ERASMUS UNIVERSITY ROTTERDAM
ERASMUS SCHOOL OF ECONOMICS
MSc Economics & Business
Master Specialisation Health Economics

Shifted Deductible in the Dutch Health Insurance Market

An Effective Measure to Control Healthcare Costs?

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Finish date: August 2012

PREFACE AND ACKNOWLEDGEMENTS

The rapid increasing healthcare costs in the Netherlands have always fascinated me. What is the cause of this trend and what are possible solutions to control this problem while maintaining, or even improving, the healthcare quality level? These issues resulted in this Master thesis that studies the implementation of a mandatory shifted deductible for extensive health care users in the Dutch health insurance scheme. The shifted deductible moves the traditional deductible to a higher starting level for extensive health care users. This can reduce moral hazard as it introduces a financial incentive for extensive health care users to control their health care costs. This study examines the behavior of extensive health care users towards the shifted deductible system, will they respond to this financial incentive?

I would like to thank my thesis supervisor dr. Kirsten Rohde for her excellent guidance and support during my research process. I really appreciated her useful input and ideas during our meetings, which gave me many new insights. I would also like to thank the co-reader of my thesis dr. Hans van Kippersluis for his effort.

I would like to thank all the people that participated in my questionnaire. Not only did they assist me with my data collection, many shared their personal healthcare experiences. This provided me with many different perspectives that all shared one similarity: the patient experience is the key element of our healthcare system.

I would also like to thank my parents and partner for their support and encouragement. I enjoyed sharing thoughts on healthcare with my dad, this created many ideas that supported me in the research process.

The process of developing concepts, the research, collecting data and the writing of this thesis was the best and most exciting part of my Economics and Business study at the Erasmus School of Economics.
I hope that reading my thesis provides you with interesting insights regarding the potential of a shifted deductible system.

Ralph Vroegop

Rotterdam, August 2012

ABSTRACT

This study examines the implementation of a mandatory shifted deductible for extensive health care users in the Dutch health insurance scheme. With rapid increasing healthcare costs we are forced to seek new possibilities to control or even reduce this trend. With the current traditional deductible system extensive health care users do not have any incentive to prevent unnecessary health care costs and are exposed to moral hazard. The shifted deductible moves the traditional deductible to a higher starting level for extensive health care users. The cost saving potential of the shifted deductible is therefore high. The main goal of this study is to investigate the behavior of extensive health care users, will this group respond to the financial incentive of a shifted deductible? The collected data show that extensive health care users will respond to this financial incentive, though the effect is smaller than for healthy individuals with the traditional deductible.

JEL classification:
I13, I18

Keywords:
Economics; Health; Behavioral; Deductible; Health Insurance.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 - Introduction

1.1 The Dutch healthcare system

The Dutch healthcare system draws the interest of policy institutions around the world. Especially the healthcare financing system is used as an example for other countries (Enthoven et al., 2007). The current financing of healthcare in the Netherlands is the result of a long evolution of the system combined with an important reform in 2006. Before 2006 the financing system was split into social health insurance and private health insurance. In 2006 these two forms of health insurance were merged into one compulsory 'private' social health insurance.

Healthcare costs increase rapidly and account for a major share of total expenditure in the Netherlands. In 2011 the total Dutch healthcare expenditure was 90 billion euro, which is 14,9% of the gross domestic product (CBS, 2012). Projections show that in 2040 the Dutch healthcare expenditure will account for 19-31% of the gross domestic product (Van der Horst et al., 2011). These projections show the need for innovation and development of healthcare financing.

1.2 Mandatory deductible

An important aspect of the Dutch health insurance is the compulsory deductible. With a deductible the patient pays for the first incurred health care expenditures until a set level. When the patient has fully paid this deductible amount the health insurance takes over and covers all excess health care expenditure that is covered within the benefit package. The compulsory deductible in the Netherlands has multiple functions. The first function of the deductible is shifting costs to individuals who make use of health care services; therefore this can be seen as a risk sharing function. The implementation of a deductible also allows for lowering the level of health insurance premiums. Another important function of the deductible is reducing moral hazard (Westerhout & Folmer, 2007). The absence of a deductible can result in overuse of medical services.

1.3 Moral hazard

The chronically ill, disabled, and elderly are responsible for the biggest share of healthcare expenditures in the Netherlands. As a result of their need for medical care most members of these vulnerable groups are forced to pay the full mandatory deductible each year. From a social perspective this leads to equality problems. Individuals with pre-existing conditions cannot function without the use of health care. Compared to healthy individuals chronically ill and disabled individuals are financially punished for their pre-existing condition and the deductible looses its moral hazard reducing function for this group. This equality problem is only partially covered by different compensation programs.

Patients who make extensive use of health care lack any financial incentive to limit their use of it as they are always forced to pay the full mandatory deductible each year. Therefore the effectiveness of the current form of deductible in the Netherlands is questionable, especially the heavy users of health care are still exposed to moral hazard problems.

1.4 Shifted deductible

Preventing moral hazard in patient groups who make extensive use of health care will require a different deductible system. Introducing a shifted deductible can be a good solution. With a shifted deductible the starting point of the deductible will not be at zero health care costs but at zero plus β. The amount β can vary depending on different patient characteristics.

Take for example a certain patient group with the same chronic disease characteristics who average a health care expenditure of €3,000 per patient per year. In the current Dutch healthcare system the deductible is in place for the first €220 of health care expenditure (year 2012). So these patients are forced to pay €220, even if they stay below the average health care expenditure of their patient group. With a shifted deductible in place the starting point of the deductible can be set at €3,000 up to €3,220 for these patients. With this system chronic patients now have the same financial incentive as healthy people to reduce unnecessary health care expenditure. Introducing a shifted deductible will not only eliminate the equality problem from a social perspective but it will also eliminate the problem of moral hazard for extensive health care users. In theory a shifted deductible has the potential of being a very effective measure to control or even reduce the total healthcare expenditure of the Netherlands.

The shifted deductible system will require a solid registration system of patient characteristics and healthcare expenditure levels in order to set the right starting point. Also adequate patient knowledge about the deductible is an important key to the success of this new system.

The most important aspect that will determine the success of the shifted deductible is the patient behavior. In the existing literature mainly the theoretical added value of the shifted deductible is shown combined with existing cost data (Van Kleef et al., 2009). Previous studies in this area assume rational patient behavior. But is this assumption correct? Will extensive health care users actually respond rationally to financial incentives when their health is at stake?

1.5 Research question and sub-questions

Before considering the implementation of a shifted deductible the following research question must be answered:

Will patients who make extensive use of health care respond to the financial incentive of a shifted health insurance deductible?

In order to answer this question this research will focus on the behavior of healthy people and extensive health care users regarding the health insurance deductible. Over one hundred participants, both healthy people and extensive health care users, were interviewed to investigate this issue. Also the knowledge about the deductible was investigated in both groups, as this is essential for the proper functioning of the deductible system.

The sub-questions from this research are:

- How do healthy people respond to the financial incentive of a deductible?
- How do extensive care users respond to the financial incentive of a deductible?
- Do healthy people and extensive care users respond differently to the financial incentive of a deductible?
- What knowledge do people have about the deductible level and its application?

1.6 Research preview

In the following chapters this research will start with the history of health insurance in the Netherlands. This illustrates how the Dutch health insurance has developed over time. The next chapter covers the current health insurance scheme of the Netherlands. It explains how the healthcare system is financed, what medical services are covered and how the current deductible functions. Hereafter a literature overview of the shifted deductible theory is provided. It explains the concept and compares it to the traditional mandatory deductible.

The empirical part of this research will consist of data and methods, followed by the interpretation of the results. The discussion will show the limitations of this study and will give recommendations for future research. The final chapter contains the conclusion and gives an overview of the main results.

CHAPTER 2 - Health insurance history of the Netherlands

In this chapter the history of the Dutch health insurance will be discussed. How did health insurance originate and evolve over time. This is important as it explains many aspects of the current health insurance scheme in the Netherlands.

2.1 Origin of health insurance

The first predecessor of the Dutch health insurance originates from the end of the Middle Ages. In the Low Countries labour guilds started to establish funds in the 1300s to cover health care expenditures of their members (Saltman et al., 2004). This initiative was necessary because craftsmen wages were low and insufficient to cover high costs due to health shocks. By starting their own funds craftsmen became less dependent on the charity of churches and lords. The French Revolution made an end to these guild funds in 1798 (Veraghtert & Widdershoven, 2002). Citizens no longer accepted the hierarchy in the society and the power of religious and aristocratic parties. The need for more equal employment opportunity left no room for craftsmen guilds. As a result of this movement the established funds that covered health care expenditures of guild members also ceased to exist. Most of the guild funds continued as an independent open enrolment fund without government interference. Different new for profit and non-profit initiatives with the same concept emerged. These funds however were not very successful over the years (Saltman et al., 2004).

2.2 Bismarck model

The extensive biography by Steinberg (2011) gives an intriguing insight in the life of Otto von Bismarck who played a key role in the development of the health insurance model that is currently applied in the Netherlands. Otto von Bismarck was born in 1815 in a family that belonged to the landed aristocracy of Prussia. After his law study he attempted to start as a lawyer in order to train himself for a political career. He quickly found out that this career did not give him the desired power to pursue a quick and successful political career. After he retreated on the family estate for a while he became a Prussian representative in the German Landdag in 1847. This Landdag can be best compared to a parliament with limited power. In the years that followed he fulfilled the function of Prussian ambassador in Frankfurt, St. Petersburg and Paris. In this period he developed a strong aversion towards Austria. Austria and Prussia were fighting over the lead position in the process of uniting the German states into one powerful nation. The view of Von Bismarck is remarkable as his family belonged to the conservative movement that endorsed the role of Austria. He developed himself into a Prussian nationalistic that was known for his powerful, intelligent and sometimes violent actions in

order to pursue his goals. This reputation made him unpopular with the government but it also gave him a great opportunity in 1862. In this year King Wilhelm I called Bismarck to Berlin for help. The ministers of the king tried to convince the parliament to pass a law which allowed the reformation of the army but failed in this attempt. The fierce reputation of Bismarck led to his promotion to prime minister of Prussia by King Wilhelm I. He received strict orders from the king and was responsible to get the reformation bill passed without concessions. Von Bismarck saw this as his opportunity to reach the highest level of political power and acted upon this important task. He relieved the parliament form its duties and started new elections. During this period he gained more control over the actions of king Wilhelm I and expanded the army. This resulted in several wars with Denmark, Austria and France. Eventually the German Empire was founded on the 18th of January 1871.

