will be financed by Menzis.

These particular types of vertical relations are especially relevant for the Netherlands. Therefore, here we address them in more detail. We first look at mergers between an insurer and a hospital (section 5.1). Next, we turn to the example of selective contracting of hospitals by an insurer (section 5.2). Finally, we consider vertical relations between GPs and insurers (section 5.3). For each of these three types of relations, we first discuss an existing example in the Netherlands, after which we apply the insights from chapter 4 to analyse the outcome of this type of relations for different market situations and to identity when (and by which mechanisms) foreclosure may arise, and when not.

5.1 Mergers between an insurer and a hospital

A merger between an insurer and a hospital creates a vertically integrated chain, featuring elements of an HMO-structure. The effect of such an organisational form on total welfare is not clear-cut: if anticompetitive effects exist, they may still be outweighed by positive efficiency effects.

5.1.1 Example

A recent example of (partial) vertical integration between a hospital and an insurer in the Netherlands has been the take-over of minority share of the Maxima Medical Centre, a small orthopaedic hospital, by the CZ-insurance group. At the insurer level, CZ is a large regional insurer with 60% market share in the region (Everaers, 2008), while at the provider level, the Maxima Medical Centre has a relatively small market share.

As explained in chapter 2, vertical integration can have a positive effect on efficiency, which may have been the case here. In addition to increasing productive efficiency, the take-over can also increase the quality of service. For example, Everaers (2008) stresses the substantial quality improvements that have been realized in this case. These improvements stem

[41] This insurance policy abolishes the compulsory co-payment of 150 euros for clients visiting contracted providers who meet certain quality standards set by CZ.

from a better internal organisation and improved planning of operations in the hospital that were put forward by the insurer, leading to reduced waiting times for patients. However, to the extent that these efficiencies seem to be pure in-hospital efficiencies, a relevant question is why the take-over was necessary to achieve them?

5.1.2 Foreclosure analysis

In a general case, the possibility of foreclosure (as well as the possibility of each foreclosure mechanism) depends on the market circumstances. Therefore, when analysing the possibility of foreclosure, we should first identify which type of market structure we are dealing with, and then focus on this particular structure.

No market power of the hospital and potentially competitive insurers

If both the hospital market and the insurer market are relatively competitive[42], vertical integration can hardly affect the level of competition in these markets; therefore there is little scope for vertical integration to hurt consumers. In the example of CZ and the Maxima hospital, since only a small clinic is involved in cooperation, and besides, it is not fully owned by the insurer and continues to serve clients of other insurers, anticompetitive foreclosure seems unlikely to occur.

Regional hospital with market power

In the case of a hospital with market power the welfare outcome of its vertical integration with an insurer may be different. We explained in section 4 that vertical integration of a hospital with market power and an insurer (assuming several insurers compete in the insurance market) can lead to foreclosure via 'exclusivity'. First, a hospital may vertically integrate with an insurer to commit to charge other insurers a high price. Second, if the minimal feasible scale of operation is relatively large; or if there are large economies of scale and scope in provision of (liberalised) healthcare services, vertical integration may lead to foreclosure of other hospitals.

In addition, under vertical integration between an insurer and a hospital, foreclosure may also arise via 'sabotage', if hospital tariffs are regulated. Sabotage may occur either in the form of increased costs, or decreased quality, or both. Whether sabotage occurs, and in which form, depends on how easy it is for the vertically integrated combination to increase rivals' costs or reduce rivals' demand. Without price regulation, the hospital does not have an incentive to extract rents by engaging in sabotage (see chapter 4).

Regional insurer with market power

If there exists market power of a major regional insurer in the insurance market, vertical integration may result in the 'waterbed effect', if it on the one hand increases the efficiency of

[42] The case if the market for hospital services is open for entry and entry of new providers is easy, falls into this category. In this case, the market is effectively competitive. Entry will occur and vertical integration is unlikely to be anticompetitive.

the integrated firm, but on the other hand weakens the bargaining position of the remaining insurers versus the integrated hospital-insurer combination, as a result of their loss of market share. Although this effect will generally increase total welfare, it may decrease consumer welfare in the long run.

Take-over of a hospital by an insurer in the case of the hospital bankruptcy

What are the potential consequences of a take-over of a hospital by an insurer, when the hospital faces bankruptcy? Such a situation may occur in the near future, as some hospitals are increasingly liquidity constraint. According to the RVZ,[43] about 25% of the Dutch hospitals may get into financial problems as the result of the liberalisation of hospital care and the increased financial responsibilities of hospitals for their investment. Meanwhile, the 'Commission of wise men' has been established to work out tailor-made approach for hospitals which may come into insuperable problems as a consequence of the abolition of re-calculation of capital costs.

