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**Monopolistic Competition and Costs
in the Health Care Sector**

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# Monopolistic Competition and Costs
# in the Health Care Sector*

## Abstract

Competition among health insurers is widely considered to be a means of enhancing efficiency and containing costs in the health care system. In this paper, it is argued that this could be unsuccessful since health care providers hold a strong position on the market for health care services. Physicians exert a type of monopolistic power which can be described by *Chamberlin's* model of monopolistic competition. If many health insurers compete with one another, they cannot counterbalance the strong bargaining position of the physicians. Thus, health care expenditure is higher, financing either extra profits for physicians or a higher number of them. In addition, health insurers do not have an incentive to contract selectively with health care providers as long as there are no price differences between physicians. A monopolistic health insurer is able to counterbalance the strong position of physicians and to achieve lower costs.

Key words:   health care system, monopolistic competition, health insurance, costs

JEL-Codes:   I11, I18, H51, D43

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# Monopolistische Konkurrenz und die Kosten im Gesundheitswesen*

## Zusammenfassung

Wettbewerb zwischen Krankenversicherungen wird oft als Mittel zur Effizienzsteigerung und Kostendämpfung im Gesundheitswesen diskutiert. In diesem Papier wird argumentiert, dass er diese Funktion möglicherweise nicht erfüllt, wenn die Leistungserbringer auf dem Gesundheitsmarkt über Marktmacht verfügen. Ärzte besitzen einen monopolistischen Vorteil, der mit *Chamberlins* Modell der monopolistischen Konkurrenz dargestellt werden kann. Stehen viele Krankenversicherungen miteinander im Wettbewerb, können sie die starke Verhandlungsposition der Ärzte nicht ausgleichen. Entsprechend sind die Gesundheitsausgaben höher, womit entweder Zusatzgewinne der Ärzte oder eine größere Zahl an Ärzten finanziert werden. Außerdem haben die Krankenversicherungen keinen Anreiz zu selektivem Kontrahieren, solange es zwischen den Ärzten keine Preisunterschiede gibt. Eine Monopol-Krankenversicherung kann die starke Verhandlungsposition der Ärzte ausgleichen und niedrigere Kosten durchsetzen.

Schlüsselwörter: Gesundheitswesen, monopolistische Konkurrenz, Krankenversicherung, Kosten

JEL-Klassifikation: I11, I18, H51, D43

# Monopolistic Competition and Costs
# in the Health Care Sector

## 1     Introduction

Competition among health insurers is often discussed as an instrument to enhance efficiency, particularly to contain costs, in the health care sector. But taking theories of health care providers' market power into account, its suitability for this intended aim becomes questionable.

Discussions about competition in the health care sector concentrate mainly on the institutional framework for competition. Questions concerning the problem of risk selection by health insurers, or competition among health care providers for contracts with health insurers, are at the centre of these discussions. Enthoven's (1988, 1993) concept of 'managed competition' is widely discussed as an approach that might offer a solution to these problems.

Many studies concerning the health care system argue that physicians have a type of market power. Evans (1974) and many other authors consider the case of physician-induced demand. Physicians are better-informed about illnesses and suitable treatments than are their patients, therefore the patients' demand for health care services is determined by physicians' recommendations. Consequently, the physicians themselves create part of the demand for their services. Information asymmetries are at the centre of these discussions.

Some authors consider monopolistic competition as a theoretical way of capturing physicians' market power (for an overview see McGuire 2000, pp. 475 ff.; Phelps 2003, pp. 218 ff.). Health care services are perceived by patients as an inhomogeneous good, therefore physicians can achieve a kind of monopolistic power in supplying their services.

On the one hand, Hilsenrath (1991) and Frech (1996, pp. 5 ff.) use the monopolistic competitive framework as a way of capturing information asymmetries between physicians and patients. Incomplete information on the part of patients is one cause of the perceived heterogeneity of physicians' services. In this rationale, monopolistic competition is an effect of an information shortage and has little basis in reality.

On the other hand, medical services are in fact a differentiated product. Even in a situation with complete information, the services of two physicians are not perfect substitutes for one another. All physicians have their own personal style, diverse experience, particular ways to deal with certain illnesses, special interests and talents, and so on, as Satterthwaite (1979, pp. 485 ff.) points out. In some cases, physicians offer particular

services – for example, naturopathic treatments. Medical services are not a homogeneous product. Furthermore, the choice of a physician is influenced by important subjective aspects. Many people have known their general practitioner for a long time and benefit from this long-standing relationship. The existence of personal ties between patient and physician, a patient's trust in a certain person, is medically important and a factor that gives health care providers a limited monopolistic power.

Previously, questions of competition among health insurers and physicians' market power have mainly been discussed separately. In this paper, both aspects are linked. The subject of this paper is the effect of competition among health insurers on health care costs in case physicians have market power in terms of monopolistic competition. The contribution of the paper lies in the combination of the monopolistic competition approach to health care markets with competition among health insurers. It is shown that competition among health insurers can lead to high costs in the health care sector, because the market power of physicians is strong vis-à-vis competing health insurers. But physicians' market power can be offset when there is a single health insurer with monopsonistic power on the demand side of the market for health care services.

Some authors have already discussed the cost-containing effect of a single health insurer acting as monopsonist on the health care market. Pauly (1998) studies the effect of a monopsonistic health insurer in an otherwise competitive environment. He does not take into account the possibility that an insurance monopsony can partly counterbalance a market imperfection on the supply side for health care services. Thus, in his paper, the monopsony has an efficiency-decreasing effect. Hussey and Andersen (2003, pp. 219 ff.) also mention the cost-containing effect of an insurer's monopsony without considering physicians' market power explicitly. Colombo and Tapay (2004, pp. 35 ff.) argue that competing private health insurers are often the cause of higher health care expenditure because of their relatively weak bargaining power vis-à-vis health care providers. In these studies, the possibility of counteracting a market power on the supply side of the market is not taken into account.