Between 1876 and 1883 Von Bismarck developed the plan to introduce mandatory workers insurance that would cover costs caused by sickness, ageing or disability. In 1883 he started by introducing the health insurance for workers, which was called 'Gewerblige Gesetz betreffend die Krankenversicherung' (Companje, 2008). The health insurance would cover health and income and was mandatory for the working class in mining, industrial and artisan companies. The insurance was made obligatory by the government but was being run by private insurance companies that were controlled by representatives of both employers and employees. This form of social health insurance did not seem to fit the vision of Von Bismarck as he introduced an anti-socialist law in 1878 that suppressed the freedom of socialistic movements (Sigerist 1999). Von Bismarck saw the social-democratic party as a threat to the freedom of the German Empire. As the industrial sector quickly expanded the social democratic party had an immense growth potential as they represented the working class. The introduction of the social health insurance was not only a social but also a deliberated political move of Von Bismarck as explained by Companje (2008) and Meerhaeghe (2006). Von Bismarck acknowledged the importance of a healthy and prosperous workforce. This would help to sustain a healthy growth of the industrial sector and therefore secure the wealth of the nation. Another important aspect in the consideration of introducing social health insurance was control over the social movement. Von Bismarck was convinced that social insurance would weaken the role of the social-democratic party. The working class would be given securities by the government what would diminish the need for active social parties. Companje (2008) states that this was a clear misjudgement of Von Bismarck. Workers were also represented in the insurance funds and this gave the socialistic movement opportunity to not only continue their work but also strengthen their position in society.

The form of health insurance that Von Bismarck designed is best described by a mandatory 'private' social health insurance. The government introduced the framework of the insurance plan and private parties were responsible for the practical implementation (Companje, 2008).

2.3 Dutch health insurance in the 19th century

K.P. Companje has done extensive research into the history of health insurance in the Netherlands. His book 'Between national insurance and free market' (*Tussen volksverzekering en vrije markt*) is one of the few studies that investigated this topic. As a result the remaining part of this chapter will contain much information from the study by Companje (2008).

During the 19th century the Netherlands had many private for profit and non-profit sickness funds without any government intervention. Over the years physicians started to oppose commercial funds. They experienced many problems with contracting, reimbursement, reliability and solvency of these numerous commercial funds. The physicians united themselves in the 'Dutch organisation for advancement of medicine' (*Nederlandse Maatschappij ter bevordering der Geneeskunst*) in 1849 to form a pact against the commercial funds. This organisation started her own sickness fund and advised the government to create a regulatory framework like the Bismarck model. The government recognised the need for interference in the health insurance market in 1885. The state commission Rochussen was instructed to investigate the need for a social regulatory framework in 1890. This commission clearly stated two different forms of social insurance that were needed. There was an accident insurance that covered expenses and losses due to accidents in the working environment. And there was a health insurance that covered health care expenditures. Due to many political problems only the accident insurance law was passed in 1901.

2.4 Dutch health insurance in the 20th century

Despite the effort of Kuyper and his cabinet (1901-1905) the implementation of the social health insurance law failed as the cabinet had to resign prematurely.
During the Heemskerk cabinet (1908-1913) Syb Talma, minister of Agriculture, Industry and Trade, introduced a new social system in 1912. He divided health insurance into two different parts. The first part was the legal obligation to insure the risk of income loss known as the *'Ziektewet'*. The second part was the voluntary health insurance (Companje, 2008). The only link between the government and health care providers was the mandatory medical check before receiving benefits from the government. The idea behind this so-called Talma-model was that the income risk insurance would secure the income in case of illness or accidents. As a result individuals would be able to pay for voluntary health insurance at all times. Talma was convinced that the government was not capable to introduce an obligatory health insurance successfully. This model would be the best solution in order to achieve a secure social system and sufficient access to health care.

In the years that followed many politicians and physicians advocated the advantages of a national mandatory sickness fund with a standard benefit package and set income dependent premiums. During

the Second World War Germany forced the Netherlands in 1941 to introduce the Bismarck model (Gress et al., 2002). After the war the health insurance gradually evolved over time. Until 1960 the main government focus was controlling the supply side of healthcare in order to control prices (Companje, 2008). Afterwards the focus shifted to a more multi-disciplinary approach where sickness funds, health insurers, healthcare suppliers and the government debated over prices and capacity. Towards the end of the 20th century the healthcare suppliers and insurers became more responsible for the capacity and price levels. The government fulfilled a controlling position and provided the right legal framework.

CHAPTER 3 - The current health insurance scheme in the Netherlands

This research studies the effect of a shifted deductible in the Netherlands. It is important to give an overview of the current Dutch health insurance scheme to put this effect into the perspective of the present situation. This chapter will explain how health insurance is organised and financed in the Netherlands.

3.1 Health insurance benefit package and providers

Previously health insurance was split into social health insurance for lower income levels and private health insurance for higher income levels. In 2006 the Dutch government introduced a new universal compulsory 'private' social health insurance system with the Health Insurance Law (*Zorgverzekeringswet*). All individuals who reside or pay income tax in the Netherlands are obliged by law to have a Dutch basic health insurance. Only military personnel and people with objections due to their religion are allowed to decline health insurance.

The government determines what health services are covered by the basic health insurance package. For 2012 the basic health insurance covers the following forms of care:

- Care provided by a general practitioner
- Care provided by a medical specialist
- Care provided by an obstetrician
- Hospital stay
- Mental health care
- Prescription medication
- Maternity care
- Medical aids
- Ambulance services
- Dental care for children under 18 years old
- Physical therapy after 20 treatments, the first 9 treatments in case of incontinence.
- Ergotherapy
- Speech therapy provided by logopaedics
- Dyslexia care

Private health insurance companies offer the basic health insurance package, these providers are exposed to a strictly regulated market. They are obliged to offer the basic insurance package as stated by the government and have to accept all applicants. The private health insurance companies can set

their own basic health insurance premium but are not allowed to differentiate prices based on individual characteristics. There are two different forms of basic health insurance that can be offered: contracted and non-contracted insurance policies. In case of a contracted insurance policy the insurer has contracts with selected healthcare providers and patients can only receive full reimbursement if they use these selected providers. In 2011 these contracted policies accounted for 70% of the total market, their main advantage is the lower premium level (NZA, 2011).

The introduction of the regulated 'free' health insurance market has led to healthy competition between insurance companies and lower premiums than estimated by the government (Schut, 2009). The competition eventually resulted in small premium differentiation between the different health insurance providers (Schut, 2009). Even though consumers now tend to stay at their current provider the threat of this mobility is enough to keep insurance companies focused and sharp on this matter according to Schut (2009). Data from the Dutch Healthcare Authority (*Nederlandse Zorg Autoriteit*) shows that in 2011 only 5,5% of consumers switched between health insurance companies.

In 2012 the average yearly premium for basic health insurance was €1,284. Combined with the possible costs of €220 for the deductible this sums up to a considerable amount. Lower income households are compensated for these costs by a healthcare benefit program (*Zorgtoeslag*). Single person households can receive up to €838 benefit per year depending on the level of income in 2012. For multiple person households this amount can go up to €1,742. For single person households the income threshold for this benefit program in 2012 is €35,059.; for multiple person households the combined income threshold is €51,691.

Health insurance companies also provide additional health insurance packages that for instance cover dental care, additional physical therapy, glasses and alternative medicine. The government does not regulate the provision of these additional insurances; insurance companies are allowed to decline consumer enrolment for additional insurance based on individual characteristics. The additional health insurance market is important for health insurance companies. A market scan report of the Dutch Healthcare Authority shows that in 2011 approximately 90% of consumers opted for additional health insurance (NZA, 2011).

3.2 Deductible

In the Dutch health insurance scheme the mandatory deductible has a prominent role. The mandatory deductible was introduced in January 2008 and replaced the no-claim restitution policy, which dated from 2006.

With a deductible the patient pays for the first incurred healthcare expenses until a set level. When this level is reached the insurer takes over and covers all excess medical care that is covered within the benefit package. In 2012 the deductible in the Netherlands is €220 and for 2013 it will be €350. Table 3.1 shows the development of the deductible over the years. The government budget of 2012 gives multiple motives for this significant deductible increase in 2012 and 2013. It is intended to increase healthcare cost awareness of the general public and it is necessary to control the government budget (Voorjaarsnota, 2012).

Table 3.1 Deductible development in the Netherlands

Year	Deductible	% increase compared to previous year
2008	€150	-
2009	€155	3.3%
2010	€165	6.5%
2011	€170	3.0%
2012	€220	29.4%
2013	€350	59.1%

Westerhout & Folmer (2007) showed that reducing moral hazard is an important aspect of the deductible. This involvement of patients would make them aware of the costs of health care and result in reduction of unnecessary use of medical services. Patients will try to avoid the emergency room and go to a general practitioner instead; try to avoid referral to a specialist if possible; try to avoid prescription drugs or ask for cheaper generic versions and the demand for second opinions will be decreased (Oortwijn et al., 2011). The deductible also has a risk sharing function as pointed out by Van der Maat & De Jong (2010). The actual users of medical services co-finance the healthcare expenditures because the deductible shifts part of the total healthcare costs towards the patients. This results in a third function of the deductible, which is lowering the overall health insurance premiums.
Besides the mandatory deductible consumers can also choose for an additional voluntary deductible. A voluntary deductible is added to the mandatory deductible and in return lowers the monthly premium. In the Netherlands only 5-6% of the insured opt for voluntary deductible (NZA, 2011).
Not all forms of healthcare are subject to the mandatory deductible. Table 3.2 shows to which medical services the deductible applies.

Table 3.2 Medical services and the application of the deductible

Medical service	Deductible applies yes/no
General Practioner consultation	No
General Practioner consultation during nights or weekend	No
Prescription medicine	Yes
Obstetrician/maternity care	No
Hospital care	Yes
Emergency room	Yes
Population screening, e.g. breastcancer screening	No
Flushot for risk groups	No

The proper functioning of the deductible system strongly depends on the knowledge people have about the deductible. If the general public does not know in what cases the deductible applies they cannot be expected to react rationally towards this financial incentive. Van der Maat & De Jong (2010) show that the knowledge about the deductible is poor. Per medical service an average of 50% of respondents knew whether the deductible applied. Oortwijn et al. (2011) also finds a lack of knowledge about the deductible. In this research the knowledge about the deductible is also studied, chapter 6 'methods and results' will further elaborate on this topic.

A major issue with the current deductible system is the equality between healthy persons and chronically ill and disabled. Due to their pre-existing condition chronically ill and disabled people cannot function without the extensive use of medical services. Compared to healthy individuals chronically ill and disabled individuals are financially punished for their pre-existing condition and the deductible looses its moral hazard reducing function for this group. The solution for this problem is the deductible compensation program (*Compensatie Eigen Risico)*. The aim of this program is to match the level of paid deductible between the average health insured individual and the chronically ill and disabled individual. Chronically ill and disabled are compensated for the difference between the full mandatory deductible and the expected level of deductible payment of the average health insured individual (Van der Maat & De Jong, 2010). This compensation amount is fixed for all individuals, who are automatically qualified for the program. For 2012 the deductible compensation is set at €85, which is reimbursed at the end of the year.

There is also the Compensation Chronically Ill and Disabled Law (*Wet Tegemoetkoming Chronisch zieken en Gehandicapten*). This law is intended to compensate chronically ill and disabled who make extensive use of certain healthcare services that are only partly covered by the health insurance policy.