A central question that should be addressed is: why would an insurer be willing to invest in a hospital that faces bankruptcy and cannot itself acquire sufficient financial recourses? A naive answer may be that hospitals face financing constraints that do not apply to insurers. Thus, though the hospital's operations may be profitable in principle, it might not be able to attract the necessary financial resources, because it cannot pay potential investors an adequate return on investment.[44] However, if an insurer would be willing to invest, why would an arbitrary private investor not be? Both are rational investors seeking to maximize profits. If under the same conditions non-insurers would also be interested to invest, there seems nothing to worry about for policy makers.

If only insurers take special interests in hospitals that face bankruptcy, this must be because additional profits can be realized that are specific to the insurer-hospital combination. In particular, the insurer-hospital combination may realize efficiencies that cannot be realized in other ways. However, if such efficiencies would exist, they would also be present in the absence of potential bankruptcy for the hospital (as the previous case has shown). Nevertheless, cash starved hospitals may be willing to sell out at a bargain, increasing the likelihood of such a merger. Of course merger specific anticompetitive effects can in principle also be a reason to integrate vertically. For example, the takeover can create the possibility for the insurer-hospital combination to engage in anticompetitive foreclosure.

Conclusions

In the general analysis provided in this section, we have illustrated the link between market power and the potential foreclosure mechanisms that, at least in theory, may play role in the case of vertical integration between an insurer and a hospital. We stress that initial market power is an important condition for all these mechanisms.

When the hospital has market power, vertical integration with an insurer facilitates the hospital's commitment to charge higher transaction prices with other insurers, which can lead to

[43] RVZ stands for 'Raad voor de Volksgezondheid en Zorg'. According to RVZ, "...zo'n 25% van de instellingen door deze grote verandering problemen gaat krijgen. Dat kan leiden tot overnames, faillissement, of vervanging van zwak management". See the RVZ press release of March 7, 2006.

[44] To date, Dutch hospitals have a non-profit status. It is expected (although not certain yet) that as from 2012 Dutch hospitals will be allowed to make profit. A well-known case of large financial difficulties in a hospital is the case of the Amsterdam-based Slotervaart hospital, which was then taken-over in 2006 by the Meromi Holding (not an insurer). Already in 2007, it showed a positive result. Source: 'Onderneemster maakt noodlijdend ziekenhuis winstgevend', February 11, 2008, see http://www.zibb.nl.

foreclosure of other insurers ('raising rival costs'). If scale economies are present in the segment of healthcare services in which this hospital operates, vertical integration can cause also foreclosure of other hospitals operating in this segment. When the hospital has market power and its prices are regulated, vertical integration may provide an incentive for foreclosure via sabotage. Sabotage requires that the integrated provider can manipulate the quality of healthcare service delivered to clients of other insurers, or that it can use private information of the provider to undertake actions in the insurer segment.

Finally, in case of integration of a large regional insurer with a hospital in its region, other insurers can be foreclosed (from this region) via the 'waterbed effect'. However, such foreclosure is only possible if large positive efficiency gains are realised by vertical integration.

5.2 Selective contracting and tiering

In this section we focus on effects of selective contracts between insurers and healthcare providers in combination with tiering. So far, most Dutch insurers hardly restricted the choice of healthcare providers for their policyholders. There is however an exception – the 'Zekur' polis of Univé. We first describe this example, after which turn to a more general analysis.

5.2.1 Example

In 2007, the Dutch health insurer Univé introduced a new insurance policy, called the 'Zekur' polis. This insurance policy offers full reimbursement for hospital care at only 13 hospitals and only for medicines that are bought at the internet pharmacy of Univé. In special cases (e.g., emergency or top clinical care), Univé will cover the full cost for the treatment at any hospital, otherwise, visiting other hospitals requires a co-payment of 20% of the incurred cost.[45] This insurance policy is offered only via the internet. It can be terminated at any time during the year, after the 'termination term' of two month (required by the law) expires. There is no specialised childcare hospital among the 13 hospitals included, therefore, this policy is not intended for families with children.