In the next section five different cases are discussed. The first two are models of competition among many health insurers and physicians. In the third case there is only one monopolistic health insurer. The fourth possibility is the case in which the physicians also organize themselves as a monopolistically acting cartel, so that there is a bilateral monopoly on the market for health care services. The final case is a situation in which a fourth kind of actor enters the health care system: here, the employers choose a health insurer on behalf of their employees, in which case the health insurers compete for the employers rather than directly for insured people.

Following the theoretical section, in the third section some stylized empirical facts are presented to test if they agree with the theoretical results. In the last section, the conclusions are summarized and some careful political implications are drawn.

# 2    The Models

## *Some Basic Assumptions*

The models described in this paper rest on the following assumptions: in the market for medical services there are many suppliers (that is, physicians), and many consumers (that is, patients). Between the two, one or several health insurers act as traders of health care services. The number of physicians is labeled $M$, and the number of health insurers $N$.

Patients often have a preference for a specific physician, a result of their trust in the relationship, or other factors responsible that people do not perceive physicians as perfect substitutes for one another. Therefore Chamberlin's (1962) model of monopolistic competition is used as an instrument to analyze the supply side of the health care market.

If monopolistic competition results from the length of the relationship patients have with their preferred physicians, it is difficult for new physicians to enter the market, since they lack the necessary time to build up a similar relationship with a sufficient number of patients. Market access can also be restricted by limiting the number of university places for medical studies or by the need to license additional physicians. In the following cases we shall distinguish variants with a fixed number of physicians and those with free market access for further physicians. This is relevant for the outcomes of the discussed models.

In the models, the total demand for medical services is constant and does not depend on the price. If patients had to pay for their treatment themselves this assumption would not be true. But when everyone is insured and no private co-payments are charged, the demand for medical services is price inelastic. But a constant total demand is also a useful approximation in the case of very severe illnesses and costly therapies. Under the assumption of an exogenous constant total demand, the models are used to derive the price of medical services and the number of physicians endogenously. Thus problems of physicians' induced demand, moral hazard and effects of payment systems on health resource utilization are outside the scope of this paper.

The insured are allowed to consult only a physician on the list of their health insurer. They are not allowed to choose a physician who has not contracted with their health insurer. It is important for the outcomes of the models whether a health insurer contracts with only one physician (case A), is allowed to contract with as many physicians as it likes (cases B and E), or contracts with all physicians (cases C and D). Every insured person has a preferred physician. The preference for a specific physician is an important reason to choose a health insurer and to stay with that chosen health insurer, even when it raises the premium as a result of a price rise by the physician.

Since patients have a special preference for a certain physician, a variety of physicians available is an important aspect of medical quality. In the models discussed here this is

the only way that quality is taken into account. Efforts to improve the quality of their services is thus not a competitive instrument for physicians.

Three different assumptions about health insurers' behavior are compared. When health insurers compete with each other it is assumed that they act as non-profit institutions with the aim of maximizing the number of customers (cases A, B and E). If health insurers sought to maximize profits, the results in these cases would be the same, since all profits would vanish through competition. In the case of a monopolistic health insurer (cases C and D) profit-maximizing behavior is unlikely, since monopolistic health insurers are usually organized by the government as a measure of social policy. When the health insurer is a monopolist it insures all members of society. Therefore maximization of the numbers insured cannot be its aim. For this situation, two different assumptions are compared: first, it is assumed that it minimizes costs; and second, that it seeks to satisfy maximally the needs of all insured people (in both cases C and D). It is assumed that the cost of health care provision is the only expenditure of the health insurers. Therefore, in all cases, the premiums of the health insurers depend entirely on the prices they have to pay the physicians for medical services.

Table 1 gives an overview of the cases discussed below. They differ with respect to the form of the insurance market (competing insurers versus monopolist), the market for health care services (competing physicians versus physicians' cartel), the number of physicians with whom a health insurer has contracts, and the choice of the health insurer (by the insured person or by his/her employer).

Table 1:
The five cases discussed in this paper

| Case | Insurers' competition | Physicians' competition for contracts with health insurers | Physicians per health insurer | Choice of health insurer by employer |
|------|------|------|------|------|
| A | Yes | Yes | One | No |
| B | Yes | Yes | Free | No |
| C | No | Yes | All | No |
| D | No | No | All | No |
| E | Yes | Yes | Free | Yes |

It is assumed that all insured bear the same risk and consume an identical amount of health care services. Morbidity is equal among all insured people. The problem of risk selection by health insurers is outside the scope of this paper. Furthermore, all insured have the same willingness and ability to pay for health insurance, thus differences stemming from different income levels or preferences are also not taken into account. As a consequence, health insurers charge their premiums in form of a fixed amount of money per capita, since risk-oriented or income-related contributions produce no other result.

*Case A: One Physician per Insurer*

In the first version of the model, two additional assumptions are made. First, every health insurer contracts with only one physician. This assumption is an approximation of selective contracting between health insurers and health care providers in an environment of competitive health care markets.

Second, every physician contracts with only one health insurer. This assumption represents competition among health insurers, which distinguish themselves by offering the medical services of different physicians. If there were two health insurers offering the services of the same physician, these insurers would be in perfect competition with each other, since they offer an identical good to health care consumers. Only by offering the services of different physicians can the health insurers distinguish themselves qualitatively; otherwise they would be in perfect competition. This assumption is an approximation of a stylized Managed Care setting, where health insurers contract selectively and exclusively with physicians. An example is a physician employed by the health insurer itself. Both assumptions are relaxed in a second step in case B.