If an individual meets the extensive criteria he is automatically selected and the compensation can vary between €154 and €511. This compensation is received in the following year.

3.3 Financing of healthcare

Financing an extensive healthcare system requires many resources. In 2011 the Netherlands spent 90 billion euro on healthcare, this can be translated into 14,9% of the gross domestic product (CBS, 2012). Projections of the Dutch Bureau for Economic Policy Analysis (*Centraal Planbureau*) show that the healthcare expenses will even increase to 19-31% of the gross domestic product in 2040 (Van der Horst et al., 2011).

The financing system of healthcare in the Netherlands consists of many different money flows. There are three main elements of healthcare each with their own financing system. The first element is the Health Insurance Law (*Zorgverzekeringswet*). This law covers all curative care that is included in the basic health insurance package. The second element is the General Law Exceptional Healthcare Costs (*Algemene Wet Bijzonder Ziektekosten*) that covers long-term care. The last element contains all other healthcare related costs such as: extra support for disabled, chronically ill and elderly to be able to live independently and compensation for health state related costs.

For the relevance of this research the focus will be on the financing system of the Health Insurance Law (*Zorverzekeringswet*), which incorporates the deductible. The monetary values in the remainder of this chapter date from 2009 and were published in the most recent report of the Dutch House of Representatives on the expenditure control in healthcare (Rapport Rekenkamer, 2011). There are three parties who pay for the curative care covered by the Health Insurance Law. The first party consists of all households who pay health insurance premiums of in total €13,767 million and €1,448 million in the form of deductible directly to the private health insurance companies. The government also pays for the healthcare system with general means. Because children do not have to pay premiums the government puts €2,081 million for their care into the health insurance fund. The government also puts €171 million into this fund for the interest compensation of health insurance companies and the deductible compensation program for extensive care users. The third party that pays for the healthcare system are the employers. Through the income dependent taxation they contribute €16,652 million into the health insurance fund.

The health insurance fund uses €633 million of their budget for the funding of academic hospitals. The health insurance fund also contributes to private health insurance companies for three components:

- €18,468 million for their regular care expenses
- €176 million compensation for children's care expenses
- €163 million compensation for health insurance premium defaulters

All private health insurance companies combined spent €32,982 million in 2009 on curative care. An important aspect of the healthcare financing is the Risk Equalisation Fund that is part of the Health Insurance Fund. This fund has to prevent risk selection by the health insurance companies (Enthoven, 2007). It compensates insurance companies for high risk individuals based on risk profiles (Beschrijving van het risicovereveningssysteem van de Zorgverzekeringswet, 2007). These profiles are based on several characteristics:

- Source of income, e.g. employment status
- Age and gender
- Region
- Past pharmaceutical prescriptions that reveal information on the presence of chronically diseases
- Past diagnosis of chronically diseases

Besides reducing risk selection the Risk Equalisation Fund also stimulates health insurance companies to attract certain groups of chronically ill patients. Because health insurance companies receive a fixed amount of compensation per patient they are stimulated to attract many patients with the same condition. They can offer these groups specialised programmes to improve their health state and therefore reduce costs, which increases their profits due to the fixed compensation.

CHAPTER 4 - Theory: shifted deductible

This chapter explains the theory behind the shifted deductible together with the advantages and possible implementation problems of the system. The scarce literature on the shifted deductible is also incorporated in this chapter. Furthermore an example is given of a U.S. health insurance system that shows similarities with the proposed shifted deductible system.

4.1 Traditional versus shifted deductible

The current mandatory deductible for the Dutch health insurance was introduced in January 2008. This traditional deductible system is in place for the first incurred €220 of healthcare costs.[1] The first €220 of healthcare costs are paid by patients themselves. When this level is reached the health insurance company takes over and pays for all care that is covered within the benefit package. Especially chronically ill, disabled and elderly individuals are prone to pay the full deductible amount every year. The price sensitivity of a patient is negatively correlated with the probability of having to pay the full mandatory deductible amount, ceteris paribus (Van Kleef et al., 2009). This leads to moral hazard issues because these vulnerable groups do not have any incentive to reduce or control their health care costs, as they already pay the full deductible amount every year.
Another issue, which is covered in the previous chapter, is the equality between healthy and chronically ill/disabled individuals. Pre-existing conditions force chronically ill and disabled individuals to make extensive use of medical services. Compared to healthy individuals chronically ill and disabled individuals are therefore financially punished for their pre-existing condition.

The solution for these issues can be the introduction of a shifted deductible. The shifted deductible does not start at zero health care costs but at zero + β health care costs. The β can be determined by specific patient characteristics. Take for example patients with the same chronic disease who average a yearly health care expenditure of €3,000. This average health care expenditure can be used as the β for this group.[2] Patients of this group will now encounter a shifted deductible amount when they exceed €3,000 of health care expenses. When the full deductible amount is paid at €3,220 the health insurance company takes over again. Chronically ill patients now have the same financial incentive as healthy individuals to control or even reduce their health care utilisation, and the risk of moral hazard is drastically reduced. To increase the effect of the shifted deductible the study of Van Kleef et al. (2009) suggests to select a β in such a way that the uncertainty regarding the out of pocket expenses is

[1] Based on data for 2012. Some forms of medical services are excluded from the deductible, these can be found in chapter 3.2 of this study
[2] For equality reasons it is advised to incorporate the yearly average deductible payment of healthy individuals into the β calculation. The average deductible payment of healthy individuals should be subtracted from the average healthcare expenditure from a certain chronic disease in order to determine a correct β. This will assure an equal starting point for both healthy and chronically ill individuals.

maximized. For extensive health care users with a traditional deductible the uncertainty of the expected out of pocket costs is very low. This group expects to pay the full deductible each year when the deductible starts at zero health care costs. Extensive health care users will only respond to the financial incentive of a shifted deductible when the uncertainty of the expected out of pocket costs is high. Therefore β must be chosen in such a way that extensive health care users can influence their deductible payment by preventing unnecessary use of medical services.

4.2 Implementation

The success of the shifted deductible concept depends on multiple variables. The introduction of a shifted deductible system will require a comprehensive database that contains patient characteristics and can calculate average health care costs based on these characteristics. In the Netherlands the governmental organisation CAK (*Centraal Administratie Kantoor)* is currently responsible for the execution of the different financial compensation programs for extensive health care users. As a result the necessary data collection systems required for a shifted deductible implementation are already in place.

The knowledge about the application and functioning of the deductible is also a key element that will determine the success of the shifted deductible system. Without this knowledge patients cannot behave accordingly to the financial incentives.

However, the most important aspect that determines the success of the shifted deductible is the patient behavior. This is reflected in the research question of this study: *'Will patients who make extensive use of health care respond to the financial incentive of a shifted health insurance deductible?'*. In case extensive health care users do not respond to the financial incentive of a shifted deductible the introduction of this system will be redundant.

An often-used argument against the implementation of the shifted deductible is the fact that the deductible loses its function to shift part of the healthcare costs to the users. In other words, in such a system extensive health care users would pay less for the their own health care and their costs would be transferred to the community. This argument does not take into account the moral hazard reducing effect, which can potentially control or even reduce the total healthcare costs. Another important counterargument is the fact that extensive care users are already (partially) compensated for their additional health care costs compared to healthy individuals, so the reduction of paid deductibles can never be substantial. But even if extensive care users would pay less for their health care due to the shifted deductible Van de Ven & Schut (2010) argue that this would leave room for a bigger deductible amount without increasing the total payment burden for patients, while decreasing the risk of moral hazard even more.

4.3 The doughnut hole in the United States

The concept of the shifted deductible shows similarities with the so-called 'Medicare doughnut hole'. The 'Medicare doughnut hole' is part of the United States Medicare[3] Medical Part D Prescription Drug Program and is officially called the coverage gap. Patients covered by Medicare have a traditional deductible until $320 for prescription drugs. After this deductible is fully paid the patients co-pay 25% of drugs covered by the benefit package.[4] When the coverage limit of $2,930 on drug expenses is reached, the coverage gap (doughnut hole) starts for the next $3,727.50 drug expenses. All drug expenses in this coverage gap are 100% paid by the patient. After the coverage gap is fully paid by the patient Medicare again takes over and pays 95% of the drug expenses that are covered within the benefit package. Zhang et al. (2009) showed that patients who reached the 'doughnut hole' reduced their use of drugs with 14%, which supports the idea that moral hazard is reduced with similar systems. This emphasises the cost saving potential of the shifted deductible.

Compared to the proposed concept of the shifted deductible in this study there is however one major difference, the starting point of the doughnut hole is fixed for everyone and based on the mean spending of all health insured individuals (Rosenthal, 2004). This limits the flexibility, and therefore effectiveness, of the 'doughnut hole' system.

[3] Medicare is a U.S. social insurance program, it provides health insurance for all people aged over 65, younger people with certain disabilities and patients with end-stage renal disease

[4] Information on the 2012 Medicare Medical Part D Prescription Drug Program program is obtained from www.medicare.gov

CHAPTER 5 - Data

This chapter will elaborate on the process of data collection. It shows what data is collected and how the questionnaire was conducted. The sample characteristics will also be discussed.

5.1 Questionnaire format

In order to acquire correct and sufficient data to answer the research question of this study a questionnaire survey was conducted. The questionnaire is split into two different parts. The first part focuses on characteristics of the participant and his knowledge about the deductible. The second part focuses on the participant behavior towards the financial incentive of the deductible. The original Dutch questionnaire can be found in appendix A. This version is translated into English in appendix B.

The first question of the questionnaire is used to indicate if someone is an extensive healthcare user: *'Did you have to pay the full mandatory deductible of your health insurance the past 2 years? (Regardless whether you received compensation)',* with answer options yes/no/don't know.
In order to keep the selection criteria for extensive health care users objective the focus is on the mandatory deductible that is paid over the past two years. In case a participant has paid the full mandatory health insurance deductible in the past two years he will be indicated as an extensive health care user. The period of two years is chosen because people might have trouble remembering if they were asked for an even longer period. And a period of one year is too short to determine whether someone is an extensive care user, one temporary health issue can easily lead to a complete mandatory deductible payment in one year. Participants who did not pay the full mandatory deductible in the past two years are indicated as healthy individuals. Participants that do not know this information will be indicated as unspecified individuals.
Questions 2, 3 and 4 are used to describe the sample. Questions 2 and 3 determine gender and age. Question 4 determines level of education, with answer options Secondary Education/ Vocational Education/ University of Professional Education/ University of Science/ None of above.
Question 5 is focused on the knowledge about the current level of mandatory deductible for health care: *'What is the mandatory deductible in healthcare this year? (2012)'*. The answer options are €150/€170/€220/€350/don't know.
All numerical options are not randomly selected. With the introduction of the deductible in 2008 the mandatory level was set at €150. This amount gradually increased to €170 in 2011. For 2012 the amount was set at €220 and during the process of this study the amount for 2013 was officially announced to be €350.