The 'Zekur' polis is the cheapest insurance policy in the Netherlands. In 2007, its premium was 933 euros, roughly 120 euros below the Netherlands' average (Douven and Mannaerts, 2008). However, a remark is in place about other (than foreclosure) potential effects of vertical relations exposed by this case. See the box 'Risk selection versus specialisation' below for more details.

[45] Healthcare provided by GPs is included in the insurance policy.

Risk selection versus specialisation

One explanation for the relatively low price of the 'Zekur polis' is that selective contracting results in more efficient healthcare provision or more bargaining power on the insurers' side. An alternative explanation, offered by Douven and Mannaerts (2008), is that this policy might be designed to select favourable risks. The reasons are the following. First, the insurance policy can only be bought via internet, thus implicitly selecting younger people. By itself, this would not be a problem, because the Dutch risk-equalisation scheme adjusts for the age of insurants. However, in combination with both the restricted choice of hospitals and internet pharmacy services, this may result in implicit 'cherry picking' from this group, if this polis is more likely to be selected by healthier people, for example, by young men and women without hospital experience; or, among women, by those who do not have children or do not plan to give birth during this insurance contract. Second, a policyholder can switch to another insurer at any time, which makes it attractive to buy this policy when healthy, and switch to another policy when getting seriously (chronically) sick.

Some efficiency benefits can indeed arise, for example from cost savings realised by offering insurance and pharmacy services on the internet instead of over the counter. However, savings on the side of healthcare provision are likely to be mild, according to Douven and Mannaerts (2008). It is more likely that the insurer gets favourable contracts from hospitals for other reasons. Hospitals are compensated per DBC (diagnosis based combination), but there are cost differences within the same DBC, e.g., the cost treatment of a young person is on average lower than for an old person. Therefore, the discounts that are given to Univé by these selected hospitals may be arising because of this.

This experience shows that selective contracting accompanied by offering preferable provider policies opens opportunities for clients' selection. On the positive side, this can facilitate insurer specialisation on certain patient groups (e.g. on patient with certain chronic diseases), which opens a scope for efficiency improvement because of specialisation. On the negative side, it gives a warning to watch out for potential risk selection, which is just a shift of the cost burden towards other insurers. Note however, that risk equalisation scheme helps correct the negative effects of risk selection. In the long run, other insurers are likely to restore the balance by introducing similar policies and thus preventing cherry picking by the first insurer. Note also that in the case of basic insurance, risk selection does not necessarily reduce total welfare, but rather reallocates it (reduces prices of consumers with low risk of illness, and increases prices for consumers with higher risks).

5.2.2 Foreclosure analysis

Below, we look at the risk of foreclosure via selective contracts (combined with tiering) for different market structures.

Competitive hospital and insurer markets

As before, when both the hospital market and the insurer market are competitive, vertical relations, either in the form of contracts or vertical integration, generally do not hurt consumers.

Hospital with market power

From the theory (see section 4.2) we know that if hospital has market power, while there are several competing insurers, an exclusive contract (or a selective contract combined with tiering) may lead to foreclosure via the following exclusivity mechanisms.

First, if there are economies of scale in the relevant segment of hospital care, selective contracting combined with tiering may prevent competing hospitals that wish to enter the market from achieving a minimum viable scale, thus, reducing the likelihood of entry.

Second, fully exclusive contracts may help the hospital with a market power to commit to higher price. However, as explained in chapter 4, in the case of a hospital with market power showing exclusive behaviour, the regulatory authority is likely to intervene and to ban this behaviour. In the absence of vertical integration, non-exclusive contracts, such as typical selective contracts, cannot support partial foreclosure (raising rival cost).

Regional insurer with market power

Selectivity with tiering may facilitate the growth of the major regional insurer via the 'waterbed effect', provided that the other conditions for this mechanism hold. Although this effect will generally increase total welfare, it may decrease consumer welfare.

Conclusions

In this section, we have illustrated several ways in which contracts with tiering may lead to foreclosure. As a general rule, foreclosure is not likely if sufficient competition exists at both hospital and insurer levels. However, when there is market power on the hospital side of the market, foreclosure may arise, in particular, if the provision segment is characterised by economies of scale. Also, when a large regional insurer exists, foreclosure may arise via the 'waterbed effect'.

5.3 Vertical relations with GPs

In this paragraph, we study the potential consequences of vertical relations between insurers and general practitioners (hereafter GPs).