The demand for insurance $D$ of a single health insurer $i$ depends on the premium compared with the premiums of the other health insurers. Assume the following linear function:

$$D_i = D_t \times \left[\frac{1}{N} - b \times (B_i - B_a)\right] \tag{1}$$

$D_t$ is total demand for insurance, which is assumed to be given. The term in square brackets is the market share of health insurer $i$. $N$ is the total number of health insurers. $B_i$ is the premium of health insurer $i$. $B_a$ is the unweighted average premium of all health insurers. The parameter $b$ is decisive for the effect of the premium on demand: the lower its own premium and the higher the premiums of the competitors, the higher the demand for insurance of this special health insurer $i$. An increase in the premium results only in a partial loss of customers, because every health insurer has contracted with another physician. Some of the insured stay with the insurer even when it raises the premium because of the special preference for the physician with which this insurer has contracted.

Since the expenditure of the health insurer $i$ consists entirely of payments for health care providers, the premium is determined completely by the reimbursements for the physician $j$; that is, the physician with whom the health insurer $i$ has contracted. Thus we can write:

$$B_i = d \times P_j \tag{2,}$$

where $d$ is the frequency of utilization of health care services per insured person, which is, by assumption, constant for all insured, and $P_j$ is the price of services of physician $j$. Consequently, the average premium for health insurers $B_a$ is determined by the average price for physicians' services $P_a$:

$$B_a = d \times P_a \tag{3}$$

The demand of health insurer $i$ for health care services of a special physician $j$ is determined by its insured clients. The demand for services $E$ of physician $j$ depends linearly on the number of health insurer $i$'s insured clients:

$$E_j = d \times D_i \tag{4}$$

Accordingly, total demand for medical services $E_t$ is:

$$E_t = d \times D_t \tag{5}$$

Thus the demand $D_i$ for the service of insurer $i$ can be transformed into the demand for health care services of a certain physician $E_j$ by multiplying it by the frequency $d$ and replacing the premium $B_i$ by the price of the physician $P_j$:

$$E_j = E_t \times [\tfrac{1}{M} - b \times d \times (P_j - P_a)] \tag{6}$$

$M$ is the total number of physicians, which is here equal to the number of health insurers $N$. The demand function of the single physician $j$ is:

$$P_j = P_a + \frac{1}{b \times d} \times (\tfrac{1}{M} - \tfrac{E_j}{E_t}) \tag{7}$$

Here $1/M$ is the average market share per physician and $E_j/E_t$ is the market share of physician $j$. $P_j$ is the price for health care services the physician $j$ is paid. The price of physician $j$ is equal to the average price of all physicians $P_a$ plus a parameter $(1/bd)$ times the difference between the average market share of a physician $(1/M)$ and the actual market share of physician $j$ ($E_j/E_t$). There is a negative relationship between the price $P_j$ and the demand $E_j$. A price rise induces a reduction of demand for physician $j$, but not a complete loss. Because of monopolistic competition, the demand curve has the expected falling slope.

The revenue of the single physician $j$ from health insurer $i$ is therefore:

$$P_j \times E_j = E_j \times [P_a + \frac{1}{b \times d} \times \left(\tfrac{1}{M} - \tfrac{E_j}{E_t}\right)] \tag{8}$$

The marginal revenue $MR$ of physician $j$ is:

$$MR_j = P_a + \frac{1}{b \times d} \times (\tfrac{1}{M} - 2 \times \tfrac{E_j}{E_t}) \tag{9},$$

which follows, since $E_t = d \times D_t$ is a constant by assumption. The higher the market share of a physician $E_j/E_t$ the lower is his/her marginal revenue from an additional patient. In line with the theory of monopoly, the marginal revenue of a single physician declines with increasing quantity, because increasing quantity is only possible with decreasing prices for all consumers.

By comparing Equations (9) and (7) it is clear that, for any given output, prices are higher than marginal revenues. If the physician maximizes profit by equalizing marginal costs and marginal revenue, the price charged is higher than the marginal costs. As a result of this monopolistic-competitive position, prices are systematically higher than marginal costs. Monopolistic competition leads to prices higher than they would be under perfect competition.

Two variants of this case can be distinguished. In the first variant, the number of physicians $M$ is fixed and market access for additional physicians is prevented – for example, through the high cost of studies, a limited number of places at university, or admission restrictions for new physicians. Physicians achieve extra profits when their price exceeds not only marginal but also average costs. Since no additional physicians are allowed to enter the market, this extra profit cannot induce an increase in the number of physicians and is thus prevented from being eliminated by increasing competition.

Things change when – as a second variant – there is free access to the market for further physicians. As long as physicians can achieve extra profits there is an incentive for new ones to enter the market. According to Equations (6) and (9), a rising number of physicians $M$ leads to less demand and falling marginal revenues for each physician. The number of health insurers has to increase along with the rising number of physicians. As a consequence, every physician faces a diminished demand and sets his price at a lower level. With an increasing number of physicians, prices decrease until all extra profits disappear.

Figures 1 and 2 illustrate these two variants. They show the profit-maximizing behavior of one physician under the condition of a typical U-shaped marginal cost curve. The physician chooses the price at which marginal revenues and marginal costs are equal. This price $P_1$ is higher than the physician's average costs minimum, which was realized under perfect competition ($P_p$). In the situation illustrated in Figure 1, the physician's price is also above his/her average costs. Thus s/he gains an extra profit, but this extra profit holds only if market access is restricted.

If market access is free, extra profit attracts additional physicians. In accordance with Equation (6), the demand for the services of a single physician decreases when the total number of physicians $M$ increases. Every single physician suffers from a loss of demand and a decreasing price. This process stops when the demand curve of the single physician has shifted so far to the left that it touches the average cost curve in its falling part ('Chamberlin's tangent'; Chamberlin 1962, pp. 83 ff.). Extra profits vanish with an expansion of supply. Prices fall to $P_2$ in Figure 2, but do not reach the low level under perfect competition $P_p$. The costs of medical services remain higher than under perfect competition but are reduced with a higher number of physicians. Physicians still work at production costs above the possible minimum that would be reached under perfect competition.

