Consumer channeling in health care: (im)possible?

Consumentensturing in de zorg: (on)mogelijk?

Lieke H.H.M. Boonen

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Overige leden: Prof.dr. D.M.J. Delnoij
Dr. A.C. Donkers
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Boonen, L.H.H.M. and F.T. Schut (2009) 'Preferred providers and the credible commitment problem in health insurance: first experiences with the implementation of managed competition in the Dutch health care system', *submitted for publication*

Chapter 3
Boonen, L.H.H.M., F.T. Schut and X. Koolman (2008) 'Consumer channeling by health insurers: natural experiments with preferred providers in the Dutch pharmacy market', *Health Economics* 17(3),299-316

Chapter 4
Boonen, L.H.H.M., F.T. Schut, B. Donkers and X. Koolman (2009) 'Which preferred providers are really preferred? Effectiveness of insurers' channeling incentives on pharmacy choice', *International Journal of Health Care Finance and Economics*, *forthcoming*

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CHAPTER 1

Introduction

Introduction

1

In several countries major health care reforms have been implemented in the last decades. Most of these reforms focused on a shift from supply-side regulation to a more demand-side oriented system. Managed competition can be seen as a blue print for the reforms in several European countries including the Netherlands, Germany and Switzerland (Enthoven and van de Ven 2007, van de Ven 1996). With the introduction of managed competition, the structure of the health care market shifted to a more market oriented system in which third-party payers are responsible for the purchase of care. In most countries, health insurers function as third-party payers. Health insurers are given incentives and tools to act as prudent buyers of care on behalf of their enrollees. Enrollees are given incentives to encourage insurers to act as prudent buyers of care since they have to buy a health insurance plan on a competitive health insurance market.

In this thesis we focus on the Dutch health care system. The introduction of the new Health Insurance Act (HIA) in 2006 has been a major step in the transition towards managed competition. Under the HIA all persons who legally live or work in the Netherlands are obliged to buy a basic benefit package from a private health insurer on a competitive health insurance market. Health insurers are obliged to accept all applicants against a community rated premium. Via a risk equalization fund health insurers are compensated for high risk enrollees. Consumers can receive subsidies that make insurance affordable for everyone (Van de Ven and Schut 2009). With the introduction of the HIA price competition on the health insurance market increased substantially. Moreover, insurers are given different tools to act as prudent buyers of care. Insurers can selectively contract with health care providers and offer different health plans to their enrollees including e.g. preferred provider plans and traditional fee-for-service plans.

Health insurers as prudent buyer of care

The introduction of managed competition implies that health insurers have to operate on a two-sided market (Armstrong 2002, Caillaud and Jullien 2003). In such markets an intermediary connects two sides of the market. The benefits an intermediary obtains on one side of the market depend on the benefits the intermediary can obtain on the other side of the market. A well known problem in two-sided markets is the 'chicken and egg' problem in which either side of the market is only willing to connect to the intermediary if the other side of the market is (Armstrong 2002, Caillaud and Jullien 2003). In health care, insurers can be seen as the intermediary that connects the provider and consumer side of the market. The 'chicken and egg' problem also arises in health care where enrollees are only willing to enter into a contract with an insurer if the insurer offers an attractive network of providers while providers are only willing to conclude a

contract with an insurer if the insurer is able to offer an attractive network of enrollees. For providers not only the size of the network matters but also insurers' ability to successfully channel enrollees to providers within their network. Hence, insurers' ability to act as prudent buyers of care largely depends on their ability to successfully channel enrollees towards preferred providers (Pauly 1987, Sorensen 2003, Wu 2009). The ability to successfully channel enrollees not only depends on the attractiveness of preferred providers (Capps, et al. 2003, Town and Vistnes 2001) but also on consumers' willingness to accept restrictions on provider choice (Miller 2006).

Channeling strategies

Insurers are able to channel enrollees toward preferred providers via various channeling strategies. In the US, insurers typically encourage preferred provider utilization through negative financial incentives (higher co-payments for non-contracted providers). The most restrictive forms are the Health Maintenance Organizations (HMOs) that only offer reimbursement for within network care (except in case of emergency). More popular, however, are the less restrictive Preferred Provider Organizations (PPOs) that offer partial reimbursement for non-contracted providers. Instead of negative financial incentives, insurers can also use positive incentives, either qualitative (e.g. better service and lower waiting times) or financial (e.g. discounts and bonus payments) to encourage preferred provider use. Positive channeling incentives may be particularly useful when insurers negotiate favorable contracts with preferred providers but do not want to restrict their provider network by selective contracting. Despite the widespread use of managed care plans in the US little is known about consumer sensitivity to various channeling incentives. Most empirical papers focused on the effects of restricted networks on the bargaining power of the insurer.

Goal

Insurers' ability to influence provider choice is an important precondition for effective negotiations with providers. In the Netherlands, however, prior to the reform health insurers had limited experience with influencing provider choice. Moreover, in general little is known about effective channeling strategies. Therefore, it is not clear whether the important precondition for effective negotiations can be fulfilled. The goal of this thesis is to shed light on this question by investigating consumers' responsiveness to channeling incentives in the Dutch health care market. Moreover, we evaluate whether health insurers have been able to take up their role as active purchaser of care in the reformed Dutch health care market.

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Relevance

Though this study focuses on the Dutch insurance context, the conclusions will be relevant for other countries as well. First, the conclusions are relevant for countries that recently introduced selective contracting in their health insurance scheme, e.g. Germany and Switzerland. Second, also in the US there is relatively little research on insurers' ability to channel enrollees. Most research focused on health plan choice or on health plans' ability to channel enrollees using exclusionary networks (Glied 2000, Wu 2008, Zweifel and Manning 2000). Since the managed care backlash (Gawande, et al. 1998, Miller 2006), however, insurers are turning increasingly to less restrictive provider networks such as preferred provider networks. There is little insight in the most effective strategy to channel enrollees to certain providers within a network (Wu 2009).

Central questions, structure and content

The central question, which is examined in the context of the new Dutch health care system, is:

Are insurers able to channel enrollees to preferred providers in order to effectively act as prudent buyers of care?

In order to answer the central question we formulated the following specific research questions:

Q1: How are insurers taking up their role as prudent buyers of care since the introduction of the new HIA in the Dutch health care market?
Q2: How did consumer attitudes towards channeling incentives and restrictions on provider choice developed since the introduction of the new HIA in the Dutch health care market?

In chapter 2, we develop a theoretical framework using insights from two-sided markets, option demand and principal-agent theories. The theoretical framework assesses the importance of consumer channeling in health care markets with managed competition. With a document analysis, a literature review and interviews with four major health insurers we analyze whether and how insurers used selective contracting and channeling incentives since the introduction of the HIA. In addition, we investigate consumers' attitudes towards restrictions on provider choice and channeling incentives using surveys over the period 2005-2009. Finally, we discuss the likely impact of these (changing) attitudes on insurer behavior.

Q3: What is the impact of insurers' experiments with channeling incentives on provider choice?

In chapter 3, we focus on the outcomes of the first natural experiments in the Netherlands with preferred provider arrangements. Several health insurers concluded preferred provider contracts in the pharmaceutical market and tried to encourage enrollees through positive financial and qualitative incentives to visit the preferred pharmacy. This chapter analyzes the impact of these introduced channeling incentives on provider choice.

Q4: Are consumers sensitive to different channeling incentives to encourage the use of preferred providers?
Q4a: Does sensitivity to channeling incentives differ between different providers?
Q4b: How does status quo bias affect sensitivity to channeling incentives?
Q4c: Does status quo bias differ between different providers?

Since natural experiments in the Dutch health care market have been quite limited, we designed two Discrete Choice Experiments (DCEs) to elicit consumer preferences for different channeling incentives in the pharmaceutical market and the market for general practitioner (GP) services. We have chosen for these two market segments since consumers already have some experience with preferred provider arrangements in the pharmaceutical market, which adds to the reality of our experiment, and since we expect that consumer preferences for these two providers strongly differ. We expect preferences for pharmacies to be relatively weak and relatively price elastic. Preferences for GPs are expected to be strong because of the often long-term and confidential relationship consumers have with their GP. We expect that the preferences for other health care providers, such as hospitals, medical specialists and physiotherapists, are weaker than for GPs and stronger than for pharmacies.[1]

With two discrete choice experiments we estimate consumers' sensitivity to different financial and qualitative incentives (including practice characteristics) insurers can use to encourage the use of preferred providers. In addition, we confront consumers with choices between their current provider and a hypothetical preferred (better) alternative to estimate a possible status quo bias. Status quo bias implies that consumers are reluctant to leave their current provider even when better alternatives are readily available. We expect the status quo bias to be higher with providers with whom consumers have a long-term and confidential relationship. Hence, status quo bias in GP choice is expected

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1. This expectation is corroborated by a survey among 2000 respondents (Keuzenkamp 2006) in which the reported switching propensities for various health care providers were the least for GPs and the highest for pharmacies.

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to play a larger role than in pharmacy choice. The effectiveness of channeling incentives is expected to decrease once consumers are more attached to a specific provider.

These research questions are dealt with in chapters 4, 5 and 6. In chapter 4 we analyze and discuss the results of a DCE about pharmacy choice. In chapter 5 we analyze and discuss the results of a DCE about GP choice. Finally, the results of both DCEs are compared in chapter 6 and the implications are discussed for the effectiveness of consumer channeling for both types of providers.

In chapter 7, we summarize the answers to the research questions and provide an overview of the most important lessons that can be drawn.

Because the chapters of this thesis are written as separate articles for different international journals[2], each chapter can be read independently. The obvious advantage for the reader is that (s)he can skip one or more chapters without missing essential information necessary to understanding the other chapters. A drawback is, however, that various chapters have some degree of overlap, particularly with respect to the description of the Dutch health care reform and the literature reviews.

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2. Chapter 2, 5 and 6 are submitted for publication in international journals. Chapter 3 is published in *Health Economics* and chapter 4 is published in the *International journal of Health Care Finance and Economics.*

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Preferred providers and the credible commitment problem in health insurance

First experiences with the implementation of managed competition in the Dutch health care system

Abstract

We investigate the impact of the transition towards managed competition in the Dutch health care system. In particular, we examine whether insurers have been able to take up their role as prudent buyers of care and examine consumers' attitudes towards managed care. We develop a theoretical framework using insights from two-sided markets, option demand and principal-agent theories. With a document analysis, a literature review and interviews with four major health insurers, we examine insurers' contracting behavior. Using survey analysis over the period 2005-2009, we investigate consumers' attitudes towards selective contracting and channeling by health insurers. Our results show that health insurers are very reluctant to engage in selective contracting but rather use 'soft' positive incentives to encourage preferred provider use. Consumer attitudes toward channeling vary considerably by type of provider but generally became more negative in the first two years after the reform. Insurers' reluctance to use selective contracting can be explained by the presence of a credible-commitment problem. Consumers do not trust that insurers with restrictive networks are committed to provide good quality care. The credible-commitment problem limits insurers' ability to effectively channel enrollees. Increasing the availability of adequate information about provider quality is required to reduce the credible-commitment problem.

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Introduction

Since the 1990s the Dutch health care system has been in transition from supply-side government regulation toward managed competition (Van de Ven and Schut 2009). A major step in this transition process has been the introduction of the Health Insurance Act (HIA) in 2006. The HIA is based on the principles of managed competition within the context of a national health insurance system under which all persons who legally live or work in the Netherlands are obliged to buy, on an annual basis, a basic benefit package from a private health insurer (Enthoven and van de Ven 2007). Health insurers had to become prudent buyers of care on behalf of their enrollees and were therefore given the possibilities to selectively contract or integrate with (all) health care providers.[3]

   Insurers' ability to act as prudent buyers of care (contracting high quality care at a reasonable price) crucially depends on their ability to channel enrollees to selected providers (Pauly 1987, Sorensen 2003, Wu 2009). In turn this depends on the attractiveness of the selected providers to consumers and consumers' willingness to switch to these providers. Insurers have different possibilities to channel enrollees to selected providers. In the US, health insurers typically use negative financial incentives to channel enrollees to selectively contracted providers. These incentives are strongest in the case of Health Maintenance Organizations (HMOs). The most restrictive HMOs use purely exclusionary provider networks and do not provide any reimbursement of out-of-network use (except in emergencies). More popular, however, are the less restrictive preferred provider organizations that partially reimburse non-contracted care. Rather than using negative incentives, health insurers may also employ positive incentives to encourage the use of preferred providers, e.g. by facilitating utilization, better service, discounts or bonus payments. Positive channeling incentives may be particularly useful when insurers negotiate favourable contracts with preferred providers but do not want to restrict their provider network by selective contracting. Moreover, in some markets it may not be possible or credible to exclude providers from a network (Wu 2009).

   In this paper, we examine whether insurers in the Dutch health care market have, since the introduction of the Health Insurance Act (HIA) in 2006, been able to take up their role as prudent buyers of care and whether they have been able to channel enrollees toward preferred providers. In addition, we investigate consumers' attitudes towards the new role of health insurers and the use of channeling incentives. Our findings are not only relevant in the Dutch context but also for an increasing number of other countries that have introduced managed competition and selective contracting (e.g. Germany and Switzerland) or are contemplating to do so.

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3. See for detailed description of the new health insurance scheme Enthoven and van de Ven (2007).

First, we develop a conceptual framework using insights from two-sided market, option demand, and principal-agent theories and give a brief overview of the empirical literature with respect to selective contracting and consumer channeling. Second, we shortly describe the methods used. Next, we analyze the developments with respect to insurers' contracting policies and consumer channeling during the first years of the transition towards managed competition. We then examine the attitudes of enrollees to the introduction of restrictions on provider choice in the Dutch system using survey data from the year prior to the reform until 2009. We end with a discussion of the results and the most important conclusions.

Conceptual framework

With the introduction of managed competition, health care systems are reformed into systems in which insurers and providers bargain over the price and quality of health care services (Wu 2009). The outcome of the insurer-provider bargaining process is influenced by several factors. (Pauly 1987) formulated three necessary conditions for health insurers to obtain discounts from health care providers. First, the net revenue of a hospital must be worse with lower volumes than with discounted charges. Second, insurers must be able to credibly threat to remove patients from a non-preferred provider. And third, providers must be unable to replace these new patients. These conditions apply to both the relationship between the insurer and provider and to the relationship between the insurer and its enrollees. Insurers will only be able to negotiate price discounts if they are able to influence consumer choice of providers. Once they are unable to move patients towards preferred providers, providers will be unwilling to offer discounted charges to the insurer.

Conceptually the interaction between these conditions can best be described by using the concept of two-sided markets (Armstrong 2002, Caillaud and Jullien 2003). In two-sided markets an intermediary connects two different sides of the market. The benefits an intermediary obtains on one side of the market depend on the benefits the intermediary can obtain on the other side of the market. A well known problem in two-sided markets is the 'chicken and egg' problem in which either side of the market is only willing to connect to the intermediary if the other side of the market is (Armstrong 2002, Caillaud and Jullien 2003). An example is a dating service. Males are only willing to subscribe with the dating service if the dating service has enough females and vice versa.

In health care markets, insurers can be seen as intermediaries that connect the provider side of the market with the consumer side of the market. Also in the insurance market the 'chicken and egg' problem can arise; enrollees are only willing to enter into

a contract with an insurer if the insurer offers an attractive network of providers while providers are only willing to conclude a contract with an insurer if the insurer is able to offer an attractive network of enrollees. For the provider not only the size of the insurer in terms of enrollees matters but also the ability of the health insurer to steer its patients to the selected providers.

The ability of the health insurer to steer its patients to selected providers depends on the value of the network the insurer offers to enrollees but also on consumers' willingness to accept restrictions on provider choice. Consumer demand for restricted networks can best be described by the option demand theory (Capps, et al. 2003, Town and Vistnes 2001). Option demand theory applies to situations in which consumers buy an option to use a product rather than buying the product directly. When consumers choose a health plan they buy an option to use the contracted providers once they need care. The value of the option is determined by the ex-ante value of the network to the consumer. This value depends on consumers' expectations of how well the network is able to meet their needs (Capps, et al. 2003). These expectations can be described in terms of consumers' ex ante willingness to pay to retain a hospital in a network. The willingness to pay for a hospital depends e.g. on the out-of-pocket price, hospital quality, its appeal to consumers and the geographic location of the hospital. Hospitals with a greater incremental value to the insurers' network have a higher bargaining power. Hospital competition thus mainly focuses on being in- or excluded from an insurers' network.

Consumers' willingness to accept restrictions on provider choice may be limited by a credible commitment problem (Miller 2006). Miller (2006) argues that health insurers with restricted networks are less able to credibly commit to provide better than least-cost care. Consumers often distrust integrated organizations in which insurers and providers are financially linked, such as health maintenance organizations, because of potential conflicts of interests. If consumers are not able to verify health insurers' efforts to provide good quality care ex ante, they are less likely to believe that health plans with restricted networks offer the best treatment. The credible commitment problem may thus form a barrier to the insurer to actually use restricted provider networks since the ex ante value of restricted networks is rated below that of open networks.

Previous empirical findings

There is a vast amount of literature on the emergence of managed care plans and the effects of managed care plans on insurers' bargaining power. Most literature focuses on the US since managed care organizations are widely present in the US health care market. During the last decades managed care plans have grown so fast that since the

1990s they dominate the US health insurance market (Glied 2000). In 2008 about 97% of insured working Americans were enrolled in a managed care plan (Claxton, et al. 2008).

According to Glied (2000), managed care plans in the US use different mechanisms to contain costs including selective and preferred provider contracting, different payment methods, cost-sharing instruments and methods to monitor utilization. Selective and preferred provider contracting is commonly used to contain costs (Dranove, et al. 2008, Wu 2009). In the early years of managed care, plans with exclusive provider networks such as HMOs dominated the market place. Over the years there has been a shift from these HMOs to plans that use partial consumer channeling such as preferred provider organizations (PPOs). PPO enrolment under insured working Americans increased from 16% in 1988 to 58% in 2008 (Claxton, et al. 2008).

Several empirical studies focused on the impact of size and the use of exclusionary networks on the insurer's bargaining power vis-à-vis health care providers (Melnick, et al. 1992, Smith 1997, Sorensen 2003, Staten, et al. 1987, Zwanziger and Mooney 2005). Results showed that prices paid by managed care plans are strongly influenced by the structure of the market, managed care plan's ability to credibly threat to move market share, and the degree to which insurers selectively contract with health care providers. In competitive markets, providers give higher discounts than in less competitive markets. In general, managed care organizations are able to extract higher discounts than traditional fee for service organizations. The studies by (Capps, et al. 2001, Capps, et al. 2003, Town and Vistnes 2001) showed that insurers' bargaining power is positively affected by their ability to exclude hospitals from their network. Even though the effectiveness of selective contracting decreased over the period 1990-2003, managed care organizations are still able to play competitive hospitals off against each other to obtain discounts (Dranove, et al. 2008). A recent study by (Wu 2009) showed that also partial consumer channeling can have a positive effect on the negotiated discounts by managed care organizations.

Methods

To investigate the purchasing behavior of insurers over the period 2006-2009 we performed an extensive review of publicly available information sources including websites of insurers, reports from the Dutch Healthcare Authority (NZa), the federation of patient and consumer organizations, the Ministry of Health and consumer websites. In addition, we held interviews with representatives from the four largest health insurers (with a total market share of almost 90%) about their purchasing strategies.

Second, we used surveys to examine consumer attitudes towards managed competition. We use survey data over the period 2005-2009. In 2005 and 2006 we used two

surveys that were issued by a major Dutch health insurer. One survey was issued under a representative panel of the adult Dutch population in 2005 (n = 2006) and 2006 (n = 2003). The second survey, using partly the same questions, was issued among about 803 randomly selected adult enrollees of the insurer (Keuzenkamp 2006) [4]. In 2007

Table 2.1 Consumer characteristics

		mean	standard deviation	min	max
Age	*2007 (n = 2234)*	*49.1*	*15.6*	*18*	*92*
	2009 (n = 1552)	*52.5*	*15.9*	*16*	*94*
		2007	**2009**		
		% of total	*% of total*		
Health					
	Bad	1.07	1.1		
	Mediocre	12.44	13.34		
	Good	53.49	55.28		
	Very Good	26.63	24.61		
	Excellent	6.36	5.67		
Gender	*Female*	47.9	44.9		
Education					
	Low	30.57	34.4		
	Intermediate	33.32	29.71		
	High	36.11	35.89		
Work					
	Work	57.47	50.97		
	Pension	19.04	24.61		
	Other	23.48	24.42		
Regular GP		96.58	98.58		
Regular Pharmacy		96.64	95.88		
Regular Physical therapists		//	34.41		
Regular Dentist		//	89.76		
Regular Hospital		//	53.48		

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4. Both surveys were performed by a well-known market research company (Intomart GFK). The research company claims that their research panel is representative of the Dutch population, but no individual background characteristics were provided. Since the respondents in both samples (Intomarkt GFK sample and insurer sample) provided similar answers to the same questions, the research company states that the randomly selected sample of enrollees is likely to be fairly representative too.

and 2009 we set out a similar survey under an internet based household panel that is a representative sample of the adult Dutch population[5]. The panellists receive question-naires biweekly and background characteristics of the respondents such as age, gender, income, and health status are known. In total about 2500 respondents participate in the internet based household panel (response rate was about 62% in 2009 and 89% in 2007). The background characteristics of both samples are presented in table 2.1.

In all surveys respondents answered a question about their willingness to listen to advice from their health insurer. In the surveys in 2006, 2007 and 2009 respondents were also asked questions about their perception of quality differences between health care providers and their willingness to pay for free provider choice.

Insurers' initiatives with selective and preferred provider contracting

Since the introduction of the HIA, the health insurance market rapidly consolidated to four large insurance companies and seven smaller insurers in 2009 (see table 2.2). The four large insurers each have several subsidiaries operating under different labels. The largest four insurance companies (including their subsidiaries) have 90% of the market.

Table 2.2 Market shares of health insurers in 2008*

Insurance companies	Market share 2008 (based on number of enrolees)
Achmea	29%
UVIT (Unive, VGZ, IZA, Trias)	26%
CZ-DLO	20%
Menzis	13%
De Friesland	3.1%
DSW-SH	2.5%
ONVZ	2.4%
Zorg en Zekerheid	2.2%
Fortis	1.1%
Salland	0.6%
PNO	0.2%

* Source: NZA, Monitor Zorgverzekeringsmarkt 2008 (NZA 2008a)

5. The internet based household panel is set up by CentER data. CentER data guarantees that the panel is representative of the adult Dutch population. Also people who do not have internet access are included in the panel as CentER provides them with a so-called Net.Box that allows them to enter the data on their television screen. Respondents in the CentER data panel also stay over the course of time allowing for longitudinal research (http://www.centerdata.nl/en/centerpanel).

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During the first years of the new health insurance scheme, the majority of health insurers did not use selective contracting. Only few insurers tried to exclude providers from their network (selective contracting) but because of the negative publicity and the fear for reputation damage, most included these providers in their network later on (NZa 2007). Anticipating the use of selective contracting, health insurers did, however, introduce insurance policies with differentiated reimbursement limits for contracted and non-contracted providers. Typically, reimbursement limits for non-contracted care were set between 80% and 90% of that of contracted care. In practice, however, the differentiated reimbursement limits had negligible financial consequences for providers and enrollees as most health insurers contracted with almost all health care providers. Over time the number of people enrolled in a health plan with differentiated reimbursement limits increased. In 2008, only about 35% of all enrollees still have a health plan that does not differentiate reimbursement between contracted and non-contracted care. The actual impact of these negative financial incentives to visit non-contracted providers remained very small, since health insurers still contracted more than 95% of all providers[6]. Hence, even though insurers included the possibility to selectively contract in their health care policies, in practice they offer fully contracted health plans. There are two small regional insurers (DSW and Zorg en Zekerheid, joint market share 5%) who actively inform their enrollees that they do not limit provider choice in any way or intend to do so in the future, and for that reason do not use differentiated reimbursement limits.

In 2008, one health insurer (Univé, subsidiary of UVIT) introduced a health plan with a selected network of providers. This plan fully reimburses contracted care including an internet pharmacy and 13 preferred hospitals[7] (14% of all hospitals) of which 3 are academic hospitals[8]. If enrollees visit non-contracted hospitals or pharmacies[9], they have to pay 20% of the care out-of-pocket up to a maximum amount of 500 euro per year. The

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6. Most insurers provide a list of all contracted providers on their website and do not specify which providers are not contracted or what percentage of providers they have contracted in total. In telephone consultations with insurers' help desks, insurers mention that 'you have to search very thoroughly to find a non-contracted provider'. Most insurers specifically mention that they contract with 'nearly' all providers. Only Achmea specified, as of 2009, on their website the percentage of contracted providers per category of care.

7. For emergency care and high specialty care enrollees can visit all hospitals in the Netherlands. In addition, if a contracted hospital refers an enrollee to a non-contracted hospital, hospital care is also fully reimbursed.

8. The contracted hospitals are spread over the twelve provinces in the Netherlands. In total there are 93 hospitals in the Netherlands of which 8 are academic hospitals (www.RIVM.nl 2008).

9. In one region in the Netherlands (the Hague) the insurer also selected a preferred general practitioner (GP). Only enrollees who live in this region are obliged to visit this preferred GP, other enrollees are free to choose their own GP.

health plan is targeted to young, healthy enrollees as advertisement is primarily through the internet. In 2008, this health plan had 13,000 enrollees of which 75% is between 18 and 30 years old (NZA 2008a).

While other insurers are reluctant to use selective contracting they did start to introduce 'soft' positive incentives (e.g. providing advice and information) to encourage the use of preferred suppliers that are selected on the basis of superior service or quality aspects, such as lower waiting times, higher consumer ratings or certificates about meeting certain quality standards. Until 2009, insurers did not use positive financial incentives to encourage the use of preferred providers. As of 2009, insurers are legally permitted to exclude costs of designated preferred providers from the mandatory and voluntary deductible people have to pay[10]. This gave insurers the possibility to introduce positive financial incentives to encourage preferred provider utilization. Half of the health insurers (with a total market share of 58%) started to use this legal option to offer a financial bonus in case of preferred hospital utilization in 2009 (NZA 2008b).

Insurers use different strategies to positively influence provider choice. First, two major insurers (CZ-DLO and Menzis) have chosen not to use financial incentives to stimulate preferred provider utilization. Both insurers mainly focus on the communication of quality information to encourage preferred provider utilization. CZ-DLO explicitly states to refrain from using financial incentives because of the fear for reputation damage. Second, the largest health insurer (Achmea) uses positive financial incentives to encourage its enrollees to seeking the insurer's advice about provider choice. Enrollees are exempted from paying the mandatory deductible once they consult Achmea concerning hospital choice. According to Achmea, enrollees have to get used to insurers giving advice about hospital choice. Hence, not the actual decision to visit a preferred supplier is 'rewarded' but the decision to seek advice from the insurer. Third, two health insurers (UVIT and DFZ) use positive financial incentives to stimulate their enrollees to visit preferred hospitals. Both insurers exempt enrollees from paying the mandatory and voluntary deductible once enrollees actually visit the selected hospitals. UVIT argues that the financial incentive is mainly used to influence provider behavior. The fear of loosing market share is expected to stimulate providers to increase their quality. Although these initiatives focused on hospital utilization, insurers are allowed to exempt enrollees from paying the mandatory and voluntary deductible for other forms of care as well.

Furthermore, occasionally health insurers vertically integrated with health care providers. These typically small scale integrations were mainly set up to decrease local provider shortages or to financially support health care providers. In general, most insurers are

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10. Since 2008 enrollees have a mandatory deductible of 155 euro per year. In addition, enrollees can choose a voluntary deductible up to 500 euro in return for a premium discount. In 2008, about 5% of all enrollees have chosen a voluntary deductible (NZA 2008b).

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reluctant to engage in vertical integration. Although the largest health insurer (Achmea) owned several health centers in the past, it does no longer perceive vertical integration as a future strategy. The second largest insurer (UVIT) explained in an interview that vertical integration is not its main strategy but can be used as an instrument to put pressure on incumbent health care providers to deliver high quality care. UVIT is currently negotiating with several health care institutions about a possible cooperation. The third major insurer (CZ-DLO) sees integration mainly as an 'emergency' option in case the insurer is unable to contract sufficient care for its enrollees. In the past, CZ-DLO participated in an orthopaedic clinic to reduce waiting lists and after waiting lists were sufficiently reduced the participation was terminated. Finally, the fourth largest health insurer (Menzis) is most actively involved in vertical integration. Although Menzis participates in several primary health centers its CEO states that he does not intend to become a HMO type insurer. The participation in primary health centers was based on GP shortages and considerations to improve the efficiency of primary care. Menzis does not limit provider choice nor excludes enrollees from other insurers from visiting their health centers.

In table 2.3 we summarized the main initiatives insurers have undertaken over the past few years to manage care for five specific care categories including pharmaceutical care, physical therapy, GP care, maternity care and hospital care. These initiatives illustrate that insurers are slowly but gradually expanding managed care activities and so far have confined themselves to 'soft' strategies to influence provider choice.

Consumers' attitudes toward preferred providers

Using survey data over the period 2005-2009, we investigated consumers' attitudes to the introduction of managed competition and whether these attitudes changed over time. We present the results for the different questions separately[11]. With logistic regressions per provider type we tested for differences in responses related to consumer characteristics such as age, gender and health status.[12]

First, we asked respondents whether or not they perceived quality differences between providers. We confronted respondents with this question since we expect that perceived quality differences influence provider choice. People may be less inclined to

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11. The results presented in the figures include the year 2008. Since we do not have information on consumers' perceptions in 2008, we used interpolation to obtain figures for 2008.

12. The logistic regressions are based on the survey data from 2009. We have no information on individual background characteristics for 2005 and 2006 and since regression results for 2007 and 2009 were similar we have chosen to present only the most recent results.

Table 2.3 Main initiatives of health insurers to manage care for five selected care categories

Pharmaceutical care	
Before 2006	- Several health insurers including CZ-DLO and UVIT concluded preferred provider contracts. Enrolees are stimulated through positive temporary financial incentives (gift certificates and discounts on over-the-counter medicines) to visit the preferred pharmacy. - The temporary incentives were insufficient to permanently influence pharmacy choice and the preferred provider contracts were terminated in 2008.
2006	- Health insurers CZ-DLO and UVIT concluded preferred pharmacy contracts with the internet pharmacy 'de nationaleapotheek.nl'. Enrolees are stimulated via a positive financial incentive (respectively 4 euro and 2,5 euro bonus per prescription) to order their drugs online.
2008	- Several health insurers including CZ-DLO, UVIT and Menzis introduced drug formularies. UVIT used competitive bidding for 33 different generics whereas the other insurers started a bidding process for 10 different generics (CZ-DLO and Menzis). The individual bidding strategies had a huge effect on the prices of generics. For the ten biggest-selling generics, list prices were reduced by 76% to 93%, resulting in total savings of about 347 million euro.
Physical therapy	
Since 2005	- Experiment with free prices in the market for physical therapy, initially for a period of 2 years. During the experiment physical therapists and insurers could freely negotiate over the price and quality of physical therapy. Most insurers differentiate their contracts between physical therapists. Insurers often set a basic fixed 'price' for all contracted physical therapists and offer a mark-up on this price for high quality providers. Health insurers Agis and CZ-DLO e.g. offer high quality contracts for physical therapists that fulfil certain quality criteria (such as using electronic medical patient files and providing information for the consumer quality index for physical therapists) and basic contracts for other physical therapists. The price of the high quality contract is higher than that of the basic contract. Health insurer UVIT also introduced differentiated contracts but preferred physical therapists, selected on the basis of quality and price, receive a lower price than non-preferred physical therapists. During the experiments price differentiation increased but overall prices did not increase substantially.
2008	- Prices for physical therapy are legally freely negotiable - Non-contracted physical therapy care is reimbursed against 80% to 95% of the contracted price. - The majority of all physical therapists (>95%) is still contracted by all insurers.
GP	
2006-2009	- Insurers are reluctant to selectively contract GPs - Several insurers stimulate GPs to improve the efficiency of care. Insurers CZ-DLO, Menzis and UVIT introduced financial incentives to stimulate GPs to prescribe cost-effective drugs. Insurers Menzis and Agis reward GPs that offer good coordinated and high quality diabetic care. Furthermore, several insurers including Menzis, Achmea-Agis and DSW financially participate in primary care centres.
Maternity care	
2005-2008	- Health insurers Achmea and Menzis introduced maternity care auctions to increase competition between providers and increase transparency with respect to price and quality of maternity care. All maternity care organisations can bid for individual demand for maternity care and the bid is evaluated on the basis of price and quality of care. However, both insurers did not want to limit provider choice ex-ante. Their enrolees were thus able to state an ex-ante preference for a certain maternity care organisation. Ex-ante preferences were decisive in the outcome of the auction. Since ex-ante preferences were more important than the bid itself, maternity care organisations had no incentive to significantly decrease prices.
2009	- Achmea stops with the maternity care auctions and starts working with preferred suppliers. - Menzis continues with the auctions but will stimulate enrolees to choose their maternity care organisation based on the outcome of the auction instead of their ex-ante preference by offering free diapers for a month if they choose the provider that wins the auction instead of letting their ex-ante preference be decisive.

Hospital care	
2006	- Health insurers tried to differentiate their contracted volume between high quality and low quality hospitals. Low quality hospitals obtained less volume than high quality hospitals. By doing so, health insurers created virtual waiting lists with low quality hospitals in order to stimulate enrolees to visit high quality hospitals that consequently had lower waiting lists.
2008	- Several insurers started to distinguish "preferred hospitals". Preferred hospitals are selected on the basis of superior performance based on various quality indicators. Insurers do not selectively contract with providers but encourage their enrolees with various positive incentives to visit the preferred hospitals such as lower waiting times and quality guarantees.
2009	- Several insurers introduced positive financial incentives to encourage preferred hospital utilization, using the new legal opportunity to exclude the cost of designated preferred providers from the mandatory deductible.

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switch to a preferred provider if they expect that quality may differ but is not observable. Channeling enrollees in this case may be relatively difficult because insurers may face a credible commitment problem in the absence of adequate quality information. Results show that the majority of the respondents perceive quality differences between dentists, GPs and hospitals, while only a minority perceives quality differences between pharmacies and physical therapists (see figure 2.1). In absence of reliable information about quality, this would imply that channeling toward preferred GPs, dentists and hospitals would be more difficult for insurers than motivating people to switch to a preferred physical therapist or pharmacy.