Question 6 makes a distinction between the eight main forms of care that are covered with the basic health insurance package: general practitioner, general practitioner during nights/weekends, prescription medicine, maternity- and obstetrician care, hospital care, emergency room hospital, population screening and the flu shot for risk groups. For every form of care the participant has to indicate if the mandatory deductible applies or indicate that he does not know. The goal of this question is to test the knowledge about the application of the mandatory deductible.
Question 7 inquires on how the level of used deductible is communicated between participants and health insurance companies: *'How do you receive information about the amount of mandatory deductible that you used?'*. The answer options are letter or email correspondence with the health insurance company/ by phone contact with the health insurance company/ from the website of the health insurance company/ I don't know.

Part two of the questionnaire consists of two sets of questions. The first set of three questions is intended to explore the participant behavior towards the deductible in case of a moderate health issue. Question 8 states: *'Suppose you encounter a new medical problem that is not related to earlier or existing problems.*
The consequences of this medical problem are:

- *moderate pain or discomfort*
- *moderate problems with performing activities of daily living*

A visit to the physician is free of charge. How long are you willing to wait and see how the problem progresses before visiting a physician?'. The possible answer are I will visit the physician immediately/ I will visit the physician after 1 week/ I will visit the physician after 2 weeks/ I will visit the physician after 3 weeks/ I will not visit a physician.
This setup is selected to study the behavior of participants towards the deductible. It studies how long participants are willing to postpone a physician consult in order to see if the health issue will disappear without interference. This question uses two aspects of the commonly used EQ-5D health outcome measure to describe the moderate health problem. In this case a physician visit is free and the participant has to indicate how long he is willing to wait and see the progress of his problem before visiting the physician.
The next question (number 9) is exactly the same except now the physician visit will require a deductible payment of €150. Question 10 is again the same but raises the deductible payment to € 300. The structure from zero to €150 to €300 is chosen for its linear characteristic and is also realistic. In 2008 the mandatory deductible level started with €150, in 2012 it was €220 and in 2013 it will be €350. We can put these amounts into perspective with the prices for outpatient care. For example the first consult for migraine problems will cost €207.89 and the first outpatient treatment or examination

of migraine costs €465.74.[5] This shows that it is realistic that a patient has to pay the full deductible for consultation and treatment of only one medical problem.

The second set of questions uses a more severe health state, question 11: *'Suppose you encounter a new medical problem that is not related to earlier or existing problems.*
The consequences of this medical problem are:

- *moderate problems with walking*
- *extreme pain or discomfort*
- *extreme problems with performing activities of daily living*

A visit to the physician is free of charge. How long are you willing to wait and see how the problem progresses before visiting a physician?'. The answer options are I will visit the physician immediately/ I will visit the physician after 1 week/ I will visit the physician after 2 weeks/ I will visit the physician after 3 weeks/ I will not visit a physician.
This question uses three aspects of the EQ-5D health outcome measure to describe the extreme health problem.
Question 12 is exactly the same but requires a deductible payment of €150, for question thirteen this amount is €300. This progression matches the first set of questions with moderate health problems. This makes the behavior of participants regarding the deductible payment in case of moderate and extreme health problems comparable. This distinction is important to study because a well-known (political) argument against introducing or raising deductibles is evasive behavior towards necessary care.

5.2 Data collection

A survey process is used to collect the necessary data. All participants were under the supervision of the researcher to prevent biased results. This method is required to prevent people from looking up answers for the first part of the questionnaire, which tests the knowledge of the deductible. Most participants filled out the questionnaire by themselves. Some participants were assisted in filling out the questionnaire. This assistance varied from explaining questions to reading all questions for participants who where unable to perform this task themselves.
The target of the study is to get at least one hundred participants, half of them healthy individuals and the other half extensive health care users. The participants are randomly selected at a medical treatment centre, Erasmus University, a student association, a convenient peer group and a community service association.

[5] Based on the 2012 DOT pricing of the negotiable B-segment care of the Bernhoven hospital. http://www.bernhoven.nl/Tarieven_DBCs

5.3 Sample

The sample consists of 127 participants. Of this group 57 persons did not pay the full mandatory deductible in the past two years, 58 have paid the full mandatory deductible in the past two years and 12 did not know this information. The total group is divided in 86 males and 41 females. The mean age is 44.7 with a median of 47, the age distribution among the sample is showed in figure 5.1. The spread of education level is shown in table 5.1.

Figure 5.1 Age distribution sample

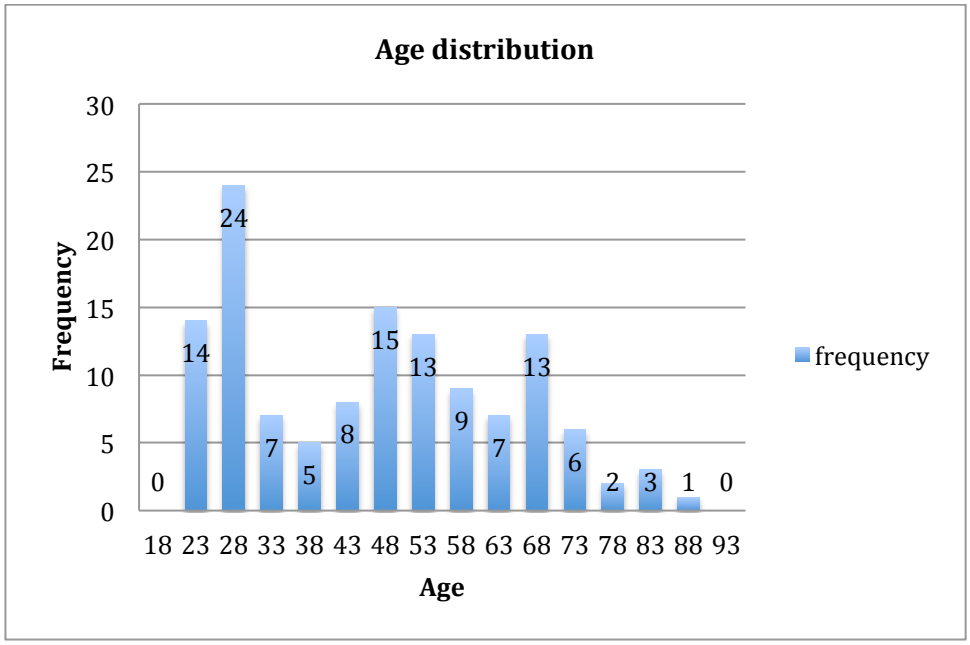


Table 5.1 Education level sample

Education	**Number of individuals**	**Percentage of total sample**
Secondary Education	11	8.66
Vocational Education	20	15.75
University of Professional Education	45	35.43
University of Science	49	38.58
None of above	2	1.57
Total	***N=127***	***100%***

CHAPTER 6 - Methods and results

This chapter will analyse the knowledge of participants on the functioning and characteristics of the deductible, this knowledge is crucial for the proper functioning of a deductible system. This chapter will also study the behavior of both healthy individuals and extensive care users towards the health insurance deductible.

6.1 General knowledge on the deductible

The most important function of the health insurance deductible is the reduction of moral hazard. Proper functioning of the deductible requires adequate ex-ante knowledge about the deductible. In this research the ex-ante knowledge on the deductible is studied. Participants were asked to indicate the correct mandatory deductible that was set for 2012, the results are shown in figure 6.1a. Of the total sample 54% chose the correct answer, €220. Almost a quarter of the sample did not know this information. This disappointing result is remarkable as the media extensively covered the deductible subject during the period in which this questionnaire was conducted. The extensive media coverage was caused by the announcement that the deductible level for 2013 will be €350. Figure 6.1b shows that 64% of the extensive health care users, participants that paid the full mandatory health insurance deductible in the past two years, knew the 2012 deductible level. From the healthy individuals, participants that did not pay the full mandatory health insurance deductible in the past two years, 54% answered this question correctly. The reason for this difference is most likely due to the fact that extensive health care users are more often confronted with the deductible.

Figure 6.1a Deductible 2012 results questionnaire

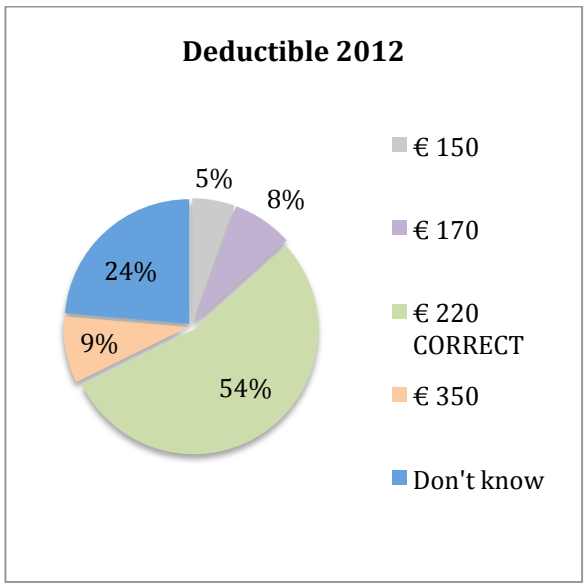
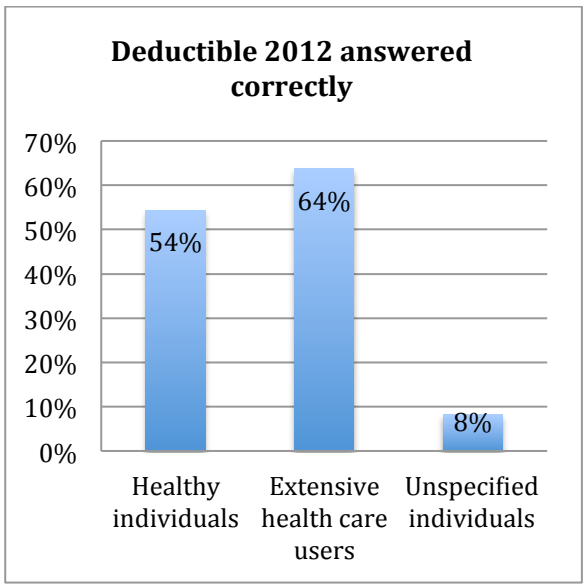


Figure 6.1b Deductible 2012 answered correctly



From all aspects of the deductible the highest percentage of correct answers was scored with the question whether the deductible applies to general practitioner care. The deductible does not apply to general practitioner care and 63% gave the correct answer, figure 6.2a shows the results. Figure 6.2 b shows that 71% of extensive health care users had the correct answer, for the healthy individuals this is 63%. The most obvious explanation for this overall high score is that the general practitioner acts as a gatekeeper in the Dutch healthcare system. If an individual encounters health related issues the first contact will always be with the general practitioner. Noteworthy is the fact that one general practitioner who participated in this research assumed that the mandatory deductible did apply to general practitioner care.