Figure 1:
Average costs, demand and price setting of a single physician under monopolistic competition according Chamberlin (1962)
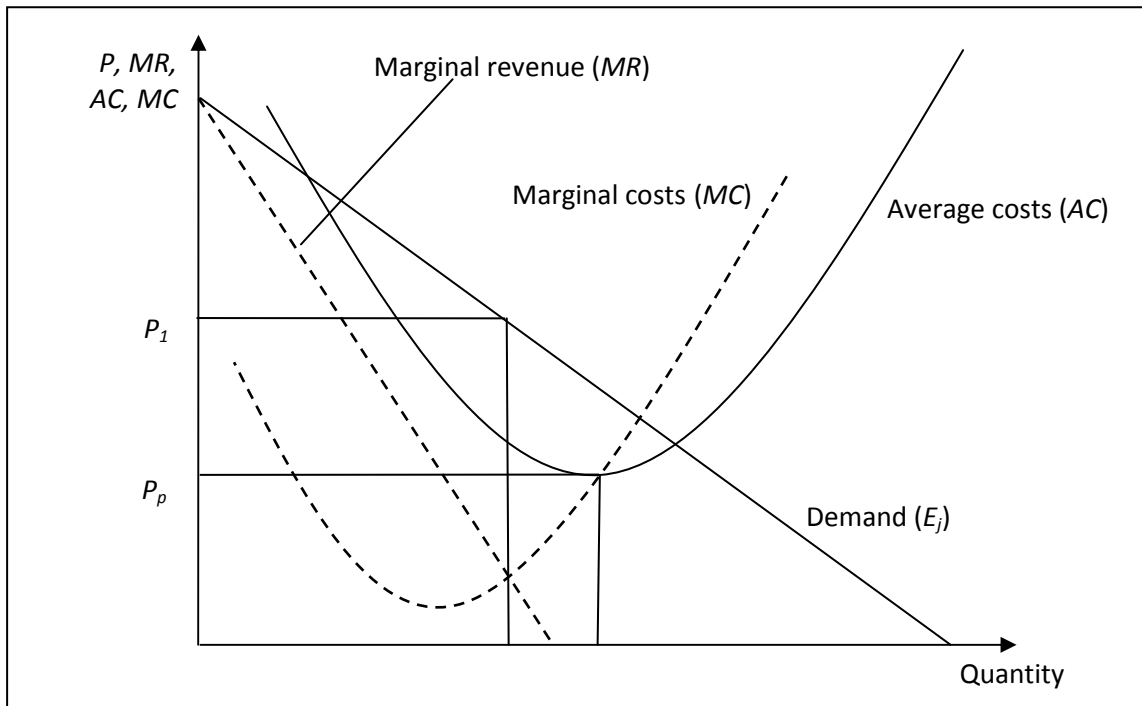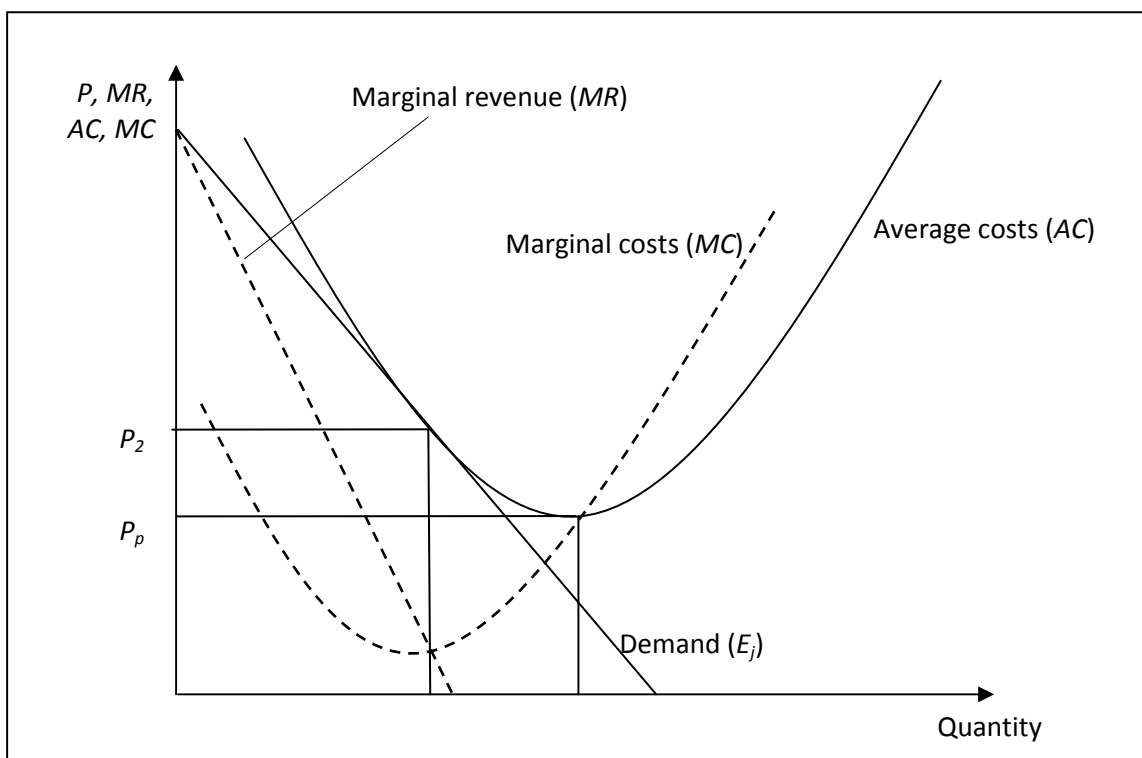


Figure 2:
Average costs, demand and price setting of a single physician under monopolistic competition and open market according Chamberlin (1962)

As a result, prices and the costs of production are higher than under a regime of perfect competition. If there is free market access for further physicians, the number of physicians rises beyond the number with minimum costs. Free market access leads to lower prices, but they are still above the level under perfect competition.