Since the introduction of the HIA increasing efforts have been employed to develop adequate quality indicators – especially about hospital care – and to disseminate consumer information about quality based on these indicators. Although quality information is still very limited, its increased availability might have raised consumers' awareness of quality differences between providers. In addition, this might have also reduced the

Figure 2.1 Perceived quality differences between providers
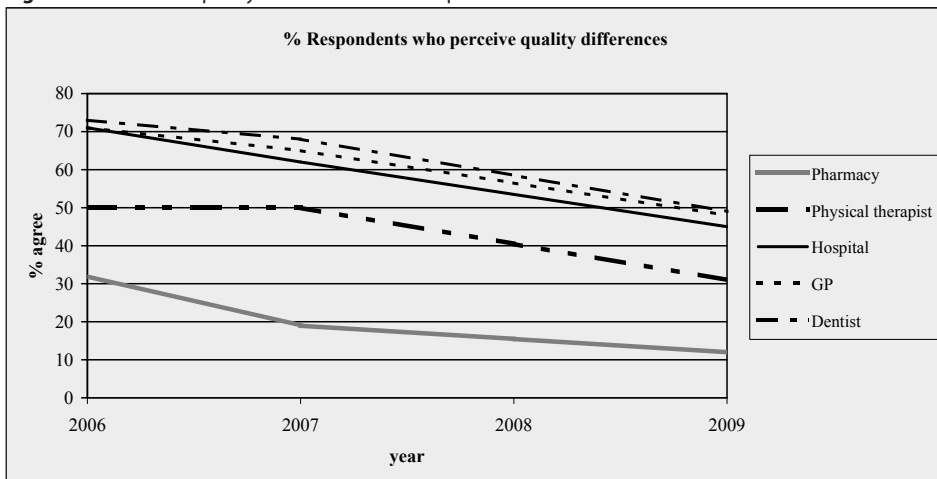
insurer-credibility problem. Contrary to our expectations, however, we find that over time the percentage respondents that perceive quality differences between providers decreased. From 2006 to 2009 the proportion of respondents perceiving quality differences between hospitals, GPs and dentists decreased from about 70% to about 50% (see figure 2.1). This downward trend is similar for all provider types. A possible explanation for this is that the general attention for health care quality decreased after the initial years in which this information firstly became available.

Regression results (table 2.4) show that respondents with a bad health are more likely to perceive quality differences between providers than respondents with a good health. This holds for all provider types except for dentists. Furthermore, females are more likely to perceive quality differences than males (except for GPs) and highly educated people are more likely to perceive quality differences than people with a low education (except for pharmacies). In absence of adequate quality information, these findings may imply that channeling enrollees toward preferred providers is more difficult for enrollees that are less healthy, female and higher educated.

Table 2.4 Regression results with background characteristics

Quality perceptions between providers					
	Pharmacy	**GP**	**Physical therapist**	**Dentist**	**Hospital**
Regular provider	0.17	0.18	0.78*	0.24	-0.21*
Female	0.29**	0.15	0.22**	0.20**	0.24*
Age	-0.01**	0.00	0.00	0.00	0.00
Middle Education	0.23	0.43*	0.74*	0.45*	0.32*
High Education	0.07	0.55*	0.79*	0.68*	0.358
Good Health	-0.70*	-0.40*	-0.69*	-0.19	-0.65*
Employment status = work	-0.30	0.10	-0.01	0.24**	0.11
Employment status = pension	-0.21	-0.39*	-0.50*	-0.29	-0.01
Constant	-1.09	-0.34	-1.18*	-0.80*	-0.04
N	1535	1535	1535	1535	1535
Pseudo R2	0.02	0.02	0.06	0.03	0.02

Willingness to follow advice from the health insurer					
	Pharmacy	**GP**	**Physical therapist**	**Dentist**	**Hospital**
Regular provider	-0.46	-1.92*	-0.35**	-0.84*	-0.02
Quality perception	-0.27	-0.02	-0.09	-0.15	0.02
Female	0.18	0.05	-0.12	-0.14	0.06

Age	-0.02*	-0.02**	-0.02*	-0.02*	-0.01
Middle Education	0.01	-0.24	-0.12	0.27	0.09
High Education	-0.22	-0.56**	-0.57*	-0.26	-0.24
Good Health	0.34	-0.06	0.03	-0.17	-0.12
Employment status = work	-0.05	0.16	0.21	-0.09	-0.04
Employment status = pension	0.06	0.16	0.00	0.16	0.25
Constant	-0.57	0.11	-0.83**	-0.30	-0.67
N	1535	1535	1535	1535	1535
Pseudo R2	0.02	0.03	0.03	0.03	0.01

Willingness to pay a copayment for free provider choice					
	Pharmacy	**GP**	**Physical therapist**	**Dentist**	**Hospital**
Regular provider	0.00	0.04	0.59*	0.89*	-0.07
Quality perception	0.98*	0.95*	1.08*	1.10*	1.17*
Female	-0.41*	-0.06	-0.15	-0.06	-0.09
Age	0.02*	0.00	0.00	0.00	0.00
Middle Education	-0.04	0.03	0.05	0.05	-0.10
High Education	0.45*	0.72*	0.69*	0.77*	0.56*
Good Health	-0.41**	-0.16	-0.19	-0.23	-0.24
Employment status = work	-0.49**	-0.09	0.01	-0.02	-0.04
Employment status = pension	-0.69*	-0.19	-0.21	-0.27	-0.04
Constant	-2.77*	-1.73*	-2.40*	-2.74*	-1.87*
N	1535	1535	1535	1535	1535
Pseudo R2	0.04	0.06	0.08	0.09	0.07

Second, we asked respondents whether or not they were willing to listen to advice from their health insurer concerning provider choice. A higher willingness to listen to advice increases insurers' possibilities to channel enrollees. Results show that respondents are most willing to follow their insurer's advice concerning hospital and pharmacy choice and are least willing to follow advice concerning GP and dentist choice (see figure 2.2). Providers for which the loyalty and confidentiality is expected to be high, are also those for which enrollees are least willing to follow advice. Furthermore, results show that during the initial two years after the introduction of the HIA respondents developed a less positive attitude towards advice about provider choice given by their health insurer. The percentage respondents who are willing to listen to advice concerning hospital choice decreased from about 50% in 2005 to about 25% in 2007 and 2009. The percentage

Figure 2.2 Willingness to listen to advice from insurers about provider choice
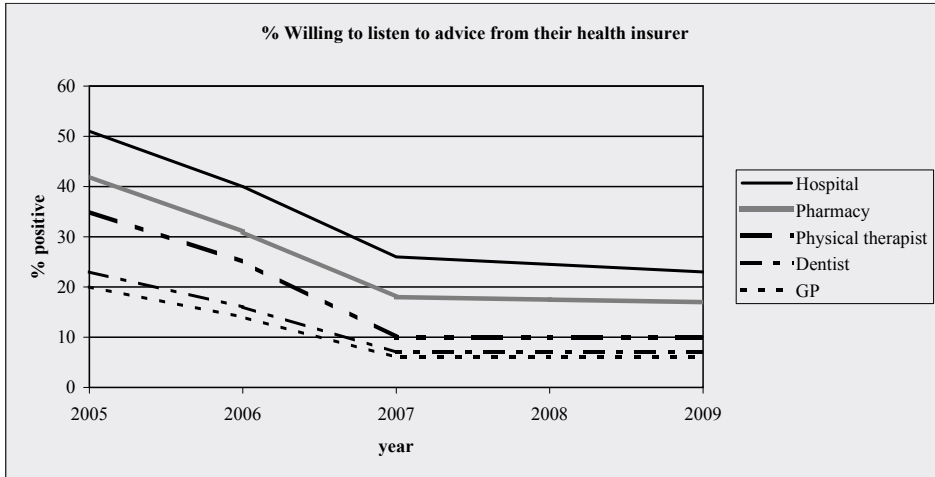

respondents willing to listen to advice concerning GP choice decreased from about 20% in 2005 to only 6% in 2007 and than stabilized at this low level.

Regression results (Table 2.4) show that respondents' willingness to listen to insurers' advice is negative but not statistically significantly related to their perception of quality differences per provider type. Apparently consumers' perceptions of quality differences do not play an important role in consumers' willingness to listen to insurers' advice within each of the provider categories. Regression results further show that having a regular provider[13] decreases the likelihood that respondents are willing to listen to advice (except for pharmacy choice). Furthermore, older people are less likely to listen to advice than younger people. Moreover, respondents with a high education level are, in case of GPs and physical therapists, less inclined to follow advice than respondents with a low education level, which is in line with the above mentioned expectation. Health status does not have a significant effect on respondents' willingness to listen to advice.

Third, we asked respondents whether they would be willing to pay a co-payment for having a free choice of provider (see figure 2.3)[14]. A minority of the respondents is willing to pay a co-payment for free pharmacy choice (10-15%) and for free choice of

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13. Survey results show that 98% of the respondents have a regular GP, 95% has a regular pharmacy, 89% a regular dentist, 53% a regular hospital, and 34% a regular physiotherapist. The high percentage respondents that have a regular GP is explained by the fact that enrollees are obliged to register with a single GP.

14. We also asked respondents whether they would be willing to switch to a preferred provider in return for a financial benefit. These results are similar to those of the financial penalty. Respondents are least willing to switch in case of GPs and dentists and most willing to switch in case of hospitals and pharmacies. In general respondents are less willing to switch in case of positive financial incentives than in case of negative financial incentives which can be explained by the theory of loss aversion (Kahneman,

Figure 2.3 Willingness to pay a co-payment for free provider choice
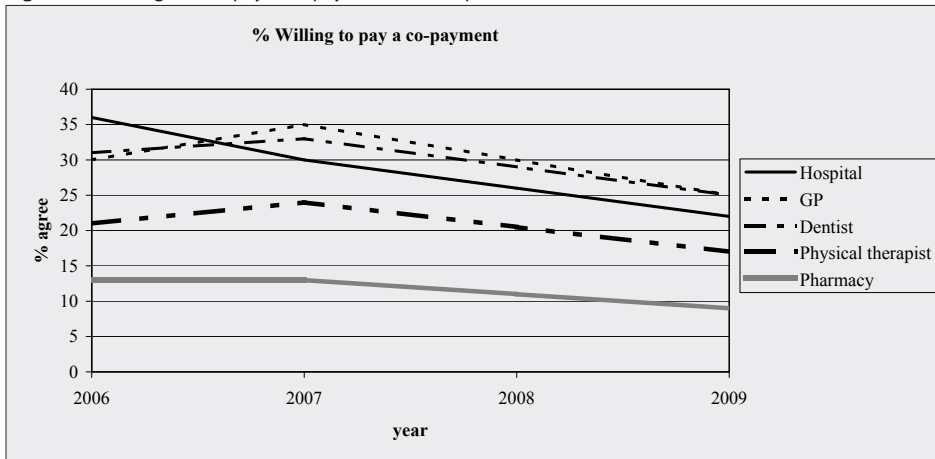
physical therapists (20%), which corresponds with the higher willingness to listen to the insurer's advice about provider choice. Willingness to pay is highest for free choice of GPs and dentists, which is also in line with our finding that for these provider types the willingness to listen to insurers' advice is the lowest. The proportion of respondents that is willing to pay for free provider choice slightly increased during the initial years of the reform, except for hospital care. The increasing willingness to pay for free provider choice is consistent with the downward trend in willingness to listen to insurers' advice about provider choice during the initial years of the reform.

The regression results in table 2.4 show that for each provider type respondents that perceive quality differences between providers are more likely to pay for free provider choice. Also respondents with a higher education are more likely to pay for free choice, which is consistent with the finding that higher educated people are less willing to listen to their insurers' advice about provider choice. Although results show that respondents in good health are less willing to pay for free choice than respondents in bad health, this effect is only significant in case of pharmacies (which is consistent with the positive – though not statistically significant – relation between good health and willingness to follow insurers' advice about pharmacy choice).

A potential limitation of our findings is that we cannot rule out that part of the differences in consumer attitudes over time can be attributed to sample differences. However, given the substantial changes in consumer attitudes and the fact that the samples were about the same size and representative for the Dutch population, we are confident that differences in samples can account for only a small part of the observed changes.

Knetsch and Thaler 1991; Tversky and Kahneman 1991). Because of the similarities between the two questions we only present the results of the negative financial incentive.

Furthermore, using sampling weights based on the characteristics of the 2007 sample to re-estimate the 2009 results did not alter these results, which sustains our supposition that consumer attitudes between the two samples are not related to background characteristics of the sample.[15]

Conclusion and Discussion

With the introduction of the new health insurance act and the gradual transition toward managed competition, insurers are given incentives and instruments to act as prudent buyers of care. A major instrument is the option to selectively contract with preferred providers and to use differentiated reimbursement limits for contracted and non-contracted care. So far, insurers have been very reluctant to use this instrument. Only one insurer introduced a health plan in which enrollees are stimulated by negative financial incentives (co-payments) to visit contracted providers. Most health insurers, however, contract with all providers and only use soft positive (financial) incentives to encourage the use of designated preferred providers, even though restrictive networks and negative financial incentives may sort a larger effect on provider choice.

The most important reason why insurers are reluctant to use selective contracting is that they face a credible-commitment problem. Many consumers do not seem to trust that insurers with restrictive networks are committed to provide good quality care. The insurer-credibility problem substantially increased during the first two years of the reform. We find that during these years the proportion of consumers that was willing to follow insurers' advice about provider choice reduced by about 50% across all provider types. The increasing credibility problem faced by health insurers may at least be partly due to the considerable negative publicity about health insurers at the start of the reform, such as a major campaign by the association of GPs against the possible interference of insurers in free provider choice, arousing fear that insurers would increasingly "sit on the chair of the doctor". Politicians also contribute to the negative publicity about managed care initiatives. In 2009 the announcement of a vertical integration between a hospital and an insurer even led to a proposal by the vast majority of Parliament to prohibit mergers between hospitals and insurers by law. Hence, in the Netherlands a managed care backlash seems to occur even before insurers actually started to manage care.

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15. Since we have no individual background characteristics of the 2005 and 2006 samples, we could not perform a similar re-estimation of the 2007 or 2009 results based on the sample weights in these previous years. However, the fact that the use of two completely different samples in 2006 yielded similar results makes it unlikely that sample selection plays an important role.

The increasing credibility gap seems the main reason why several insurers even abstained from using positive financial incentives to encourage the use of preferred providers, although this legal option was explicitly created in 2009. Furthermore, the insurer-credibility problem may explain why health insurers are reluctant to engage in vertical integration with health care providers. Finally, it may also explain why all health insurers adhere to a not-for-profit status (either as mutual companies or as cooperatives), which fact is often stressed in marketing and communication with (potential) enrollees.

As long as insurers cannot solve the credible commitment problem, they will not be able to effectively channel enrollees. If they are not able to channel enrollees, providers may, due to the two-sided character of the market, not be willing to negotiate over the terms of a contract. At present, the lack of adequate quality indicators makes it difficult for health insurers to select good quality providers and to provide reliable information to enrollees about the quality of the contracted provider network. Research shows that quality of contracted providers is likely to play an important role in health plan choice once reliable information on quality is readily available (van den Berg, et al. 2008). In our recent 2009 survey we also asked respondents whether they would switch to a preferred hospital once the preferred and non-preferred hospitals were equally close, their GP had no ex-ante preference for either hospital and the preferred hospital was selected on the basis of quality indicators by the health insurer. In this scenario, in which the credibility problem is absent, about 75% of the respondents was willing to switch to the preferred hospital. Therefore, providing reliable and understandable consumer information about the quality of the provider network seems crucial to solve the insurer-credibility problem.

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2

Consumer channeling by health insurers

Natural experiments with preferred providers in the Dutch pharmacy market

Abstract

Consumer channeling is an important element in the insurer-provider bargaining process. Health insurers can influence provider choice by offering insurance contracts with restricted provider networks. Alternatively, they can offer contracts with unrestricted access and use incentives to motivate consumers to visit preferred providers. Little is known, however, about the effectiveness of this alternative strategy of consumer channeling. Using data from two natural experiments in the Dutch pharmacy market, we examine how consumers respond to incentives used by health insurers to influence their choice of provider. We find that consumers are sensitive to rather small incentives but that temporary incentives may not be sufficient to sort a long-term effect on provider choice. In addition, we find that both consumer and provider characteristics determine whether consumers are willing to switch to preferred pharmacies.

Introduction

Many countries are exploring the role of incentives in medical care by experimenting with the introduction of competition and managed care elements into their health care system (Cutler 2002). With the introduction of managed care, the role of health insurers (or other third-party payers) changes from passive payers to active purchasers of care. Health insurers are stimulated to act as prudent buyers of care on behalf of their enrollees, while health care providers have to compete to obtain a contract with health insurers.

The reinforcement of the agency role of health insurers makes the insurer-provider bargaining process increasingly important. Several empirical studies show that the bargaining power of health insurers crucially depends on their ability to channel consumers towards preferred providers (Staten, Dunkelberg et al. 1987; Melnick, Zwanziger et al. 1992; Fortney, Thill et al. 2001; Bamezai, Melnick et al. 2003; Sorensen 2003). A key question, therefore, is whether or not health insurers are able to channel consumers towards preferred providers, and if so how?

Health insurers may try to influence consumers' provider choice either indirectly via the type of insurance contract or directly through the use of incentives. By offering insurance contracts that provide access to a limited network of providers, health insurers can restrict provider choice ex ante. This is common practice in the US. Alternatively, rather than offer contracts with limited provider choice, health insurers may also try to channel enrollees to preferred providers by using positive incentives such as bonuses, gift certificates and extra services. Health insurers thus offer insurance contracts with unrestricted provider choice and influence provider choice ex post. Next to these direct incentives, provider choice is influenced by distance, proximity of other health care providers, loyalty and transparency, which health insurers may be able to influence as well.

While much research has focused on consumer sensitivity with respect to plan attributes such as price, quality and freedom of choice (see for example Zweifel and Manning 2000; Chernew, Gowrisankaran et al. 2004; Dafny and Dranove 2005), this article focuses on the ability health insurers have, given free choice of providers, to channel consumers towards preferred providers. It is exactly this ability that determines providers' willingness to enter the contractual negotiations. We use two unique datasets from the Dutch pharmacy market in which preferred provider contracts are concluded given that enrollees have a freedom of choice health plan. This offered us the opportunity to estimate consumers' sensitivity to incentive mechanisms, which is unique in Europe. Literature in the US focused especially on health plan choice instead of on preferred provider choice, which means that this paper contributes to that literature as well.

The plan of this paper is as follows. In the second section, previous research relevant to this subject is discussed. The third section describes the setting in which both natural

experiments have taken place. Section four discusses the data on which we relied while in section five the empirical methodology is developed. Section six presents the estimation results and the differences between the two natural experiments used. Section seven presents the main conclusions.

Previous research

While there is little empirical research on the actual ability to channel enrollees, the conditions necessary to obtain a discount from a health care provider have, however, been the subject of several studies. Pauly (1987) distinguishes three necessary conditions for a health insurer to obtain discounts from hospitals. First, the net revenue situation for the hospital should be worse with lower volumes than with discounted charges. Next, the insurer should be able to credibly threat to remove patients. Third, hospitals should be unable to replace patients that are channeled to a preferred hospital.

Town and Vistnes (2001) developed an empirical framework in which hospitals compete for inclusion in a plan's network In their paper, they argue that the hospital's bargaining position depends on the incremental value that a hospital brings to the plan's network, which is in line with the conditions described by Pauly (1987). Their empirical results illustrate that a hospital's bargaining position decreases in the HMO's ability to construct an alternative network of providers. In addition, they found that product and geographic differentiation are important determinants of price.

Several authors report empirical estimates of obtained discounts (see for example Staten, Dunkelberg et al. 1987; Melnick, Zwanziger et al. 1992; Town and Vistnes 2001; Sorensen 2003). These authors found that the threat to move patients towards preferred hospitals reinforced the bargaining position of the health insurer and led to higher discounts by hospitals. Sorensen (2003) used a simple bargaining model that illustrates how the discount depends on the ability of health insurers to channel consumers. However, in his model, the channeling ability is given and determinants of this channeling ability are excluded from the analysis.

While many studies focused on the determinants of choice of health plans (see for example Zweifel and Manning 2000; Chernew, Gowrisankaran et al. 2004; Dafny and Dranove 2005), few examined the determinants of provider choice. The studies with respect to determinants of health plan choice show that consumers' willingness to switch is determined by several factors such as price sensitivity, quality, distance and the differentiability between several health care providers. In addition, Neipp and Zeckhauser (1985) and Samuelson and Zeckhauser (1988) found evidence for the existence of a certain status-quo bias in health plan choice. We expect the status-quo bias to be even

higher for health care provider choice since trust is expected to play a larger role in the enrollee-provider relationship than in the enrollee-insurer relationship.

Setting

In 2003, health insurers introduced preferred provider contracts in the Dutch pharmacy market. Instead of restrictions on provider choice, they have implemented positive incentive mechanisms to stimulate consumers to visit the preferred providers. Their strategy encompasses ex post incentive mechanisms such as bonuses, gift certificates and qualitative incentives. The preferred provider contracts are used to cream off the profits Dutch pharmacies obtained by negotiating discounts on drugs purchased from the pharmaceutical industry. Since most consumers are fully reimbursed for drug expenditures by social health insurers, they are not sensitive to the price of drugs. Due to the fully reimbursed prices (up to a legally specified reimbursement limit) and the limited degree of competition, pharmacies were able to retain all discounts they received from pharmaceutical companies. As a result of the introduction of managed competition in the social health insurance market, however, health insurers became increasingly at risk for the medical expenses of their enrollees (Schut and Van de Ven 2005). Hence, health insurers became increasingly interested in reaping part of the discounts obtained by pharmacies, as this lowers their drug expenditures.

The preferred provider contracts are based on financial aspects. With the introduction of preferred providers, health insurers try to reap part of the discounts pharmacies obtain and try to increase the degree of competition between pharmacies. Preferred providers were contracted primarily on the basis of the discount they offered to the health insurer as quality aspects are regulated and don't differ much between pharmacies.

Two natural experiments provided us with the opportunity to empirically estimate consumers' willingness to switch providers in response to financial and/or non-financial incentives. In both experiments, we obtained information about consumer characteristics, pharmacy characteristics, information on which pharmacy is visited and which incentive mechanisms are used. The two settings are completely different from each other as the type of preferred provider contract as well as the area in which the preferred provider is located and the types of incentives differ. We investigate whether these differences have an effect on the outcome of the channeling process.

Health insurer A is the first health insurer that concluded a preferred provider contract with a pharmacy[16]. The contract is concluded with a new entrant. The entrant is a

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16. The two different databases will be referred to as databases from health insurer A and health insurer B respectively.

drugstore that opened pharmacies in a few of its existing drugstores. The idea behind this is that of 'convenience shopping'. As the drugstore opened pharmacies at several locations, including supermarkets and a major railway station, consumers may face a decrease in travel time. In addition, consumers may value the opportunity of one-stop shopping. The drug store also has more extensive opening hours than traditional pharmacies. Traditional pharmacies have, in most cases, opening hours from Monday to Friday from 8.30am to 5.30pm (for emergency services consumers can collect their prescription drugs outside regular opening hours). The drugstore, however, is also open on Saturdays and sometimes even in the evening.

The preferred provider contract between health insurer A and the drugstore involves a discount on the price of prescription drugs. The discount offered by the pharmacy depends on the number of consumers from health insurer A that visit the preferred provider.

The incentive mechanisms used by health insurer A and the preferred pharmacy, consisted of a financial incentive in the first few months of the study period and a qualitative incentive at the end. The financial incentive concerned a gift certificate that was distributed to consumers who collected their prescription drugs at the preferred provider. Consumers received a gift certificate of 10 euro the first time they visited the preferred provider and one of 5 euro the second time. The qualitative incentive is a free body check offered at the end of the study period. To inform consumers about the preferred pharmacy and the incentives, both the insurer as well as the pharmacy sent information letters, placed advertisements in (local) newspapers and distributed flyers.

Health insurer B on the other hand, contracted a traditional pharmacy as preferred provider in a public tender. This public tender was held in a new residential area in which no other pharmacies were located and in which the health insurer has are large market share. The primary reason for granting the contract were the discounts on the official list prices offered by the preferred pharmacy. For most residents of the new area the travel distance to the new pharmacy was considerably shorter than to the next nearest pharmacy.

The direct incentive mechanisms used by the preferred pharmacy of health insurer B included discounts on several products offered by the pharmacy. The discounts were introduced a few months after the opening of the preferred pharmacy. They were valid for enrollees of health insurer B who collected prescription drugs at the preferred pharmacy. The discount comprised of a fixed percentage discount on the price of several products. The percentage differed according to product categories. The included product categories are baby products and care products (10% discount), over-the-counter drugs (20% discount), homeopathic drugs (20% discount) and contraception pills (10% discount). Consumers received discounts on the 'normal' dosage of these products based on dosages per month. Only consumers who need these particular drugs or

products will actually benefit from this incentive. The incentive can, however, have a positive effect even for consumers who do not need these products, since they may perceive it as a beneficial feature of the pharmacy with respect to their future consumption. The discounts were valid until the end of our study period and can thus be seen as a permanent incentive. Similar to the setting of health insurer A, also health insurer B and the preferred pharmacy sent information letters, placed advertisements in (local) newspapers and distributed flyers to inform consumers about the preferred pharmacy and the incentives.

Another aspect that can be an important explanatory variable in provider choice for enrollees of health insurer B, is the opening of a general practice in the same building as the preferred pharmacy. In the Dutch health care system general practitioners (GPs) function as gatekeepers, which implies that consumers can only obtain prescription drugs via their GP. Although consumer can collect the prescribed drugs at a pharmacy of their choice, GPs can influence this choice, for instance by faxing recipes directly to a specific pharmacy. We expect that a GP who is practicing in the same building as the preferred pharmacy may be inclined to refer its patients to this particular pharmacy. In addition, the convenience of one-stop shopping may induce consumers to choose the preferred pharmacy.

Data

We have obtained data from two Dutch health insurers that have contracted preferred pharmacies. Health insurer A provided detailed information on pharmacy visits[17] over the period January 2003 – December 2004 (N_A =159.989) and health insurer B over the period August 2004 – May 2005 (N_B = 4697). Health insurer A contracted the preferred pharmacy in April 2003 and health insurer B in August 2004. Due to the differences between the regions in which the pharmacies are located, the total number of observations per health insurer differs.

The study area is defined as the city in which the preferred pharmacy is located. Consumers are assumed to prefer a pharmacy that is located in their 'home' city. With regard to health insurer A, 9,077 records (visits) have been excluded, as these are visits to pharmacies located outside the study region or visits of consumers who live outside the study region. With respect to health insurer B we constrained ourselves to a dataset

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17. With respect to pharmacy visits, the database consisted of one observation per prescription drugs (total number of prescription drugs = N_A = 249,735 and N_B = 7681). Prescription drugs that are collected at the same date are, however, taken as one visit as we expect a consumer to collect all these drugs at once.

including only those consumers who lived in the new residential area or in the neighborhoods surrounding this area. The pharmacy they visited can be located in either the residential area, the surrounding neighborhoods or the city center.

We excluded all consumers younger than 18 years from the sample, as it is plausible that their parents make the pharmacy choice decision. This implies that 11,496 records of health insurer A and 386 records of health insurers B are excluded. This implies that the dataset with which we are going to work consists of N_A = 139,416 records and N_B = 4,311 records, respectively. The total number of consumers in the two datasets are n_A = 11,954 and n_B = 972.

The available dataset includes information on consumer characteristics, the pharmacy visited, the GP visited and the incentive mechanisms used. The included consumer characteristics are age, gender, the total number of visits to a pharmacy, the mean total pharmacy costs per individual, and the zip code of the consumer's home address.

The zip code is used to calculate the travel time from the home address towards the 'current' and preferred provider using the Geodan Drive Time Matrix[18]. This matrix computes the fastest route[19] in meters and minutes by car. In our analysis, travel time by car in minutes is used to calculate consumers' sensitivity to travel time. A variable that calculates the difference in travel time between the preferred and 'own' provider is used in the regression analysis. The 'own' provider is the provider consumers visited before the opening of the preferred provider or, when this information is lacking, the nearest provider.

The incentive mechanisms are specified as dummy variables indicating whether or not consumers needed prescription drugs in the period in which the incentive mechanisms were applied. Several consumers were not exposed to the incentive mechanisms, as these were not applied during the whole study period.

Table 3.1 and table 3.2 provide some general background characteristics of the two samples.

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18. The Geodan Drive Time Matrix uses the four-digit zip code to calculate the fastest route between the starting point and the end point. As Dutch zip codes consist of four numbers followed by two letters the inaccuracy in the distance could be about 250 meters in urban areas and about 1000 in rural areas. The data for health insurer A concern an urban area while with health insurer B also rural areas are included.

19. Note that the fastest route differs from the shortest route.

Table 3.1 Descriptive statistics health insurer A

	Health insurer A			
	Mean	S.D.	Min	Max
Patient attributes				
Age *	45.02	17.22	18	99
Female (1 = female)	0.58	.49	0	1
Number of pharmacy visits per year	5.83	6.70	1	83
Total pharmacy costs per individual (In 2 years in euros)	360.90	891.68	0	35,875
Mean total pharmacy costs per individual in euros	24.89	37.47	0	1,125
Travel time attributes**				
Travel time to the preferred pharmacy in minutes	6.54	3.95	0	14
Travel time to the 'own' pharmacy in minutes	4.87	4.94	0	18
Difference in travel time in minutes	1.67	5.49	-18	11
Incentive attributes				
Financial incentive (1 = yes)	0.71	0.46	0	1
Qualitative incentive (1 = yes)	0.65	0.48	0	1

* The sample only includes patients with age >18
**The difference in travel time is measured by subtracting the travel time to the prefer red pharmacy from the travel time to the 'own' pharmacy. A positive number implies that the consumer has to travel further to the preferred pharmacy than to his own pharmacy.

Table 3.2 Descriptive statistics health insurer B

	Health insurer B			
	Mean	S.D.	Min	Max
Patient attributes[a]				
Age in years*	46.55	15.65	18	90
Female (1 = female)	0.65	0.48	0	1
Number of pharmacy visits (period of 8 months)	4.44	4.75	1	49
Visits to the GP (1 if yes)	0.049	0.22	0	1
Travel time attributes**				
Travel time to the preferred pharmacy	9.09	8.32	0	17
Travel time to the 'own' pharmacy	11.16	2.98	0	32
Difference in travel time for preferred pharmacy in minutes	-2.06	9.67	-32	8
Incentive attributes				
Financial incentive (1 if yes)	0.87	0.33	0	1

[a] For health insurer B no information on drug expenditure is available. Therefore, we cannot include a mean costs variable.
* The sample only includes patients with age >18
**The difference in travel time is measured by subtracting the travel time to the preferred pharmacy from the travel time to the 'own' pharmacy. A positive number implies that the consumer has to travel further to the preferred pharmacy than to his own pharmacy.

Economic and Empirical Framework

Consumers are assumed to have perfect discrimination capability and to choose the pharmacy that maximizes their utility. We observe a selection of the factors used to discriminate and must therefore take uncertainty into account (equation 1),

$$U_{ij} = V_{ij} + \varepsilon_{ij} \tag{1}$$

where U_{ij} denotes individual i's utility from choice j, V_{ij} are the observable characteristics of the choices and observable individual characteristics (taste variations) and ε_{ij} captures the characteristics that are unobservable to the researchers as well as measurement error (Manski 1977).

In the literature on health plan and provider choice individuals' preferences are a function of distance, quality aspects, convenience aspects, premium, co-payments and consumer characteristics (Roghmann and Zastowny 1979; Feldman, Finch et al. 1989; Burns and Wholey 1992; Chakraborty, Ettenson et al. 1994; Buchmueller and Feldstein 1997; Chernew and Scanlon 1998; Royalty and Solomon 1999; Harris, Schultz et al. 2002; Chernew, Gowrisankaran et al. 2004; Tai, Porell et al. 2004; Dafny and Dranove 2005). Based on this literature, consultations with several health insurers and pharmacies, and data availability we specify the deterministic part of the indirect utility as

$$V_{ij} = \delta + \phi D_{ij} + \varphi I_{ij} + \gamma X_i \tag{2}$$

where D_{ij} is a vector of distance variables including extra travel distance towards the preferred provider, I_{ij} a vector of incentive mechanism variables, and X_i a vector of consumer characteristics.

In the context of this paper we focus on the decision to either visit the preferred pharmacy or any other pharmacy. The decision whether or not to visit the preferred pharmacy depends on whether the utility of visiting the preferred pharmacy is larger than that of the current pharmacy (the status quo). We assume equal utility of non-preferred pharmacies because there are no observable quality differences among Dutch pharmacies. In the Netherlands, both general practitioners and medical specialists prescribe drugs that consumers can collect at a pharmacy of their choice. Quality differences between pharmacies were practically non-existent at the time of the experiment. Pharmacies face regulatory restrictions, which aim to guarantee quality of pharmaceutical care. In addition, all included pharmacies are fully sorted and therefore can deliver all prescription drugs. Furthermore, consumers have no information on the quality of the service provided by pharmacies, and advertising to attract consumers is uncommon.

As the preferred pharmacy contracted by health insurer A is a drugstore, consumers may perceive quality differences between the preferred and non-preferred pharmacies. These differences are likely to be captured by consumer characteristics such as age and gender as it is expected that in particular females in the age group of 20-40 years have a preference for the assortment of the drugstore. Furthermore, opening hours of the drug store are more extensive than those of other pharmacies. This may be particularly attractive for the working population. Aside from these differences, the only other difference is the travel distance for consumers.

Empirical specification

In the empirical models, we estimate consumers' willingness to switch towards a preferred provider using standard discrete choice models of consumer behavior. To analyze consumer behavior we use two alternative specifications for the dependent variable. First, we specify a model in which the pharmacy choice *per visit* is the dependent variable (model 1). This model is used to examine which factors explain the probability to visit a preferred pharmacy. Second, we specify a model in which the consumer choice of pharmacy *over the study period* serves as the dependent variable (model 2). This model is used to explain the pharmacy choices made by different consumers.