5.3.1 Examples

In the Netherlands, a few examples of vertical ties between insurers and GPs are known to exist. In The Hague, GPs negotiated a collective insurance policy (with a collective discount) with an insurer on behalf of their roughly 60,000 patients: 25 GPs from four different practices concluded through a foundation an agreement with insurer Agis.[46] In addition to collective discounts, there are examples where insurers have (co-)funded GP practices. In Groningen and in Arnhem, healthcare insurer Menzis fully owns healthcare centres through a foundation. The GPs and other healthcare providers are working there as employees of Menzis.[47]

Menzis has also reached an agreement with all 27 GPs in Houten, a small Dutch city, to give up their independent practices and come to work in five medical centres starting from this year.

[46] NRC, 14 November 2007, Verzekeren via de huisarts.

[47] Elsevier, 3 June 2006, Gezondheidszorg: huisarts in loondienst.

These centres will be partly financed by Menzis.[48] Menzis, who does not have a large market share in Houten and surroundings, offers a collective basic insurance policy with a 50 euro discount to all inhabitants of Houten who sign up[49]. GPs accept patients from other insurers and provide treatments to them. Nevertheless, Menzis' insurance policy becomes relatively more attractive because of collective discounts as well as some extra's for policyholders (e.g. fittest and discounts on weight reduction programmes).[50] This agreement resembles a deal in Tiel, where Menzis also co-finances a health centre as of 2007. In Tiel and surroundings however, Menzis had a rather strong position initially, already serving relatively many consumers. In the past insurers also tried to finance and to set-up healthcare centres, some of which have failed. For example, former insurer Zilveren Kruis, now part of Achmea, opened a healthcare centre in Maarsenbroek years ago but did not attract sufficient policyholders and had to close.

5.3.2 Foreclosure analysis

Note that scale effects for GPs seem unlikely, and the size of the insurer does not play role, which rules out several mechanisms that we discussed in chapter 4. The extent to which foreclosure can occur depends on the competitive situation in a local market for GP services and on the type of contracts of insurers and GPs (collective or individual).

Competitive market for GP services, individual contracts of GPs by different insurers

If the insurance market is competitive and there are many GPs to choose from at the local level, selective (or exclusive) contracts will not have anticompetitive effects, but will be motivated by efficiency reasons. When a GP does not offer sufficient quality of service, consumers have the opportunity to switch to another GP. If the GP whom the patient would like to switch to has not been contracted by his insurer, the consumer can also switch insurer. This mechanism safeguards the service quality on both sides of the market, if the market for GP services is competitive.

Strong local market power in the GP segment and a collective contracting of GPs by a single insurer

If a GP group has a strong market power in the local market for GP services, for instance monopoly power, an insurer can try to use vertical relations with these GPs in order to transfer their market power into the insurance segment. This can result in foreclosure through several mechanisms discussed in chapter 4.

First, 'exclusivity' can create commitment, which restores GPs' market power vis-a-vis insurers, and allows GPs that contract with one insurer to commit to a higher price for other insurers.

[48] Source: a press release of Menzis of November 29, 2007.
[49] Volkskrant, November 21, 2007.
[50] Source: Everaers (2008).

Second, in case of a merger between a GP and an insurer, the mechanism of sabotage discussed in section 4.4 can play a role. Sabotage may result in foreclosure of other insurers, even if the GP (or the group) would continue to serve other insurers, in two ways. One of them concerns a potential decrease of quality of services to clients of other insurers, which seems unlikely, given professional ethics and the presence of quality standards.[51] An alternative possibility is sabotage via cost increase. This requires that insurers use GPs' specific information to select more profitable clients.

Additional effects

The question again is why insurers would enter into selective contracts with GPs and co-finance their practices? One argument may be that insurers aim to steer their clients, who visit these GPs, to a particular hospital. Channelling clients towards the (selectively) contracted hospitals of the insurer might reduce the insurer cost, because the negotiated, contracted prices are likely to be lower than the listed prices that the insurer would otherwise have to pay to other (non-contracted) hospitals. Besides, contracts between insurers and hospitals may feature volume discounts. In such a situation, the insurer would gain more from channelling clients to (selectively) contracted hospitals. There is, however, nothing to worry about, as long as these contracts do not decrease the quality of healthcare services for patients, and as long as no anticompetitive effects arise from such practices. Another potential explanation is related to the theory of slotting allowances: GPs provide insurers with a valuable testing ground for treatments that can potentially be done by GPs instead of hospitals (see the textbox below).