For a judgment regarding efficiency under the precondition of a constant total quantity of health care services, it is necessary to take both costs and quality into account. In this highly abstract model, quality is measurable only by the number of physicians, since a greater variety increases the probability of finding an individually trustworthy doctor. The case with open market access for physicians is unambiguously superior to the case with restricted market access, since prices are lower and variety is greater. Comparing with a situation of perfect competition, efficiency effects are impossible to determine – under perfect competition costs are lower, but the variety of physicians is also lower.

To sum up: the market for health care services has higher costs than it would have under perfect competition, as a result of the personal links between patients and their physicians. The higher costs either lead to extra profits for the physicians or finance a higher number of physicians.

### *Case B: More than One Physician per Insurer*

If health insurers are allowed to contract with more than one physician, the demand side is affected by the number of physicians a health insurer has under contract. Since the insured persons have a preference for a particular physician, the insurer can increase its potential number of insured clients by contracting with more physicians. Therefore the demand for a single insurer *i* changes to:

$$D_i = D_t \times [\tfrac{1}{N} - b \times (B_i - B_a) + c \times (M_i - M_a)] \qquad (10)$$

$M_i$ is the number of physicians the insurer *i* has under contract. $M_a$ is the average number of physicians with whom the health insurers have contracts. The results depend on whether all physicians charge the same price or different prices.

When all physicians are faced with identical demand functions they charge the same price. This holds when all physicians are equally popular among the insured.[1] In this case, the health insurer can maximize its market share by contracting with as many physicians as possible. Any enlargement of the number of contracted physicians leads potentially to more insured clients as long as this does not affect the premium $B_i$. In this situation it is rational for every competing health insurer to contract with all physicians. But if all health insurers do so, not only $M_i$ but also $M_a$ rises. Ultimately, the term $(M_i - M_a)$ is zero and no health insurer can win a higher market share, but a health insurer that

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1    Price differences resulting from cost differentials are possible, albeit less likely to be important. Here they are not explicitly taken into account.

excludes a physician would lose some insured clients. Even if health insurers are allowed to contract selectively, it is not rational for them to do so. The cause is the same as in case A: consumers have an individual preference for a single physician of their own choice. When their health insurer does not contract with their preferred physician, they are inclined to change the health insurer rather than the physician. The reason is that physicians are not perfect substitutes for one another, while insurers are.

If the physicians are not equally popular, the prices they can negotiate are different. Some of the physicians face a higher demand than others and can therefore charge a higher fee. A health insurer contracting with physicians charging different prices must transform these different prices into a uniform premium. In this way, the patients of physicians charging lower prices subsidize costlier physicians respectively their patients. This brings about an incentive for health insurers to contract selectively with physicians. A health insurer contracting only with physicians charging lower prices can entice all patients with a personal preference for these physicians away from health insurers who have also contracted with costlier physicians. For insured with a high preference for a certain physician, all health insurers contracting with this physician are perfect substitutes for one another concerning medical quality and are therefore in strong price competition. In this case, monopolistic competition among physicians corresponds to perfect competition at the level of health insurance. In this price competition, the health insurer who does not contract with costlier physicians is the winner. As a consequence, the market for health insurance splits into segments with cheaper and costlier physicians. Eventually there will be at least as many health insurers as physicians with different prices. This result is quite similar to case A, since a health insurer is not able to contract with several physicians at different prices.

### Case C: Only One Health Insurer

In the third case, there is one monopolistic health insurer, which contracts with all physicians. This reflects the situation in many European countries, where health insurers do not compete with each other and negotiate centrally with all health care providers, or where the government acts as the health insurer via a department of the administration.

In this case the health insurer acts as a monopsonist vis-à-vis health care providers. This gives the insurer the negotiating power to set the price for medical services. The way it makes use of this market power depends on its aims.

First, it is assumed that the health insurer seeks to minimize costs. When the health insurer has sufficient knowledge about costs it can force down the price to the level of the minimum average cost of a physician ($P_p$ in Figures 1 and 2). As a consequence, some physicians leave the market. Eventually the number of physicians is exactly equal to the total demand divided by the quantity of services a physician can provide at minimum cost. For a single physician, the situation is like perfect competition with quantity re-

striction: s/he knows the price on the market and can adapt his/her supply of health care services to the price fixed by the health insurer. As long as the total supply of all physicians is above the fixed total demand for health care services, some physicians suffer from losses and leave the market. This process stops when the number of physicians is reduced to the minimum necessary to provide all patients with the demanded quantity of medical treatment.

An alternative assumption is that the monopsonistic health insurer wants to maximize consumer welfare by an optimal compromise between price and variety of physicians. Under this assumption, the health insurer chooses a higher price in order to increase the number of physicians to a level in accordance with consumers' preferences. By setting the price, the monopsonistic insurer determines the number of physicians.

Pauly (1998) points out that, in the case of a textbook-like monopsony, a welfare loss occurs that stems from a lower demand at lower prices. In the models discussed in this paper this welfare loss is impossible, because total demand for health care services is completely inelastic. Therefore the monopsony can enforce lower prices for a constant amount of medical services. The suppliers have to accept a welfare loss resulting from a reduction in their remuneration and partially from a reduction of the number of physicians. If the insurer knew the utility function of the insured it could choose the utility-maximizing solution.

It is assumed above that health insurers' premiums consist entirely in the expenditures for physicians' services, because either the insurer is a non-profit institution with no motivation to increase prices, or this is enforced by competition. If the health insurer is a monopsonist on the market for medical services, it is likely that it acts as a monopolist on the market for insurance. If the health insurer seeks profits, it raises its premiums. Since demand is totally price inelastic, there is theoretically no limit to a rise in premiums. In reality, monopolistic health insurers in industrialized countries are non-profit organizations; in many cases they are part of the public administration. Thus they do not seek profit maximization. Health insurers are influenced by political pressure to stabilize premiums, especially in countries where employers have to pay a part of the premiums.