McFadden (1974) shows that if ε_{ij} are assumed to be type I extreme value (or Weibull) and independent, then a (multinomial) logit can be derived from the random utility model. The parameter estimates of the (multinomial) logit model may be interpreted as parameter estimates of the indirect utility function. Applications of a logit model in this framework in health economics are Ryan and Hughes (1997); Farrar, Ryan et al. (2000); Lancsar, Hall et al. (2003); Ryan and Gerard (2003) and Ryan, Netten et al. (2006) and applications of a multinomial logit model are Propper (2000) and van Campen and Woittiez (2003).

For the empirical specification of the indirect utility model for the pharmacy choice per visit (model 1) we use a logit model. The logit model is used to estimate the probability that a consumer visited (y = 1) or did not visit (y = 0) the preferred provider

$$y_i = 1 \quad \text{if } \dot{y}_i > 0 \tag{3}$$
$$y_i = 0 \quad otherwise$$

where

$$\dot{y}_{ij} = \delta^I + \varphi^I D_{ij} + \lambda^I I_{ij} + \gamma^I X_i + \varepsilon^I_{ij}$$

and ε^I_{ij} are assumed to be independent and identically distributed (IID) and type I extreme value.

Consumers may have visited pharmacies more than once during the research period. Therefore, the decision whether or not to visit the preferred pharmacy may be assumed independent across consumers but not within consumers. To allow for intra individual correlation we used a Huber-White sandwich variance estimator.

It should be noted that the specification of the incentive mechanisms with respect to health insurer A does not take into account that consumers who visit the preferred pharmacy more than twice, face no financial incentive for their third visit. When we remove these 1504 visits, we may eliminate this specification problem but we also lose valuable information on consumer choice. Since we found that removing these visits does not lead to meaningful differences, we choose to include all observations.

Consumer pharmacy choices over the study period (model 2) are modeled using a multinomial logit model. We distinguish among three different decision patterns with regard to preferred pharmacy choice: (1) the decision not to switch to a preferred pharmacy (not switching), (2) the decision to switch and to stick with the preferred provider (staying), and (3) the decision to switch but returned to the original provider at least once (not staying). The weight attached to each explanatory variable may vary for each alternative. The choice of individual i for alternative j is

$$y_{ij} = 1 \quad \text{if } y_i = j \tag{4}$$
$$y_i = 0 \quad \textit{otherwise}$$

with the related probabilities

$$P(y_i = j) = \frac{\exp(\ddot{y}_i)}{\sum_{j=1}^{J} \exp(\ddot{y}_i)}, \tag{5}$$

where

$$\ddot{y}_i = \delta^j + \varphi^j D_i + \lambda^j I_i + \gamma^j X_i + \varepsilon^j_i$$

with the normalization that the coefficients for the default category (e.g. $j=1$) are set to zero and ε^j_{ij} are assumed to be IID and type I extreme value.

McFadden's multinomial logit model assumes that the ratio of the probability of choosing one "decision strategy" over the other is unaffected by the number of alternative "decision strategies" (Burns and Wholey 1992). This independence of irrelevant alternatives (IIA) assumption can be evaluated using a specification test described by Hausman and McFadden (1984). The IIA assumption fails once the deletion of one

alternative causes significant changes in the coefficients and covariance estimates. Test results can be inconclusive once a negative test statistic results (Burns and Wholey 1992; Hodgkin 1996). Therefore, in addition to the Hausman-McFadden test, we also look for meaningful differences in the pattern of the parameter estimates.

Expected effects

As distance is measured as the extra travel time towards the preferred pharmacy from the home address, it is expected to have a negative effect on preferred provider choice due to opportunity costs of time and travel costs. Incentive mechanisms are used to increase the attractiveness of the preferred provider and are therefore expected to have a positive effect on preferred provider choice. The actual effect of the incentive mechanisms, however, depends on the type of incentives used and the magnitude of the incentive. The incentive mechanisms used in the natural experiment, are either financial or qualitative. Furthermore, the incentive mechanisms are either direct (gift certificate) or indirect (discount on over-the-counter drugs) and either temporarily or "permanently" effective (i.e. after introduction effective or during the entire study period). Consumer characteristics include age, gender, the number of visits to the pharmacy, the mean total costs per individual and several interaction and higher order effects.

The mean total pharmacy costs per individual may serve as a proxy for the health of enrold to of health insurer A[20]. Literature on risk adjustment shows that pharmacy-based cost groups (PCGs) are a good predictor of worse health and higher future health care expenditures (Van de Ven and Ellis 2000; Lamers and van Vliet 2004). Therefore, we assume that higher mean total costs are associated with a lower health status. Consumers in worse health may face higher switching costs, as was found in the case of health plan choice (Royalty and Solomon 1999; Strombom, Buchmueller et al. 2002). We expect that switching costs with respect to health care providers for consumers in worse health are even higher since they are likely to have established long-term doctor-patient relationships.

The number of visits is included in model 2 of health insurer A to correct for the statistical probability that consumers who visit the pharmacy more often are also more likely to visit the preferred provider at least once. With regard to health insurer B, however, we have no information available on total costs per individual, which implies that we cannot include total costs as a proxy for health. The total number of visits can, however, also serve as a proxy for health as we expect that consumers, who visit the pharmacy more often are likely to use more prescription drugs and to have a lower health status (Lamers

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20. For health insurer B we have no information on costs per individual so we cannot include this as an explanatory variable.

and van Vliet 2004). The total number of visits is then expected to have a negative impact on provider choice as we assumed that worse health leads to higher switching costs.

The effects of age and gender are expected to depend on the setting in which the natural experiment has taken place. For health insurer A we expect that females in the age group 20-40 have a higher probability to visit the preferred provider (the contracted drugstore), as this is the original market segment of the drugstore. Age is thus likely to have a positive but diminishing effect until the age of about 40. After the age of 40 the effect of age is likely to be negative as older consumers are expected to be more reluctant to switch (see for example Royalty and Solomon 1999; Strombom, Buchmueller et al. 2002; Dijk, Pomp et al. 2006). In this setting, being female is likely to have a positive effect on preferred provider choice since the drugstore primarily focuses on the female market segment. Age and female possibly capture part of the perceived 'quality' difference between the non-preferred and preferred provider related to the larger assortment of products offered by the drugstore.

In case of health insurer B the pharmacy is a traditional pharmacy located in a new residential area. Age is then expected to have a negative effect on switching behavior, as older consumers are, in general, more reluctant to switch. Gender is not expected to have an effect on preferred provider choice as the preferred provider has no specific features that would attract more women than men. In case of health insurer B an additional variable is added to the model: "whether or not the consumer visits the GP in the new residential area". Consumers who visit this GP are expected to have a larger probability to visit the preferred pharmacy due to a decrease in travel costs and a possible higher degree of cooperation between the preferred pharmacy and the GP as explained in section 3. If consumers would make a joint decision to see the GP and visit the pharmacy in the same building this variable would be endogenous. In the Netherlands, however, for several reasons the choice of a GP and a pharmacy are unlikely to be jointly made. First, our explanatory variable indicates whether or not one is registered with the GP that is located in the same building as the preferred pharmacy. This registration is unrelated to actual visits, as consumers are obliged to register with a GP even before they actually require the services of a GP. Typically, therefore, people choose a GP long before they need to choose a pharmacy. Second, Dutch GPs function as family doctors with whom people have a long-term relationship. People rarely switch GPs for other reasons than for moving to another place. Third, 75% of all drug utilization consists of repeated prescriptions, for which consumers often do not have to visit the GP but can directly go to the pharmacy (Griens and Tinke 2006). Hence, the choice of a GP can be considered as an exogenous determinant of pharmacy choice.

Results

For both health insurers, we first estimate a logit model for the pharmacy choice per visit in which the dependent variable specifies whether or not a preferred provider is visited per visit. To correct for the intra-cluster correlation between visits, we use a logit model with a robust variance estimator. Second, a model based on 'consumer choice' is estimated in which the dependent variable specifies which "decision process" the consumer followed during the study period ("not switching", "switching and staying" or "switching and not staying"). The multinomial logit model is only estimated for health insurer A as the number of observations for health insurer B is too small to detect statistically significant results.

For both models, we present average marginal effects. The marginal effects for model 1 are the estimated probabilities that a consumer visits the preferred provider for a marginal change in the explanatory variable holding all other variables fixed. For model 2, we present the marginal effects of variable x_i on the choice of alternative j. The marginal effect is the impact of a unit change of the variable x_i on the choice of alternative j compared to the other alternatives (van Campen and Woittiez 2003).

Usually the marginal effects for continuous variables are computed by estimating a small change in one variable holding all other variables fixed at their mean. The marginal effects for discrete variables is computed by calculating the change resulting from a change in the discrete variable from 0 to 1 holding all other variables fixed at their mean (see for example (McGuirk and Porell 1984; Madden, Nolan et al. 2005). An average individual does not exist, however, and in our research we are interested in the probability that a certain consumer does or does not visit the preferred supplier. The marginal effects are thus not computed over the average individual but represent the mean of the marginal effects over each individual. This is done by computing the effect of for example a one-year increase in age on the probability of visiting the preferred provider for each individual and then averaging these probabilities across all individuals in the sample (Strombom, Buchmueller et al. 2002; Greene 2003). The standard errors for the marginal effects are computed through bootstrapping. Bootstrapping allows us to determine the confidence limits through repeated sampling, using parameter point estimates and their estimated variance-covariance matrix (Efron and Tibshirani 1986; Phillips, Maddala et al. 2002; Greene 2003). The marginal effects, computed as described above, are bootstrapped using 10,000 replications. Statistical inference is computed using percentile based confidence intervals. Given that our data consists of repeated measurements, we developed a bootstrap procedure in which the resampling unit is the individual.

We will successively present the results for health insurer A and health insurer B. Then, we will discuss the observed differences between the two health insurers, given the different settings in which the two health insurers operate.

Results health insurer A

In total 4.77% of all visits have been to the preferred pharmacy, which corresponds to 1618 consumers who visited the preferred pharmacy at least once. Of these consumers, only 8% did not visit another pharmacy during the study period. After the first visit to the preferred provider, 34% did not change to another pharmacy during the rest of the study period. Of these 561 consumers, 186 visited the pharmacy only once and hence we do not know whether they are inclined to visit this pharmacy again. Thus of all consumers who have visited the preferred pharmacy more than once (n=1432), 26% sticks with this pharmacy. Furthermore, almost 70% of the consumers who visited the preferred provider did so during the period in which the financial incentive mechanisms were applied. Of these consumers, 25% can be classified as "stayers" while 75% switches back to their 'own' provider at least once. Although these consumers sometimes switch back to their 'own' provider, over 50% keep on visiting the preferred provider.

Table 3.3 presents the results of the logit estimates for model 1. The estimation results for model 1 show that, as expected, due to the extended opening hours and the other products sold by the preferred pharmacy, age has a positive effect on the propensity to visit until the age of 40, after which the effect becomes negative. Gender has a positive effect on provider choice, which implies that the probability that a visit is made to the preferred pharmacy increases by 5.8 percentage points if the consumer is female. Provided that mean total costs are a good proxy for health status, health status has a negligible effect on preferred provider choice.

Distance shows that each minute extra travel time towards the preferred provider reduces the probability to visit a preferred provider. Per visit, the probability to visit a preferred provider decreases by 0.4 percentage points per minute extra travel time. Consumers appear to be sensitive to both types of incentive mechanisms. The probability that consumers visit a preferred provider in the presence of the financial incentive increases with 3.4 percentage points and with 3.2 percentage points in the presence of the qualitative incentive.

In estimating the second model, we first examined whether consumer characteristics and incentives are significantly different between the specified decision strategies. We find that consumer characteristics do not differ significantly between the three decision patterns. The incentive mechanisms, however, do show relevant differences between the three decision strategies. Consumers displaying the decision patterns "switching

Table 3.3 Coefficients and average marginal effects for model 1(logit model) of health insurer A

	Model 1: Pharmacy choice per visit	
	Coefficient (s.e.)	AME[1] (s.e.)
Age (in years)	0.088*	0.0041
	(0.015)	(0.0007)
Age squared	-0.00078*	-0.00004
	(0.00014)	(0.000007)
Gender (1 = female)	1.277*	0.058
	(0.277)	(0.014)
Age x gender	-0.0236*	-0.0011
	(0.0051)	(0.0002)
Mean total pharmacy costs per individual	-0.0014	-0.00007
	(0.0009)	(0.00004)
Difference in travel time to preferred provider in minutes	-0.0877*	-0.0041
	(0.005)	(0.00028)
Financial incentive (1 = incentive)	0.628*	0.0338
	(0.0367)	(0.0022)
Qualitative incentive (1 = incentive)	0.5803*	0.0316
	(0.0351)	(0.0025)
Constant	-5.449*	
	(0.432)	
Number of observations included	139,340	
Number of clusters included (individuals)	11,944	
Pseudo R-square	0.0507	
Percent correct predicted (cut-off 0.2)	94.73%	

* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level
[1] AME = average marginal effect

and staying" and "switching and returning" were more often exposed to financial incentive mechanisms than those who are not switching.

The multinomial logit model provides insight into the decision to either not switch ("not switching"), switch and stay with the preferred pharmacy ("staying") or switch and return ("not staying") after the first visit to the preferred pharmacy. To interpret the parameters of the multinomial logit model we present the average marginal effects. Table 3.4 presents the results of the multinomial logit for model 2.

The estimation results show that financial incentives have a greater impact on the decision to "switch and return" (0.07) than on the decision "to switch and stay" (0.0294).

Table 3.4 Average marginal effects for model 2 (Multinomial logit model) of health insurer A

	Model 2: Consumer choice		
	Not-Switching	*Switching and staying*	*Switching and not-staying*
	(s.e.)	*(s.e.)*	*(s.e.)*
Age (in years)	-0.0061*	0.0011	0.005*
	(0.0011)	(0.00059)	(0.0009)
Age squared	0.000057*	-0.00000	0.000052*
	(0.00001)	(0.0000)	(0.0000)
Gender (1 = female)	-0.0996*	0.0294*	0.0702*
	(0.0181)	(0.0118)	(0.0159)
Age x gender	0.00156*	-0.00049*	-0.00107*
	(0.00038)	(0.00021)	(0.0003)
Number of pharmacy visits per individual	-0.0031*	-0.00046	0.0035*
	(0.00086)	(0.00059)	(0.00069)
Number of pharmacy visits x Number of pharmacy visits	0.000046*	-0.00001	-0.000035*
	(0.000016)	(0.00001)	(0.00001)
Mean total pharmacy costs per individual	0.00016*	0.000025	-0.00018*
	(0.00099)	(0.00003)	(0.0001)
Difference in travel time to preferred provider in minutes	0.0105*	-0.00258*	-0.0078*
	(0.00042)	(0.00019)	(0.0003)
Financial incentive (1 = incentive)	-0.0946*	0.0213*	0.0733*
	(0.0065)	(0.0037)	(0.0054)
Qualitative incentive (1 = incentive)	-0.0547*	0.0154*	0.0393*
	(0.007)	(0.0035)	(0.006)
Number of observations included	11,758		
Pseudo R-square	0.1078		

* Significant at 5% level

Respondents, who face a financial incentive, are more likely to decide to "switch and return". So many people who switched to a preferred pharmacy may only exploit the financial incentive and than return to their old pharmacy. The propensity to choose the switch decision, either "switching and staying" or "switching and not staying" increases in the presence of (financial) incentives. Background characteristics show, for example, that being female increases the probability to choose the decision strategy to switch and that respondents who face a longer travel time towards their own pharmacy, are more likely to choose one of the switching strategies.

Finally, we evaluated the IIA assumption by first deleting the decision of "switching and not staying" from the choice set, re-estimating the model, and computing the Hausman-McFadden test statistic. The test statistic resulted in inconclusive results as

the chi-square is negative. We follow Burns and Wholey (1992) and Hodgkin (1996) by looking for meaningful differences in patterns of coefficients. The logit estimations from the different choice set specifications, however, do not show a considerable difference in the pattern of the coefficients. We conducted the same test by re-estimating the model and excluding the decision of not switching, using as base the "switch and staying" decision. In this case, the Hausman-McFadden test is conclusive and does not reject the IIA assumption. In addition, there is no considerable difference in the pattern of the coefficients implying that we conclude that the IIA assumption does not seem to fail here.

Results health insurer B

The setting in which the experiment takes place is quite different from that of health insurer A. First, the market segment focuses on residents in a new residential area in which there is no other pharmacy located. Second, the incentive mechanisms differ; qualitative incentive mechanisms are not used while the financial incentive consists of an indirect financial incentive. As described in section 3, the incentive consists of discounts on certain categories of products. The incentive was introduced a few months after the opening of the preferred provider and given to all enrollees who collect their prescription drugs at the preferred provider. In addition, the incentive is relevant for each visit, in contrast to health insurer A, which offers the incentive only at the first two visits. The incentive used by health insurer B can thus be seen as a permanent incentive.

In total 4,311 pharmacy visits have been made of which 15% have been to the preferred pharmacy. This corresponds to 225 consumers who have visited the preferred provider at least once, implying that 23% of all consumers have visited the preferred provider. Of these consumers, 80 make no other visits in our study period after they have visited the preferred provider. Of the 145 consumers who remain, 129 stick with the preferred provider while only 16 of them switch back to their 'own' provider. The consumer choice model for health insurer B therefore cannot be estimated because the group of non-stayers is too small.

Table 3.5 presents the results of the logit estimates for the pharmacy choice per visit model. The marginal effects indicate the change in probability that consumers switch to the preferred provider due to a marginal change in the explanatory variable (or a change form 0 to 1 if the explanatory variable is a dummy variable).

The effect of age on preferred provider choice is positive until the age of about 40 and becomes negative after that. The fact that the new residential area consists of many young families who moved there can explain the positive effect of age on preferred provider choice. In addition, there is a negative correlation between age and 'visits to the GP located in the same building as the preferred pharmacy' which indicates that younger

Table 3.5 Coefficients and average marginal effects for model 1 (logit model) of health insurer B

	Model 1 Pharmacy choice per visit	
	Coefficient (s.e.)	AME[1] (s.e.)
Age (in years)	0.0826**	0.009
	(0.033)	(0.0038)
Age squared	-0.0008**	-0.00009
	(0.0003)	(0.00004)
Gender (1 = female)	0.227	0.0242
	(0.217)	(0.0229)
Number of pharmacy visits per individual	-0.0695*	-0.00757
	(0.024)	(0.00253)
Difference in travel time to preferred provider in minutes	-0.0502*	-0.0055
	(0.0097)	(0.00122)
Financial incentive (1 = incentive)	0.528*	0.05504
	(0.118)	(0.0122)
Visit the GP (1 = yes)	2.566*	0.4582
	(0.395)	(0.0798)
Constant	-3.905*	
	(0.860)	
Number of observations included	4,280	
Number of clusters included (individuals)	971	
Pseudo R-square	0.1533	
Percent correct predicted (cut-off 0.5)	85.93%	

* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level
[1] Average marginal effect

people are more likely to visit that GP and therefore more likely to visit the preferred pharmacy. This is taken into account by the explanatory variable 'visits to the GP'.

The number of visits can be an indicator of health, as we have no information available on the total expenditure on drugs per consumer. The coefficient indicates that consumers, who make more visits to the pharmacy (bad health), have a negative probability to visit the preferred pharmacy. Health is thus negatively related with the probability to visit a preferred provider.

Results for travel time show that each minute extra travel time towards the preferred provider reduces the probability to visit a preferred provider. Per visit, the probability to visit a preferred provider decreases by 0.8 percentage points per minute extra travel time.

Consumers appear to be sensitive to the financial incentives. The estimation results show that financial incentives increase the probability of a visit to the preferred pharmacy by 5.5 percentage points. Most remarkable is the large effect on preferred provider choice of visiting the GP located in the same building as the preferred pharmacy. Estimation results show that once a consumer visits the GP, the probability he opts for the preferred pharmacy increases by 45.8 percentage points.

Differences in results between health insurer A and health insurer B

The two natural experiments differ in several aspects. First, the number of observations per health insurer differs as well as the number of consumers who visit the preferred provider. While health insurer A offers a larger dataset of potential switchers, the number of actual switchers is much higher in case of health insurer B. In the setting of health insurer A about 14% of all consumers visit the preferred provider at least once, compared to 25% in the other setting.

Second, the setting in which the natural experiments have taken place significantly differs. The major differences focus on the type and magnitude of the incentives used, the characteristics of the preferred pharmacy and the type of contract. These differences can have an influence on consumer response to the preferred pharmacy and their willingness to visit the preferred pharmacy.

The differences between the two experiments can be illustrated with respect to the outcomes of our estimated models. The results of health insurer A, show that the original market segment of the drugstore, women between the ages of 20-40, is indicative for the consumers who switch towards the preferred pharmacy. In addition, the more extensive opening hours of the drug store may also explain why the preferred pharmacy is particularly attractive for younger people. In case of health insurer B, the effect of age is, however, related to the population of the new residential area. As the new residential area consists of a young population (families) the effect of age indicates that these people have less ties to their previous pharmacy or GP and switch mostly for convenience reasons.

Extra travel time towards the preferred provider has, in case of both health insurers, a negative effect on preferred provider choice. Although the marginal effect of travel time is the same in both settings, distance seems to be particularly decisive for residents in the new residential area of health insurer B, since for most of them the preferred pharmacy is much closer to their home address than any other pharmacy.

The opening of the GP in the same building as the preferred pharmacy, with health insurer B, had a strong effect on preferred provider choice. The probability to visit the preferred pharmacy increases by about 50 percentage points if consumers visit the GP. From this it can be concluded that convenience, one-stop 'shopping' and the referral by

the GP to the preferred pharmacy are important factors in provider choice. The ease of having the GP, who prescribes drugs, and the pharmacy, who supplies the drugs, at the same location, induces many consumers to switch towards the preferred pharmacy.

Incentive mechanisms have a positive effect on provider choice. Because the type of incentive, the duration of the incentive and the magnitude of the incentive differ, the effects cannot be compared in absolute terms. Health insurer A used a temporary incentive that was only valid during the first and second visit to the preferred pharmacy. Health insurer B on the other hand, introduced a 'permanent' incentive introduced a few months after the opening of the preferred provider, applicable to all visitors, given that they need the specific drugs for which the incentive holds. Next to a positive effect on provider choice, the data illustrate that incentive mechanisms may have had more than just a one time positive effect. With health insurer A, about 25% of all consumers, who switch during the incentive mechanisms period, stick with their choice. Over 50% of the switchers visit the preferred pharmacy in other periods as well besides visiting their own provider. With health insurer B the incentive mechanism is a permanent incentive mechanism that illustrates that more than 80% of the consumers who switch stick with their choice.

Conclusion and Discussion

In this study, we analyzed the effect of different types of preferred provider arrangements in the Dutch pharmacy market. In this market, consumers have free choice of provider and are motivated by their health insurer to visit certain preferred pharmacies through a variety of positive incentive mechanisms. Using data from two health insurers, we estimate how different consumers respond to the various incentives. In contrast to the substantial empirical research about consumer preferences for health plans with restricted provider networks, little is known about how consumers respond to incentives to visit certain preferred providers in case they have access to an unrestricted provider network. Given the growing dislike among consumers of *ex ante* restrictions on provider choice – known as the managed care backlash – positive channeling incentives may be an effective tool for insurers to acquire sufficient bargaining power vis-à-vis health care providers.

Our results show that even small incentives can have a significant impact on provider choice. We find that consumer responsiveness is dependent on the type and magnitude of the incentive used by the health insurer, the location of the preferred provider, the role of the GP, convenience and quality.

Financial incentives are able to persuade some consumers to switch. In case of health insurer A, 25% of those who switched during the "incentive mechanism period" stay with

the preferred provider. We find that temporary financial incentives are more likely to induce a decision "to switch and return" than a decision "to switch and stay", implying that such incentives are only partially effective in making consumers stick with a preferred provider. By contrast, over 80% of the switchers stayed with the preferred provider in case of health insurer B. An important difference is that the financial incentive in case of health insurer B was a permanent one. The different proportions of stayers cannot be fully attributed to the different financial incentives, however, because other characteristics of the preferred pharmacies influence provider choice as well. Particularly the presence of a GP in the same building as the preferred pharmacy appeared to be the key determinant of pharmacy choice in case of health insurer B. This may be attributed to the convenience of one-stop shopping and the presence of a referral system that requires a prescription from a GP. Health insurers can thus not only influence pharmacy choice by introducing financial and qualitative incentives, but also and perhaps more effectively, by supporting the establishment of a preferred pharmacy in the same building of a contracted GP.

Are incentive mechanisms beneficial for the health insurer given the number of consumers who are willing to switch? With pharmacy B, the incentive mechanism consists of a percentage discount on specific prescription or over-the-counter drugs. For health insurers, this kind of incentive is beneficial as long as the percentage discount given to enrollees is equal or smaller than the percentage discount the pharmacy offers. With health insurer A on the other hand, the incentive mechanism was a one time financial incentive. Here the health insurer has to take into account that the one time financial incentive is smaller than or equal to the financial discount on prescription drugs it receives from the pharmacy. Important is, however, that a number of consumers seem to return after their first visit, without receiving any financial incentive for that. The health insurer, on the other hand, still receives discounts on the drugs and earns a positive profit. For health insurer A, it can be beneficial to introduce a bonus that is higher than the estimated discount for a single visit because of future benefits. The empirical estimates show that about 10% of all consumers switch at least once towards a preferred pharmacy, and that of these consumers about 25% stays with the preferred pharmacy in the period thereafter and more than 50% still visits the preferred provider occasionally. Health insurers can calculate the attractiveness of the financial incentive based on the average discount received from the pharmacy, the financial incentive and the number of consumers who stick with the preferred provider.

Quality is assumed to be equal among pharmacies because the efficacy of drugs is independent of which pharmacy sells it and because consumers cannot observe quality differences between pharmacies. Sensitivity to the small financial incentives in the pharmacy market might, therefore, be seen as an upper bound with respect to other market segments. In other market segments, e.g. hospital care, qualitative aspects seem

to play a larger role. The efficacy of a treatment may be dependent on which hospital or which specialist consumers visit. Financial incentives may be less effective than for example qualitative incentives in this market segment.

Loyalty is another aspect that can influence consumer sensitivity for channeling mechanisms. We expect loyalty in the doctor-patient relationship to play a larger role than the pharmacy-patient relationship. Consumers in the Netherlands, for example, have to register with a single GP while, by contrast, they can switch between pharmacies for each prescription. Due to this registration, GPs and patients often have long-term relationships, which are likely to increase the degree of loyalty towards GPs. This increase in expected loyalty decreases the expected effectiveness of channeling mechanisms.

In sum, we expect that in the pharmacy market, channeling patients towards preferred providers is likely to be relatively easy relative to other health care providers. Providing incentives to visit preferred providers might be more attractive in other market segments, however, if the benefits of channeling are larger. For instance, channeling patients towards GPs with an excellent performance as gatekeeper, might lead to substantially lower drug and hospital expenditures for health insurers. The sensitivity of different consumers to different incentives for different provider types, is an interesting subject for future research.

Health insurers can only effectively bargain with health care providers if they can credibly threat to remove market share (Sorensen 2003). However, the recent managed care backlash in the US illustrates that consumers are reluctant to give up free choice of provider *ex ante*. The perceived negative effects of managed care were stronger for consumers who did not have free choice of health plan than for consumers who could choose their own health plan (Gawande, Blendon et al. 1998). Free choice of health plan and unrestricted provider networks do not have to conflict, however, with the opportunities for health insurers to channel their enrollees to preferred providers. Our results show that even in case of insurance contracts without ex ante restrictions on provider choice, health insurers can use various positive incentives to channel their enrollees towards preferred providers.

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Which preferred providers are really preferred?

Effectiveness of insurers' channeling incentives on pharmacy choice

Abstract

Efficient contracting of health care requires effective consumer channeling. Little is known about the effectiveness of channeling strategies. We study channeling incentives on pharmacy choice using a large scale discrete choice experiment. Financial incentives prove to be effective. Positive financial incentives are less effective than negative financial incentives. Channeling through qualitative incentives also leads to a significant impact on provider choice. While incentives help to channel, a strong status quo bias needs to be overcome before consumers change pharmacies. Focusing on consumers who are forced to choose a new pharmacy seems to be the most effective strategy.

Introduction

In managed care markets health insurers bargain with health care providers over the price and quality of care on behalf of their enrollees. Several empirical studies showed that health insurers' bargaining power crucially depends on the insurers' ability to channel enrollees toward preferred providers (Pauly 1987; Sorensen 2003; Staten et al. 1987; Melnick et al. 1992). Insurers have different strategies to channel enrollees toward selected providers. First, insurers may limit provider choice to a selected network of providers from which enrollees have to choose. Second, health insurers can also offer preferred provider networks in which enrollees retain free provider choice but are motivated to use preferred providers through various incentives. The managed care backlash in the US showed that consumers turned away from restrictive health plans because consumers distrust the strong financial link between health care providers and insurers in such plans (Chu-Weininger and Balkrishnan 2006; Feldman et al. 1989; Gawande et al. 1998; Miller 2006). Health insurers are increasingly turning to less restrictive strategies such as preferred provider networks.

Since selective contracting by health insurers or other third parties has been introduced in an increasing number of countries (e.g. Germany, the Netherlands, and Switzerland), an important question is how and to what extent consumers can be motivated to use preferred providers. Despite the widespread use of preferred provider plans in the US little is known about consumer sensitivity to various channeling incentives. Most empirical papers focused on the effects of restricted networks on the bargaining position of the insurer. The aim of this paper is to increase our understanding of the effectiveness of channeling incentives on provider choice.

Specifically we address the following questions. First, do consumers consider switching to a preferred provider once channeling incentives are introduced? Second, how does consumer sensitivity to channeling incentives depend on the type of channeling incentive used? Third, how does the effectiveness of channeling incentives depend on the existence of a patient-provider relationship? Fourth, does the effectiveness of channeling depend on certain consumer characteristics?

Since revealed preference data are only limited available we use a stated preference method to estimate consumer sensitivity to channeling incentives. With a Discrete Choice Experiment (DCE) we elicit consumer preferences for different channeling incentives in pharmacy choice. Moreover, we estimate the existence of a possible status quo bias by confronting consumers with choices between their current provider and a hypothetical alternative.

The paper is organized as follows. Section 2 will describe the setting in which the experiments have taken place. Section 3 discusses the methods used and the design of the experiment. Section 4 discusses the econometric model. Results are presented in

section 5 in which we first present the estimation results for the forced choices, then the estimation results for the choices including the current pharmacy and last the impact of channeling incentives on pharmacy choice. Section 6 ends with a conclusion and discussion.

Setting

We examine the effectiveness of various channeling incentives in the context of the Dutch pharmacy market. In 2006 there has been a major health care reform in the Netherlands, introducing a universal mandatory health insurance scheme with managed competition (Enthoven and Van de Ven 2007).[21] The reform substantially increased the possibilities for health insurers to selectively contract health care providers and to offer limited or preferred provider plans. So far, most insurers are reluctant to selectively contract with providers and to offer health plans with preferred or limited provider networks (NZA 2007). Some health insurers did start experimenting with various positive incentives to stimulate enrollees to visit preferred pharmacies in 2003, even prior to the reform (Boonen et al. 2008). These experiments were motivated by the high mark-ups pharmacies were able to earn. In contrast to the US, Dutch citizens are largely unfamiliar with preferred provider networks and traditionally faced free choice of pharmacy and full coverage of expenditures for most prescription drugs. Pharmacies were therefore able to set all prices (including those of cheap generic substitutes) close to the reimbursement limits that were legally determined for each therapeutic category (if prices exceed the limit, consumers have to pay the additional amount out-of-pocket) (Schut and Brouwer 2004; Wolf, de et al. 2005). Given that health insurers have already been experimenting with preferred provider contracts in the pharmacy market and consumers may be somewhat familiar with channeling incentives to influence pharmacy choice, we focus our analysis on the pharmacy market.

Since the scale and scope of the experiments with preferred pharmacies are very limited, we obtained stated preference data to estimate consumer sensitivity to various channeling incentives to influence pharmacy choice. With stated preference data we can improve our understanding of consumer preferences for various hypothetical channeling incentives that may be used by health insurers in the near future.

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21. For each plan health insurers are obliged to accept everyone against a community rated premium. A risk equalization fund compensates insurers for enrollees with high predictable medical expenses.

Method

A discrete choice experiment (DCE) is designed to elicit stated preferences for different aspects of pharmacies. DCEs involve the creation of hypothetical choice scenarios, in which the alternatives (pharmacies) are described in terms of their characteristics (attributes). Respondents' choices are expected to reflect their underlying preferences (Lancsar 2002). The attributes used in this study are based on the different channeling incentives health insurers can use to motivate consumers to visit the preferred pharmacy, including financial incentives, qualitative incentives and pharmacy characteristics.

The attributes are based on empirical studies on determinants of provider choice, consultations with health insurers and pharmacists, survey data on pharmacy choice and actual choice behavior. Research has shown that distance, quality, low waiting times, easy access, availability of out-of-office hours care, and good communication and information are important attributes in provider choice (see e.g. Boonen and Schut 2007; Garnick et al. 1989; Hole 2008; Kim 1990; Longo et al. 2006; Rubin et al. 2006; Tai et al. 2004; Vick and Scott 1998). Furthermore, data on revealed preferences, obtained from small scale natural experiments by health insurers with preferred pharmacies, show that people react positively to temporary positive financial and qualitative incentives. Gift certificates and discounts on over-the-counter medicines motivated 15% to 25% of the enrollees to visit the preferred pharmacy at least once. Also the availability of a body check (qualitative incentive) had a positive effect on pharmacy choice. However, most enrollees switched back to their original pharmacy after they received the temporary bonus from their health insurer (Boonen et al. 2008).

Where in the natural experiment health insurers introduced temporary financial incentives, we used permanent financial incentives in our study. With the introduction of the new health insurance act in 2006, health insurers in the Netherlands obtained more possibilities to use financial incentives to stimulate enrollees to visit preferred providers. At the time of the natural experiments these possibilities were limited. We developed two version of the questionnaire, one with a positive and one with a negative financial incentive, since we expect consumers to respond differently to losses than to gains (loss aversion) (Kahneman et al. 1991; Tversky and Kahneman 1991). In the first version consumers are confronted with a standard out-of-pocket payment of 9 euro per prescription drug from each pharmacy. To stimulate consumers to visit the preferred pharmacy, the insurer can give a discount up to nine euro on this co-payment. In the second version, consumers do not face a standard out-of-pocket payment but are confronted with a co-payment up to nine euro once they visit a non-preferred provider.