Figure 6.2a General Practitioner results questionnaire

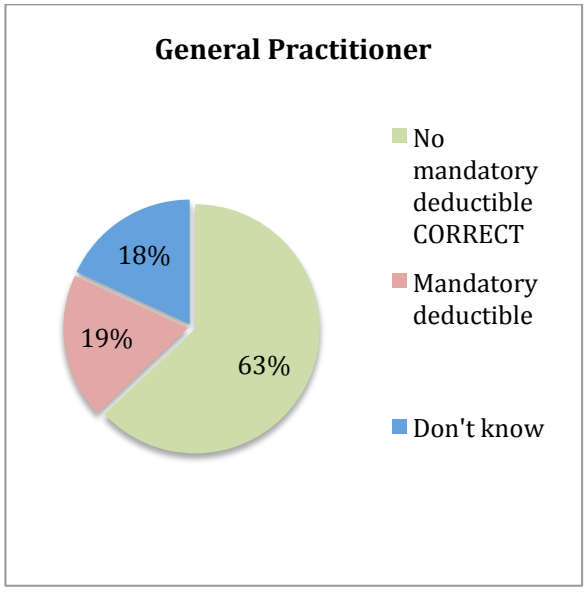
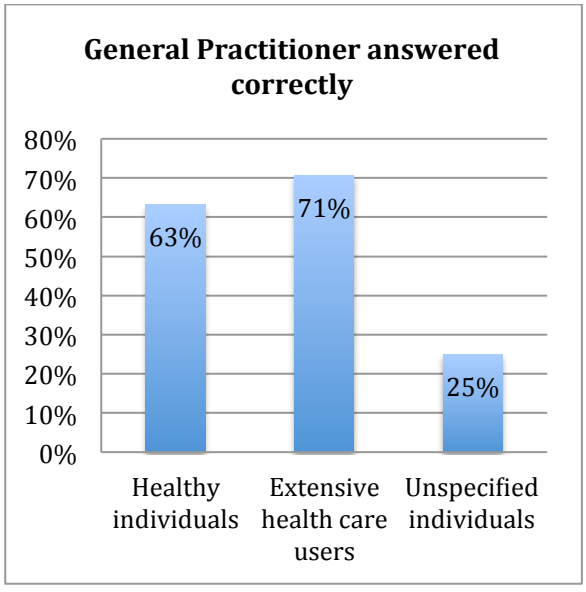


Figure 6.2b General Practitioner answered correctly



The general practitioners can also be consulted during nights or weekends in case of emergency. The mandatory deductible does not apply for this form of care. Figure 6.3a shows that 45% is aware of this and 23% does not know. With 32%, this question scored the highest level of wrong answers. When we focus at the subgroup of healthy individuals only 40% know that the deductible does not apply (figure 6.3b). Compared to the knowledge on other aspects of the deductible this is the lowest score for this subgroup.

Of the total sample 61% knows that the mandatory deductible applies to the use of medication; 17% thinks that the mandatory deductible does not apply and 22% does not know (Figure 6.4a). The subgroup of extensive care users score their highest overall score on this subject, from this group 76% is aware that the deductible applies to medication (Figure 6.4b). This knowledge is most likely based on experience, as this group is prone to frequently use medication. Amongst healthy individuals only 54% answered this question correctly.

Figure 6.3a General Practitioner nights/ weekends results questionnaire

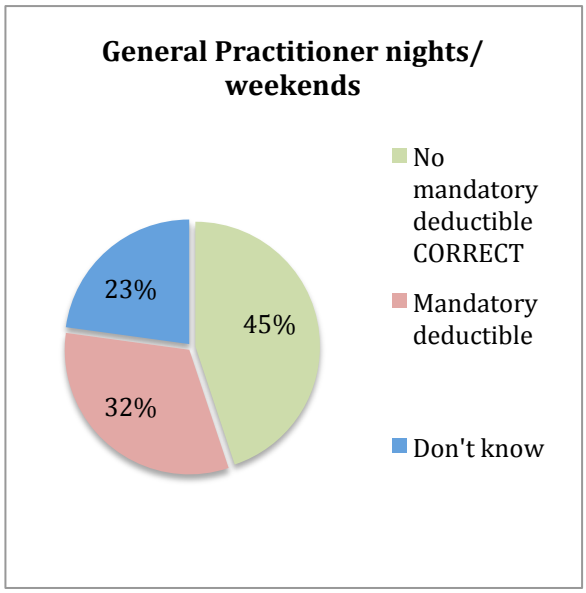


Figure 6.3b General Practitioner nights/ weekends answered correctly

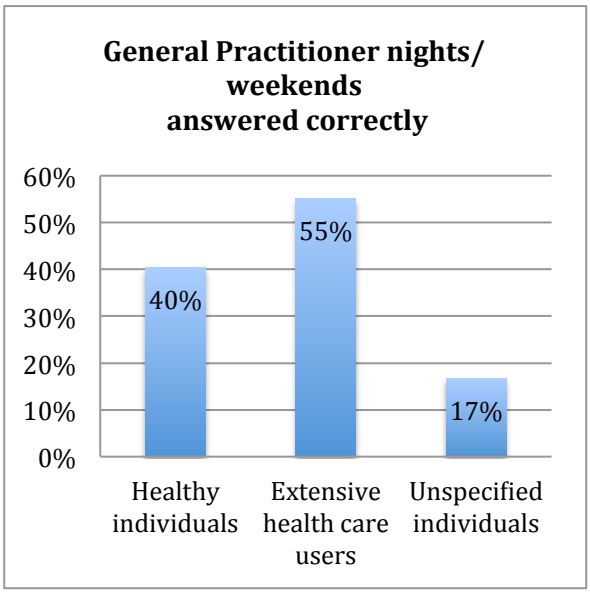


Figure 6.4a Medication results questionnaire

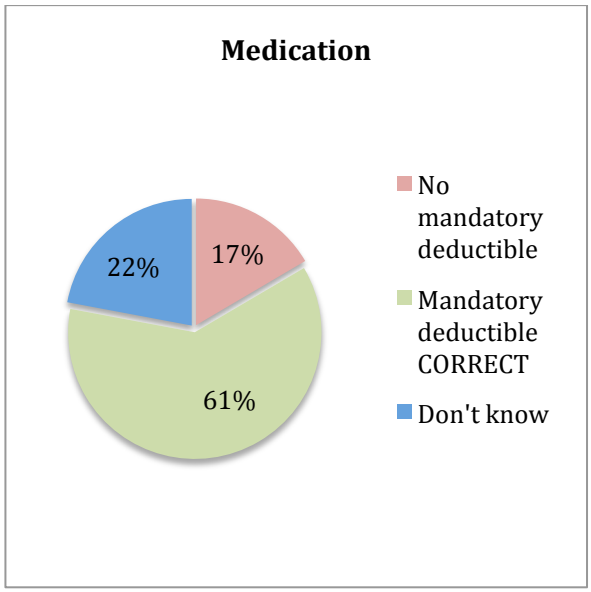
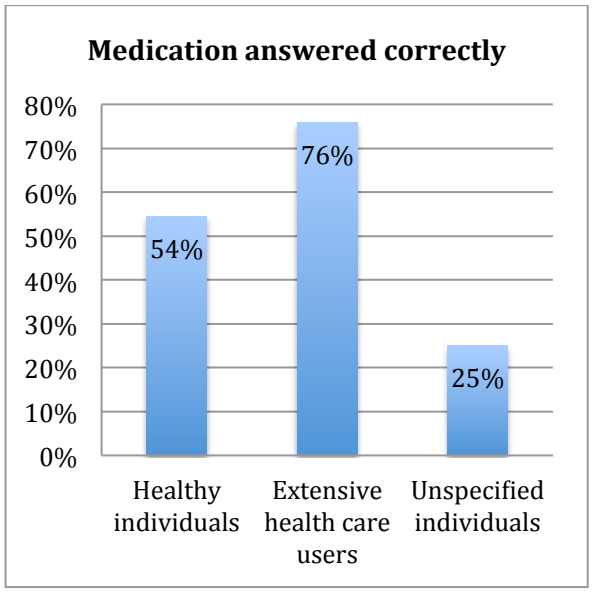


Figure 6.4b Medication answered correctly



Only 38% knows that the mandatory deductible does not apply to maternity and obstetric care. The knowledge on this subject is the poorest of all (Figure 6.5a). Also 46% of the sample indicates that they do not know this. This is probably due to the fact that only a select part of the sample is confronted with this care in recent years. Figure 6.4b shows that a total of 71% of extensive care users know this information; for healthy individuals this is 47%.

Figure 6.5a Maternity and Obstetric care results questionnaire

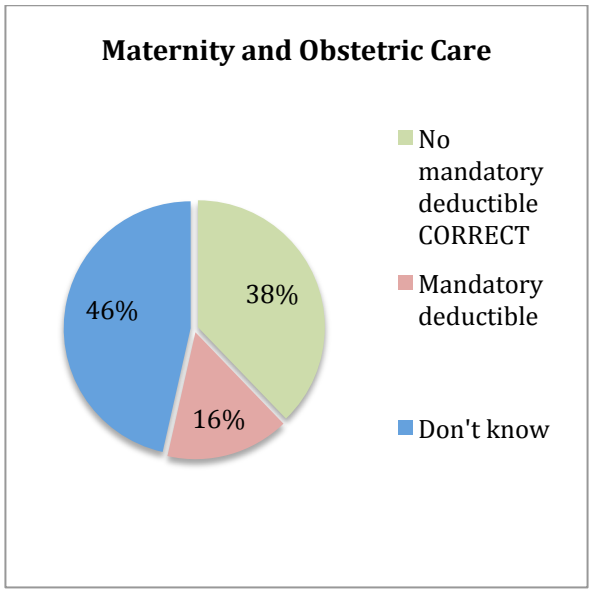
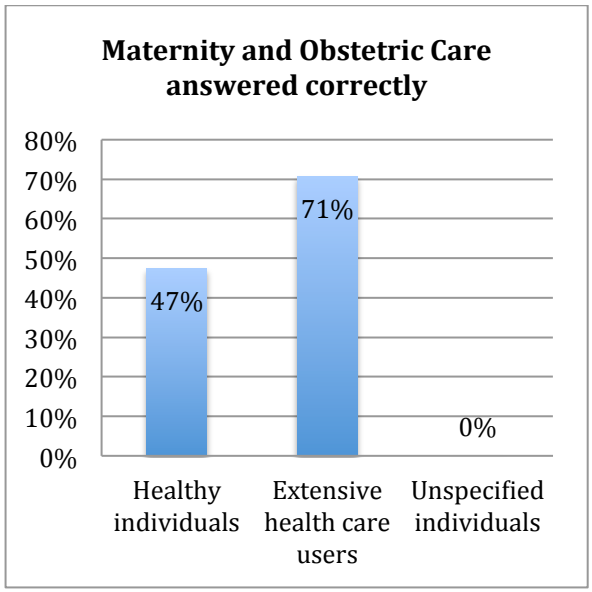


Figure 6.5b Maternity and Obstetric care answered correctly



With 48%, almost half of the sample is aware that the mandatory deductible applies to hospital care (Figure 6.6a); 24% indicate that they do not know this. Figure 6.6b shows that among extensive care users 55% know this; for healthy individuals this is 46% .