### *Case D: Bilateral Monopoly on the Market for Health Care Services*

In many health care markets, not only is the insurer a monopsonist, but the suppliers of medical services also cartelize. One reason is an attempt to reduce the transaction costs of price negotiations. This occurs, for example, in many countries where physicians are members of unions or professional associations; they are able to attain a bargaining power equal to that of the monopsonistic insurer. As a consequence, a bilateral monopoly is emerging in the market for health care services. This is an approximation to structures typical of many countries that have negotiations between centralized in-

surance bodies and physicians' associations (Hofmarcher and Durand-Zaleski 2004, pp. 210 ff.).

In the case of a bilateral monopoly under the assumption of an exogenous constant total demand, the price is not determined by a model of the kind mentioned above. For health care providers, the lowest average costs determine the lowest acceptable price for the physicians' cartel. Two variants can be distinguished.

In the first variant there is no free market entry for additional physicians. If the price is above the minimum average cost, physicians achieve an extra profit, as in the first variant of case A. The physicians' cartel has a strong interest in striving for higher prices in order to gain this extra profit of its members. Since a higher price does not bring about any improvement in medical quality, the health insurer aims to press the price down to its minimum level. Because of these diverging interests, a price agreement is not easy to achieve.

In the second variant there is unhindered market access for further physicians. Any price above the minimum level creates an incentive for further physicians to enter the market. All extra profits made by physicians vanish through an expansion of supply. Thus the physicians' cartel only has an incentive to bargain for higher prices if it strives for a growth in its membership. Since a higher price does not bring about extra profit for existing members, the cartel's engagement in price rises is weaker than in the first variant. The health insurer may be interested not only in cost containment but also in a greater variety of physicians available for the insured. Thus it may agree to a price higher than the minimum average cost of a physician. The conflict of interest between the physicians' cartel and the health insurer may be less severe than in the first variant.

### *Case E: The Employer as Sponsor of Health Care Insurance*

Competition among health insurers leads to different outcomes when people are insured by a group policy rather than individually; for example, all the members of a company. In the simple case considered here, the employer chooses one insurance policy for all his employees. Since the health insurer is chosen by the employer on behalf of the insured, the personal relationship between insured person and physician does not have any impact on the choice of health insurer. The health insurer purchasing medical services from physicians is not influenced by the threat that the patients of a particular physician might cancel the insurance policy. The physicians thus lose their monopolistic position. Price considerations become the only criterion in the choice of insurer. As a consequence, the markets for insurance and for medical services mutate into markets under perfect competition.

## *The Intuition of the Results*

Since medical services offered by different physicians are not perfect substitutes for one another, patients have a preference for a certain physician. This results in strong bargaining power on the part of physicians vis-à-vis health insurers. Competing health insurers are not able to counter physicians' strong price-setting position, since the insured are willing to pay higher premiums for the possibility of consulting their pre-ferred physician. A health insurer that refuses to contract with a certain physician risks the loss of some insured clients. This is why, as long as there are no price differentials among physicians, competing health insurers do not have any reason to make use of selective contracting with health care providers. Because of physicians' market power, competition among health insurers leads to prices above the minimum average cost. A monopolistic health insurer, acting as monopsonist vis-à-vis physicians, has the negotiating power to enforce lower prices, but acting in the interests of the insured it may also be willing to pay a price above the minimum cost in return for a larger number of physicians, and thus a greater variety for the patients. Results are rather ambivalent when the monopsonistic health insurer finds a cartel of health care providers on the supply side of the market. Another possible way of reducing prices is a system in which the insured lose the free choice of both the insurer and the physician. When the insurer is chosen solely for cost reasons, competition is strong enough to force prices down to the level of the minimum average cost. This is probably not efficient, since quality aspects and the variety of physicians are neglected in this situation.

# 3    Some Empirical Findings

For an overview of the empirical relevance of the theoretical results, some stylized facts and some anecdotal evidence about health care systems in different countries are discussed. The purpose of this chapter is not to give an exact empirical test of the theoretical results, but rather to provide a short overview of some facts that might be explained by the models above.

There are only a few countries with a predominance of competition among health insurers. In most health insurance systems, a department of the government or a parafiscal insurance body acts as monopolistic health insurer.

An international comparison of health care expenditures shows that the two countries with the longest tradition of competition among health insurers – Switzerland and the United States – have high costs of health care provision both as a percentage of gross domestic product (GDP) and in US dollar per capita at purchasing power parities (PPP) (see Figure 3). Countries with some limited competition among health insurers have also relatively high health care expenditures (Germany, Belgium, the Netherlands), as well as other countries with Bismarck-style independent insurance bodies (such as France and Austria). Exceptions to this rule are countries with a low GDP per capita, or former socialist countries. Apart from these cases there is a tendency for countries with a directly state-driven health insurance system to have lower health care expenditures than countries with independent insurance bodies or a situation of competition among health insurers. A possible explanation is that competing or independent health insurers have weaker bargaining power vis-à-vis health care providers than does the state as monopsonistic health care purchaser.

Econometric investigations support these impressions: across various studies, the most robust predictor for health care spending is per capita income (for an overview, see Docteur and Oxley 2003, pp. 73, 79–81; Gerdtham and Jönsson 2000). In addition, the degree to which the state acts as purchaser of health care services correlates significantly with health care expenditures in a negative way (Kumpmann 2008, pp. 433 ff.).