The qualitative incentives included in this DCE study are contractible aspects of pharmacies that can be attractive to consumers. We included extended opening hours, availability of an internet service, availability of a quality certificate, meetings on medication

management and favorable consumer satisfaction ratings. Extended opening hours are opening hours on Saturdays and during the evening from Monday to Friday. Traditional pharmacies have opening hours from 8:30 AM to 5:30 PM and are closed on Saturdays and Sundays (in emergency situations consumers can collect their prescription drugs outside regular opening hours). The internet service enables online ordering and home delivery of drugs. A quality certificate indicates whether or not pharmacies are given a certificate based on the standards set by the pharmacy association. Pharmacies with such a certificate fulfill all requirements the pharmacy association sets for pharmacies. Meetings on medication management include regular meetings in which consumers receive extra information on the medication management for specific diseases.

In addition to qualitative incentives we distinguish several practice characteristics that may also influence pharmacy choice. Practice characteristics include travel time from the home address toward the pharmacy and the type of pharmacy. We discern three different types of pharmacies: a traditional stand-alone pharmacy, a pharmacy including a general practitioner practice and a health center in which several health care providers work together in the same building. The qualitative and financial incentives are described in table 4.1. We used effects coding to estimate our attributes.

Even though health insurers contract providers with preferable characteristics, consumers may still be reluctant to switch. Empirical research has shown that consumers are persistent in their choice; they are reluctant to switch to another provider even when this provider clearly outperforms their current provider. Enrollees who switch, have to build new relationships of trust (intangible transaction costs) and have to establish new medical records, which cost money, time and discomfort (tangible transaction costs) (Neipp and Zeckhauser 1985; Samuelson and Zeckhauser 1988). Transaction (switching) costs may differ substantially between individuals (Strombom et al. 2002). In addition to transaction costs, status quo bias may also result from cognitive misperceptions and psychological commitment, stemming from misperceived sunk costs, regret avoidance or a drive for consistency (Samuelson and Zeckhauser 1988). The presence of a status-quo bias may reduce the effectiveness of channeling incentives. To estimate the effect of a status quo bias, consumers are confronted with two additional choices between their current pharmacy and a hypothetical alternative.

Study design and data collection

Data were collected by a questionnaire among an internet based household panel (n = 2500) that is representative of the adult Dutch population (age>18). Respondents who participate in the panel are provided with questionnaires biweekly. Socio-economic and demographic characteristics of the respondents are available. The overall response rate was about 80%.

Table 4.1 Attributes and levels

Attribute	Levels	Coding (effects coding)
I Financial incentives		
Co-payment	No co-payment	0
	3 euro per prescription	3
	6 euro per prescription	6
	9 euro per prescription	9
Discount	No discount	0
	3 euro per prescription	3
	6 euro per prescription	6
	9 euro per prescription	9
II Qualitative incentives		
Extra opening hours	No extended opening hours	-1
	Extended opening hours during the evenings and/or on Saturday	1
Internet service	No, not available	-1
	Yes, available	1
Certificate of quality	No, not present	-1
	Yes, present	1
Meetings on medication management	No meetings on medication management	-1
	Yes, regular meetings on medication management	1
Consumer satisfaction with the pharmacy	Bad	-1 -1 -1
	Reasonable	1 0 0
	Good	0 1 0
	Very good	0 0 1
III Practice characteristics		
Distance from home address (Walking distance in minutes)	5 minutes	5
	15 minutes	15
	25 minutes	25
	35 minutes	35
Type of pharmacy	Traditional stand-alone pharmacy	-1 -1
	Pharmacy and GP	1 0
	Primary care center	0 1

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In the first part of the questionnaire, respondents were confronted with general questions about their current pharmacy and their health care utilization. In addition, we presented respondents a number of propositions to gain insight in respondents' willingness to switch in response to financial incentives and in respondents' perceptions about

quality differences between providers. Respondents were also asked to describe their current pharmacy on the basis of the attributes used in the DCE.

In the second part, respondents were presented with choice scenarios of three hypothetical pharmacies and were asked to choose the most preferred pharmacy. The set of attributes and levels used to construct the choice scenarios (4 attributes at 2 levels, 1 attribute at 3 levels, and 3 attributes at 4 levels), resulted in a complete factorial design with more than 3000 possible pharmacies. To collect preference information effectively, an efficient design was created using the toolbox available for these purposes in SAS.[22] To ensure that the data support a model with possible interactions, the SAS procedure %choiceff was instructed to find a D-optimal design for the model with all two-way interactions, that is, the determinant of the information matrix for the model with all two-way interactions is to be maximized (Huber and Zwerina 1996).[23] As data collection was computer-based it was relatively easy to collect data from a large design that was split up in many blocks. We opted for a design with 108 choice sets that was divided in 9 blocks of 12 choice sets. The resulting design scored high on relevant measures, such as level balance and orthogonality. Because the data collection was computer based, we were also able to vary the sequence of the attributes. Each respondent received a questionnaire in which the attributes were placed in a random order that differed across respondents to neutralize any ordering effects on consumer preferences (Kjaer et al. 2006). In addition, the alternatives were given in a random order that differed across respondents to neutralize any left/right bias. An example of a choice scenario is given in appendix 4.1.

We did not include an opt-out option but added two additional questions in which respondents had to choose between a hypothetical alternative and their current pharmacy. For these choices, respondents first described their current pharmacy in terms of the attributes used in this study. The levels for the current pharmacy are thus based on respondents' own description. Because we cannot influence the description of the current pharmacy, we choose to randomly draw a hypothetical alternative from the attribute levels instead of using design techniques. Furthermore, an earlier experiment showed that the majority of the consumers are very reluctant to leave their current

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22. SAS marketing manual : support.sas.com/techsup/technote/ts722/pdf.

23. Beforehand we did not have strong expectations about possible significant two-way interactions between attributes. However, by creating a design with the possibility of testing for interaction terms, our main effects model estimates will be unbiased even if several interactions would exist. By using a main effects design only, results may be biased if interaction effects exist but cannot be estimated. We did test for the presence of several interaction effects for which hypotheses may exist (including distance and opening hours, distance and internet, distance and quality certificate, distance and consumer satisfaction and opening hours and internet) but we have not found any significant effects. We therefore left this out of the analysis.

pharmacy (Boonen and Schut 2007). Therefore, the presence of an opt-out option would reveal no information about consumers' preferences for channeling incentives, since the opt-out option would dominate all other effects. We could have solved this problem by offering two choices, a forced choice and a choice with an opt-out option. Because of cognitive overload we have chosen to only include two additional choices to estimate the status quo effect.

Econometric specification

Economic Framework

In this paper, we want to analyze consumers' willingness to make trade-offs between providers that differ in financial and qualitative terms. We base our analysis on Lancaster's economic theory of value (Lancaster 1966; Lancaster 1971) and random utility theory (McFadden 1974; Hanemann 1983; Ryan, Netten et al. 2006). This implies that we assume that utility is derived from the properties or characteristics of a good rather than from the good itself. Hence, we describe the decision making process about pharmacy choice in terms of comparing indirect utility functions. Consumers are assumed to have perfect discrimination capability and to choose the pharmacy that maximizes their utility. We assume that the utility that individual i derives from choosing alternative j on choice occasion t is then given by equation 1,

$$U_{ijt} = V_{ijt} + \varepsilon_{ijt} \tag{1}$$

where U_{ijt} denotes individual i's utility from choice j on choice occasion t, V_{ijt} is the deterministic part which captures both pharmacy characteristics which vary over ijt and individual characteristics (taste variations) which vary over i, and ε_{ijt} is the error term which captures the characteristics that are unobservable to the researchers as well as measurement error (Manski 1977).

Empirical Framework

In the empirical models, we first estimate consumers' sensitivity to certain pharmacy characteristics and their willingness to pay to visit a pharmacy with these specific characteristics based on the forced choice questions. Second, a model that allows for status quo bias is estimated related to the choices between the current pharmacy and the preferred hypothetical scenario in which we use information on the characteristics of the current pharmacy.

McFadden shows that if ε_{ijt} are assumed to be type I extreme value (or Weibull) and independent, then a logit model can be derived from the random utility model (McFadden 1974). The parameter estimates of the logit model may be interpreted as parameter estimates of the indirect utility function. For the empirical estimation of the indirect utility model, we used a multinomial logit model.[24]

Each pharmacy in the choice set is composed of a bundle of pharmacy characteristics (X) faced by the ith individual. Since we observe the choice and not the actual difference in utility, the dependent variable is binary. The conditional probability $Pr(y_i = m)$ that individual i in choice occasion t is observed to choose alternative m is given by equation (2),

$$Pr(y_{it} = m|V_{ijt}) = P(U_{imt} > U_{ijt} \ \forall j \neq m) = \frac{\exp(V_{imt})}{\sum_{j}^{J} \exp(V_{ijt})} \quad \text{for m = 1 to J} \tag{2}$$

where $V_{ijt} = x_{jt}\beta$ and x_{ijt} is a vector with choice attributes.

As each respondent made 12 choices, the choices whether or not to choose a specific pharmacy might not be independent within an individual. To obtain standard errors that are valid in the presence of such intra-individual correlation, we used the "cluster" option in Stata version 9.0. The resulting variance-covariance matrix generalizes the Huber-White sandwich estimator to allow for possible within individual correlation (Huber 1967; White 1980,1982, Stata User Guide 1999)[25].

In the forced choice decision the labels of the pharmacies have no meaning. Pharmacy A, pharmacy B and pharmacy C only differ in the specified attributes and their location on the screen. During data collection, the alternatives were randomly assigned to one of the three labels and corresponding locations. As a consequence, there will be no relationship between the attributes and the labels. Still, alternative specific constants can be used to test for mis-specification. The constant term can then be interpreted as the difference in average utility between scenario A, B and C caused by a left/middle/right bias (Scott, et al 2003)

In the status quo bias model consumers can choose between the chosen hypothetical pharmacy and their current pharmacy, i.e. they can opt-out and choose to stay with their

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24. We also analyzed our data using a mixed logit model that allows for preference heterogeneity. Since both models lead to similar results we have opted for the multinomial logit model because this facilitates the computation of confidence intervals for our marginal rates of substitution and the simulated choice shares.

25. See also http://repec.org/usug2007/crse.pdf for a detailed explanation of the Eicker-Huber-White robust standard errors in Stata.

current pharmacy. This model can be seen as a labeled experiment in which consumers may attach a certain value to the label 'current pharmacy'. Respondents are assumed to have an ex ante preference not to switch pharmacies. To capture this effect we included an alternative specific dummy, which we defined as being equal to 1 for the current pharmacy and equal to -1 for the hypothetical alternative. To be able to capture the full 'status-quo bias' we used effects coding (-1 for the base level and 1 for the other levels, see table 4.1) to estimate our attributes (Bech and Gyrd-Hansen 2005).

To investigate whether there is a predictable component in the preference hetero-geneity, we included interactions between background characteristics (income, having a job, age, health status) and attributes. In addition, we included interactions of the attributes with respondents' past experiences; the description of and the relationship with their current pharmacy. It might, for example, be expected that respondents who are used to a pharmacy with an internet service are more likely to prefer a pharmacy including an internet service (Scott, et al. 2003).

A model with main effects was estimated first and is used to compute marginal rates of substitution (based on equation (3)) between each attribute and the price attribute (the financial incentive). The marginal rates of substitution represent the willingness to pay for an attribute m, given a marginal change in that attribute (MRSP) (Hanemann 1983). Since we used effects coding for the attributes the formula for the MRSP is multiplied by 2, with an exception for distance, which is a continuous variable.

$$\text{MRSP} = -\frac{\delta v / \delta b_m}{\delta v / \delta b_{price}} = -2 \frac{\beta_m}{\beta_{price}} \tag{3}$$

To study the effectiveness of the attributes in actually channeling patients to preferred providers, we study their importance in terms of choice shares. The computation of the choice shares will be described in detail in the result section.

Results

Descriptive statistics

In total 1875 respondents filled in the questionnaire, 952 the discount version and 923 the co-payment version. The study population is representative of the Dutch adult population with an average age of 49 years, 48% female, 56% with a job and an average net monthly income of about 1700 euro. Furthermore, over 80% indicates to be in good or even excellent health. Characteristics of respondents' past experiences with their current pharmacy are presented in table 4.2. Most respondents have a regular pharmacy

Table 4.2 Past experiences and the description of the current pharmacy

Past experiences/ Description of current pharmacy	Response	Frequency
Past experiences		
Number of visits to the pharmacy in the last year	0 visits	23%
	1 or 2 visits	30%
	3 or 4 visits	21%
	More than 4 visits	26%
Do you have a regular pharmacy?	No	3%
	Yes	97%
How long do you have this regular pharmacy?	Less than one year	3%
	Between one and five years	15%
	More than five years	85%
Did you ever switch between pharmacies?	No	56%
	Yes	44%
What was the most important reason to switch?	I moved to another city	80%
	The pharmacy quitted with its practice	3%
	A new pharmacy opened its practice closer to my home address	8%
	Bad experiences with the former pharmacy	3%
	Other	6%
Description of the current pharmacy		
Distance to the current pharmacy	5 minutes	38%
	15 minutes	37%
	25 minutes	11%
	35 minutes	14%
Opening hours	Basic opening hours	66%
	Extended opening hours	34%
Internet Service	No	73%
	Yes	27%
Meetings on medication management	No	76%
	Yes	24%
Quality certificate	No	57%
	Yes	43%
Consumer satisfaction	Bad	1%
	Mediocre	7%
	Good	70%
	Very Good	22%
Type of practice	Only pharmacy	69%
	GP and pharmacy	14%
	Primary care centre	17%

with whom they have a long-term relationship of over 5 years. Moreover, respondents' past experiences show that the majority visits a pharmacy that has no extra features such as extended opening hours or an internet service.

The answers to the propositions in the first part of the questionnaire, concerning observed quality differences and respondents' willingness to switch in return for financial incentives, showed that respondents seem reluctant to listen to advice from their health insurer. About 75% of the respondents indicate to see no differences in quality between pharmacies. Qualitative aspects may thus play a minor role in pharmacy choice. The description of the current pharmacy further showed that the majority of the pharmacies do not have extra attractive qualitative features as described by the attributes. Furthermore, respondents are reluctant to pay an out-of-pocket payment to stay with their current pharmacy. Only 14% of the respondents is prepared to pay a co-payment. The introduction of a financial advantage, on the other hand, induces 40% of the respondents to leave their current pharmacy. These responses indicate that consumers react stronger to negative than to positive financial incentives. Only about 28% indicates to be willing to follow the health insurer's recommendation to visit specific pharmacies.

Estimation results

Hypothetical scenarios

Table 4.3 presents the estimation results of the main effects model for the co-payment version and the discount version. After deletion of observations for which data on the dependent variable were missing, the final sample size included 911 individuals for the co-payment version and 940 individuals for the discount version. The constant term is only significant for alternative C and shows a general preference for alternative B over alternative C. This could indicate that there might be a left/right bias but since we randomly assigned the alternatives to position A, B or C, this will not affect our estimates.[26]

For the main attributes, the signs of the coefficients are as expected. Meetings on medication management do not have a significant impact on pharmacy choice. All other attributes (financial incentives, provider characteristics and qualitative incentives) do have a significant effect on pharmacy choice. Respondents dislike primary care centers, while joint practices with a GP and pharmacy are preferred over traditional pharmacies. The positive coefficients for the qualitative attributes show that pharmacies with such characteristics generate a higher utility than pharmacies that do not have these characteristics, holding all other attribute levels constant.

The relative importance of each attribute is estimated by using the marginal rates of substitution. We presented the MRSP and their confidence intervals for the main effects

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26. We also estimated a model without the constant term and found no large differences in the results.

Table 4.3 Regression results for the hypothetical scenarios

	Discount Version		Co-payment Version	
	β (SE)	MRSP (95% CI)	β(SE)	MRSP (95% CI)
Qualitative incentives and practice characteristics				
Distance	-.048(.002)*	-.398 (-.446; -.347)	-.046(.002)*	-.211 (.187;.231)
Extra opening hours	.258(.017)*	4.31 (3.63;5.01)	.224(.016)*	2.07 (1.77;2.39)
Meetings on medication management	.015(.013)	.252 (-.178;.71)	.025(.014)	.230 (-.004;.513)
Internet Service	.120(.015)*	2.01 (1.51;2.56)	.090(.015)*	.829 (.572;1.12)
Quality Certificate	.336(.017)*	5.61 (4.90;6.49)	.261(.017)*	2.41 (2.13;2.82)
Consumer satisfaction				
Reasonable	-.273(.026)*	-4.56 (-5.66;-3.75)	-.330(.029)*	-3.05 (2.53;3.66)
Good	.615(.026)*	10.25 (9.00;11.49)	.579(.026)*	5.35 (4.82;5.99)
Very Good	.757(.031)*	12.62 (11.11;14.23)	.736(.031)*	6.80 (6.08;7.40)
Type of practice				
Group practice with GP	.122(.021)*	2.04 (1.35;2.79)	.087(.021)*	.805 (.405;1.17)
Primary Care Centre	-.126(.020)*	-2.09 (-2.77;-1.35)	-.008(.019)	-.079 (-.408;.298)
Financial incentive				
Discount/ co-payment	.120(.006)*		-.216(.008)*	
Constant				
Constant A	-.018(.017)		.003(.018)	
Constant C	-.058(.016)*		-.062(.017)*	
LL	-9242		-8712	
Pseudo R²	.253		.271	
Number of observations	33762		32634	
Number of individuals	940		911	

* p<0.001, ** p<0.05

model in table 4.3.[27] The most important attributes in both versions are consumer satis-
faction and quality certificates. The MRSP for travel time indicates the trade-off of price

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27. Confidence intervals are estimated using the bootstrap procedure. To allow for within individual
correlation of the error term we re-sampled individuals rather than choices. To allow for bias affecting
the interval we used bias corrected percentile based confidence intervals (Hole 2007). Other papers in

for one-minute extra travel time. In the design of the DCE we worked with differences in travel time of 10 minutes. The willingness to pay for a decrease in travel time of 10 minutes is then 4 euro in the discount version and 2 euro in the co-payment version. After consumer satisfaction and a quality certificate, travel time and extra opening hours are the most important attributes. Respondents are more sensitive to co-payments than to discounts. For all attributes, the MRSP in the discount version and thus the willingness to give up part of your discount in return for an attribute is substantially higher than those in the co-payment version.

We also estimated a model including interaction effects. Because the results showed only few significant effects we did not include them in the paper.[28]

Scenario including the current pharmacy

Respondents are confronted with two choices between their current pharmacy and a hypothetical alternative. One of the choices is a choice between the best possible pharmacy, based on the objective characteristics[29], and their current pharmacy. In such a choice situation, 40% of all respondents stick with their current pharmacy and about 60% is willing to switch. In choice situations between a randomly chosen hypothetical scenario and the current pharmacy, more than 80% sticks with their current provider, only 20% is willing to switch.

Table 4.4 presents the estimation results of the co-payment as well as the discount version of the DCE for the choices between the hypothetical and the current pharmacy. The alternative specific constant is positive and indicates a preference for the current pharmacy, as expected. All attributes show a similar pattern as in the hypothetical scenarios, only the significance levels differ.

The marginal rates of substitution, presented in table 4.4, show that the alternative specific constant is the most important attribute in pharmacy choice. Respondents are

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the health economics literature that have used bootstrapping to obtain confidence intervals are e.g. (McIntosch and Ryan 2002, Philips et al. 2002).

28. Having a job was associated with stronger preferences for pharmacies with extended opening hours, a good health with stronger preferences for internet services and 'very good' consumer satisfaction ratings (in the discount version) or with weaker preferences for group practices including GPs and stronger preferences for a quality certificate (in the co-payment version). Moreover, age has a negative effect on the preference for a quality certificate. Finally, the interactions with past experiences show that respondents have stronger preferences for pharmacies that have similar attribute levels as their current pharmacy. We do not present detailed results since they do not add to the understanding of the problem. The results are available upon request from the authors.

29. The best pharmacy is described as a pharmacy located close to the home address with an excellent consumer satisfaction rating, extended opening hours, meetings on medication management, an Internet service, a quality certificate and no out-of-pocket payment.

Table 4.4 Regression results for the scenarios including the current pharmacy

	Discount version		Co-payment version	
	β(SE)	MRSP (95% CI)	β(SE)	MRSP (95% CI)
Constant				
Alternative specific constant	.446(.08)*	8.07 (3.81;18.99)	.727(.096)*	5.929 (3.58;10.66)
Quality certificate and practice characteristics				
Distance	-.036(.005)*	-.321 (-.643;-.177)	-.035(.006) *	-.141 (-.25;-.08)
Extra opening hours	-.0017(.058)	-.031 (-2.48;2.48)	.146(.065)**	1.19 (.045;2.64)
Meetings on medication management	.143(.063)**	2.59 (.246;6.80)	.150(.073)**	1.22 (.01;2.96)
Internet Service	.124(.065)	2.25 (.012;6.57)	.001(.07)	.006 (-1.18;1.34)
Quality Certificate	.177(.06) *	3.21 (.879;7.187)	.055(.065)	.445 (-.595;1.69)
Consumer satisfaction				
Reasonable	-.203(.155)	-3.689 (-11.16;1.838)	-.491(.178)**	-4.00 (-7.83;-1.149)
Good	.436(.116)*	7.896 (3.49;16.67)	.224(.131)	1.829 (-.319;4.52)
Very Good	.799(.199)*	14.46 (8.27;29.26)	1.055(.133)*	8.60 (5.523;14.39)
Type of practice				
Group practice with GP	-.119(.098)	-2.16 (-8.023;1.55)	-.078(.107)	-.632 (-2.98;1.151)
Primary Care Centre	.076(.088)	1.375 (-1.631;6.377)	.294(.101)**	2.39 (.78;5.196)
Financial incentive				
Discount/ co-payment	.111(.028)*		-.245(.037) *	
LL	-712.666		-640.263	
Pseudo R²	.251		.359	
Number of observations	1384		1440	
Number of individuals	692		770	

* p<0.001, ** p<0.05

willing to pay the most to stick with their current pharmacy. Also in these choice scenarios respondents are more sensitive to co-payments than to discounts. Respondents are more willing to give up part of their discount than to pay a co-payment for similar attribute level changes. In the discount version, quality certificates and consumer satisfaction are the most important attributes. In the co-payment version, consumer satisfaction, opening hours and distance are the most important. Since distance is measured in

minutes the willingness to pay for a 10 minute decrease in travel time is 1.41 euro in the co-payment version.

The model including the interaction effects resulted in only one significant effect: older respondents showed a stronger preference for their current pharmacy than younger respondents. Other background characteristics or the description of the current pharmacy showed no significant results. Due to the few significant effects we do not present the results for the model including the interaction effects.

Impact of channeling incentives on choice shares

Next to the computation of the MRSP, we simulated the impact on choice shares for the preferred pharmacy by varying the level of one attribute at a time (King, et al 2007)[30]. To examine the impact of attribute level changes on the choice share we constructed a base scenario with two identical pharmacies for which all attribute levels are equal. The attribute levels are based on the description of the "most common" current pharmacy by the respondents[31]. To estimate the impact of attribute level changes on choice shares, we vary the attribute levels of one of the two alternatives one at a time. In the choice scenarios including the current alternative, we assumed that in the base case the current and non-current alternative have equal attribute levels except for the alternative specific constant. The attribute levels for the non-current alternative are then changed to estimate the impact on choice shares. With this simulation we want to estimate how many respondents are actually willing to switch in return for attribute level changes. We report the results for the hypothetical scenarios and the choices between the current and non-current pharmacy in table 4.5.

Again, we find that respondents are more sensitive to co-payments than to discounts. Introducing a co-payment leads to a larger reduction in market share then a similar reduction of the discount. This holds for both the hypothetical scenarios as well as the choice scenarios including the current pharmacy. This is in line with the estimation results that show higher MRSP in the discount version than in the co-payment version. Negative financial incentives thus appear to be more effective in channeling consumers toward preferred providers than positive financial incentives. Moreover, we see a similar

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30. We found that the MNL results are similar to those obtained with the mixed logit models. We start with three identical scenarios to compute the shift in market share. Our main interest is the in- or decrease in market share for the 'preferred' pharmacy, the pharmacy for which an attribute level is changed. The proportional substitution pattern that arises from the MNL model will therefore not bias our results (King et al. 2007).

31. The "most common" pharmacy was a traditional stand-alone pharmacy located at about 15 minutes walking distance from the home address. Furthermore the average pharmacy had no extra services such as Internet or extended opening hours. The "most common" pharmacy does not offer a discount nor requires a co-payment.

**Table 4.5** Predicted probabilities in response to variation in attributes

	Hypothetical scenarios		**Current versus alternative**	
	Discount version	*Co-payment version*	*Discount version*	*Co-payment version*
	Δ % Preferred Pharmacy (95% CI)	Δ % Preferred Pharmacy (95% CI)	Δ % Preferred Pharmacy (95% CI)	Δ % Preferred Pharmacy (95% CI)
Base share Alternative	.50	.50	.29	.19
Distance = −10 minutes	+.11 (.106; .128)	+.11 (.101; .123)	+.08 (.015; .142)	+.06 (.007; .111)
Extended opening hours	+.13 (.112; .140)	+.11 (.096; .0124)	+.00 (-.057; .056)	+.05 (-.004; .102)
Meetings on medication management	+.01 (-.005; .020)	+.01 (-.001; .025)	+.06 (-.003; .128)	+.05 (-.003; .104)
Internet service	+.06 (.046; .073)	+.04 (.032; .058)	+.05 (-.009; .116)	+.00 (-.043; 0.43)
Quality certificate	+.16 (.148; .176)	+.13 (.114; .142)	+.08 (.009; .148)	+.02 (-.035; .069)
Consumer satisfaction = bad	-.35 (-.356; -.338)	-.33 (-.337; -.317)	-.20 (-.231; -.178)	-.11 (-.137; -.086)
Consumer satisfaction = mediocre	-.21 (-.221; -.196)	-.21 (-.227; -.199)	-.11 (-.154; -.072)	-.09 (-.114; -.060)
Consumer satisfaction = very good	+.04 (.020; .050)	+.04 (.023; .054)	+.08 (.013; .147)	+.16 (.390; .534)
Type of practice = GP and pharmacy	+.03 (.014; .045)	+.04 (.026; .056)	+.03 (-.087; .022)	+.02 (-.032; .076)
Type of practice = group practice	-.03 (-.047; -.018)	+.02 (.003; .032)	+.01 (-.049; .063)	+.09 (.035; .146)
Financial incentive = −3 euro	-.09 (-.100; -.080)	-.16 (-.166; -.148)	-.06 (-.097; -.029)	-.09 (-.106; -.072)

pattern of choice probabilities between the hypothetical scenarios and the choices between the current pharmacy and a hypothetical scenario. Qualitative incentives attract enrollees in both scenarios, while the choice share decreases once negative financial incentives are introduced. We do, however, find important differences in the effectiveness of channeling incentives between the scenarios including the current pharmacy and the hypothetical scenarios. The switching rates in the scenarios including the current pharmacy are, in most cases[32], lower for similar attribute level changes than those in the hypothetical scenarios. The relationship respondents have with their current pharmacy decreases the effectiveness of channeling incentives.

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32. Only for meetings on medication management and very good consumer satisfaction ratings the choice shares in the choice situations including the current pharmacy are higher. Meetings on medication management have, however, no significant effect on the choice probability.

The impact of channeling incentives is shown graphically in figure 4.1 and 4.2. Figure 4.1 shows the impact on the choice probability for the current pharmacy once the out-of-pocket payment for the current pharmacy increases from 0 to 9 euro. Figure 4.2 shows the impact of the introduction of an out-of-pocket payment for a non-preferred pharmacy in the hypothetical choice situation. The base scenario shows that about 80% of the respondents choose for the current pharmacy in the co-payment version

Figure 4.1 The probability that respondents choose their current pharmacy given different levels of out-of-pocket payments.*

Probability that respondents stick with current pharmacy
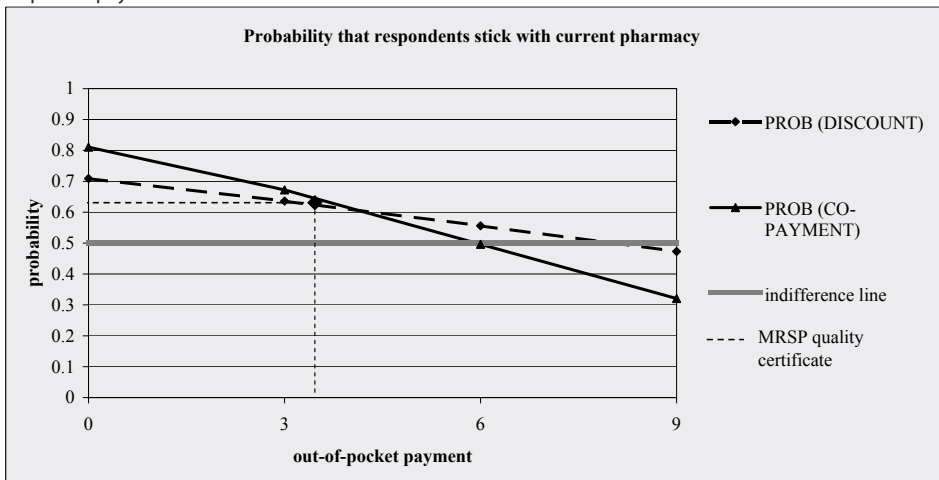
Figure 4.2 The probability that respondents choose the non-current pharmacy given different levels of out-of-pocket payments.*

Probability that respondents choose the non-preferred alternative
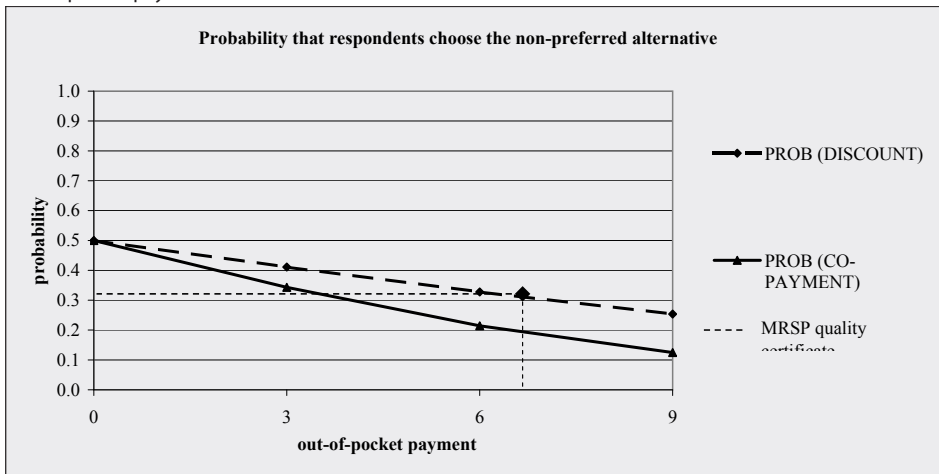
The x-axis of the graphs shows the net payment respondents have to make to visit the non-preferred pharmacy. For the discount version a co-payment of 3 euro is similar to a discount of 6 euro. We thus translated the discount into the corresponding co-payment to generate the results in the graph.

and about 70% in the discount version[33], even when the attribute levels of the current and non-current pharmacy are equal (figure 4.1). Naturally, in the hypothetical scenario (figure 4.2) choice shares are equally divided between the two alternatives. The starting points between the two scenarios are thus different. In the scenarios including the current pharmacy, the current pharmacy starts with an advantage due to the preference for the status quo. Once the insurer is able to compensate consumers for giving-up their current provider, we expect respondents to react similar to channeling incentives as in the hypothetical choice scenarios.

The figures show that the impact of channeling incentives is larger in the hypothetical scenarios than in the scenarios including the current pharmacy. The introduction of a similar out-of-pocket payments leads to a larger relative decrease in the probability to pick the non-preferred alternative in the hypothetical choice scenarios than in the scenarios including the current alternative. The relative decrease in choice share of the non-preferred pharmacy in the hypothetical scenarios equals 75% in the co-payment version and 50% in the discount version. The relative decrease in choice share including the current scenario is lower: 50% in the co-payment version and 33% in the discount version. The impact of other channeling incentives can be shown by using the MRSP from table 4.3 and table 4.4. We illustrated this in both figures by looking at the MRSP for the quality certificate in the discount version. Figure 4.1 shows that an out-of-pocket payment of 3.21 euro, which is the MRSP for a quality certificate in the discount version, leads to a reduction in choice share for the current pharmacy of about 8 percentage points, which corresponds to the choice shares computed in table 4.5. Figure 4.2 indicates that the introduction of qualitative incentives leads to a larger reduction in choice shares for the non-preferred pharmacy than that in figure 4.1. A quality certificate showed a MRSP of 5.6 euro in the discount version, resulting in a decrease in choice share for the non-preferred alternative of about 16 percentage points. This also holds for other qualitative attributes and practice characteristics.

Even though the results including the current pharmacy are more realistic, they may still overestimate the true effect of the incentives. The reason for this is that the descriptive statistics show that 97% of the respondents has a regular pharmacy, whereas in our experiment only about 80% chooses the current pharmacy in the starting point (Table 4.5). This may imply that the actual status quo bias is even larger than in the experiment.

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33. The difference in the starting points between the discount and the co-payment version is a result from the simulation used to compute the choice shares. In the base scenario we constructed two identical pharmacies with identical attribute levels. In the scenarios including the current pharmacy, these pharmacies only differed with respect to the alternative specific constant. The alternative specific constant determines the preference for the current pharmacy. The estimation results (table 4) show that the preference for the current pharmacy is stronger in the co-payment version than in the discount version, resulting in different starting points.

However, this would only be the case if all individuals having a regular pharmacy would be loyal to this pharmacy if an equal alternative would be available. Since this is unlikely, the 80/20 split may well be a good indication of the proportion of people that are loyal to their regular pharmacy in the presence of an equal alternative. In that case our results may provide a good estimation of the true effect of the channeling incentives.

Conclusion and Discussion

The aim of our paper was to investigate the sensitivity of consumers to different types of incentives health insurers can use to channel enrollees toward preferred pharmacies. To this end we addressed several issues. With a DCE methodology we examined whether respondents were sensitive to different types of incentives and whether this sensitivity depended on the type of channeling incentive used and on background characteristics of the respondent. Furthermore, we estimated the presence of a status quo bias and calculated the impact of a status quo bias on the effectiveness of channeling incentives.