So far, there is no evidence in the Netherlands that shows that the vertical ties between insures and GPs have increased channelling of clients to specific hospitals. The contracted volumes involved so far seem to be too low for such an effect to occur. Nevertheless, the vertical ties might be the first steps meant to experiment and to find out whether this works in practice. In particular, Menzis plans to extend their first experiences to a country-wide network that will include about 50 healthcare centres in the near future.[52]

Finally, one more reason for contracting with GPs may be that the insurer hopes that the clients of other insurers visiting the GPs the insurer has ties with, can be persuaded to switch to the insurer. An important question is, therefore, whether this collaboration between the group of GPs and one insurer will affect the competitive position of other insurers whose clients visit these GPs, in particular, whether this collaboration may lead to customer foreclosure for other

[51]The quality of service by GPs has to satisfy certain minimum standards prescribed by the professional association while quality of service is monitored by the health inspection. In addition, many GPs are intrinsically motivated to offer high quality services. For the quality aspects that are captured in the standards, a degradation of quality is unlikely. In fact, there maybe also a positive effect on quality: the contract would provide to the insurer a device to capture a larger proportion of rents from investment in the improvement of the services of GPs (e.g. in equipment for GPs), since rents will not spill over to other insurers. Therefore, the effect on quality is not likely to be negative.

[52] Source: a press release of Menzis of November 29, 2007.

insurers. In the case of Houten, the GPs claim that they do not make a distinction between Menzis policy holders and patients from other insurers.

Why would an insurer offer office space and equipment to GPs?

The reasons why an insurer offers GPs office space may be similar to the reasons for a retailer offering slotting allowances to manufacturers. Slotting allowances are 'upfront payments that manufacturers make to retailers for reserving shelf space'. Suppose the manufacturer does not initially have information about demand for a new product, but he is better able to do research to find it out than the retailer. Then the retailer can use slotting allowances in order to stimulate such research by the manufacturer, as shown in Yehezkel (2008). The table below shows how this idea may be interpreted in case of insurers and GPs.

Interpretation of slotting allowances

Retailer	Insurer
Manufacturer	GP
'Upfront payment'	Requirement to abolish their own practices
'Shelf space for new products'	Office space and equipment in the medical centres
New product	Treatments currently done by hospitals, that could in principle be done by GPs

It is plausible that the insurer does not know the demand for the new product that could be offered by GPs. GPs may either know this information or not, but in any case, it is likely that they are better able to find it out than insurers. Therefore, the insurer offers them a contract that works similar to slotting allowances, in order to stimulate them to do research about demand and to convey this information to the insurer.

Yehezkel (2008) points out that slotting allowances may either increase or decrease welfare, depending on the model parameters. On one hand, revealing private information helps better serve consumer needs which enhances welfare; on the other hand, slotting allowances under asymmetric information may involve a mechanism that distorts the quantities downwards (which decreases welfare). There is however no general result regarding which effect dominates in which case. The author concludes therefore that "with no conclusive evidence against slotting allowances, an antitrust policy that does not condemn slotting allowances as illegal per se seems justified".

Conclusions

In the case of contracting between GPs and insurers, a potential concern is foreclosure of other insurers, as scale effects for GPs seems unlikely. Foreclosure may arise when a single insurer contracts a GP (or a GP group) with local market power. However, even in this case, there may be no foreclosure, as long as GPs still continue to provide services to clients of other insurers, and the quality of service for these clients is guaranteed. The main benefit of integrating with GPs may be improving an insurer's bargaining position vis-à-vis hospitals.

6 Conclusions

Vertical relations between health insurers and providers of healthcare services (hospitals or GPs) can have both positive and negative welfare effects, and are not necessarily anticompetitive. However, in some cases, vertical relations may result in anticompetitive foreclosure of competitors, in particular, when such relations are not motivated by expected efficiency increases, but by the potential to exploit market power.

An important general condition for vertical relations to lead to anticompetitive foreclosure is that market power should initially be present in at least one of the two vertically related markets. Additionally, the negative effects of the vertical relation on competition should outweigh the potential positive effects of this vertical relation on efficiency.

In the healthcare sector, market power may be either in the provider market, or in the insurer market, or in both markets. On the provider side, market power is likely to arise for large regional hospitals with a monopoly position in the region, where transportation costs for consumers to visit other hospitals may be relatively large. Even with several hospitals in one region, market power can still arise either because of the hospital specialisation, or because of switching costs (notably in the case of repeated treatments or chronic diseases). In the insurance market, market power may arise for large regional insurers, or because the insurer market often has oligopoly structure.