The strong preference for a specific physician among the insured is an explanation of why physicians have such a strong position when negotiating with health insurers. In reality there are some further causes for health care providers' market power. Physicians often cartelize in unions or physicians' associations. Particularly in rural areas and in the case of special deseases, some hospitals exert market power, since they act as natural monopolies. Physicians have an informational advantage, which gives them some market power. All these kinds of strong market positions can be countered by a monopsonistic health insurer rather than by competing insurers. The model of monopolistic competition discussed above is one (but not the only) explanation of a market asymmetry compensated by a monopsonistic health insurer.

Figure 3a:

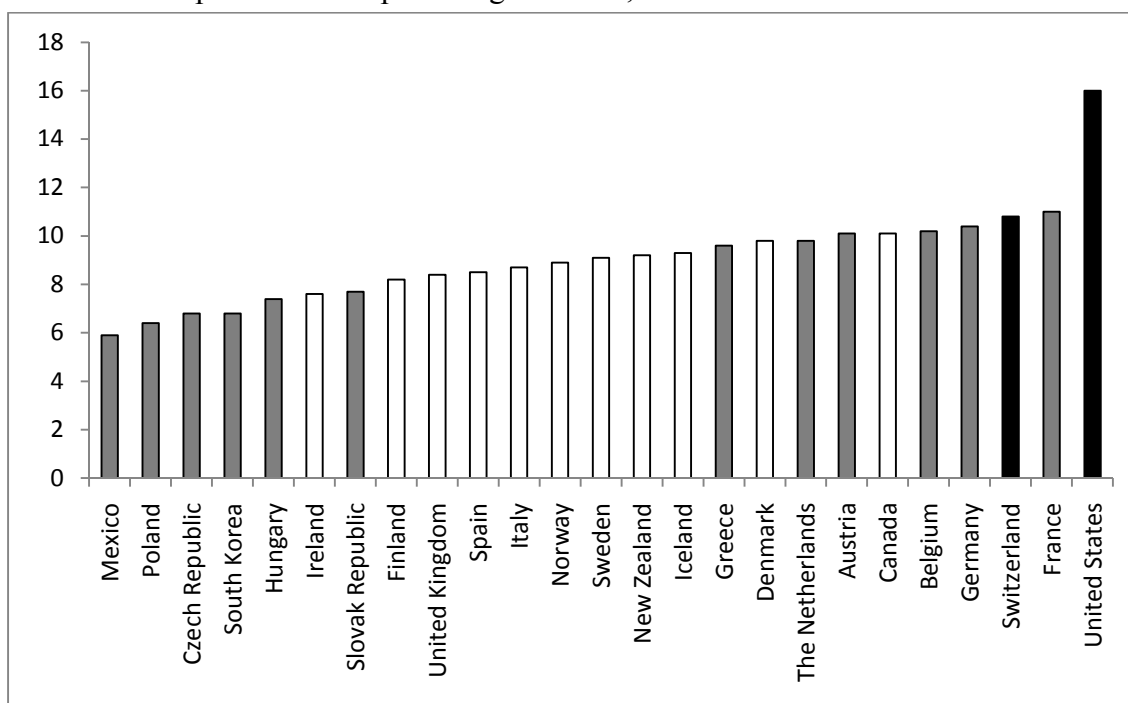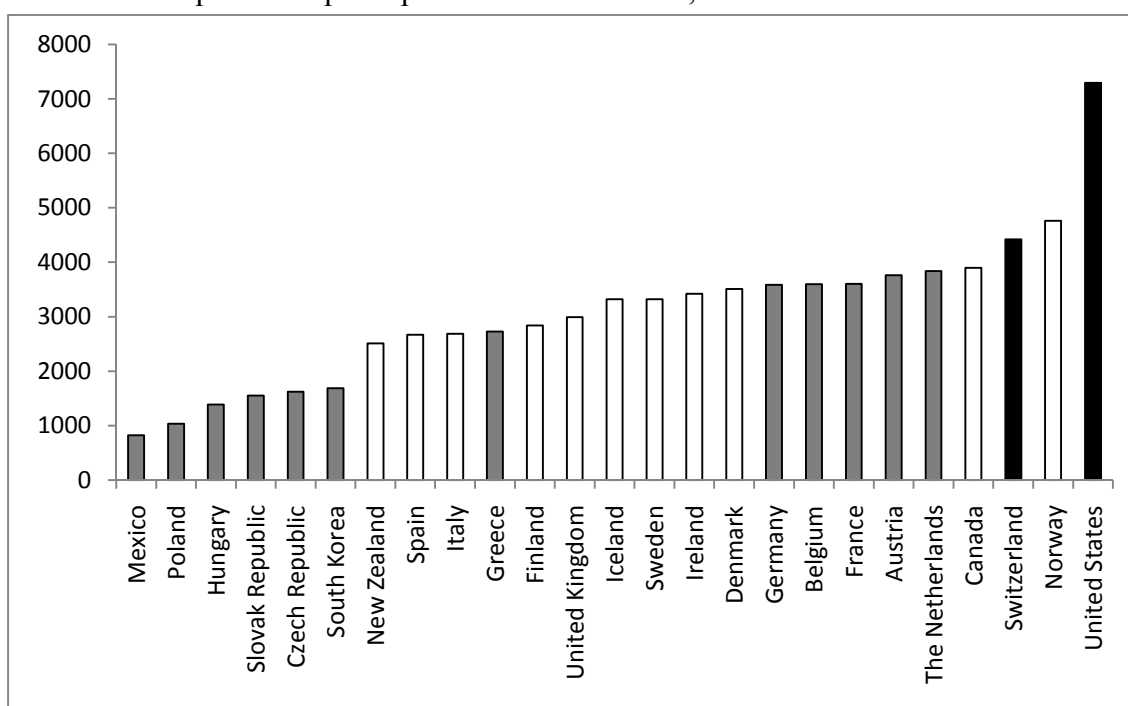Total health expenditure as a percentage of GDP, 2007



Figure 3b:

Total health expenditure per capita in PPP US dollars, 2007



Black bars: Countries with a long tradition of relatively intense competition among health insurers; grey bars: countries with independent insurance bodies, some of them with some limited competition among health insurers; white bars: countries with a predominantly state-driven health care system.