Figure 6.6a Hospital results questionnaire

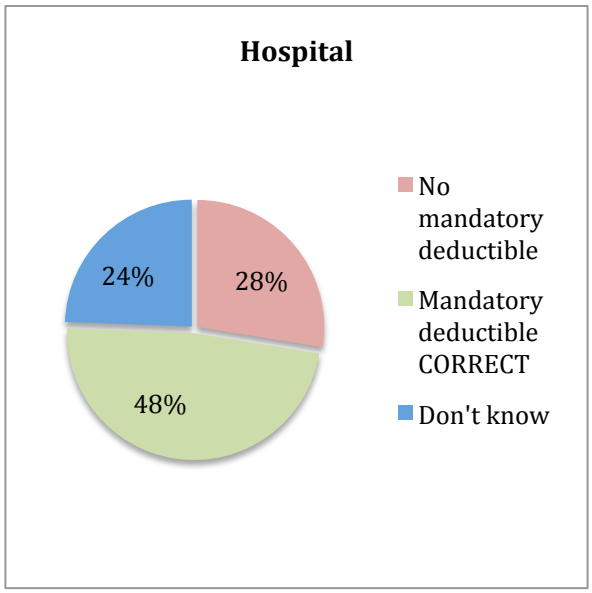
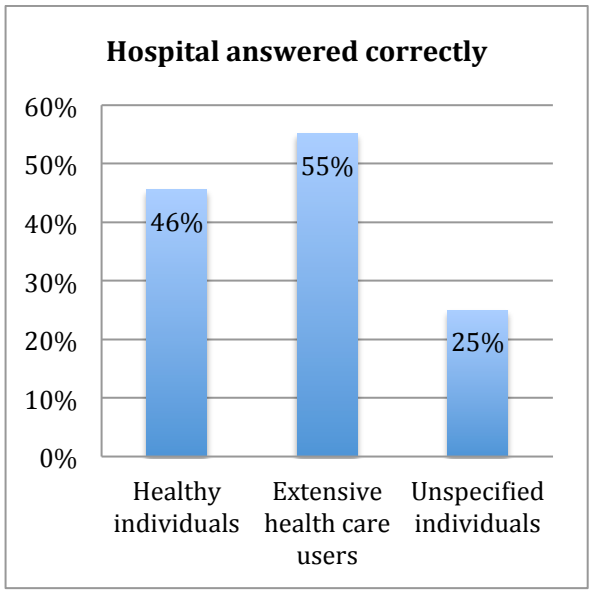


Figure 6.6b Hospital answered correctly



The mandatory deductible also applies to emergency room care, 49% is aware of this, whereas 29% does not know this (Figure 6.7a). When we look at the subgroups 46% of healthy individuals know this compared to 55% of extensive care users.

Figure 6.7a Emergency Room results questionnaire

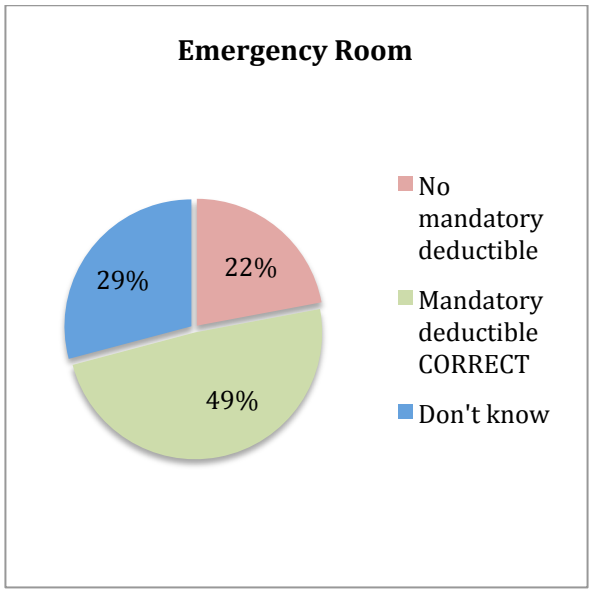
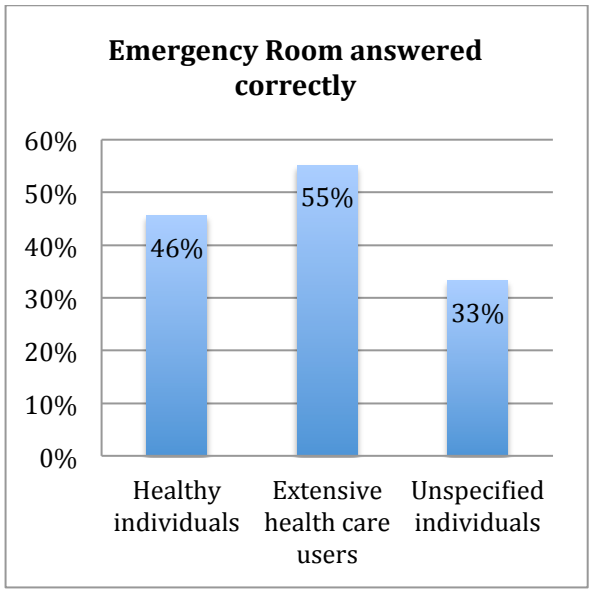


Figure 6.7b Emergency Room answered correctly



For population screening, such as breast cancer screening, the mandatory deductible does not apply. Figure 6.8a shows that 55% of the sample knows this and 37% indicates that they do not know this. This is the only subject where the subgroup of healthy individuals outperforms the extensive care users. Figure 6.8b shows that 61% of healthy individuals know this compared to 53% of extensive care users.

Figure 6.8a Population Screening results questionnaire

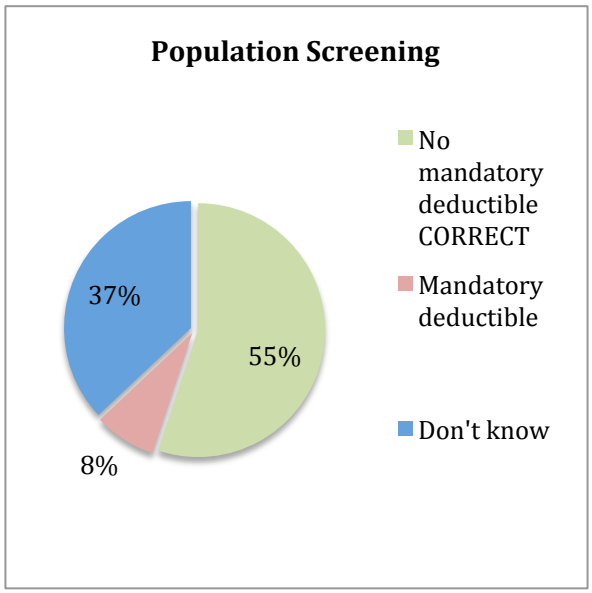
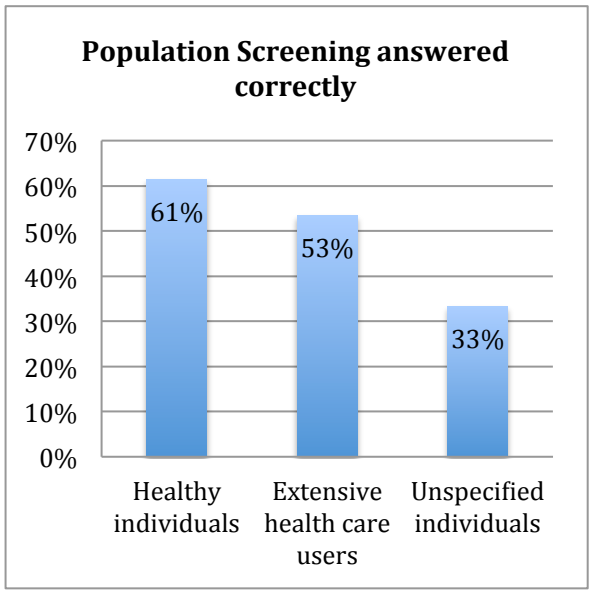


Figure 6.8b Population Screening answered correctly



The Flu Shot for risk groups is not subject to the mandatory deductible, 48% of the sample knows this; where as 35% does not (Figure 6.9a). Figure 6.9b shows that 59% of extensive care users know this compared to 44% of healthy individuals.

Figure 6.9a Flu Shot Risk Groups results questionnaire

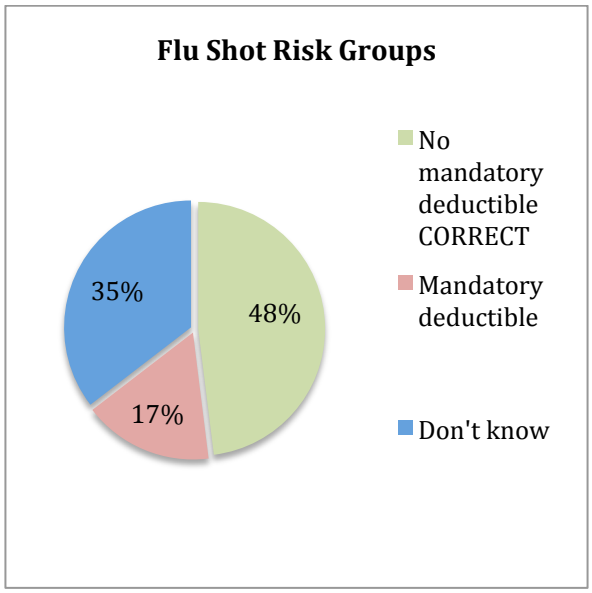
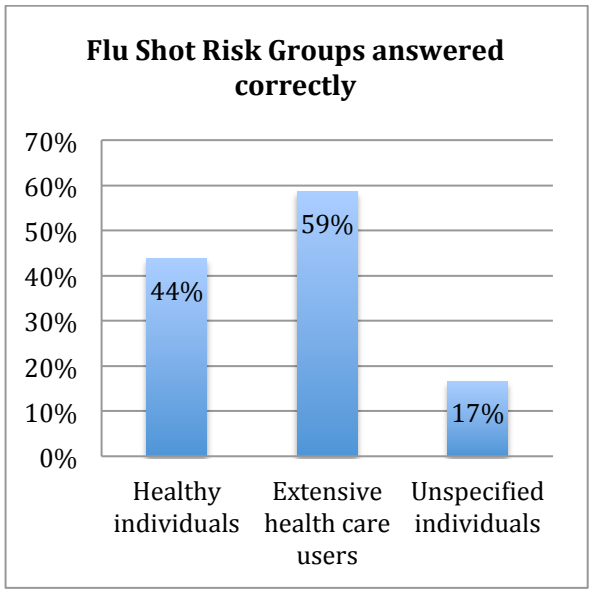


Figure 6.9b Flu Shot Risk Groups answered correctly



Only five participants, which equals approximately 4% of the sample, knew all the facts of the deductible. Four individuals of this selection are extensive healthcare users. Among the sample were several medical professionals who did not exactly know when the mandatory deductible applies.