Based on the theoretical literature we identified three potential mechanisms of foreclosure, respectively called ‘exclusivity’, ‘the waterbed effect’, and ‘sabotage’. Sabotage typically arises only under vertical integration, whereas the waterbed effect and the exclusivity mechanism may arise both under vertical integration and vertical contracts.

The first mechanism mentioned above, ‘exclusivity’, relies on the possibility of exclusive (or almost exclusive) behaviour of firms. The potential for foreclosure via this mechanism depends on the effectiveness of directing the patients’ flow between providers via tiering. If tiering is effective, there are still other specific conditions that should hold for this mechanism to take place (see Table 6.1). The risk of foreclosure from this mechanism is present for both vertical integration and vertical contracts. However, it is somewhat higher in the case of vertical integration.

The next potential mechanism is ‘the waterbed effect’. An important feature of the Dutch health insurance market is the presence of large differences in the insurers’ sizes at the level of regions. This initial asymmetry in the insurers’ sizes may facilitate anticompetitive foreclosure of smaller regional insurers by the large regional insurer via this mechanism. It is important to realise that the waterbed effect does not unambiguously reduce welfare, because it is also associated with efficiencies. Besides, it occurs only under certain forms of contracts. Another condition supporting the waterbed effect is the presence of insurers’ fixed costs associated with switching to new healthcare providers. Therefore, additional policy measures should focus on reducing these costs, for example, by making providers’ quality more transparent.

Finally, since most hospital prices are currently regulated, vertical integration between a hospital and an insurer may give the vertically-related combination the incentive to engage in 'sabotage' against clients of other insurers. Sabotage is realised by hidden actions (e.g. decreasing quality or increasing costs for clients of other insurers). Such actions are difficult, if not impossible, to detect. Hence, competition policy with respect to vertical mergers between insurers and large hospitals should take the possibility of sabotage into account.

We conclude from this analysis that the likelihood that vertical integration leads to foreclosure seems to be higher than the likelihood that vertical contracts lead to foreclosure. First, the sabotage mechanism does not occur under vertical contracts, whereas under vertical integration all mechanisms can potentially come into play. Second, the 'exclusivity' mechanism seems less probable in case of vertical contracts, than in the case of vertical integration.

Note that selective contracting is also an essential part of the reforms of the Dutch healthcare sector. Selective contracts between insurers and hospitals strengthen insurers bargaining position vis-à-vis hospitals, thus, mitigating the hospitals' market power and making hospitals compete with each other to improve efficiency and quality of healthcare services. Vertical integration poses no such advantage. This suggests that policymakers should be more concerned about vertical integration between insurers and healthcare providers than about vertical contracts: when a party involved in such a merger has large market power, policymakers should therefore be wary, unless significant merger specific advantages exist.

In this document we also discussed some recent cases of vertical relations in the Dutch healthcare sector. However, the occurrence of selective contracts on a preferential basis, or vertical integration in the Netherlands is still very scarce. In few cases observed in the Netherlands we do not observe indications of anticompetitive foreclosure.

Table 6.1 Summary of the mechanisms of foreclosure

	'Creating Exclusivity'			'Waterbed effect'	'Sabotage'
Type of vertical integration (theory)	Contracts or full integration			Contracts or full integration	Full integration
Driving force behind the mechanism	Linear contracts	Upstream scale economies	Commitment problem	Disproportionate bargaining advantage of large insurers	Hidden actions
Specific necessary conditions needed for this mechanism	•Linear contracts •Higher differentiation among insurers than among hospitals	•Upstream scale economies	•Contracting externalities	•Large size differences between insurers •Larger discounts to large insurers •Fixed contracting costs •Consumers react to differences in premiums	•Regulated hospital prices •Scope for sabotage
Who is foreclosed	Hospital	Hospital	Insurer	Insurer	Insurer
Likely in Dutch market	No	Depends on the level of scale economies in provision and effects on quality	Yes, for full integration	Yes, but may be welfare increasing	Depends on scope for sabotage
Policy options		•Cap on the allowed price gap used in tiering •Imposing proportional obligations to mitigate exclusion	•Imposing proportional obligations to mitigate exclusion	•Reducing insurer cost of engaging in contracts with another provider	•Transparency of quality •Chinese walls between provision and insurance
		•Prohibition of vertical integration for hospitals with high market power, or when high market power is present on both sides			

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