*Source*: OECD Health Data 2009.

The international comparison also shows that countries where the state acts as health in-surer and buys medical services from physicians and other providers have lower costs for their health care systems than countries with independent, albeit monopolistic, in-surance bodies. In the former, health care services are purchased by the government and financed predominantly by taxes. In the latter, health care services are financed predo-minantly by contributions, and in consequence the insured enjoy a well-defined right to treatment in return for their contributions. Along with the considerations of case C in a system with well-defined patients' rights, the monopolistic health insurer is more in-clined to weigh cost containment against variety of medical services. Thus an indepen-dent insurance body may choose a higher price in return for a greater number of physi-cians. In contrast to this, a department of the government does not have the commitment to provide a specific amount, variety or quality of health care services in return for taxes paid. Thus the government could be predominantly motivated by cost containment poli-cies. This may be an explanation for the observation that, in government-driven health care systems, expenditures are even lower than in countries with monopolistic indepen-dent insurance bodies.

In the Netherlands, health policy has been aimed for almost two decades towards strengthening competition among health insurers. In 1992, the insured were given the right to choose their health insurer freely. Since that time, health insurers have been allowed to contract selectively with physicians, and since the most recent reform of the health care system in 2006 they can also contract selectively with hospitals. But hardly any of them has made use of these possibilities (Douven et al. 2007, p. 9; Leu et al. 2009, p. 18). Providers' remunerations are regulated by the government. In the field of primary care, prices are limited to a maximum amount. Hospital charges are also largely regulated, albeit the proportion of freely negotiable prices is rising (Leu et al. 2009, p. 18).

According to the considerations in case B, it is plausible that in the Netherlands a health insurer that excludes, for example, a general practitioner from its list would lose at least some of its patients as insured clients as well. Greß et al. (2001, p. 20) mention that most of the insured have closer links with their physician than with their health insurer. The only rationale for selective contracting – price differentials between health care pro-viders – was prevented by governmental regulation. This is an explanation in line with case B for the reluctance of health insurers to contract selectively with health care pro-viders.

Private health insurance companies play an important part as insurers for risks not covered by the regular social health system, especially in Canada, Australia and Swit-zerland. Gechert (2009, p. 9) points out that these private insurers normally do not re-strict the free choice of medical practitioner by the insured. Rather, they act as mere payers in the system of health care provision. One reason (among others) for this is the high preference among customers for freedom of choice. Even in the field of private competition, the competing insurers lack the incentive to contract selectively with physicians.

In the United States, many employees de facto do not have a free choice of health insurer, because their employers offer them only a limited number of health plans, and bear the cost of a proportion of the premiums. Among those who receive such health benefits from their employers, 46 per cent are offered only one health plan (Collins et al. 2006, p. 6, fig. 4). Traditionally, most health plans were indemnity schemes with no restriction on the free choice of medical practitioner. The US health system suffered from very high and strongly increasing health care expenditures. During the 1980s and 1990s, selective contracting became much more widespread in the USA in the form of Managed Care organizations such as the Health Maintenance Organizations (HMOs). This was motivated partly by employers, for the purpose of cost containment. On the one hand, this resulted in considerable cost savings, but on the other, health care consumers pressed for more individual choice among health care providers, and political pressure to guarantee more patients' rights rose significantly. This resulted in a growing number of new laws on patients' rights. Health insurers responded by offering new products with more freedom of choice for patients. Subsequently, health care expenditures were increasing faster again (Docteur et al. 2003, pp. 14 ff.).

As long as most of the offered health plans were indemnity schemes, the free choice of medical practitioner was guaranteed and physicians exerted a market power that allowed them to charge relatively high prices, either from the health insurer or directly from patients. Cost containment was achieved in return for a loss of consumer choice: the choice among health insurers was limited by the employer; and the choice among health care providers was limited by the health insurer. When the health insurers are allowed to restrict the patients' choice of medical practitioner they gain the market power to reduce prices. Since patients have more consumer rights once more, cost containment has been less successful in the USA.

To sum up, some of the stylized facts about health care systems in industrialized countries can be understood with the help of the models described in this paper. More empirical scrutiny would be necessary to corroborate or to weaken these connections. Further studies might take into account other influencing factors such as the risk selection behavior of health insurers, and income differences.

# 4 Conclusion and Political Implications

The model of monopolistic competition is used as an approach to analyze the bargaining power of health care providers. Assuming that patients have an individual relationship with their physicians, it is possible to analyze the supply of health care services by means of this model. Under these circumstances, costs are high when health insurers compete with each other, because physicians can achieve higher remuneration. This brings about either extra profits for physicians or an increase in the number of physicians. Lower costs are possible either if the health insurer has a monopsonistic position on the health care market or in a situation where the insured lose both the free choice of medical practitioner and the free choice of health insurer. Competition weakens the bargaining power of health insurers vis-à-vis health care providers. Thus increasing competition among health insurers might not bring about lower costs.

In this framework, the special strength of physicians stems from their individual relationship with patients, which is also an aspect of medical quality. Since quality competition is not included in the models above, this paper contributes more to the explanation of costs in the health care sector than to the question of efficiency. The only conclusion concerning quality in this paper is the insight that a higher number of physicians brings about not only stronger price competition but also a greater variety for patients searching for a doctor. This might furthermore enhance quality competition among health care providers. In any case, an efficiency-enhancing policy should support open market access for additional suppliers as long as they meet the conditions to be a professional physician. This includes an improvement of information for patients about newly entering physicians, to make the greater variety of physicians effectively accessible for patients, and in this way to support their rational choice of a medical practitioner.

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