This study shows that the knowledge on the deductible is poor, these findings correspond with the studies from Van der Maat & De Jong (2010) and Oortwijn et al. (2011). The knowledge that people have seems mainly based on experience, derived from the fact that extensive care users have better knowledge on the application and functioning of the mandatory deductible compared to healthy individuals.

Not only the shifted deductible, but also the current traditional deductible would be more effective in reducing moral hazard if the knowledge on the deductible of the general public is higher. The government and health insurance companies must prioritise this problem and improve the knowledge of the general public. In terms of cost saving much can be gained from better public awareness.

6.2 Behavior regarding the deductible

The proposed shifted deductible system will only be effective if extensive health care users respond to the introduced financial incentive. In this chapter the behavior of extensive health care users and healthy individuals is studied and compared.

Before analysing the data several observations were excluded to prevent biased results. Some participants responded that they would visit the physician earlier when it would be more expensive,

ceteris paribus. This is a clear indication that the participant did not read the question properly and therefore this particular data can bias the results. In case of the proposed moderate health issue (questions 8, 9 and 10) four participants were excluded for this reason. With the proposed extreme health issue (questions 11, 12 and 13) nine participants were excluded for this reason.
Data from four participants is excluded because they were younger than 20 years old. They are not exposed to the full mandatory deductible for at least two years, which makes it impossible to indicate them as a healthy individual or an extensive health care user.
Furthermore the dataset contains 12 individuals that did not know if they paid the full mandatory deductible in the past two years. This makes it impossible to indicate them as healthy individuals or extensive health care users. Therefore the data from these individuals is also excluded.

In the questionnaire participants were asked to indicate how many weeks they were willing to postpone a physician consultation with different health issues and different deductible levels. The answer options are: immediately visit a physician/ postpone 1 week/ postpone 2 weeks/ postpone 3 weeks/ do not visit a physician. This last answer option makes it difficult to interpret the results numerically. For the interpretation of results this study will indicate this last option as a four week waiting time. This assures that all estimations of waiting time will be rather conservative.

Table 6.1 shows how healthy and extensive health care users respond to the different deductible levels. The rows make a distinction between healthy and extensive health care users and indicates if the proposed health issue is moderate or extreme. The columns make a distinction between the three proposed deductible levels. The values indicate the average waiting time in weeks before a physician will be consulted.

Table 6.1 Postponement behavior regarding the deductible
The values indicate the average waiting time in weeks before a physician will be consulted.

	Average waiting time in weeks deductible €0	Average waiting time in weeks deductible €150	Average waiting time in weeks deductible €300
Healthy individual, moderate health issue	2.02	2.40	2.75
Extensive care user, moderate health issue	2.00	2.27	2.45
Healthy individual, extreme health issue	0.60	0.76	0.98
Extensive care user, extreme health issue	0.45	0.48	0.59

A Wilcoxon signed-rank test shows that for healthy individuals with a moderate health issue the differences in waiting time between the different deductible levels €0-€150, €150-300 and €0-€300 are all significant at a 5% level. For healthy individuals with an extreme health issue the differences in waiting time between all these different deductible levels are also significant at a 5% level.
A Wilcoxon signed-rank test shows that the waiting time for extensive health care users with a moderate health issue also differs significant between the different deductible levels €0-€150, €150-€300 and €0-€300 at a 5% level. The differences in waiting time for all these different deductible levels is also significant at a 5% level in case of an extensive health care user with an extreme health issue.
This shows that in case of a moderate health issue both healthy individuals and extensive care users postpone their physician visit when the deductible increases. In case of an extreme health issue both groups also postpone their physician visit when the deductible increases. This evidence is important as it shows that extensive care users will respond to the financial incentive that is imposed with a shifted deductible system.

It is also important to investigate whether the health issue itself plays a role in the postponement of a physician visit. For each group combined with a fixed deductible level the difference in waiting time was tested between a moderate and an extreme health issue. The Wilcoxon signed-rank test is used for these tests. For healthy individuals the response between a moderate health issue and an extreme health issue differs significantly at a 5% level for all three deductible levels that were tested separately. For extensive health care users the difference in response between a moderate health issue and an extreme health issue is also significant at a 5% level for all three deductible levels that were tested separately.
This is an important finding because table 6.1 shows that in case of an extreme health issue all individuals will visit a physician earlier. This invalidates the commonly used argument that a (shifted) deductible would result in a deprivation of necessary healthcare.

By using a Wilcoxon rank-sum test the difference in postponement behavior between healthy individuals and extensive health care users is tested in case they encounter the same health issue combined with the same deductible level.
With a moderate health issue and a €0 deductible the difference in response between healthy individuals and extensive health care users is not significant at a 5% level. When the deductible is raised to €150 in case of a moderate health issue both groups do not show a significant difference in response at a 5% level, the same holds if the deductible is raised to €300.
When the Wilcoxon rank-sum is used to test the difference for healthy individuals and extensive health care users in case of an extreme health issue combined with a deductible of €0 the waiting time does not differ significantly at a 5% level. The difference in waiting time is also not significant at a 5%

level in case of an extreme health issue combined with a €150 deductible. Only when the extreme health issue is combined with a €300 deductible the difference in waiting time between both groups is significant at a 5% level.

6.3 Response difference healthy individuals and extensive health care users

In order to test if there is an overall response difference between healthy individuals and extensive care users two new variables are created that capture the total behavior effect for each individual. The variable that captures the behavior in case of a moderate health issue is defined by:
(weeks waiting in case of deductible €150 – weeks waiting in case of no deductible) + (weeks waiting in case of deductible €300 – weeks waiting in case of no deductible)

The variable that captures the behavior in case of an extreme health issue is conducted by:
(weeks waiting in case of deductible €150 – weeks waiting in case of no deductible) + (weeks waiting in case of deductible €300 – weeks waiting in case of no deductible)

The Wilcoxon rank-sum test is used to study the overall response difference between healthy individuals and extensive care users.
Table 6.2 shows the test results for the overall response difference between both groups in case of a moderate health issue. The results show that that the difference in distribution of the response towards the deductible between healthy people and extensive health care users is statistically significant in case of a moderate health issue. The healthy individuals respond more to the financial incentive of the deductible.

Table 6.2 Moderate health issue group difference

Two-sample Wilcoxon rank-sum (Mann-Whitney) test			
	Observations	Rank sum	Expected
Healthy individual	52	3208.5	2834
Extensive health care user	56	2677.5	3052
Combined	108	5886	5886
H_0: moderate effect(healthy) = moderate effect(extensive health care user)			
Prob > |z| = 0.0098			

The same test is conducted in case of an extreme health issue. Table 6.3 shows that that the difference in distribution of the response towards the deductible between healthy people and extensive health care users is statistically significant in case of an extreme health issue. The healthy individuals respond more to the financial incentive of the deductible.

Table 6.3 Extreme health issue group difference

Two-sample Wilcoxon rank-sum (Mann-Whitney) test			
	Observations	Rank sum	Expected
Healthy individual	50	2905.5	2675
Extensive health care user	56	2765.5	2996
Combined	106	5671	5671
H_0: extreme effect(healthy) = extreme effect(extensive health care user)			
Prob > |z| = 0.0358			

CHAPTER 7 - Discussion

The results of this study show that extensive health care users respond to the financial incentive of a shifted deductible. Compared to healthy individuals with a traditional deductible the response is however smaller. It would be interesting to further investigate the underlying cause for this observation. It can be hypothesised that a different psychological barrier to visit a physician causes this difference. For extensive health care users this barrier could be lower as they already visit physicians more frequently.

For future research it is advised to increase the sample size in order to achieve a higher reliability. From the sample used for this study 75% has a high education level, this does not reflect the general population and can bias the results. Although, it must be noted that it probably led to conservative results in this study. It can be hypothesised that a more education-balanced sample will result in lower general knowledge on the deductible and a higher response towards financial incentives, due to lower income levels. Therefore it is also advised to add an income variable in future research to see how income affects the choices individuals make regarding the deductible.
Also the selection criteria for an extensive health care user can be more specified if data on medical indication and health care costs were incorporated. This would increase the reliability of the selection process of extensive health care users.
In this research stated preferences are used to study the behavior of the sample. It would be interesting to study the actual behavior when a shifted deductible system is imposed for extensive health care users.

The Dutch health insurance scheme also has a voluntary deductible option. With this option individuals can increase their deductible in exchange for a lower health insurance premium. Only 5-6% of the health insured individuals currently opt for voluntary deductible, most of them young and healthy individuals (NZA, 2011). The shifted deductible creates the same opportunity for extensive health care users. The effect of this new opportunity for extensive health care users should be studied in future research.

This study has mainly focused on the behavior of extensive health care users towards the financial incentive of a shifted deductible. A comprehensive cost-benefit analysis is necessary to study the feasibility of the shifted deductible. This will require randomised controlled trials to evaluate the actual savings of this system. And also the implementation and maintenance costs of the shifted deductible need further investigation.

CHAPTER 8 - Conclusion

The shifted deductible for extensive health care users is a great concept with an enormous potential to save healthcare costs. With the traditional deductible system this group is almost certain to pay the full mandatory deductible each year, which causes moral hazard problems. The shifted starting point of the deductible introduces a new financial incentive for extensive health care users to control their health care costs and reduce the use of unnecessary care.

The knowledge amongst the general public on the functioning of the health insurance deductible will determine the success of the proposed shifted deductible. This study shows that the general knowledge on the functioning of the deductible is poor. Only 54% know what the mandatory deductible level is. Per medical service on average only half of the participants knew whether the deductible applied. Only 4% of the sample had full knowledge on the level and functioning of the deductible. It is evident that much can be gained from increasing the knowledge amongst the general public on this subject. In order to accomplish the optimal moral hazard reducing effect adequate ex-ante knowledge is required.

The existing literature on the shifted deductible is scarce. The main study in this area is performed by Van Kleef et al. (2009). They have focused on the theory of the shifted deductible and used existing health insurance data to determine the correct starting point and bandwidth of the shifted deductible. The actual response of extensive health care users towards the shifted deductible is not incorporated in the existing literature, while this is the main determinant of the success of this proposed system.
This study adds a new dimension to this research area because it shows that extensive health care users respond to the financial incentive of a shifted health insurance deductible. However, extensive health care users do not respond to the same extent as healthy individuals to a deductible. The overall response of healthy individuals towards the financial incentive of the deductible is bigger.

The results also showed that in case of an extreme health issue extensive care users on average will visit a physician almost five times quicker compared to a moderate health issue. Healthy individuals will visit a physician on average three times quicker with an extreme health issue compared to a moderate health issue. This finding is important because it shows that the introduction of a shifted deductible will not result in avoidance of essential health care.

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APPENDIX A – Questionnaire Dutch

Enquête: eigen risico in de zorg

Deze enquête is onderdeel van mijn masterscriptie aan de Erasmus Universiteit Rotterdam.