Results show that respondents are sensitive to qualitative incentives and financial incentives. Consumer satisfaction ratings, quality certificates and extended opening hours are valued most by respondents. Furthermore, respondents are substantially more sensitive to negative financial incentives (co-payments) than to positive ones (discounts). Since negative financial incentives are more effective in channeling enrollees, the bargaining power of the insurer vis-à-vis the health care provider is higher in case of negative than in case of positive financial incentives. The sensitivity to channeling incentives thus depends on the type of incentive used. For a quality certificate more consumers are willing to switch than for an internet service. Also distance and extended opening hours are important factors in pharmacy choice. The results also show that health insurers can use different instruments to channel enrollees. Both the qualitative and financial incentives have an impact on pharmacy choice.

Respondents show persistence in their choice for their current pharmacy. They are reluctant to leave their current pharmacy even when superior alternatives (in terms of attributes) are available. Moreover, channeling incentives are less effective in the presence of the current pharmacy than in a scenario with two hypothetical pharmacies. Before consumers view the current and non-current alternatives with equal attributes as equal substitutes, consumers must be compensated for their status quo bias. The results obtained from the forced choice format may therefore overstate the impact of channeling incentives.

Status-quo bias is not relevant, however, for new enrollees and for enrollees that have recently moved to another residential area. Since these enrollees do not have any ties to a specific pharmacy, they are expected to respond to channeling incentives in a similar

way as the respondents in the hypothetical choice scenario. For health insurers this forms an important result for their channeling strategies. Health insurers are informed when enrollees move to a different residential area or when a pharmacy quits practice. An effective strategy for the health insurer would be to actively inform those consumers about the preferred pharmacy in their residential area. The probability that enrollees visit the preferred pharmacy increases when health insurers contract preferred pharmacies on the basis of qualitative and financial aspects. Since about 44% of the respondents switched pharmacies at least once this can be a beneficial strategy. Naturally a status quo bias arises once consumers start visiting this preferred pharmacy, which makes it likely that consumers also stick with the preferred pharmacy. This would also imply that financial incentives do not have to be permanent in order to keep a substantial part of these 'new' consumers with the preferred pharmacy.

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4

Appendix 4.1

In the questionnaire we presented respondents with the following questions:
"*In the next part of the questionnaire we have put together a number of different choices between 3 pharmacies and ask you to choose between them. The pharmacies are described based on the characteristics we explained before. You can assume that the pharmacies only differ on the basis of these characteristics; all other things can be assumed equal.*

When you have to visit one of these pharmacies, which one would you visit?"

	Pharmacy A	**Pharmacy B**	**Pharmacy C**
Distance from your home address to the pharmacy	5 minutes	15 minutes	25 minutes
Opening hours	Extended opening hours	Limited opening hours	Extended opening hours
Internet Service	Yes, internet service	Yes, internet Service	No, no internet service
Certificate of Quality	No quality certificate	Yes, a quality certificate	No quality certificate
Meetings on medication management	Yes, regular meetings	No meetings	No meetings
Consumer satisfaction	Good	Excellent	Reasonable
Practice type	Only a pharmacy	Pharmacy and GP	Primary care center
Co-payment	6 euro	3 euro	0 euro
I choose	**A**	**B**	**C**

CHAPTER 5

Channeling patients to preferred GPs

Not a question of how, but of when!

Abstract

In managed care markets, health insurers are motivated to act as prudent buyers of health services. Insurers' bargaining power depends on their ability to channel enrollees to preferred providers. An important question is whether and how insurers can influence provider choice. This is particularly relevant in case of GPs, since GPs often fulfill an important gatekeeper role. The main goal of this paper is to examine the sensitivity of consumer choice of GPs to channeling incentives and contractible characteristics of GP practices. We elicited consumer preferences for GPs with a large scale Discrete Choice Experiment (DCE). The DCE is performed among a representative Dutch household panel of about 2,000 respondents. The main results show that qualitative and financial incentives have a positive impact on GP choice. At the same time, staying with ones own GP is valued extremely high. To conclude, we can state that strong incentives are required to draw patients away from their current GP. Incentive schemes aimed at achieving this are likely to fail or will be extremely expensive. Hence, channeling of patients can only be effective in cases where patients have to choose a new GP. Health insurers should focus on such cases if they want to channel enrollees toward preferred GPs.

Introduction

In an increasing number of countries, health insurers are motivated to act as 'prudent buyers of care' on behalf of their enrollees. Among these countries, the recent introduction of a universal health insurance scheme with managed competition in the Netherlands draws a lot of attention because it may serve as a model for other countries, in particular for countries with a social health insurance scheme (Enthoven and Van de Ven 2007, Van de Ven and Schut 2008). With the introduction of the new Health Insurance Act (HIA) in 2006 in the Netherlands, all persons who legally live or work in the Netherlands are obliged to buy, on an annual basis, a basic benefit package from a private health insurer. Health insurers are obliged to accept every applicant against a community rated premium. Health insurers are compensated via a risk equalization fund for high risk enrollees and subsidies for enrollees make insurance affordable for everyone. With the introduction of the HIA competition between insurers is reinforced and insurers are motivated to act as prudent buyers of care. Insurers can selectively contract or integrate with health care providers.

Whether insurers can fulfill the expected role of prudent buyers of health services crucially depends on their ability to channel consumers toward preferred providers (Pauly 1987, Sorensen 2003). Research on health plan choice in the US, however, has shown that consumers dislike or even distrust restrictions on provider choice (Gawande, Blendon et al. 1998; Chu-Weininger and Balkrishnan 2006; Miller 2006).

In contrast to the US, consumers in the Netherlands and most other counties are not used to selective contracting by health insurers. Health insurers in the Netherlands seem to be quite reluctant to engage in selective contracting. Up to 2008 only few experiments were implemented using financial incentives to channel enrollees towards preferred pharmacies (Boonen, Schut and Koolman 2008). Although these experiments showed that consumers are sensitive even to small temporary financial incentives, these findings may not hold for other types of providers since consumer loyalty to pharmacies is expected to be relatively low. The reason for this is that consumers may view a pharmacy more as a retailer of drugs rather than a personal provider of health services. An important question, therefore, is whether health insurers are also able to motivate their enrollee to visit other provider types. In this paper, our aim is to answer this question for one specific provider type, the general practitioner (GP). We focus on the GP for two reasons. First, selective contracting of GPs may be particularly effective, since GPs often function as a gatekeeper to other health services. This is particularly true in the Netherlands, where people have to register with a single GP and are required to obtain a referral from a GP to get access to non-emergency specialist and hospital care. A second reason for focusing on the GP is our expectation that consumer loyalty to a GP may be particularly strong because people often have a long-standing personal relationship

with a single GP. The effectiveness of channeling incentives may be limited by a strong status quo bias that typically arises in case of long-term and confidential relationships with frequent encounters (Neipp and Zeckhauser 1985; Samuelson and Zeckhauser 1988; Strombom, Buchmueller and Feldstein 2002).

In this paper, we use a large scale Discrete Choice Experiment (DCE) to examine the sensitivity of consumer choice of GPs to various channeling incentives and contractible characteristics of GP practices. During the first years since the reform, health insurers did not yet selectively contract with preferred GPs. Therefore, since revealed preference data are absent, we have chosen to use the Discrete Choice Methodology to elicit preferences for hypothetical GP practices and potential channeling incentives. We especially examine the role of status quo bias, by comparing choices between GPs that include and exclude respondents' current GP.

The paper proceeds as follows. Section 2 describes the methods used and the design of the Discrete Choice Experiment. Section 3 explains the econometric specification of the model. Section 4 presents the results and section 5 ends with a discussion and the main conclusions.

Method

We use a Discrete Choice Experiment (DCE) to elicit consumers' preferences for different GPs. DCEs involve the creation of hypothetical market situations adapted to a specific research question. With the DCE methodology different choice scenarios are constructed in which alternatives (GPs) are described in terms of their characteristics (attributes and levels). Individuals' stated choices are assumed to reflect their underlying preferences (Lancsar 2002). The description of the relevant attributes and levels of the DCE were based on consultations with health insurers, representatives of the Dutch GP Association and a literature review (see e.g. Wensing, Jung et al. 1998; Braspenning, Schellevis and Grol 2004; Berg van den, Bakker de et al. 2005; Lems 2006). The attributes include various financial and non-financial channeling incentives as well as contractible characteristics of GP practices which can be used by health insurers to channel enrollees toward preferred GPs.

We can distinguish two types of financial incentives: positive financial incentives, being bonuses or discounts for a preferred GP and negative financial incentives, such as (extra) co-payments for a non-preferred GP. With the introduction of the HIA insurers are allowed to differentiate reimbursement limits between contracted and non-contracted care. Since consumers are expected to react differently to losses than to gains (Kahneman, Knetsch and Thaler 1991; Tversky and Kahneman 1991), we developed two versions of the DCE. In the first version, consumers are confronted with the full price of 9 euro per

visit for each GP, being the regulated price for a GP visit in the Netherlands. The positive financial incentive entails a discount up to 9 euro on the full price. In the second version, consumers face no standard out-of-pocket price and the negative financial incentive is a co-payment up to 9 euro.

Consumers may also be motivated to visit a preferred GP by contracting GPs with favorable (qualitative) characteristics. Research on GP choice has shown that patient preferences for GP care relate to low waiting times, easy access, availability of care during out-of-office hours, a good communication and information, length of the consultation and a good doctor-patient relationship. Most DCEs on GP choice focused on subjective and interpersonal attributes of GP care such as whether the doctor listens and the ability to talk to the doctor (Vick and Scott 1998; Longo, Cohen et al. 2006; Rubin, Bate et al. 2006; Hole 2007). Such subjective attributes, however, are difficult to contract by health insurers. Furthermore, information about patient valuation of GP practices is limited and not used in the contractual negotiations between GPs and insurers. Therefore, in our study, we focus on objective characteristics of GP practices that can play a role in contractual negotiations and can be communicated to enrollees. Subjective features, including the familiarity with a current GP, are expected to be captured in consumers' preferences for their current GP and will be relevant in the estimation of the status quo bias.

The qualitative incentives and GP characteristics included in this study are described in table 5.1. Two access attributes are included: extended telephone access and availability of care during out-of-office hours. We included extended telephone access since, in the Netherlands, telephone access for non-emergency care is often limited (e.g. between 10 and 12 in the morning). Research has shown that consumers are often unsatisfied with their GPs telephone access. Adequate telephone access is, however, important for the functioning of GP care (Berg van den, et al. 2005, Braspenning, et al. 2004). Furthermore, there is hardly any care during out-of-office hours (except for emergency care). Research showed that consumers are positive about the possibility of visiting the GP for non-emergency care during out-of-office hours; about 62% is willing to visit their GP during out-of-office hours (Lems 2006).

In addition, the availability of practice assistants, an Internet service and a quality certificate are included as qualitative attributes insurers can use to motivate consumers to visit preferred GPs. Practice assistants can perform regular check ups for, e.g. diabetic patients, and can thus take over part of the work of GPs (Berg van den, et al. 2005). In 2006, about 65% of all GPs used practice assistants. Most GPs and consumers highly value the contribution of practice assistants (Lems 2006). Furthermore, quality certificates play an increasing role in GP care. GPs that meet certain quality criteria as defined by the Dutch association of GPs (NHG) receive a quality certificate (Berg van den, et al. 2005). In addition, GPs are increasingly providing extra services via the Internet.

Table 5.1 Attributes and levels

	Levels	Coding
I Financial incentives		
Co-payment	No co-payment	0
	3 euro per visit	3
	6 euro per visit	6
	9 euro per visit	9
Discount	No discount	0
	3 euro per visit	3
	6 euro per visit	6
	9 euro per visit	9
II Qualitative incentives		
Telephone Access	Basic access (Monday- Friday 8:00 a.m. – 11:00 a.m.)	-1
	Extended access (Monday – Friday 8:00 a.m.– 18:00p.m.)	1
Out-of-office hours care	No out-of-office hours care	-1
	One or two evenings available for out-of-office hours care	1
Availability of practice assistants	No, not available	-1
	Yes, available	1
Internet service	No, not available	-1
	Yes, available	1
Certificate of quality	No, not present	-1
	Yes, present	1
III Practice Characteristics		
Type of practice	Only GP	-1 -1
	GP and pharmacy (group practice)	0 0
	GP and other primary care providers (primary care center)	1 1
Distance from home address	5 minutes	5
(Walking distance in minutes)	15 minutes	15
	25 minutes	25
	35 minutes	35

Consumers are e.g. able to ask an online consult or order their prescription drugs online. Patient opinions about the use of internet for GP services vary. About half of the patients values internet services positively and about the other half does not (Lems 2006).

GP characteristics that are included are distance, defined as the travel time from the home address to the GP, and the type of practice defined as a solo-practice, a practice including a pharmacy and a primary care center. In the primary care center several health care providers work together in the same building.

Experimental Design

The set of attributes and their levels (5 attributes at 2 levels, 1 attribute at 3 levels and 2 attributes at 4 levels) result in a complete factorial design with more than 1500 possible GP descriptions and over a billion possible choice sets, consisting of all possible combinations of three such GP descriptions. To collect preference information effectively, an efficient design was created using the toolbox available for these purposes in SAS.[34] To ensure that the data support a model with possible interactions, the SAS procedure %choiceff was instructed to find a D-optimal design for the model with all two-way interactions, that is, the determinant of the information matrix for the model with all two-way interactions is to be maximized (Huber and Zwerina 1996).[35] The optimal designs by, among others, Street and Burgess (2005) only consider main effects. Instead, we used SAS procedures, which tend to provide the most efficient designs for models with two-way interactions, see Street, Burgess and Louviere (2005). As data collection was computer-based, it was relatively easy to collect data from a large design that was split up in many blocks. We opted for a design with 108 choice sets that was divided in 9 blocks of 12 choice sets. The resulting design scored high on all relevant measures, such as level balance and orthogonality. Because the data collection was computer based, we were able to vary the sequence of the attributes. Each respondent received a questionnaire in which the attributes were placed in a random order that differed across respondents to neutralize any ordering effects on consumer preferences (Kjaer et al. 2006). In addition, the alternatives were given in a random order that differed across respondents to neutralize any left/right bias.

As patients in the Netherlands are required to register with a GP, we did not provide them with a "no-choice" option. To estimate the effect of a possible status quo bias, we confronted respondents with two additional choices including their current GP. We could also have chosen to, in addition to the forced choice options, offer choices including their current GP as an opt-out option. It is expected, however, that the label 'current' dominates other attributes for the majority of the respondents. In addition, offering a similar number of non-forced choices next to the forced choice format leads to cognitive overload for the respondents. With the two additional choices we expect to capture the

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34. SAS marketing manual: support.sas.com/techsup/technote/ts722.pdf.

35. Beforehand we did not have strong expectations about possible significant two-way interactions between attributes. However, by creating a design with the possibility of testing for interaction terms, our main effects model estimates will be unbiased even if several interactions would exist. By using a main effects design only, results may be biased if interaction effects exist but cannot be estimated. We did test for the presence of several interaction effects for which hypotheses may exist but we have not found any significant effects. We therefore left this out of the analysis.

effect of a possible status quo bias. The forced choice format may, however, lead to an overestimation of the effectiveness of channeling incentives.

Questionnaire and data collection

Data were collected by a questionnaire among an Internet based household panel. This panel consists of about 2500 households of the Netherlands and is representative of the adult Dutch population[36] (see appendix 5.1 for a detailed description of the sample characteristics). The panelists receive questionnaires biweekly and background characteristics of the respondents such as age, gender, income, and health status are known. The overall response rate was about 80%.

In the first part of the questionnaire respondents were presented questions about their relationship with their current GP, their health care utilization and a number of propositions to gain insight in respondents' attitudes towards channeling. Respondents were also asked to describe their current GP in terms of the attributes and levels used in the DCE. In the second part, respondents were presented twelve scenarios of three hypothetical GPs that differed with respect to the attribute levels presented in table 5.1. Respondents had to choose their most preferred GP from these three hypothetical GPs. After being confronted with the hypothetical choice scenarios, respondents were faced with two additional choices, one between their current GP and the best possible GP and one between their current GP and a GP whose characteristics are drawn randomly from the levels presented in table 5.1. The current GP is described by respondents themselves based on the attributes used in this study (see appendix 5.1). The best possible GP is a GP that has all attribute levels at the most preferred levels. Hence, the best possible GP is expected to be more or at least equally preferred than the respondent's current GP. Respondents were asked to assume that GPs only differ with respect to the attributes described in the study. An example of a choice scenario is given in appendix 5.2.

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36. The internet based household panel is set up by CentER data. CentER data guarantees that the panel is representative of the Dutch population. Also people who do not have internet access are included in the panel as CentER provides them with a so-called Net.Box that allows them to enter the data on their television screen. Respondents in the CentER data panel also stay respondents over the course of time allowing for longitudinal research (http://www.centerdata.nl/en/centerpanel).

Econometric specification

Economic Framework

In this paper, we want to analyze consumers' willingness to make trade-offs between providers that differ in financial and qualitative terms. We base our analysis on Lancaster's economic theory of value (Lancaster 1966; Lancaster 1971) and random utility theory (McFadden 1974; Hanemann 1983; Ryan, Netten et al. 2006). This implies that we assume that utility is derived from the properties or characteristics of a good rather than from the good itself. Hence, we describe the decision making process about GP choice in terms of comparing indirect utility functions. Consumers are assumed to have perfect discrimination capability and to choose the GP that maximizes their utility. We assume that the utility that individual i derives from choosing alternative j on choice occasion t is then given by equation 1,

$$U_{ijt} = V_{ijt} + \varepsilon_{ijt} \tag{1}$$

where U_{ijt} denotes individual i's utility from choice j on choice occasion t, V_{ijt} is the deterministic part which captures both GP characteristics which vary over ijt and individual characteristics (taste variations) which vary over i, and ε_{ijt} is the error term which captures the characteristics that are unobservable to the researchers as well as measurement error (Manski 1977).

Empirical Framework

In the empirical models, we first estimate consumers' sensitivity to certain GP characteristics and their willingness to pay to visit a GP with these specific characteristics based on the forced choice questions. Second, a model that allows for status quo bias is estimated related to the choices between the current GP and the preferred hypothetical scenario in which we use information on the characteristics of the current GP.

McFadden shows that if ε_{ijt} are assumed to be type I extreme value (or Weibull) and independent, then a logit model can be derived from the random utility model (McFadden 1974). The parameter estimates of the logit model may be interpreted as parameter estimates of the indirect utility function. For the empirical estimation of the indirect utility model, we used a multinomial logit (MNL) model.[37]

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37. We also analyzed our data using a mixed logit (ML) model that allows for preference heterogeneity. Since both models lead to similar results we have chosen for the multinomial logit model because

Each GP in the choice set is composed of a bundle of GP characteristics (X) faced by the ith individual. Since we observe the choice and not the actual difference in utility, our dependent variable is binary. The conditional probability $Pr(y_i = m)$ that individual i in choice occasion t is observed to choose state m is given by

$$Pr(y_{it} = m | V_{ijt}) = P(U_{imt} > U_{ijt} \; \forall j \neq m) = \frac{\exp(V_{imt})}{\sum_j^J \exp(V_{ijt})} \quad \text{for m = 1 to J} \tag{2}$$

V_{ijt} is specified in equation (3) in which x_{jt} is a vector with attributes.

$$V_{ijt} = x_{jt}\,\beta \tag{3}$$

As each respondent made 12 choices, the choices whether or not to choose a specific GP might not be independent within an individual. To correct for such intra-individual correlation we used the Huber-White sandwich variance estimator.

In the forced choice decision the labels of the GPs have no meaning; the GPs only differ in the specified attribute levels and their location on the screen. During data collection, the alternatives were randomly assigned to one of the three labels and corresponding locations. As a consequence, there will be no relationship between the attributes and the labels. Still, alternative specific constants can be used to test for mis-specification. The constant term can then be interpreted as the difference in average utility between scenario A, B and C caused by a left/middle/right bias (Scott, Watson and Ross 2003).

In the status quo bias model consumers can choose between the chosen hypothetical GP and their current GP, i.e. they can opt-out and choose to stay with their current GP. This model can be seen as a labeled experiment in which consumers may attach a certain value to the label 'current GP'. Respondents are assumed to have an ex ante preference not to switch GPs. To capture this effect we included an alternative specific dummy, which we defined as being equal to 1 for the current GP and equal to -1 for the hypothetical alternative. To be able to capture the full 'status-quo bias' we used effects coding (-1 for the base level and 1 for the other levels, see table 5.1) to estimate our attributes (Bech and Gyrd-Hansen 2005).

A model with main effects[38] was estimated and used to compute marginal rates of substitution (based on equation (4)) between each attribute and the price attribute (the

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this facilitates the computation of confidence intervals for our marginal rates of substitution and the simulated choice shares.

38. To investigate whether there is a predictable component in the preference heterogeneity, we also estimated a model including interactions between the attributes and background characteristics and between the attributes and consumers' past experiences with GP care. Only age and having a job showed

financial incentive). The marginal rates of substitution represent the willingness to pay for an attribute m, given a marginal change in that attribute (MRSP) (Hanemann 1983; Lancsar and Savage 2004a; Ryan 2004). Because we have used effects coding, the MRSP is multiplied by 2 to obtain the willingness to pay. Only for distance the MRSP is not multiplied by 2 as this is a continuous attribute which does not require effects coding.

$$\text{MRSP} = -\frac{\delta v_j / \delta b_{jm}}{\delta v_j / \delta b_{price}} = -\frac{\beta_m}{\beta_{price}} *2 \qquad (4)$$

In addition to the MRSP, choice probabilities are reported. A choice shares indicates the share of respondents who opt for a specific alternative. We therefore created a base scenario in which all GPs have equal attributes that are based on the description of respondents' current GP. By varying the attribute levels one by one for one of the GPs in the base scenario, we simulate the impact on choice probabilities of moving away from his base case (King, et al. 2007) To estimate the impact of channeling incentives, we simulate these choice probabilities for choices between hypothetical alternatives and for choices between the current alternative and a hypothetical (preferred) alternative.

Results

Descriptive statistics

In total 1906 respondents filled in the questionnaire; 967 the discount version and 939 the co-payment version. Respondents were spread fairly even across the 9 versions. The respondents are representative of the adult Dutch population (see appendix 5.1). The average age is 49 years, 47% is female, over 85% has a good to very good health status and 57% has a job with an average monthly net income of 1700 euro. The majority of the respondents has a regular GP with whom they have a long term relationship of over 5 years. Their past experiences show that most respondents visit a traditional GP practice without extra features such as evening opening hours and an Internet service.

Next to the description of their current GP and their relationship with their current GP, respondents also answered to some addition propositions concerning GP choice.

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significant effects. Older respondents have a lower preference for internet, a quality certificate and primary care centers. Having a job led to a higher preference for out-of-office hours of care. In addition, past experiences showed that consumers value attributes higher if their current GP possesses these attributes. Because of the few significant effects we did not present the results. The results are available upon request from the authors.

From the propositions it followed that: (1) a majority of the respondents (65%) perceived quality differences between GPs; (2) a small minority of the respondents (10%) would be prepared to follow the advice by their health insurer to choose a certain GP; (3) a majority (63%) was willing to pay for unrestricted choice of GPs, and (4) a small percentage (17%) would switch to another GP in return for a financial advantage.

Estimation results

Hypothetical choice scenarios

Table 5.2 presents the estimation results for the main effects model for the co-payment and the discount version. The final sample size, after deletion of observations for which data on the dependent variable were missing, for the main effects model equals 924 for the co-payment version and 954 for the discount version. The included constant term is only significant for the difference between alternative B and C. The constant shows a general preference for alternative B over alternative C. This could indicate that there might be a left/right bias but since we randomly assigned the alternatives to position A, B, or C this will not affect our estimates.[39]

For the main effects estimation, the signs of the coefficients are as expected and thus confirm the theoretical validity of the technique. All attributes have a significant effect on general practitioner choice. Opening hours, telephone access, having practice assistants, a discount and a certificate of quality all have a positive effect on GP choice while distance and a co-payment have a negative effect as expected. The results on the type of practice show that practices including a GP and pharmacy are valued positively compared to practices including only GPs, while primary care centers (including GPs, pharmacies, physiotherapists and other health care providers) are valued negatively with respect to practices including only GPs.

The relative importance of each attribute is computed by the marginal rates of substitution (equation 4). The MRSP and their confidence intervals are presented in table 5.2.[40] The MRSP estimate the maximum amount a consumer is willing to pay to secure a change in one of the attributes. This amount leaves the consumers' utility and preferences unchanged. A negative value indicates that consumers require a compensation for a change in an attribute while a positive value indicates consumers are willing to pay to

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39. We also estimated a model without the constant term and found no large differences in the results.

40. Confidence intervals are estimated using the bootstrap procedure. To allow for within individual correlation of the error term we re-sampled individuals rather than choices. To allow for bias affecting the interval we used bias corrected percentile based confidence intervals (Hole 2007). Other papers in the health economics literature that have used bootstrapping to obtain confidence intervals are e.g. (McIntosch and Ryan 2002, Philips et al. 2002).

Table 5.2 Regression results for the hypothetical choice scenarios

	Discount Version		Co-payment Version	
	β(SE)	MRSP (95% CI)	β(SE)	MRSP (95% CI)
Qualitative incentives and practice characteristics				
Distance	-.039 (.002)*	-.563 (-.685;-.478)	-.041 (.002)*	-.244 (.22;.27)
Telephone access	.437 (.018)*	12.56 (10.80;15.30)	.435 (.019)*	5.20 (4.67;5.85)
Out-of-office hours care	.249 (.016)*	7.16 (6.06;8.92)	.210 (.016)*	2.50 (2.13;2.90)
Availability of practice assistants	.213 (.014)*	6.14 (5.06;7.82)	.160 (.014)*	1.91 (1.56;2.31)
Internet service	.120 (.013)*	3.46 (2.69;4.53)	.123 (.014)*	1.47 (1.13;1.81)
Quality certificate	.391 (.018)*	11.25 (9.52;13.79)	.359 (.018)*	4.29 (3.81;4.85)
Type of practice				
Group practice with pharmacy	.091 (.019)*	2.61 (1.59;3.97)	.017 (.019)	.206 (.286;.629)
Primary care center	-.107 (.021)*	-3.07 (-4.58;-1.86)	-.077 (.021)*	-.925 (-1.39;-.420)
Financial incentive				
Discount / Co-payment	.070 (.006)*		-.167 (.007)*	
Constant				
Constant A	.023 (.015)		.022 (.015)	
Constant C	-.114 (.015)*		-.077 (.015)*	
LL	-10144.808		-9650.511	
Pseudo R²	.187		.2015	
Number of observations	11001		11001	
Number of individuals	924		924	

* significant at P<0.001, ** significant at P<0.10

secure the change in an attribute. Respondents are most willing to pay for better access (extended telephone access and out-of-office hours of care) and quality certificates. The willingness to pay for travel distance is measured per minute. For a 10 minute decrease in travel time, respondents are thus willing to pay about 5.4 euro in the discount version and 2.4 euro in the co-payment version. The willingness to pay values further show that respondents are willing to give up a much larger part of their discount than they are willing to pay a co-payment for the same attributes.

Scenarios including the current GP

The results from the choices between the current GP and a hypothetical GP show that most respondents prefer their current GP, even when the hypothetical GP has preferable characteristics. The price attribute for the current GP is set equal to zero in the co-payment version and equal to 9 in the discount version.[41] In the choice scenario between the current GP and the best possible GP[42], still about 50% of the respondents opt for their current GP. In the choice between the current GP and a GP with randomly chosen attribute levels, even 85% opt for the current GP.

Table 5.3 presents the estimation results for the main effects model for both the co-payment and the discount version. The alternative specific constant shows a preference for the current GP. This indicates the presence of a status-quo bias in GP choice. The type of practice has no significant effect on GP choice (except the primary care center in the discount version). Furthermore, we see similar effects on GP choice as in the hypothetical scenarios. Distance and the co-payment have a negative effect on GP choice while telephone access, out-of-office hours of care, the availability of practice assistants, an Internet service, a quality certificate and the discount have a positive effect.

The relative importance of the attributes is estimated by using the marginal rates of substitution. We presented the MRSP and their confidence intervals in table 5.3[43]. The marginal rates of substitution indicate that the status quo bias is the most important attribute in GP choice. Respondents are most willing to pay to stick with their current GP. In the discount version, telephone access, out-of-office hours of care and a quality certificate are, next to the status quo bias, the most important attributes. The MRSP for distance is presented in minutes. Hence for a 10 minute decrease in travel distance, respondents are willing to pay 3.69 euro in the discount version and .59 euro in the co-payment version. In the co-payment version out-of-office hours of care and a quality certificate are the most important attributes. Similar as to the hypothetical choice scenarios, respondents are more willing to give up part of their discount than they are willing to pay for similar attribute level changes.

41. In practice, only respondents with a voluntary deductible face a co-payment equal to 9 euros for the current GP. Since only 5% of the Dutch population has chosen a voluntary deductible, we assumed that for the current GP no co-payment was required or a maximum discount was given.

42. The best possible GP is defined as a GP located close to the home address, with extended access (telephone as well as evening opening hours), an Internet service, practice assistants and a quality certificate. In addition, there is no out-of-pocket payment for this GP.

43. Confidence intervals are estimated using the bootstrap procedure. To allow for within individual correlation of the error term we re-sampled individuals rather than choices. To allow for bias affecting the interval we used bias corrected percentile based confidence intervals (Hole 2007). Other papers in the health economics literature that have used bootstrapping to obtain confidence intervals are e.g. (McIntosch and Ryan 2002, Philips et al. 2002).

Table 5.3 Regression results including the current GP

	Discount Version		Co-payment Version	
	β(SE)	MRSP (95% CI)	β(SE)	MRSP (95% CI)
Alternative specific Constant	1.018 (.099) *	37.03 (11.45;157.97)	.937 (.103) *	9.21 (6.08;15.87)
Qualitative incentives and practice characteristics				
Distance	-.020 (.004)*	-.369 (-2.08;-.107)	-.012 (.005) **	-.059 (-.135;-.008)
Telephone access	.221 (.058)*	8.03 (7.22;36.33)	.199 (.063)*	.196 (.63;3.97)
Out-of-office hours care	.324 (.081)*	11.79 (2.64;49.26)	.311 (.088)*	3.05 (1.32;5.83)
Availability of practice assistants	.116 (.056)***	4.22 (3.18;19.88)	.221 (.0598)*	2.17 (.87;4.15)
Internet service	.149 (.06) **	5.44 (2.43;24.63)	.119 (.066)***	1.16 (-2.89;.22)
Quality certificate	.233 (.060)*	8.47 (1.23;40.22)	.233 (.066)*	2.28 (1.03;4.16)
Type of practice				
Group practice with pharmacy	-.063 (.086)	-2.30 (-9.98;18.32)	-.079 (.098)	-.774 (-1.24;3.46)
Primary care center	.186 (.079) **	-.75 (-32.40;2.27)	.131 (.056)	1.29 (-4.0;.58)
Financial incentive				
Discount / Co-payment[d]	.055 (.026) **		-.204 (.032)*	
LL	-719.255		-773.194	
Pseudo R²	.263		.196	
Number of choices	1407		1388	
Number of individuals	704		694	

* p<0.01, ** p<0.05, *** p<0.10

Impact of channeling incentives on provider choice

Next to the computation of the MRSP, we simulated the impact on probabilities of moving towards a preferred GP by varying the level of one attribute at a time (King, et al. 2007)[44]. With this simulation we gain insight in consumers' willingness to switch to a preferred GP. To estimate the impact of channeling incentives we constructed a base scenario in which the attribute levels for both GPs are equal. The attribute levels in the

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44. We found that the MNL results are similar to those obtained with the ML models. We start with three identical scenarios to compute the shift in market share. Our main interest is the in- or decrease in market share for the 'preferred' pharmacy, the pharmacy for which an attribute level is changed. The proportional substitution pattern that arises from the MNL model will therefore not bias our results (King et al. 2007).

Table 5.4 Predicted changes in choice shares resulting from attribute level changes

	Hypothetical scenarios		Current versus alternative	
	Discount version	*Co-payment version*	*Discount version*	*Co-payment version*
	Δ % Preferred GP (95% CI)	Δ % Preferred GP (95% CI)	Δ % Preferred GP (95% CI)	Δ % Preferred GP (95% CI)
Base share	.50	.50	.115	.13
Current GP			.885	.887
Distance = −10 minutes	+.097 (.086;.107)	+.101 (.090;.111)	+.022 (-.003;.048)	+.016 (-.015;.044)
Extended telephone access	+.206 (.192;.219)	+.201 (.190;.219)	+.053 (.020;.086)	+.053 (.013;.093)
Evening opening hours	+.122 (.108;.135)	+.103 (.089;.117)	+.084 (.049;.120)	+.089 (.051;.127)
Availability of Practice Assistants	+.105 (.092;.118)	+.079 (.066;.091)	+.025 (-.001;.056)	+.059 (.016;.103)
Internet service	+.060 (.047;.072)	+.061 (.048;.074)	+.034 (.004;.064)	+.030 (-.007;.066)
Quality certificate	+.186 (.172;.200)	+.172 (.157;.187)	+.057 (.023;.091)	+.063 (.0186;.108)
Type of practice = GP and pharmacy	+.019 (.004;.033)	-.011 (-.025;.003)	+.006 (-.019;.032)	-.003 (-.034;.028)
Type of practice = Primary care centre	-.031 (-.046;-.016)	-.034 (-.049;-.020)	+.036 (.003;.068)	+.022 (-.011;.056)
Financial incentive = −3 euro	-.052 (-.061;-.043)	-.123 (-.132;-.114)	-.016 (-.030;-.001)	-.056 (-.068;-.044)

base share are based on the description of the current GP[45]. In the choices between the current GP and a hypothetical GP, both GPs only differ with respect to the alternative specific constant. In these scenarios, the attribute levels for the hypothetical GP are changed one at a time to estimate the impact of channeling incentives on the choice shares. With this simulation we want to estimate whether respondents are actually willing to switch in return for financial and qualitative incentives. We present the results of this simulation for both the hypothetical scenarios and the choices including the current pharmacy in table 5.4.

The results show, similar to the estimation results, that respondents are more sensitive to negative financial incentives than to positive financial incentives. The introduction of a co-payment of 3 euro leads to a larger decrease in market share (both in the hypothetical scenarios as in the scenarios including the current GP) than a reduction in

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45. The "most common" GP is a traditional GP located at about 15 minutes walking distance from the home address. The "most common" GP has no extra qualitative aspects such as practice assistants or a quality certificate. In addition, there is no out-of-pocket payment for this GP.

the discount of 3 euro. Negative incentives may thus be more effective in channeling consumers toward preferred GPs. Furthermore, we see a similar pattern of choice probabilities between the hypothetical scenarios and the scenarios including the current GP. We do, however, find differences in the impact of channeling incentives between the scenarios. In the hypothetical scenarios, more respondents are willing to switch in return for similar attribute level changes than in the scenarios including the current GP. The relationship respondents have with their current GP influences the impact of channeling incentives. Where in the base case scenario respondents are indifferent between two equal hypothetical scenarios, in the scenarios including the current GP, respondents have a preference for the current GP even if the attribute levels are equal. About 90% of the respondents choose the current GP over the hypothetical alternative, even when the attribute levels of both GPs are equal. Before consumers are indifferent they must first be compensated for the loss of their current GP. Once the consumer is compensated for this loss, we expect the consumer to react to channeling incentives similar as in the hypothetical scenarios.

Figure 5.1 and 5.2 illustrate the impact of channeling incentives graphically. Figure 5.1 shows the impact of the introduction of an out-of-pocket payment for the current GP, while figure 5.2 shows the impact of out-of-pocket payments in case of the hypothetical scenarios. Figure 5.1 clearly illustrates that before consumers are indifferent between the two GPs (choice shares equal 50%), they must be compensated for the loss of their current provider (see indifference line in figure 5.1). This compensation is higher in the discount version than in the co-payment version.

Figure 5.1 The probability that respondents choose their current GP for different levels of co-payments
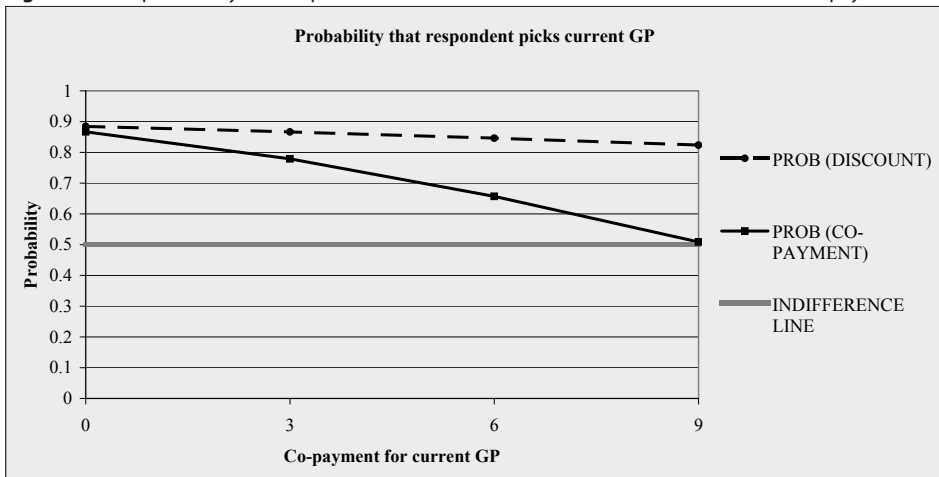
The x-axis of the graph shows the net payment respondents have to make to visit the non-preferred GP. For the discount version a co-payment of 3 euro is similar to a discount of 6 euro. We thus translated the discount into the corresponding co-payment to generate the results in the graph.

Figure 5.2 The probability that respondents choose the non-preferred GP for different levels of co-payments
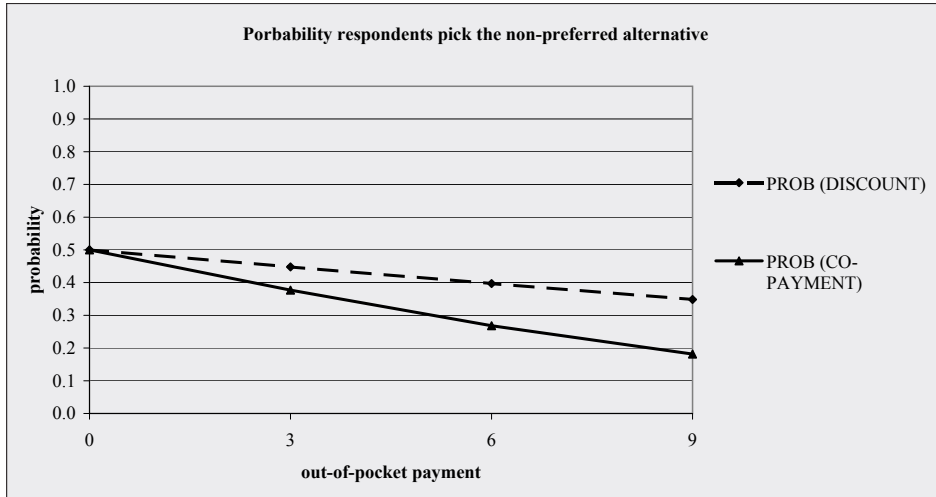
The x-axis of the graph shows the net payment respondents have to make to visit the non-preferred GP. For the discount version a co-payment of 3 euro is similar to a discount of 6 euro. We thus translated the discount into the corresponding co-payment to generate the results in the graph.

The introduction of out-of-pocket payments decreases the attractiveness of the current GP. The decrease in market share is larger in the co-payment version than in the discount version. Where in the co-payment version the introduction of a 9 euro co-payment leads to a decrease in market share for the current GP of about 35%, in the discount version the decrease in market share is only about 8%. In the hypothetical scenarios the decrease in market share is also larger in the co-payment version than in the discount version. Furthermore, the relative impact of financial incentives is larger than that in the scenarios including a current GP. The relative decrease in market share in the hypothetical scenarios equals 30% in the discount version and 64% in the co-payment version. The scenarios including the current GP show a relative decrease in market share of about 6% in the discount version and 30% in the co-payment version.

Conclusions and implications

The aim of this paper was to estimate consumer sensitivity to various channeling incentives in GP choice and to investigate the role of status quo bias. In the Netherlands, where GPs have a gatekeeper role, successful channeling can lead to efficiency gains once insurers can channel enrollees to qualitatively superior GPs. Since the introduction of a universal health insurance scheme with managed competition in 2006, health insurers are allowed to selectively contract with GPs and to use incentives to influence GP choice.

Our results show that respondents are sensitive to channeling incentives and various contractible GP characteristics and channeling incentives. Respondents are more sensitive to negative financial incentives (co-payments) than to positive financial incentives (discounts). At the same time, consumers value their own GP extremely high. When offered a choice between their current and an alternative GP with the most favorable attributes, the majority of the respondents prefers to stick with their initial choice.

The implications of our findings are that strong incentives are required to motivate consumers to switch to another GP. Incentive schemes aimed at achieving this are therefore expected to fail or prove to be extremely expensive. Rather than using incentives for all enrollees, health insurers can better target on those enrollees who have to choose a new GP, e.g. in case the enrollee moves to another residential area or in case a GP quits with its practice. In such instances, our findings imply that channeling incentives can be very effective. Since health insurers typically know when a GP quits with its practice or when their enrollees move to another residential area, they can actively target information and incentives on those enrollees who have to choose a new GP. In our survey about 65% of the respondents reported that they switched GPs at least once, so over time this strategy may be quite effective. Moreover, because of the strong status quo bias effective channeling may have a long lasting impact on GP choice, since enrollees that switch to a preferred GP are likely to stay with that GP for a long time. Due to the gatekeeper role of GPs this is likely to have an indirect long-term effect on the choice of other providers as well. Especially since most patients are inclined to listen to advice from their GP about which hospital or medical specialist to consult (RVZ 2003, Vries, de 2006). This implies that health insurers have to be very careful in selecting preferred GPs.

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Appendix 5.1 Sample characteristics

Table A1 Background characteristics

Background characteristics (n = 1906)		
Age	49 years (s.d. = 15.5, min = 18, max = 19)	
	Definition	**%**
Female	1 if female	47%
Health status		
	Very Bad	1.16%
	Bad	12.43%
	Good	53.76%
	Very Good	26.54%
	Excellent	6.11%
Job	1 if job	57%
Past experiences and Description of current GP		
Past experiences		
Number of visits to the GP in the last year	0 visits	28%
	1 or 2 visits	43%
	3 or 4 visits	18%
	More than 4 visits	11%
Do you have a regular GP?	No	3%
	Yes	97%
How long do you have this regular GP?	Less than one year	4%
	Between one and five years	19%
	More than five years	78%
Did you ever switch between GPs?	No	35%
	Yes	65%
What was the most important reason to switch?	I moved to another city	60%
	The GP quitted with its practice	23%
	A new GP opened its practice closer to my home address	1%
	Bad experiences with the former GP	9%
	Other	7%
Description of the current GP		
Distance to the current GP	5 minutes	28%
	15 minutes	34%

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	25 minutes	17%
	35 minutes	21%
Opening hours	Basic opening hours	94%
	Extended opening hours	6%
Internet Service	No	77%
	Yes	23%
Quality certificate	No	77%
	Yes	23%
Telephone access	No	75%
	Yes	25%
Availability of Practice assistants	No	94%
	Yes	6%
Type of practice	Only GP	66%
	GP and pharmacy	13%
	Primary care centre	20%

Appendix 5.2 Choice scenarios

In the questionnaire we presented respondents with the following choice scenarios:

'*In the next part of the questionnaire we have put together a number of different choices between 3 GPs and ask you to choose between them. The GPs are described based on the characteristics we explained before. You can assume that the GPs only differ on the basis of these characteristics; all other things can be assumed equal.*

When you have to visit one of these GPs, which one would you visit?'

	GP A	GP B	GP C
Distance from your home address to the GP	5 minutes	15 minutes	25 minutes
Opening hours	Extra evening opening hours	No evening opening hours	Extra evening opening hours
Telephone access	Limited telephone access (between 10 AM and 12AM on weekdays)	Extended telephone access (between 8 AM and 17 PM on weekdays)	Limited telephone access (between 10 AM and 12AM on weekdays)
Internet Service	Yes, internet service	Yes, internet Service	No, no internet service
Certificate of Quality	No quality certificate	Yes, a quality certificate	No quality certificate

Practice assistants	Yes, practice assistants available	No, no practice assistants available	No, no practice assistants available
Practice type	Solo practice	Pharmacy and GP	Primary care center
Co-payment	6 euro	3 euro	0 euro
I choose	**A**	**B**	**C**

5

Consumer willingness to switch to preferred providers

Are preferences stronger for GPs than for pharmacies?

Abstract

Health insurers can only effectively bargain with providers about the price and quality of health services if they can channel their enrollees to preferred providers. Little is known, however, about consumer sensitivity to incentives health insurers can use to influence provider choice. In this paper, we investigate the impact of channeling incentives on pharmacy and general practitioner (GP) choice with a large scale discrete choice experiment (n =1900). We find that positive financial incentives are only effective in influencing pharmacy choice while negative financial incentives influence both pharmacy and GP choice. Qualitative incentives are more effective in influencing choice for GPs. We also find that the effectiveness of channeling incentives is significantly reduced by a status quo bias, which is particularly strong in case of GPs. This implies that stronger and more targeted channeling incentives are required to encourage consumers to switch to preferred GPs than to preferred pharmacies. Although channeling enrollees toward preferred GPs is more difficult and costly, it is likely to have a longer lasting and broader impact on provider choice than channeling toward preferred pharmacies.

Introduction

In managed care markets health insurers bargain over the price and quality of health care services. Selective contracting is an important tool for health insurers in the negotiations with health care providers. Empirical research in the US has shown that health insurers using exclusionary provider networks obtain higher discounts than insurers without restrictions on provider choice (Melnick, et al. 1992, Sorensen 2003, Staten, et al. 1987). As an alternative to exclusionary networks, health insurers can also use preferred provider networks in which enrollees still have the option to seek out-of-network care. In that case the bargaining position of health insurers largely depends on their ability to channel enrollees toward preferred providers (Pauly 1987). In turn, this ability depends on the attractiveness of the network to consumers and their propensity to switch to another provider.

In an increasing number of countries with a social health insurance system (e.g. Germany, the Netherlands, Switzerland), health insurers are provided with incentives and tools, such as selective contracting, to act as prudent buyers of health care on behalf of their enrollees. Despite the widespread use of preferred provider networks in the US, surprisingly little is known about the insurer's ability to channel enrollees toward preferred providers. Most research focused on the impact of price on health care utilization or on health plan choice (Glied 2000, Zweifel and Manning 2000). In a recent paper Wu (2008) finds that health plans that successfully channel patients can extract greater discounts but that it still remains unclear which strategies are effective in directing patients to preferred providers.

In this paper, we first elicit consumer preferences for contractible aspects of General Practitioner (GP) practices and pharmacies and their sensitivity to different channeling incentives. Second, we examine consumer willingness to switch from a current GP or pharmacy to a preferred GP or pharmacy.

We examine these questions in the context of the recently reformed Dutch health care system. With the introduction of managed competition in 2006, health insurers have become responsible for the purchase of care. Health insurers can use exclusionary and preferred provider networks to negotiate with providers over price and quality of health care services. A crucial determinant of the feasibility of such networks is how effectively insurers can channel enrollees toward the selected providers. In contrast to the US, Dutch citizens are largely unfamiliar with provider networks. The aim of our investigation is to shed light on the potential effectiveness of selective contracting by examining consumer sensitivity to channeling incentives. This issue is relevant to all countries that have introduced selective contracting and consumer choice or are contemplating to do so.

We focus on preferences for GPs and pharmacies since consumer sensitivity to channeling incentives may strongly differ for these provider types. We expect that consumers

have 'strong' preferences for GPs and are relatively price inelastic, while consumers are expected to have 'weak' preferences for pharmacies and to be relatively price elastic. Preferences for GPs are likely to be strong because of the often confidential and long-term relationship consumers have with their GP. This is particularly the case in the Netherlands, where people are required to register with a single GP. By contrast, consumers may be less loyal to pharmacies because a pharmacy is more likely to be considered as a retailer than as a health care provider. We expect that the preferences for other health care providers, such as hospitals, medical specialists and physiotherapists, are weaker than for GPs and stronger than for pharmacies.[46]

Since there is only very limited experience in the Dutch health care market with respect to channeling and preferred provider contracts, we use stated preference data to estimate consumer preferences for various channeling incentives to influence both GP and pharmacy choice. In this paper, the discrete choice methodology is used to elicit consumer preferences for channeling incentives. We include both financial and qualitative channeling incentives. Moreover, the existence of a possible status-quo bias is estimated by confronting consumers with choices between the current provider and a hypothetical alternative.

The paper proceeds as follows. Section 2 gives a brief overview of relevant literature, section 3 describes the methods used, section 4 presents the econometric model, and in section 5 the results are discussed. In section 6 we provide a simulation of the impact of positive and negative financial channeling incentives on provider choice. Section 7 concludes.

Literature review

Empirical research about consumer sensitivity to different channeling incentives is limited. Research on health plan choice in the US has shown that consumers are reluctant to choose a health plan with restrictions on provider choice (HMOs). Consumers dislike or even distrust some of these very restrictive forms of managed care (Chu-Weininger and Balkrishnan 2006, Feldman, et al. 1989, Gawande, et al. 1998, Miller 2006). Furthermore, consumers are sensitive to the premium, quality, available information and restrictions in provider choice (Chernew, et al. 2004, Dafny and Dranove 2005, Zweifel and Manning 2000).

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46. This expectation is corroborated by a survey among 2000 respondents (Keuzenkamp 2006) in which the reported switching propensities for various health care providers were the least for GPs and the highest for pharmacies.

In our study, we focus on determinants of provider choice, conditional on the decision to visit a provider. Most empirical research on provider choice is related to hospitals and found that hospital choice is determined by distance, quality and consumer characteristics (Garnick, et al. 1989, Kim 1990, Tai, et al. 2004). Research on GP choice is primarily focused on patient ratings of GP care. Patient priorities for GP care are, among others, waiting times, access, availability of out-of-hours care, communication and information, time of consultation and the doctor-patient relationship (Anderson, et al. 2007, Braspenning, et al. 2004, Rubin, et al. 2006, Wensing, et al. 1998). Few studies used Discrete choice methodology to assess preferences for GP characteristics (Bergmo and Wangberg 2007, Gerard and Lattimer 2005, Rubin, et al. 2006, Ryan 2006, Scott, et al. 2003). These studies provide insight in the relative importance of different attributes of GP care. They do not, however, provide insight in the trade-offs consumers are willing to make and, even more important, in consumers' willingness to switch to another GP.

With respect to pharmacy choice, Boonen et al. (2008) examined few small scale experiments by health insurers to encourage the use of preferred pharmacies. They found that the small positive incentives insurers introduced to channel enrollees to preferred pharmacies were effective in influencing pharmacy choice. About 15% to 25% of the enrollees were willing to switch to the preferred pharmacy in return for financial incentives. The long-term impact of the channeling incentives depended on the duration of the financial incentive and on the location of the preferred pharmacy.

Research on provider choice has also shown that consumers' willingness to switch to other alternatives is limited by a status-quo bias. Status-quo bias arises once consumers are reluctant to leave their current provider even if better alternatives are readily available (Neipp and Zeckhauser 1985, Samuelson and Zeckhauser 1988, Strombom, et al. 2002). Switching costs, uncertainty about other alternatives and the relationship consumers have with their current provider determines the importance of the status-quo bias. Stole (2007) finds that consumers are more price inelastic with their second choice than with their first choice. This holds both for consumers with 'strong' preferences and for those with weak preferences. This difference in price elasticity can be explained by the theory of reference dependence, which states that consumers value attributes compared to a reference level (Hardie, et al. 1993). Choice may thus be dependent on the levels of the attributes of the provider patients are used to, since these levels may function as their reference point.

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Methods

To compare consumer preferences for contractible aspects of GPs and pharmacies, two discrete choice experiments (DCE) are designed. A DCE is a method to elicit consumer

preferences and willingness to pay values. DCEs involve the creation of hypothetical choice scenarios, in which alternatives are described in terms of their characteristics (attributes). Respondents' stated choices are expected to reflect their underlying preferences (Lancsar 2002).

The attributes used are based on a literature review about patient preferences for providers and on consultations with health insurers, pharmacies and the Dutch GP association. We find that distance, quality, low waiting times, easy access, availability of out-of-office hours of care, a good doctor-patient relationship and good communication and information are the most important attributes in provider choice. (Boonen and Schut 2006, Boonen, et al. 2008, Garnick, et al. 1989, Hole 2008, Kim 1990, Longo, et al. 2006, Rubin, et al. 2006, Tai, et al. 2004, Vick and Scott 1998). In addition, we also investigated whether pharmacies and GPs in the Netherlands are actually differentiating themselves with respect to several attributes. Some pharmacies offer online services, home delivery of drugs and meetings on medication management to distinguish themselves from their competitors. Furthermore, some have extended opening hours and offer a large variety of health related products. GPs primarily distinguish themselves by service aspects such as extended telephone access, better information and communication, evening opening hours and shorter waiting times. In addition, GPs and pharmacies differ by practice type. Most pharmacies are located in stand-alone practices and most GPs (over 50%) are working in solo or duo practices (www.nivel.nl). Lems (2006) found that consumers positively value recent developments in GP care such as the availability of practice assistants, the possibility of on-line consultation, extended opening hours and extended telephone access.

In this paper, the attributes are related to the different strategies health insurers can use to motivate enrollees to visit a preferred provider: financial incentives, qualitative incentives and practice characteristics (see table 6.1). Since individuals typically react differently to similar positive and negative incentives because of loss aversion (Kahneman, et al. 1991, Tversky and Kahneman 1991), we designed two DCEs, one including a negative financial incentive (co-payment) and one including a positive financial incentive (discount). In the first DCE, consumers are confronted with a standard out-of-pocket payment of nine euro per visit to each GP or nine euro per prescription drug from each pharmacy. The regulated price for a GP visit in the Netherlands is nine euro (in addition to a fixed capitation fee per registered patient that is paid by the health insurer), which is why we have chosen to set the standard out-of-pocket payment in the first DCE to nine euro. The positive financial incentive, included in this DCE, is a discount up to nine euro on this out-of-pocket payment. In the second DCE, consumers face no standard out-of-pocket payment and the negative financial incentive used is a co-payment up to nine euro per visit or per prescription drug.

Table 6.1 Attributes and levels

Attribute	Levels
General practitioner and Pharmacy	
I Financial incentives	
Co-payment	No co-payment
	3 euro per prescription/ per visit
	6 euro per prescription/ per visit
	9 euro per prescription / per visit
Discount	No discount
	3 euro per prescription / per visit
	6 euro per prescription/ per visit
	9 euro per prescription/ per visit
II Qualitative incentives	
Extra opening hours	**GP:**
	No out-of-office hours care
	One or two evenings available for out-of-office hours care
	Pharmacy:
	No extra office hours
	Extra office hours during the evenings and/or on Saturday
Internet service	No, not available
	Yes, available
Certificate of quality	No, not present
	Yes, present
III Practice characteristics	
Distance from home address	5 minutes
(Walking distance in minutes)	15 minutes
	25 minutes
	35 minutes
Type of practice	**GP:**
	Only GP
	GP and pharmacy
	GP and other primary care providers (primary care center)
	Pharmacy:
	Only pharmacy
	Pharmacy and GP
	Pharmacy and other primary care providers (primary care center)
GP only	
Telephone Access	Basic access (8:00 AM – 11:00 PM)
	Extended access (all day: 8:00 AM – 5:30 PM)
Availability of practice assistants	No, not available
	Yes, available
Pharmacy only	
Meetings on medication management	No, no meetings on medication management
	Yes, regular meetings on medication management
Consumer satisfaction with the	Bad
pharmacy	Reasonable
	Good
	Very good

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The incentives and practice characteristics that are comparable for both the GP and the pharmacy are described in the same manner using the same wording to make them comparable between the two providers. 'Extra opening hours' are defined as out-of-office hours during which enrollees can visit the GP or can collect their prescription drugs at their pharmacy. In the Netherlands, most GPs and pharmacies are only open during office hours (from 8:00 am to 5:30 pm) on weekdays. For emergency care during out-of-office hours, consumers are able to visit GP-cooperatives and late night pharmacies. An Internet service enables online ordering, home-delivery of prescription drugs and on-line consultations with the GP. The quality certificate is a certificate GPs and pharmacies obtain once they fulfill specific quality requirements set by their professional association. Further comparable attributes are the practice characteristics travel time and the type of practice. Travel time we defined as the distance in walking minutes from the home address to the pharmacy and GP. We discern three types of practices: a stand-alone pharmacy and a single practice GP (including one or two GPs), a practice including both a pharmacy and a GP and a primary health care center in which several care providers work together in the same building.

We also distinguish several specific attributes for each provider type. Specific attributes that are only relevant to pharmacy choice are meetings on medication management and consumer satisfaction surveys in which consumers rate their pharmacy on different service aspects. Consumer satisfaction surveys are particularly relevant for pharmacy choice since several health insurers are introducing such surveys and are planning to use the outcomes of such surveys in their contracting policy. In the case of GPs, such surveys have not been used or considered by health insurers and may be more difficult to use in their contracting policy because of the personal relationship patients have with their GP. Specific attributes that are only relevant for the choice of a GP are extended telephone access and the availability of practice assistants. In most GP practices telephone access for non-emergency care visits is restricted to a certain time period during the day, for example between 8:00am and 11:00am. Extended telephone access is defined as the GP practice being accessible by telephone from 8:00am to 5:30 pm during working days.

Experimental study design and data collection

Questionnaire data were collected using an Internet based household panel (n = 2500) that is representative of the adult Dutch population (age >18). Respondents who participate in the Internet based household panel are provided with questionnaires biweekly. The same panel received the questionnaire about pharmacy choice as well as the questionnaire about GP choice. Background characteristics of the respondents such as age, gender and health status are available. The overall response rate was about 80%.

In the first part of the questionnaire, respondents are confronted with questions about their current GP and pharmacy, their health care utilization and several propositions focusing on consumers' preferences concerning provider choice. Respondents were also asked to describe their current GP and pharmacy on the basis of the attributes used in the DCE.

The second part of the questionnaire consisted of 12 choice scenarios between either three pharmacies or three GPs and respondents were asked to choose the most preferred one. We opted for a choice among three providers as this increases the information content of an individual question, raising the statistical efficiency (Burgess and Street 2003). The set of attributes and levels for the GP (5 attributes at 2 levels, 1 attribute at 3 levels and 2 attributes at 4 levels) results in a complete factorial design with more than 1500 possible GP descriptions. The set of attributes and levels for the pharmacy (4 attributes at 2 levels, 1 attribute at 3 levels and 3 attributes at 4 levels) results in a complete factorial design with more than 3000 possible pharmacies. To collect preference information effectively, efficient designs were created using the toolbox available for these purposes in SAS.[47] To ensure that the data support a model with possible interactions, the SAS procedure %choiceff was instructed to find a D-optimal design for the model with all two-way interactions, that is, the determinant of the information matrix for the model with all two-way interactions is to be maximized (Huber and Zwerina 1996).[48] The general optimal designs by, among others, Burgess and Street (2005) only consider main effects. Optimal designs for models with interactions are only known for a limited number of specific settings, excluding ours. Instead, we used SAS procedures, which tend to provide the most efficient designs for models with two-way interactions (Street, Burgess and Louviere 2005).

As data collection was computer-based, it was relatively easy to collect data from a large design that was split up in many blocks. We opted for two designs, one for the GP and one for the pharmacy version, both with 108 choice scenarios divided in 9 blocks of 12 choice sets. Respondents were randomly assigned to one of the 9 blocks. The resulting design scored high on all relevant measures, such as level balance and orthogonality. Because the data collection was computer based, we were also able to vary the sequence of the attributes. Each respondent received a questionnaire in which the

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47. SAS marketing manual: support.sas.com/techsup/technote/ts722/pdf.

48. Beforehand we did not have strong expectations about possible significant two-way interactions between attributes. However, by creating a design with the possibility of testing for interaction terms, our main effects model estimates will be unbiased even if several interactions would exist. By using a main effects design only, results may be biased if interaction effects exist but cannot be estimated. We did test for the presence of several interaction effects for which hypotheses may exist but we have not found any significant effects. We therefore left this out of the analysis.

attributes were placed in a random order that differed across respondents, to neutralize any ordering effects on consumer preferences (Kjaer, et al. 2006). In addition, the alternatives were placed in a random order that differed across respondents to neutralize any left/right bias.

We did not include an opt-out option because consumers are required to register with a single GP. Also in the pharmacy version we did not include an opt-out to make both questionnaires as similar as possible. To estimate the effect of a possible status quo bias, we confronted respondents with two additional choices including their current GP and pharmacy. We could also have chosen to, in addition to the purely hypothetical choice options, offer choices including the current GP and pharmacy as an opt-out option. We did not do so because we expect that the label 'current' dominates other attributes for the majority of the respondents. In addition, offering a similar number of non-forced choices next to the forced choice format is likely to lead to cognitive overload for the respondents. With the two additional choices we expect to capture the effect of a possible status quo bias. An example of a choice scenario is given in appendix 6.1.

Econometric specification

Economic Framework

We use Lancaster's economic theory of value and random utility theory to examine consumers' willingness to trade-off providers with different financial and qualitative attributes (Lancaster 1966; Lancaster 1971; McFadden 1974; Hanemann 1983; Ryan, Netten et al. 2006). This implies that we assume that utility is derived from the properties or characteristics of a good rather than from the good itself. Hence, we describe the decision making process about pharmacy and GP choice in terms of comparing indirect utility functions. Consumers are assumed to have perfect discrimination capability and to choose the pharmacy/GP that maximizes their utility. We assume that the utility that individual i derives from choosing alternative j on choice occasion t is then given by equation 1,

$$U_{ijt} = V_{ijt} + \varepsilon_{ijt} \tag{1}$$

where U_{ijt} denotes individual i's utility from choice j on choice occasion t, V_{ijt} is the deterministic part which captures both pharmacy and GP characteristics which vary over ijt and individual characteristics (taste variations) which vary over i, and ε_{ijt} is the error term which captures the characteristics that are unobservable to the researchers as well as measurement error (Manski 1977).

Empirical Framework

In the empirical models, we first estimate consumers' sensitivity to certain pharmacy or GP characteristics and their willingness to pay to visit a pharmacy or GP with these specific characteristics based on the forced choice questions. Second, we estimate a model that allows for status quo bias related to the choices between the current pharmacy or GP and the preferred hypothetical scenario in which we use information on the characteristics of the current pharmacy and GP.

McFadden shows that if ε_{ijt} are assumed to be type I extreme value (or Weibull) and independent, then a logit model can be derived from the random utility model (McFadden 1974). The parameter estimates of the logit model may be interpreted as parameter estimates of the indirect utility function. For the empirical estimation of the indirect utility model, we used a multinomial logit model.[49]

Each pharmacy and GP in the choice set is composed of a bundle of pharmacy or GP characteristics (X) faced by the ith individual. Since we observe the choice and not the actual difference in utility, the dependent variable is binary. The conditional probability $\Pr(y_i = m)$ that individual i in choice occasion t is observed to choose alternative m is given by equation (2),

$$\Pr(y_{it} = m | V_{ijt}) = P(U_{imt} > U_{ijt} \; \forall j \neq m) = \frac{\exp(V_{imt})}{\sum_j^J \exp(V_{ijt})} \text{ for m = 1 to J} \tag{2}$$

where $V_{ijt} = x_{ijt}\beta$ and x_{ijt} is a vector with choice attributes.

As each respondent made 12 choices, the choices whether or not to choose a specific pharmacy or GP might not be independent within an individual. To obtain standard errors that are valid in the presence of such intra-individual correlation, we used the "cluster" option in Stata version 9.0. The resulting variance-covariance matrix generalizes the Huber-White sandwich estimator to allow for possible within individual correlation (Huber 1967; White 1980,1982, Stata User Guide 1999)[50].

In the forced choice decision the labels of the pharmacies and GPs have no meaning, they only differ in the specified attributes and their location on the screen. During

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49. We also analyzed our data using a mixed logit model that allows for preference heterogeneity. Since both models lead to similar results we have opted for the multinomial logit model because this facilitates the computation of confidence intervals for our marginal rates of substitution and the simulated choice shares.

50. See also http://repec.org/usug2007/crse.pdf for a detailed explanation of the Eicker-Huber-White robust standard errors in Stata.

data collection, the alternatives were randomly assigned to one of the three labels and corresponding locations. As a consequence, there will be no relationship between the attributes and the labels. Still, alternative specific constants can be used to test for mis-specification. The constant term can then be interpreted as the difference in average utility between scenario A, B and C caused by a left/middle/right bias (Scott, et al 2003)

In the status quo bias model consumers can choose between the hypothetical pharmacy or GP and their current pharmacy or GP, i.e. they can opt-out and choose to stay with their current pharmacy or GP. This model can be seen as a labeled experiment in which consumers may attach a certain value to the label 'current pharmacy/GP'. Respondents are assumed to have an ex ante preference not to switch pharmacies/GPs. To capture this effect we included an alternative specific dummy, which we defined as being equal to 1 for the current pharmacy or GP and equal to -1 for the hypothetical alternative. To be able to capture the full 'status-quo bias' we used effects coding (-1 for the base level and 1 for the other levels, see table 6.1) to estimate our attributes (Bech and Gyrd-Hansen 2005).

To investigate whether there is a predictable component in the preference heterogeneity, we included interactions between background characteristics (income, having a job, age, health status) and attributes. In addition, we included interactions of the attributes with respondents' past experiences; the description of and the relationship with their current pharmacy and GP. It might, for example, be expected that respondents who are used to a pharmacy or GP with an internet service are more likely to prefer a pharmacy or GP including an internet service (Scott, et al. 2003).

A model with main effects was estimated first and is used to compute marginal rates of substitution (based on equation (3)) between each attribute and the price attribute (the financial incentive). The marginal rates of substitution represent the willingness to pay for an attribute m, given a marginal change in that attribute (MRSP) (Hanemann 1983). Since we used effects coding for the attributes the formula for the MRSP is multiplied by 2, with an exception for distance, which is a continuous variable.

$$\text{MRSP} = -\frac{\delta v/\delta b_m}{\delta v/\delta b_{price}} = -2\frac{\beta_m}{\beta_{price}} \tag{3}$$

To study the effectiveness of the attributes in actually channeling patients to preferred providers, we study their importance in terms of choice shares. The computation of the choice shares will be described in detail in the result section.

Results

Descriptive statistics

In total 1906 respondents filled in the GP questionnaire, 968 the discount version and 939 the co-payment version and 1875 respondents filled in the pharmacy questionnaire, 952 the discount version and 923 the co-payment version (response rate of about 80%). The study population is representative of the adult Dutch population with an average age of 49 years, 48% female, 56% with a job and an average net monthly income of about 1700 euro. Furthermore, over 80% indicates to be in good or even excellent health.

Table 6.2 presents the characteristics of respondents' past experiences with and their description of their current GP and pharmacy. The majority of the respondents has a regular GP or pharmacy with a long-term relationship of over 5 years. Moreover, respondents' description of the current GP and pharmacy showed that the majority visits a GP

Table 6.2 Past experiences and description of the current pharmacy and GP

Past experiences/ Description of current pharmacy/GP	Response	Frequency GP	Frequency pharmacy
Past experiences			
Number of visits to the pharmacy/GP in the last year	0 visits	28%	23%
	1 or 2 visits	43%	30%
	3 or 4 visits	18%	21%
	More than 4 visits	11%	26%
Do you have a regular pharmacy/GP?	No	3%	3%
	Yes	97%	97%
How long do you have this regular pharmacy/GP?	Less than one year	4%	3%
	Between one and five years	19%	15%
	More than five years	78%	85%
Did you ever switch between pharmacies/GPs?	No	35%	56%
	Yes	65%	44%
What was the most important reason to switch?	I moved to another city	60%	80%
	The pharmacy/GP quitted with its practice	23%	3%
	A new pharmacy/GP opened its practice closer to my home address	1%	8%
	Bad experiences with the former pharmacy/GP	9%	3%
	Other	7%	6%

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Table 6.2 Past experiences and description of the current pharmacy and GP (continued)

Past experiences/ Description of current pharmacy/GP	Response	Frequency GP	Frequency pharmacy
Description of the current pharmacy/ GP			
Distance to the current pharmacy/GP	5 minutes	28%	38%
	15 minutes	34%	37%
	25 minutes	17%	11%
	35 minutes	21%	14%
Opening hours	Basic opening hours	94%	66%
	Extended opening hours	6%	34%
Internet Service	No	77%	73%
	Yes	23%	27%
Quality certificate	No	77%	57%
	Yes	23%	43%
Meetings on medication management	No	//	76%
	Yes	//	24%
Consumer satisfaction	Bad	//	1%
	Mediocre	//	7%
	Good	//	70%
	Very Good	//	22%
Telephone access	No	75%	//
	Yes	25%	//
Availability of Practice assistants	No	94%	//
	Yes	6%	//
Type of practice	Only pharmacy or GP	66%	69%
	GP and pharmacy	13%	14%
	Primary care centre	20%	17%

or pharmacy that has no extra features such as extended opening hours or a quality certificate.