Deelname aan dit onderzoek is geheel anoniem.

Hartelijk dank voor uw medewerking,
Ralph Vroegop

Deel 1

1) Heeft u in de afgelopen 2 jaar het volledige verplicht eigen risico van uw zorgverzekering moeten betalen? (ongeacht of u compensatie hiervoor heeft ontvangen)

- □ Ja
- □ Nee
- □ Weet niet

2) Wat is uw geslacht?

- □ Man
- □ Vrouw

3) Wat is uw leeftijd?

[ ]

4) Wat is uw hoogst afgeronde opleiding?

- □ Middelbare school
- □ MBO
- □ HBO
- □ Universiteit
- □ Geen van hiervoor genoemde

5) Hoeveel bedraagt het verplicht eigen risico in de zorg dit jaar (2012)?

- □ €150
- □ €170
- □ €220
- □ €350
- □ Weet niet

6) Bij welke vormen van zorg is het verplicht eigen risico van toepassing?

Aankruisen wat juist is.

Zorgvorm	*Wel eigen risico*	*Geen eigen risico*	*Weet het niet*
Huisartsenzorg			
Huisartsenpost			
Voorgeschreven medicijnen			
Kraam/verloskundige zorg			
Ziekenhuiszorg			
Spoedeisende hulp ziekenhuis			
Bevolkingsonderzoeken zoals het borstkanker onderzoek			
Griepprik voor risico groepen			

7) Op welke manier krijgt u informatie over het tot nu toe verbruikte eigen risico?

- □ Brief of e-mail contact met de zorgverzekeraar
- □ Telefonisch contact met de zorgverzekeraar
- □ Website van de zorgverzekeraar
- □ Ik ben hiervan niet op de hoogte

Deel 2

Bij de vragen in dit deel van de enquête kunt u ervan uitgaan dat uw gezondheidstoestand hetzelfde is als nu, afgezien van de beschreven klacht.

8) Stel dat u een nieuw medisch probleem krijgt dat los staat van eventueel eerdere of bestaande aandoeningen.
De gevolgen van dit nieuwe medische probleem zijn als volgt:

- **matige pijn**
- **matige problemen met het uitvoeren van dagelijkse bezigheden**

Een bezoek aan de arts kost u niets. Hoeveel tijd bent u bereid om het verloop van uw klacht af te wachten alvorens een arts te bezoeken?

□ Ik ga direct naar een arts
□ Ik ga na 1 week naar een arts
□ Ik ga na 2 weken naar een arts
□ Ik ga na 3 weken naar een arts
□ Ik ga niet naar de arts

9) Stel dat u een nieuw medisch probleem krijgt dat los staat van eventueel eerdere of bestaande aandoeningen.
De gevolgen van dit nieuwe medische probleem zijn als volgt:

- **matige pijn**
- **matige problemen met het uitvoeren van dagelijkse bezigheden**

Indien u hiervoor een arts bezoekt en een behandeling zou ondergaan kost dit u €150,- eigen risico. Hoeveel tijd bent u bereid om het verloop van uw klacht af te wachten alvorens een arts te bezoeken?

□ Ik ga direct naar een arts
□ Ik ga na 1 week naar een arts
□ Ik ga na 2 weken naar een arts
□ Ik ga na 3 weken naar een arts
□ Ik ga niet naar de arts

10) Stel dat u een nieuw medisch probleem krijgt dat los staat van eventueel eerdere of bestaande aandoeningen.
De gevolgen van dit nieuwe medische probleem zijn als volgt:

- **matige pijn**
- **matige problemen met het uitvoeren van dagelijkse bezigheden**

Indien u hiervoor een arts bezoekt en een behandeling zou ondergaan kost dit u €300,- eigen risico. Hoeveel tijd bent u bereid om het verloop van uw klacht af te wachten alvorens een arts te bezoeken?

- □ Ik ga direct naar een arts
- □ Ik ga na 1 week naar een arts
- □ Ik ga na 2 weken naar een arts
- □ Ik ga na 3 weken naar een arts
- □ Ik ga niet naar de arts

11) Stel dat u een nieuw medisch probleem krijgt dat los staat van eventueel eerdere of bestaande aandoeningen.
De gevolgen van dit nieuwe medische probleem zijn als volgt:

- **matige problemen met rondlopen**
- **ernstige pijn**
- **ernstige problemen met het uitvoeren van dagelijkse bezigheden**

Een bezoek aan de arts kost u niets. Hoeveel tijd bent u bereid om het verloop van uw klacht af te wachten alvorens een arts te bezoeken?

- □ Ik ga direct naar een arts
- □ Ik ga na 1 week naar een arts
- □ Ik ga na 2 weken naar een arts
- □ Ik ga na 3 weken naar een arts
- □ Ik ga niet naar de arts

12) Stel dat u een nieuw medisch probleem krijgt dat los staat van eventueel eerdere of bestaande aandoeningen.
De gevolgen van dit nieuwe medische probleem zijn als volgt:

- **matige problemen met rondlopen**
- **ernstige pijn**
- **ernstige problemen met het uitvoeren van dagelijkse bezigheden**

Indien u hiervoor een arts bezoekt en een behandeling zou ondergaan kost dit u €150,- eigen risico. Hoeveel tijd bent u bereid om het verloop van uw klacht af te wachten alvorens een arts te bezoeken?

- □ Ik ga direct naar een arts
- □ Ik ga na 1 week naar een arts
- □ Ik ga na 2 weken naar een arts
- □ Ik ga na 3 weken naar een arts
- □ Ik ga niet naar de arts

13) Stel dat u een nieuw medisch probleem krijgt dat los staat van eventueel eerdere of bestaande aandoeningen.
De gevolgen van dit nieuwe medische probleem zijn als volgt:

- **matige problemen met rondlopen**
- **ernstige pijn**
- **ernstige problemen met het uitvoeren van dagelijkse bezigheden**

Indien u hiervoor een arts bezoekt en een behandeling zou ondergaan kost dit u €300,- eigen risico. Hoeveel tijd bent u bereid om het verloop van uw klacht af te wachten alvorens een arts te bezoeken?

- □ Ik ga direct naar een arts
- □ Ik ga na 1 week naar een arts
- □ Ik ga na 2 weken naar een arts
- □ Ik ga na 3 weken naar een arts
- □ Ik ga niet naar de arts

Einde van deze enquête.

Hartelijk dank voor uw deelname!

APPENDIX B – Questionnaire English

Questionnaire: the deductible in healthcare

This questionnaire is part of my master thesis at the Erasmus University Rotterdam.

Participation in this research is anonymous.

Thank you for your cooperation,
Ralph Vroegop

Part 1

1) Did you have to pay the full mandatory deductible of your health insurance the past 2 years? (Regardless whether you received compensation)

- □ Yes
- □ No
- □ Don't know

2) Sex

- □ Male
- □ Female

3) What is your age?

[ ]

4) What is your highest obtained schooling degree?

- □ Secondary Education
- □ Vocational Education
- □ University of Professional Education
- □ University of Science
- □ None of above

5) What is the mandatory deductible in healthcare this year? (2012)

- □ €150
- □ €170
- □ €220
- □ €350
- □ Don't know

6) For what forms of healthcare does the mandatory deductible apply?

Tick the correct answer.

Healthcare form	*Deductible applies*	*Deductible doesn't apply*	*Don't know*
General practitioner			
General practitioner during nights/weekends			
Prescription medicine			
Maternity- and obstetrician care			
Hospital care			
Emergency room hospital			
Population screening such as breast cancer screening			
Flushot for risk groups			

7) How do you receive information about the amount of mandatory deductible that you used?

- □ Letter or email correspondence with the health insurance company
- □ By phone contact with the health insurance company
- □ From the website of the health insurance company
- □ I don't know

Part 2

For the questions of this part of the questionnaire you must assume that your health condition is the same as your current situation, besides the describe health issue.

8) Suppose you encounter a new medical problem that is not related to earlier or existing problems.

The consequences of this medical problem are:

- **moderate pain or discomfort**
- **moderate problems with performing activities of daily living**

A visit to the physician is free of charge. How long are you willing to wait and see how the problem progresses before visiting a physician?

- □ I will visit the physician immediately
- □ I will visit the physician after 1 week
- □ I will visit the physician after 2 weeks
- □ I will visit the physician after 3 weeks
- □ I will not visit a physician

9) Suppose you encounter a new medical problem that is not related to earlier or existing problems.

The consequences of this medical problem are:

- **moderate pain or discomfort**
- **moderate problems with performing activities of daily living**

In case you would visit a physician and receive treatment you would have to pay a deductible amount of €150. How long are you willing to wait and see how the problem progresses before visiting a physician?

- □ I will visit the physician immediately
- □ I will visit the physician after 1 week
- □ I will visit the physician after 2 weeks
- □ I will visit the physician after 3 weeks
- □ I will not visit a physician

10) Suppose you encounter a new medical problem that is not related to earlier or existing problems.

The consequences of this medical problem are:

- **moderate pain or discomfort**
- **moderate problems with performing activities of daily living**

In case you would visit a physician and receive treatment you would have to pay a deductible amount of €300. How long are you willing to wait and see how the problem progresses before visiting a physician?

- □ I will visit the physician immediately
- □ I will visit the physician after 1 week
- □ I will visit the physician after 2 weeks
- □ I will visit the physician after 3 weeks
- □ I will not visit a physician

11) Suppose you encounter a new medical problem that is not related to earlier or existing problems.

The consequences of this medical problem are:

- **moderate problems with walking**
- **extreme pain or discomfort**
- **extreme problems with performing activities of daily living**

A visit to the physician is free of charge. How long are you willing to wait and see how the problem progresses before visiting a physician?

- □ I will visit the physician immediately
- □ I will visit the physician after 1 week
- □ I will visit the physician after 2 weeks
- □ I will visit the physician after 3 weeks
- □ I will not visit a physician

12) Suppose you encounter a new medical problem that is not related to earlier or existing problems.

The consequences of this medical problem are:

- **moderate problems with walking**
- **extreme pain or discomfort**
- **extreme problems with performing activities of daily living**

In case you would visit a physician and receive treatment you would have to pay a deductible amount of €150. How long are you willing to wait and see how the problem progresses before visiting a physician?

□ I will visit the physician immediately

□ I will visit the physician after 1 week

□ I will visit the physician after 2 weeks

□ I will visit the physician after 3 weeks

□ I will not visit a physician

13) Suppose you encounter a new medical problem that is not related to earlier or existing problems.

The consequences of this medical problem are:

- **moderate problems with walking**
- **extreme pain or discomfort**
- **extreme problems with performing activities of daily living**

In case you would visit a physician and receive treatment you would have to pay a deductible amount of €300. How long are you willing to wait and see how the problem progresses before visiting a physician?

□ I will visit the physician immediately

□ I will visit the physician after 1 week

□ I will visit the physician after 2 weeks

□ I will visit the physician after 3 weeks

□ I will not visit a physician

End of this questionnaire.

Thank you for your cooperation!