The answers to the first part of the questionnaire show that consumers are much more aware of quality differences between GPs than between pharmacies. Whereas the majority of the respondents (65%) recognizes quality differences between GPs, only 26% observes quality differences between pharmacies. Preferences for qualitative aspects may therefore play a larger role in choosing a GP than in choosing a pharmacy. In addition, the answers to the general questions show that respondents are more loyal to GPs than to pharmacies. A larger proportion of the respondents is willing to pay a co-payment to stick with their current GP (35%) than with their current pharmacy (14%) and less

respondents are willing to switch to another GP (30%) than to another pharmacy (40%) in return for a financial gain.

Estimation results

Choice between (purely) hypothetical providers

Table 6.3 reports the willingness to pay for contractible aspects of GPs and pharmacies. We focus on the MRSP and the choice simulations and included the estimation results of the main effects model for both the pharmacy and GP in appendix 6.2. The estimation results show that the constant term is only significant for alternative B over alternative C. This could indicate that there might be a left/right bias but since we randomly assigned

Table 6.3 Willingness to pay values for the hypothetical scenarios

	Discount version		Copayment version	
	Pharmacy	*GP*	*Pharmacy*	*GP*
	MRSP (95% CI)		MRSP (95% CI)	
Qualitative incentives and practice characteristics				
Distance	-.398 (-.446; -.347)	-.563 (-.685;-.478)	-.211 (.187;.231)	-.244 (.22;.27)
Extra opening hours	4.31 (3.63;5.01)	7.16 (6.06;8.92)	2.07 (1.77;2.39)	2.50 (2.13;2.90)
Meetings on medication management	.252 (-.178;.71)	//	.230 (-.004;.513)	//
Internet Service	2.01 (1.51;2.56)	3.46 (2.69;4.53)	.829 (.572;1.12)	1.47 (1.13;1.81)
Quality Certificate	5.61 (4.90;6.49)	11.25 (9.52;13.79)	2.41 (2.13;2.82)	4.29 (3.81;4.85)
Telephone access	//	12.56 (10.80;15.30)	//	5.20 (4.67;5.85)
Availability of practice assistants	//	6.14 (5.06;7.82)	//	1.91 (1.56;2.31)
Consumer satisfaction				
Reasonable	-4.56 (-5.66;-3.75)	//	-3.05 (2.53;3.66)	//
Good	10.25 (9.00;11.49)	//	5.35 (4.82;5.99)	//
Very Good	12.62 (11.11;14.23)	//	6.80 (6.08;7.40)	//
Type of practice				
Group practice with GP	2.04 (1.35;2.79)	2.61 (1.59;3.97)	.805 (.405;1.17)	.206 (.286;.629)
Primary Care Centre	-2.09 (-2.77;-1.35)	-3.07 (-4.58;-1.86)	-.079 (-.408;.298)	-.925 (-1.39;-.420)

the alternatives to position A, B or C, this will not affect our estimates[51]. The signs of the coefficients are as expected.

We find that respondents are more sensitive to co-payments than to discounts. Their willingness to pay for similar attribute level changes in the co-payment version is lower than that in the discount version. Furthermore, respondents are more willing to pay for qualitative attributes with GPs than with pharmacies. For example, respondents are willing to pay about twice as much for a quality certificate of a GP than for a quality certificate of a pharmacy. The difference in WTP for quality certificates is significant in the co-payment version. In the discount version, the WTP for distance, opening hours, Internet and a quality certificate are significantly different between GPs and pharmacies.[52] Where a quality certificate is valued high in GP choice, respondents value consumer satisfaction rates with pharmacy choice.

Table 6.4 reports how the various channeling incentives and practice characteristics influence the choice probabilities for GPs and pharmacies. The willingness to switch in return for positive and negative financial incentives indicates that respondents are more sensitive to negative than to positive financial incentives. In addition, respondents are more sensitive to financial incentives in case of pharmacies than in case of GPs. While 5% of the respondents would switch to another GP once the discount decreases with 3 euro, 9% of the respondents is willing to switch to another pharmacy. This also holds in case of negative financial incentives.

Table 6.4 also shows that for qualitative incentives such as a quality certificate and an Internet service, the propensity to switch is higher in case of GPs than in case of pharmacies. These findings are in line with the reported results on the propositions and perceptions in which respondents were more willing to switch in case of negative financial incentives and were more aware of quality differences between pharmacies than between GPs. Again, consumer satisfaction ratings have a substantial impact on pharmacy choice. Bad consumer satisfaction ratings result in a substantial loss in market share (- 20% in the discount version versus -11% in the co-payment version).

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51. We also estimated a model without the constant term and found no large differences in the results. Furthermore, we only present the results of the main effects. The models including the interaction effects between the attributes and background characteristics and between the attributes and consumers' past experiences with GP and pharmacy care showed only few significant effects. Having a job for example was associated with stronger preferences for extended opening hours and age was associated with a lower preference for internet services. In addition, interactions with past experiences showed that respondents have stronger preferences for GPs and pharmacies that have similar attribute levels as their current GP and pharmacy. We do not present detailed results here because these results do not add to the understanding of the problem. The results are available upon request from the authors.

52. The significance of these differences is tested using bootstrapped confidence intervals on the mean WTP values obtained from the MNL model (Hole 2007).

Table 6.4 Predicted probabilities in response to variation in attributes for hypothetical scenarios

	Discount version		Co-payment version	
	Δ % Preferred Pharmacy (95% CI)	Δ % Preferred GP (95% CI)	Δ % Preferred Pharmacy (95% CI)	Δ % Preferred GP (95% CI)
Base share Alternative	.50	.50	.50	.50
Practice characteristics				
Distance = −10 minutes	+.11 (.106; .128)	+.097 (.086;.107)	+.11 (.101; .123)	+.101 (.090;.111)
Extended opening hours	+.13 (.112; .140)	+.122 (.108;.135)	+.11 (.096; .0124)	+.103 (.089;.117)
Meetings on medication management	+.01 (-.005; .020)	//	+.01 (-.001; .025)	//
Internet service	+.06 (.046; .073)	+.060 (.047;.072)	+.04 (.032; .058)	+.061 (.048;.074)
Quality certificate	+.16 (.148; .176)	+.186 (.172;.200)	+.13 (.114; .142)	+.172 (.157;.187)
Telephone Access	//	+.206 (.192;.219)	//	+.201 (.190;.219)
Availability of practice assistants	//	+.105 (.092;.118)	//	+.079 (.066;.091)
Consumer satisfaction				
Consumer satisfaction = bad	-.35 (-.356; -.338)	//	-.33 (-.337; -.317)	//
Consumer satisfaction = mediocre	-.21 (-.221; -.196)	//	-.21 (-.227; -.199)	//
Consumer satisfaction = very good	+.04 (.020; .050)	//	+.04 (.023; .054)	//
Type of practice				
Type of practice = GP and pharmacy	+.03 (.014; .045)	+.019 (.004;.033)	+.04 (.026; .056)	-.011 (-.025;.003)
Type of practice = group practice	-.03 (-.047; -.018)	-.031 (-.046;-.016)	+.02 (.003; .032)	-.034 (-.049;-.020)
Financial incentive				
Financial incentive = −3 euro	-.09 (-.100; -.080)	-.052 (-.061;-.043)	-.16 (-.166; -.148)	-.123 (-.132;-.114)

6

Choice between the hypothetical and the current provider

Table 6.5 presents the WTP values for contractible aspects of GPs and pharmacies once respondents are confronted with choices between their current provider and a hypothetical (better) alternative (the estimation results are presented in appendix 6.2,

Table 6.5 Willingness to pay values for the scenarios including the current pharmacy/GP

	Discount version		Copayment version	
	Pharmacy	*GP*	*Pharmacy*	*GP*
	MRSP *(95% CI)*		*MRSP* *(95% CI)*	
Status quo bias				
Alternative specific constant	8.07 (3.81;18.99)	37.03 (11.45;157.97)	5.929 (3.58;10.66)	9.21 (6.08;15.87)
Qualitative incentives and practice characteristics				
Distance	-.321 (-.643;-.177)	-.369 (-2.08;-.107)	-.141 (-.25;-.08)	-.059 (-.135;-.008)
Extra opening hours	-.031 (-2.48;2.48)	11.79 (2.64;49.26)	1.19 (.045;2.64)	3.05 (1.32;5.83)
Meetings on medication management	2.59 (.246;6.80)	//	1.22 (.01;2.96)	//
Internet Service	2.25 (.012;6.57)	5.44 (2.43;24.63)	.006 (-1.18;1.34)	1.16 (-2.89;.22)
Quality Certificate	3.21 (.879;7.187)	8.47 (1.23;40.22)	.445 (-.595;1.69)	2.28 (1.03;4.16)
Telephone access	//	8.03 (7.22;36.33)	//	.196 (.63;3.97)
Availability of practice assistants	//	4.22 (3.18;19.88)	//	2.17 (.87;4.15)
Consumer satisfaction				
Reasonable	-3.689 (-11.16;1.838)	//	-4.00 (-7.83;-1.149)	//
Good	7.896 (3.49;16.67)	//	1.829 (-.319;4.52)	//
Very Good	14.46 (8.27;29.26)	//	8.60 (5.523;14.39)	//
Type of practice				
Group practice with GP	-2.16 (-8.023;1.55)	-2.30 (-9.98;18.32)	-.632 (-2.98;1.151)	-.774 (-1.24;3.46)
Primary Care Centre	1.375 (-1.631;6.377)	-.75 (-32.40;2.27)	2.39 (.78;5.196)	1.29 (-4.0;.58)

table 2)[53]. The estimation results show similar patterns as the estimation results of the choices between hypothetical scenarios. Furthermore, the results show that respondents have a preference for their current provider. Similar to the 'purely' hypothetical choice scenarios, we find higher WTP values in the discount version than in the co-payment version. Also the WTP for qualitative attribute level changes is higher with GPs than with pharmacies. Comparing these results to those in the 'purely' hypothetical choice situations makes clear that the preference for the current pharmacy and GP reduces the sensitivity to the channeling incentives. The WTP values for similar qualitative attributes and practice characteristics are lower than those found in the purely hypothetical scenarios (see table 6.3).

Respondents have a higher preference to stick with their current GP than to stick with their current pharmacy. The WTP for the status quo is higher in case of GPs than in case of pharmacies. The differences in WTP between GPs and pharmacies are not statistically significant.[54] However, though the differences between the WTPs are not statistically significant we do expect them to be economically relevant, especially because the results are comparable to those found in the purely hypothetical scenarios and to the reported preferences in the first part of the questionnaire.

Table 6.6 indicates the probabilities that respondents switch to another alternative once one of the attributes for the non-current alternative changes. These probabilities are computed using a base scenario in which both the current and non-current providers have identical attribute levels, except for the status-quo dummy. In the base scenario, about 90% of the respondents choose the current GP in both the discount and the co-payment version while 80% choose the current pharmacy in the co-payment version and 70% in the discount version[55]. This difference is related to consumers' sensitivity to

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53. We also estimated a model including interactions between background characteristics and the description of the respondents' relationship with their current pharmacy and GP (number of visits, number of years with the same pharmacy/GP etc) and the alternative specific constant. This resulted in only one significant effect: older respondents showed a stronger preference for their current pharmacy/GP than younger respondents. Other characteristics or descriptions of the pharmacy/GP showed no significant results. Due to the few significant effects, we did not present the results for the model with the interaction variables. The results are available upon request from the authors.

54. Significance is based on the bootstrapped percentile based confidence intervals on the mean WTP values. (Hole 2007).

55. The difference in the starting points between the discount and the co-payment version is a result from the simulation used to compute the choice shares. In the base scenario we constructed two identical pharmacies with identical attribute levels. In the scenarios including the current pharmacy, these pharmacies only differed with respect to the alternative specific constant. The alternative specific constant determines the preference for the current pharmacy. The estimation results (appendix B) show that the preference for the current pharmacy is stronger in the co-payment version than in the discount version, resulting in different starting points.

Table 6.6 Predicted probabilities in response to variation in attributes for scenarios including current pharmacy/GP

	Discount version		Co-payment version	
	Δ % Preferred Pharmacy (95% CI)	Δ % Preferred GP (95% CI)	Δ % Preferred Pharmacy (95% CI)	Δ % Preferred GP (95% CI)
Base share Alternative	.29	.12	.19	.13
Practice characteristics				
Distance = −10 minutes	+.08 (.015; .142)	+.022 (-.003;.048)	+.06 (.007;.111)	+.016 (-.015;.044)
Extended opening hours	+.00 (-.057; .056)	+.084 (.049;.120)	+.05 (-.004; .102)	+.089 (.051;.127)
Meetings on medication management	+.06 (-.003; .128)	//	+.05 (-.003; .104)	//
Internet service	+.05 (-.009; .116)	+.034 (.004;.064)	+.00 (-.043; 0.43)	+.030 (-.007;.066)
Quality certificate	+.08 (.009; .148)	+.057 (.023;.091)	+.02 (-.035; .069)	+.063 (.0186;.108)
Telephone Access	//	+.053 (.020;.086)	//	+.053 (.013;.093)
Availability of practice assistants	//	+.025 (-.001;.056)	//	+.079 (.066;.091)
Consumer satisfaction				
Consumer satisfaction = bad	-.20 (-.231; -.178)	//	-.11 (-.137; -.086)	//
Consumer satisfaction = mediocre	-.11 (-.154; -.072)	//	-.09 (-.114; -.060)	//
Consumer satisfaction = very good	+.08 (.013; .147)	//	+.16 (.390; .534)	//
Type of practice				
Type of practice = GP and pharmacy	+.03 (-.087; .022)	+.006 (-.019;.032)	+.02 (-.032; .076)	-.003 (-.034;.028)
Type of practice = group practice	+.01 (-.049; .063)	+.036 (.003;.068)	+.09 (.035; .146)	+.022 (-.011;.056)
Financial incentive				
Financial incentive = −3 euro	-.06 (-.097; -.029)	-.016 (-.030;-.001)	-.09 (-.106; -.072)	-.056 (-.068;-.044)

the status quo, the alternative specific constant. Since the alternative specific constant influences the utility respondents derive from choosing a specific alternative also the probability with which they are willing to choose for a specific alternative is influenced.

The choice probabilities are lower than those found in the hypothetical scenarios (see table 6.4). Respondents are less willing to switch to a preferred alternative when facing a choice between a preferred and current provider than a choice between two hypothetical providers. The choice probabilities do show a similar pattern as in the purely

hypothetical scenarios where respondents are more sensitive to financial incentives in pharmacy choice and more sensitive to qualitative incentives in GP choice.

Simulation with different financial incentives

To examine the impact of negative and positive financial incentives on GP and pharmacy choice, we simulated different levels of financial incentives. The simulation is based on a choice between the current GP or pharmacy and an identical non-current alternative. Both alternatives have identical attribute levels but differ with respect to the status quo dummy. In the simulation, we confront respondents with different levels of out-of-pocket payments for the current provider. In the starting point, the current and the non-current provider both face no out-of-pocket payments (no co-payment or nine euro discount). In the simulation, the introduction of a co-payment of three euro for the current provider is equal to a reduction of the discount to six euro. In both cases the out-of-pocket payment for the current provider equals three euro. The simulation results are illustrated in Figures 6.1 and 6.2.

The most important findings are the differences in sensitivity to financial incentives between GP choice and pharmacy choice. For pharmacies the impact of financial incentives is much larger than for GPs. Moreover, respondents react, both in case of GPs and in case of pharmacies, stronger to negative than to positive financial incentives.

Figure 6.1 The probability that respondents choose their current GP or pharmacy in the discount version given different levels of out-of-pocket payments.*
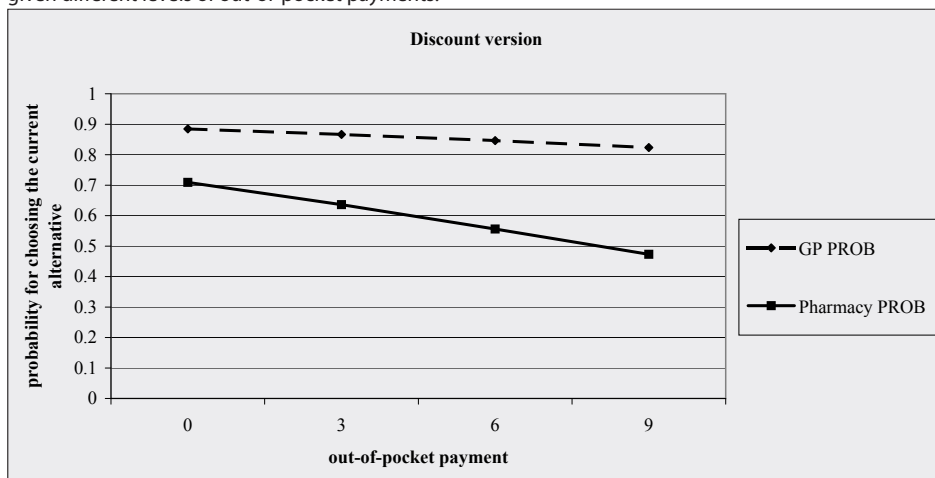
* The x-axis of the graph shows the net payment respondents have to make to visit the current GP/pharmacy. For the discount version a co-payment of 3 euro is similar to a discount of 6 euro. We thus translated the discount into the corresponding co-payment to generate the results in the graph.

Figure 6.2 The probability that respondents choose their current GP or pharmacy in the co-payment version given different levels of out-of-pocket payments.*
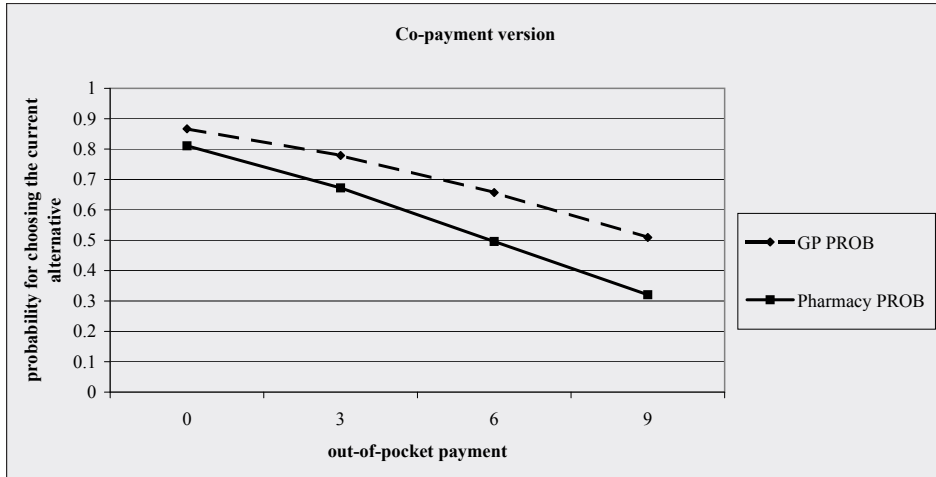
* The x-axis of the graph shows the net payment respondents have to make to visit the current GP/pharmacy. For the discount version a co-payment of 3 euro is similar to a discount of 6 euro. We thus translated the discount into the corresponding co-payment to generate the results in the graph.

This effect is, however, more prominent in GP choice than in pharmacy choice. Figure 6.1 shows that positive financial incentives have only a limited impact on GP choice (a decrease in the probability to choose the current GP from 88% to 82%), while figure 6.2 shows that similar negative financial incentives have a substantial impact on GP choice (a decrease in the probability to choose the current GP from 88% to 51%). For pharmacies the positive financial incentives have a smaller impact than the negative financial incentives, but both incentives substantially decrease the attractiveness of the current pharmacy (in the discount version a decrease from 70% to 48% and in the co-payment version a decrease from 80% to 31%).

Conclusion and Discussion

In this paper, we examined whether consumers respond differently to similar incentives to visit specific pharmacies and GPs. Consumer channeling is becoming increasingly important in countries that are reinforcing the role of health insurers as prudent buyers of health services (e.g. The Netherlands, Germany, and Switzerland). Once insurers are able to channel their enrollees toward preferred providers, they can effectively bargain about price and quality of health services. How consumers respond to channeling incentives for different types of providers is therefore an important research question. With Discrete Choice Experiments, we elicited consumer preferences for various incentives in case of GP and pharmacy choice.

The most important findings can be summarized as follows. First, negative financial incentives have a larger impact on provider choice than positive financial incentives. This difference is particularly large in case of GPs. Second, respondents are more aware of quality differences between GPs than between pharmacies. Respondents are more willing to pay for qualitative differences between GP practices than between pharmacies. Third, we find that many respondents prefer to stick with their current provider even if they have the option to switch to a better alternative (i.e. a provider with higher valued attributes). This status quo bias, however, is much stronger in case of GPs than in case of pharmacies. The strong preference for the current provider substantially reduces consumer sensitivity to channeling incentives for both types of providers. In the case of GPs the status quo bias almost completely cancels out the effect of the positive financial incentives included in our experiment

Our findings imply that channeling patients to preferred providers is much more difficult in the case of GPs than in case of pharmacies. In addition, for both types of providers different channeling incentives appear to be effective. For instance, positive financial incentives may well work to motivate consumers to switch to preferred pharmacies, but are likely to be insufficient to persuade consumers to give up their current GP. On the other hand, qualitative incentives are likely to be more effective in encouraging the use of preferred GPs than preferred pharmacies. Although influencing GP choice is likely to be more difficult than influencing pharmacy choice, successful channeling toward preferred GPs may have a longer lasting impact on provider choice. Once consumers are persuaded to switch to a preferred GP, they are likely to stay precisely because of the strong status quo bias. Although this effect is also expected in case of pharmacies, the effect is expected to be more pronounced in case of GPs. Therefore the higher effort of channeling to preferred GPs may be compensated by a more long-term benefit. Moreover, the benefit of channeling toward preferred GPs may not be only confined to GPs but also to other providers. In the Netherlands, as in many other countries, GPs function as gatekeepers because for most health services a referral of a GP is required. Since consumers are inclined to listen to advice from their GP about which hospital or specialist to consult (RVZ 2003, Vries 2006), this implies that successful channeling toward a preferred GP enables health insurers to also indirectly influence the choice of other health care providers.

The difference in status quo bias between the two provider types also has implications for the timing and scope of channeling incentives. In the case of GPs, channeling incentives are likely to be most effective if they are targeted at people who did not yet register with a GP, for instance because they recently moved to another area. In addition, temporary incentives may be sufficient to encourage those people to switch. By contrast, in case of pharmacies channeling incentives are likely to be more effective if they a permanent. Permanent incentives may be required to prevent people from returning to their previous pharmacy. However, they can be targeted to all potential consumers.

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Appendix 6.1

In the questionnaire we presented respondents with the following choice scenarios between pharmacies:

"*In the next part of the questionnaire we have put together a number of different choices between 3 pharmacies and ask you to choose between them. The pharmacies are described based on the characteristics we explained before. You can assume that the pharmacies only differ on the basis of these characteristics; all other things can be assumed equal.*

When you have to visit one of these pharmacies, which one would you visit?"

	Pharmacy A	**Pharmacy B**	**Pharmacy C**
Distance from your home address to the pharmacy	5 minutes	15 minutes	25 minutes
Opening hours	Extended opening hours	Limited opening hours	Extended opening hours
Internet Service	Yes, Internet service	Yes, Internet Service	No, no internet service
Certificate of Quality	No quality certificate	Yes, a quality certificate	No quality certificate
Meetings on medication management	Yes, regular meetings	No meetings	No meetings
Consumer satisfaction	Good	Excellent	Reasonable
Practice type	Stand alone pharmacy	Pharmacy and GP	Primary care center
Co-payment	6 euro	3 euro	0 euro
I choose	**A**	**B**	**C**

6

In the questionnaire we presented respondents with the following choice scenarios between GPs:

"*In the next part of the questionnaire we have put together a number of different choices between 3 GPs and ask you to choose between them. The GPs are described based on the characteristics we explained before. You can assume that the GPs only differ on the basis of these characteristics; all other things can be assumed equal.*
When you have to visit one of these GPs, which one would you visit?"

	GPA	GP B	GP C
Distance from your home address to the pharmacy	5 minutes	15 minutes	25 minutes
Opening hours	Extended opening hours	Limited opening hours	Extended opening hours
Internet Service	Yes, Internet service	Yes, Internet Service	No, no internet service
Certificate of Quality	No quality certificate	Yes, a quality certificate	No quality certificate
Practice assistants available	No	Yes	No
Extended telephone access	Yes	No	Yes
Practice type	Solo practice	Pharmacy and GP	Primary care center
Co-payment	6 euro	3 euro	0 euro
I choose	**A**	**B**	**C**

Appendix 6.2

Table A1 Regression results for the hypothetical scenarios

	Discount version		Co-payment version	
	Pharmacy	*GP*	*Pharmacy*	*GP*
	β (SE)		β(SE)	
Qualitative incentives and practice characteristics				
Distance	-.048(.002)*	-.039 (.002)*	-.046(.002)*	-.041 (.002)*
Extra opening hours	.258(.017)*	.249 (.016)*	.224(.016)*	.210 (.016)*
Meetings on medication management	.015(.013)	//	.025(.014)	//
Internet Service	.120(.015)*	.120 (.013)*	.090(.015)*	.123 (.014)*
Quality Certificate	.336(.017)*	.391 (.018)*	.261(.017)*	.359 (.018)*
Telephone Access	//	.437 (.018)*	//	.435 (.019)*
Availability of practice assistants	//	.213 (.014)*	//	.160 (.014)*
Consumer satisfaction				
Reasonable	-.273(.026)*	//	-.330(.029)*	//
Good	.615(.026)*	//	.579(.026)*	//
Very Good	.757(.031)*	//	.736(.031)*	//
Type of practice				
Group practice with GP/pharmacy	.122(.021)*	.091 (.019)*	.087(.021)*	.017 (.019)
Primary Care Centre	-.126(.020)*	-.107 (.021)*	-.008(.019)	-.077 (.021)*
Financial incentive				
Discount/ co-payment	.120(.006)*	.070 (.006)*	-.216(.008)*	-.167 (.007)*
Constant				
Constant A	-.018(.017)	.023 (.015)	.003(.018)	.022 (.015)
Constant C	-.058(.016)*	-.114 (.015)*	-.062(.017)*	-.077 (.015)*
LL	-9242	-10145	-8712	-9651
Pseudo R²	.253	.187	.271	.2015
Number of observations	33762	34092	32634	33003
Number of individuals	940	954	911	924

* p<0.001

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Table A2 Regression results scenarios including the current pharmacy/GP

	Discount version		Co-payment version	
	Pharmacy	*GP*	*Pharmacy*	*GP*
	β (SE)		β(SE)	
'Status quo bias'				
Alternative specific constant	.446(.08)*	1.018 (.099) *	.727(.096)*	.937 (.103) *
Qualitative incentives and practice characteristics				
Distance	-.036(.005)*	-.020 (.004)*	-.035(.006) *	-.012 (.005) **
Extra opening hours	-.0017(.058)	.324 (.081)*	.146(.065)**	.311 (.088)*
Meetings on medication management	.143(.063)**	//	.150(.073)**	
Internet Service	.124(.065)	.149 (.06) **	.001(.07)	.119 (.066)***
Quality Certificate	.177(.06) *	.233 (.060)*	.055(.065)	.233 (.066)*
Telephone Access	//	.221 (.058)*	//	.199 (.063)*
Availability of practice assistants	//	.116 (.056)***	//	.221 (.0598)*
Consumer satisfaction				
Reasonable	-.203(.155)	//	-.491(.178)**	
Good	.436(.116)*	//	.224(.131)	
Very Good	.799(.199)*	//	1.055(.133)*	
Type of practice				
Group practice with GP/pharmacy	-.119(.098)	-.063 (.086)	-.078(.107)	-.079 (.098)
Primary Care Centre	.076(.088)	.186 (.079) **	.294(.101)**	.131 (.056)
Financial incentive				
Discount/ co-payment	.111(.028)*	.055 (.026) **	-.245(.037) *	-.204 (.032)*
LL	-712.666	-719.255	-640.263	-773.194
Pseudo R²	.251	.263	.359	.196
Number of observations	1384	1407	1440	1388
Number of individuals	692	704	770	694

CHAPTER 7

Conclusion and Discussion

Conclusion and Discussion

With the introduction of the new Health Insurance Act (HIA), health insurers are increasingly encouraged to manage care. Price competition between insurers strongly increased as the introduction of the new health insurance act induced many people to reconsider their choice of health insurer. This increased the incentive for insurers to act as prudent buyers of care and to control costs. Moreover, insurer's financial risk for out- and inpatient medical expenses increased over the past decade, which also strengthened the incentives to manage care. In addition, the new insurance scheme increased the possibilities for health insurers to act as prudent buyer of care. A major instrument is the option to selectively contract with all health care providers. Moreover, supply and price regulation is gradually being relaxed, creating more room for insurers to negotiate with health care providers about price, quality and the organization of health services. Health insurers can use various incentives to stimulate enrollees to visit preferred suppliers with whom they have concluded favorable contracts.

Insurers' ability to influence provider choice is an important precondition for effective negotiations with providers. Prior to the reform, the experience of Dutch health insurers with influencing provider choice has been limited. Moreover, in general little is known about effective channeling strategies by health insurers. Therefore, it is not clear whether this important precondition for the success of managed competition can be fulfilled.

The goal of this thesis was to investigate consumers' responsiveness to channeling incentives. We first developed a theoretical framework using insights from two-sided market, option demand and principal-agent theories to explain the importance of consumer channeling. Second, we investigated how insurers have taken up their new role as prudent buyers of care in the recently reformed Dutch health care market. In addition, we investigated consumers' attitudes towards selective contracting and channeling by health insurers using survey data over the period 2005-2009. Third, we analyzed the impact of insurers' experiments with positive channeling incentives in the pharmaceutical market. Finally, we used discrete choice experiments to estimate consumers' preferences for different channeling incentives for different preferred providers to assess insurers' possibilities to channel enrollees.

In this final chapter, we will summarize the most important findings for each research question formulated in chapter 1 and reflect on the most important results.

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Are insurers acting as prudent buyers of care?

Q1: How are insurers taking up their role as prudent buyers of care since the introduction of the new HIA in the Dutch health care market?

Since the introduction of the HIA, insurers have been reluctant to selectively contract with health care providers and to offer health plans with restricted provider networks. Only one health insurer offers a health plan with a preferred provider network in which enrollees are strongly encouraged by financial incentives to use within network care. In contrast, most other health insurers contract with the majority (>95%) of all providers and use soft positive (financial) incentives to encourage enrollees to use the designated preferred providers, even though restrictive networks and negative financial incentives may sort a larger effect on provider choice. Anticipating the use of selective contracting, most insurers started to differentiate reimbursement limits between contracted and non-contracted care. However, since most insurers contract with the vast majority of the health care providers, the financial consequences of the differentiated reimbursement limits for both providers and enrollees are negligible.

Furthermore, insurers introduced preferred provider contracts in which they grant a preferred provider 'status' to a provider that offers better than average quality of care as measured by a variety of performance indicators. Insurers stimulated enrollees to visit these preferred providers, mainly with 'soft' positive incentives. Insurers e.g. encouraged preferred provider use by lower waiting lists and quality guarantees. Insurers did not differentiate reimbursement limits between preferred and non-preferred providers. Only since 2009, health insurers are legally permitted to directly stimulate enrollees with positive financial incentives to visit these preferred providers by exempting enrollees from paying the mandatory and voluntary deductible once they visit preferred providers. About half of all insurers (with a total market share of 58%) use this positive financial incentive to encourage preferred hospital utilization.

What are consumers' attitudes towards channeling?

Q2: How did consumer attitudes towards channeling incentives and restrictions on provider choice developed since the introduction of the new HIA in the Dutch health care market?

The most important reason why health insurers seem reluctant to use selective contracting is that they face a credible-commitment problem. Most consumers do not seem to trust that insurers with restrictive networks are committed to provide good quality care. Survey analysis over the period 2005-2009 showed that the insurer-credibility problem substantially increased during the first two years of the reform. The proportion of respon-

dents willing to follow the advice of their insurer regarding provider choice reduced by about 50% across all types of providers (including GPs, pharmacies, hospitals, dentists and physical therapists). Consumers' reluctance to follow their insurers' advice was highest in the case of GPs and dentists and lowest in case of pharmacies and hospitals.

One of the reasons for the emergence of this credible-commitment problem is the considerable negative publicity in the media about health insurers that introduced initiatives to manage care since the introduction of the HIA. Consequently, consumers were afraid that insurers would increasingly 'sit on the chair of the doctor'. In other words, in the Netherlands a 'managed care backlash' occurred even before insurers actually started to manage care.

The increasing credibility problem may also explain why several insurers still refrain from using positive (financial) channeling incentives to influence provider choice and why insurers are reluctant to engage in vertical integration with health care providers. It may also explain insurers' adherence to a not-for-profit status. In 2009, all remaining Dutch health insurers are not-for-profit, which they often stress in marketing and communication to (potential) enrollees.

Due to the two-sided character of the market, the credible-commitment problem also limits insurers' possibilities to act as prudent buyers of care. Providing adequate and objective quality information about providers may play a key role in solving the credible commitment problem as quality of contracted providers is likely to play an important role in health plan choice. With adequate quality information insurers can select providers that offer good quality and can communicate the ex ante value of their provider network to their (potential) enrollees. As long as insurers cannot communicate the rationale behind their contracting policy, they will not be able to convince their enrollees that they can act as good agents. Solving the credible commitment problem should be a priority of both health insurers and the government as the credible commitment problem limits insurers' ability to effectively manage care.

Are consumers sensitive to positive channeling incentives?

Q3: What is the impact of insurers' experiments with channeling on provider choice?

The empirical results in chapter 3 showed that experiments with positive channeling incentives in the pharmaceutical market were effective in influencing pharmacy choice. Three health insurers concluded preferred provider arrangements with pharmacies and encouraged their enrollees through various incentives, including gift certificates, discounts on over-the-counter drugs and a free body check, to visit the preferred pharmacy. The pharmacies were mainly selected on financial criteria as they offered

discounts on drug prices to these health insurers. Two of these insurers concluded a contract with a drugstore while the third insurer concluded a preferred contract with a traditional pharmacy via a public tender.

The results showed that enrollees were sensitive to the introduced incentives but that their responsiveness varied between the types of incentives used and the setting in which the experiments took place. Both financial incentives (gift certificates and discounts on over-the-counter drugs) had a positive effect on pharmacy choice although the temporary gift certificates (only offered at the first and second visit) induced a 'switch and return' decision whereas the 'permanent' discounts induced a 'switch and stay' decision. Consumers facing temporary financial incentives were thus more likely to switch back to their original pharmacy after having collected the gift certificates. Despite the positive response to channeling incentives preferred provider contracts with the drugstore terminated in 2008. The drugstore was simply not able to attract enough patients to sustain a financially stable pharmacy, suggesting that many enrollees returned to their previous pharmacy after having collected the gift certificates.

The 'switch and stay' decision observed in the experiment in which enrollees were given a 'permanent' financial incentive was also influenced by the setting in which this experiment took place. In this experiment, the preferred traditional pharmacy was located in a new residential area in which no other pharmacies were located. In addition, the pharmacy was located in a primary care center. The proximity of other health care providers, especially the GP, also contributed to the attractiveness of the preferred pharmacy. Therefore, as location and the proximity of the GP also play an important role in pharmacy choice, insurers should not only focus on financial incentives to encourage preferred pharmacy use.

What are effective channeling incentives?

Q4: Are consumers sensitive to different channeling incentives to encourage the use of preferred providers?
Q4a: Does sensitivity to channeling incentives differ between different providers?
Q4b: How does status quo bias affect sensitivity to channeling incentives?
Q4c: Does status quo bias differ between different providers?

The empirical results from the discrete choice experiments in chapter 4, 5 and 6 showed that consumers are sensitive to different channeling incentives. Provider choice can be influenced by the introduction of financial as well as qualitative incentives such as higher quality and better access. The experiments showed that consumer sensitivity to channeling incentives is dependent on the type of provider as well as the status-quo bias for particular providers. First, in pharmacy choice financial incentives play a strong

role, whereas, in GP choice, qualitative incentives are more important. Moreover, negative financial incentives have a stronger impact than positive financial incentives. This effect is even more pronounced in case of GPs than in case of pharmacies as positive financial incentives have a negligible effect on GP choice.

Second, consumers are reluctant to give up their current provider even when better alternatives are readily available. This status quo bias limits the effectiveness of channeling incentives for both pharmacies and GPs although the status quo bias is more prominent in case of GPs. In addition, contrary to what we expected, our research did not show significant differences in sensitivity to channeling incentives between different enrollees. Hence, insurers may not have to differentiate their channeling strategies between enrollees that differ by age, gender or health status.

Because of the higher status quo bias, channeling enrollees to preferred GPs will be more difficult than channeling enrollees towards preferred pharmacies. Nevertheless, we expect that successful channeling toward preferred GPs has a longer lasting impact on GP choice. Once consumers are persuaded to switch to a preferred GP, they are likely to stay precisely because of this strong status quo bias. The higher effort of channeling to preferred GPs may therefore be compensated by a more long-term benefit. Moreover, the benefits of channeling consumers toward preferred GPs may not be confined only to GPs. In the Netherlands, as in many other countries, GPs function as gatekeepers. For most health services a referral of a GP is required. As consumers are inclined to listen to advice from their GP about which hospital or specialist to consult, successful channeling toward a preferred GP enables health insurers to indirectly influence the choice for other health care providers as well.

The difference in status quo bias between the two provider types also has implications for the timing and scope of channeling incentives. In the case of GPs, channeling incentives are likely to be most effective if they are targeted at people who did not yet register with a GP, for instance because they recently moved to another area. In addition, temporary incentives may be sufficient to encourage those people to switch and stay. By contrast, in case of pharmacies channeling incentives are likely to be most effective if they are permanent. Permanent incentives are likely to be required to prevent people from returning to their previous pharmacy. They can, however, be effectively targeted to all potential consumers.

Consumer channeling in health care: (im)possible?

Q: Are insurers able to channel enrollees to preferred providers in order to effectively act as prudent buyers of care?

In this research we have investigated the sensitivity of consumers to channeling incentives towards preferred providers in the context of the Dutch health system reform. We found that channeling is not a 'mission impossible'. Consumers are sensitive to channeling incentives, although the extent to which consumers are sensitive strongly depends on both the type of incentive and the type of provider for whom the channeling incentive was introduced. We find that negative incentives are more effective in influencing provider choice than positive ones. However, negative financial incentives may not be useful in practice as long as insurers cannot solve the credible commitment problem. The credible commitment problem may, therefore, limit insurers' channeling possibilities. This explains why Dutch health insurers so far mainly used positive channeling incentives.

Final remarks

To conclude this last chapter, we will outline two possible topics for future research:

(1) **Natural experiments with channeling incentives**
This thesis mainly used stated preference data to estimate consumer sensitivity to channeling incentives. Because after the introduction of the HIA, and particularly since 2009, health insurers started to introduce various channeling incentives to encourage preferred provider use (e.g. positive financial incentives in the hospital market), revealed preference data is becoming more and more available. Moreover, we expect that over time more insurers start using channeling incentives to influence provider choice in different market segments including pharmaceutical care, GP care and hospital care. It would be interesting to evaluate these initiatives to investigate how consumers actually respond to channeling incentives in these market segments.

(2) **The credible commitment problem**
The credible commitment problem limits insurers' ability to effectively manage care. Objective quality information about providers may help insurers to reduce the credible commitment problem. Current research already focuses on the development of quality indicators, the presentation and communication of quality information to enrollees and the role of quality information in provider choice (see e.g. Damman, et al. 2007, Reitsma-van Rooijen, et al. 2008). In future research, it may be interesting to further analyze the link between the role of quality information and the credible commitment problem.

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7

Summary

Since the 1990s the Dutch health care system has been in transition from supply-side government regulation toward managed competition. A major step in this transition process has been the introduction of the Health Insurance Act (HIA) in 2006. The HIA is based on the principles of managed competition within the context of a national health insurance system under which all persons who legally live or work in the Netherlands are obliged to buy, on an annual basis, a basic benefit package from a private health insurer. With the introduction of the HIA the government shifted part of its responsibilities to market parties. Health insurers have to become prudent buyers of care on behalf of their enrollees and are therefore given incentives and possibilities to selectively contract or integrate with (all) health care providers.

A crucial condition for insurers to act as prudent buyers of care is their ability to channel enrollees towards selected providers. Once insurers are able to successfully channel enrollees toward selected providers, their bargaining power vis-à-vis health care providers increases. Providers will have an incentive to offer high quality services at a reasonable price in order to be included in the insurer's network of providers. Insurers can then be seen as the intermediary between health care providers and enrollees. Providers of care may, however, only be willing to bargain with health insurers if insurers can offer an attractive network of enrollees. For providers not only the size of the insurer in terms of enrollees matters but also the insurers' ability to steer its patients to the selected providers. Enrollees, on the other hand, may only be willing to buy a health insurance policy if insurers can offer an attractive network of providers. Once enrollees are reluctant to choose health plans with selected or preferred provider networks, health insurers will be unable to effectively bargain with health care providers over the price and quality of care.

Insurers are able to channel enrollees toward preferred providers via various channeling strategies. In the US, insurers typically encourage preferred provider utilization through negative financial incentives (higher co-payments for non-contracted providers). The most restrictive forms are the Health Maintenance Organizations (HMOs) that only offer reimbursement for within network care (except in case of emergency). More popular, however, are the less restrictive Preferred Provider Organizations (PPOs) that offer partial reimbursement for non-contracted providers. Instead of negative financial incentives, insurers can also use positive financial and qualitative incentives including better service, lower waiting lists, discounts and bonus payments to encourage preferred provider use.

In this thesis we investigate consumer preferences with respect to preferred providers and evaluate how health insurers have taken up their new role as prudent buyers of care in the Dutch health care system over the past few years. In **chapter 2** we analyze whether health insurers have taken up their new role of prudent buyers of care after the

introduction of the new HIA. In addition, we investigate consumers' attitudes with respect to selective contracting and consumer channeling. In **chapter 3**, we evaluated the impact of the first experiments by health insurers with positive channeling incentives in the Dutch pharmaceutical market. Because of the limited experience with managed care in the Dutch health care market, we used discrete choice experiments in **chapter 4 and 5** to estimate consumers' preferences to various channeling incentives to encourage the use of preferred pharmacies and preferred general practitioners (GPs). We have chosen to look at pharmacies and GPs because we expect preferences for channeling incentives between these two provider types to differ most. In **chapter 6** we compare the two discrete choice experiments and discuss the implications for the effectiveness of channeling for both provider types.

In **chapter 2,** the evaluation of insurers' contracting policies over the past few years showed that insurers have been quite reluctant to selectively contract with health care providers. Health insurers have hardly used stringent restrictions on provider choice or negative channeling incentives. Although health insurers have introduced differentiated reimbursement limits for non-contracted and contracted care, the financial consequences of these differentiated limits have been negligible since most insurers contract with more than 95% of all health care providers. Only one insurer introduced a health plan with a selected network of providers. Enrollees are stimulated, through a negative financial incentive, to visit the selected providers. Over time insurers introduced preferred provider contracts in which they grant a preferred provider 'status' to a provider that offers better than average quality of care as measured by a variety of performance indicators. Enrollees are stimulated with positive 'soft' incentives such as quality information and financial bonuses to visit the preferred supplier. Provider choice is, however, not restricted since preferred and non-preferred providers are fully reimbursed.

The reluctance of health insurers to selectively contract care can be explained by the presence of a credible-commitment problem. Insurers that use negative financial incentives or restrictions on provider choice have difficulty to credibly commit ex-ante to act as a good agent. This may explain the reluctance of insurers to use negative channeling incentives in the Dutch health care market. Survey analysis over the period 2005-2009 showed that the insurer-credibility problem substantially increased during the first two years of the reform. The proportion of respondents willing to listen to insurers' advice about provider choice reduced by about 50% across all provider types (including GPs, pharmacies, hospitals, dentists and physical therapists). Consumers' reluctance to listen to insurers' advice was highest in case of GPs and dentists and lowest in case of pharmacies and hospitals.

The lack of objective quality indicators is likely to be a major reason for this credible commitment problem. If consumers are not able to verify health insurers' efforts to

provide good quality care ex ante, they are less likely to believe that health plans with restricted networks offer the best treatment because they do not trust the selected providers to have an incentive to offer good quality care. To solve the credible-commitment problem adequate quality information is needed that health insurers can use in their contracting policy. Insurers are then able to communicate the value of their selected provider network ex ante and can also more effectively manage care since they can use the objective quality information in their contracting policy.

In **chapter 3**, we examined consumer preferences for preferred pharmacies using natural experiments in the Dutch pharmaceutical market. In 2003 three health insurers (CZ, VGZ, De Friesland) started small scale experiments with preferred pharmacy contracts. These health insurers did not actually exclude other pharmacies from their provider network, but tried to stimulate their enrollees with positive financial (gift certificates and discounts on over-the-counter drugs) and qualitative (free body check-up, extended opening hours, one-stop shopping) incentives to visit preferred pharmacies. These pharmacies were labelled "preferred" since they offered discounts on the price of prescription drugs to insurers. Two of the three health insurers concluded preferred provider contracts with a new entrant. This entrant was an incumbent drug store that decided to provide pharmaceutical care in its existing locations to facilitate convenience (one-stop) shopping for its customers. The third (regional) health insurer completed a public tender procedure for a new pharmacy located in a new residential area in which no other pharmacies were located and in which the health insurer had a large market share. Although our results showed that enrollees responded positively to both the financial and the qualitative incentives, the preferred provider contracts with the drugstore were terminated in 2008. The drugstore was simply not able to attract enough patients to sustain a financially stable pharmacy suggesting that many enrollees returned to their previous pharmacy once insurers stopped rewarding them for visiting the preferred pharmacy. Hence, the effect of the incentives on enrollees' pharmacy choice had been only temporary. The third initiative did show a permanent effect on pharmacy choice but this effect was also caused by the setting in which the experiment has taken place. Because there is no other pharmacy located in the new residential area, distance also plays an important role in the decision making process. Furthermore, the pharmacy was located in a primary care center. The proximity of other health care providers, especially the general practitioner, has been also important in pharmacy choice. Therefore, as distance and the proximity of the GP also play an important role in pharmacy choice, insurers should not only focus on financial incentives to encourage preferred pharmacy use.

In **chapter 4, 5 and 6**, we designed two discrete choice experiments to estimate consumers' preferences for specific channeling incentives in the pharmaceutical market and the

market for general practitioners. The experiments showed that consumer sensitivity to channeling incentives is dependent on the type of provider and the status-quo bias for particular providers. While financial incentives play a stronger role in pharmacy choice, qualitative incentives are more important in GP choice. Moreover, negative financial incentives have a stronger impact than positive financial incentives. This effect is even more pronounced in case of GPs than in case of pharmacies. With GPs, positive financial incentives have a negligible effect on GP choice. Furthermore, status quo bias limits the effectiveness of channeling incentives in case of pharmacies as well as GPs. Status quo bias, however, plays a more important role in case of GPs than in case of pharmacies. The relative high reluctance to switch in case of GPs therefore decreases the impact of channeling incentives on GP choice.

Although influencing GP choice is likely to be more difficult than influencing pharmacy choice because of the strong status-quo bias, successful channeling toward preferred GPs may have a longer lasting impact on provider choice. Once consumers are persuaded to switch to a preferred GP, they are likely to stay precisely because of the strong status quo bias. The higher effort of channeling to preferred GPs may, therefore, be compensated by a more long-term benefit. Moreover, the benefit of channeling toward preferred GPs may not be only confined to GPs but also to other providers. In the Netherlands, GPs function as gatekeepers because for most health services a referral of a GP is required. Since consumers are inclined to listen to advice from their GP about which hospital or specialist to consult, health insurers might be able to indirectly influence the choice of other health care providers as well, once they are able to successfully channel enrollees toward preferred GPs.

The difference in status quo bias between the two provider types also has implications for the timing and scope of channeling incentives. In the case of GPs, channeling incentives are likely to be most effective if they are targeted at people who did not yet register with a GP, for instance because they recently moved to another area. In addition, temporary incentives may be sufficient to encourage those people who switched to stay with the new provider. By contrast, in case of pharmacies channeling incentives are likely to be most effective if they a permanent. Permanent incentives are likely to be required to prevent people from returning to their previous pharmacy. However, they can be effectively targeted to all potential consumers.

Chapter 7 provides the most important conclusions and directions for further research. We found that channeling is not a 'mission impossible'. We have shown that consumers are sensitive for both qualitative and financial incentives in provider choice. Negative financial incentives have the largest impact on provider choice. However, even though negative financial incentives have a large impact on provider choice, they may not be feasible in practice because they may increase the credible commitment problem for

health insurers. The credible commitment problem limits insurers' possibilities to effectively manage care. Increasing the availability of adequate and reliable consumer information about the quality of health care providers is likely to be crucial to effectively reduce the insurer-credibility problem. If insurers can use adequate quality indicators to select preferred providers they are also able to communicate the value of their preferred provider network ex ante to their enrollees.

Samenvatting

Na de invoering van het nieuwe zorgstelsel in 2006 hebben verzekeraars een belangrijke rol als zorginkoper gekregen. Het systeem is in ontwikkeling van een aanbodgereguleerd systeem waarin prijs en aanbod sterk gereguleerd werden door de overheid, naar een vraaggestuurd systeem waarin marktpartijen een belangrijke(re) rol krijgen. Verzekeraars worden geacht te onderhandelen met aanbieders van zorg over de prijs en kwaliteit van zorg. Verzekerden moeten verzekeraars prikkelen om op te treden als goede inkopers door een kritische keuze te maken uit het polisaanbod op een concurrerende zorgmarkt. Zij kunnen jaarlijks van verzekeraar wisselen waarbij verzekeraars verplicht zijn om iedereen te accepteren voor het, door de overheid vastgestelde, basispakket tegen een niet naar persoonskenmerken gedifferentieerde premie. De overheid compenseert verzekeraars voor verzekerden met een hoog risico op ziekte via het risicovereveningssysteem om zo risicoselectie tegen te gaan.

Een belangrijke voorwaarde om als goede inkoper op te treden is dat verzekeraars de mogelijkheid hebben om verzekerden te sturen naar geselecteerde voorkeursaanbieders. Hierdoor neemt de onderhandelingsmacht van verzekeraars toe. Aanbieders zullen zorg met een goede prijs-kwaliteit verhouding moeten bieden om geselecteerd te worden door de verzekeraar. Hierbij treedt de verzekeraar op als intermediair tussen verzekerden en aanbieders. Aanbieders zullen echter pas bereid zijn om te onderhandelen met een verzekeraar als dat extra patiënten oplevert, terwijl verzekerden pas een polis zullen kopen als de verzekeraar een aantrekkelijk netwerk van aanbieders aanbiedt. Zodra verzekerden terughoudend zijn te kiezen voor voorkeursaanbieders, zullen verzekeraars niet in staat zijn om actief als zorginkoper te acteren.

Verzekeraars hebben verschillende mogelijkheden om verzekerden te sturen naar geselecteerde voorkeursaanbieders. Allereerst, kunnen verzekeraars met negatieve financiële prikkels het gebruik van voorkeursaanbieders bevorderen. Hierbij kunnen verzekeraars verschillende vergoedingslimieten hanteren voor niet-gecontracteerde aanbieders. De meest restrictieve vorm is om geen vergoeding te geven voor niet-gecontracteerde aanbieders. Alleen zorg bij gecontracteerde aanbieders wordt dan vergoed door de verzekeraar. De consument wordt hierdoor sterk beperkt in zijn keuzevrijheid. Een minder restrictieve vorm is om niet-gecontracteerde zorg gedeeltelijk (bijvoorbeeld voor 80% tot 90%) te vergoeden. Verzekerden hebben dan nog steeds de mogelijkheid om, tegen een bijbetaling, niet-gecontracteerde aanbieders te bezoeken. Daarnaast kunnen verzekeraars ook op basis van positieve financiële en kwalitatieve prikkels het gebruik van voorkeursaanbieders bevorderen. Positieve prikkels kunnen worden gebruikt door verzekeraars die onderhandelen met voorkeursaanbieders over de prijs en kwaliteit van de zorg maar die de keuze van hun verzekerden niet willen beperken tot een selectief netwerk van aanbieders. Hiervoor kan de verzekeraar positieve financiële prikkels introduceren, zoals het kwijtschelden van het eigen risico, of positieve kwalitatieve prikkels zoals lagere wachttijden en betere service bij de voorkeursaanbieders.

In deze dissertatie onderzoeken we de preferenties van consumenten ten aanzien van voorkeursaanbieders en evalueren we hoe zorgverzekeraars hun rol in het Nederlandse stelsel als zorginkoper in de laatste jaren hebben opgepakt. In **hoofdstuk 2** analyseren we de ontwikkeling van verzekeraars tot actieve zorginkopers tijdens de transitie van een aanbodgestuurd systeem naar een vraaggestuurd systeem in de Nederlandse ge-zondheidszorg. Hierbij onderzoeken we ook de houding van consumenten ten opzichte van inmenging van verzekeraars in de keuze voor een aanbieder. In **hoofdstuk 3** analy-seren we het effect van de eerste experimenten met voorkeursapotheken. Hierbij kijken we naar het effect van positieve financiële prikkels op de keuze voor een apotheek. Doordat er maar weinig natuurlijke experimenten met betrekking tot sturing zijn in de Nederlandse zorgmarkt hebben we in **hoofdstuk 4 en 5** discrete keuze experimenten gebruikt om consumentenvoorkeuren voor verschillende prikkels in de apothekers en huisartsenmarkt te onderzoeken. We hebben gekozen voor huisartsen en apotheken omdat we, op basis van eerder onderzoek, verwachtten dat de mate van stuurbaarheid tussen deze twee aanbieders het meest zou verschillen. In **hoofdstuk 6** vergelijken we de twee discrete keuze experimenten en trekken we conclusies over de mate van stuurbaarheid van verzekerden in beide markten.

Hoofdstuk 2 laat zien dat verzekeraars terughoudend zijn geweest om selectief te con-tracteren. Verzekeraars hebben nauwelijks negatieve financiële prikkels gehanteerd om de keuze voor niet-gecontracteerde aanbieders te ontmoedigen. Hoewel verzekeraars wel verschillende vergoedingslimieten voor gecontracteerde en niet-gecontracteerde zorg hanteren, zijn de financiële consequenties hiervan voor verzekerden en aanbieders nog beperkt omdat verzekeraars meer dan 95% van alle aanbieders contracteren. Er is slechts één verzekeraar geweest die een voorkeurspolis in de markt heeft gezet waarbij hij een beperkt netwerk van voorkeursaanbieders heeft geselecteerd. Verzekerden worden via financiële prikkels (20% eigen bijdrage met een maximum van 500 euro per jaar) gestimuleerd om van deze aanbieders gebruik te maken. Andere verzekeraars richten zich ook op het contracteren van voorkeursaanbieders maar gebruiken geen harde restricties om het gebruik hiervan te stimuleren. Verzekerden ervaren namelijk geen beperkingen bij gebruik van niet-preferente aanbieders maar worden via positieve (financiële) prikkels gestimuleerd om voorkeursaanbieders te bezoeken.

De terughoudendheid van verzekeraars om restricties in keuze te introduceren wordt mede veroorzaakt door de negatieve houding van veel consumenten ten opzichte van keuzebeperkingen. Verzekeraars vrezen reputatieverlies en het verlies van verzekerden als zij polissen met een restrictief netwerk van aanbieders aanbieden. Een veelvoorko-mend probleem is dat verzekerden geen vertrouwen hebben in verzekeraars die een restrictief netwerk van aanbieders contracteren. Dit vormt een belangrijke reden voor de focus op het gebruik van positieve prikkels om consumenten te sturen in plaats van

negatieve prikkels. Vragenlijsten laten zien dat consumenten terughoudend zijn om advies van hun verzekeraar op te volgen als het gaat om de keuze voor een zorgaanbieder. Deze terughoudendheid is in de jaren na de invoering van de Zorgverzekeringswet toegenomen. De bereidheid om advies op te volgen van de verzekeraar daalde met ongeveer 50%. Deze daling kwam naar voren bij alle onderzochte aanbieders (huisartsen, apotheken, fysiotherapeuten, tandartsen, en ziekenhuizen). De terughoudendheid om advies op te volgen blijkt minder groot bij ziekenhuizen en apotheken dan bij de overige aanbieders. Consumenten zijn het meest terughoudend om advies op te volgen als het gaat om de keuze voor een huisarts of tandarts.

Om het vertrouwensprobleem op te lossen is objectieve kwaliteitsinformatie over zorgaanbieders nodig die verzekeraars kunnen gebruiken in hun contracteerbeleid. Verzekerden zijn namelijk wel gevoelig voor kwaliteit en meer bereid om advies van de zorgverzekeraar op te volgen als dit gebaseerd is op objectieve kwaliteitsinformatie. Het beschikbaar komen van objectieve kwaliteitsinformatie voor zowel verzekeraars als verzekerden kan de relatief negatieve houding van consumenten positief beïnvloeden. Met objectieve kwaliteitsinformatie kan de verzekeraar komen tot een betere selectie van voorkeursaanbieders en tevens tot een effectievere sturing naar deze voorkeursaanbieders.

In **hoofdstuk 3** hebben we verschillende experimenten van verzekeraars met voorkeursapotheken geanalyseerd. De bevindingen laten zien dat consumenten positief reageren op (financiële) prikkels. In 2003 zijn er verschillende verzekeraars geweest die voorkeursapotheken hebben gecontracteerd. Eén initiatief had betrekking op het openen van een voorkeursapotheek in een bestaande drogisterijketen. Een ander initiatief is opgezet door een kleine regionale verzekeraar die een voorkeursapotheek heeft opgericht in een nieuwbouwwijk waar nog geen andere apotheken gevestigd waren. De voorkeursapotheken zijn geselecteerd op basis van prijs. Beide verzekeraars hebben hun verzekerden actief geïnformeerd over de mogelijkheid om de preferente apotheek te bezoeken en stimuleren hun verzekerden via financiële (cadeaubonnen en korting op zelfzorggeneesmiddelen) en kwalitatieve (gratis bodycheck, ruimere openingstijden, one-stop shopping) prikkels om gebruik te maken van de voorkeursapotheek. Hoewel de resultaten laten zien dat verzekerden positief hebben gereageerd op zowel de financiële als de kwalitatieve prikkels, zijn de initiatieven met betrekking tot de drogisterij-apotheek gestaakt in 2008. Consumenten bleken wel gevoelig te zijn voor financiële prikkels maar de eenmalige acties waren onvoldoende om de keuze blijvend te beïnvloeden. De voorkeursapotheek van de kleinere regionale verzekeraar liet wel een blijvend effect zien maar dit effect werd mede veroorzaakt door de setting waarin het experiment plaatsvond. Doordat er in de nieuwbouwwijk geen andere apotheek gevestigd is speelt, naast de financiële prikkels, afstand een grote rol in het keuzeproces.

Bovendien is deze apotheek gevestigd in een gezondheidscentrum waar zich ook een huisarts gevestigd heeft. Deze heeft ook een belangrijke rol gespeeld bij de keuze voor de voorkeursapotheek.

In **hoofdstuk 4, 5 en 6** bespreken we de resultaten van de discrete keuze experimenten waarmee de relatieve voorkeuren van consumenten voor prikkels in de apothekersmarkt en huisartsenmarkt zijn gemeten. Uit deze experimenten blijkt dat de gevoeligheid voor sturingsmechanismen afhankelijk is van het type aanbieder en de loyaliteit ten opzichte van de eigen aanbieder. Waar financiële prikkels een sterke rol spelen bij de keuze voor een apotheek, blijken kwalitatieve prikkels juist een belangrijke rol te spelen bij de keuze voor een huisarts. Verder zien we dat negatieve financiële prikkels een sterkere rol spelen dan positieve financiële prikkels. Dit effect is sterker bij huisartsen, waar positieve financiële prikkels een verwaarloosbaar effect hebben op de keuze voor een huisarts. Daarnaast is er zowel bij de apotheek als bij de huisarts sprake van een status quo bias. Bij een keuze tussen de 'eigen' apotheek of huisarts en een alternatief met objectief hoger gewaardeerde kenmerken kiest een substantieel aandeel van de respondenten voor de 'eigen' apotheek of huisarts. De status quo bias speelt een belangrijkere rol bij de keuze voor een huisarts dan bij de keuze voor een apotheek. Sturingsmechanismen zijn in de huisartsenmarkt dus minder effectief door de lage switchingsbereidheid van consumenten. Een verklaring hiervan kan liggen in de sterkere vertrouwensrelatie die verzekerden hebben met hun huisarts en in de verplichte registratie bij een huisarts in het Nederlandse stelsel.

Hoewel sturing naar preferente huisartsen moeilijker zal zijn dan sturing naar preferente apotheken, verwachten we dat succesvolle sturing naar preferente huisartsen uiteindelijk een grotere impact kan hebben. Doordat de huisarts een poortwachterfunctie heeft en patiënten doorverwijst naar andere zorgaanbieders in de eerste en tweede lijn, is het mogelijk om via de huisarts de keuze voor andere aanbieders te beïnvloeden. Het merendeel van de verzekerden heeft vertrouwen in het oordeel van de huisarts en is bereid om advies van de huisarts op te volgen. Verzekeraars die de keuze voor de huisarts kunnen beïnvloeden kunnen daardoor eventueel ook de keuze voor andere aanbieders bepalen. Daarnaast verwachten wij dat een eenmalige succesvolle sturing een blijvend effect zal hebben op de keuze voor een huisarts. Doordat consumenten loyaal zijn aan een eenmaal gekozen huisarts, zal een eenmalige effectieve sturingsprikkel een langdurig effect hebben. We verwachten dat consumenten minder snel terugswitchen naar hun oorspronkelijke huisarts wanneer ze eenmaal geswitcht zijn. Hierdoor zijn tijdelijke prikkels misschien voldoende om mensen blijvend over de streep te trekken. Verzekerden die voor het eerst een huisarts kiezen of die recent verhuisd zijn, zijn het best te beïnvloeden aangezien zij nog geen status quo bias ervaren. Zij hebben immers nog geen vaste huisarts. Een effectieve sturingsstrategie van een verzekeraar

zou dus zijn om deze verzekerden actief te stimuleren om voor een voorkeursaanbieder te kiezen. Bij apotheken zijn verzekerden gevoeliger voor financiële prikkels en zullen dus eerder wisselen van apotheek om een financieel voordeel te behalen. Daarnaast speelt de status quo bias een minder belangrijke rol dan bij de huisarts. Daardoor zullen verzekeraars niet alleen nieuwe maar ook bestaande verzekerden effectiever kunnen prikkelen om een voorkeursaanbieder te kiezen.

In **hoofdstuk 7** bespreken we de belangrijkste conclusies en geven we de richting aan voor verder onderzoek. Ons onderzoek wijst uit dat consumentensturing in de zorg geen onmogelijke missie is. Verzekerden blijken gevoelig voor positieve en negatieve prikkels bij de keuze voor een aanbieder. Negatieve financiële prikkels hebben het grootste effect op de keuze voor een aanbieder. Negatieve financiële prikkels vergroten echter waarschijnlijk ook het vertrouwensprobleem tussen de verzekeraar en de verzekerde. Dit vertrouwensprobleem kan ertoe leiden dat verzekerden geen polissen kiezen met beperkingen in hun keuzevrijheid. Dit verhindert de mogelijkheid voor verzekeraars om effectief op te treden als zorginkoper. De verdere ontwikkeling van objectieve kwaliteitsindicatoren is essentieel voor een effectieve rol van zorgverzekeraars als zorginkoper. Zodra verzekeraars objectieve kwaliteitsindicatoren kunnen gebruiken om voorkeursaanbieders te selecteren, kunnen zij hun verzekerden geloofwaardiger adviseren om van deze voorkeursaanbieders gebruik te maken.

S

Dankwoord

Wat een ontzettend mooi gevoel om dit eindelijk te mogen schrijven. Na vijf jaar van ups en downs kan ik dan eindelijk zeggen dat mijn proefschrift 'af' is. Hoewel onderzoek natuurlijk nooit helemaal af is, is een proefschrift dat op een gegeven moment wel. Dat dit proefschrift afgerond voor u ligt is mede te danken aan een aantal mensen die mij in de afgelopen vijf jaar geholpen hebben. Deels inhoudelijk maar zeker ook emotioneel met het beklimmen van de berg die het schrijven van een proefschrift heet.

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D

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D

Curriculum vitae

Lieke Boonen (1981) graduated in 1999 from secondary school (Athenaeum) at Sint Ursula in Horn. From 1999 to 2003 she studied International Economics and Finance at Tilburg University, where she graduated with a Master's thesis on the pharmaceutical market. After graduation she continued her studies with a master Health Economics at the institute of Health Policy and Management at the Erasmus University Rotterdam from which she graduated in 2004.

In 2004, she started working as a PhD-student at the institute of Health Policy and Management. From 2004-2009 she worked on her dissertation and published her research articles in national and international journals. In addition, she presented her work at several national and international conferences between 2005 and 2009. She developed a particular interest in consumer behavior, health plan choice and health care provider choice. Next to her dissertation she also worked on other projects involving health plan choice. She obtained grants from ZONMW for research related to her PhD project in 2006 and 2008.

As a teacher, Lieke has been involved in the Bachelor program Health Sciences at the Earsmus University where she was a lecturer in the courses Statistics and Economics for Bachelor students and the course Advanced Economic Evaluation for Master students. In addition, she also supervised bachelor and master theses.

Currently, Lieke is working at SIRM, Strategies in Regulated Markets. As a consultant she continues her research focusing on health care.

PhD Portfolio

PhD Portfolio	
PhD Student:	Lieke H.H.M. Boonen
Department:	Institute of Health Policy and Management
PhD period:	2004-2009
Promotor:	Prof.dr. F.T. (Erik) Schut

PhD Training	

Training

-	Presenting and discussion skills	2008
-	Discrete Choice Modeling – Erasmus University	2007
-	Techniques for writing and presenting a scientific paper- Wageningen University	2007
-	Individual Choice Behaviour- Massachusetts Institute of Technology in Cambridge (VS)	2006
-	Discrete Choice Modeling- Institute for Fiscal Studies in Londen (England)	2006
-	Academic writing for PhD students – Erasmus University	2005
-	Microeconomics II- Tinbergen institute	2005
-	Discrete choice Experiments – Erasmus University	2005
-	Mathematics II- Tinbergen institute	2004

Presentations

-	7th world congress of the international Health Economics Association (iHEA), Beijng (China)	2009
-	LOLA Studygroup, Maastricht	2009
-	2nd biennial conference of the American Society of Health Economics (ASHE), Durham (U.S.)	2008
-	Conference on "Health Economics and the Pharmaceuticals Industry" organised by the Institut D'Economie Industrielle (IDEI), Toulouse (Frankrijk)	2007
-	6th World Congress of the international Health Economics Association (iHEA), Copenhagen (Denmark)	2007
-	Netherlands Competition Authority (NMa) / Dutch Healthcare Authority (NZa)	2006
-	6th European Conference on Health Economics, Budapest (Hungary)	2006
-	5th World Congress of the international Health Economics Association (iHEA), Barcelona (Spain)	2005

Teaching qualifications and experience	

Courses followed

-	Basic didactical skills	2004

Lecturing

-	Bachelor in Health Policy and Management: Statistics; lecturer	2004-2009
-	Bachelor in Health Policy and Management: Economics of Health care; lecturer	2003-2009
-	Master Health Economics: Advanced Economic Evaluation; lecturer	2008-2009

Supervising Master's and Bachelor's thesis

-	Bachelor in Health Policy and Management; supervisor
-	Master Health Economics; supervisor

P